Mandena Community Radiation Study

QIT Madagascar Minerals

Report

JBS&G 57082 | 153,352

12 September 2023



We acknowledge the Traditional Custodians of Country throughout Australia and their connections to land, sea and community.

We pay respect to Elders past and present and in the spirit of reconciliation, we commit to working together for our shared future.



Caring for Country The Journey of JBS&G
Artist: Patrick Caruso, Eastern Arrernte

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Executive Summary

JBS&G Australia Pty Ltd (JBS&G) was engaged by Rio Tinto QIT Madagascar Minerals (QMM) to undertake an independent community radiation study at their Mandena mineral sands mine.

Context

The Mandena mine had been operating for over a decade at the commencement of this study, with historical radiation studies indicating that there would be a low potential for significant community radiation doses resulting from mining activities. Madagascan regulatory authorities oversee ongoing radiation monitoring, but due to the conclusions of these previous studies, limited environmental radiation data has been historically collected.

As a result of Rio Tinto's radiation expert's reviews, and increasing questions from external stakeholders, this study was initiated in an attempt to quantify the surrounding community member radiation doses from naturally occurring radioactive materials and any contribution from the decade plus of mining activities.

This study is one of the most comprehensive studies of its type ever undertaken and was completed over a period which included the height of the COVID-19 global pandemic. A total of 26 exposure pathways were investigated over a four-year (2019-2022) period. This involved collecting samples containing radionuclides within surface water, groundwater, soil, sediment, land foods, aquatic foods, air/dust, and undertaking targeted gamma surveys. In all, more than 160 composite samples (including 377 individual fish) were collected under strict quality control conditions. These samples were shipped to Australia and analysed in a world class radiochemistry laboratory (ANSTO) using a variety of highly specialised analytical techniques that were adapted to ensure reliable and precise data.

Key Findings

When discussing radiation dose levels, it is important to provide context to the reader to allay any potential misinterpretations leading to unnecessary fear or concern. The International Commission of Radiological Protection (ICRP 103) acknowledges that effects associated with radiation exposure are observable at doses greater than 100 mSv. Below 100 mSv in a year, ICRP adopts a linear non threshold approach for the increase of radiation dose above natural background. All radiation dose estimates derived from this study are significantly below 100 mSv in a year and largely dominated by natural background. The ICRP (ICRP 103) also state that interventions are unlikely to be justifiable for exposure to natural background radiation between 1mSv and 20mSv per year. Further, the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) "does not recommend multiplying very low doses by large numbers of individuals to estimate numbers of radiation-induced health effects within a population exposed to incremental doses at levels equivalent to or lower than natural background levels."

Regional levels of radiation in the surrounding communities were expected to be above global averages due to the widespread presence of mineral sands at the surface and the fact that the nearby communities practice subsistence farming, with diets dominated by locally produced food and local access to water. It is this local aquatic and land-based food consumption that strongly influences the dose estimates and thus a broad range of food consumption profiles were used in estimating doses, including undertaking a contemporary local food survey.

The expected dose levels were confirmed, with the highest annual radiation dose estimated from ingestion (food and water) and inhalation of dust to be 12.2 +- 2 mSv/year for the critical group (15-year-olds living in Andrakaraka). As discussed above, the dominance of diet in these dose estimates cannot be underestimated. For example, an alternative food consumption profile (WHO Africa) would result in a dose estimate of 4.7 +-

1.0 mSv/year. Importantly, these dose levels are as a result of naturally occurring radiation levels, with no evidence of significant contributions from mining activities being found.

The dose estimate from the mine contribution is estimated to be less, and potentially significantly less, than 0.6 mSv/year, which is below the regulatory limit of 1 mSv/year above the naturally occurring dose. The 26 exposure pathways investigated lead to the conclusion that direct mine water discharge had the highest potential for the greatest movement of mine generated radionuclides into the surface water, the food chain and consequently the local community diet. Targeted surveys of surface water and sediments (sediments are good indicator of historical discharge accumulation) delivered data that confirmed that this pathway does not contribute a significant dose to local communities.

Contributing findings of note are:

- Radiation concentrations are highly variable and dominated by natural variations in soils.
- Eating land and aquatic based foods are the largest contributors to radiation dose.
- The food dose contribution varies according to the location and diet, with diet assumptions of each community being the dominate variable.
- Although foods contribute a measurable dose, local food sources are safe from a radiological perspective.
- Drinking water sources are safe from a radiological perspective.
- Breathing the air (dust) is safe from a radiological perspective.
- Mine surface water discharges are of a modest radionuclide concentration and are diluted by river volumes noting dilution will vary depending on river volumes.

A final key finding of the study was that there is limited understanding of radiation by the majority of stakeholders with common misunderstandings and local myths prevalent in the local communities. The study is committed to basing the identified potential risks on published scientific facts rather than the ranges of myths and misconceptions and hopes that provision of these facts will assist in reducing local concerns.

Way forward

Whilst the Study has demonstrated that there is no need for heightened health concerns around local radiation levels, and that the mine has not significantly contributed to increasing these naturally occurring levels, the ongoing management of radiation at the Mandena mine must remain a focus of Rio Tinto, QMM and Government Regulators.

International principles dictate that wherever possible radiation doses should be reduced to as low as reasonably achievable, taking into account economic, environmental and societal factors and thus the journey of improvement is never over.

Ongoing radiation monitoring should be targeted to those pathways that require regular validation that the radionuclide levels remain low, or those pathways that have the potential for future change that could cause an increase in radiation levels and subsequent doses.

Management of this future monitoring program should consider ongoing involvement of key stakeholders e.g. regulators and local communities in terms of design, sample collection, reporting and communication of the results more broadly.

It is vitally important that any radiation data and findings from this study and future monitoring are appropriately communicated with sufficient context, to the appropriate stakeholders, at regular intervals and in the appropriate format.

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Closing

The Study Team would like to acknowledge the traditional owners of the Madagascan local lands upon which the sampling was undertaken and pass on their sincere gratitude to these and the many other stakeholders that assisted throughout the study duration.

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1. Document Overview/Structure

This document is structured in a manner designed to allow readers of different scientific and technical background and knowledge to read and understand the study background, objective, scope, methodology and findings.

Specific technical appendices have been prepared to present the detail as to exactly what, when, where, why, and how specific technical aspects of the study were undertaken and provide documented evidence of the sampling rationale, methodology, sampling location coordinates, equipment and associated calibration, sampling procedures, field sampling documentation, chain of custody and laboratory analysis certificates.

Analytical results for each of the sampled media, for each of the sampling rounds are presented in the individual technical appendices.

Of significant importance, the Radiation Dose Assessment **Appendix A8** provides the details of how the dose estimates for critical groups have been calculated including the international legislative guidance defined in **Section 4**.

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2. Introduction

JBS&G Australia Pty Ltd (JBS&G) was engaged in October 2019 by Rio Tinto QIT Madagascar Minerals (Rio Tinto QMM) to undertake a radioactivity study (the Study) at their Mandena mineral sands mine in Madagascar.

The Study commenced in November 2019 with an expected duration of 15 months, including:

- four sampling events over a one-year monitoring period;
- 10-week laboratory analysis periods post each sampling event; and
- data interpretation and final report preparation of two weeks.

The onset of the COVID-19 global pandemic resulted in the postponement of Sampling Round #2, originally scheduled for April 2020. An adapted sampling approach was required due to the global extent of the pandemic, JBS&G in consultation with the local QMM team designed a remote sampling program substituting the in-county sampling by JBS&G with sampling program undertaken by the local environment team and resources. To ensure program independence, a series of tools and practices were developed for the first remote sampling event (in English and French) along with a series of operating procedures and field forms with photographs and additional supporting information required to be completed and submitted for overnight review and approval by the JBS&G project management team in Australia. The details of the remote sampling methodology and procedures are covered in the relevant field sampling sections of this report.

Due to the extended duration of the global pandemic, three sampling events were undertaken remotely across the following dates, each event was followed by an approximate two weeks of sample preparation (weighing, drying, vacuum packing and regulatory clearance) followed by an approximate four weeks of international shipping, sample irradiation and preparation and 12 weeks of sample analysis at the ANSTO laboratories in Sydney.

Round #1 25 November to 6 December 2019

Round #2 23 September 2020 to 25 November 2020

Round #3 5 April to 16 April 2021

Round #4 19 July to 4 August 2021

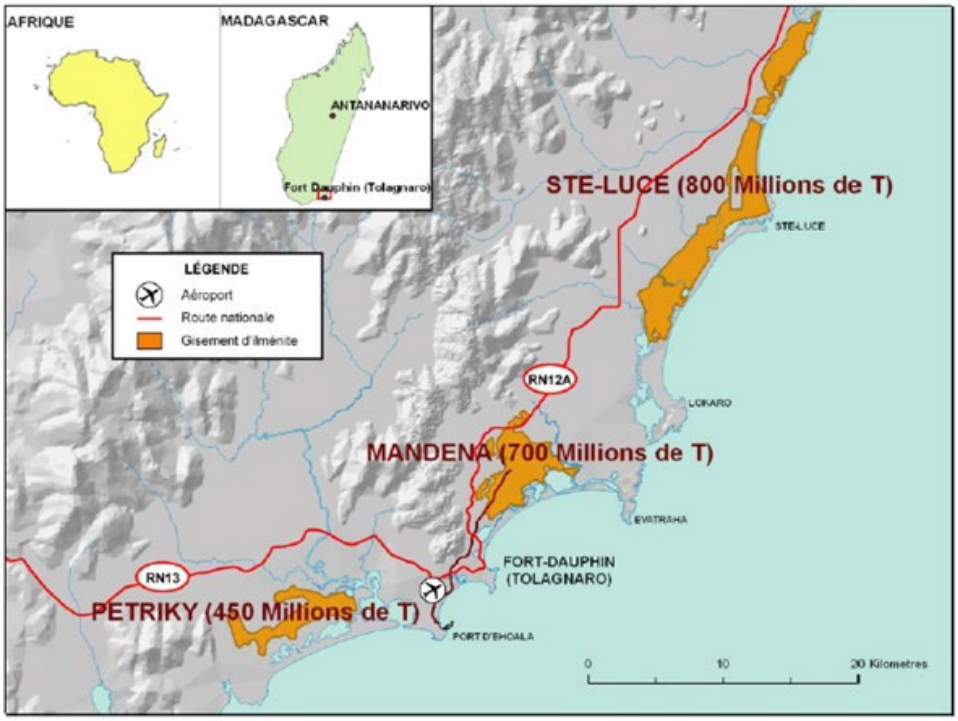
On receipt of the Round 4 analytical data a review was undertaken of the complete radionuclide analytical data set in October 2022 and a data gap assessment completed. A potential data gap was identified due to an absence of monitoring data representative of mine process water discharge events. A fifth sampling round undertaken in October 2022, was undertaken to address the potential data gap with targeted sediment and process water sampling and analytical analysis undertaken together with truck surveys of ilmenite and zirsill shipments and targeted terrestrial gamma surveys.

This final report presents the consolidated findings of the Study.

2.1 Background

Rio Tinto's QMM mine is located in the Anosy region near Fort Dauphin (Tolanaro) on the southeastern tip of Madagascar. The current mine operations are at the Mandena site and have been operating since December 2008. As part of the Mandena mineralised sands operation, RioTinto QMM extracts both ilmenite and zirsill from the mineral sands and commenced export of rare earth concentrate (REC) in 2018. All final products are exported via nearby Port d'Ehoala.

Figure 1 Location of Fort Dauphin in Madagascar



2.2 Mining Operations

QMM's mining operations began in December 2008, and the first ilmenite was shipped from Port d'Ehoala in May 2009. Current mining activity is located at the 2,000 hectare Mandena site, to the north of the town of Fort Dauphin.

QMM's mineral sands mining process involves:

- Removing the vegetation cover and storing the top soil layer where applicable;
- Extracting the sand, up to 20 metres deep, with a floating dredge;
- Mechanically separating the heavy minerals (five per cent) using spirals, and returning the silica (95 per cent) into the dredging pond for subsequent rehabilitation;
- Separating ilmenite and zirsill from the other heavy minerals using magnetic and electrostatic methods;
- Commenced export of rare earth concentrate in 2018;
- Rehabilitating mined areas; and,
- Transporting ilmenite and zirsill about 15 km to the port for export.

The ilmenite mined in Madagascar contains 60 per cent titanium dioxide (TiO_2) making it a higher quality than most other global sources. The raw material mined by QMM is shipped to Rio Tinto's Fer et Titane processing plant in Canada, where it is transformed into a 90 per cent titanium dioxide chloride slag. The slag is supplied to global titanium feedstock markets and used primarily by titanium dioxide pigment producers. The pigment is used as a white finish in paint, plastic, paper and dye.

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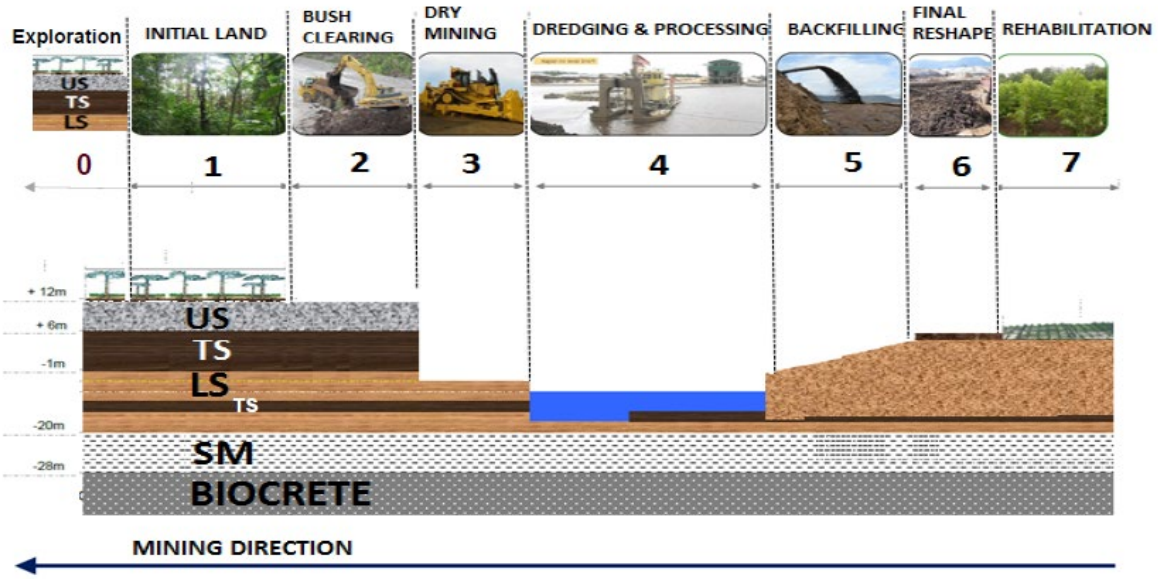
Figure 2 The Mining Process at Mandena



US: Upper Sand (THM>=3%, light color)
LS: Lower Sand(THM>3%, below transitinnal sand)
TS: Transitional Sand (THM<3%)
SM: Slimes (fine particle in sand>10%)

2.3 Port d'Ehoala

Port d'Ehoala is a multi-purpose deep-water port constructed via a public private partnership (PPP) between Rio Tinto and the Malagasy Government. In 2005, the Government of Madagascar agreed to contribute US$35 million to the establishment of Port d'Ehoala. This contribution was part of its "Integrated Growth Poles" project, funded by the World Bank.

Port d'Ehoala, a subsidiary of QMM, manages the port operations. At the end of the projected 40-year life of the mine, the port management will transfer under the responsibility and control of the Government of Madagascar. The port exports ilmenite from QMM's operations and also services cruise liners, container ships and refrigeration vessels.

Figure 3 Port d'Ehoala



3. Regulatory Setting

This section describes the different levels of governmental regulation and leading practice guidance documents that were considered when designing and implementing the monitoring program.

3.1 International

Madagascar is an active member of the International Atomic Energy Agency (IAEA) and a participant in the agency's Technical Cooperation Programme for assistance in developing and implementing radiation regulations.

The IAEA is an international organisation, which promotes and supports safe use and engagement with nuclear technologies. One of the key functions of the IAEA is the production of a range of scientific and technical publications including international safety standards, technical guides, and reports. These documents provide a framework of technical and regulatory advice on which member states base their regulatory frameworks, and the guidance of the IAEA is generally propagated into national legislative documents. The IAEA Safety Standards serve as a global reference for protecting people and the environment from the effects of radiation and contribute to a harmonised high level of safety worldwide[1].

The statutory basis for the IAEA safety standards is to be found in Article III.A.6 of the Statute of the IAEA. The Basic Safety Standards[2] (BSS) was established in accordance with Article III.A.6 and prescribes maximum permissible doses and dose limits. For planned exposure situations, exposures and risks are subject to control to ensure that the specified dose limits for occupational exposure and those for public exposure are not exceeded, and the principle of optimisation is applied to attain the desired level of protection and safety.

Dose constraints and reference levels are used for optimisation of protection and safety, the intended outcome of which is that all exposures are controlled to levels that are as low as reasonably achievable, economic, societal and environmental factors being taken into account. Dose constraints are set separately for each source under control and they serve as boundary conditions in defining the range of options for the purposes of optimisation of protection and safety. Dose constraints are not dose limits: exceeding a dose constraint does not represent non-compliance with regulatory requirements, but it could result in follow-up actions.

The IAEA updates the BSS periodically, based on findings of the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR). UNSCEAR's mandate in the United Nations system is to assess and report levels and effects of exposure to ionising radiation. Governments and organisations throughout the world rely on the Committee's estimates as the scientific basis for evaluating radiation risk, for estimating doses to workers and to the public[3], and for establishing protective measures.

The IAEA has set the dose limit for public exposure at an effective dose of 1 mSv in a year, and the annual effective dose to members of the public, for comparison with the dose limit for effective dose, is the sum of the effective dose from external exposure in one year and the committed effective dose from intakes within the same year[4].

[1] https://www.iaea.org/resources/safety-standards
[2] Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards, IAEA Safety Standards Series No. GSR Part 3, International Atomic Energy Agency, Vienna (2014)
[3] UNSCEAR, 2000. Sources and Effects of Ionizing Radiation. United Nations Scientific Committee on the Effects of Atomic Radiation Report to the General Assembly with Scientific Annexes. Vol. II: Effects. United Nations, New York, NY.
[4] Radiation protection of the public and the environment, General Safety Guide, IAEA Safety Standards Series No. GSG-8, International Atomic Energy Agency, Vienna (2018)

The World Health Organisation (WHO) produces international norms on water quality and human health in the form of guidelines that are used as the basis for regulation and standard setting world-wide. The screening levels and guidance levels for radioactivity presented in the Guidelines for drinking-water quality[5] are based on guidance from the International Commission on Radiological Protection[6] (ICRP) and consider both natural and human-derived radionuclides. However, they do not differentiate between radionuclides that occur naturally and those that arise from human activities. Screening levels are provided to assess the need for further investigation, with specific radionuclides requiring individual activity concentration measurements if screening levels are exceeded.

The screening levels and guidance levels should not be interpreted as a limit above which drinking-water is unsafe for consumption, but they represent useful operational tools to put into practice the optimisation principle. Such screening and guidance levels do not exist for foodstuff.

3.2 National

The Autorité Nationale de Protection et de Sureté Radiologique (ANSPR) is part of the Ministry of Higher Education and Scientific Research. It is the supreme administrative authority that regulates radiological protection and radioactive waste management in Madagascar. The ANSPR is delegated to the Institut National des Sciences et Techniques Nucléaires (INSTN).

The Malagasy Law 97-041 sets the standards for radiological protection and radioactive waste management. General principles are further developed in four decrees associated with the Law, which provide specific guidance on medical uses of radiation, general radiation safety, radioactive waste management and the role of ANSPR.

The Malagasy legislation for radiation protection was developed based on the IAEA Safety Standards 115. Note that this publication has been superseded by the IAEA Safety Standards General Safety Requirements Part 3, Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards (GSR Part 3). As a Member State of the IAEA, Madagascar is obliged to implement arrangements for meeting the most current IAEA standards.

Mining activities are regulated by the Mining Code, where further conditions apply to the exploration and production of material containing radioactive substances. The approval of permits is subject to technical and community evaluation by the technical committee from different ministries of the Republic of Madagascar lead by Office National pour l'Environnement (ONE) which includes details of radiological protection, waste and environment management and radiation safety. The agreement includes specific instructions and requirements provided by the ANSPR.

The INSTN has responsibility for auditing and regulating compliance with standards in Madagascar.

QMM reports compliance against the national legislation by implementing and adhering to the requirements of the Mandena Radiation Management Plan (RMP), which includes details of measures for the control of radiation exposures, transport of radioactive material, and the management of radioactive waste. The RMP includes details of the site radiation monitoring program, including methods and frequencies, and stipulates reporting requirements to internal and external stakeholders. This document is subject to periodic review.

[5] Guidelines for drinking-water quality: fourth edition incorporating the first addendum. Geneva: World Health Organization; 2017. Licence: CC BY-NC-SA 3.0 IGO.

[6] ICRP, 2007. Recommendations of the International Commission on Radiological Protection. ICRP Publication 103. Annals of the ICRP 37.

4. Site Environmental Setting

This section provides relevant information relating to the environment around the Mandena mining operations, sourced from available technical reports completed for QMM that relate to the site setting and more importantly conditions that influence the naturally occurring radioactive materials (NORM) that make up the Mandena minerals sands deposit.

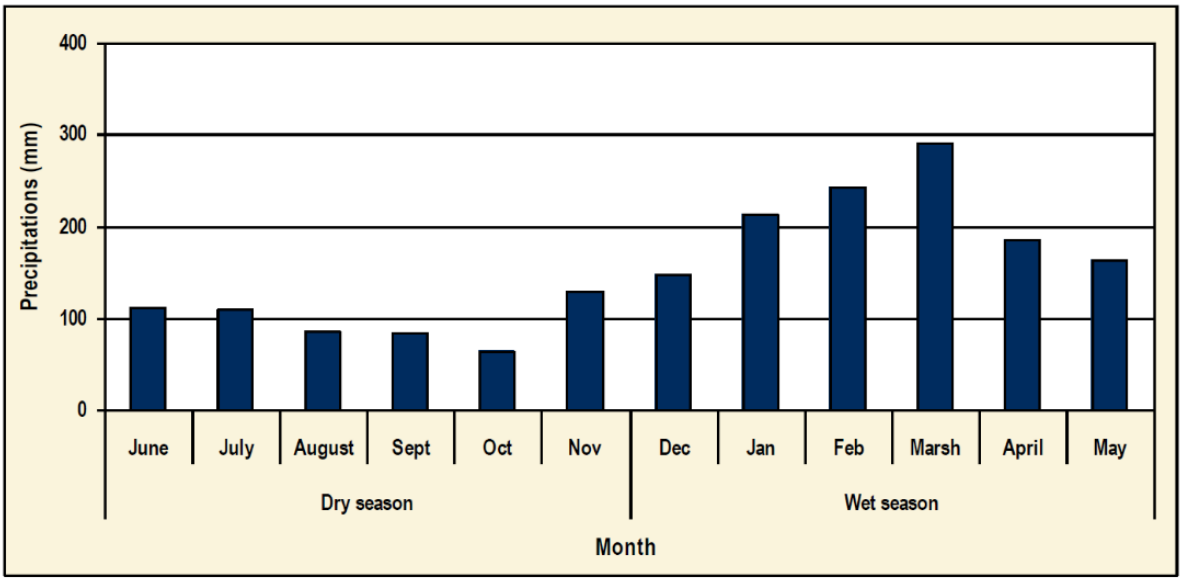
The JBS&G study team undertook a detailed site visit during the initial field sampling round completed in November and December 2019 and validated or ground-truthed the mine and surrounding environmental setting, both on land visiting all of the surrounding village communities and on the surrounding water bodies including the river and lake systems. The study team collaborated with the QMM environment team in collecting a broad suite of sampling media, validated the selected sample collection locations and confirmed its context as a sample point (background, critical group up or down hydraulic gradient etc).

4.1 Climate and Meteorology

The Mandena region has a tropical rainforest climate. The mountains of the Andohahela National Park at the southern end of the Malagasy Highlands form a natural barrier to the moist trade winds that blow from the east, causing rainfall of 1,500 to 2,000 mm per year which occurs throughout the year (SRK 2013)7.

A review of the rainfall data presented by Aquastrat (2011)8 based on monthly average data for the Mandena area between 2002-2010, indicates the wet season extends from November to May and that there is no distinct dry season, less rain between June and October, with October being the driest month. The highest monthly rainfall on record between 1967 and 2005 is 747.1 mm (March 2005). A graph of the monthly average rainfall is presented in **Figure 4**.

Figure 4 Average Monthly Precipitation at Mandena 2002 to 2010 (Aquastrat 2011)



[7] SRK 2013, Project Ti04 Mandena Area – Pre-feasibility Hydrogeological Investigation Report Phase 2 449598.
[8] Aquastrat 2011, Hydrogeology of the QMM Mandena Minesite

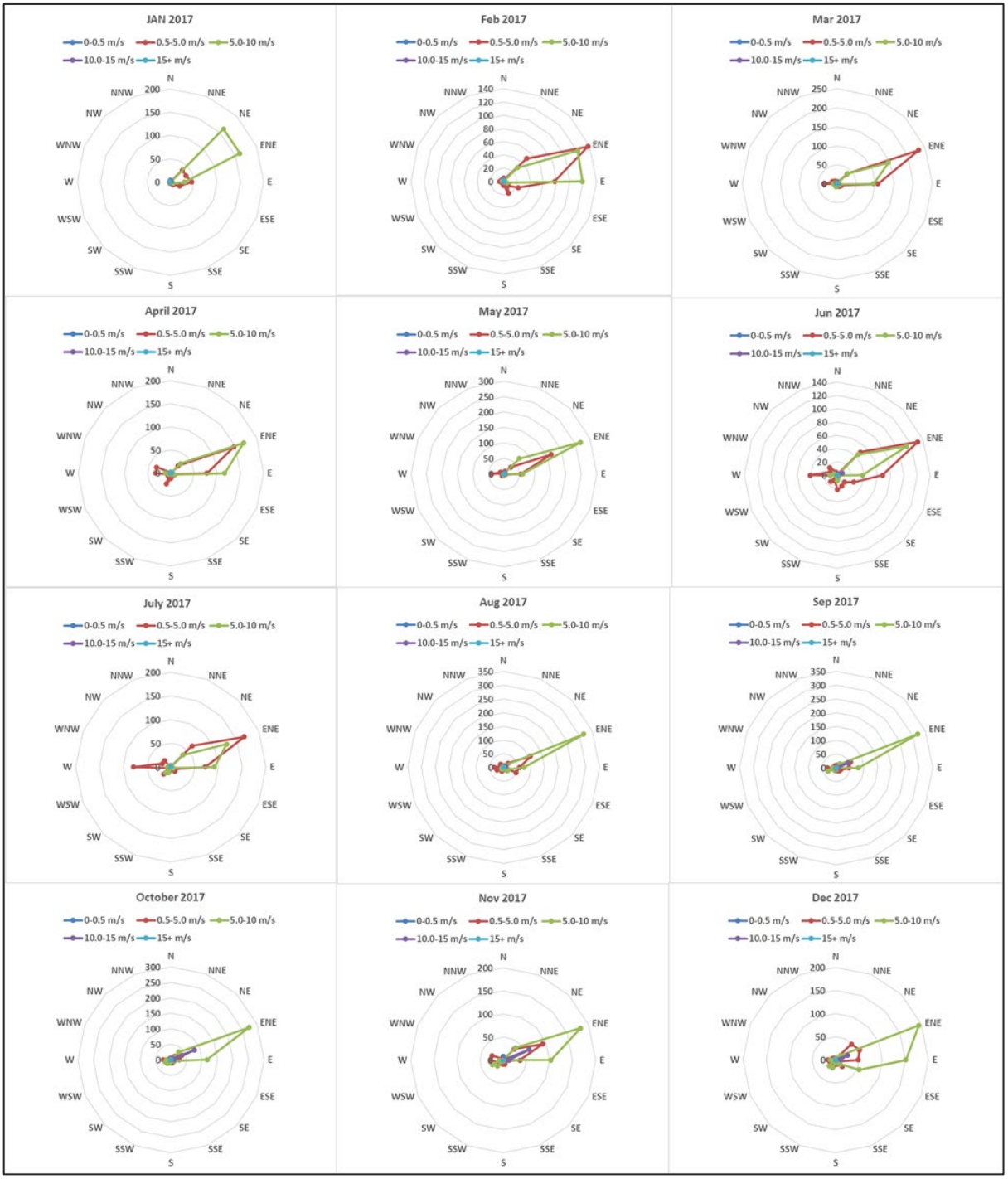
The average wind speed ranges recorded from Tolagnaro airport (1979 -1998) ranged from 18.6 to 23.8 km/h with an annual average of 20.7 km/h. The months of September and October are windier than the rest of the year with average winds above 24 km/hr (Aquastrat 2011).

Information regarding wind speed and direction is available for the 2017 calendar year. The wind blows in a predominant East-North-East direction all year round.

The consistent prevailing wind direction ensured that the design of passive dust sampling stations down gradient of the mining operations were positioned to collect representative dust samples for radionuclide analysis.

The four sampling rounds were undertaken across both dry and wet seasons and the data set is considered to capture seasonal variability where present.

Figure 5 Windrose Information 2017



4.2 Geology

The Mandena ore body stratigraphy consists of the Flandrian Sands overlying the basement of the Anosyenne Granite and Cordierite Gneiss that form the high mountain range. Recent alluvium and Karimbolian Sands form the coastal margin separating the ore body from the Indian Ocean (SRK 2011).

The geology consists of the following units as described in the QMM feasibility study (2005).

Transgressional Lag Zone

Irregularly deposited coarse to medium sands with high heavy mineral contents, occurring mostly in the northern most regions of the deposit.

Mineralised Sands – Upper Sands

These sands are fine to medium grained and well sorted, rounded and display frosted surfaces due to Aeolian processes occurring in the upper portion of the advancing prograding beach complex. Generally the sands are white to grey, depending on the impact of groundwater which could alter it to a brownish colour.

Mineralised Sands – Transitional Sands

This unit is typically 3-6m thick. The sands within the unit are characterised by poor sorting and low heavy mineral and slimes contents, suggesting a high energy depositional environment.

Indurated lenses may be present.

Mineralised Sands – Lower Sands

Forms the base of the prograding strandline system typically containing finely laminated fine to medium sands with slightly higher silt contents compared to the Upper and Transitional sands above. Occasional clay lenses can also be encountered in this sub-unit. Indurations caused by organic/biogenic processes occur mostly at the top of this unit.

Clay Floor

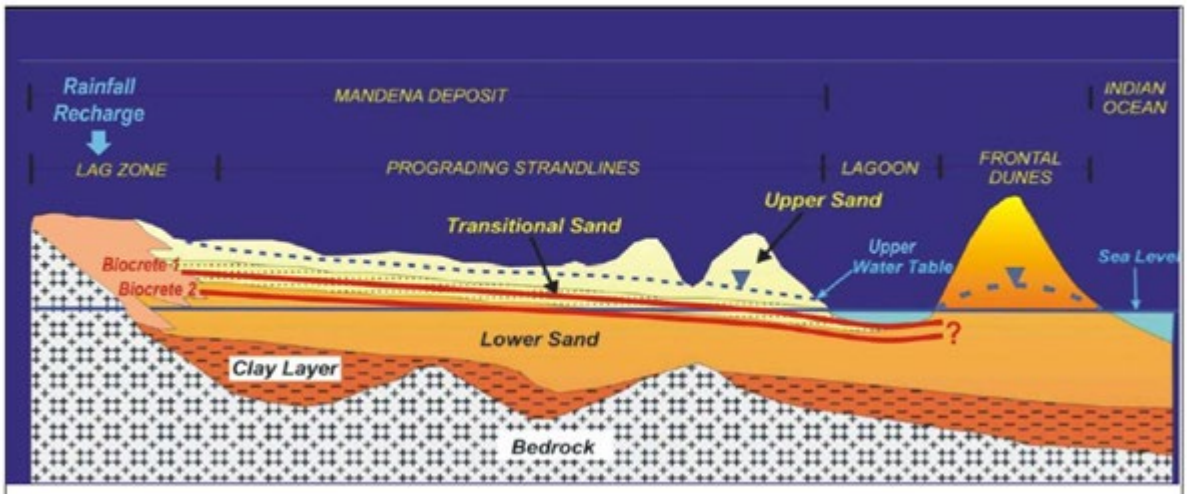
Marine clay deposited during early transgression filled and smoothed the floor contours of the deposit. Paleo channels eroded into the clay subsequently created undulating floor topography on which the mineralised sands rest. The contact between the mineralised sands and marine clay floor has been defined at 10% slimes/clay contents.

Bedrock

Gneiss bedrock occur as several cross-cutting bedrock ridges typically underlying the clay floor or even mineralised sands in the shallow peripheral areas of the deposit. Where exposed in the periphery of the deposit basin, 2m laterite horizons have developed upon the bedrock exposures.

A graphical representation of the cross section of the Mandena stratigraphy is presented as Figure 6.

Figure 6 An Idealised Cross Section of the Mandena Stratigraphy (Aquastrat 2011)

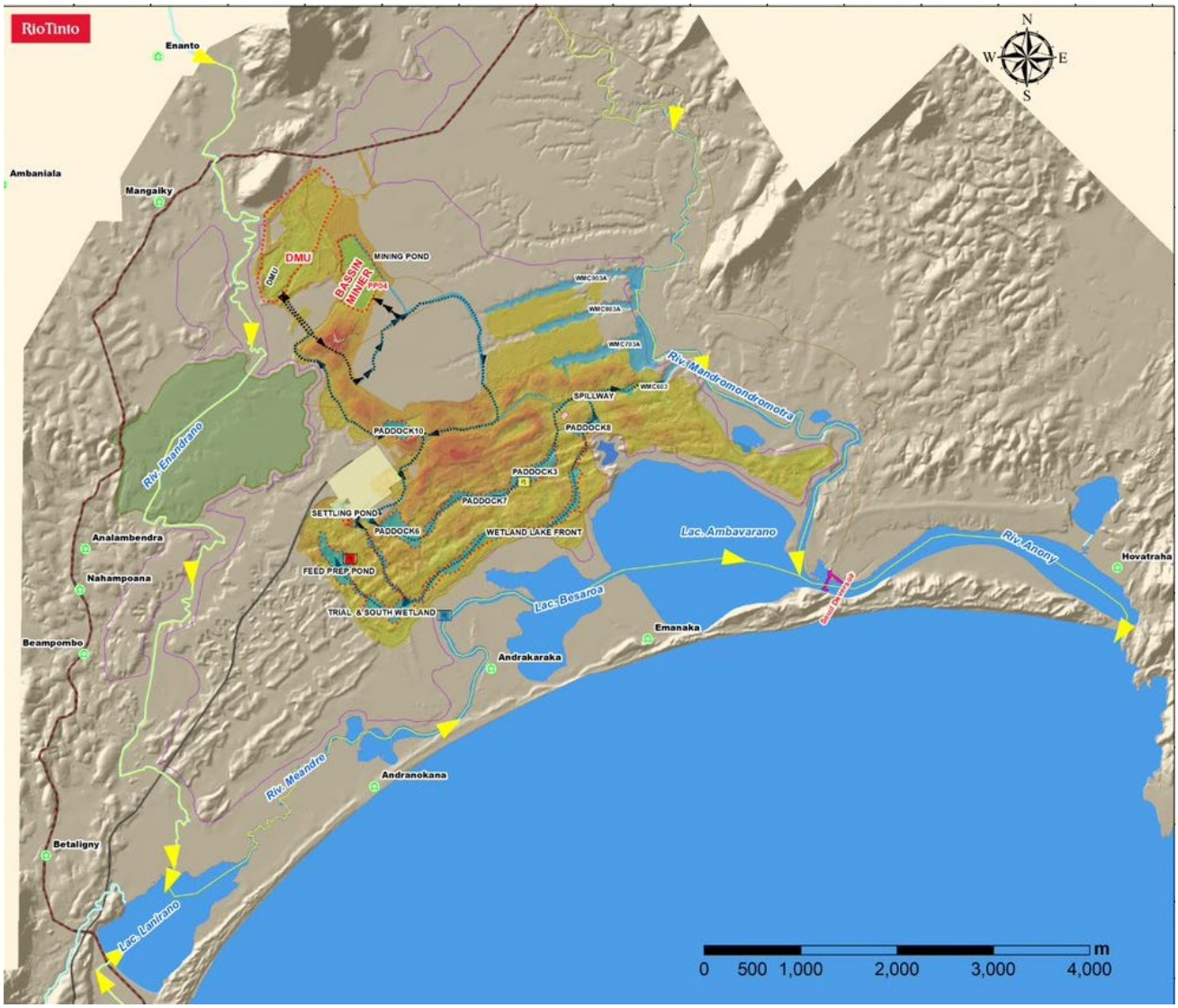


4.3 Hydrology and Topography

Mandena is located approximately 10 km north of the town of Fort Dauphin in southeast Madagascar. The mine site is situated on a low lying coastal plain flanked by the Anosy mountains to the northwest and west. The Mandena deposit is drained by two main rivers with similar catchment sizes, the Mandromondromotra (MMM) River on the eastern side and the Enandrano River on the west.

The two main rivers drain into shallow coastal lakes (The Anony Estuary; Lake Ambavarano; Lake Meander and Lake Lanirano) that have been formed in recent geological time by the development of the frontal dune formation that has systematically restricted their discharge into the Ocean. These lakes have been isolated from the Ocean by the construction of a weir/lock on the Anony Estuary (SRK 2011).

Figure 7 Principal Hydrological Features of the Mandena Mine and Adjacent Surface Water Environment



4.4 Hydrogeology

The interpretation of groundwater level monitoring undertaken across Mandena by Aquastrat (2011) identified two types of aquifers:

- An upper perched unconfined aquifer represented by the upper sand aquifer appears to be perched above the top of the biocrete, and

- A lower confined to semi confined aquifer is located below the biocrete within the Lower Sands.

Close to the lake system, where the biocrete appears to be thin or absent, they form a single unconfined aquifer.

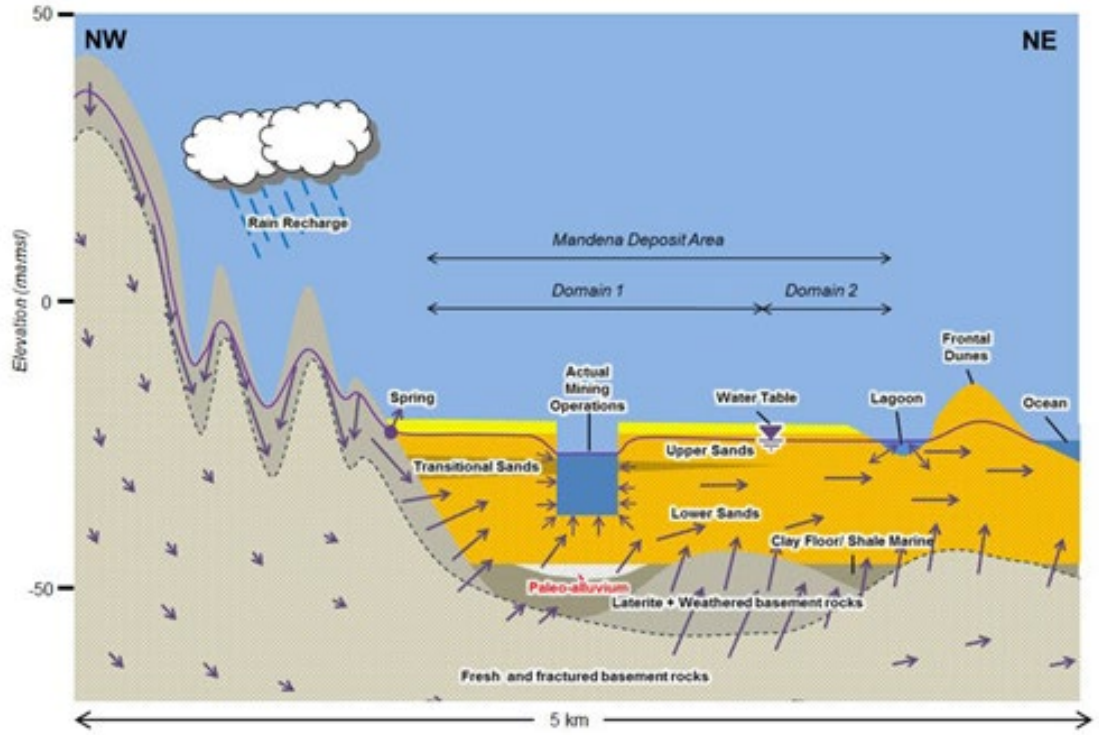
AquaStra (2011) identified that the two types of aquifer form two hydrogeological domains:

- Domain 1: An upper perched aquifer and lower confined to semi-confined aquifer below a layer of biocrete and this is the area in which dry mining is planned.
- Domain 2: Close to the lake or wetland system, the biocrete appears to be absent and it is a single unconfined aquifer.

Groundwater flows from the north-west of the Mandena Deposit from the Andohahela mountain range towards the Indian Ocean. The water bodies, wetlands and numerous streams represent the expression of the outcropping groundwater table (SRK 2013).

An idealized cross section of the hydrogeological setting for the Mandena area in provided in **Figure 8**.

Figure 8 Idealised Cross Section of the Hydrogeology of the Mandena Area (SRK 2013)



Groundwater wells installed in the community villages close to the lakes (Anakaraka and Emanaka) are representative of Domain 2 (single unconfined aquifer).

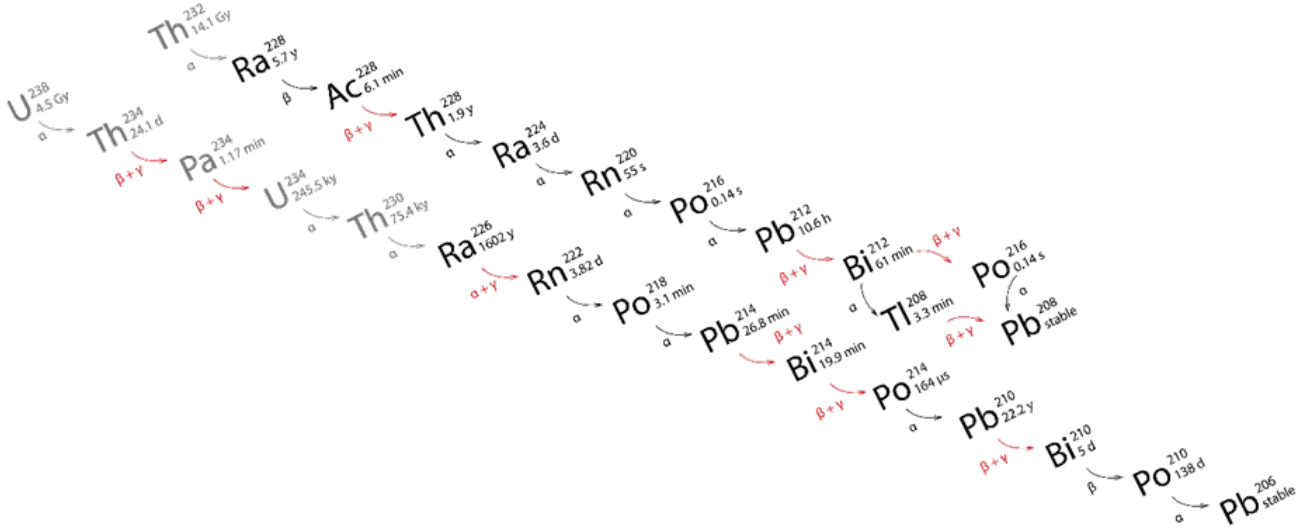
Rain recharge falling on the Andohahela mountain recharges the gravity fed springs that supply water fountains to many of the villages including Mandromondromotra.

4.5 Radionuclides in the Environment

Uranium and Thorium are present naturally in all soils worldwide but are more concentrated within naturally occurring radioactive material (NORM) regions including mineral sand deposits such as that located at Mandena. Both uranium and thorium sit at the head of decay chains, in which a series of radioactive elements decay progressively into other radioactive elements until reaching a stable element. These decay chains produce elements which have different chemical properties and behave differently within environmental

pathways. The Uranium and Thorium decay chains are shown below. Decay can occur by emission of an alpha or beta particle, which for some decays is accompanied by the emission of characteristic gamma radiation.

Figure 9 Uranium and Thorium Decay Chains



Radon (Rn) forms in both the uranium and thorium decay chains. It is a gas, and readily mobilises into surrounding air unless contained. While radon itself does not have significant dose implications, it is followed in the decay chain by a group of short-lived alpha emitters collectively known as 'radon decay products' (RDP) which can make a significant contribution to dose if allowed to build up, for example in buildings that lack ventilation. The design of buildings in the Anosy region have a large degree of natural ventilation, limiting the impact of RDP dose to the local community members.

Radon will disperse to the atmosphere and form its decay products. Most decay products are short lived, however the longer half-life of Pb210 causes it and its decay product Po210, to persist in the environment. Deposition of Pb210 and Po210 commonly occurs during rainfall events when particles created in the atmosphere from radon decay are transported via water droplets onto surfaces, including leaves of vegetation and the surface layer of soil.

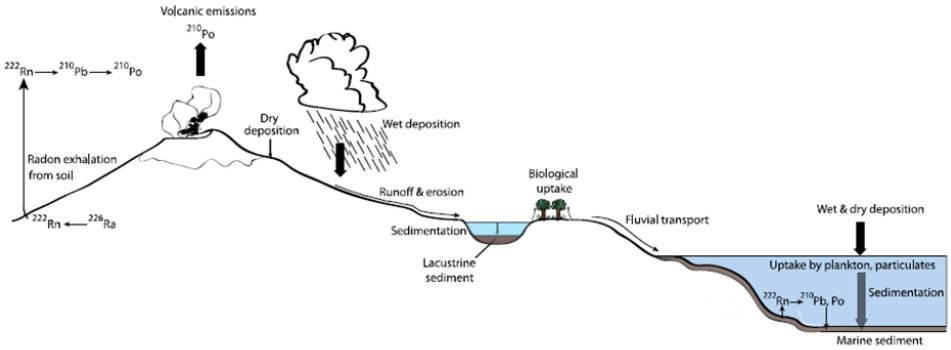
If Pb210 and Po210 levels are high in the environment, but local levels of radon measured are low it is an indication that Pb210 and Po210 are from atmospheric radon decay precipitation [9,10,11]

The source of Pb210 and Po210 in plants is primarily from foliar uptake of those radionuclides on the leaves. While it can also be absorbed via root systems, this is not a primary pathway. It is expected that organisms such as leafy vegetables will naturally contain higher levels of Po210 than other plants, due to their exposition to wet deposition and a large surface area of their leaves.

The occurrence and cycling of Pb210 & Po210 in the environment is shown in the **Figure 10**. (Figure 4.1 IAEA TR 484)

[9] INTERNATIONAL ATOMIC ENERGY AGENCY, The environmental behaviour of polonium / International Atomic Energy Agency, Technical Reports Series No. 484, IAEA, Vienna (2017).
[10] N Mitchell et al, A review of the behaviour of U-238 series radionuclides in soils and plants, J. Radiol. Prot. 33 R17, 2013
[11] INTERNATIONAL ATOMIC ENERGY AGENCY, The environmental behaviour of Radium: Revised Edition / International Atomic Energy Agency, Technical Reports Series No. 476, IAEA, Vienna (2014).

Figure 10 The Occurrence and Cycling of Pb210 & Po210 in the Environment



Radium (Ra226 and Ra228) is another element that is significant to environmental transport. Radium is more readily soluble than other decay chain elements due to its chemical properties. Where a soluble pathway occurs, it is possible for radium to be transported away from the parent radionuclides and can subsequently be found in higher activity levels than its parent radionuclides downgradient (disequilibrium).
Radium is chemically similar to calcium which leads it to being readily incorporated into bones and shells of biota and can therefore be a contributor to radiation doses from food intake, especially from aquatic organisms, if biota is not filleted or shelled before consumption.

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5. Summary of Previous Investigations

5.1 Baseline Study – SENES Consultants Limited

SENES Consultants Limited conducted a baseline radiation study in August 2000 with the objective of collecting measurements of existing natural radiation levels within and around the proposed Mandena deposit and various locations around the deposit including Fort Dauphin, Ehoala, Evatraha and some of the routes connecting these areas. The scope of work committed of gathering baseline measurements of natural radioactivity levels within this area including:

- field measurements of ambient gamma radiation levels;
- collection and radiological analysis of surface and ground water samples, stream and river sediments, as well as surface soils;
- measurement of ambient radon and thoron in air concentrations; and,
- radiological analysis of fish and crab tissue samples.

Gamma

Over 113,000 gamma radiation measurements were recorded during the course of the August 2000 investigations. Gamma radiation levels within the Study Area were found to be highly variable, ranging from a low of less than 0.006 µSv/h on the Mandena Mine Site, to greater than 4.8 µSv/h on the beach east of the proposed Ehoala MSP site. The report noted that the relatively high measurements made over roads (constructed with laterite) and on black sand areas bias the average upwards, and for that reason, the median value may be more representative. The median value measured for the study area was about 0.18 µSv/h.

On average, baseline radiation levels in much of the Project Study Area surrounding the mine site were found to be notably higher than baseline levels found on the Mandena Mine site itself.

Physical Samples

During the course of the August 2000 field investigations a total of 60 soil, 4 rock and 10 sediment samples were collected across the Study Area. Of these samples, 26 soil, 4 rock and 10 sediment samples were submitted to Becquerel Labs for radionuclide analysis.

Selection of the individual locations was based on gamma radiation levels, physical appearance of the material (black sand, white sand, orange sand, topsoil, etc.) and location of the sample site with respect to future site operations (e.g. mine site, MSP, harbour, quarry).

A review of the data indicated that uranium and thorium concentrations measured in the study area are highly variable and range between a minimum of 0.3 ppm for uranium (3.7 Bq/kg U238) and 1.3 ppm for thorium (5.3 Bq/kg Th232) in the white sand spiral demonstration area on the mine site, to 269 ppm uranium (3,320 Bq/kg U238) and 7750 ppm thorium (31,540 Bq/kg Th232) in the black sands found on the beaches in the Ehoala area.

The August 2000 field sampling program also included the collection of a series of water (surface, ground and potable) samples. The locations for these samples were selected in the field based upon physical location with respect to the various Project operations (e.g. upstream and downstream of mine site), as well as to provide a cross section of baseline results over the entire Study Area. The potable water supply for the Town of Fort Dauphin was also sampled along with water sources used by the villagers in the Ehoala and Evatraha areas.

A total of 24 water samples were collected and submitted for radionuclide analysis. Limits of detection (LOD) for most radionuclides are high, typically above 1 Bq/L, except for U238 (LOD = 0.01 Bq/L) and Th232 (LOD = 0.004 Bq/L). Measurable concentrations were reported for Pb210, Th232, Ra228 and Th228 in several wells and streams. Ranges for each of those radionuclides are listed below:

- Pb210: 13 Bq/L (one sample)
- Th232: 0.004 - 0.012 Bq/L (seven samples)
- Ra228: 2.1 - 2.4 Bq/L (three samples)
- Th228: 0.2 - 0.7 Bq/L (14 samples)

Foodstuffs

In October 2000, a sample of fish and crab tissue were collected from Andrakaraka-FN3 River. The two samples were weighed and subsequently dried in an oven to remove the moisture prior to shipment. A review of the data for the tissue samples indicates that higher concentrations of uranium and thorium were found in the crab tissue and shell sample as compared to the results for the fish tissue sample. Values were reported in dry weight basis. All radionuclides except U238 and Th232 returned values below detection limits. Results were converted to wet weight basis. They are summarised in **Table 1**.

Table 1 Historical Fish and Crab Analytical Results

Analyte	Units (wet weight basis)	Fish Tissue	Crab Tissue and Shell
U238	Bq/kg	0.10	0.11
Th-234	Bq/kg	< 9.9	< 9.6
Th-230	Bq/kg	< 396	< 385
Ra-226	Bq/kg	< 40	< 38
Pb-210	Bq/kg	< 20	< 19
Th232	Bq/kg	0.02	1.51
Ra-228	Bq/kg	< 20	< 19
Th-228	Bq/kg	< 9.9	< 9.6

Radon and Thoron

In August 2000, radon (Rn222) and thoron (Rn220) gas monitors were installed at nine locations within the study Area; however, in October 2000 only seven of the nine monitors could be located and recovered.

The radon concentrations range from a low of less than 18.5 Becquerels per cubic metre (Bq/m^3) at six of the seven sites, to a high of 18.5 Bq/m^3 at AQ1. The estimated thoron concentrations range from a low of less than 18.5 Bq/m^3 at six of the seven sites, to a high of approximately 281.5 Bq/m^3 at AQ-6 (the QMM compound in Fort Dauphin) which was suspected to be due to the monitor being mounted on the outside of the building, in close proximity to the building (a source of radon and thoron) and possibly blocked from the wind flow. It should be noted that radon and thoron concentrations are subject to diurnal and seasonal variation, and the average may be determined from a set of measurements spanning several orders of magnitude.

Estimated Impact to Public

The study then examined source pathways from proposed operations and estimated potential impact to the public from these pathways through the lens of specific operational processes including mining and separation operations; stockpiling and haulage to/from the mineral separation plant; product handling; offsite material handling (transport); and closure.

The report concluded that the likely impact to the public from inhalation and ingestion resulting from operational activities, were expected to be small or insignificant from most pathways and would be within regulatory limits. This assumes that atmospheric dispersion between the stockpile/transport routes and nearby communities would reduce effects from radon and thoron release, and that appropriate remedial measures were in place for dust management during product handling to minimise dust dispersion.

The only pathway for direct exposure to gamma radiation during operations was determined to be during transport from the mineral separation plant to the harbour, and assuming a worst-case scenario of a member of public being situated 10m from an intersection where all trucks must stop, the annual dose was calculated to be 5.5 µSv/h.

It was assumed that operational activities would not release radionuclides into the aquatic environment and be subsequently consumed, therefore no effect was identified for the public from this pathway.

5.2 PARC Report (2013)

PARC Scientific conducted a study in 2013 to evaluate the potential radiological risks to members of the public through the air and aquatic pathways created by mining activities. The scope of the study was primarily to either measure or model radon, dust and water radiological releases from the mine and calculate and assess the potential dose to the public.

Radon

The emanation rate of radon and thoron was measured from material collected from QMM operations and atmospheric radon dispersion was modelled. The modelling suggests that radon and thoron levels from QMM operations are negligible compared to natural levels at receptor communities.

Measurements were taken using passive monitors and returned levels ranging from 63 to 110 Bq/m^3 Radon and 1 to 54 Bq/m^3 Thoron in the environment. The average levels are above global averages, but this was consistent even in upwind locations. PARC scientific therefore ascribes the environmental levels to natural background radionuclides.

It must be noted that the environmental monitors may have recorded an exposure in storage which was not accounted for.

Dust

Dose from inhalation of radionuclides in dust was assessed through a combination of measurement and simple atmospheric dispersion modelling.

Filters were assessed for gross alpha but results were below the detection limit. The radionuclide content of the dust at the sampling location was not measured directly, therefore it was assumed that all dust collected originated from the mine as the radionuclide content of this material was known. For dose assessment only U238 and Th232 values were assessed and decay chain elements were assumed to be in the equilibrium of the measured mine material.

The PARC Scientific dust dose assessment due to the lack of direct measurement of radionuclides in environmental dust and only assessing downwind dust location is limited.

Water

Gross alpha and Beta were assessed, and U and Th returned concentrations below levels of detections. No direct measurement of radionuclides therefore equilibrium was assumed to be the same as the solid mine material, with head of chain radionuclides typically displaying higher concentrations than decay products. As different radionuclides have different solubility using equilibrium factors of solid material introduces a large amount of uncertainty.

Gross alpha and beta showed a dilution of one order of magnitude between release points (0.819αBq/L, 1.96βBq/L) and S42 (0.086αBq/L, 0.313βBq/L). S42 is a short flow downstream the Mandromondromotra River. Levels at S42 may be influenced by natural levels as the river flows through areas of high background, therefore the dilution factor could be greater.

The water dataset is limited for dose assessment as no samples were taken at points where public consumption of water occurs.

Food Ingestion

Parc Scientific did not measure receptor food and water radionuclides directly. Instead, they modelled the radionuclide content of receptor material based on modelled dust and water radionuclide content and calculated from transfer and uptake coefficients.

The modelling showed that doses from material in the mine were above 1mSv/y but were below outside the mine. However, limited data points were used outside of the mine.

As the dust and water models have a large degree of uncertainty due to assumptions the uncertainties will be compounded into the dose assessment of ingestion. The outcomes of the ingestion dose assessment is therefore limited.

Public Dose Assessment

PARC Scientific used the information from Radon, Dust inhalation, Water and Food Ingestion to assess the dose the surrounding public, considering various age groups. As different communities were exposed via different pathways the assessment was split into scenarios.

The highest dose assessed was <1mSv/y for all age groups at a hypothetical community living where the mine release water enters the Mandromondromotra River. Scenarios at actual communities around the mine site (MMM, Amdrakaraka and Ampasy) was evaluated to be much lower.

Due to limitations with the modelling of dust and water radionuclides, there are many uncertainties involved in the PARC dose calculation and the report recommends more accurate measurements of pathways/receptors be made.

5.3 INSTN Surveys (2014 and 2017)

The *Institut National des Sciences et Techniques Nucléaires* (INSTN) carried out surveys in 2014 and 2017 in the region of Fort Dauphin. The 2014 survey consisted exclusively of gamma measurements. A total of 137 measurements of external dose rates were recorded over the MMM, Ampasy and Fort Dauphin councils. Dose rates recorded in the survey range from 0.05 to 1.4 uSv/h. This confirms the measurements and observations made in the baseline survey. The highest dose rate in 2014 was measured in the Port of Ehoala, within a controlled area restricted to workers, in the proximity of concentrate.

Further gamma surveys were performed in 2017, in conjunction with soil sampling, water sampling and radon concentration measurements:

- 437 gamma survey points were recorded in the mine site and in surrounding villages,
- 20 soil samples were collected within the mine site perimeter,
- 12 water samples were collected within the mine site and in downstream locations, and
- 6 radon measurements were recorded within buildings in and out of the mine perimeter.

External dose rates measured in 2017 range from 0.11 to 0.88 uSv/h, with a mean values of 0.28 uSv/h, for the 123 measurements measured within surrounding villages. Dose rates in the mine perimeter returned a wider range (0.06 to 72 uSv/h), for a mean value of 0.61 uSv/h.

Only U238 and Th232 were measured in water and soils. All measurements in water returned values below detection limits (comprised between 1.0 and 2.6 Bq/L). Soil samples were collected exclusively within the mine perimeter and included the analysis of ore and concentrate. All U238 and Th232 analyses fell within the range of the baseline survey, except for one sample collected within paddock 6, which shows concentration about 3 times higher than the highest soil samples collected by Senes in 2000. Note that the survey pre-dates the utilisation, concentration and export of monazite.

Radon concentrations in the air were recorded over periods of 4 to 16 hours within buildings in Mandena and in surrounding localities. All measurements returned values below limits of detection (varying between 13 and 27 Bq/m^3) with the exception of two measurements carried out in Fort Dauphin (in the hotel where the INSTN delegation stayed, 70 Bq/$m^{3,}$ and in a house within the QMM employee's village, 32 Bq/m^3). However, those measurements were carried out at night, when radon concentrations are commonly enhanced by inversion effects.

The INSTN surveys confirmed the high variability of the external gamma dose rate measurements across the region. It also showed that U and Th concentrations in soils and products are within the range of pre-mining soil concentrations. INSTN confirmed that radon concentrations are generally low, with potential peaks at night. Finally, the radionuclide analysis in waters highlighted the difficulties associated with limits of detection in environmental media.

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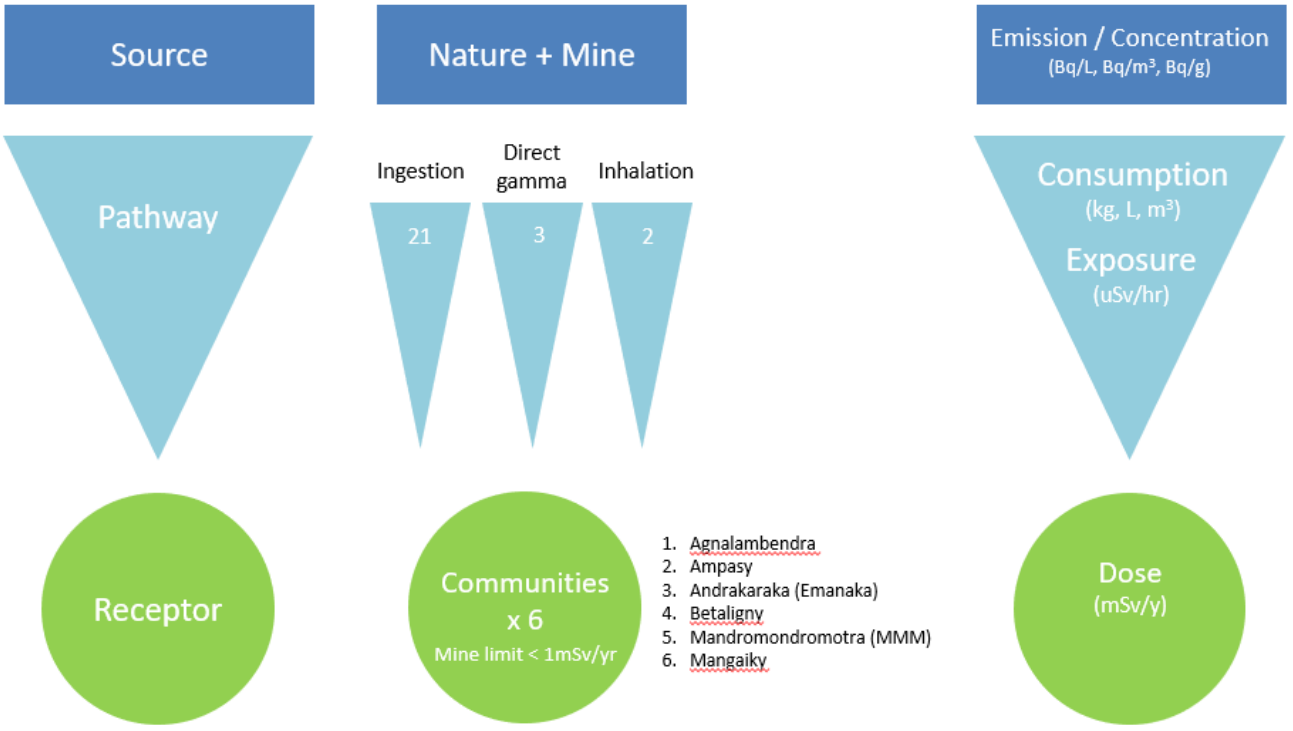
6. Methodology

6.1 Source, Pathway, Receptor Model

The Source-Pathway-Receptor (S-P-R) model is a well-established model that is used widely in the assessment of risk. The model is essentially used to establish whether there is a complete exposure link (the pathway) between a potential hazard (the source) and a sensitive receptor that may be adversely affected if exposed to the source (the receptor). When adopting the S-P-R model, it is critical to note that where it is determined that there is an incomplete linkage between a source, a pathway, and a receptor then it is considered that an unacceptable risk does not exist. An incomplete linkage occurs when either a source, a pathway, or a receptor does not exist in the scenario under consideration. That is, where a hazard is present but there is no pathway of exposure to a receptor, then a risk to that receptor does not exist. Similarly, where a receptor and exposure pathway exists but a hazard source does not, then a risk to that receptor does not exist. A graphical representation of this concept is shown below in **Figure 11**.

Figure 11 Source - Pathway - Receptor Model



In the context of the Study, the concept of a source is two-fold. Firstly, there is NORM that exists within the natural environment that continues to exist in its natural state which contributes background radiological exposure, secondly there are radionuclides mobilised or concentrated as a result of mining activity.

In its simplest term, pathways are defined as the ways a person can come into contact with radionuclides, the main pathways at Mandena are direct gamma, inhalation and ingestion.

The concept of a receptor in the context of the Study is much simpler. In this case, the receptors under consideration are people living in the local communities surrounding the mine. It is important to note that the environment as a receptor has not been considered in this Study except in the context of migration pathways and exposure pathways.

Given the objective of the Study is to determine the total effective radiation dose that local community members may receive, it will be important to consider all potentially complete S-P-R linkages. That is, there

may be multiple relevant sources each of which may contribute a radiation dose to community members through a range of potential exposure pathways. To estimate the total effective dose, the cumulative dose from each source and each pathway will need to be considered in the assessment.

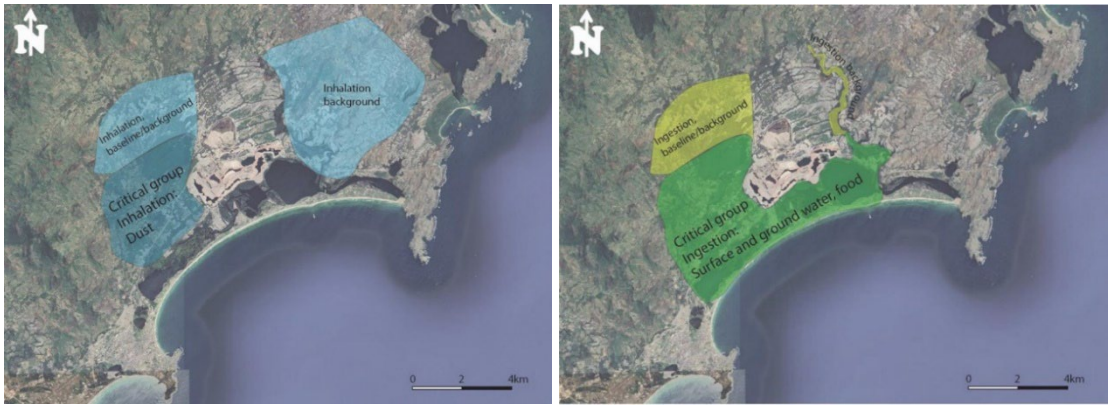
6.2 Conceptual Site Model

On the basis of the development of the source, pathway, receptors and associated S-P-R linkages and with the critical local inputs including the social and environmental setting it was possible to establish a conceptual site model (CSM). The CSM is a written and illustrative representation of the physical, chemical and biological processes that control the transport, migration and actual/potential impacts of the identified radionuclides (in soil, dust, ground water, surface water, sediments and biota) to human receptors. It is intended as a dynamic and iterative model which is refined as new information and data is gathered during the progress of investigation.

The initial Conceptual Site Model (CSM) was adopted from the report 'Review of the release of radioactive material from the Rio Tinto/QMM Mine Madagascar, by Swanson Environmental Strategies, March 2019 (Swanson 2019)[12]. This report was a valuable source of context and information, and the Study Team wishes to acknowledge the excellent work contained within.

The concept of a 'control', 'baseline', 'background' or 'reference' site was initially considered appropriate, with Mandromondromotra (MMM) being considered an appropriate control site for ingestion and inhalation pathways.

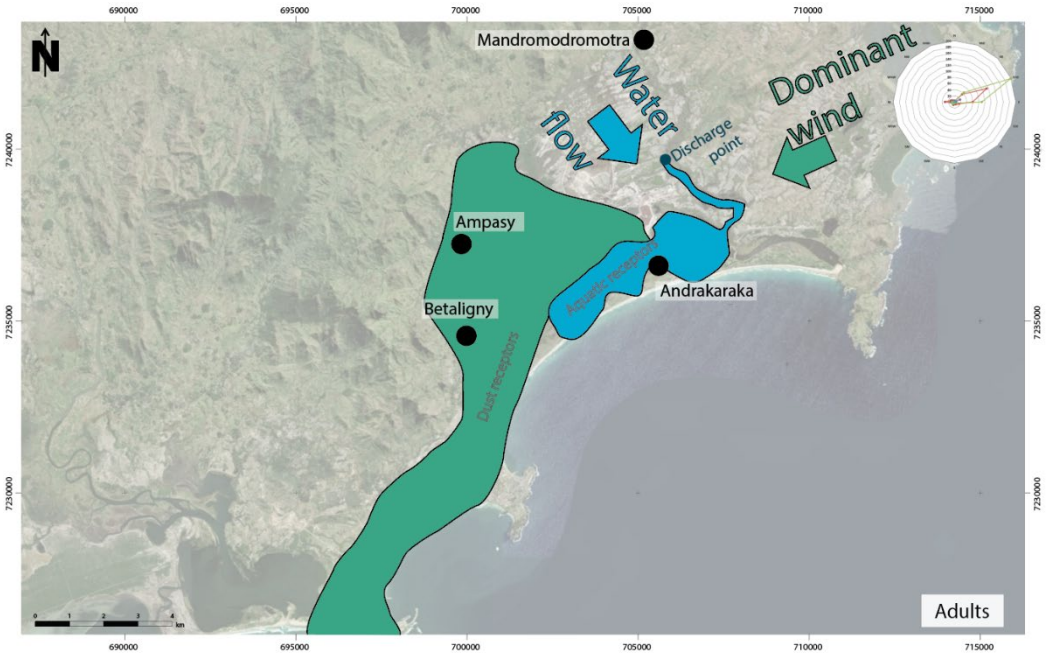
Figure 12 Evolution of the Site CSM



This early approach was found to be appropriate for dust and drinking water pathways but was later considered inappropriate for the ingestion pathway and was not continued as a concept. Consumption of crops and aquatic food were determined as not having 'control sites' as the natural variability of the region could lead to erroneously under or over-estimating any potential incremental mine contributions. Terrestrial dose rates were found to vary by an order of magnitude within 30 m in a single rice paddock in the village of Evatraha and within a metre on the shore of Lake Ambavarano.

[12] S Swanson, Review of the release of radioactive material from the Rio Tinto/QMM Mine Madagascar (2019), ALT UK.

Figure 13 CSM for Dust and Drinking Water Pathways



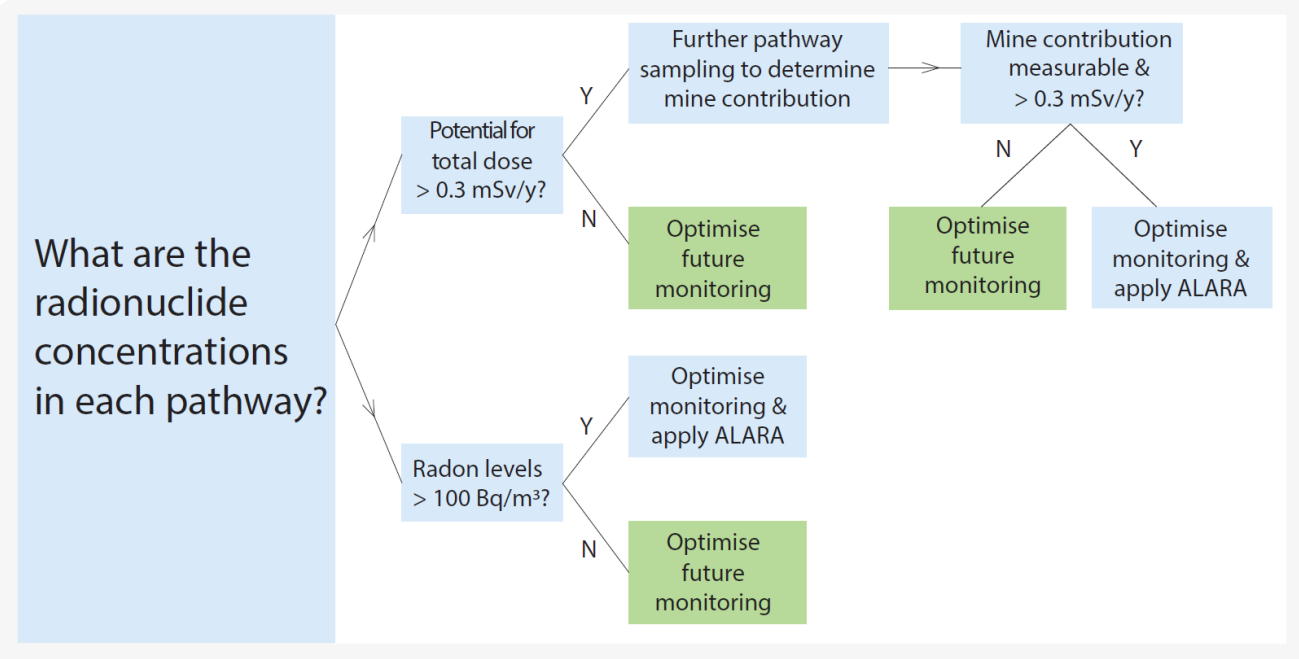
The geography and geology of the Mandena site cannot be exactly replicated in another location. The variability of radionuclide concentration in soils and sediments at the small and large scale will vary the transfer to the fauna and flora radionuclide uptake. In the absence of baseline data on foodstuff, a reference site cannot be established, as any hypothetical dose increment may be grossly under or over-estimated depending on the site selection.

As results were returned from the laboratory, data from each round was used to refine targets and sampling/analytical methodology and to focus on areas of potential uncertainty for the following sampling round.

As examples:

- Laboratory results were Below Detection Limits (BDL) in some early results and these BDLs were too high to allow sensible dose calculations to be undertaken. In consultation with the laboratory, the community representatives and those taking the samples, additional volumes of samples were obtained, and alternative analytical techniques were used to lower these detection limits.
- Analysis resolution improvements lead to measurable concentrations in food, indicating that initial dose calculations were above global averages and thus food samples were obtained in additional locations throughout the remaining rounds.
- Further investigation into key environmental transfer pathways was undertaken if it was plausible that the mine increment could be >0.3 mSv/y above natural background.

The following decision tree was developed and assisted in focussing the Study Team efforts:



A systematic breakdown of these key SPR scenarios was undertaken to assist in focusing the Study Team efforts on the sampling of source and/or pathway elements.

Exposure Pathway	ID	Source	Specific Pathways from the Mine & Nature
Gamma	1	Dust	Gamma radiation -> body
	2	Soil	
	3	Product	
Inhalation	4	Dust	Wind -> breathing -> lungs
	5	Radon	
Ingestion	6	Dust	Deposit in surface water -> drinking
	7	Surface Water	Surface water discharge -> wetland -> river / lake -> drinking
	8	Groundwater	Groundwater seepage -> wells -> drinking
	9	Groundwater	Groundwater seepage -> wetland -> river / lake -> drinking
	10	Dust + Soil	Deposit on surface + soil -> hands -> mouth -> eating
	11	Dust	Deposit on crops -> eating
	12	Dust + Radon	Wet deposition on crops -> eating
	13	Dust	Deposit in surface water -> irrigation -> crops -> eating
	14	Dust + Soil	Deposit on soil + soil -> root uptake in crops -> eating
	15	Surface Water	Surface water discharge -> wetland -> river / lake -> irrigation -> crops -> eating
	16	Groundwater	Groundwater seepage -> wetland -> river / lake -> irrigation -> crops -> eating
	17	Dust	Deposit in surface water -> aquatic food -> eating
	18	Dust	Deposit in surface water -> sediment -> aquatic food -> eating
	19	Surface Water	Surface water discharge -> wetland -> river / lake -> sediment -> aquatic food -> eating
	20	Surface Water	Surface water discharge -> wetland -> river / lake -> aquatic food -> eating
	21	Groundwater	Groundwater seepage -> wetland -> river / lake -> sediment -> aquatic food -> eating
	22	Groundwater	Groundwater seepage -> wetland -> river / lake -> aquatic food -> eating
	23	Groundwater	Groundwater seepage -> wetland -> river / lake -> irrigation -> animal drinking -> eating
	24	Surface Water	Surface water discharge -> wetland -> river / lake -> animal drinking -> eating
	25	Groundwater	Groundwater seepage -> wetland -> river / lake -> animal drinking -> eating
	26	Surface Water	Surface water discharge -> wetland -> river / lake -> irrigation -> animal drinking -> eating

Human activity

- Living in region
- Breathing
- Drinking water
- Eating dirt
- Eating crops
- Eating aquatic food
- Eating land animals

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6.3 Data Quality

6.3.1 Framework

In preparation and planning for quality assurance and quality control of the sampling program, JBS&G adopted guidance from the DQO process defined in the Australian National Environment Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM). The primary purpose of the ASC NEPM is to provide a nationally consistent framework for the assessment of site contamination, and to ensure sound environmental management practices by the community which includes regulators, site assessors, environmental auditors, landowners, developers and industry. Whilst the ASC NEPM is a legislated Australian guidance document, the principles and measures defined in the ASC NEPM are considered to have relevance and applicability to the study completed by JBS&G in Madagascar.

The DQO process is a seven-step iterative planning approach that is used to define the type, quantity and quality of data needed to support decisions relating to the environmental condition of a site. The process defined in the ASC NEPM is based on the US EPA *Guidance on Systematic Planning Using the Data Quality Objectives Process* (US EPA, 2006[13]).

6.3.2 Data Quality Objectives (DQOs)

DQOs were identified for the study including, at a high level:

- Defining the problem that gave rise to the purpose and objectives of the study (problem statement);
- Establishing the objectives/purpose of the study;
- Summary of the site conceptual site model, including critical information and data gaps;
- Identifying the inputs to the study, including a data gap analysis and quality review of existing data for inclusion/exclusion;
- Establishment of appropriate investigation levels, and criteria to be adopted for the assessments including justification and limitations of criteria;
- A plan for obtaining data to support the objectives and purpose of the study, including defining the media to be sampled and analysed ('where, how, what and when' approach);
- Defining the temporal and spatial boundaries of the study, including iterative review and revision of these boundaries due to external influencing factors such as COVID-19;
- Adequate quality assurance and quality control (QA/QC) processes to ensure that data collected will be sufficiently reliable and suitable for the purposes of assessing environmental conditions (field and laboratory data quality assessment), including the development of appropriate Data Quality Indicators (DQIs);
- Occupational health and safety requirements, including consideration of the practical constraints to the study (e.g. budget, time, resources, climatic conditions, and access restrictions);
- Development of study contingencies, including an ongoing process for review and application of contingency measures; and
- Reporting and interpreting outcomes including review of any limitations or remaining data gaps.

[13] US EPA, 2006. *Guidance on Systematic Planning Using the Data Quality Objectives Process, EPA/QA/G-4,* US Environmental Protection Agency, Office of Environmental Information, Washington DC, February 2006

6.3.3 Observations

The following selective summary observations are provided with regard to the project data:

- The DQO process could not be completed in advance of the first sampling event, noting data gaps were not properly identified at the beginning of the project as part of the initial project scoping as all relevant project data inputs were not available to JBS&G.
- Measurements, equipment installation and sample collection and sample preparation were undertaken in accordance with the adopted procedures by both JBS&G and QMM staff. Completion of supporting validation documentation including field sampling records, equipment calibration, sample chains of custody etc. was undertaken in accordance with the project plan.
- Delays were experienced over the duration of the project for a number of reasons, Covid-19 being the most significant cause which led to extensive residual impacts in processing of project analytical data. This materially impacted the potential for dynamic amendments to the sampling and analytical program.
- Some challenges were identified with laboratory sample preparation and homogenisation of certain fish and plants samples, and this was potentially represented in duplicate sample comparisons. In each instance the analytical technique with the least amount of analytical and sample preparation uncertainty was adopted in the interpretation of results.
- Sample limits of detection were identified as an issue in meeting the project data objectives and processes were adopted to reduce the detection limits to enable appropriate data interpretation. Where less than measurable values remain, such values will not be discarded and will be incorporated in dose assessment calculations, with adequate uncertainties.
- Some potential bias was identified in the data collected during the food survey, such as over-reporting by respondents, as detailed in the section “Eating Aquatic Food”. Appropriate constraints and limitations were applied to the interpretation of this data.
- Significant natural variation of radionuclide concentrations has been reported across the suite of sample media across the five sampling rounds.
- Some data gaps were identified with regard to available historical information, including mine process water discharge volumes and dates, and corresponding potential radionuclide sources and pathways. Targeted sampling (gamma, sediment and process water) was undertaken during sampling event #5 to address some of the identified data gaps.

A summary of the laboratory quality assurance practices adopted for the study is included as **Appendix A9** including details of the duplicate sampling results for each of the sampling media.

7. Results – Exposure Pathways

7.1 Direct - Gamma

Approach

The baseline study undertaken by SENES was extensive with over 113,000 gamma measurements taken across the region. Follow up studies by INSTN confirmed the general trends in the region. The decision was taken not to attempt to repeat this work but rather to validate certain aspects and to focus on specific potential community exposure pathways that were identified by Swanson (2019) i.e., wood collectors on the mine site and members of the public standing nearby the transport or storage of the rare earth concentrate.

A conservative approach was taken in estimating the doses to members of the public along the transport route from the transit of trucks transporting rare earth concentrate. Full-time, year-round presence at 2m from the truck, with 2.3 trucks per day are all conservative assumptions and would result in an over-estimate of the actual dose received. Trucks transporting other products and concentrates were also surveyed. While they have a higher frequency of passage, dose rates are significantly lower for ilmenite and zirsill than for rare earth concentrate.

Observations / Lessons learned

- Woodcutting on the mine site of remnant trees or revegetated trees continues.
- QMM contractors are regularly positioned at the intersections of the transport route from the mine to the port and are likely to be the most exposed.
- The general public congregate around the intersections from time to time.
- The general public may access areas surrounding the Port of Ehoala for fishing or recreational activities.

Challenges

- QMM is working to manage woodcutter access, but this has reportedly proved difficult to police.
- Long term placement of monitoring equipment is problematic with equipment stolen if not guarded 24/7.

Conceptual Pathways

The most significant potential pathways as a result of the mine were seen to be unauthorised woodcutters and the people located at intersections. Dust has been found to be a very minor gamma source.

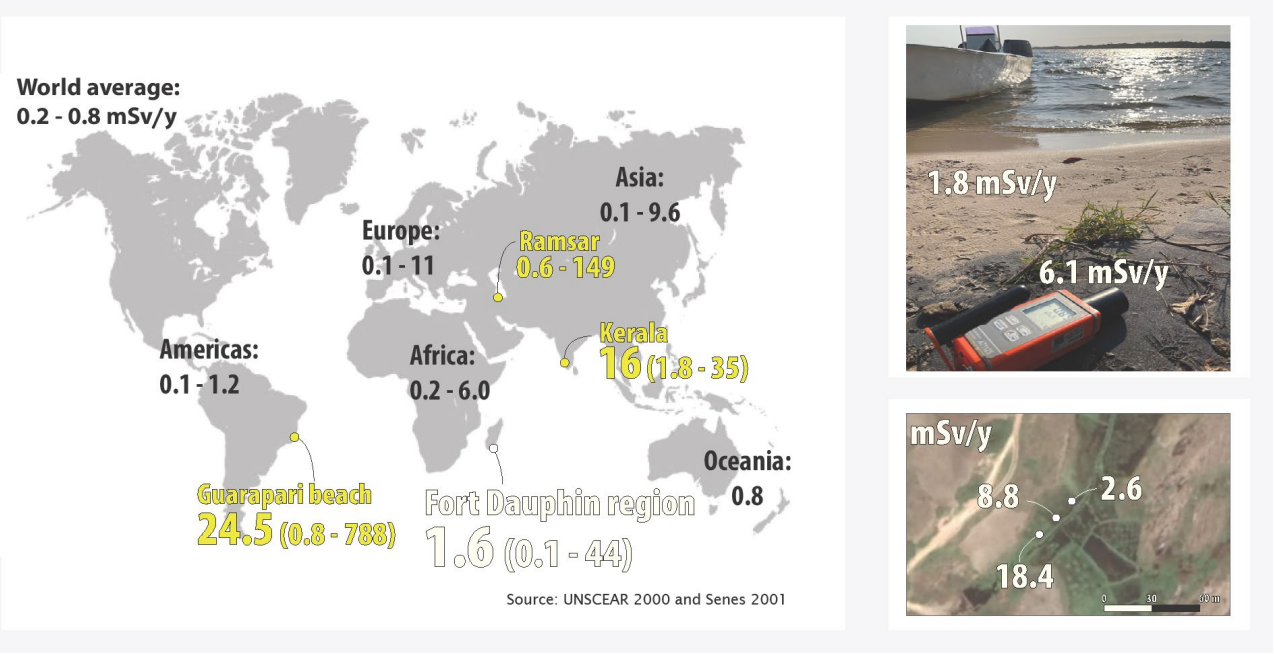
Table 2 Direct Gamma Conceptual Pathways

ID	Source	Pathway
1	Dust	Gamma radiation -> body
2	Soil – pre & post rehab	
3	Product – transport & storage	

Total Doses

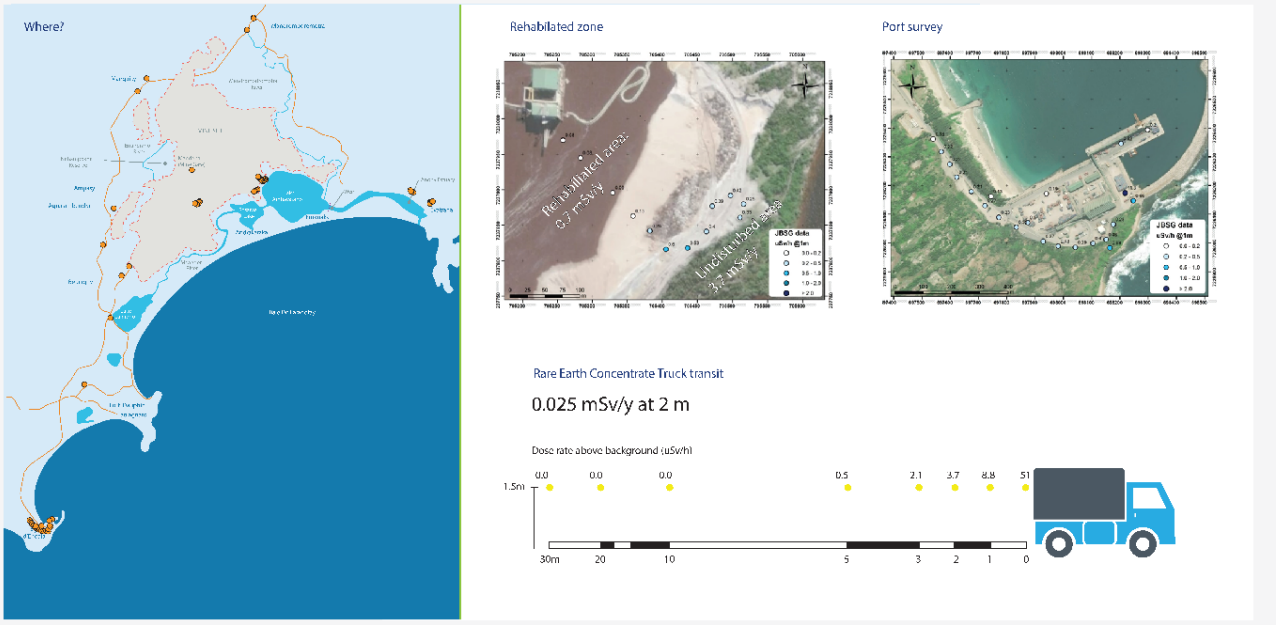
- Natural gamma doses in the Fort Dauphin region are within natural ranges expected for mineral sand provinces as measured pre-mining.
- Regional and local variability was validated as being high e.g., rice paddy, lakes edge, beaches.

Figure 14 Global Direct Gamma Doses and Local Regional Examples



Potential Mine Increment

- Gamma dose rates were found to be reduced in areas that have been mined which is to be expected due to the removal of the radioactive product, with post rehabilitation dose rates are lower than regional averages.
- No attempt was made to determine a total dose to members of the public that may undertake woodcutting as the mine increment would be less than pre-mining rates.
- The mine increment due to rare earth concentrate transport was measurable and found to be < 0.025 mSv/y, for ilmenite 0.005 mSv/y and for zirsill 0.002 mSv/y as a conservative over-estimate.
- Transport and storage of products has very low to zero radiation dose impact on the community.



Technical details regarding the measurements of direct gamma radiation are presented in the **Appendix A1**.

7.2 Inhalation – Breathing in Dust and Radon/Thoron

Approach

Dust

New dust deposition monitoring stations were established in upwind and downwind locations, co-located with air quality monitoring sites. Such stations allow the collection of sufficient physical dust sample whereby radionuclide concentrations and deposition rates could be determined. Utilisation of the continuous air quality monitors was then used to characterise dust concentration in the air and calculate total dose. Breathing rates used for dose calculations were sourced from international standards ICRP[14].

Radon/Thoron

Previous studies[15,16] concluded that radon/thoron was unlikely to be a significant exposure pathway given the local environment and housing construction practices. Targeted monitoring was established to confirm these previous findings.

Observations / Lessons learned

- Houses are generally well ventilated due to their construction.
- The fact that 15 months of dust monitoring was achieved, given the challenges faced, should not be underestimated. This is a valuable dataset which was able to determine, for the first time, the individual radionuclide concentrations contained in dust.
- The heavy mineral concentrate (HMC) is exactly as the name suggests, heavy, and it is not prone to dusting easily or far distances. Observations within the MSP during a very high wind event confirmed this fact.

Challenges

- Equipment installed within communities and is highly visible and can be readily stolen or vandalised.
- Equipment was damaged due to a truck collision.
- Following routine QA/QC procedures is difficult and requires constant checking and reminding to ensure data can be relied upon.

Conceptual Pathways

The most significant pathways as a result of the mine were seen to be dust, due to the windy environment creating a source for dust and a providing a strong mitigating factor for radon/thoron build-up.

[14] ICRP, 2012. Compendium of Dose Coefficients based on ICRP Publication 60. ICRP Publication 119. Ann. ICRP 41(Suppl.).

[15] INSTN 2017. Rapport de l'Etude de "L'Etat zero" pour l'Evaluation Radiologique de l'Environmment de L'Exploration et de l'Exploitation de Monazite de la Societe Rio Tinto-QMM, Mandan, District de Fort Dauphin, Region d'Anosy. Institut National des Sciences et Tecniques Nucléaires. Madagascar.

[16] PARC 2013. QMM Madagascar Minerals: Public Radiation Hazard Assessment. Atmospheric Pathway Radon and Thoron Hazard Assessment. PARC Scientific (PTY) Ltd.

Table 3 Inhalation Conceptual Pathways

ID	Source	Pathway
4	Dust	Wind -> breathing -> lungs
5	Radon/Thoron	

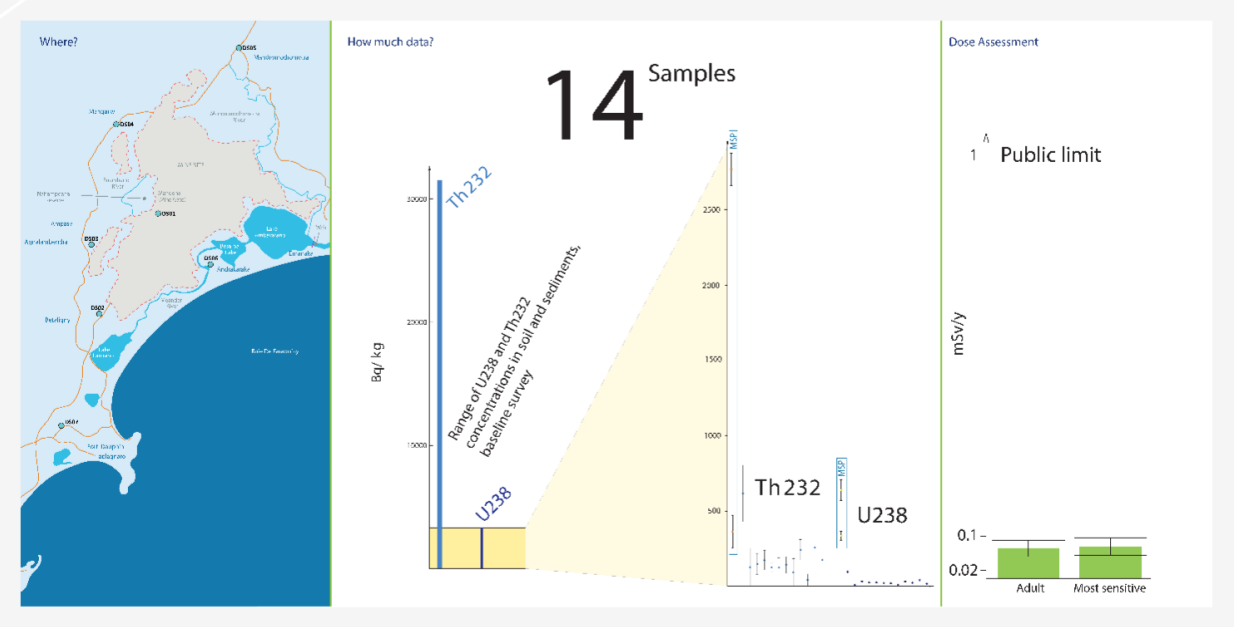
Total Doses

Dust

Breathing in dust across the region has a very small radiation dose of 0.07 mSv/year.

Radon/Thoron

Measurements determine that radon and thoron levels were within global averages. Radon is below the investigation level of 100 Bq/m^3 and thus no dose assessment was undertaken.



Potential Mine Increment

Dust

- Maximum possible dust contribution for the mine site is less than the total dose of 0.07 mSv and estimated to be 0.02 mSv using a downwind / upwind subtraction method.
- Dust close to the MSP, while containing higher radiation concentrations, is still at the lower range of regional soils. Results indicate radionuclide concentrations in dust are less than radionuclide concentrations in soil by an order of magnitude compared to average regional baseline values.

Radon/Thoron

- No dose assessment was warranted given the low concentrations recorded would result in an insignificant pathway from radon and thoron.

Technical details regarding the measurements of radon/thoron are presented in the **Appendix A2** and dust in **Appendix A3**.

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7.3 Ingestion – Drinking Water

Approach

Samples were collected at various locations, including points of consumption across the region and analysed for radionuclide concentrations, unfiltered. Points of consumption include surface water in lakes or rivers, spring water and ground water wells.

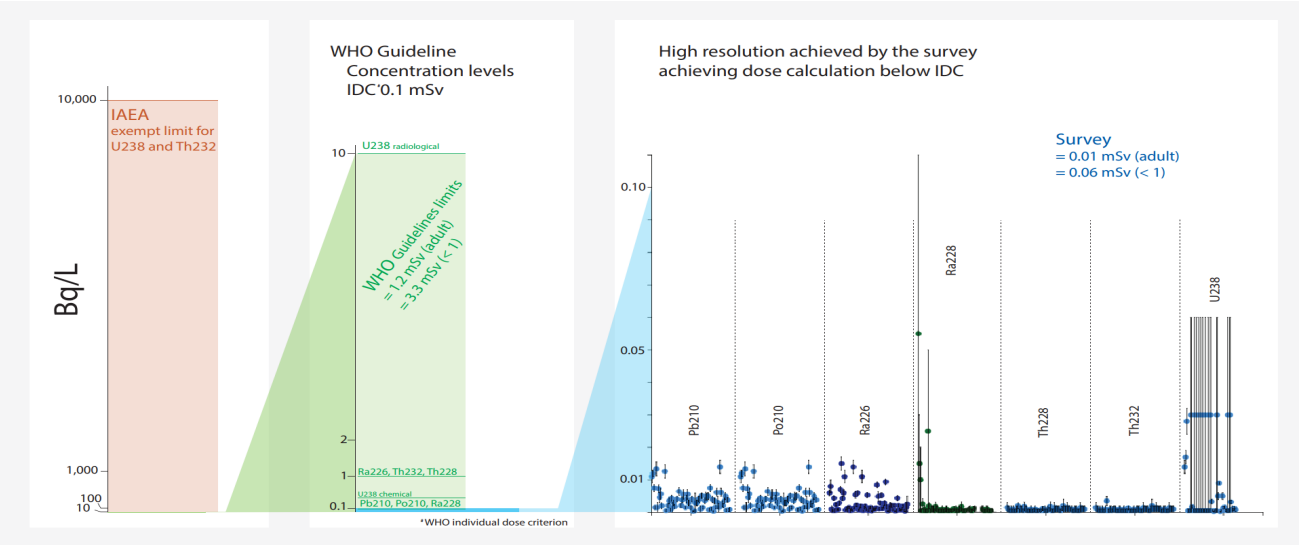
Drinking rates used for dose calculations were sourced from international standards (WHO[17]).

Observations / Lessons learned

- Communities often drank unfiltered water from the lakes as the wells are commonly not operational.
- The water would naturally settle over time, meaning that communities would not drink all of the sediment contained within the first collected water. Dose estimates would thus be conservative as these were calculated on unfiltered samples.

Challenges

- Obtaining sufficient sample volumes and then working with the laboratory to establish an analysis strategy, with detection limits that are appropriately low, not only for comparison with water quality guidelines, but also for a suitable resolution in dose assessments.



Conceptual Pathways

The most significant pathway as a result of the mine was seen to be the surface water pathway, as dust is minor, groundwater wells are not commonly used, and the groundwater seepage pathway would have layers of filtering and dilution.

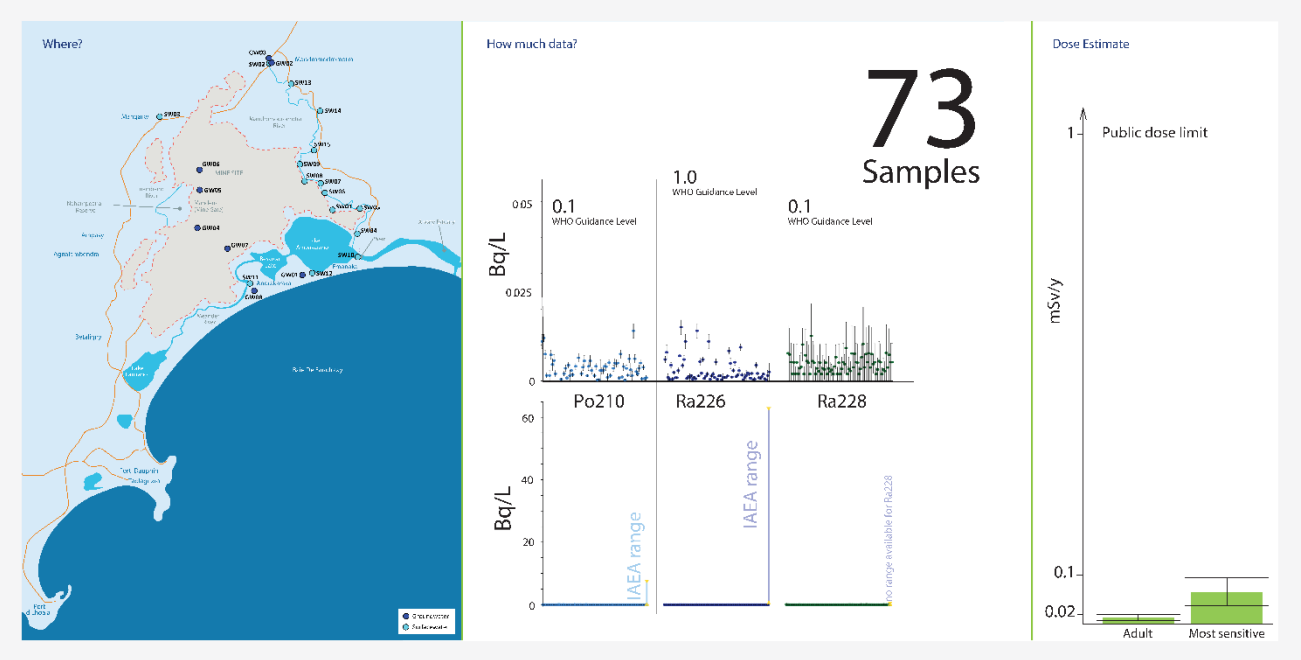
[17] WHO, 2017. Guidelines for drinking water: fourth edition incorporating the first addendum, World Health Organization 2017.

Table 4 Ingestion Drinking Water Pathways

ID	Source	Pathway
6	Dust	Deposit in surface water -> drinking
7	Surface Water	Surface water discharge -> wetland -> river / lake -> drinking
8	Groundwater	Groundwater seepage -> wells -> drinking
9	Groundwater	Groundwater seepage -> wetland -> river / lake -> drinking

Total Dose

Drinking water across the region has low radiation levels, with a total dose of 0.06 mSv/y and at least an order of magnitude below WHO guidelines for all radionuclides analysed (radiological and chemical properties considered).



Potential Mine Increment

- Large variations in NORM mean that ‘control’, ‘background’ or in this case ‘upstream’ locations could naturally be higher or lower than ‘downstream’ of the mine and thus deliver an erroneous result when ‘background is subtracted’ to determine the mine increment.
- To address the potential mine contribution to drinking water via release of mine waste water into the MMM river during periodic permitted release, samples were collected from within the mine waste water decantation pond network and at the point of release.
- Radionuclide analysis undertaken on mine process water indicates mine contribution from future waste water discharge would be at concentrations below the WHO guidance levels for drinking water (with the potential exception of one radionuclide), decreasing to natural background concentrations on mixing with the receiving water environment of the MMM river.

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- All waters within release and decantation ponds and all waters outside of the mine perimeter returned concentrations within baseline LODs and within the range of radionuclides measured in the baseline survey (Pb210, Th228 and Ra228).
- Dilution factors are based on measured water quality data collected intermittently over a three month period in 2022 with laboratory analysis undertaken in Australia, the data while based on a limited data set indicated dilution factors of circa 90% and were estimated by comparing metals concentrations at the point of discharge from the water treatment plant operating at capacity with the first sampling point downstream of the intersection with the MMM river. Such factors agree with the gross alpha and beta dilution found in the PARC study. Further significant dilution would occur before reaching communities.
- Sediment sampling undertaken across the Mandena mine, at the historical and current discharge channels and within the MMM river contain U and Th within the range of natural variability (when comparing upstream sediments and baseline values). Analyses did not indicate enhancement of radionuclides by the mining process (No disequilibrium identified, no evidence of Ra226 or Ra228 enhancement in downstream sediments).
- Ra228, which was not measured directly, is likely to exceed the WHO drinking water guidance level of 0.1 Bq/L in the two decantation pond samples. Further from the plant, dilution factors indicate concentrations would be below WHO guidance levels on release to the wetland leading to the MMM river. Three samples from the baseline survey reported Ra228 concentration between 2.1 and 2.4 Bq/L, indicating that Ra228 concentration above WHO guidance levels occur naturally in the area.
- The maximum possible drinking water contribution from the mine site is less than the total dose of 0.06 mSv/y and estimated to be less than 0.02 mSv/y using an up-stream, down-stream subtraction method.

Technical details regarding the measurements of water are presented in the **Appendix A4**.

7.4 Ingestion – Eating Crops

Approach

- Given no radionuclide data was available for any crops, it was unknown if radionuclides would be present in any measurable concentrations.
- A broad range of foodstuff samples were collected based on what was known to be a significant proportion of local diet and what was directly observed being consumed at the time of each sampling round.
- Sampling was undertaken seasonally in an attempt to capture any significant variation in diet consumption.
- Only edible portions were submitted to the laboratory. However, all crops were analysed raw, adopting a conservative approach for foodstuff that is consumed after cooking (e.g., rice, cassava leaves, etc.).
- Consumption rates were obtained from a contemporary food survey (results included in Sampling Round 4 data report) which were used to also compare against international standard food consumption information.

Observations / Lessons learned

- There are some years where no waste water discharge occurs.
- Mine discharge enters a significant wetland area prior to the MMM River, which would further filter any elevated radionuclides attached to sediment.
- There is limited irrigation in the region due to high rainfall.

Challenges

- Local variability in soil radiation level is high at distances as low as metres.
- Obtaining sufficient sample mass volumes and then working with the laboratory to establish an analysis strategy, with detection limits that are appropriately low for a suitable resolution in dose assessments.
- The determination of local consumption rates, proportion of locally grown food and their consumption, cooking habits and seasonal patterns of diet was difficult, often due to local social stigmas leading to exaggerated unrepresentative reported quantities.

Conceptual Pathways

Dust and surface water pathways are minor contributors to dose. Wet deposition from atmospheric radon decay products is a natural contributor. Radionuclide concentration in surface and ground water (outside of the mine and within the mine in release and decantation ponds) are within reported baseline ranges. While measured concentrations are larger within the mine perimeter, established indicative dilution factors are such that released water reaching communities, and potentially used for irrigation, would contain radionuclide concentrations at the lower end of natural background ranges.

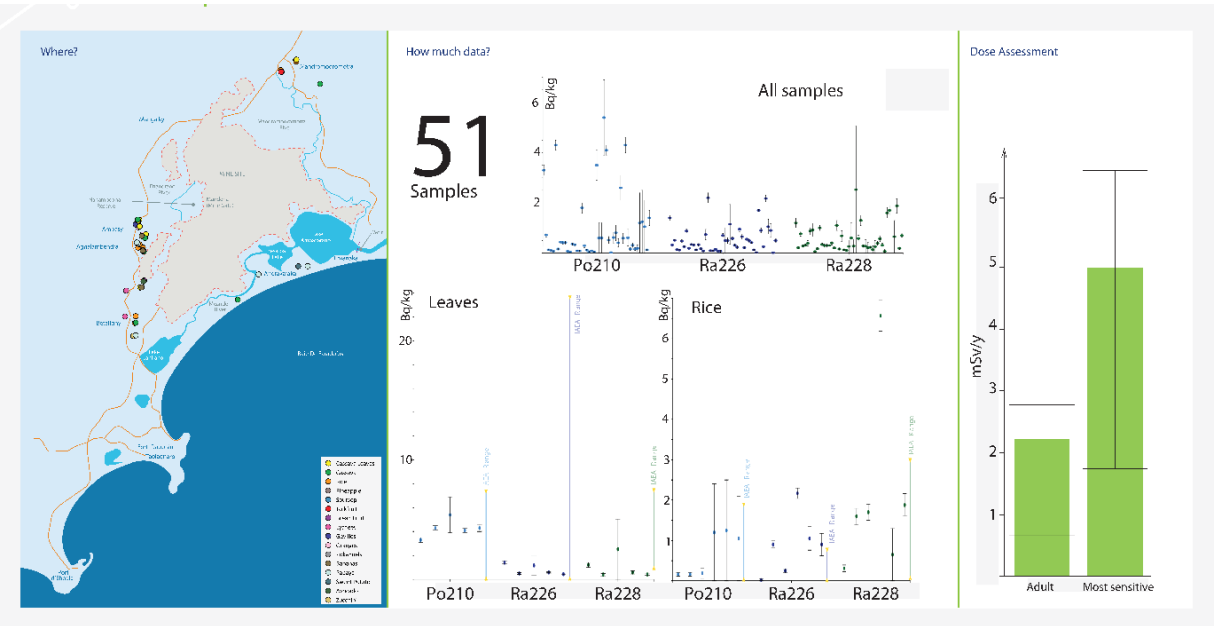
Table 5 Ingestion Eating Crops Pathways

ID	Source	Pathway
11	Dust	Deposit on crops -> eating
12	Dust + Radon	Wet deposition on crops -> eating
13	Dust	Deposit in surface water -> irrigation -> crops -> eating
14	Dust + Soil	Deposit on soil + soil -> root update in crops -> eating

ID	Source	Pathway
15	Surface Water	Surface water discharge -> wetland -> river / lake -> irrigation -> crops -> eating
16	Groundwater	Groundwater seepage -> wetland -> river / lake -> irrigation -> crops -> eating

Total Dose

- Across all communities, eating plants and fruit results in a moderate radiation dose but within expected averages of mineral sands regions globally.
- Radionuclide sampling results demonstrate a large natural variation, masking any potential mine site contribution.
- Fugitive dust has been eliminated as a significant contributor to the dose pathway with the local soils having a far greater influence.
- Relatively elevated Po210 concentration in leaves indicate that dry and wet deposition is a significant contributor to dose. However, an incremental dose from QMM operations cannot be identified and dry and wet deposition can be eliminated as a significant contributor to the dose pathway
- Localised radon and thoron concentrations are low. Dust analysis suggests regional effects dominate radon decay products concentrations in dust and rainwater and Po210 concentrations on leaves collected upwind and downwind from the mine site returned comparable values.



Potential Mine Increment

The pathway from QMM operations to crops via surface water, is considered a negligible increase due to moderate discharge concentrations, infrequent discharges, wetland filtering of mine discharges, river flow dilution factors and limited irrigation practices.

Technical details regarding the measurements of eating crops are presented in the **Appendix A6.**

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7.5 Ingestion – Eating Aquatic Food

Approach

- Given no radionuclide data was available for any foodstuffs, it was unknown if radionuclides would be present in any measurable concentrations.
- Aquatic food samples were collected based on what was known to be a significant proportion of local diet and what was directly observed being consumed at the time of each sampling round.
- Sampling was undertaken seasonally in an attempt to capture any significant variation in diet consumption.
- For fish sampling, a conservative approach was adopted which involved including all of the uncooked fish in the analytical processes, thus providing an exposure scenario that would be greater than the most likely case and avoiding any risk of under-reporting of exposure.
    - A variety of species and sizes of fish are consumed. Some of the larger fish are gutted, deboned and cooked prior to consumption. This practice would decrease the overall radionuclide consumption due to certain radionuclides being concentrated in the bones and gut. The cooking process would partly volatilise polonium at temperature, further reducing actual radionuclide consumption.
- Pathways for mine contribution to enhanced radionuclides in aquatic food via mine waste water releases into receiving surface water bodies and potential enhancement of radionuclides in sediment and macroinvertebrates was examined by sampling onsite waste water in the decantation ponds and broad sediment sampling along historic and current discharge pathways including upgradient and downgradient of the discharge points in the MMM river.
- All water samples within release and decantation ponds and all waters outside of the mine perimeter returned concentrations within baseline LODs and within the range of radionuclides measured in the baseline survey (Pb210, Th228 and Ra228).
- Dilution factors are based on measured water quality data collected intermittently over a three month period in 2022 with laboratory analysis undertaken in Australia, the data while based on a limited data set indicated dilution factors of circa 90% and were estimated by comparing metals concentrations at the point of discharge from the water treatment plant operating at capacity with the first sampling point downstream of the intersection with the MMM river.
- Consumption rates were obtained from a contemporary food survey (results included in Sampling Round 4 data report) which were used to also compare against international standard food consumption information.

Observations / Lessons learned

- Reported aquatic food consumption varies significantly amongst communities.
- Laboratory minimum detection limits for important radionuclides were found to be too high and thus a process of increasing sample mass, refining sample processing and adding analytical techniques was undertaken to improve the analytical resolution.
- In order to obtain sufficient sample mass, composite samples were collected, each consisting of multiple fish of several fish species.
- Laboratory processes were improved in order to improve sample homogeneity.
- Radionuclide concentrations are within ranges given by UNSCEAR, IAEA and other sources.
- Uranium and thorium in shrimps/prawns are in agreement with measurements carried out on one grab sample in the baseline survey. The baseline survey measured U and Th in fish flesh, which should not be compared to total fish (bones and organs included).

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- Radionuclides with a significant dose contribution (higher dose conversion factors) typically bioaccumulate in the digestive system and in bones, portions that may not be consumed, and thus doses estimates in this Study should be considered conservative and an over-estimate.

Challenges

- In a region that has a low socio-economic profile and where residents are surviving hand to mouth with limited to no refrigeration, the Study Team grappled with the prospect of removing fish from their food basket as the loss of protein from diets is a current and real health issue.
- Fish may have been abundant in the past, but reduced catches and sizes of fish are likely to be a result of unsustainable fishing practices. Obtaining large numbers and volumes of samples have practical limitations. As an example, the target of 1 kg of fish sample size set after the first round could not always be achieved, even when spending several days of fishing.
- Regional fish were caught but the high natural variability could unintentionally over or under-estimate the mine contribution component and thus a regional lake or river as a 'control' site is not seen as valid method of incremental determination for aquatic food.

Conceptual Pathways

The most significant pathways as a result of the mine were seen to be surface water related (pathways 20 and 21) as the potential for radionuclides to be elevated through the activity of mining, when discharged to the environment, could be adsorbed by aquatic fauna and bio-accumulate.

Table 6 Ingestion Eating Aquatic Food Pathways

ID	Source	Pathway
17	Dust	Deposit in surface water -> aquatic food -> eating
18	Dust	Deposit in surface water -> sediment -> aquatic food -> eating
19	Surface Water	Surface water discharge -> wetland -> river / lake -> sediment -> aquatic food -> eating
20	Surface Water	Surface water discharge -> wetland -> river / lake -> aquatic food -> eating
21	Groundwater	Groundwater seepage -> wetland -> river / lake -> sediment -> aquatic food -> eating
22	Groundwater	Groundwater seepage -> wetland -> river / lake -> aquatic food -> eating

Total Dose

- Across all communities, eating aquatic food results in a moderate radiation dose within the reported range globally.
- Radionuclide concentrations in fish caught in mine paddocks are similar to concentrations in fish caught upstream and downstream from release points. This indicates that water in some of the mine paddocks may contain low radionuclide concentrations and/or varied uptake coefficients exist within different fish species.
- The data collected in this Study did not return doses in fish that can be compared to the range of dose rates modelled by PARC (2013). The dose estimates presented in this Study are based on measured radionuclides. The PARC model, on the other hand, is based on gross alpha and beta counting from a limited amount of water samples, with equilibrium and intake ratio assumptions, with no sediment interaction. Large discrepancies are therefore expected for doses from fish ingestion and from any other pathway modelled in the PARC report.

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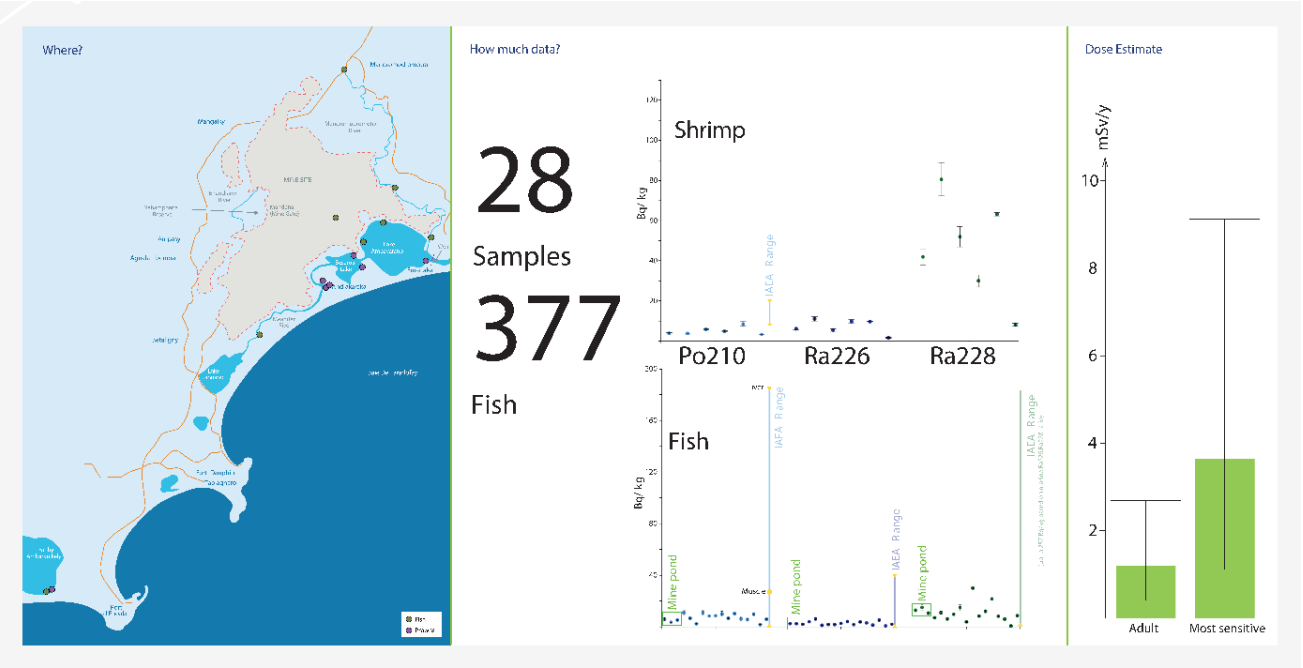
- Radionuclide concentration in surface water and groundwater (outside of the mine and within the mine in release and decantation ponds) are within reported baseline ranges. While measured concentrations are larger within the mine perimeter, indicative dilution factors are such that released water reaching communities, and potentially used for irrigation, would contain radionuclide concentrations at the lower end of natural background ranges.
- Pathways for mine contribution to enhanced radionuclides in aquatic food via mine waste water releases into receiving surface water bodies and potential enhancement of radionuclides in sediment and macroinvertebrates was examined by sampling onsite waste water in the decantation ponds and broad sediment sampling along historic and current discharge pathways including upgradient and downgradient of the discharge points in the MMM river.
- Radionuclide analysis undertaken on mine process water within the decantation pond network including at the discharge pond at the current release point indicates mine contribution from future waste water discharge would be at concentrations below the WHO guidance levels for drinking water (with the potential exception of one radionuclide, Ra228), decreasing to natural background concentrations on mixing with the receiving water environment of the MMM river.
- Sediment sampling undertaken across the Mandena mine, at the historical and current discharge channels and within the MMM river contain U and Th within the range of natural variability (when comparing upstream sediments and baseline values). Analyses did not indicate enhancement of radionuclides by the mining process (No disequilibrium identified, no evidence of Ra226 or Ra228 enhancement in downstream sediments).



Potential Mine Increment

- The major pathway from QMM operations to contribute to radionuclide concentrations in aquatic foods, surface water, is considered to contribute a negligible increase due to relatively low concentrations measured within the mine waste water decantation ponds (discharge would be at concentrations below the WHO guidance levels for drinking water (with the potential exception of one radionuclide, Ra228) and the measured indicative dilution factors on mixing with the receiving surface water within the MMM river. Values of key radionuclides in the mine ponds water (Th228 and Ra228)

are within natural ranges in the area, as reported in the baseline report. A potential contribution can therefore not be quantified but is estimated to be negligible.

Technical details regarding the measurements of aquatic food are presented in the **Appendix A6**.

7.6 Ingestion – Eating Land Animals

Approach

No land animals were killed for this study and no meat samples were collected as previous and contemporary food consumption surveys indicated that meat consumption was low and is not a major pathway.

Observations / Lessons learned

- Discussions and observations, in addition to the food consumption surveys, confirmed the lack of land-based meat consumption in the surrounding villager's diet.
- Animals were largely produced for sale in Fort Dauphin and beyond.

Challenges

- N/A

Conceptual Pathways

The below pathways are possible but not considered significant given that land-based meats do not form a significant part of villager's diet.

Table 7 Ingestion Eating Land Animals Pathways

ID	Source	Pathway
23	Groundwater	Groundwater seepage -> wetland -> river / lake -> irrigation -> animal drinking -> eating
24	Surface Water	Surface water discharge -> wetland -> river / lake -> animal drinking -> eating
25	Groundwater	Groundwater seepage -> wetland -> river / lake -> animal drinking -> eating
26	Surface Water	Surface water discharge -> wetland -> river / lake -> irrigation -> animal drinking -> eating

Total Dose

No total dose calculation was performed due to the lack of a significant pathway.

Potential Mine Increment

No total dose calculation was performed due to the lack of a significant pathway.

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7.7 Total Effective Dose – All sources, all nearby communities

Due to the geological, environmental, and social settings, total effective doses were expected to be elevated when compared to global background averages, but similar to other mineral sands provinces around the world. The Study confirmed these expectations with the highest annual radiation total effective dose (inhalation and ingestion) estimated to be 12 +- 1.7 mSv/year for the critical group (15-year-olds living in Andrakaraka) as outlined in Appendix A8 and presented here in **Table 8** and **Figure 15**. This dose accounts for the inhalation of dust and ingestion of foodstuff and water. A median baseline external gamma dose rate of 1.6 mSv/y (ranging between 0.1 and 44 mSv/y) is an additional natural pathway.

As presented in sections **7.4** and **7.5**, the dominance of diet in these dose estimates is significant. For example, an alternative food consumption profile (WHO Africa) would result in a dose estimate of 4.7 +- 1.0 mSv/year (**Table 8**).

Table 8 Annual dose per age and consumption profile- inhalation and ingestion (mSv/year)

Consumption Profile	Age Group Annual Dose (mSv)					
	<1	1	5	10	15	adult
Agnalambendra	0.09 ± 0.03	6.4 ± 1.6	5.2 ± 1.3	5.6 ± 1.4	7.3 ± 1.8	2.9 ± 0.8
Ampasy	0.09 ± 0.03	5.8 ± 1.3	4.7 ± 1.1	5.1 ± 1.2	6.7 ± 1.6	2.6 ± 0.6
Andrakaraka	0.09 ± 0.03	9.0 ± 1.4	7.4 ± 1.2	8.6 ± 1.3	12 ± 1.7	3.8 ± 0.7
Betaligny	0.09 ± 0.03	7.9 ± 1.7	6.4 ± 1.4	7.0 ± 1.6	9.2 ± 2.1	3.5 ± 0.8
Food Survey Average	0.09 ± 0.03	7.7 ± 1.6	6.2 ± 1.3	6.9 ± 1.4	9.2 ± 1.9	3.4 ± 0.8
Mandromo	0.09 ± 0.03	9.2 ± 1.7	7.5 ± 1.4	8.2 ± 1.6	11 ± 2.1	4.0 ± 0.8
Mangaiky	0.09 ± 0.03	7.6 ± 1.6	6.2 ± 1.4	6.7 ± 1.5	8.8 ± 2.0	3.4 ± 0.8
UNSCEAR	0.07 ± 0.02	4.2 ± 1.0	3.5 ± 0.9	3.9 ± 0.9	5.4 ± 1.2	1.9 ± 0.5
WHO African	0.08 ± 0.03	3.5 ± 0.9	2.9 ± 0.7	3.4 ± 0.8	4.7 ± 1.0	1.6 ± 0.4
WHO Madagascar	0.08 ± 0.03	3.7 ± 1.2	3.1 ± 1.0	3.6 ± 1.1	5.1 ± 1.4	1.7 ± 0.6
WHO Maximum Region Average	0.08 ± 0.03	6.4 ± 1.5	5.2 ± 1.2	6.0 ± 1.4	8.2 ± 1.8	2.8 ± 0.7
WHO Normalised	0.08 ± 0.03	4.2 ± 1.0	3.5 ± 0.9	3.9 ± 0.9	5.4 ± 1.2	1.9 ± 0.5

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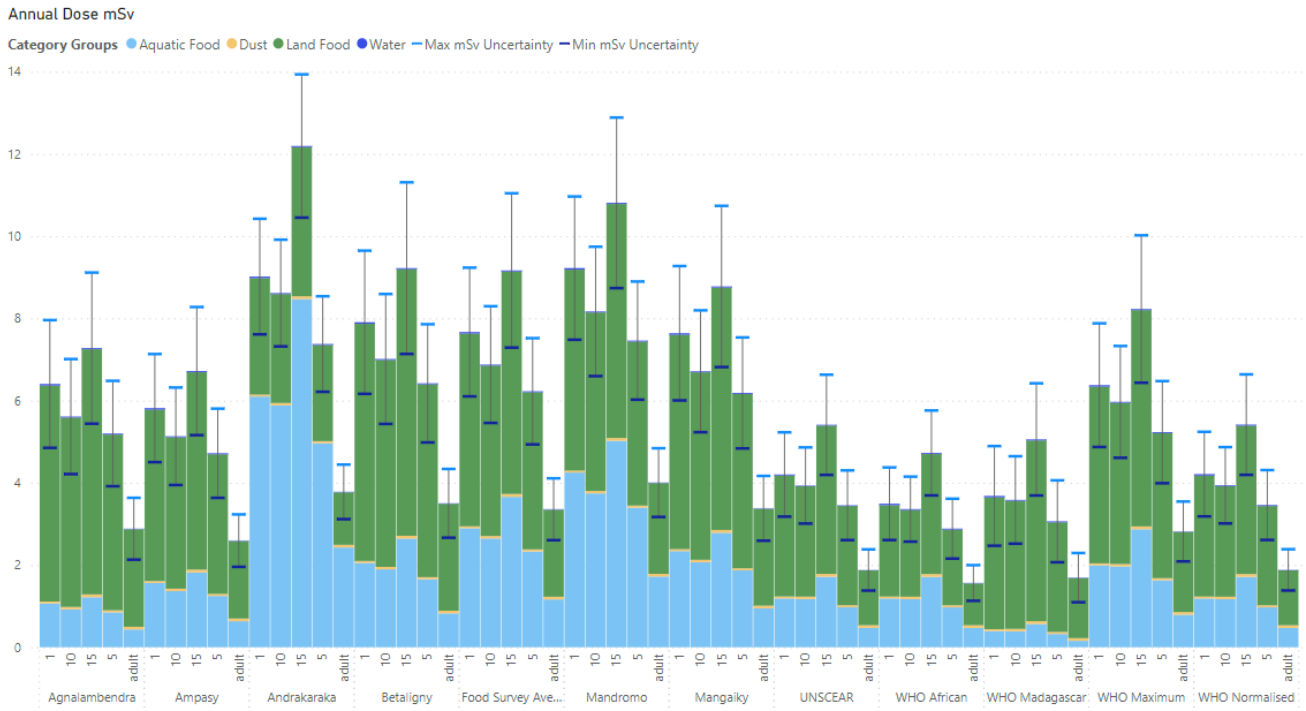
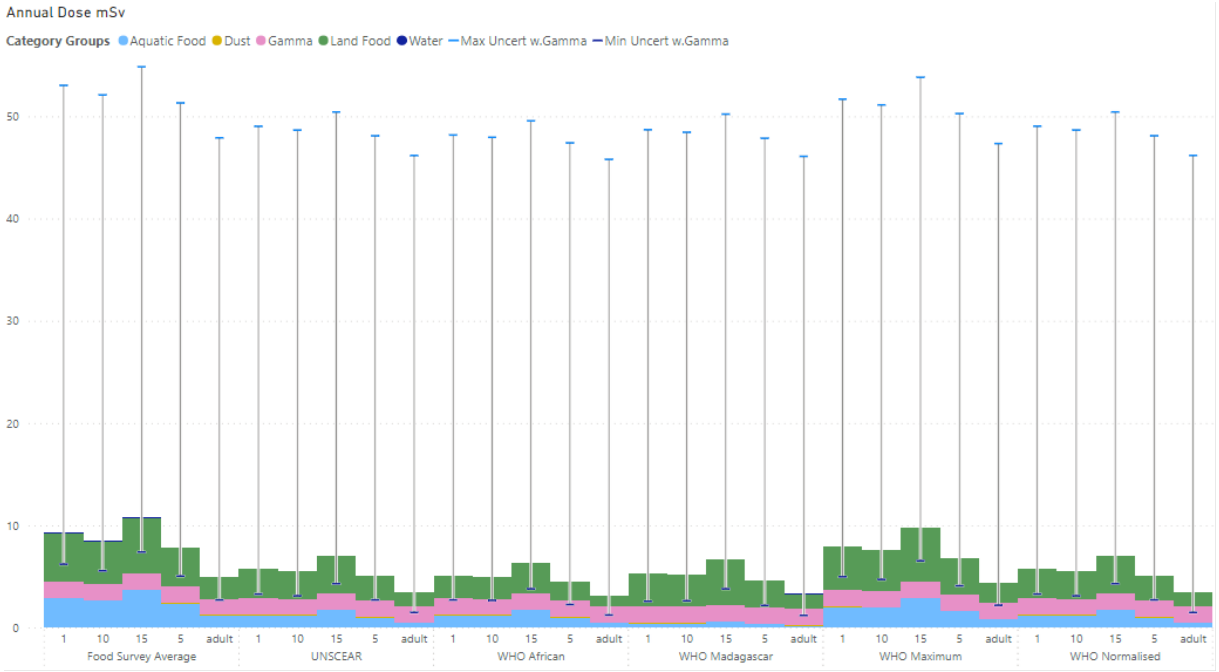
Figure 15 Annual dose comparison between consumption profiles from food and water ingestion, and dust inhalation, mSv/year



The annual dose comparison presented in **Table 8** and **Figure 15** does not include external exposure to gamma. This pathway must be considered when establishing total annual dose. The baseline gamma survey provides information about natural background gamma doses in the region of Fort Dauphin, with a median value of 1.6 mSv and measurements ranging from 0.1 to 44 mSv/y. **Figure 16** displays the annual doses considering regional, continental and worldwide consumption profiles and includes the regional gamma exposure determined during the baseline survey.

Figure 16 Annual dose comparison between consumption profiles, with baseline gamma, mSv/year

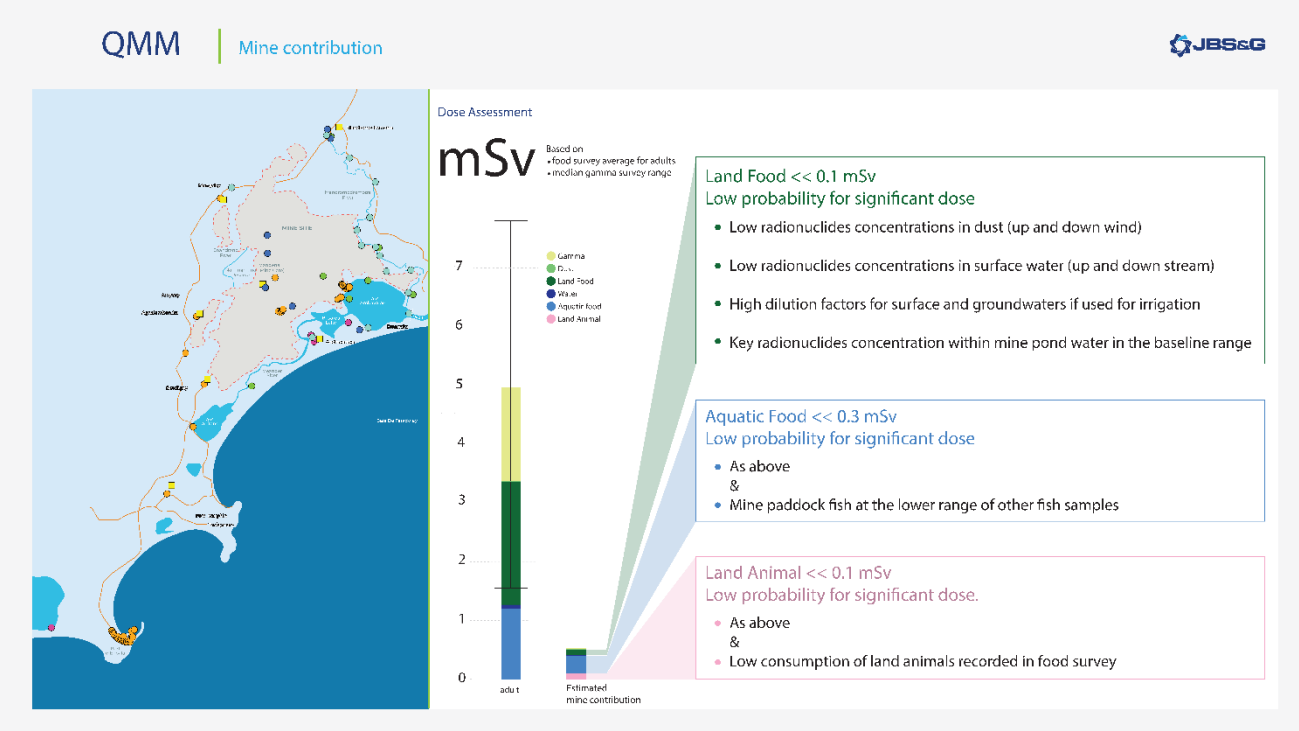


Contributing findings of note are:

- Radiation concentrations are highly variable and dominated by natural variations in soils.
- Eating land and aquatic based foods are the largest contributors to ingestion radiation dose.
- The food dose contribution varies according to the location and diet, with diet assumptions of each community being the dominate variable.
- Drinking water and dust are minor dose contributors.
- External gamma radiation shows the highest variability due to natural ground composition, and in places may be the most significant contributor to overall dose.

7.8 Mine Contribution

The dose estimate from the mine contribution is estimated to be significantly less than 1.0 mSv/year for all age groups, which is the regulatory limit above the naturally occurring dose associated with existing background. The 26 exposure pathways investigated lead to the conclusion that the following two pathways, discussed in **Section 7.5** (Surface Water pathways 19 and 20), had the highest potential for the greatest movement of mine generated radionuclides into the food chain and consequently the local community diet. All other pathways e.g. inhalation (dust/radon), ingestion of land-based food etc, have minor potential contribution in comparison.



Targeted surveys of surface water and sediments (sediments are good indicator of historical discharge accumulation) delivered data that confirmed that this pathway does not contribute a significant exposure pathway to local communities.

8. Discussion

8.1 Global context

While the annual dose limit for mine contribution above natural background to radiation dose is 1 mSv, there is no background radiation 'limit' for nature or naturally occurring radioactive material (NORM) concentrations.

Historical and ongoing studies for many decades have concluded that health effects from radiation are not observable below 100 mSv (ICRP 103). International standards have been designed to ensure the radiological protection of people and the environment with significant safety factors. Regulatory limits for annual radiation dose to members of the public of all ages, living nearby radiological facilities, having been set sufficiently low at <1 mSv/y above natural background, as to ensure an equally low and safe environment in which to live. It should be noted that the International Commission on Radiological Protection (ICRP 103) state that interventions are unlikely to be justifiable for exposure to natural background radiation between 1 mSv and 20 mSv per year.

The technical challenge has always been to differentiate between naturally occurring radiation levels, especially in areas with elevated natural backgrounds, and those that may be enhanced by mining activities. Large natural variability (spatially and temporally) makes demonstrating regulatory compliance, conclusively and statistically, a difficult task.

8.2 Local Pathways

Each potential exposure pathway that could contribute to a local community members' radiation dose was systematically and proportionally investigated. Results from the Study clearly demonstrate that the ingestion of aquatic fauna (fish and shrimp) and the ingestion of some land foods (leaves and rice) are the dominant contributors to total dose, depending on individual and village consumption assumptions.

Both of these dominant pathways were investigated further to determine if the mine could be a significant contributor to the radionuclide levels measured along the exposure pathway.

The radionuclide concentrations found in aquatic fauna and crops are within global ranges, but there are very few, if any, published fish ingestion dose calculations accounting for all radionuclides of the uranium and thorium decay chains, largely because there are very few studies which go to the effort to calculate these particular ingestion pathways.

In addition to this, many mineral sands provinces simply do not have nearby subsistence villages eating large quantities of aquatic fauna. Most exist in arid environments.

By the very nature of the environment, the operation of the mine and the conservative nature of the Study, there are many factors that contribute to the results. These include:

Location: NORM in the area is highly variable – in soil, sediments and in water. Aquatic fauna is mobile and may move from one low concentration area to a high concentration area, for unknown periods. Crop soil radionuclide concentrations may vary locally within metres as demonstrated from gamma surveys of fields meaning uptake from soil is highly variable.

Species: different species of fish or crustacean will have different diets and behaviours which will lead to different exposure pathways and ultimately differing radionuclides contained within each. Sampling collected a range of species which mimicked what the local villagers would eat. The exception to this is on the mine where the fish were dominated by one species. This species is caught off the mine regularly by villagers for consumption and was part of the sample mix. The fish on the mine are not routinely collected by villagers, but anecdotal information the Study Team obtained indicated that

occasional villagers may be taking some for consumption. The decision was made to sample these fish because of this potential pathway.

Eating preparation: smaller fish are eaten whole while larger fish are gutted and de-boned. The same observation applies to crustacean. The Study took a conservative approach and included all of the fish in all analysed samples, resulting in an over-estimate of contained radionuclide concentrations, particularly with high ingestion factors, such as Ra226 and Ra228, which accumulate in bones and shells, and Po210, commonly enhanced in digestive systems.

Cooking: the process of cooking food prior to eating is commonplace and would volatilise some of the contained polonium. The Study Team did not cook the fish, crustacean or crops which would result in an over-estimate of contained radionuclide concentrations.

Consumption: global average consumption was seen as a crude factor given the local scenario. A specific and contemporary food survey was attempted. Doubts remain around the results of the survey given some of the data received seems extreme and through discussions with many locals, social biases, such as a perception of poverty associated with low consumption of fish product, may result in an over-stating of fish consumption.

Trade: aquatic products are a valuable source of income. Catches are commonly sold or traded for other staple food, including aquatic product. Locally caught fish may not represent the only source of fish consumed in communities.

River, lakes and ocean: While some families specialise in fishing in freshwater systems, the southern communities also venture in the ocean to catch saltwater aquatic product, living away from any mine influence area. The typical consumption proportion of fresh to salt water species is unknown as the food survey did not distinguish between them.

Uptake: radionuclide uptake will be different in aquatic species as will the internal deportment of the radionuclides e.g., some fish will concentrate more radionuclides in their bones and gut than others. The exact uptake factors per local species is unknown.

Dilution: the rainy season will increase flows in the river and contribute to more flow through the lakes. This surface water movement and subsequent groundwater interaction is not quantified. This natural water flow variability upstream and downstream will interact with the NORM variability in unknown ways.

Mine discharges: from visual observations and limited data, the river flow is much larger than the intermediate mine discharge. This intermediate nature of mine discharges, the unknown historical radionuclide concentrations of these discharges, coupled with the indicative dilution factor discussed previously, results in significant and unknown uncertainty.

The regulatory constraint of 1 mSv/y, above this natural background, is clearly less than the average total dose from the ingestion of aquatic product (1 mSv/y compared to 1.2 mSv/y to an adult), and on the lower end of the data range found in just the aquatic fauna ingestion exposure pathway alone (1 mSv/y compared to 0.4 – 9.0 mSv/y, when including the most sensitive age groups and all consumption profiles).

In an attempt to discern the mine contribution, one potential solution would be to take many more samples.

There is the practical difficulty in this approach in that it can take several days of sampling just to collect sufficient fish to constitute one sample – ideally after home preparation and cooking. There needs to be at least 1 kg of fish provided to the laboratory to enable radionuclide concentrations to be determined given they exist at such low concentrations in the environment.

There is also the significant social dilemma in the approach of taking large volumes of fish for radionuclide analysis, fish that could have been a family's meal that night. The removal of protein for this subsistence lifestyle would contribute to negative health outcomes.

The scenario was investigated further using some simple statistical methods in an attempt to determine if the averages between on-mine fish and off-mine could be separated by collecting more samples. Firstly, it is acknowledged that 3 samples on the mine is a limited data set, irrespective the scenario was run for an ever-increasing number of simulated samples. The results indicate that many tens of samples would need to be taken to achieve a range separation. This result should be read with significant caution, as the range separation would eventually demonstrate that average on-mine fish radionuclide concentrations are less than off-mine fish concentrations, highlighting yet again the high natural variability and the ineffectiveness of attempting to establish 'background' or 'control' sites.

The Study Team considered the discussion points above and concluded the most appropriate next step was to examine the potential pathways of radionuclides from the mining operation. Radionuclide concentrations in dust are at the lower end of the concentrations measured in soils during the baseline survey and dust production is dominated by very local parameters, mine contribution is likely negligible.

Wet deposition from radon and thoron is influenced by regional effects, from areas beyond the mine site as demonstrated from low local radon levels. Therefore, the water and sediment pathway was targeted for further investigation, both surface water within the mine site perimeter (in release and decantation ponds) and sediment in the river and lake system out of the mine site.

Sediments collected downstream from release points show uranium and thorium concentrations within the range of baseline values, and within the range of upstream sediments. Radionuclides in sediments have comparable concentrations compared to the head of chain. As such, there is no enhancement of radionuclides that may mobilise in water (such as radium). This demonstrates that there was no significant discharge of solids containing anomalous levels of radioactivity, and that the release of waters has no impact on radionuclide concentrations in sediments.

The analyses of radionuclides in waters within the mine perimeter shows that elevated levels are observed within the mineral separation plant. Out of the plant, radionuclide levels are within the natural background range measured in the baseline survey, including in the release pond and decantation ponds. All radionuclides are lower than WHO guidance levels, with the exception of Ra228. However, naturally ocurring Ra228 concentrations above WHO guideline levels were measured during the pre-mining baseline survey.

The results of these later investigations demonstrated that the mine was unlikely to increase radionuclide levels in the surrounding water environment above natural levels. Therefore QMM dose contribution, when considering the aquatic fauna ingestion, will be negligible. Similarly, with all viable pathways to land crops unlikely to increase radionuclide concentrations above natural levels the dose contribution, when considering land crop ingestion, will be negligible.

8.3 Future areas of focus

Monitoring

Results have demonstrated that some pathways do not exist or are minor contributors to a community member radiation dose. Future monitoring of these pathways should be limited to those targeted media that are deemed necessary to demonstrate the negative contribution to exposure. For those pathways for which mining may have an ongoing influence, discussions should occur with key stakeholders and regulators to determine the best approach towards a monitoring program. These could include ongoing gamma monitoring of revegetated mined areas, mine water discharges, water treatment plant residues and local dust levels as the mine continues to expand closer to local communities. The extent and frequency of future monitoring is a balance between the need to demonstrate compliance, the need to provide community comfort that radiation levels remain low and the need to update knowledge if and when mining practices change.

Communication

Total effective doses to local communities that are above global averages could be misinterpreted as being 'high' and 'unsafe'. Further, this could be misinterpreted as being the result of mining. It is critical that the results are clearly and factually communicated because if miscommunicated or misinterpreted, there could be unintended and inappropriate reactions taken that could have adverse effects on the community. For example, regulators could inappropriately react by restricting the consumption of fish, which would have a significant negative health affect. The radiation levels do not warrant this form of control. It should be noted that the International Commission on Radiological Protection (ICRP 103) state that interventions are unlikely to be justifiable for exposure to natural background radiation between 1 mSv and 20 mSv per year.

Ongoing and improved collaboration with a range of stakeholders to assist in appropriate communication should be a future focus area.

9. Conclusion

The Study has demonstrated that there is no need for heightened health concerns around local radiation levels, and that the mine has not significantly contributed to increasing these naturally occurring levels over the period of its operation.

International principles dictate that wherever possible radiation doses should be reduced to as low as reasonably achievable, societal, economic and environmental factors taken into account and thus the journey of improvement is never over. Rio Tinto, QMM and Government Regulators, must remain a focussed on the ongoing management of radiation at the Mandena mine.

Ongoing radiation monitoring should be targeted to those pathways that require regular validation that the radionuclide levels remain low, or those pathways that have the potential for future change that could cause an increase in radiation levels and subsequent doses.

Management of this future monitoring program should consider ongoing involvement of key stakeholders e.g. regulators and local communities in terms of design, sample collection, reporting and communication of the results more broadly.

It is vitally important that any radiation data and findings from this study and future monitoring are appropriately communicated with sufficient context, to the appropriate stakeholders, at regular intervals and in the appropriate format.

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10. Limitations

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and other parties.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

JBS&G accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by JBS&G, and should not be relied upon by other parties, who should make their own enquires.

Sampling and chemical analysis of environmental media is based on appropriate available guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements.

Limited sampling and laboratory analyses were undertaken as part of the investigations undertaken, as described herein. Conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

This report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown information pertaining to the site, JBS&G reserves the right to review the report in the context of the additional information.

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Appendix A1 Direct Gamma

Appendix A1 Gamma Radiation Surveys

1. Background

Gamma surveys are designed to measure the external radiation dose rates present in an environment (ambient dose).

There are a number of radionuclide sources that contribute to the measured ambient dose.

Cosmic rays and terrestrial radionuclides, present in the earth's surface, contribute to the ambient external dose rates. While the intensity of cosmic rays varies, typically increasing with latitude and altitude, it does not noticeably vary within a region.

The contribution of radionuclides associated with geological conditions can have a major impact on measured dose rates. In the context of a mineral sands deposit such as Mandena, the presence of heavy mineral sands outcropping or at the subsurface can significantly increase measurable external ambient dose rates. Localised distribution of soil and outcropping sediments containing heavy minerals can lead to major variability in measured concentrations within small areas.

2. Scope

A number of gamma surveys have been undertaken previously for the Mandena mineral sands mine, surrounding communities and environment including a pre mining baseline ambient dose assessment (SENES 2000[1]) and ongoing regional monitoring undertaken by the INSTN in 2014[2] and 2017[3] which have cumulatively acquired thousands of ambient dose rate measurements within and around the mine site.

The scope designed by JBS&G was limited to targeted surveys of potential direct radiation pathways associated with transport and storage of REC and comparative surveys using survey meters appropriate for environmental radiation surveys (low limit of detection) of residual concentrations within the remediated zones for comparison of surveys undertaken by QMM. The scope of gamma survey measurements undertaken by JBS&G included:

1. Surveys were undertaken by JBS&G field staff in transects across the rehabilitation area to compare survey readings with the 40 x 40 m grid surveys undertaken by the QMM Environment Team.
2. A survey was undertaken by JBS&G field staff around the Port d'Ehoala during storage of the rare earth concentrate (REC) prior to loading and transport of REC by ship. The timing of the survey coincided with the imminent loading of REC and was considered to represent the highest potential dose rate environment.
3. Adhoc survey measurements undertaken by JBS&G field staff during the 2019 and 2022 sampling events. Field survey measurements were recorded at locations in Andrakaraka, Emanaka, Ampasy, Mandromondromotra and Evatraha.

[1] SENES, Baseline Environmental Survey QMM's Heavy Mineral Sands Project, Madagascar, SENES Consultants, Richmond Hill, 2001.
[2] INSTN, Rapport sur « les mesures de la radioactivité gamma ambiante de la ville de Tolagnaro, et des villages environnants », 208/14/INSTN/DG/DRP/RD, Antananarivo, 2014.
[3] INSTN, Rapport de l'étude de « l'état zéro » pour l'évaluation radiologique de l'environnement de l'exploration et de l'exploitation de monazite de la société Rio Tinto – QMM, Mandena, district de Fort Dauphin, région d'Anosy, Antananarivo, 2017.

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4. Gamma dosimeters were installed at locations near road junctions where the road linking Mandena to the Port of Ehoala crosses the national roads. Loaded trucks transporting REC must come to a temporary halt at those two junctions.
5. Truck surveys using dose rate meters in a low ambient background area were undertaken by QMM environment team members supervised remotely by JBS&G to better assess whether a measurable dose can be expected from the transit of loaded trucks carting various products (REC, Illmenite and Zirsill) on the road linking Mandena to the Port of Ehoala.

3. Methodology

Two distinct methodologies were adopted to undertake gamma surveys; one required collection of direct short term dose rate measurements using survey meters, the second required installing optically stimulated luminescence (OSL) dosimeters to record medium to long term exposure at identified key exposure locations.

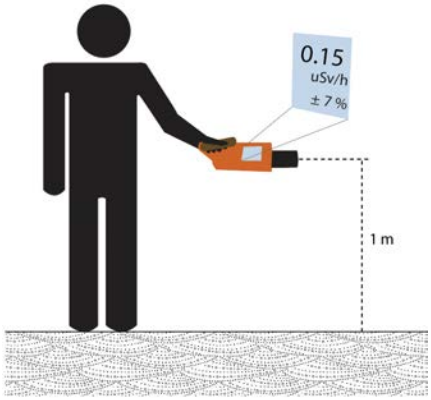
3.1 Survey Meters

Ambient gamma dose rates are measured at 1 m above natural ground level using calibrated gamma radiation survey meters. In some areas, the dose rate at ground level was also recorded. The instrument is kept away from the surveyor's body, at a measured and constant height. The same geometry is consistently applied during surveys, as illustrated in **Figure 1**.

Dose rate measurements were recorded when the meter displayed a stabilised reading, typically within 30 seconds to one minute. If the instrument displays an uncertainty on the measurement, a minimum stabilised error of 10% is required for the recording of the dose rate value. Displayed stabilised dose rate values are recorded in µSv/h.

Dose rates are recorded during specific gamma surveys, or while sampling for other media.

Figure 1 Dose Rate measurement geometry and measurement uncertainty



3.1.1 Truck Surveys

A truck with a full load of REC/Zirsill and Ilmenite was parked at the survey location, selected for its relatively low ambient background dose rate. The surface of the truck was surveyed to identify the location of the highest dose rate. Dose rate measurements were then recorded away from this point (perpendicularly to the truck) at set distances (1, 2, 3, 5, 10, 20 and 30 m). The truck was then removed, and natural background dose rate measurements were repeated at the same locations. Two instruments were used for the REC truck survey,

a ThermoScientific RadEye G-10 and a ThermoScientific Electra survey meter. Details of the truck survey recordings and interpreted results are included in Section 4.2.

3.1.2 Equipment Gamma Meters

During the first sampling round, JBS&G deployed two gamma survey meters:

- **Atomtex AT1125**
  Detector: Ø 25 x 40 mm NaI(Tl) scintillation
  Measurement range: 0.03 to 300 µSv/h
  Energy range: flat response from 50 to 3000 keV
  Annual calibration, traceable to Australian Standards
- **Atomtex AT1121**
  Detector: Ø 30 x 15 mm plastic scintillation
  Measurement range: 0.05 µSv/h to 10 Sv/h
  Energy range: flat response from 15 to 10,000 keV
  Annual calibration, traceable to Australian Standards

The condition of the survey meters was checked daily prior to survey measurements. A background dose rate was recorded within the Mandena area, in a relatively low ambient background location adjacent to the mine office. A response check using a Ba133 source was also carried out daily (**Figure 2**).

Figure 2 Daily background and source response checks



For the truck surveys QMM used their own survey meters. They consist of the following instruments:

- **ThermoScientific Electra**
  Detector: Geiger Mueller tube
  Measurement range: 0.1 µSv/h to 20 mSv/h
  Energy range: energy compensated between 60 and 1250 keV
  Annual calibration
- **ThermoScientific RadEye G-10**
  Detector: Geiger Mueller tube
  Measurement range: 0.5 µSv/h to 100 mSv/h
  Energy range: energy compensated between 60 and 1300 keV
  Annual calibration

A measuring tape was used to measure the distance of the instrument's detector to the ground and a GPS was used to record the position of the dose rate measurement. All instruments used by JBS&G and QMM for the gamma surveys measure contributions from both terrestrial and cosmic sources.

Locations

Ambient external dose rates were recorded in various settings:

- Within the mine perimeter, in rehabilitated and in unmined areas,
- In and around the Port of Ehoala during maximum REE concentrate storage capacity,
- In areas and villages surrounding the Mandena mine, while sampling for other media (such as plants, soil, water), or during reconnaissance activities,
- On the road linking the Mandena mine to the Port of Ehoala, at specific crossroads where stop signs are installed, requiring trucks carrying REC to halt,
- At set distances from trucks loaded with REC, Illmenite and Zirsill, within a low background area.
- Within the village of Evatraha.

Dose and dose rate measurement locations were mapped using Garmin GPS units in the WGS84 map datum and with coordinates recorded in UTM UPS format.

Measurement Processing

The stabilised dose rate was recorded on a field sheet, in accordance with the adopted procedures. The instrument's correction factor, provided by the calibration laboratory, is applied to the measured dose rate.

3.2 Dosimeters

With the use of a dosimeter Gamma rays are measured with OSL technology, using aluminium oxide detectors and multi-element filter packs. The range of dose measurable is between 10 µSv and 10 Sv, with a response to energies of between 5 and 40,000 keV.

Monitors were delivered to Adelaide and transited by international courier to Madagascar. A control monitor used to measure a background dose was kept in Adelaide. Another control monitor was used in an office in Mandena, where low ambient background dose rate was measured.

During installation of the monitors, a measuring tape was used to measure the height of the monitor relative to the ground. A GPS was used to record the position of the installation. Area dosimeters were placed in dedicated plastic pouches. The pouches were secured with nails on a suitable support (tree, fence, wall, as shown in Figure A1.3), at a height of 1.5 m ± 0.1 m above ground level. Efforts were made to maintain the integrity of the blister pack, to prevent heat and moisture damage. Supports were selected, so that dosimeters would be directly exposed to a potential anthropogenic source (trucks transporting REE concentrate), without additional shielding, whilst minimising direct sunlight on dosimeters.

3.2.1 Equipment Dosimeters

The Luxel+ dosimeters were provided by Landauer Australasia. The accumulated exposure was measured in mSv over the deployment period. Laser light at varying frequencies stimulates the aluminium oxide detector. The detector luminesces proportionally to the radiation dose and the intensity of stimulation light. The luminescence measured is applied to a dose algorithm. The response ratios between different filter positions within the monitor allows the discrimination between beta and photon (x and gamma) radiation fields to determine exposure results in mSv. Deep doses are considered for the assessment of external doses.

Figure 3 Construction of Landauer's OSL Detectors

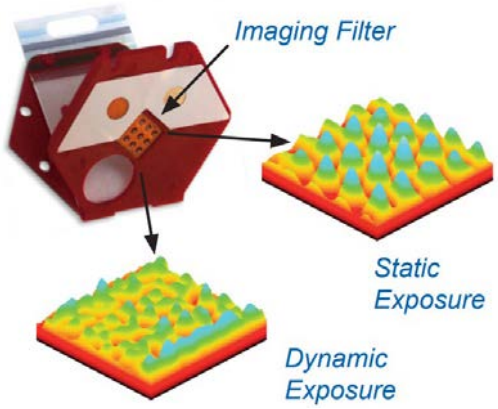


Figure 4 Dosimeter installed on a wall and on a tree and in a guards hut



During the initial deployment of dosimeters, OSL monitors were left in fixed position for a period of between five and six months. For the second deployment, the period was reduced to just over two months.

3.2.2 Locations

The deployment of area dosimeters targeting measurement of gamma dose from transit of REC by truck between the mine and port was selected targeting the highest potential exposure conditions being two crossroads where stop signs are installed. Trucks transporting REC concentrate from the mine to the Port of Ehoala come to a halt and give way to oncoming traffic. One local reference dosimeter was installed within the Mandena offices, in an area of low dose rate, relative to the crossroads.

The locations at which OSL monitors were installed are summarised in **Table 1** and the crossroads illustrated in **Figure 5**.

Table 1 Details of OSL monitoring locations

Area	Easting	Northing
Crossroad #1	700123	7233287
Crossroad #2	698413	7230336

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Area	Easting	Northing
Office	703072	7238172

Figure 5 Crossroad Locations Monitored along the Mine Haulage Road



During the first monitoring deployment, three dosimeters were installed at the Crossroad #1 and two monitors at the Crossroad #2. For both locations, monitors were placed on either side of the crossroad, so that doses on the loaded truck side could be compared to the doses from the empty truck side. Two dosimeters were placed on the loaded truck side as displayed in **Figure 6**.

Figure 6 Crossroad First Deployment Locations



Following the theft of monitors from Crossroad #2 during the first deployment, the second deployment targeted Crossroad #1 only. Duplicate monitors were installed on both sides of the crossroad, as shown on **Figure 7**.

Figure 7 Revised Locations for Second Deployment



Locations of monitors were mapped using Garmin GPS unit using the WGS84 map datum and with coordinates recorded in UTM UPS format.

3.2.3 Monitors Processing and Analysis

At the end of the monitoring period, monitors were retrieved in one day and brought back to Mandena, in accordance with the collection procedure. All monitors were kept in the office, packaged with the local reference monitor until the shipment to Australia. Monitors were appropriately packaged and labelled for shipping to Australia. Once received in Australia monitors were submitted to Landauer Australasia for analysis together with the relevant control monitor.

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4. Results

4.1 Terrestrial Gamma surveys

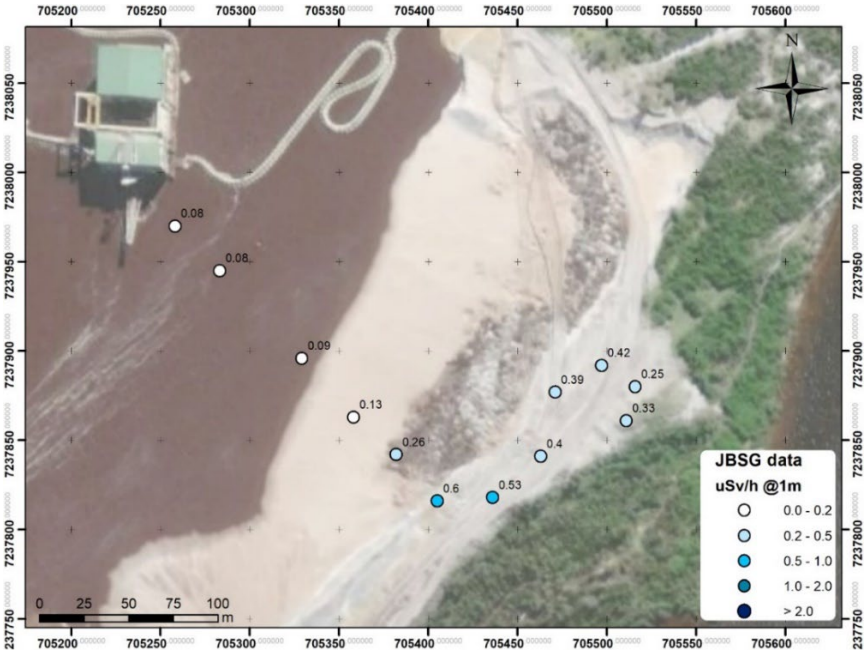
The baseline survey carried out by SENES in 2000[4] and ongoing regional monitoring undertaken by INSTN in 2014[5] and 2017[6] acquired thousands of ambient dose rate measurements within and around the mine site. These surveys established that external gamma radiation levels in the area are extremely variable, with background dose rates from terrestrial contributions comprised between 0.01 and 5.0 µSv/h. Mean regional dose rates determined by the baseline survey vary from locality to locality around the Mandena site ranging from 0.10 to 0.54 µSv/h.

The widespread presence of naturally occurring heavy minerals in the region are considered the dominant contributor to variability in natural dose rates measured across the region. The highest dose rates were measured at outcrops of heavy mineral sands exposed predominantly at beach locations.

4.1.1 Rehabilitation zone boundary

JBS&G performed a gamma dose rate survey over a sector straddling a recently rehabilitated area in the mine site and the buffer zone on the shore of Lake Ambavarano on 05/12/2019, no mining is permitted within the buffer zone and it is therefore considered representative of natural (unmined) conditions (**Figure 8**).

Figure 8 JBS&G Gamma Survey within the Rehabilitation Boundary Zone



Elevated natural background levels were recorded with an average dose rate of 0.42 µSv/h. Comparative pre-mining levels recorded during the baseline survey (SENES 2001) in an adjacent area ranged from 0.15 to 1.22 µSv/h

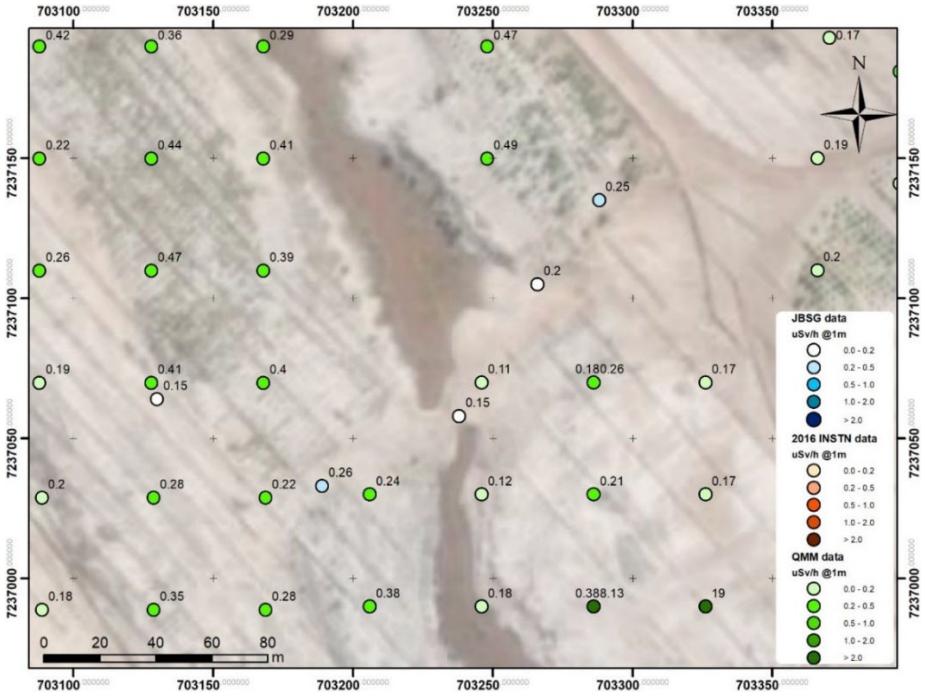
[4] SENES, Baseline Environmental Survey QMM's Heavy Mineral Sands Project, Madagascar, SENES Consultants, Richmond Hill, 2001.
[5] INSTN, Rapport sur « les mesures de la radioactivité gamma ambiante de la ville de Tolagnaro, et des villages environnants », 208/14/INSTN/DG/DRP/RD, Antananarivo, 2014.
[6] INSTN, Rapport de l'étude de « l'état zéro » pour l'évaluation radiologique de l'environnement de l'exploration et de l'exploitation de monazite de la société Rio Tinto – QMM, Mandena, district de Fort Dauphin, région d'Anosy, Antananarivo, 2017.

Survey results recorded within the pre mined remediation area measured relatively low radiation levels that are below natural background, with average dose rates of 0.13 µSv/h. A trend of decreasing dose rate is identified in a transect moving away from the buffer zone towards the rehabilitated area. The field survey results and location of the sample points are presented on **Figure 9**.

The results of this limited targeted survey confirms the conceptual model interpretation of reduced gamma dose rate concentrations within the pre mined remediated areas due to the removal of the mineral sands containing naturally occurring radioactive material (NORM).

Further survey readings were collected from locations in the rehabilitated zones, with comparison made to QMM survey data for these areas. It should be noted that the survey meter used by QMM for surveys in rehabilitation areas was unavailable for a direct comparison at the time of JBS&G's visit. The only instrument available was a ThermoScientific RadEye G-10, which is not adequate for measurements in environments with a background below 0.5 µSv/h.

Figure 9 Gamma Dose Rates AT1125 (Dec 2019) vs Electra (Dec 2016)



There is generally good correlation between the dose rates measured by QMM using the ThermoScientific Electra (taken in June 2016 and December 2018) and the JBS&G data collected in December 2019 (**Figure 9**). The Electra measurement range of 0.1 to 20,000 µSv/h is a more appropriate instrument to use for environmental surveys than the RadEye G-10 meter. The Electra is used by QMM for rehabilitation area surveys. It was the reference meter used for specific surveys conducted by QMM under the guidance of JBS&G.

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4.1.2 Gamma survey of the Port of Ehoala

The Port of Ehoala and its perimeter were surveyed in 2019 by JBS&G on the days preceding a ship loading, while the port was at maximum REC concentrate storage capacity (**Figure 10**) and was therefore representative to maximum potential dose conditions.

Figure 10 Ship awaiting the loading of REC concentrate, Port of Ehoala, November 2019



The survey concentrated on areas accessible to the public around the secured port perimeter. The survey was undertaken across the road leading to the port, walking paths in the direct vicinity of the port fence and at the breakwater to the south of the port with surveying at a height of 1 m and at ground level.

Figure 11 Path running along the port fence (left) and road leading to the port (right)

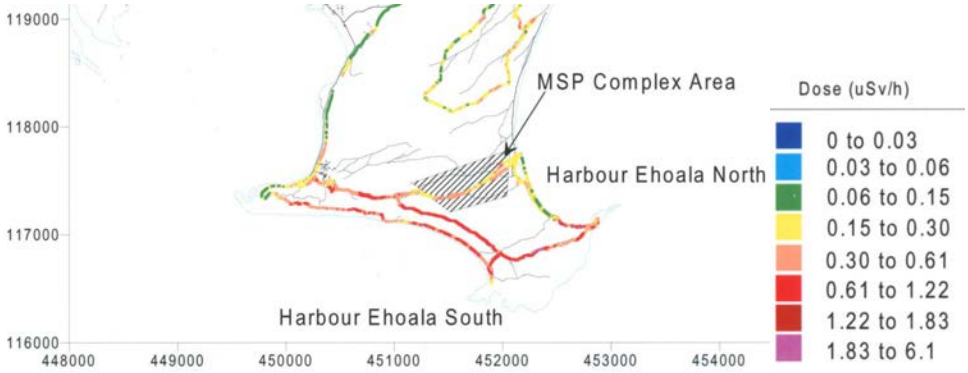




The baseline survey (SENES 2001) determined the average dose rate at 1 m in the Ehoala area was 0.47 µSv/h prior to the construction of the port and the road which accounts for the terrestrial contribution only. With a range comprised between 0.04 and 5.0 µSv/h Ehoala area exhibits the highest and most variable dose rates recorded in the baseline survey.

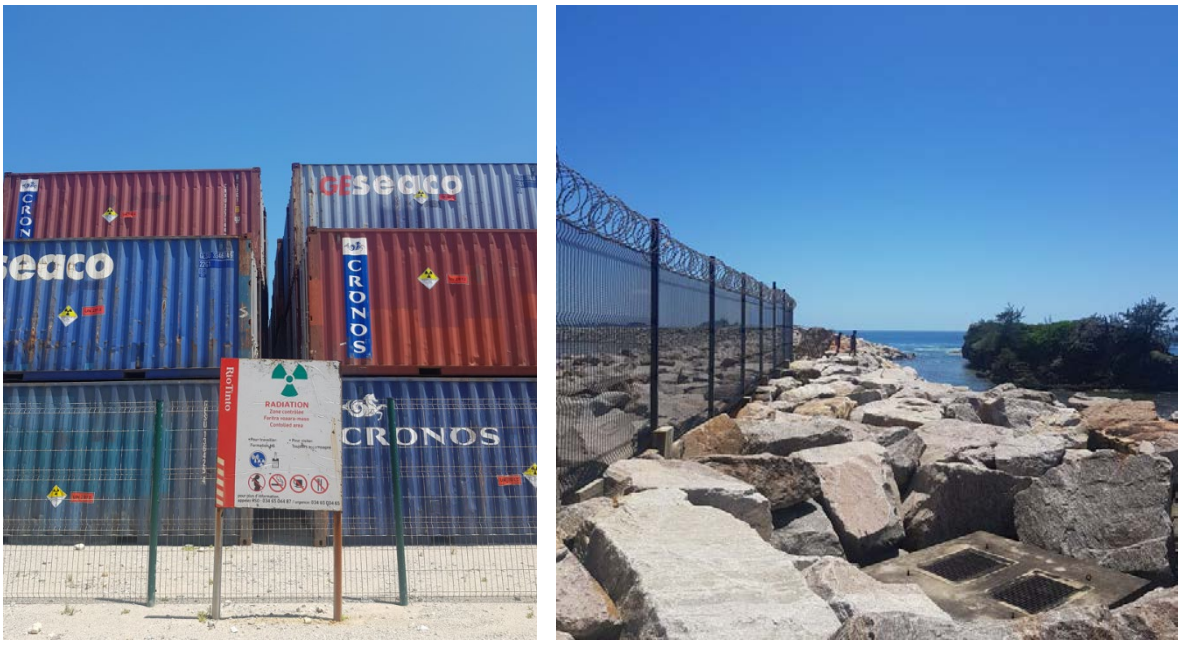
The lowest dose rates measured during the baseline assessment (SENES 2001) were recorded at the airport while the maximum dose rates were recorded on the beach adjacent to the port on the northern side of the harbour. The background dose rates measured on the footprint of the current access road to the port ranged from 0.06 to 0.30 µSv/h. On the promontory where the port was later built, dose rates were typically in excess of 0.6 µSv/h. Graphical representation of measured dose from the SENES report is provided as **Figure 12**.

Figure 12 Baseline survey, Port of Ehoala



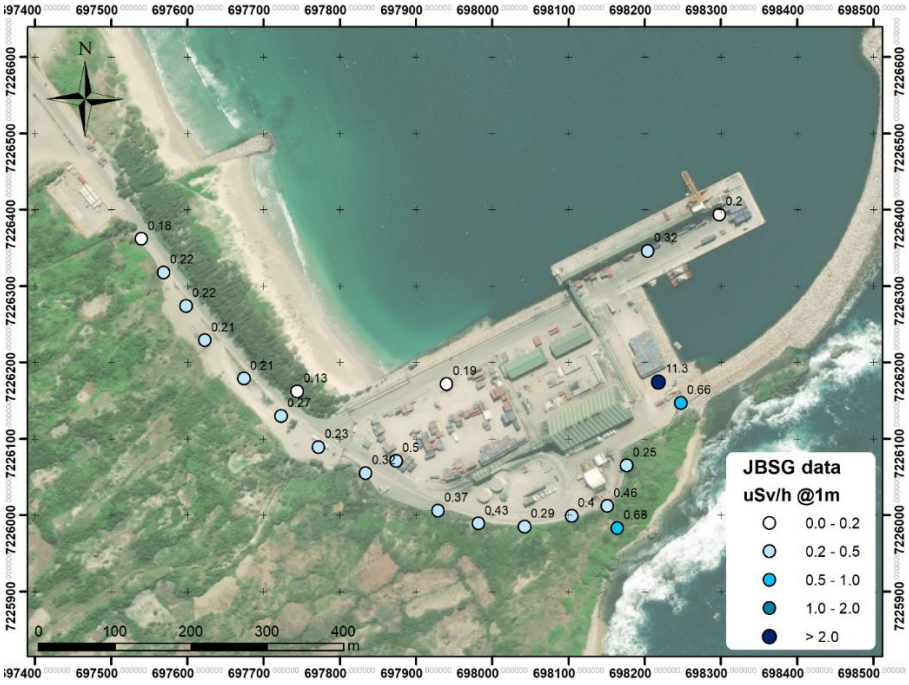
The port is a controlled area. Its perimeter is secured with high fences and the entrance is guarded by security. Access is restricted to port personnel and contractors. The highest dose rate (11 µSv/h) measured in this survey was within the controlled area, adjacent to the fence limiting access to Port workers to REE concentrate containers. Dose rates within the remainder of the controlled area ranged from 0.1 to 0.5 µSv/h

Figure 13 Location of the highest measured dose rate within the controlled area (11 µSv/h, left) and closest point outside the controlled area which measured (0.66 µSv/h, right)



The JBS&G survey recorded an average dose rate of 0.34 µSv/h outside of the fence surrounding the port facilities. The maximum dose rate in areas accessible to the public was measured on natural ground, on a path leading to the beach located on the southern side of the promontory. There was no evidence of windblown or imported material in this specific location. This measurement is comparable to the data collected in 2000 by SENES in the area, where natural background dose rates were comprised between 0.6 and 1.2 µSv/h.

Figure 14 Port of Ehoala survey results, November 2019



The closest accessible point outside the restricted area recorded a maximum value of 0.66 µSv/h. This is equivalent to the natural background of 0.68 µSv/h measured at the top of the path leading to the southern beach. Dose rates on the access road and around the port perimeter show background values, with an average of 0.32 µSv/h. Those values are within the range of natural background variation recorded by SENES in 2000 and confirmed by INSTN in 2014.

4.1.3 Adhoc gamma readings in villages

Gamma readings were recorded in villages and fields surrounding the Mandena operations during the first sampling event in 2019, while installing dust and radon/thoron stations and sampling for soil or food. A limited number of dose rate measurements (27) were recorded by JBS&G in the communities around the Mandena operations. The measurements range from 0.04 to 0.37 µSv/h. Communities included the wider area of Ampasy, outskirts of Fort Dauphin, the southern villages of Andrakaraka and Emanaka and the background location of Mandromodromotra (MMM). Measurements taken during a field survey in Evatraha in October 2022 recorded dose rates ranging from 0.42 to 2.45 µSv/h traversing from east to west across the village, values of between 0.53 and 1.33 µSv/h on the black sand on the southern shore of the lake and values in a single rice paddy ranging from 0.3 to 2.2 µSv/h.

The SENES 2001 baseline survey highlighted significant variations of dose rates in the region (see **Table 2**). However, out of the 113,000 measurements referenced in the baseline survey, many were acquired with a vehicle set up, over roads. The survey demonstrated that road base material had an enhancing effect on dose rates. It was found that the median dose rates, as presented in Table 4.1, better reflected the natural background.

The area defined as the Mandena Mine site in the baseline survey straddles the current QMM operations, but also the villages of Ampasy, Emanaka, Andrakaraka and MMM. Dose rates measured by JBS&G fall into the range attributed to the Mandena area. It is interesting to note that the Mandena area recorded the lowest natural background dose rates, compared to Fort Dauphin, the Port of Ehoala and the eastern community of Evatraha (east of the weir).

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Figure 15 Adhoc Gamma Survey Locations



All of the measurements recoded by JBS&G are within the range of regional measurements carried out by INSTN in 2014. INSTN recorded dose rates between 0.06 and 0.70 µSv/h, measured in the localities surrounding the Mandena operations that were surveyed by JBS&G.

The wide range of measured external dose rates reflects the widespread presence of heavy minerals across the region, with localised variations of NORM distribution.

Table 2 Baseline Survey, Dose Rate Summary (SENES 2001)

Area	Data points	External Dose Rates (µSv/h)				External Dose Rates *(mSv/y)*			
		Mean	Median	Max	Min	*Mean*	*Median*	*Max*	*Min*
Overall Study Area	113,187	0.37	0.18	5	0.01	3.2	1.6	43.8	0.1
Mandena Mine Site	28,603	0.1	0.05	1.2	0.01	0.9	0.4	10.5	0.1
Evatraha Area	19,117	0.54	0.34	3.5	0.03	4.7	3.0	30.7	0.3
Ehoala Area	31,846	0.47	0.33	5	0.04	4.1	2.9	43.8	0.4
Fort Dauphin Area	33,621	0.4	0.16	4	0.02	3.5	1.4	35.0	0.2
Overall Study Area	113,187	0.37	0.18	5	0.01	3.2	1.6	43.8	0.1

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4.2 Truck dose rate survey

Following detectors theft and dosimeters data discrepancy (see Section 4.3), an additional assessment of the potential impact dose originating from the shipping of REC, Ilmenite and Zirsill by trucks was undertaken using calibrated dose rate meters. An area of safe access and low ambient natural background was selected on the Mandena to the Port of Ehoala road. The survey consisted of measuring dose rates at set distances from a truck loaded with REC and to repeat the measurements without the truck.

A low dose rate of 0.04 µSv/h was measured by JBS&G at the dust station DS02. A suitable location was identified 160 m NE from DS02, a site where a truck could be safely stopped for the duration of the survey. A low ambient dose rate of 0.1 µSv/h was confirmed on the side of the road, using the ThermoScientific Electra instrument.

Figure 16 Truck survey location, in comparison with dust station DS02.



4.2.1 Rare Earth Concentrate Survey

A truck with a full load of REC was parked at the survey location. The surface of the truck was surveyed to identify the location of the highest dose rate. Dose rate measurements were then recorded away from this point (perpendicularly to the truck) at set distances (1, 2, 3, 5, 10, 20 and 30 m). The truck was then removed, and natural background dose rate measurements were repeated at the same locations. Two instruments were used for the survey: the ThermoScientific RadEye G-10 and the ThermoScientific Electra. Results are summarised in **Table 3**.

Table 3 Dose rates at set distances from the truck and associated background readings

Distance	Location Coordinate		Dose Rate (µSv/h)			Background
m	x	y	Radeye G-10	Electra	Average	Average
0	700768	7234729	52	50	51	0.14
1	700766	7234730	9.3	9.2	9.3	0.41
2	700765	7234731	4.1	4.0	4.0	0.39
3	700764	7234731	2.8	2.7	2.8	0.61

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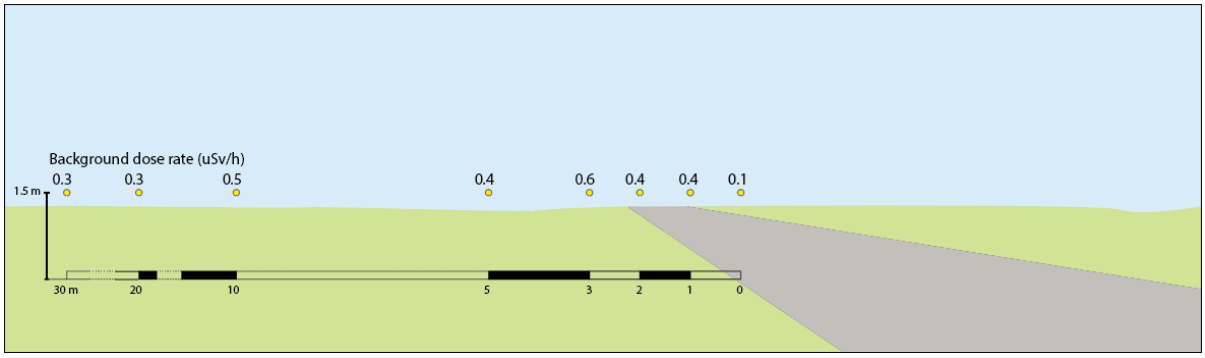
5	700763	7234733	0.86	0.91	0.89	0.39
10	700758	7234736	0.50	0.48	0.49	0.54
20	700750	7234741	0.25	0.24	0.25	0.26
30	700742	7234751	0.12	0.19	0.16	0.26

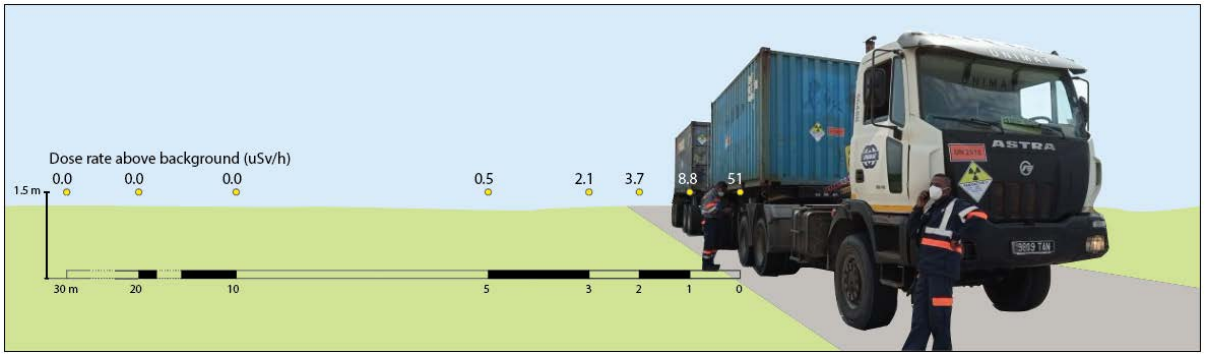
Dose rates taken with the two instruments are consistent. Background readings range between 0.1 and 0.6 µSv/h over a short distance (30 m, **see Figure 17**). It demonstrates the high variability of background dose rates in the area. These variations also potentially translate the presence of road base material and its enhanced effects on external dose rates.

Figure 17 Background dose rate readings, truck survey site.



The maximum dose rate recorded at the surface of the truck was 51 µSv/h. This dose rate rapidly decreased with distance dropping below 1 µSv/h at 5m. Dose rates at 10 m and beyond were undistinguishable from background readings, as shown in **Figure 18**.

Figure 18 Dose rates measured at set distances from a truck transporting REE concentrate.



The data from QMM's truck movement register recorded a total of 994 trucks carrying REE concentrate that travelled from Mandena to the port of Ehoala between the end of August 2020 and the start of November 2021. This represents an average of 2.3 trucks per day carrying REC.

Considering a conservative average halt of 30 seconds, the total possible exposure time to trucks carrying REC in a year is less than 7 hours at each intersection. Potential annual doses at full occupancy have been calculated for each distance and they are summarised in the **Table 4**.

The average natural background dose rates at the crossroads averaged 0.35 µSv/h. This translates to an annual natural background dose of 3 mSv. Without considering occupancy factors, the annual incremental

dose 1 m away from the surface of the truck is 0.062 mSv and it drops to 0.003 mSv at 5 m. The potential incremental dose at 5 m represents 0.1 % of the natural background contribution at the crossroads.

Table 4 Annual doses at various distances from the truck considering full occupancy

Distance from truck (m)	Average dose rate (µSv/h) *	Annual dose (mSv/y)
1	8.8	0.062
2	3.7	0.025
3	2.1	0.015
5	0.5	0.003
10	0.0	0.000

*Background subtracted

Transit time (seconds)	Trucks per day	Exposure time per year (hours)
30	2.3	7.0

4.2.2 Ilmenite and Zirsill

Consistent with the methodology adopted for the REC survey, a truck survey was undertaken for a shipment of Ilmenite and a shipment of Zirsill. Dose rate measurements were then recorded against the truck and at distances away from this point (perpendicularly to the truck) at set distances (1, 2, 3, 5, 10, 20 and 30 m). The truck was then removed, and natural background dose rate measurements were repeated at the same locations. The RAD eye G10 instrument was used for the survey and a Garmin GPS used to record the coordinates of the sample locations.

Table 5 Annual doses from Ilmenite Truck at various distances from the truck considering full occupancy

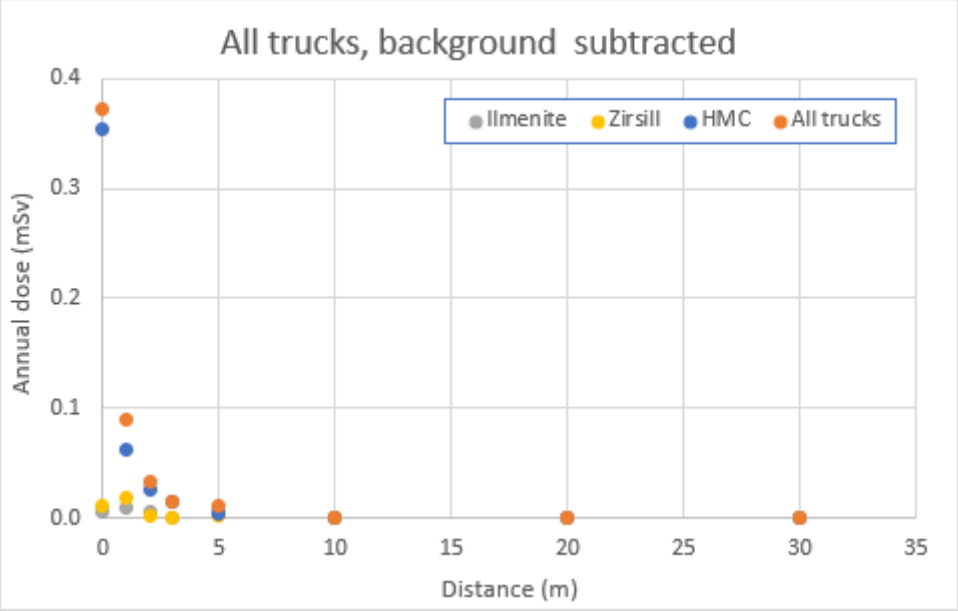
Distance from truck (m)	Average dose rate (µSv/h) *	Annual dose (mSv/y)
0	0.200	0.006
1	0.310	0.009
2	0.180	0.005
3	0.000	0.000
5	0.210	0.006
10	0.000	0.000
20	0.000	0.000
30	0.000	0.000

*Background subtracted

Table 6 Annual doses from Zirsill Truck at various distances from the truck considering full occupancy

Distance from truck (m)	Average dose rate (µSv/h) *	Annual dose (mSv/y)
0	0.370	0.011
1	0.610	0.019
2	0.080	0.002
3	0.000	0.000
5	0.080	0.002
10	0.000	0.000
20	0.000	0.000
30	0.000	0.000

Figure 19 Annual Dose Concentrations During Truck Transport (background subtracted)



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4.3 Crossroad Surveys

An asphalt road was built to link Mandena, where REC is produced, to the Port of Ehoala, where REC is loaded on ships for export. This transportation process has been identified as a pathway for potential enhanced external gamma doses to the public, associated with the transit of truck transporting REC. The 14 km journey from the mine gate to the port's entrance is typically completed in 20 minutes. There are no stopovers. However, the Mandena – Ehoala road crosses the National Roads at two major intersections, where stop signs require trucks to come to a halt.

Traffic is scarce over the national roads. The standing time for haulage trucks is therefore minimal. On the first crossroad, a hut was built about 5 m from the road which hosts a guard who monitors the traffic coming from the mine. The second crossroad is unguarded. The two intersections have been identified as the most likely locations where the detection of external gamma/beta doses above the natural background may be detected.

The crossroads were equipped with area dosimeters, which were deployed for periods of several months. The first monitoring period ran from November 2020 to April 2021. The second batch of dosimeters were installed in August 2021 and recovered in October 2021.

During the first deployment, three dosimeters were installed at Crossroad #1 and two dosimeters were installed at Crossroad #2 (**Figure 20**). Out of the five dosimeters deployed, three were stolen and never recovered. Only two dosimeters JBS-G1 and JBS-G3 remained at Crossroad #1, on either side of the crossroad.

Figure 20 Location of the first deployment of OSL monitors (crossroad #1 on the left, #2 on the right).



Dose rate measurements were recorded by QMM during the installation of the dosimeters, using a calibrated meter. The dose rate at 1 m was taken in the middle of both intersections and returned values of 0.42 µSv/h for Crossroad #1 and 0.40 µSv/h for Crossroad #2. Dose rates at Crossroad #1 varied significantly, with a range comprised between 0.28 and 0.42 µSv/h. Minimum and maximum dose rates were measured within 20 meters on the same side of the road, at the locations of JBS-G1 and JBS-G2. Large variations of dose rates have been observed during previous surveys. The baseline survey also demonstrated enhanced external dose rates on and in the direct vicinity of roads.

A local reference dosimeter was installed within the Mandena site, in an area with low ambient dose rate, relative to both crossroads. It was placed 1.5 m above the floor, in an office with a dose rate of 0.18 µSv/h. The control dosimeter was kept in a secure location in Adelaide, where an ambient dose rate of 0.08 µSv/h was measured.

Dosimetry results of the first deployment are summarised in **Table 7**. Based on the period of deployment and the dose rate measurements, the dose at the location JBS-G1 was expected to return a dose of 0.42 mSv above the local reference. With an incremental dose of 0.37 mSv, the dosimetry result is validated.

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On the southern side, the reported dose of 0.1 mSv above the local reference translates to an average incremental dose rate of 0.02 µSv/h over the deployment period. This is highly inconsistent with measured dose rates. It is possible that the dosimeter JBS-G3, placed on the southern side of the crossroad, was affected by excessive temperature, which can lead to malfunction of the monitor referred to as "dose fade" where the sensor fade results in reported doses that are lower than actual doses. Doses from the first deployment are therefore inconclusive and unreliable.

Table 7 Area dosimeters, location and measured dose for the first deployment

Badge ID	Area	X	Y	Measured ambient dose rate (µSv/h)	Exposure to loaded trucks	Days	Measured dose (Hp 10) (mSv)	Dose above local reference (mSv)
JBS-G1	Northern side Crossroad #1	700124	7233310	0.28	Yes	170	0.97 ± 0.15	0.37
JBS-G2	Northern side Crossroad #1	700115	7233293	0.42	Yes	170	-	-
JBS-G3	Southern side Crossroad #1	700126	7233266	0.38	No	168	0.70 ± 0.11	0.10
JBS-G4	Western side Crossroad #2	698398	7230351	0.38	Yes	169	-	-
JBS-G5	Eastern side Crossroad #2	698435	7230331	0.4	No	169	-	-
JBS-G6	Office Mandena	703072	7238172	0.18	No	168	0.60 ± 0.09	-
Control	Adelaide	-	-	0.08	No	-	-	-

The second deployment of dosimeters focused on Crossroad #1 and targeted the colder months of 2021 (between August and October). The installation included a better protection from direct sunlight and the use of duplicate detectors on either side of the crossroad.

Duplicate dosimeters returned variable results, however they were within the 15% tolerance reported by Landauer. Results are also generally consistent with the expected dose above the local background, calculated from the measured dose rate and the deployment period.

Table 8 Area dosimeters, location, and measured dose for the second deployment

Badge ID	Area	X	Y	Measured ambient dose rate (µSv/h)	Exposure to loaded trucks	Days	Measured dose (Hp 10) (mSv)
JBS-G1	Northern side	700124	7233313	0.33	Yes	71	0.58 ± 0.09
JBS-G2	JBS-G1 Duplicate	700124	7233313	0.33	Yes	71	0.67 ± 0.10
JBS-G3	Southern side	700131	7233268	0.35	No	71	0.61 ± 0.09
JBS-G4	JBS-G3 Duplicate	700131	7233268	0.35	No	71	0.46 ± 0.07
JBS-G5	Northern side, hut	700115	7233296	0.23	Yes	71	0.50 ± 0.08
JBS-G6	Office Mandena	703058	7238168	0.18	No	71	0.28 ± 0.04

Badge ID	Area	X	Y	Measured ambient dose rate (µSv/h)	Exposure to loaded trucks	Days	Measured dose (Hp 10) (mSv)
Control	Adelaide	-	-	0.08	-	-	-

The dosimeters installed on the northern side of the crossroad returned doses comprised between 0.22 and 0.39 mSv above the local reference for the deployment period. Doses for the dosimeters installed on the southern side of the crossroad range from 0.18 to 0.33 mSv. Ranges of measurements on either side of the intersection are comparable. Results from the second deployment does not indicate a conclusive impact from the transit of the trucks on the ambient dose at the crossroad.

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A1 Attachment 1 - Certified Results

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82 SHIPSTERS ROAD
KENSINGTON PARK SA 5068
AUSTRALIA

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**No NVLAP accreditation is available from NVLAP for thermal neutron or X type dosimeters. When exposure results are reported for thermal neutrons or X type dosimeters, this report contains data that are not covered by the NVLAP accreditaion. The "Period Shown Below" was measured by Landauer Inc.,a NVLAP accredited laboratory.

Radiation Dosimetry Report

Account: 710683 **Series: JBS**

Participant number	Name / ID Number / Birth Date	Dosimeter	Use	Rad Type	Rad Qlty	Dose Equivalent (mSv) for Periods Shown Below — DDE- Deep Dose Equivalent LDE- Lens Dose Equivalent SDE- Shallow Dose Equivalent												Inception Date	Serial Number
						Period Shown Below			Quarter to Date			Year To Date			Lifetime to Date				
						DDE	LDE	SDE	DDE	LDE	SDE	DDE	LDE	SDE	DDE	LDE	SDE		
For Monitoring Period						2020-09-01 to 2021-02-28			QUARTER 3			2020			LIFETIME				
38265-1083606	JBS-G1	PA	AREAMON	PM		0.97	1.00	1.04	M	M	M	M	M	M	M	M	M	2019/07	8066198J
38292-1083606	JBS-G3	PA	AREAMON	PM		0.70	0.73	0.77	M	M	M	M	M	M	M	M	M	2019/07	8066581J
70261-1083606	JBS-G6	PA	AREAMON	PH		0.60	0.60	0.62	M	M	M	M	M	M	M	M	M	2016/01	8066583J
00JBS-1083606	CONTROL	PA	CONTROL															2020/07	8066578J
			Note			Control reported greater than 0.50 mSv: used in background subtraction.													

M: Minimal reporting service of 0.01 mSv
Photon (x or gamma ray): 0.01 mSv Beta: 0.1 mSv Neutron: 0.2 mSv fast, 0.1 mSv thermal Ring: 0.1 mSv

This report must not be used to claim product certification, approval, or endoresement by NVLAP, NIST, or any agency of the federal government.

Radiation Dosimetry Report Information

Annual Radiation Exposure Limits (mSv)

Application	Dose Limits Occupational	Dose Limits Public
Effective Dose & Equivalent dose to the Lens of the eye	20 mSv per year, averaged over the period of 5 consecutive years. 1,2	1 mSv Effective Dose 15 mSv Lens Dose
Annual equivalent dose in the skin	500 mSv	50 mSv
Annual equivalent dose in the hands and feet	500 mSv	—

1 With the further provision that the equivalent dose must exceed 50 mSv in any single year.
2 Additionally, when a pregnancy is declared by an occupationally exposed female, the working conditions of that person should be such as to ensure that the additional dose to the embryo/foetus would not exceed 1 mSv during the remainder of pregnancy.

Australian Radiation Protection and Nuclear Safety Agency (2016) Code for Radiation Protection in Planned Exposure Situations, pp 20-21

Exposure Notification Threshold Levels: Participants who receive a dose greater than the set threshold for a particular wear period will be issued with an “Exposure Notification”.

	Deep (mSv)	Lens (mSv)	Shallow (mSv)	Extremity (mSv)	Foetal (mSv)
Wear Period	0.50	0.50	5.00	5.00	0.05
Year To Date	10.00	10.00	250.00	250.00	1.00

C**ontrol Dosimeters:** A control dosimeter is included with each shipment of dosimeters for monitoring radiation exposure received during transit. At the customer's facility, store the control in a radiation free area during the wear period.

Minimal Dose Equivalent Reported: Dose equivalents below the minimum measurable quantity for the current monitoring period are recorded as "M".

The minimal reporting levels vary by dosimeter type and radiation quality.

Dosimeter Type	DDE (mSV)	LDE (mSV)	SDE (mSV)
Luxel +	0.01	0.01	0.01
Whole Body Beta	—	—	0.10
Ring	—	—	0.10
Neutron Fast	0.20	—	—
Neutron Thermal	0.10	—	—

Ring Dosimeter Reading: Ring dosimeter readings report as a shallow dose (SDE).

Foetal Dosimeters: A declared pregnant participant will possess a foetal exposure on an extra line of the report based upon the whole body dosimeter worn closest to the foetus.
The foetal dose is reported for the current wear period, plus the estimated dose from conception to declaration (if provided by customer), and the total dose from declaration to present.

Special Calculations: Special dose calculations can be applied to radiation workers who wear lead aprons.

EDE1 – Two dosimeters**:** one worn at the waist level under the lead apron and one worn at the collar level outside the lead apron.
Assigned deep dose equivalent (DDE) = 1.5 (Waist DDE) + 0.04 (Collar DDE).

EDE2– One dosimeter**:** one worn at the collar level outside the lead apron. Assigned deep dose equivalent (DDE) = 0.3 (Collar DDE).

Code	Radiation Quality Description (Type and / or Energy)
B	Beta
BH	Beta high energy e.g. Strontium, Phosphorus
BL	Beta low energy e.g. Thallium, Krypton
BN	Beta & Neutron mixture
BS	Strontium Beta
BT	Thallium Beta
BU	Uranium Beta
NF	Neutron fast
NT	Neutron thermal
P	Photon (X or Gamma Ray)
PB	Photon & Beta mixture
PBN	Photon, Beta & Neutron mixture
PH	Photon high energy greater than 200keV
PL	Photon low energy less than 40keV
PM	Photon medium energy 40keV to 200keV
PN	Photon & Neutron mixture

Use	Description
AREA	Area Monitor
CHEST	Chest
CNTRL	Control
COLLAR	Collar
EYE	Eye
FOETAL	Foetal

Use	Description
WAIST	Waist
WHBODY	Whole Body
LFINGER	Left Finger
RFINGER	Right Finger
OEXTRM	Other Extremity
OWHBDY	Other Whole Body

Code	Period	Changeover Date
M	Monthly	First day of every month
G	Bi-Monthly	1st Jan, Mar, May, Jul, Sep & Nov
N	Quarterly	1st Jan, Apr, Jul & Oct
T	Semi Annually	1st Jan & Jul

First Line Explanation
Participant Number: Unique number assigned by Landauer.
Name: Participant to whom the dosimeter is assigned.
Dosimeter: Badge type according to radiation monitoring needs.

Dosimeter	Code	Type of Radiation Monitored: Photons		Beta	Neutrons	
		X	Gama		Fast	Fast/ Thermal
Luxel +	Pa	Yes	Yes	Yes	—	—
Luxel +	Ja	Yes	Yes	Yes	Yes	—
Luxel +	Ta	Yes	Yes	Yes	—	Yes
Saturn Ring	S	Yes	Yes	Yes	—	—
Vision	S(lens)	Yes	Yes	Yes	—	—

Deep Dose Equivalent (DDE): applies to external whole body exposure at a tissue depth of 1 cm (1000 mg/cm²).

Lens (Eye) Dose Equivalent (LDE): applies to external exposure of the lens at a tissue depth of 0.3 cm (300 mg/cm²).

Shallow Dose Equivalent (SDE): applies to external exposure of the skin or extremity at a tissue depth of 0.007 cm (7 mg/cm²) averaged over an area of 1 cm².
Deep, Lens and Shallow Dose Equivalents report for the time frame indicated by "For Monitoring Period". These doses represent the dose received only for account/subaccount specified. Individual radiation component results and combined totals report in separate lines.

Quarterly accumulated results reflect total dose received within a calendar 3-month time frame and the customer defined start day. (Note: Quarterly accumulated columns are estimated for bimonthly service or display "Not applicable").

12 Month accumulation represents the total dose received during the past 12 months (For a monthly account the 12 months accumulation corresponds to the current wear period “Period Shown Below” + the dose accumulated in the previous 11 wear periods).

Lifetime accumulation totals all dose received from inception date of dosimeter service to report date, and could include earlier dose history if supplied by customer.
Reported quarterly, annual and lifetime dose accumulations represent the doses totalling from all account/subaccount dosimeters to be reported at the customer level.

Inception Date: The date Landauer began keeping dosimeter records for a given dosimeter for a badging participant on the current customer.

Serial Number: Dosimeter serial number.

Second Line Explanation: Participant’s personal information consisting of ID number and birth date. This information can be suppressed (account wide, all participants in account will have this information suppressed) on dose reports for privacy and/or posting needs.

Temperature: All passive radiation dosimeters exposed to temperatures above 30°C can experience fade in the dose results. It is recommended that badges are kept and used in an ambient environment wherever possible.

Comments: Text messages explaining any abnormalities or comments. The notes with messages appears on a separate line below all dosimeter exposure information.

LANDAUER AUSTRALASIA

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CERTIFICATE OF CALIBRATION

ISSUED BY: Thermo Fisher Scientific Messtechnik GmbH, Erlangen (Germany)

DATE OF ISSUE: February 21, 2020

CERTIFICATE No: **ElectraGM- 19092-02-20**

Measurement Results

The instrument was mounted with the display panel in the horizontal plane and the front vertical face perpendicular to the incident gamma beam

Instrument Type:	Electra GM	Temperature (°C)	20°C
Instrument Serial Number:	19092	Pressure (mbar):	989mbar
ELECTRA GM Dead Time:	75 µs		
ELECTRA GM Overload Current:	39,50 µA		
ELECTRA GM Calibration Factor:	1,65 cps/µSv/h		
ELECTRA GM Voltage:	500 V		
Background Response ($Sv.h^{-1}$):	<0.2 µSv/h		

Linearity Response ^{137}Cs (662keV)

The nominal exposure rate values have an uncertainty of less than ± 3%

System Dose Rate	Indicated Dose Rate	Intrinsic Error	Tolerance Limit
20 mSv/h	20,5 mSv/h	2,5%	± 10 %
2 mSv/h	1,85 mSv/h	-7,5%	± 10 %
200 µSv/h	190 µSv/h	-5,0%	± 10 %
20 µSv/h	19,1 µSv/h	-4,5%	± 10 %
3 µSv/h	3,03 µSv/h	1,0%	± 10 %

Overload Response (662keV)

Off scale (1 Sv/h) for 20 secs: Satisfactory ☑

Energy and Polar Response ^{241}Am (59.5keV)

The nominal exposure rate values have an uncertainty of less than ± 4%

System Dose Rate	Indicated Dose Rate	Intrinsic Error	Orientation
50 µSv/h	45 µSv/h	-10,0%	0°

Remarks: [1] All system dose and dose rates are ambient dose equivalent rates, H*(10).

These indications have not been corrected for temperature or pressure.
The calibration is traceable to the national standards of the PTB.
Our quality management system has been certified according to ISO 9001.

Measurements Performed By:

Heinz Mellech

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CERTIFICATE OF CALIBRATION

ISSUED BY: **Thermo Fisher Scientific Messtechnik GmbH, Erlangen (Germany)**

DATE OF ISSUE: February 20, 2020

CERTIFICATE No: **DP2R-11509-02-20**

Probe Type: DP2R/4A
Probe Serial Number: 11509

Electra Type: Electra
Electra Serial Number: 19092

Measurement Results

Tests are carried out in a background of less than 0.15µSv/h.

RadEye SX Parameters

High Voltage:	590 V
Overload countrate:	50 000 cps
Overload Current:	40 µA
Deadtime C1..C4:	6µs
Threshold C1:	30 mV
Threshold C2…C4:	1150 mV
Time Out:	100s
Probe Area:	49cm²

Electra Parameters

3. High Voltage Setting:	840 V
4. Overload Current:	3 µA
5. Deadtime:	3 µs
6. Upper Level Discrimin.:	1.5 V
8. Units:	cps
E. Pulse Counting Mode:	dual
F. GM or Scint:	S66

Calibration Sources used

Type	Nuclide	Serial No.	SER [s^{-1}]	Reference date	Activity [Bq]	Reference date
RRS25A	$^{90}Sr/^{90}Y$	TS12	1520	13.11.03	1800	06.02.84
RRS24A	^{36}Cl	AI285	2335	11.04.05	3550	14.04.87
RRS21A	^{241}Am	SV7	3012	28.04.05	5950	01.09.83

	SX Results	Electra Results	Limits
Background beta	2,6	3,25	< 4 cps
Background alpha	0	0	<= 0,1 cps
Efficiencies 2π:			
90Sr/90Y	29,6%	27,8%	>= 22%
36Cl	26,8%	25,5%	>= 19%
241Am	23,9%	25,7%	>= 20%
Efficiencies 4π:			
90Sr/90Y	20,2%	18,9%	
36Cl	17,6%	16,8%	
241Am	12,5%	13,5%	

Remarks:
These indications have not been corrected for temperature or pressure.
Our quality management system has been certified according to ISO 9001.
SX Values are determined with a RADEYE SX (S/N 0556).

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Repair Report

Thermo Fisher Scientific
Messtechnik GmbH
Frauenauracher Straße 96
91056 Erlangen

No. 44738

HTDS;Parc d'Activité du Moulin

Sales order number 2029123 **RMA** 22876 **RG2-DE** 29868 **Service type** payment

Article no	Unit	Serial no income	Serial no replacement	Calibration	Customer Parameters record	Software			Unit ok
						Actual	Update yes/no	Version	Function ok
UK-ELECTRAG M1A	Ratemeter with digital and analogu	19092		Yes			No		Yes
UK-DP2R/4A	Alpha-Beta-Gamma Dual Phosphor;Sci	11509		Yes			No		Yes

Error customer: just need to be calibrated with issue of a report

after switch on the instrument shows Err6;

Further actions it is necessary to replace the HV board; adjust, test and calibrate the instrument with probe;

Used:

Item	Unit	Description	Product number	Serial number
1	1	HV/Amplifier board	UK-5460A	
2	1	Radiological calibration Electra GM	D99320	

Working time 1,00

Fixed assets:

Calibration protocol	Yes		
Calibration protocol (calibration office)	No		
Test protocol	No	**Page(s)**	0
Miscellans	No		

Date: 21.02.20 Responsible: MELLECH, Heinz

Issued: B. Rahn
Distribution date: 01.02.2018
Document: Reparaturbericht-e
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Bench Repair FSI-KR

A1 Attachment 2 – Truck Survey Procedure

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PROCEDURE T01 – Dose Rate Measurement, Trucks

DESCRIPTION

QMM person responsible for dose rate measurement on trucks

Name

Telephone No : +123456

Email :

This procedure provides instructions for truck dose rate measurement for gamma dose rate monitoring.

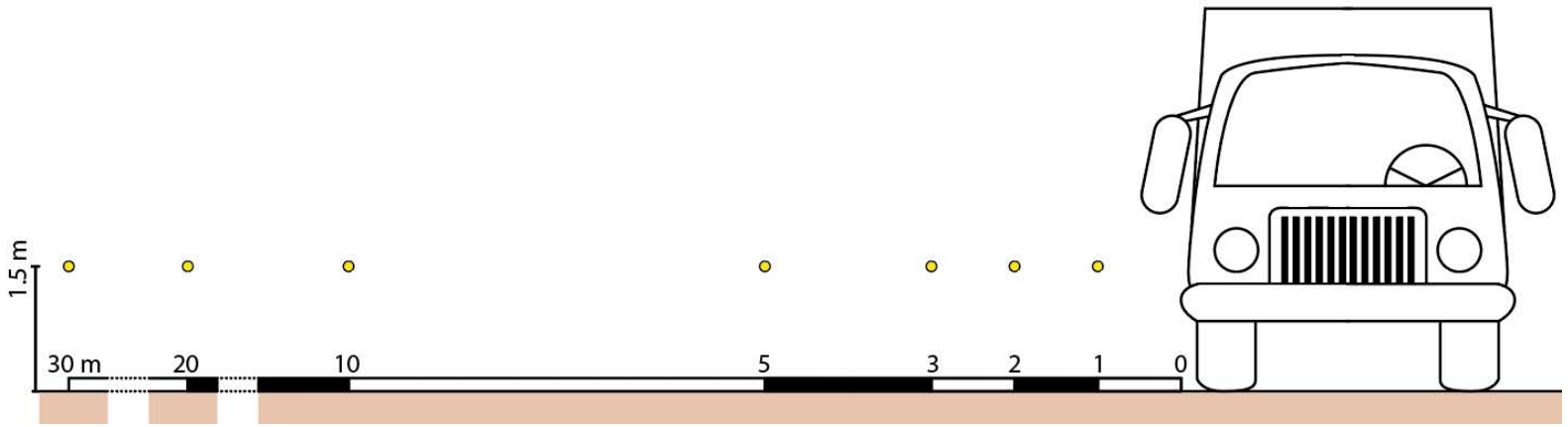
Measurements are made in a low ambient radiation environment at various distances from trucks loaded with rare earth concentrate to quantify potential increases in external radiation that could be associated with the passage of trucks transporting ore from the Mandena mine to the port.

Personal Protective Equipment :	• Safety Glasses • Gloves	• Safety Shoes • High Visibility Clothing
Additional Materials and Tools	• Camera • GPS • Gamma meter	• Measuring Tape • Data Sheet
Health and Safety Risks	• Slips and Falls	

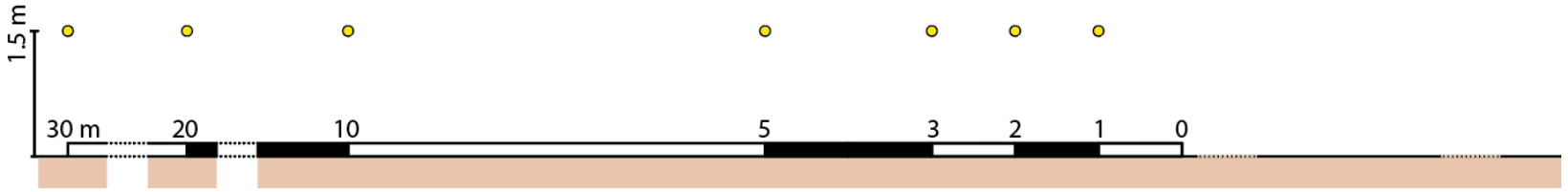
PROCEDURE T01 – Dose Rate Measurement, Trucks

TACHE	ETAPE
Preparation	**1.** Make sure that the gamma probe is a suitable probe for measuring ambient radiation (below 0.1 uSv/h). Ensure the Gamma meter is calibrated and charged. **2.** Identify an area with a low ambient radiation environment (below 0.1 uSv/h), or where a truck could be parked for 10 minutes. The site of the Maroamalona Dust station would be a good candidate. 

PROCEDURE T01 – Dose Rate Measurement, Trucks

Ambient dose rate measurement of the area	**3.** Upon arrival at the identified site, start the gamma meter and wait until the ambient radiation measurement is stabilized. 4. Record the ambient radiation (in uSv/h) at 1.5 m from the ground and make sure it is below 0.1 uSv/h.
Dose rate measurement at certain distances from the truck	**5.** Park a truck with rare earth concentrate in an accessible area. **6.** Identify the maximum dose rate along the truck on the passenger's side, on contact with it. 7. Measure the dose rate at 1.5 m from the ground at distances of 1, 2, 3, 5, 10, 20 and 30 m from the maximum dose rate recorded along the truck. Make sure the dose rate instrument is placed between you and the truck, and always with the same alignment. 

PROCEDURE T01 – Dose Rate Measurement, Trucks

Ambient dose rate measurement at these distances	**8.** The truck can resume its journey. **9.** Repeat dose rate measurements at 1.5 m from the ground in the same places, but without the truck 

A1 Attachment 3 – Meter Calibration Certificates

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CERTIFICATE OF CALIBRATION

ISSUED BY: Thermo Fisher Scientific Messtechnik GmbH, Erlangen (Germany)

DATE OF ISSUE: February 21, 2020

CERTIFICATE No: **ElectraGM- 19092-02-20**

Measurement Results

The instrument was mounted with the display panel in the horizontal plane and the front vertical face perpendicular to the incident gamma beam

Instrument Type:	Electra GM	Temperature (°C)	20°C
Instrument Serial Number:	19092	Pressure (mbar):	989mbar
ELECTRA GM Dead Time:	75 µs		
ELECTRA GM Overload Current:	39,50 µA		
ELECTRA GM Calibration Factor:	1,65 cps/µSv/h		
ELECTRA GM Voltage:	500 V		
Background Response ($Sv.h^{-1}$):	<0.2 µSv/h		

Linearity Response ^{137}Cs (662keV)

The nominal exposure rate values have an uncertainty of less than ± 3%

System Dose Rate	Indicated Dose Rate	Intrinsic Error	Tolerance Limit
20 mSv/h	20,5 mSv/h	2,5%	± 10 %
2 mSv/h	1,85 mSv/h	-7,5%	± 10 %
200 µSv/h	190 µSv/h	-5,0%	± 10 %
20 µSv/h	19,1 µSv/h	-4,5%	± 10 %
3 µSv/h	3,03 µSv/h	1,0%	± 10 %

Overload Response (662keV)

Off scale (1 Sv/h) for 20 secs: Satisfactory ☑

Energy and Polar Response ^{241}Am (59.5keV)

The nominal exposure rate values have an uncertainty of less than ± 4%

System Dose Rate	Indicated Dose Rate	Intrinsic Error	Orientation
50 µSv/h	45 µSv/h	-10,0%	0°

Remarks: [1] All system dose and dose rates are ambient dose equivalent rates, H*(10).

These indications have not been corrected for temperature or pressure.
The calibration is traceable to the national standards of the PTB.
Our quality management system has been certified according to ISO 9001.

Measurements Performed By:

Heinz Mellech

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Tax number 216/116/70033
Tax Office ERLANGEN

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CERTIFICATE OF CALIBRATION

ISSUED BY: **Thermo Fisher Scientific Messtechnik GmbH, Erlangen (Germany)**

DATE OF ISSUE: February 20, 2020

CERTIFICATE No: **DP2R-11509-02-20**

Probe Type: DP2R/4A
Probe Serial Number: 11509

Electra Type: Electra
Electra Serial Number: 19092

Measurement Results

Tests are carried out in a background of less than 0.15µSv/h.

RadEye SX Parameters

High Voltage:	590 V
Overload countrate:	50 000 cps
Overload Current:	40 µA
Deadtime C1..C4:	6µs
Threshold C1:	30 mV
Threshold C2…C4:	1150 mV
Time Out:	100s
Probe Area:	49cm²

Electra Parameters

3. High Voltage Setting:	840 V
4. Overload Current:	3 µA
5. Deadtime:	3 µs
6. Upper Level Discrimin.:	1.5 V
8. Units:	cps
E. Pulse Counting Mode:	dual
F. GM or Scint:	S66

Calibration Sources used

Type	Nuclide	Serial No.	SER [s^{-1}]	Reference date	Activity [Bq]	Reference date
RRS25A	$^{90}Sr/^{90}Y$	TS12	1520	13.11.03	1800	06.02.84
RRS24A	^{36}Cl	AI285	2335	11.04.05	3550	14.04.87
RRS21A	^{241}Am	SV7	3012	28.04.05	5950	01.09.83

	SX Results	Electra Results	Limits
Background beta	2,6	3,25	< 4 cps
Background alpha	0	0	<= 0,1 cps
Efficiencies 2π:			
90Sr/90Y	29,6%	27,8%	>= 22%
36Cl	26,8%	25,5%	>= 19%
241Am	23,9%	25,7%	>= 20%
Efficiencies 4π:			
90Sr/90Y	20,2%	18,9%	
36Cl	17,6%	16,8%	
241Am	12,5%	13,5%	

Remarks:
These indications have not been corrected for temperature or pressure.
Our quality management system has been certified according to ISO 9001.
SX Values are determined with a RADEYE SX (S/N 0556).

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ThermoFisher SCIENTIFIC

Repair Report

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Messtechnik GmbH
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No. 44738

HTDS;Parc d'Activité du Moulin

Sales order number 2029123 **RMA** 22876 **RG2-DE** 29868 **Service type** payment

Article no	Unit	Serial no income	Serial no replacement	Calibration	Customer Parameters record	Software			Unit ok
						Actual	Update yes/no	Version	Function ok
UK-ELECTRAG M1A	Ratemeter with digital and analogu	19092		Yes			No		Yes
UK-DP2R/4A	Alpha-Beta-Gamma Dual Phosphor;Sci	11509		Yes			No		Yes

Error customer: just need to be calibrated with issue of a report

after switch on the instrument shows Err6;

Further actions it is necessary to replace the HV board; adjust, test and calibrate the instrument with probe;

Used:

Item	Unit	Description	Product number	Serial number
1	1	HV/Amplifier board	UK-5460A	
2	1	Radiological calibration Electra GM	D99320	

Working time 1,00

Fixed assets:

Calibration protocol	Yes		
Calibration protocol (calibration office)	No		
Test protocol	No	**Page(s)**	0
Miscellans	No		

Date: 21.02.20 Responsible: MELLECH, Heinz

Issued: B. Rahn
Distribution date: 01.02.2018
Document: Reparaturbericht-e
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Bench Repair FSI-KR

Easy-to-use, rugged and reliable, this versatile family of meters has a variant to suit just about every rate or survey application. The Electra range consists of the Electra, plus three variations (Selectra, Plus and GM) which can be specified in any combination, from the base Electra model up to the flagship SelectraGMPlus.

Electra / Selectra

Survey Meters







- Autoranging digital and bargraph displays
- Rugged metal body and long battery life
- Wide range of GM and scintillation probes
- Easy probe swapping with Selectra models and "I" probes
- 500 point datalogging with Plus models





Electra

The Electra is a digital, microprocessor based, rate meter which is compatible with most GM and scintillation survey probes, and can be calibrated with an external probe for direct readout of dose rate or count rate, in a range of units. Readings are displayed both numerically and on a bargraph, which autoranges across seven decades. Intelligent software discriminates between true rate changes and insignificant fluctuations. Digitally controlled HV and preset parameters provide outstanding consistency between instruments: the setup does not drift and instruments with identical setups are directly interchangeable.

The Electra is sturdy, well balanced, comfortable over long periods of use and operable when wearing double protective gloves. It is built in a metal extrusion with tough, replaceable, plastic end caps and is powered by long life dry cells or rechargeable batteries. Internal configuration switches let a supervisor choose which parameters are available to users.

Selectra

The Selectra models feature automatic probe setup when used with our "I" style probes. These probes contain chips which store operating parameters, and connect to the meter via a 7-way Fischer connector (the Electra models having PET or MHV). Selectra benefits include tamperproof setup, simpler probe exchange, and less equipment to carry around.

Product Specifications

GM

GM models have a low weight, compact, front extension, housing an energy compensated GM probe whose position is shown by two white crosses. Contact dose rate measurements can be taken without disconnecting the external probe. The GM models' memory includes an exact setup for the internal probe and adjustable setup for the external probe. A single key press switches from one probe to the other. "G" is displayed on screen when the internal GM probe is active. GM models are designed for ease of decontamination, with simple replacement of heavily contaminated parts. A test jig, utilizing gamma emissions from a ^{137}Cs source is available.

Plus

Datalogging is made easy with the Plus models. Up to 500 detailed results can be stored on-board in non-volatile memory, from all measuring modes. Result data includes rate, integrate time, date stamp, operating mode, stored background and unique location identities, and results can be reviewed on the instrument. Location identity is a breeze with the built-in iButton™ reader, or optional barcode reader, with alphanumeric location names of up to 16 characters stored with each reading.

The supplied PlusLink software handles communication between the Plus models and external PCs, running under Windows™. Datalog download is easily achieved, for further analysis with common applications such as Microsoft™ Access or Excel. Plus model setup and automatic plateau plotting are also provided in PlusLink, along with other useful facilities.

Technical Specifications - all models

Count rate ranges:
Settable, 0.1 cps to 100 kcps, or 1 cpm to 1000 kcpm

Response factors:

dpm:	0.001 to 1.000 cpm/dpm
Bq:	0.001 to 1.000 cps/Bq
Bq/cm^2:	0.01 to 999 cps per Bq/cm^2
R/h:	0.01 to 999 cps per mR/h
Gy/h:	0.001 to 99.9 cps per µGy/h
Sv/h:	0.001 to 99.9 cps per µSv/h

Integrate mode preset time:
1 to 10 s in 1 s steps, 15 to 30 s in 5 s steps, and 40 to 5,000 s in 10 s steps

Display:
3 decade bargraph, 6 decade span, autoranging. 4 character digital display. Symbols for: units, sound, battery, alarm, mode, inhibit, channel, setup, overload and operational parameters

Backlight:
A momentary press of the backlight key gives 30 s illumination

Sounder:
Distinct tones for alpha and beta pulses, alarm, change of range and overload

Dead time:
Presettable correction, 0 to 250 µs

Connectors:

Probe:	PET or MHV (Electra models) Fischer (Selectra models)
Headphone/earpiece:	3.5 mm stereo jack socket
Charger:	2.5 mm power jack socket

High Voltage supply:
400 to 1400 V in 5 V steps.
Max. load 66 MOhms, current 40 µA at 900 V

Overload setting:
0.25 to 40 µA excess HV current, adjustable in 0.25 µA steps

Alarm thresholds:
Presettable alpha and beta settings with dual probes
0.1 to 50,000 cps, 1 to 300,000 cpm, 0.1 to 50,000 Bq/cm^2, 0.1 to 50,000 Bq, 1 to 300,000 dpm, 0.01 µSv/h to 5 Sv/h, 1 µR/h to 500 R/h, 0.01 µGy/h to 5 Gy/h, Off

Lower signal threshold:
1.7 x 10^{-11} C fixed (100 mV internal)

Upper signal threshold:
2.6 x 10^{-11} C to 5.1 x 10^{-10} C (150 mV to 3 V internal in 50 mV steps)

Batteries:
Three 1.5 V, C sized dry cells (IEC LR14) or three rechargeables (IEC KRH 27/50)

Battery life:
90 h typical, with dry cells and power saver feature (auto switch-off)

Operating temperature:
-20 to +50 °C (-4 to +122 °F)

Humidity: up to 95%, non-condensing

EMC: CE approved

Dimensions:
135 H x 110 W x 250 D mm (5.3" H x 4.3" W x 9.8" D) including handle. GM models are 300 mm (11.9") D

Weight:
1.22 kg (2.7 lb) excluding batteries, except GM models which are 1.42 kg (3.2 lb)

Further Specifications - GM

Gamma Range:
0.1 to 20,000 µSv/h

Intrinsic error:
±10% (IEC60846 requirement, 15%)

Energy response:
-15% to +30%, 60 keV to 1.25 MeV relative to 662 keV ^{137}Cs
Overreads slightly above 1.25 MeV

Response times:
1 s sampling with 10 s rolling average for rates > 2 cps. Less than 2 s to respond to > 2.6 sigma changes.
(IEC60846 requirement, < 10 s)

Warm up:
20 s, including completion of self-checks

Overload:
Overload alarm and > Full Scale

Deflection maintained for 20 mSv/h to 2000 mSv/h
Complete recovery after only 30 s

Pulsed radiation:
Not designed for pulsed radiation fields

Coefficient of variation:
Well within IEC 60846 above 2.5 µSv/h

Alarms:
One for dose rate, presettable to any on-range value. Settings stored in non-volatile memory

Temperature:
-10 to +40 °C (14 to 114 °F), within ±6%

Temperature shock:
Has no greater effect than slow changes

Humidity:
No significant change, up to 95%, RH at 35 °C

Further Specifications - Plus

Preset precision:
0.1% to 20% in 0.1% steps (at 2 sigma confidence level)

Sampler mode:
Up to 500 cycles comprising Integrate, followed by Pause

Peak hold mode:
Display is updated only if latest value exceeds all previous since selecting mode

Additional connectors:
RS-232 serial link: 5-way DIN
iButton receptor

Data Log:
Up to 500 unique locations, up to 500 total readings

Accessories

Optional accessories include external probes, iButtons, barcode reader, reference sources, probe holders, belt holsters, cables, batteries and chargers. Consult your supplier for details.

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www.thermo.com/rmp

Thermo SCIENTIFIC

A1 Attachment 4 – Photographs

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PLATE 1- GAMMA RADIATION SURVEY BACKGROUND DOSE MEASUREMENT



PLATE 2 - GAMMA RADIATION SURVEY METER RESPONSE CHECK



PLATE 3 - RARE EARTH CONCENTRATE CONTAINERS AT PORT D'EHOALA

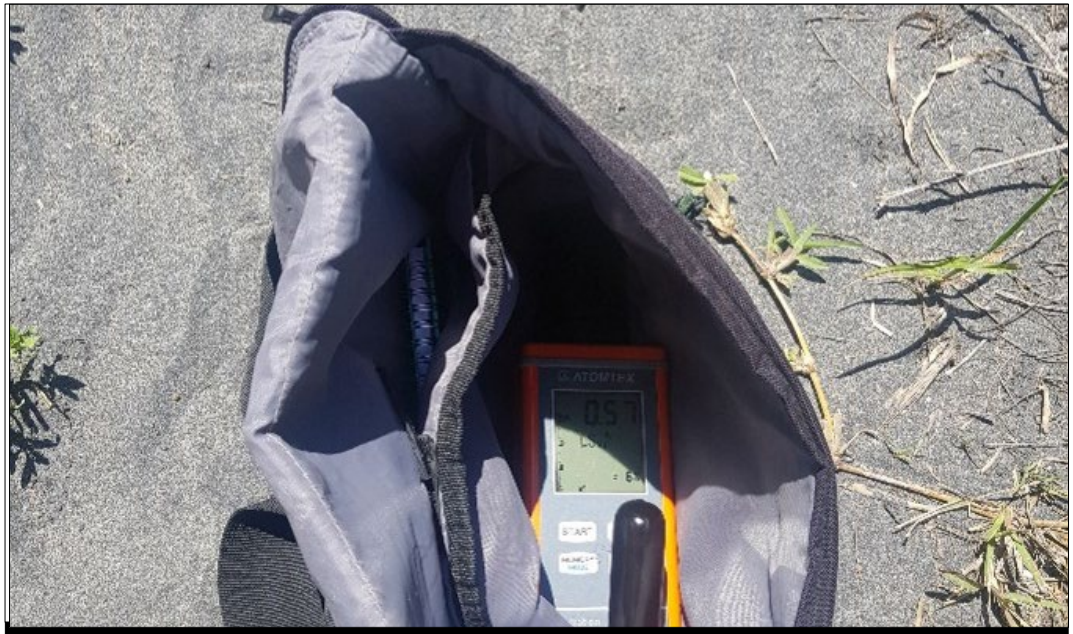

PLATE 4- BACKGROUND READING ON BLACK SAND LAKE LANIRANO



PLATE 5 - DOSIMETERS ESTABLISHED FOR FIRST DEPLOYMENT 2020



PLATE 6 - DOSIMETER JBSG-G5 INSTALLED DURING SECOND DEPLOYMENT 2021



PLATE 7 - TRUCK SURVEY UNDERTAKEN ON REC TRANSPORT FROM MANDENA TO PORT D'EHOALA



PLATE 8 - COMPARISON BETWEEN THERMOSCIENTIFIC REDEYE G-10 AND ELECTRA SURVEY METERS



PLATE 9 – BLACK SAND ON THE LAKE SHORE AT EVATRAHA



PLATE 10 – BACKGROUND READING OF THE BLACK SAND AT EVATRAHA



PLATE 11- SURVEY READING WITHIN THE REHABILITATION ZONE AT MANDENA



PLATE 12 RICE FIELD IN EVATRAHA THAT PRODUCED ELEVATED VARIABLE BACKGROUND GAMMA READINGS

Appendix A2 Radon Thoron

Appendix A2 Radon and Thoron

1. Background

Radon (Rn-222) and Thoron (Rn-220) were measured using passive detectors, mounted in housings at the same locations as the passive dust monitoring stations.

Pairs of detectors were exposed to ambient air for a period of approximately six months to ensure sufficient exposure for a measurable result. Radon and thoron detectors were installed between December 2019 and February 2020 at a height of 1 m above natural ground level. All detectors were collected in November 2020. A control radon and thoron pair were placed in the package for transit control.

Radon and thoron generally do not significantly contribute to dose, as opposed to their short-lived decay products (Radon Decay Products, or RDPs) can build up in environments where radon and thoron are present in the air at significant concentrations, and where there is poor ventilation. The building material and construction techniques used in the study area are such that houses are well ventilated, minimising the risk of major RDP buildup. Yet, the measurement of radon and thoron is used as a screening tool to determine whether further investigation is warranted to quantify potential exposures.

2. Locations

Radon and thoron transport is influenced by wind speed and direction, monitoring locations were selected using the same selection criteria and critical groups as for passive dust monitoring. Consequently, radon and thoron detector pairs were deployed at the same locations as the seven passive dust stations with a transect selected to capture the highest potential for exposures downwind of the mining operations together with background control locations that would not be impacted by mine operations.

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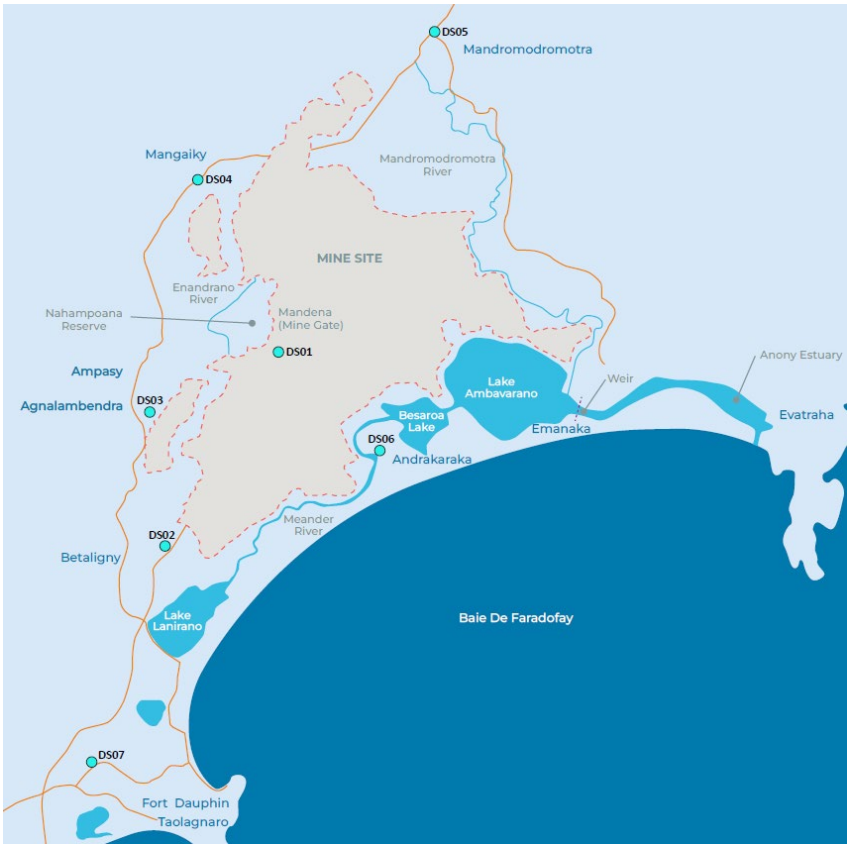
Figure 1 Radon Thoron Detector Locations



3. Methodology

Detectors were supplied in sealed plastic packaging to ensure that they are not exposed to radon and thoron during transport, and that measured exposure relates to the monitoring location. Detectors are paired, for measurement of both radon and thoron. Packages were opened at the measurement location, which triggers the beginning of the monitoring period, and detector pairs were immediately loaded into the housing (Figure 2).

Each housing comprised of a canister that is sufficiently robust to withstand weather and casual interference by animals or bypassers, with a permeable base to allow full exchange with ambient air. The canisters are secured on the dust station pole or fence with the base at a height of 1 m above the ground.

Once deployed, detector pairs remain in the field for a maximum period of 6 months. Detectors were placed in clean sealed plastic gags for the transit back to Australia. Control detectors were used for transit from Madagascar to the laboratory in the first deployment, to ensure no exposure was occurring during the transit period.

Detectors were deployed in pairs; one measuring a combined radon and thoron exposure, and the other measuring radon exposure only. Subtraction of results allows determination of a thoron exposure. The monitoring service provider reports results both as a gross exposure, and as a concentration of each radionuclide in air.

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4. Equipment

The radon and thoron measurements were performed using closed alpha-track detectors supplied by Landauer (Radtrak2 and Radtrak2T). The detectors consist of film elements located inside pods made from antistatic plastic. The detectors are loaded in housings with permeable bases, protecting them from damage or interference while allowing full exposure to ambient air (**Figure 2**).

Radon and thoron enter the Landauer detectors by diffusion. The radon detector has a filter that prevents thoron from being measured, while the other detector is unfiltered and therefore measures both radon and thoron. The track detecting material (film) inside the detectors is sensitive to alpha particles generated by radon, thoron and their progeny. On the film, alpha particles make small tracks which are enlarged through chemical etching and analysed in a laboratory.

When both detector types are used together, the thoron concentration can be derived by subtracting the filtered measurement (radon only) from the unfiltered measurement (radon plus thoron).

The radon and thoron detectors were used for long term measurements, over periods of three to six months. For a three-month period, the limits of detection are reported as 15 Bq/m^3 for radon and 30 Bq/m^3 for thoron. Limits of detection decrease with time, linearly.

Figure 2 Radon/Thorn Detector Pair in Housing



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5. Analytical Results

All detectors placed within communities returned concentrations of radon and thoron in the air below detection limits in the first deployment, including the background area. The only measurable value was detected for thoron within the Mandena mine perimeter. Detectors were analysed by Radonova Laboratories in Uppsala, Sweden.

Table 1 Radon and Thoron Concentration in Air First Deployment

Location	Detector ID	Type	Start Date	Stop Date	Days	Calculated concentration (Bq/m³)	Reportable Concentration (Bq/m³)
DS01	430415-0	Radon	2019-12-03	2020-11-19	352	1	< 15
	466091-6	Thoron	2019-12-03	2020-11-19	352	38	38 ± 12
DS02	119021-4	Radon	2019-12-03	2020-11-19	352	2	< 15
	465026-3	Thoron	2019-12-03	2020-11-19	352	15	< 20
DS03	320959-0	Radon	2019-12-04	2020-11-24	356	5	< 15
	464979-4	Thoron	2019-12-04	2020-11-24	356	11	< 20
DS04 (upwind)	654088-4	Radon	2019-12-05	2020-11-24	355	4	< 15
	229963-4	Thoron	2019-12-05	2020-11-24	355	14	< 20
DS05 (upwind)	189826-1	Radon	2019-12-05	2020-11-24	355	2	< 15
	455666-8	Thoron	2019-12-05	2020-11-24	355	11	< 20
DS06	384023-8	Radon	2019-12-06	2020-11-26	356	0	< 15
	465542-9	Thoron	2019-12-06	2020-11-26	356	9	< 20
DS07	944372-2	Radon	2020-02-13	2020-11-25	286	1	< 15
	466097-3	Thoron	2020-02-13	2020-11-25	286	17	< 20

During the second deployment, the majority of detectors returned radon concentration results below the detection limit. Recordable results from detectors at community locations were low, and only slightly above detection limits.

The only detector that returned a result that is distinguishable from the remainder in the set is the one located at Mandena, within the perimeter of the QMM operation. This detector was fixed on the dust monitoring station that was knocked over and spent several hours lying on the ground. This may have contributed to an increased exposure for the detector, compared to the standard monitoring position 1 m above the ground.

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Table 2 Radon and Thoron Concentration in Air Second Deployment

Location	Detector ID	Type	Start Date	Stop Date	Days	Reportable Concentration (Bq/m³)
DS01	384418-0	Radon	2020-11-19	2020-04-13	145	84 ± 16
	614479-4	Thoron	2020-11-19	2020-04-13	145	< 40
DS02	283900-9	Radon	2020-11-19	2020-04-14	146	< 15
	613878-8	Thoron	2020-11-19	2020-04-14	146	< 30
DS03	515546-0	Radon	2020-11-24	2020-04-13	140	< 15
	464036-3	Thoron	2020-11-24	2020-04-13	140	< 30
DS04 (upwind)	985549-5	Radon	2020-11-24	2020-04-13	140	< 15
	466102-1	Thoron	2020-11-24	2020-04-13	140	38 ± 26
DS05 (unpwind)	330404-5	Radon	2020-11-25	2020-04-13	139	33 ± 18
	466130-2	Thoron	2020-11-25	2020-04-13	139	< 40
DS06	901087-7	Radon	2020-11-26	2020-04-14	139	< 15
	465432-3	Thoron	2020-11-26	2020-04-14	139	< 40
DS07	950389-7	Radon	2020-11-25	2020-04-14	140	19 ± 18
	465571-8	Thoron	2020-11-25	2020-04-14	140	< 40

The detector located in the background location of DS05 originally returned a relatively high concentration of radon (208 Bq/m^3), and a value lower than the detection limit was read from the thoron detector. While the radon detector is sensitive to radon only, the thoron detector does not have a filter and is sensitive to radon and thoron. The thoron concentration is obtained by subtracting the radon exposure to the exposure

measured from radon and thoron. The results for the thoron detector were re-analysed and confirmed low values (< 40 Bq/m^3).

The DS05 radon detector seal may have been opened prior to its deployment in the field, as it is not possible for the radon detector to return higher track counts than its thoron pair. The laboratory re-processed the analysis from the thoron detector (sensitive to radon and thoron) and attributed the exposure to radon, considering nil contribution from thoron. The measurable value of 33 Bq/m^3 is therefore a likely overestimate for the background station.

The detector installed in station DS04 returned a thoron concentration marginally above the detection limit. The station is located in the locality of Mangaiky, upwind from mining operations. The radon detector placed in the outskirts of Fort Dauphin showed a concentration marginally above detection limit.

All detectors from stations DS02 and DS03, located downwind and closest to the mine operations returned radon and thoron concentrations below detection limits.

The values presented in Table 3 and Table 4 can be compared to the worldwide outdoor radon concentration average of 5 to 150 Bq/m^3 reported by the World Health Organisation (WHO) and the WHO residential reference level, set at 100 Bq/m^3. UNSCEAR estimates a typical outdoor concentration for both radon and thoron to be 10 Bq/m^3 and reports a range of natural outdoor radon comprised between 1 and 100 Bq/m^3. Radon and thoron levels are therefore within typical background ranges.

Houses are generally very well ventilated in and around the study area. Based on the relatively low concentrations of radon and thoron measured in outdoor locations, radon and thoron concentrations attributable to mining operations are not expected to cause significant exposures in residential settings.

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A2 Attachment 1 - Certified Results

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RADON/THORON MONITORING REPORT
Issued by an Accredited Laboratory

SWEDAC ACKREDITERING 1489 ISO/IEC 17025

REPORT NUMBER
5526469:2

REPORT PAGE 1(2)

REPORT DATE
2021-02-18

PRINT DATE
2021-02-18

MEASUREMENT PERFORMED FOR
SA Radiation Pty Ltd

SA Radiation Pty Ltd
Rosa Ippolito
Suite 3, Level 3
69 Phillip Street
Parramatta NSW 2150
Australia

REPORT RECEIVER(S)
SA Radiation Pty Ltd

The analysis results are located on page 2 of this document.

Description of the measurement
The measurement was performed with closed radon/thoron alpha-track detectors.

Property address

Test data have been given by SA Radiation Pty Ltd

Measurement method: closed alpha-track detector
The radon measurement was performed with a closed alpha-track detector following the quality guidance given in EPA 402-R-95-012. The detector container is manufactured from electrically conducting plastic. Through a small slit (filter) in the radon detector, radon gas enters the detector but the diffusion time is long enough to prevent thoron gas from entering. Through holes covered by paper filters in the thoron detector, both thoron and radon gas enter the detector. The thoron concentration is calculated by subtracting the radon contribution in the thoron detector as measured with the radon detector. The track-detecting material (film) inside the detectors are hit by alpha particles generated by radon and thoron entering the detectors and the decay products formed from them. On the film, alpha particles make small tracks which are enlarged through chemical etching and later analyzed via our proprietary Track-Etch methodology to determine the radon and thoron exposures. Radonova Laboratories AB (P.O. Box 6522, SE-751 28 Uppsala, Sweden) is accredited (no. 1489) by SWEDAC to conduct radon-gas measurements using closed alpha-track detector method. The thoron measurement is not part of the accredited measurement methods. The analysis equipment is checked daily and the detectors are calibrated at regular intervals.

Measured radon and thoron concentrations
For each detector, the measured value of the radon and thoron concentration is given. The radon detector is marked with (R) after the detector number in the result table and the thoron detector with (T). For each value an uncertainty associated with the measurement to a 95% confidence level also given. For example a measurement result of 200 ± 30 Bq/m³ means that the radon and thoron concentration is most likely contained in the range 170-230 Bq/m³.
If the start or end date of the measurement has not been provided, the radon and thoron concentration cannot be calculated. In such cases, the total exposure in kBqh/m³ will be reported.

Signature on the report
With the signature on the report, the person responsible for the analysis at Radonova Laboratories AB hereby certifies that the radon measurement procedures follow the quality guidance in accordance with EPA 402-R-95-012 and that the demands from SWEDAC are fulfilled.

ENVIRONMENTAL SYSTEM CERTIFICATION DNV·GL ISO 14001

QUALITY SYSTEM CERTIFICATION DNV·GL ISO 9001

AU_RT_TH_001 - V1.00 / 2017-06-07 - JO / LB

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RADON/THORON MONITORING REPORT
Issued by an Accredited Laboratory

REPORT NUMBER 5526469:2
REPORT PAGE 2 (2)
REPORT DATE 2021-02-18
PRINT DATE 2021-02-18

Test results

Detector	Start date	Stop date	Location	Detector comment	Avg Radon/Thoron conc. (Bq/m³)	Total Radon exp. (kBqh/m³)
430415-0 (R)	2019-12-03	2020-11-19	DS01		< 15	< 126
466091-6 (T)	2019-12-03	2020-11-19	DS01		38 ± 12	318 ± 104
119021-4 (R)	2019-12-03	2020-11-19	DS02		< 15	< 126
465026-3 (T)	2019-12-03	2020-11-19	DS02		< 20	< 168
320959-0 (R)	2019-12-04	2020-11-24	DS03		< 15	< 128
464979-4 (T)	2019-12-04	2020-11-24	DS03		< 20	< 170
654088-4 (R)	2019-12-05	2020-11-24	DS04		< 15	< 127
229963-4 (T)	2019-12-05	2020-11-24	DS04		< 20	< 170
189826-1 (R)	2019-12-05	2020-11-24	DS05		< 15	< 127
455666-8 (T)	2019-12-05	2020-11-24	DS05		< 20	< 170
384023-8 (R)	2019-12-06	2020-11-26	DS06		< 15	< 128
465542-9 (T)	2019-12-06	2020-11-26	DS06		< 20	< 170
944372-2 (R)	2020-02-13	2020-11-25	DS07		< 15	< 102
466097-3 (T)	2020-02-13	2020-11-25	DS07		< 20	< 137
324989-3 (R)	2020-11-25	2021-02-08	Control		31 ± 24	55 ± 46
660140-5 (T)	2020-11-25	2021-02-08	Control		< 60	< 108

AU_RT_TH_001 - V1.00 / 2017-06-07 - / JO / LB

Comment to the results

Stop date of control set when detectors arrived to the laboratory in Sweden.

Tryggve Rönnqvist (Electronically signed)

Signature Radonova Laboratories AB, Measurement Specialist

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RADON/THORON MONITORING REPORT
Issued by an Accredited Laboratory

SWEDAC ACKREDITERING 1489 ISO/IEC 17025

REPORT NUMBER
5623505:2

REPORT PAGE 1(2)

REPORT DATE
2021-06-07

PRINT DATE
2021-06-07

MEASUREMENT PERFORMED FOR
SA Radiation Pty Ltd

SA Radiation Pty Ltd
Rosa Ippolito
Suite 3, Level 3
69 Phillip Street
Parramatta NSW 2150
Australia

REPORT RECEIVER(S)
SA Radiation Pty Ltd

The analysis results are located on page 2 of this document.

Description of the measurement
The measurement was performed with closed radon/thoron alpha-track detectors.

Property address

Measurement method: closed alpha-track detector
The radon measurement was performed with a closed alpha-track detector following the quality guidance given in EPA 402-R-95-012. The detector container is manufactured from electrically conducting plastic. Through a small slit (filter) in the radon detector, radon gas enters the detector but the diffusion time is long enough to prevent thoron gas from entering. Through holes covered by paper filters in the thoron detector, both thoron and radon gas enter the detector. The thoron concentration is calculated by subtracting the radon contribution in the thoron detector as measured with the radon detector. The track-detecting material (film) inside the detectors are hit by alpha particles generated by radon and thoron entering the detectors and the decay products formed from them. On the film, alpha particles make small tracks which are enlarged through chemical etching and later analyzed via our proprietary Track-Etch methodology to determine the radon and thoron exposures. Radonova Laboratories AB (P.O. Box 6522, SE-751 28 Uppsala, Sweden) is accredited (no. 1489) by SWEDAC to conduct radon-gas measurements using closed alpha-track detector method. The thoron measurement is not part of the accredited measurement methods. The analysis equipment is checked daily and the detectors are calibrated at regular intervals.

Measured radon and thoron concentrations
For each detector, the measured value of the radon and thoron concentration is given. The radon detector is marked with (R) after the detector number in the result table and the thoron detector with (T). For each value an uncertainty associated with the measurement to a 95% confidence level also given. For example a measurement result of 200 ± 30 Bq/m³ means that the radon and thoron concentration is most likely contained in the range 170-230 Bq/m³.
If the start or end date of the measurement has not been provided, the radon and thoron concentration cannot be calculated. In such cases, the total exposure in kBqh/m³ will be reported.

Signature on the report
With the signature on the report, the person responsible for the analysis at Radonova Laboratories AB hereby certifies that the radon measurement procedures follow the quality guidance in accordance with EPA 402-R-95-012 and that the demands from SWEDAC are fulfilled.

ENVIRONMENTAL SYSTEM CERTIFICATION DNV·GL ISO 14001

QUALITY SYSTEM CERTIFICATION DNV·GL ISO 9001

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RADON/THORON MONITORING REPORT
Issued by an Accredited Laboratory

REPORT NUMBER 5623505:2
REPORT PAGE 2 (2)
REPORT DATE 2021-06-07
PRINT DATE 2021-06-07

Test results

Detector	Start date	Stop date	Location	Detector comment	Avg Radon/Thoron conc. (Bq/m³)	Total Radon exp. (kBqh/m³)
384418-0 (R)	2020-11-19	2021-04-13	DS01		84 ± 16	293 ± 58
614479-4 (T)	2020-11-19	2021-04-13			< 40	< 139
283900-9 (R)	2020-11-19	2021-04-14	DS02		< 15	< 52
613878-8 (T)	2020-11-19	2021-04-14			< 30	< 105
515546-0 (R)	2020-11-24	2021-04-13	DS03		< 15	< 50
464036-3 (T)	2020-11-24	2021-04-13			< 30	< 100
985549-5 (R)	2020-11-24	2021-04-13	DS04		< 15	< 50
466102-1 (T)	2020-11-24	2021-04-13			38 ± 26	127 ± 92
330404-5 (R)	2020-11-25	2021-04-13	DS05		33 ± 18	110 ± 62
466130-2 (T)	2020-11-25	2021-04-13			< 40	< 133
901087-7 (R)	2020-11-26	2021-04-14	DS06		< 15	< 50
465432-3 (T)	2020-11-26	2021-04-14			< 40	< 133
950389-7 (R)	2020-11-25	2021-04-14	DS07		19 ± 18	64 ± 62
465571-8 (T)	2020-11-25	2021-04-14			< 40	< 134

AU_RT_TH_001 - V1.00 / 2017-06-07 - JO / LB

Comment to the results

This report replaces 5623505:1. Reason: Radon detector 330404-5 had got a much higher exposure than the co-located radon+thoron detector 466130-2 which should not be possible. Detector 330404-5 was one year old when the exposure started. The additional exposure might have been aused by an damaged/opened bag?
New value set to equal the exposure for detector 466130-2 /(radon+thoron) which might be an overstimation for radon since thoron is also measured.

Tryggve Rönnqvist (Electronically signed)

Signature Radonova Laboratories AB, Measurement Specialist

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A2 Attachment 2 – Procedure for Swap Out of Detectors

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PROCEDURE R01– RADON/THORON DETECTOR EXCHANGE

DESCRIPTION OF WORK

QMM Person responsible:

Name

Phone: +123456666

Email: mail

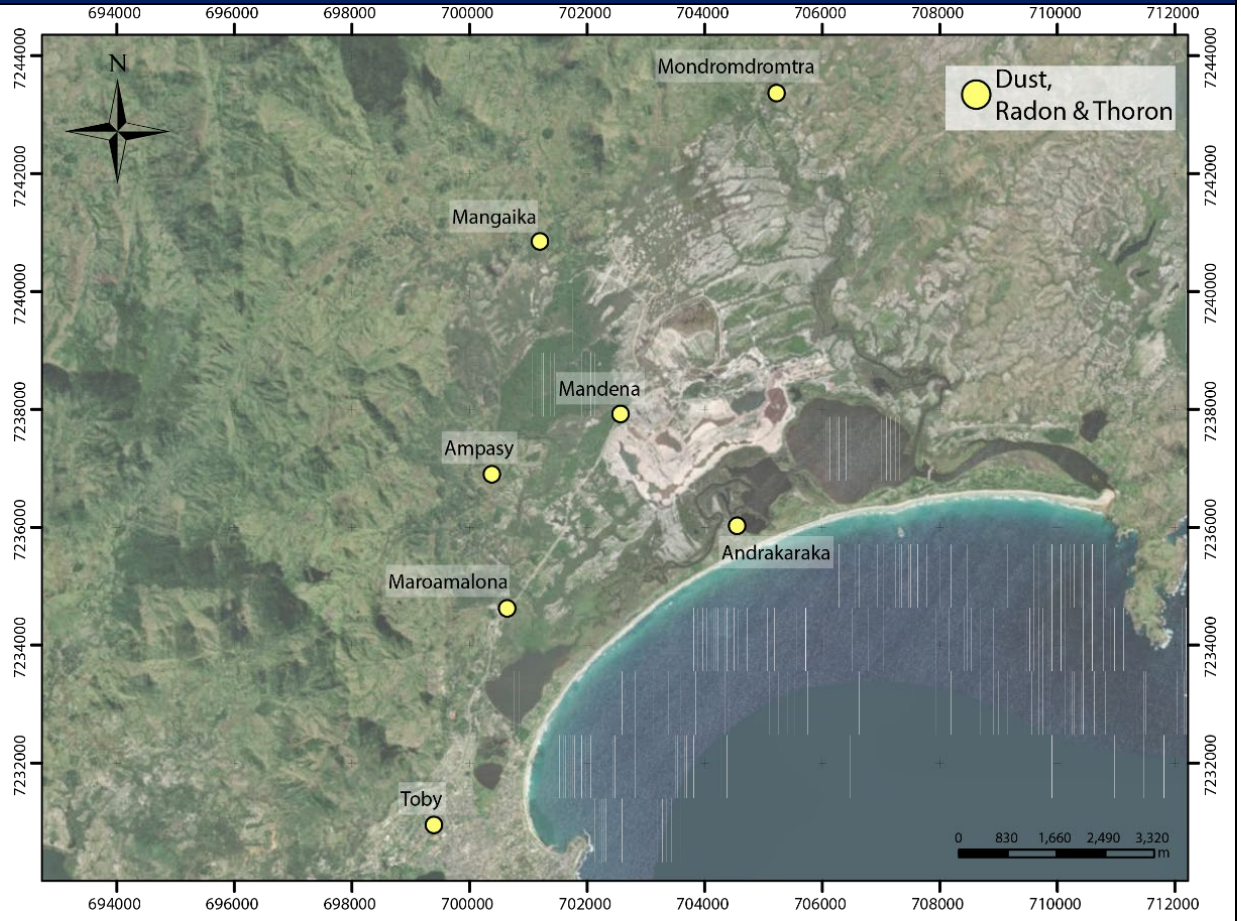
This procedure provides instructions on the safe collection and exchange of radon and thoron track detectors located at environmental radiation stations.

Environmental radiation stations are set up in strategic locations to collect representative dust and radon/thoron concentrations around an area of interest. Radon/thoron detectors must be swapped every 6 to 12 months.

Protective equipment required:		• Safety glasses • Gloves • Safety boots • Hi-visibility clothing
Additional Equipment / Tools:	• Radon and thoron track detectors • GPS • Camera • Datasheets	• Cable ties • Wire • Pliers • Zip lock bags
Hazards / Safety:	• Trips, slips, falls • Use of hand tools	

PROCEDURE R01– RADON/THORON DETECTOR EXCHANGE

TASK	STEPS
Preparation	1. Prepare the radon and thoron track detectors. Identify the detectors to be used on the station using the serial numbers. DO NOT OPEN THE PACKETS OF THE MONITORS UNTIL LOCATED AT THE MONITORING STATION WHERE THEY ARE TO BE INSTALLED. 2. Print a map with locations of environmental radiation stations. 3. Print a copy of the coordinates for the monitoring stations, the table of serial numbers for current and new detectors, and the field datasheet.



PROCEDURE R01– RADON/THORON DETECTOR EXCHANGE

			Detectors in place (Installed during first round)				**New detectors** (Sent by DHL Aug 2020)			
	Station	Site	Radon Detector #	Thoron Detector #	Period Begin Date	Period End Date	Radon Detector #	Thoron Detector #	Period Begin Date	Period End Date
	DS01	Mandena	430415-0	466091-6	3/12/2019		384418-0	614479-4		
	DS02	Maroamalona	119021-4	465026-3	3/12/2019		283900-9	613878-8		
	DS03	Ampasy	320959-0	464979-4	4/12/2019		515546-0	464036-3		
	DS04	Mangaika	654088-4	229963-4	5/12/2019		985549-5	466102-1		
	DS05	MMM	189826-1	455666-8	5/12/2019		330404-5	466130-2		
	DS06	Andrakaraka	384023-8	465542-9	6/12/2019		901087-7	465432-3		
	DS07	Toby	944372-2	466097-3	13/02/2020		950389-7	465571-8		
	Control						324989-3	660140-5		

Collecting detectors

4. Proceed to first station.

5. Take a picture of the station



PROCEDURE R01– RADON/THORON DETECTOR EXCHANGE

6. Detach and open the radon and thoron detector holders.



7. Verify that the serial numbers of the detectors in the holder match the numbers on the list above.

8. Take a picture of the detectors and their serial numbers recovered from the holder

9. Place the recovered detectors in a new and clean zip lock bag and close the zip lock bag. Seal the zip lock bag. Make sure there is no sand or soil on the detectors or in the bag



Take a picture of the zip lock bag after recovery

10. Record the following on the datasheet for the recovered detectors:
    - Date and time
    - GPS coordinate
    - Station ID
    - Radon detector serial number
    - Thoron detector serial number

PROCEDURE R01– RADON/THORON DETECTOR EXCHANGE

Installing new detectors

11. Locate and identify the correct new detectors to be installed at the station. The table of serial numbers of current and new detectors for each station is shown above.

12. Take a picture of the new detectors while they are in the plastic, with their serial numbers visible

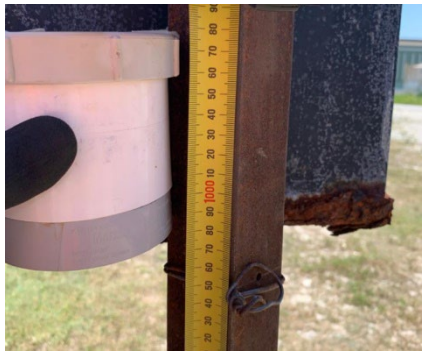


13. Open the plastic and place the detectors in the holder
    Take a picture



14. Close the holder lid and secure the holder with cable ties and wire.

PROCEDURE R01– RADON/THORON DETECTOR EXCHANGE

	The bottom of the holder with the opening must be positioned 1 m above ground level. Take a picture  **15.** Record the following on the datasheet for the newly deployed detectors: • Date and time • GPS coordinate • Station ID • Radon detector serial number • Thoron detector serial number
Swap all other detectors	**16.** Repeat steps 4-15 for each station. All recovered detectors are placed in the same zip lock bag. **17.** Take a picture of the zip lock bag after each recovery

PROCEDURE R01– RADON/THORON DETECTOR EXCHANGE

Control set-up

18. Once all detectors have been swapped, bring all detectors collected from the field to the mine site.

19. Place all detectors in a single zip lock bag. Seal the zip lock bag. Make sure there is no sand or soil on the detectors or in the bag



20. Locate and identify the control detectors that were sent with the new detectors:

Radon Detector #	Thoron Detector #
324989-3	660140-5

21. Take a picture of the control detectors in the plastic with the serial numbers visible



22. Remove the control detectors from their plastic wrapping and place them in the zip lock bag with all other detectors

    Take a picture

23. Record the following details for the control detectors on the datasheet:
    - Date and time
    - Control Radon detector serial number
    - Control Thoron detector serial number

24. Close the zip lock bag and place it in another zip lock bag.

Close that bag.

Take a picture





25. Email datasheets and pictures to JBS&G.

26. Once validation has been received, package the radon and thoron detectors in a box and send them to:

Mathieu Messeiller
SA Radiation
82 Shipsters Rd
Kensington Park
SA 5068
AUSTRALIA

Appendix A3 Dust

Appendix A3 Dust

1. Introduction

A program of passive dust monitoring was designed based on guidance from the Standards Australia/New Zealand Committee, methods for sampling and analysis of ambient air AS/NZS 3580.10.1.2003 to capture representative dust samples with a series of dust sampling locations placed in a transect from upwind/upgradient of mining operations through to downwind/downgradient.

Passive dust stations were constructed following the requirements of the Australian Standard for sampling and analysis of ambient air and for the siting of ambient air sampling units.

1.1 Equipment

Passive dust stations consist of a deposit gauge mounted on a post. Each deposit gauge comprises a 5L glass bottle with a 150mm glass funnel secured in the bottle mouth using a rubber stopper (Refer Figure 1.1 and 1.2). In accordance with the requirements of the Australian Standard, each gauge was mounted such that the mouth of each funnel was horizontal, and at a height of 2 m ± 0.2 m and a minimum clear sky angle of 120° was required for each monitoring station, at least towards the prevailing wind direction. Deposit gauges were secured in buckets, which were mounted on pickets and poles attached to existing infrastructure.

Two glass bottles were provided for each station to enable exchange for evaporation of water, due to the anticipated high rainfall at Mandena. Glass bottles and their lids were each labelled with a unique identification number, linking them to the monitoring station to which they were assigned.

Figure 1 Schematic of Dust Station

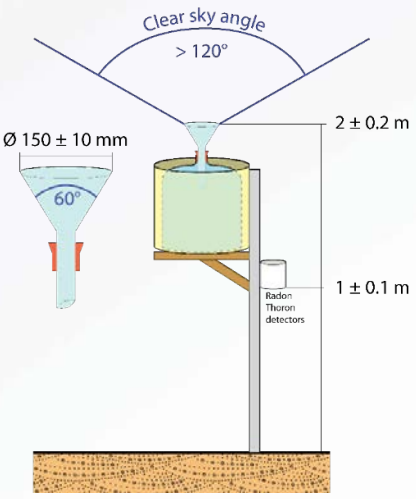


Figure 2 Dust Station DS05



All vessel exchanges and sample preparation activities were conducted by QMM personnel as the JBS&G team were unable to return to Madagascar due to Covid-19. Quality Assurance processes were built into the work instruction. Documented evidence including photographs and field forms were provided to JBS&G for each step, confirming adherence to the procedure.

Passive dust stations were scheduled to be checked weekly by QMM staff as part of routine particulate monitoring. Two bottles were provided for each location and clearly marked to ensure that they were not used at monitoring locations other than the one to which they had been assigned. The collection bottles were

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scheduled for exchange by QMM site personnel at least every month or when they contained sufficient water to require removal. Due to heavy seasonal rainfall, weekly exchanges were required during several periods.

A procedure was also developed for the retrieval, bottle rotation the evaporation of excess water. The retrieved bottles containing water and collected dust were heated in an evaporating oven at the mine site laboratory to reduce water volume. Once dried, the bottles containing only the dust were sealed with lids and stored in the mine site laboratory until required for rotation into the assigned monitoring location.

A procedure was also developed for the extraction of dust sample from the sample bottles at the completion of the monitoring period.

The relevant work procedures are provided as **Attachment 1**.

1.2 Passive Dust Monitoring Locations

As described in the introduction, the location of the passive dust stations were selected based on a number of criteria. Most importantly the locations were required to provided dust data representative of both dust generated from the mining operation (directly downwind gradient of mining operations) and background dust with no potential influence from the mining operation (directly upwind gradient of mining operations).

Other parameters considered in monitoring locations included proximity to critical community receptors and food producers, community residents who were willing to host and maintain the monitoring station and protect it from damage or theft and locations that could be used to monitoring other parameters include radon and thoron. The locations at which dust deposition monitoring was constructed are summarised in **Table 1** and **Figure 3**.

Figure 3 Locations of Passive Dust Monitoring Stations



Stations were initially set up in November and December 2019. However, heavy rain in January 2020 led to the overflow of the gauges and potential loss of material. Vessels were therefore collected, emptied, and cleaned and all stations were reset in February 2020. The first deployment (February to November 2020) straddled the wet season covered the entirety of the cold and dry months. The second deployment took place in the wet season (December 2020 to April 2021).

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Table 1 Dust Deposition Station Location Data

Monitoring Station ID	Site Location	Description	Easting	Northing
DS01	Mandena (Mine Gate)	Downwind	702570	7237921
DS02	Maroamalona	Downwind	700642	7234623
DS03	Ampasy	Downwind	700382	7236900
DS04	Mangaika	Upwind	701199	7240850
DS05	Mandromondromotra	Upwind	705225	7243367
DS06	Andrakaraka	Cross/ Downwind	704294	7236246
DS07	Toby	Downwind	699395	7230949

One station (DS05) was installed in the village of Mandromondromotra (MMM), upwind from the dominant wind direction. The station DS04 is located west northwest of the mine. During the period of the passive dust monitoring programme there were no mining activities upwind from station DS04. Both DS04 and DS05 are therefore considered as unaffected by mining operations.

DS06 (in Andrakaraka, directly south of the mine) is downwind from the mine area, but not directly in the prevailing wind direction. One station (DS01) was installed within the mine perimeter, at the mine gate. All other stations were installed in communities downwind from the mine.

The static dust station DS01 was damaged prior to the final collection of the bottle labelled “DS01b”. A reversing vehicle collided with the static station on the night of the 13/04/2021. The vessel was intact, but the funnel was broken. The station had been installed in the vicinity of the mine gate. The environmental team collected the gauge and placed the lid to the vessel in the morning. The contents of the disturbed collection vessel were preserved and prepared separately for analysis.

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2. Dust Monitoring Results

2.1 Gravimetry

Gravimetric results are presented in **Table 2**. Depositional rates, given in mg per day per meter square (mg/m^2/day), can be calculated from the gravimetric data and the time of deployment using the following formula:

$$deposition\ rate\ \left(\frac{mg}{m^2 \times day}\right) = \frac{mass\ (g) \times 1000}{deployment\ period\ (days) \times funnel\ surface\ area\ (m^2)}$$

$$deposition\ rate\ \left(\frac{mg}{m^2 \times day}\right) = \frac{mass\ (g) \times 1000}{deployment\ period\ (days) \times funnel\ surface\ area\ (m^2)}$$

Table 2 Gravimetric Analysis of Dust Deposition Samples

Station	Location	1st Deployment Feb-Nov 2020			2nd Deployment Nov 2020 – Apr 2021		
		Insoluble	Soluble	Total	Insoluble	Soluble	Total
DS01	Mandena (Mine Gate)	0.22	0.49	0.71	0.11	0.18	0.29
					0.02	0.04	0.07
DS02	Maroamalona	0.14	0.48	0.62	0.02	0.11	0.13
DS03	Ampasy	0.14	0.58	0.73	0.09	0.12	0.21
DS04	Mangaika	0.14	0.44	0.58	0.06	0.14	0.20
DS05	MMM	0.08	0.52	0.60	0.03	0.17	0.20
DS06	Andrakaraka	0.13	0.54	0.67	0.07	0.14	0.21
DS07	Toby	0.25	0.60	0.85	0.18	0.21	0.39

Deposition rates have been calculated for all stations. Average deposition rates over the two deployment periods are summarised in the Table 2 and compared to dust concentrations in the air. Dust concentration in the air was measured by QMM using an ambient air quality monitor (model EcomSmart, s/n ECS-B-GW-00055). The sensor cartridge was calibrated in February 2021.

Deposition rates for total solids in upwind locations are comparable to rates in downwind areas. During the first deployment, the upwind stations recorded the lowest mass of solids. However, in the second deployment, the mass of the solids collected in the upwind stations are in the range of downwind stations. The station with the lowest desposition rate (averaged over the two deployments) is DS02. It is the closest station to the mine, located directly downwind from the main operations. The station of Toby, installed in the eastern outskirts of Fort Dauphin, records the highest dust deposition.

The measured deposition results are generally consistent with the dust concentrations in air recorded by QMM from January 2020 to December 2021 (Table 3). The station DS07 located in Toby recorded the highest dust concentrations in the air for all particle sizes (PM1, PM2.5 and PM10), while DS02 recorded the lowest concentrations. Dust concentrations in upwind stations of DS04 and DS05 fall in the range of downwind stations.

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Table 3 Average deposition rates and dust concentration in the air

Area	Station	Dust Concentration (ug/m3)			Deposition Rate (mg/m2/day)		
		PM 1	PM2.5	PM10	Insoluble	Soluble	Total
Downwind	Maroamalona (DS02)	58	130	139	18	70	88
	Ampasy (DS03)	169	394	415	33	82	115
	Andrakaraka (DS06)	181	419	441	27	82	108
	Toby (DS07)	195	368	385	61	102	163
	Min	*58*	*130*	*139*	*18*	*70*	*88*
	Max	*195*	*419*	*441*	*61*	*102*	*163*
	Average	**151**	**328**	**345**	**35**	**84**	**118**
upwind	MMM	161	337	354	14	85	99
	Mangaika	191	406	425	25	72	98
	Min	*161*	*337*	*354*	*14*	*72*	*98*
	Max	*191*	*406*	*425*	*25*	*85*	*99*
	Average	**176**	**371**	**390**	**20**	**79**	**98**

As discussed above, the station installed at the mine perimeter (DS01) was damaged by a vehicle towards the end of the second deployment, resulting in two distinct samples being analysed. While samples may be compromised, the combined gravimetric analysis for samples in DS01 are within the range of other stations, and similar to the first deployment. There is no dust concentration data available for this site. Instead, average dust concentrations in the air within the critical group are attributed to this station.

The mass of the insoluble fraction measured in the upwind stations was low for the first deployment results, relative to downwind stations. The upwind mass of insoluble solids falls within the range reported for the other stations for the second deployment.

2.2 Radionuclide Analysis

The radionuclide analysis was carried out on the insoluble fraction of the dust only. Radionuclide analysis data and summary deposition rates for each round are presented in **Table 4 and Table 5**.

Due to the limited mass of sample available, a usual occurrence with passive dust collection, the analysis was restricted to alpha spectrometry and ICPMS, to achieve measurable results.

Station DS01, installed within the mine perimeter, shows concentrations in both uranium and thorium series that are high, relative to other stations and to soil samples collected in the area[1] .However, concentrations are

[1] SENES, Baseline Environmental Survey QMM's Heavy Mineral Sands Project, Madagascar, SENES Consultants, Richmond Hill, 2001.

within the range of regional baseline soil samples. The Th232:U238 ratio in the first deployment is 0.6, which is unusually low. However, ratios of less than 1 have been reported in the baseline survey.

For stations installed in the communities (DS02 to DS07) surrounding the mine, concentrations of uranium series radionuclides in dust are typically lower than concentrations observed in soil samples collected in and around the Mandena operations. Radionuclides from the thorium series are within the ranges measured in soil samples collected in this study and in the baseline survey, with a Th232:U238 ratio typical of soil samples in the region.

In the first deployment, the station DS02 shows high concentrations of radionuclides, compared to other community stations. Station DS06 shows anomalous Th230 and Th228 concentrations, in disequilibrium with parent radionuclides. The concentrations in the second deployment for both stations are low, comparable to other stations.

Table 4 Deposition rates and Radionuclide Analysis of Dust Deposition Samples 1st deployment

Sample ID Unit: mg/m^2.day	DS01	DS02	DS03
Insoluble	45	27	29
Soluble	97	96	116
Total	141	123	144
Unit : Bq/kg			
U238 Decay Chain			
U238 (a)	0.665 ± 0.067	0.093 ± 0.009	0.028 ± 0.003
Th230 (b)	0.048 ± 0.029	0.08 ± 0.049	< 0.038
Ra226 (b)	0.369 ± 0.05	< 0.04	< 0.038
Po210 (b)	3.22 ± 0.2	5.72 ± 0.4	2.2 ± 0.18
Th232 Decay Chain			
Th232 (a)	0.462 ± 0.046	0.717 ± 0.072	0.196 ± 0.02
Th232 (b)	0.362 ± 0.111	0.614 ± 0.188	0.145 ± 0.07
Th228 (b)	0.424 ± 0.125	0.718 ± 0.212	0.189 ± 0.083

Table 4 Continued

Sample ID Unit: mg/m^2.day	DS04	DS05	DS06	DS07
Insoluble	27	16	25	49
Soluble	88	103	108	120

Total	116	120	133	168
Unit : Bq/kg				
U238 Decay Chain				
U238 (a)	0.023 ± 0.002	0.017 ± 0.002	0.029 ± 0.003	0.037 ± 0.004
Th230 (b)	0.027 ± 0.012	< 0.067	0.463 ± 0.107	< 0.023
Ra226 (b)	< 0.04	0.0061 ± 0.0012	< 0.044	< 0.023
Po210 (b)	1.47 ± 0.14	2.67 ± 0.58	0.823 ± 0.11	1.02 ± 0.088
Th232 Decay Chain				
Th232 (a)	0.116 ± 0.012	0.098 ± 0.01	0.296 ± 0.03	0.282 ± 0.028
Th232 (b)	0.123 ± 0.032	0.14 ± 0.055	0.239 ± 0.068	0.254 ± 0.083
Th228 (b)	0.118 ± 0.031	0.157 ± 0.059	0.883 ± 0.175	0.215 ± 0.074

(a) Digest/ICPMS.
(b) Alpha spectrometry.

Po210 was analysed in both deployments. The average Po210 concentrations in upwind stations are slightly lower than in downwind stations. However, upwind Po210 values are within the range of concentrations measured in downwind areas.

Table 5 Gravimetric and Radionuclide Analysis of Dust Deposition Samples 2nd deployment

Sample ID Unit: mg/m^2.day	DS01a	DS01b	DS02	DS03
Insoluble	54	56	9	37
Soluble	86	98	44	48
Total	140	154	53	85
Unit : Bq/kg				
U238 Decay Chain				
U238 (a)	0.285 ± 0.029	0.379 ± 0.038	0.0061 ± 0.0006	0.023 ± 0.002
Th230 (b)	0.276 ± 0.093	< 0.23	< 0.25	< 0.061
Ra226 (b)	< 0.051	< 0.23	< 0.25	< 0.061
Po210 (b)	1.57 ± 0.14	1.86 ± 0.27	1.27 ± 0.35	2.29 ± 0.19
Th232 Decay Chain				

Th232 (a)	2.51 ± 0.25	3.43 ± 0.34	0.068 ± 0.007	0.21 ± 0.021
Th232 (b)	2.52 ± 0.52	3.00 ± 0.74	< 0.25	0.171 ± 0.078
Th228 (b)	2.33 ± 0.48	2.54 ± 0.66	< 0.25	0.213 ± 0.089

Table 5 Continued

Sample ID Unit: mg/m^2.day	DS04	DS05	DS06	DS07
Insoluble	23	13	28	72
Soluble	56	67	55	85
Total	80	79	84	157
Unit : Bq/kg				
U238 Decay Chain				
U238 (a)	0.02 ± 0.002	0.0074 ± 0.0007	0.021 ± 0.002	0.014 ± 0.001
Th230 (b)	< 0.096	< 0.18	< 0.079	0.014 ± 0.008
Ra226 (b)	< 0.096	< 0.18	< 0.079	< 0.031
Po210 (b)	1.43 ± 0.17	0.93 ± 0.17	1.56 ± 0.18	0.75 ± 0.09
Th232 Decay Chain				
Th232 (a)	0.124 ± 0.012	0.049 ± 0.005	0.293 ± 0.029	0.195 ± 0.02
Th232 (b)	0.121 ± 0.066	< 0.18	< 0.079	0.172 ± 0.038
Th228 (b)	0.152 ± 0.074	< 0.18	< 0.079	0.158 ± 0.036

(a) Digest/ICPMS.
(b) Alpha spectrometry.

Po210 values are enhanced compared to the parent radionuclides by one to two orders of magnitude in both deployments, which may reflect a strong influence from rainfall. Reference literature shows that primary deposition of Pb210 and Po210 comes from wet and dry deposition[2,3]. Static stations collect dust to measure the deposition of radionuclides by dry deposition processes. The levels of Po210 measured in the passive gauges are therefore not representative of the concentrations of Po210 in dust. This is highlighted by the varying Po210 concentrations between the first and second deployments and the Po210:U238 ratio ranging between 28 and 208.

[2] INTERNATIONAL ATOMIC ENERGY AGENCY, The environmental behaviour of polonium / International Atomic Energy Agency, Technical Reports Series No. 484, IAEA, Vienna (2017).
[3] N Mitchell et al, A review of the behaviour of U-238 series radionuclides in soils and plants, J. Radiol. Prot. 33 R17, 2013

A3 Attachment 1 – Procedures

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PROCEDURE L01 – PASSIVE DUST GAUGE RETRIEVAL

DESCRIPTION OF WORK

QMM Responsible Person

Name

Phone Number: +123456

Email: Mail

This procedure provides instructions for safe recovery of passive dust gauges, and preparation of collected material for transport and analysis.

Passive dust gauges were installed in February 2020 at locations that were selected to represent background and receptor locations. Each gauge has a pair of collection bottles that are alternated in the field to accumulate deposited dust and rainfall.

The contents of each pair of collection bottles has been reduced by evaporation on a regular basis to ensure that the collection vessels do not overflow in high rainfall events. After at least six months of continuous monitoring, the contents of the collection bottles for each gauge must be recovered and sent for analysis, and the bottles cleaned for the next 6-month monitoring period.

PROCEDURE L01 – PASSIVE DUST GAUGE RETRIEVAL

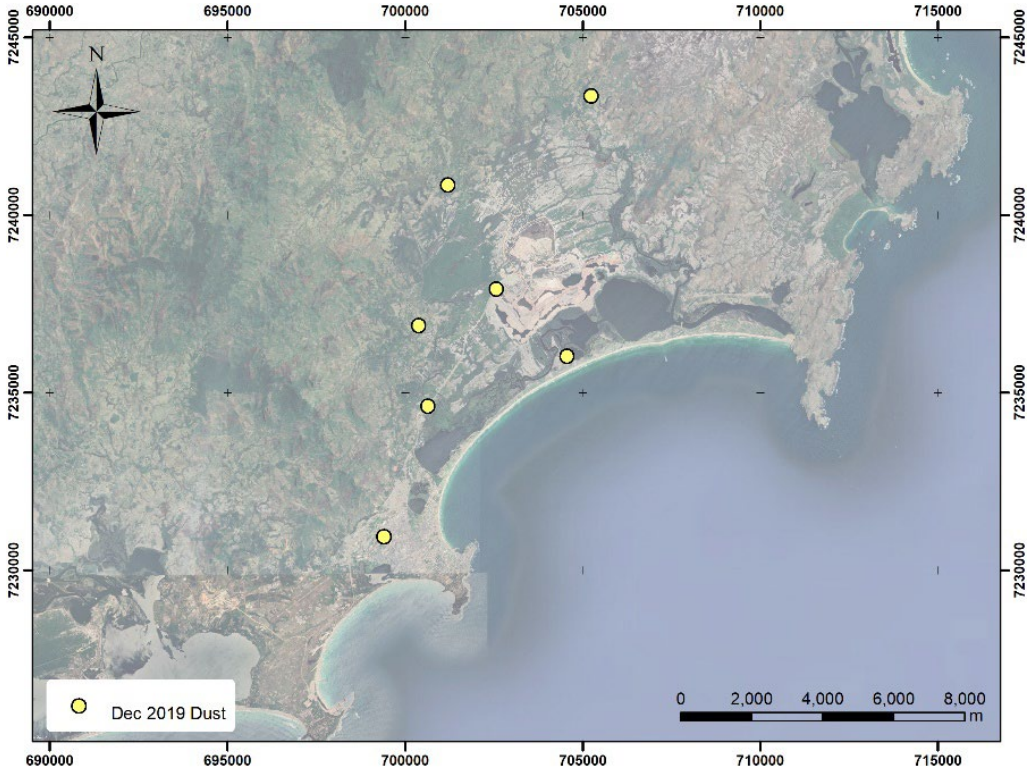
Protective equipment required:	• Nitrile gloves • Glasses	• Lab coats • Oven mitts
Additional Equipment / Tools:	For collection of bottles from the field: • Lids for 5L dust collection bottles • GPS • Distilled water • Camera • Datasheets	For preparation of samples for transport: • Distilled water • New 1L plastic sample bottles
Hazards / Safety:	• Trips, slips, falls • Hot objects	

PROCEDURE L01 – PASSIVE DUST GAUGE RETRIEVAL

TASK	STEPS
Preparation	1. Collect all equipment, including: a. Blue, plastic threaded lids for collection bottles. These marked with an ID corresponding to the dust station/bottle they should be paired with. b. Distilled water, preferably in a laboratory wash bottle with an angled tube to make it easy to rinse passive dust gauges   2. Print sheets for recording time, date and location details for each retrieval. 3. Print a copy of the coordinates, site names and IDs for the monitoring stations

Monitoring Station ID	Site	Easting	Northing
DS01	Mandena (Mine Gate)	702570	7237921
DS02	Maroamalona	700642	7234623
DS03	Ampasy	700382	7236900
DS04	Mangaika	701199	7240850
DS05	MMM	705225	7243367
DS06	Andrakaraka	704294	7236246
DS07	Toby	699395	7230949

4. Print a map with locations of dust deposition gauges



5. Provide maps, coordinates and recording sheets to the workers who will be recovering the bottles from the field monitoring stations.

6. Complete a Take 2 if the job or conditions vary from the SWI.

PROCEDURE L01 – PASSIVE DUST GAUGE RETRIEVAL

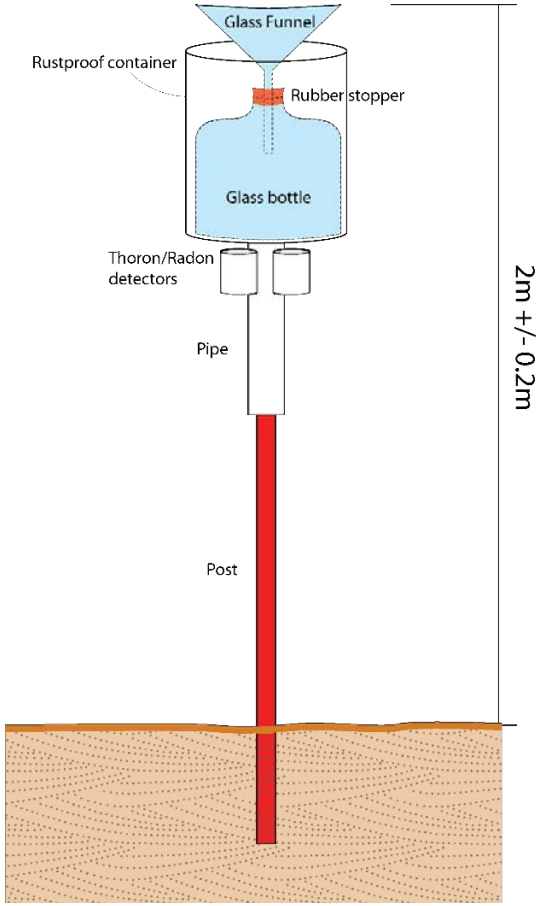
Retrieving dust deposition collection vessels

7. Travel to the first monitoring station. Take a picture of the station.

8. On the field datasheet, record
   a. monitoring station site name and ID
   b. GPS coordinates
   c. time and date of the retrieval

9. Locate the blue lid marked with the ID corresponding to the monitoring station, and then remove the gauge (bottle and funnel) from the rustproof container of the monitoring station.

10. All the dust collected in the current monitoring period needs to be contained in the bottle and recovered for analysis. This means that the funnel must be cleaned. To do this, the funnel must be rinsed with distilled water. A small, soft paintbrush may be used to gently brush dust on the inside surface of the funnel into the funnel neck, but this is optional.
    a. If a brush is used, rinse it with a small volume of distilled water (allowing the water to run into the collection bottle), clean it, and dry it before using on the next station.
    b. Rinse the funnel with a small volume (approximately 30 mL) of distilled water and allow the water to drain into the bottle.
    c. Repeat at least three times, until no visible dust is seen on the inside of the funnel.



11. After the funnel has been rinsed, place it upside down in the rustproof container that the gauge had been standing in, to wait until the clean bottle is returned to start the next monitoring period (see steps 18-23 of this procedure).

    Seal the bottle with the corresponding blue lid.

    Take a photo of the sealed bottle.

PROCEDURE L01 – PASSIVE DUST GAUGE RETRIEVAL

	12. Repeat steps 7-11 for each passive dust monitoring station. 13. Return to the mine, and pass the collection bottles and data sheets to laboratory personnel (who will prepare the samples for transport and dispatch to Australia for analysis).
Preparing samples for transport	14. In the lab, remove the blue lids from the collection bottles and dry the bottles in an evaporating oven until only a small amount of liquid remains. 15. Get the alternate/ replacement collection bottles from where they have been stored, and pair up the bottles according to the monitoring station ID that is marked on them. Take a photo of the paired collection bottles. 16. Get seven new, clean 1 L plastic sample bottles and mark each one with the ID of one of the monitoring stations with a permanent texter. Take a photo of the marked sample bottles. 17. Transfer the contents of each pair of collection bottles into the corresponding clean 1L sample bottle for transport: a. The analysis will be of the collected solid material. b. Because the bottles have been dried, they will need to be rinsed with distilled water to ensure that all solid material is transferred to the 1L sample bottle for transport. c. Rinse the first bottle with a small volume (approximately 30-50 mL) of distilled water and decant the rinsate into the 1L bottle with the matching monitoring station ID. d. Repeat at least two more times for a total of three rinses of the bottle, or until there is no visible solid material in the collection bottle. e. A clean rubber scraper may be used to help loosen material from the collection bottle if possible. Alternatively, a small volume of distilled water may be left in the sample bottle to allow material in the collection bottle to soak and loosen from the glass. f. If a funnel is used for transfer, rinse the funnel into the 1L sample bottle three times with small volumes of distilled water. g. Repeat for the other bottle from the pair assigned to that monitoring station. h. Confirm completion by initialling the appropriate box on the field data sheet.

PROCEDURE L01 – PASSIVE DUST GAUGE RETRIEVAL

	18. Once all material from the pair of collection bottles is transferred into the plastic sample bottle, seal the sample bottle and tape the neck of the bottle around the edge of the lid. Take a photo of the sealed bottle. 19. Repeat steps 17 and 18 for all seven pairs of collection bottles.
Prepare bottles for next monitoring round	20. Rinse each bottle with hot water, and scrub internally with a bottle brush if possible to remove and residual biological material (bird droppings, vegetable matter, insects and other residue). Laboratory detergent may be used if necessary, as long as the bottle is adequately rinsed afterwards 21. Triple rinse each bottle with distilled water to remove traces of tap water If possible, add approximately 10mL of copper sulfate solution to each bottle to minimise algal growth
Return bottles to passive dust monitoring stations to commence the next six-month monitoring period	22. Store one bottle from each pair at the mine in the usual storage location for spare bottles, along with the blue lids for the collection bottles. 23. Proceed to the first monitoring station and confirm GPS coordinates. 24. Confirm that the monitoring station ID on the bottle matches the monitoring station ID when cross-checked against the GPS coordinates 25. Remove the stored funnel from the rustproof container, and assemble the gauge by sealing the rubber bung tightly into the neck of the bottle. 26. Place the assembled gauge in the rust proof container. Confirm that the mouth of the funnel is level, and is at a height 2 +/-0.2 metres (between 1.8m and 2.2m) from the ground. 27. Repeat steps 25-29 for each of the seven passive dust monitoring stations

Mise en place de stations de collecte de poussière

Matériel de sécurité :



- Gants
- Lunettes de sécurité
- Chaussures de sécurité
- Chemise longue de sécurité et pantalons

Matériel de construction :

- Poteau
- Bois
- Sceau avec couvercle
- Vis
- Bouteille en verre (5L) avec bouchon en pastique
- Entonnoir en verre (diamètre 150mm)
- Bouchon en caoutchouc (avec trou)
- Container pour détecteurs radon/thoron
- Détecteurs radon/thoron dans le plastique
- Fil de fer
- Plastique à bulle

Outils :

- Appareil de photo
- Feuille de prise de données
- GPS
- Couteau
- Pince
- Niveau
- Marker permanent
- Tournevis
- Double mètre

Notes : Veuillez prendre un maximum de photos lors de l'installation de la station
Veuillez remplir toutes les informations nécessaires sur les feuilles de prise de données sur le terrain

1. Collecter le matériel de sécurité, le matériel de construction et les outils

2. Identifier l'endroit précis de la station à l'aide d'une carte et du GPS. Le sommet de l'entonnoir doit être compris entre 1.8 et 2.2 m du sol. S'assurer que le site est propice à cette règle et qu'il n'y a pas d'obstruction a 120° de tout cote de l'entonnoir, surtout dans la direction du vent dominant

3. A l'aide du marker permanent, marquer la bouteille et le bouchon avec le numéro identifiant de la station



4. Visser le bois de support du sceau sur le poteau



5. Visser le poteau sur la barrière



6. Trouer le couvercle du sceau pour y faire passer le goulot de la bouteille en verre



7. Trouer le fond du sceau pour l'évacuation de l'eau de pluie



8. Mettre à niveau et ancrer le sceau sur le support en bois avec une vis à la base du sceau



A l'aide du marker permanent, marquer le sceau et le couvercle avec le numéro identifiant de la station

9. Sécuriser le sceau avec du fil de fer autour du sceau.



10. Emballer la bouteille dans du plastique à bulle



11. Placer la bouteille dans le sceau



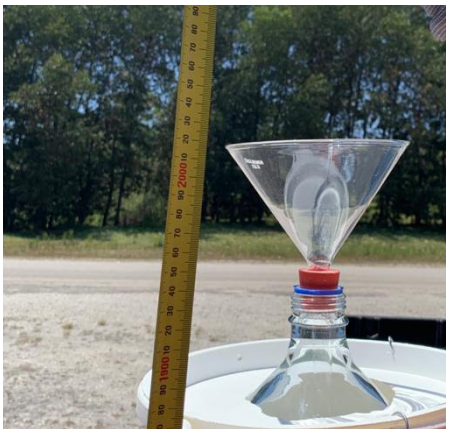
12. Placer le couvercle sur le sceau et la bouteille.



13. Trouer le couvercle et le scau et ancrer le couvercle avec du fil de fer



14. Enlever le bouchon en plastique de la bouteille et le placer dans un sac en plastique. Installer l'entonnoir sur la bouteille avec le bouchon en caoutchouc. S'assurer à l'aide du mètre que le sommet de l'entonnoir est entre 1.8 et 2.2 m du sol



15. S'assurer à l'aide du niveau que le sommet de l'entonnoir est horizontal

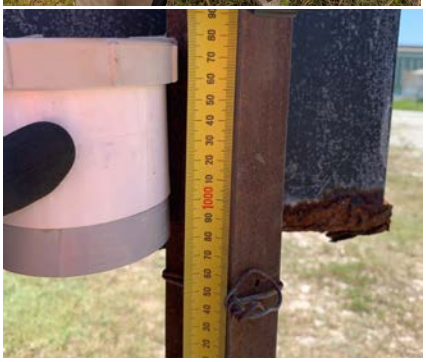


16. Ouvrir les plastiques qui contiennent le détecteur de radon et le détecteur de thoron. Enregistrer l'heure et la date d'ouverture et les numéros de série de chacun des détecteurs. Placer les détecteurs dans le container prévu à cet effet.



17. Sécuriser le container à détecteurs avec fil de fer et attaches en plastique à une distance de 1m au-dessus du sol.





18. Finalement, s'assurer que toutes les informations requises sur la feuille de prises de données ont été remplies et que les photos ont été prises



19. De retour au laboratoire, à l'aide du marker permanent, marquer une bouteille surnuméraire et son bouchon avec le numéro identifiant de la station installée suivi de la lettre « b »

20. Attacher le bouchon en plastique de la bouteille installée avec la bouteille « b » de la station à l'aide de ruban adhésif.

21. Se référer à la procédure de changement de bouteille pour les inspections hebdomadaires et autres changements de bouteille

A3 Attachment 2 – Laboratory Certificates

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CERTIFICATE OF ANALYSIS

Certificate Number:	SARAD-170322 RN
Company / Organisation:	Mathieu Messeiller, JBS&G
Client Identification:	Madagascar – Dust Samples
AM Identification:	MAD-300921-1 to 7
AM Request Number:	2102661
Analysis Requested:	Radionuclides (Alpha Spectrometry) Thorium and Uranium (ICPMS)

Seven (7) dust gauge bottles were received for the Round 2 sampling program on 30 September 2021. The respective ANSTO identifications were MAD-300921-1 to 7.

The samples had been evaporated by the client. Upon receipt at ANSTO, 100 mL of deionised water was added to each bottle and the bottles placed in an ultrasonic bath for 6 hours to agitate/solubilise the dried solids. The bottles were left overnight and then the total volume filtered through a 0.45 µm paper for gravimetric analysis. Both total and insoluble solids were determined, as requested by the client. The gravimetric analysis results are given in Appendix A.

The respective insoluble masses, obtained from gravimetric analysis, were assayed for radionuclide content. The total insoluble portions were digested using acid (aqua regia (HCl/HNO_3)) and hydrogen peroxide and made up to 50 mL (volumetrically) with MilliQ water for alpha spectrometry (thorium isotopes, radium-226, polonium-210; 9 mL each) and ICPMS (U-238, Th-232) analysis.

Alpha spectrometry for thorium isotopes, radium-226 and polonium-210 was carried out according to ANSTO Minerals controlled document I-4303 Radiochemical Analysis for U, Th, Pb and Po.

ICPMS for thorium and uranium was carried out on the digestion liquors according to ANSTO NST[1] controlled document I-8143 Agilent Triple Quadrupole ICPMS. The activity concentrations of Th-232 and U-238 were then calculated from the measured Th and U concentrations using the respective specific activities.

The results, based on analysis of the insoluble material, are given in Table 1.

[1] Nuclear Science and Technology.

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Table 1 – Radionuclide Concentrations in Dust Gauge Samples (Bq/kg)

Client ID	RPA Round 2						
	DS01	DS02	DS03	DS04	DS05	DS06	DS07
ANSTO ID: MAD-300921-	1	2	3	4	5	6	7
U-238 Decay Chain							
U-238 (a)	665 ± 67	93 ± 9	28 ± 3	23 ± 2	17 ± 2	29 ± 3	37 ± 4
Th-230 (b)	48 ± 29	80 ± 49	< 38	27 ± 12	< 67	463 ± 107	< 23
Ra-226 (b)	369 ± 50	< 40	< 38	< 40	6.1 ± 1.2	< 44	< 23
Po-210 (b)	3220 ± 200	5720 ± 400	2200 ± 180	1470 ± 140	2670 ± 580	823 ± 110	1020 ± 88
Po-210 Count Date	08-Dec-21	08-Dec-21	08-Dec-21	08-Dec-21	08-Dec-21	08-Dec-21	08-Dec-21
Th-232 Decay Chain							
Th-232 (a)	462 ± 46	717 ± 72	196 ± 20	116 ± 12	98 ± 10	296 ± 30	282 ± 28
Th-232 (b)	362 ± 111	614 ± 188	145 ± 70	123 ± 32	140 ± 55	239 ± 68	254 ± 83
Th-228 (b)	424 ± 125	718 ± 212	189 ± 83	118 ± 31	157 ± 59	883 ± 175	215 ± 74
Th-228 Count Date	10-Dec-21	10-Dec-21	10-Dec-21	10-Dec-21	14-Dec-21	14-Dec-21	14-Dec-21

(a) Digest/ICPMS.

(b) Alpha spectrometry.

Appendix A – Gravimetric Analysis Results

Client ID	ANSTO ID	Solids (g)		
RPA Round 2:	MAD-300921-	Insoluble	Soluble	Total
DS01	1	0.2248	0.4865	0.7113
DS02	2	0.1382	0.4821	0.6203
DS03	3	0.1449	0.5822	0.7271
DS04	4	0.1375	0.4447	0.5822
DS05	5	0.0825	0.5201	0.6026
DS06	6	0.1255	0.5443	0.6698
DS07	7	0.2466	0.602	0.8486

S. A. Brown

Dr Sue Brown, Senior Radiochemist **Date: 17 March 2022**

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CERTIFICATE OF ANALYSIS

Certificate Number:	SARAD-180322 RN
Company / Organisation:	Mathieu Messeiller, JBS&G
Client Identification:	Madagascar – Dust Samples
AM Identification:	MAD-300921-8 to 15
AM Request Number:	2200072
Analysis Requested:	Radionuclides (Alpha Spectrometry) Thorium and Uranium (ICPMS)

Eight (8) dust gauge bottles were received for the Round 3 sampling program on 30 September 2021. The respective ANSTO identifications were MAD-300921-8 to 15.

The samples had been evaporated by the client. Upon receipt at ANSTO, 100 mL of deionised water was added to each bottle and the bottles placed in an ultrasonic bath for 6 hours to agitate/solubilise the dried solids. The bottles were left overnight and then the total volume filtered through a 0.45 µm paper for gravimetric analysis. Both total and insoluble solids were determined, as requested by the client. The gravimetric analysis results are given in Appendix A.

The respective insoluble masses, obtained from gravimetric analysis, were assayed for radionuclide content. The total insoluble portions were digested using acid (aqua regia (HCl/HNO_3)) and hydrogen peroxide and made up to 50 mL (volumetrically) with MilliQ water for alpha spectrometry (thorium isotopes, radium-226, polonium-210; 9 mL each) and ICPMS (U-238, Th-232) analysis.

Alpha spectrometry for thorium isotopes, radium-226 and polonium-210 was carried out according to ANSTO Minerals controlled document I-4303 Radiochemical Analysis for U, Th, Pb and Po.

ICPMS for thorium and uranium was carried out on the digestion liquors according to ANSTO NST[1] controlled document I-8143 Agilent Triple Quadrupole ICPMS. The activity concentrations of Th-232 and U-238 were then calculated from the measured Th and U concentrations using the respective specific activities.

The results, based on analysis of the insoluble material, are given in Table 1.

[1] Nuclear Science and Technology.

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Table 1 – Radionuclide Concentrations in Dust Gauge Samples (Bq/kg)

Client ID	RPA Round 3							
	DS01a	DS01b	DS02	DS03	DS04	DS05	DS06	DS07
ANSTO ID: MAD-300921-	8	9	10	11	12	13	14	15
U-238 Decay Chain								
U-238 (a)	285 ± 29	379 ± 38	6.1 ± 0.6	23 ± 2	20 ± 2	7.4 ± 0.7	21 ± 2	14 ± 1
Th-230 (b)	276 ± 93	< 230	< 250	< 61	< 96	< 180	< 79	14 ± 8
Ra-226 (b)	< 51	< 230	< 250	< 61	< 96	< 180	< 79	< 31
Po-210 (b)	1570 ± 140	1860 ± 270	1270 ± 350	2290 ± 190	1430 ± 170	930 ± 170	1560 ± 180	750 ± 90
Po-210 Count Date	01-Feb-22	01-Feb-22	01-Feb-22	01-Feb-22	01-Feb-22	01-Feb-22	02-Feb-22	03-Feb-22
Th-232 Decay Chain								
Th-232 (a)	2510 ± 250	3430 ± 340	68 ± 7	210 ± 21	124 ± 12	49 ± 5	293 ± 29	195 ± 20
Th-232 (b)	2520 ± 520	3000 ± 740	< 250	171 ± 78	121 ± 66	< 180	< 79	172 ± 38
Th-228 (b)	2330 ± 480	2540 ± 660	< 250	213 ± 89	152 ± 74	< 180	< 79	158 ± 36
Th-228 Count Date	02-Feb-22	02-Feb-22	02-Feb-22	02-Feb-22	02-Feb-22	03-Feb-22	03-Feb-22	03-Feb-22

(a) Digest/ICPMS.

(b) Alpha spectrometry.

Appendix A – Gravimetric Analysis Results

Client ID	ANSTO ID	Solids (g)		
RPA Round 3:	MAD-300921-	Insoluble	Soluble	Total
DS01a	8	0.1097	0.1766	0.2863
DS01b	9	0.0247	0.0435	0.0682
DS02	10	0.0224	0.1105	0.1329
DS03	11	0.0915	0.1194	0.2109
DS04	12	0.0578	0.1403	0.1981
DS05	13	0.0312	0.1662	0.1974
DS06	14	0.0706	0.1375	0.2081
DS07	15	0.1797	0.2115	0.3912

S. A. Brown

Dr Sue Brown, Senior Radiochemist **Date: 18 March 2022**

A3 Attachment 3 – Field Documentation

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RECUPERATION ET CHANGEMENT DES BOUTEILLES

FICHE D'INSPECTION - R.P.A

ID DE STATION	LIEU	DATE D'INSPECTION	HEURE	NIVEAU D'EAU DANS LE BOUTEILLE (%)	AJUSTAGE DE L'ANTONOIRE	METEO	NOTE & OBSERVATIONS
DS 01	MANDENA	06/03/20	11:55	2800ml (70%)	ok ✓		Récuperation et remplacement
DS 02	MAROAMALONA	06/03/20	11:40	2500ml (50%)	ok ✓		Récuperation et remplacement de Btl
DS 03	AMPASY NAHAMPOANA	06/03/20	11:00	3300ml (80%)	ok ✓		Récuperation et remplacement de Btl.
DS 04	MANGAIKY	06/03/20	10:30	3500ml (85%)	ok ✓		Recuperation et remplacement de Btl.
DS 05	MANDROMONDROMONTRA (MMM)	06/03/20	09:50	4000ml (90%	ok ✓		Recuperation et remplacement de Btl.
DS 06	ANDRAKARAKA	09/03/20	09:42	2800ml (70%)	ok ✓		Récupération et remplacement de Btl
DS 07	TOBY NENILAVA	09/03/20	10:30	2500ml (50%)	ok ✓		Recuperation et remplacement de Btl.

DS 01	MANDENA						
DS 02	MAROAMALONA						
DS 03	AMPASY NAHAMPOANA						
DS 04	MANGAIKY						
DS 05	MANDROMONDROMONTRA (MMM)						
DS 06	ANDRAKARAKA						
DS 07	TOBY NENILAVA						

25 - 26 Mars 2020

FICHE D'INSPECTION - R.P.A

Station des poussières,
Cangement de bouteille

Projet: Suivi_R.P.A Compagnie: RT. Qmm. Installé par: Josua, Hajanirina

ID de Station	Lieu	Date	Heure	Numero d'identifiant		Hauteur du sommet (m)	Antonoir a niveau?	NOTE & OBSERVATIONS
				Bouteille installée	Bouteille de remplacement			
DS 01	MANDENA	25/03.2020	11H45'	DS01b	DS01	✓	Ok✓	2000 ml. niveau d'eau ~~Y a pas de changement de~~
DS 02	MAROAMALONA	25.03.20	11H25'	DS02b	DS02b	✓	Ok ✓	1800 ml niveau d'eau;
DS 03	AMPASY NAHAMPOANA	26.03.20	11:15'	DS03b	DS03b	✓	Ok ✓	2300 ml de niveau d'eau;
DS 04	MANGAIKY	26.03.20	1H:24'	DS04b	DS04b	✓	Ok ✓	2500 ml de niveau d'eau;
DS 05	MANDROMONDROMONTRA (MMM)	27.03.20	14:55'	DS05b	DS05b	✓	Ok ✓	2300 ml de niveau d'eau.
DS 06	ANDRAKARAKA	27.03.20	08H55'	DS06	DS06b	✓	Ok ✓	2000 ml de niveau d'eau.
DS 07	TOBY NENILAVA	25.03.20	11H:00'	DS07	DS07b	✓	Ok✓	1000 ml, y a pas de changement de bouteille.

Hajanirina

REHBOHO Josua

16-17. Avril 2020.

FICHE D'INSPECTION - R.P.A

Station des poussières,
Cangement de bouteille

Projet: SUIVI. R.P.A Compagnie: RT. 9mm. Installé par: Josua./Hajanirina.

ID de Station	Lieu	Date	Heure	Numero d'identifiant		Hauteur du sommet (m)	Antonoir a niveau?	NOTE & OBSERVATIONS
				Bouteille installée	Bouteille de remplacement			
DS 01	MANDENA	17/04/2020	10H15'	DS01.	DS01b	-	Ok ✓	Niveau d'eau. 2600 ml.
DS 02	MAROAMALONA	17/04/2020	09H59	DS02	DS02b	-	Ok ✓	Niveau d'eau. 2500 ml.
DS 03	AMPASY NAHAMPOANA	16/04/2020	10H51'	DS03	DS03b.	-	Ok ✓	Niveau d'eau. 3000 ml.
DS 04	MANGAIKY	16/04/2020	10H11'	DS04	DS04b	-	Ok ✓	3000 ml.
DS 05	MANDROMONDROMONTRA (MMM)	16/04/2020	09H30'	DS05	DS05b	-	Ok ✓	3500 ml. Presence d'insect (Grenouille
DS 06	ANDRAKARAKA	17/04/2020	09H18'	DS06	DS06b	-	Ok ✓	2600 ml.
DS 07	TOBY NENILAVA	17.04.2020	08:30'	DS07	DS07b	-	Ok ✓	3000 ml.

23-24. Avril · 2020.

FICHE D'INSPECTION - R.P.A

Station des poussières,
Cangement de bouteille

Projet: Suivi R.P.A Compagnie: RT. OHM. Installé par: Josua / Hajanirina

ID de Station	Lieu	Date	Heure	Numero d'identifiant		Hauteur du sommet (m)	Antonoir a niveau?	NOTE & OBSERVATIONS
				Bouteille installée	Bouteille de remplacement			
DS 01	MANDENA	23/04/2020	13H:00	DS01b.	DS01.	✓	ok ✓	-1000ml.
DS 02	MAROAMALONA	23/04/2020	13H:45'	DS02b	DS02	✓	ok ✓	1000 ml
DS 03	AMPASY NAHAMPOANA	24/04/2020	10H:33'	DS03b	DS03	✓	ok ✓	1000ml.
DS 04	MANGAIKY	24/04/2020	09'12'	DS04b	DS04	✓	ok ✓	1000ml.
DS 05	MANDROMONDROMONTRA (MMM)	24/04/2020	08H:30'	DS05b	DS05	✓	ok ✓	1000ml.
DS 06	ANDRAKARAKA	23/04/2020	09H:20'	DS06b	DS06	✓	ok ✓	1000 ml
DS 07	TOBY NENILAVA	24/04/2020	07H:30'	DS07b	DS07	✓	ok ✓	1000 ml

11-12. Mai 2020.

FICHE D'INSPECTION - R.P.A

Station des poussières,
Cangement de bouteille

Projet: SUIVI - R.P.A Compagnie: Omm.R.T Installé par: Josua / Hajanirina.

ID de Station	Lieu	Date	Heure	Numero d'identifiant		Hauteur du sommet (m)	Antonoir a niveau?	NOTE & OBSERVATIONS
				Bouteille installée	Bouteille de remplacement			
DS 01	MANDENA	12.05.2020	13H:15'	DS01b	DS01.	2,03	ok✓	- 800 ml. niveau d'eau
DS 02	MAROAMALONA	12.05.2020	13H:28'	DS02b	DS02	2,06	ok✓	- 1000ml, niveau d'eau
DS 03	AMPASY NAHAMPOANA	12.05.2020	10H:12'	DS03b	DS03	2,08.	ok✓	- 1500 ml, niveau d'eau.
DS 04	MANGAIKY	12.05.2020	09H:35'	DS04b	DS04.	2,03	ok✓	- 1000ml, niveau d'eau.
DS 05	MANDROMONDROMONTRA (MMM)	12.05.2020	09H:00'	DS05b	DS05	- 2,03.	ok✓	- 1500ml, niveau d'eau.
DS 06	ANDRAKARAKA	11.05.2020	10:35'	DS06b	DS06	2,09	ok✓	- 1000 ml niveau d'eau.
DS 07	TOBY NENILAVA	12.05.2020	11H13'	DS07b.	DS07	2,08.	ok.	- 1000ml, niveau d'eau

Hajanirina REMBOHO Josua

26-27/05/2020.

FICHE D'INSPECTION - R.P.A

Station des poussières,
Cangement de bouteille

Projet: Suivi- R.P.A Compagnie: RT QMH Installé par: Josua / Hajanirina

ID de Station	Lieu	Date	Heure	Numero d'identifiant		Hauteur du sommet (m)	Antonoir a niveau?	NOTE & OBSERVATIONS
				Bouteille installée	Bouteille de remplacement			
DS 01	MANDENA	27/05/2020	10H:23'	DS01.	DS01b	2,03 m	ok ✓	-2500 ml.
DS 02	MAROAMALONA	27/05/2020	10H:00'	DS02	DS02b	2,05 m	ok ✓	-2500 ml.
DS 03	AMPASY NAHAMPOANA	27/05/2020	08H:45'	DS03	DS03b	2,08 m	ok ✓	-2500ml.
DS 04	MANGAIKY	26/05/2020	10H:35	DS04.	DS04b	2,05 m	ok ✓	2500 ml.
DS 05	MANDROMONDROMONTRA (MMM)	26/05/2020	10H:00'	DS05	DS05b	2,03m	ok ✓	2500 ml
DS 06	ANDRAKARAKA	25/05/2020	10H:10'	DS06	DS06b	2,08 m	ok ✓	2500 ml.
DS 07	TOBY NENILAVA	27/05/2020	07:58'	DS07'	DS07b	2,08 m	ok ✓	2500 ml.

18-19 Juin 2020.

FICHE D'INSPECTION - R.P.A

Station des poussières,
Cangement de bouteille

Projet: suivi. R. P. A Compagnie: RT QMM Installé par: Josua/ Hajanirina.

ID de Station	Lieu	Date	Heure	Numero d'identifiant		Hauteur du sommet (m)	Antonoir a niveau?	NOTE & OBSERVATIONS
				Bouteille installée	Bouteille de remplacement			
DS 01	MANDENA	19.06.2020	14H:55'	DS01b	DS01.	2,02	Ok✓	2000ml, niveau d'eau.
DS 02	MAROAMALONA	19.06.2020	15H:02'	DS02 b.	DS02	2,04	Ok✓	2000ml, niveau d'eau
DS 03	AMPASY NAHAMPOANA	19.06.2020	11H:18'	DS03 b	DS03.	2,09.	Ok✓	2000ml, niveau d'eau.
DS 04	MANGAIKY	19.06.2020	10H:48'	DS04 b	DS04.	2.05	Ok✓	1500.ml, niveau d'eau.
DS 05	MANDROMONDROMONTRA (MMM)	19.06.2020	10H:00'	DS05 b	DS05	2,04	Ok✓	1500.ml, niveau d'eau.
DS 06	ANDRAKARAKA	18.06.2020	09H:20'	DS06 b.	DS06.	2,08.	Ok✓	2000ml (niveau d'eau.
DS 07	TOBY NENILAVA	19.06.2020	15H:22'	DS07b.	DS07	2,08.	Ok✓	1500.ml.

FICHE D'INSPECTION - R.P.A

Station des poussières,
Cangement de bouteille

Projet: SUIVI R.P.A Compagnie: RT. MMM Installé par: HAJA-MAKA-JOSUA-

ID de Station	Lieu	Date	Heure	Numero d'identifiant		Hauteur du sommet (m)	Antonoir a niveau?	NOTE & OBSERVATIONS
				Bouteille installée	Bouteille de remplacement			
DS 01	MANDENA	07/08/2020	10h:45'	DS01	DS01b	2,02	ok ✓	2000 ml (niveau d'eau)
DS 02	MAROAMALONA	07/08/2020	10h:15'	DS02	DS02b	2,04	ok ✓	2000 ml (niveau d'eau
DS 03	AMPASY NAHAMPOANA	28/07/2020	09h:35'	DS03	DS03b	2,08	ok ✓	2000 ml (niveau d'eau)
DS 04	MANGAIKY	28/07/2020	08:55'	DS04	DS04b	2,05	ok ✓	1500 ml (niveau d'eau
DS 05	MANDROMONDROMONTRA (MMM)	28/07/2020	10h45'	DS05	DS05b	2,05	ok ✓	1500 ml (niveau d'eau)
DS 06	ANDRAKARAKA	07/08/2020	08h:50'	DS06	DS06b	2,08	ok ✓	3000ml (niveau d'eau)
DS 07	TOBY NENILAVA	07/08/2020	09h:45'	DS07	DS07b	2,08	ok ✓	1500ml (niveau d'eau,

09-10. Sept. 2020.

FICHE D'INSPECTION - R.P.A

Station des poussières,
Cangement de bouteille

Projet: Suivi R.P.A Compagnie: QMM. SA. Installé par: Josua/Mamoasoa.

ID de Station	Lieu	Date	Heure	Numero d'identifiant		Hauteur du sommet (m)	Antonoir a niveau?	NOTE & OBSERVATIONS
				Bouteille installée	Bouteille de remplacement			
DS 01	MANDENA	09/09/2020	13H25'	DS01.b	DS01	2,02.	Ok✓	-3500ml, niveau d'eau.
DS 02	MAROAMALONA	09/09/2020	13H45'	DS02b	DS02.	2,04.	Ok	-3000ml, niveau d'eau.
DS 03	AMPASY NAHAMPOANA	10/09/2020	11H:15	DS03b	DS03	2,08.	Ok.	-3000 ml, niveau d'eau
DS 04	MANGAIKY	10/09/2020	10H30'	DS04b	DS04.	2,05	Ok✓	-3500ml, niveau d'eau.
DS 05	MANDROMONDROMONTRA (MMM)	11/09/2020	14H:20'	DS05b.	DS05	2,05.	Ok✓	-4000ml, niveau d'eau.
DS 06	ANDRAKARAKA	10/09/2020	09H05'	DS06b.	DS06	2,08	Ok✓	3500ml, niveau d'eau.
DS 07	TOBY NENILAVA	09/09/2020	14H:35	DS07b.	DS07.	2,08.	Ok✓	-3000ml, niveau d'Eau.

A3 Attachment 4 – Dust Photographs

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PLATE 1 - JBS&G ESTABLISHING DUST STATION DS01



PLATE 2 - QMM ESTABLISHING DUST STATION DS04 MANGAIKY



PLATE 3 - DUST STATION DS02 MAROAMALONA



PLATE 4 - DUST STATION DS05 AT MANDROMODROMOTRA



PLATE 5 – SWAP OUT OF SAMPLE BOTTLE DS01



PLATE 6 – SWAP OUT OF SAMPLE BOTTLE DS02



PLATE 7 – SWAP OUT OF SAMPLE BOTTLE DS03



PLATE 8 – SWAP OUT OF SAMPLE BOTTLE DS04



PLATE 9 – SWAP OUT OF DUST BOTTLES AT DS05



PLATE 10 – SWAP OUT OF DUST BOTTLES DS06



PLATE 11- SWAP OUT OF DUST BOTTLES DS07



PLATE 12 - BALANCED FUNNEL POST BOTTLE SWAP STATION DS06



PLATE 13 - BALANCED FUNNEL POST BOTTLE SWAP DS02



PLATE 14 - BALANCED FUNNEL POST BOTTLE SWAP DS03



PLATE 15 - BALANCED FUNNEL POST BOTTLE SWAP DS05



PLATE 16 - EXTRACTED DUST SAMPLES PACKAGED FOR TRANSPORT

Appendix A4 Water

Appendix A4 Surface Water and Groundwater

1. Background

An assessment of radionuclide concentrations in both groundwater beneath and surface water surrounding the Mandena mineral sand mine was undertaken as part of the investigation of the ingestion pathway.

The objective of the sampling of both surface water and groundwater was to measure the level of radionuclides present within the water system to determine if the process of mining has resulted in enhanced concentrations of radionuclides compared to those present in waters considered representative of background influenced only by natural processes.

2. Sample Design

2.1 Surface Water

JBS&G undertook a review of the historical water quality monitoring sampling locations established along the receiving water bodies to the Mandena mining operations and adopted sampling locations targeting a surface water pathway commencing upgradient, adjacent to and downgradient of the mine and continuing along surface water flows to the identified critical community groups at Andrakaraka and Emanaka. Surface water sampling points are graphically presented on **Figure 1**, with details summarised in **Table 1**.

Figure 1 Round 1 Sample Points for Surface Water and Groundwater

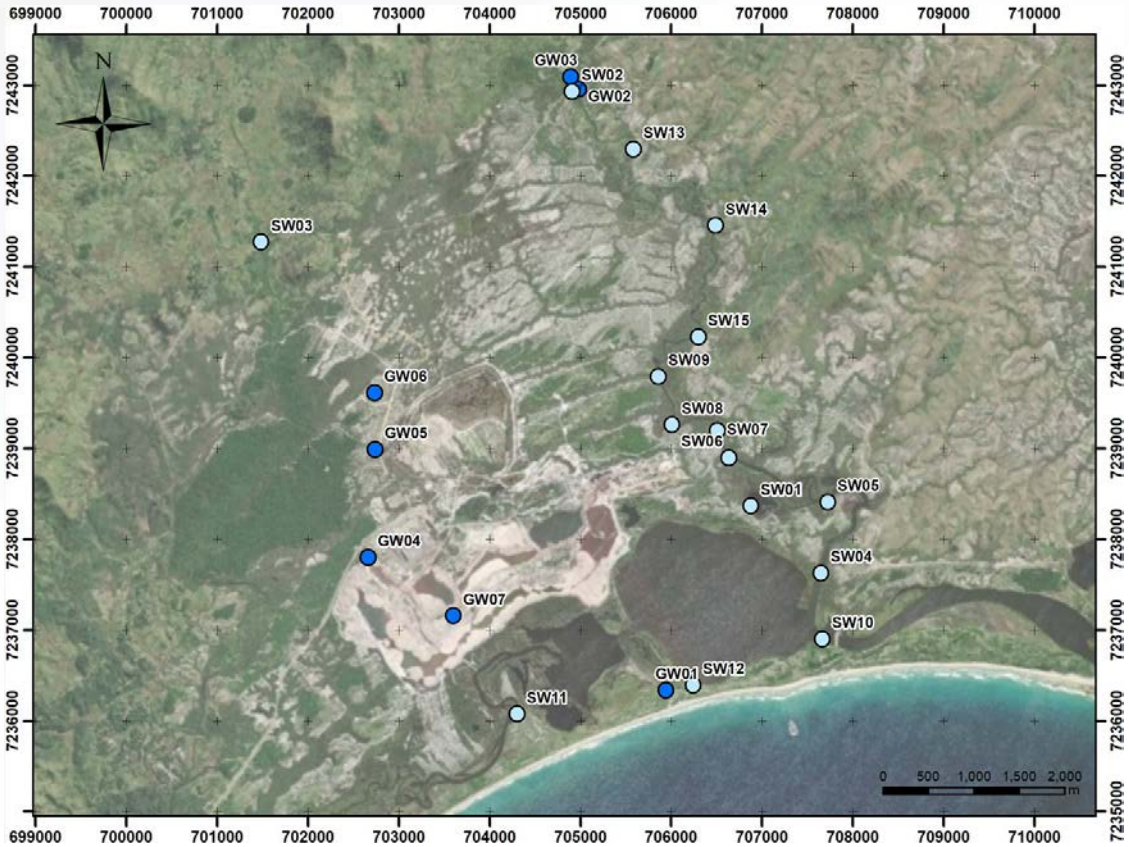


Table 1 Details of Surface Water Sample Points

Sample ID	Sample Type	Location Description	Sample Rounds
SW01	Surface Water	Small lake/pond Ambondrombe located between the mine lease and the MMM River	1,2,3,4
SW02	Surface Water	Under the bridge over the MMM River (eastern side), west of the adjacent MMM village. Upstream of mine discharge points.	1,2,3,4
SW03	Surface Water	Enandrano River adjacent to the Mangaiky village. Upstream of mine discharge points.	1,2,3,4
SW04	Surface Water	Adjacent to the discharge point of the MMM River into Lake Ambavarano. Downstream of mine discharge points.	1,2,3,4
SW05	Surface Water	MMM River approximately 900 m north (upstream) of SW04. Downstream of mine discharge points.	1,2,3,4
SW06	Surface Water	MMM River approximately 1.5 km north (upstream) of SW05. Downstream of mine discharge points.	1,2,3,4
SW07	Surface Water	MMM River adjacent to discharge point from the mine (WM603)	1,2,3,4
SW08	Surface Water	MMM River adjacent to discharge point from the mine (WM703)	1,2,3,4
SW09	Surface Water	MMM River adjacent to discharge point from the mine (WM803)	1,2,3,4
SW10	Surface Water	South-eastern side of Lake Ambavarano, close to the weir	1,2,3,4
SW11	Surface Water	Southern bank of the Meander River, adjacent to the village of Andrakaraka	1,2,3,4
SW12	Surface Water	South-western side of Lake Ambavarano, adjacent to the village of Emanaka	1,2,3,4
SW13	Surface Water	Eastern bank of the MMM River, approximately 1.2 km south (downstream) of the MMM village. Upstream of mine discharge points.	1,2,3,4
SW14	Surface Water	Eastern bank of the MMM River, approximately 2.5 km south (downstream) of the MMM village. Upstream of mine discharge points.	1,2,3,4
SW15	Surface Water	Eastern bank of the MMM River, adjacent to discharge point from the mine (WM803)	1,2,3,4

Groundwater

The design of the groundwater monitoring program was limited in part by the availability of functioning groundwater wells. Groundwater sampling locations were identified based on the available and operational

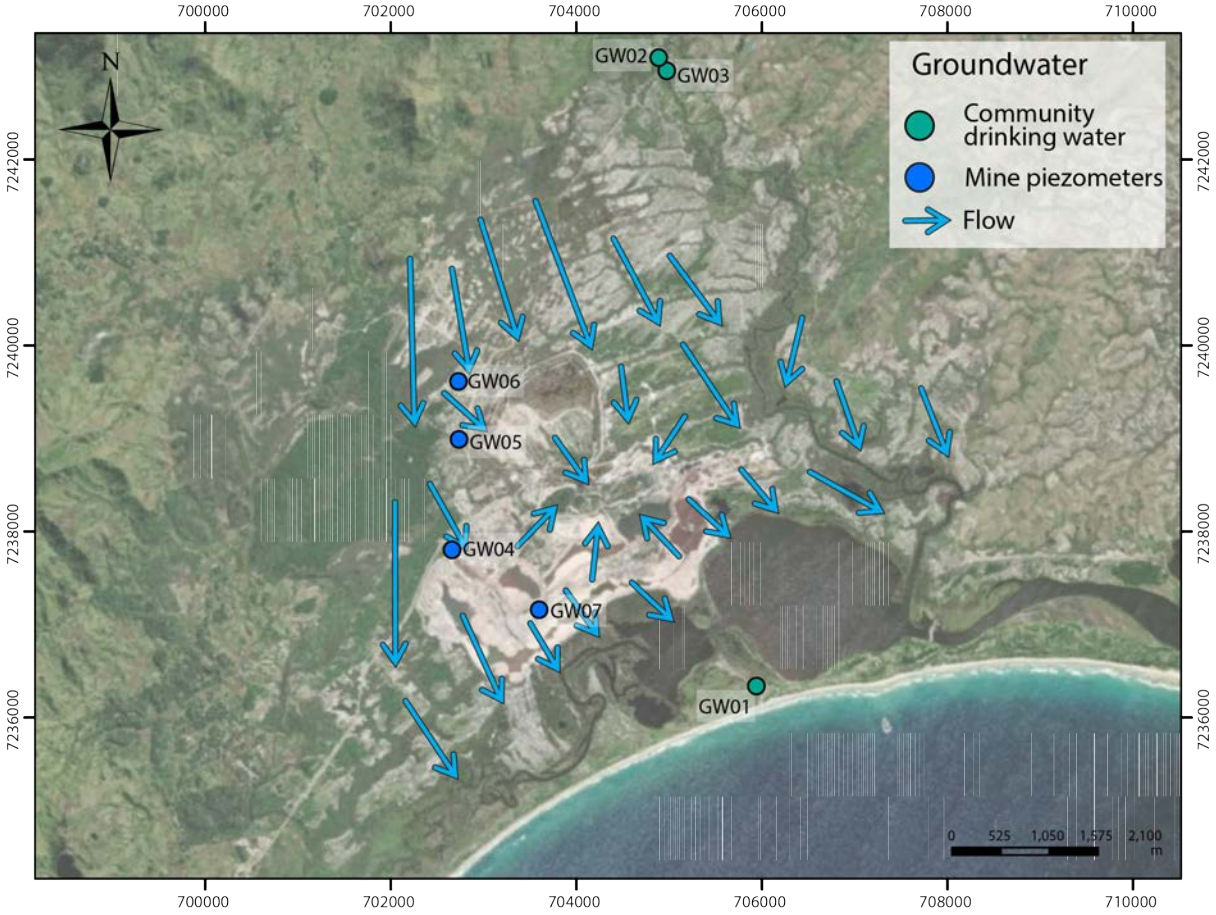
mine groundwater monitoring well network,operational surrounding community groundwater extraction (drinking water) well network and spring water fed by gravitational transport to communities in the foothills.

A transect of available groundwater monitoring wells was identified along the general groundwater flow direction (north west to south east) commencing upgradient of the mine in the village of Mandromodromotra, progressing through the Mandena mine (both pre and post mine lease paddocks) and ending with groundwater wells located within the key community groups of Andrakaraka and Emanaka. Groundwater sampling points are graphically presented on Figure 4, with details summarised in Table 2.

Table 2 Details of Groundwater Sampling Locations

Sample ID	Sample Type	Location Description	Sample Rounds	Comments
GW01	Groundwater	Emanaka village hand pump groundwater well installed by Council/Sister City project	1,3,4	Villagers suggest well was installed at 12 m
GW02	Groundwater	Village spring installed by UNICEF within the MMM village, located on the eastern side of the village	1,2	Gravity fed spring water from adjacent Anosy mountains
GW03	Groundwater	Hand pump groundwater well located close to the MMM local school	1,2,3	Villagers suggested well was installed to 10 m
GW04	Groundwater	Mine site piezometer GW062	1,2,3,4	
GW05	Groundwater	Mine site piezometer GW074 within the mineralised zone yet to be mined	1,2,4	
GW06	Groundwater	Mine site piezometer GW071 within the mineralised zone yet to be mined	1,2	
GW07	Groundwater	Mine site piezometer GWV064 located within the rehabilitation area	1,2,4	
GW08	Groundwater	Andrakaraka	2	

Figure 2 Groundwater Sample Locations Round 1



3. Methodology

JBS&G staff undertook surface water and groundwater sampling during the initial (2019) sampling event in accordance with JBS&Gs existing standard operating procedures. The onset of the global Covid-19 pandemic in March 2019 cancelled all international travel requiring sampling events two to four to be undertaken by the QMM environment team. JBS&G prepared bilingual sampling procedures to be adopted by QMM for the collection of surface water and groundwater samples and established daily quality assurance checks including field sampling and equipment calibration records, and collection of photographic evidence as a means of ensuring acceptable governance of the sampling processes. A summary of the sampling methods is provided below, field sampling documentation for each of the sampling events are provided as Attachment 2.

3.1 Surface Water Sampling

Surface water samples were collected using the procedure outlined below:

- Samples were collected directly into dedicated laboratory-supplied sample containers with a gloved hand and/or with the aid of an extendable sampling pole (when required);
- The sample bottles were filled to the top to minimise headspace with the cap immediately applied after sample collection;
- A new (dedicated) pair of nitrile disposable gloves was worn at each sampling location;
- Each of the sample bottles were labelled with the project ID, date, sampler's initials and unique sample ID (or QC sample name);

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- In order to minimise exposure to sunlight, sample bottles were placed immediately into a transport container, for subsequent international transport to the testing laboratory;
- Chain of custody documentation was completed for each batch of samples relinquished to the laboratory and accompanied the samples during transport;
- A calibrated water quality meter was used to measure field parameters including pH, electrical conductivity (EC), reduction/oxidation (redox) potential, dissolved oxygen (DO), and temperature by lowering the probes directly into the surface water body or into a sample container with water recovered from the relevant location and allowing them to equilibrate; and
- General observations of the surface water quality and flow were recorded during sampling on the field sampling sheets.

3.2 Groundwater Sampling

Groundwater sampling was undertaken using different techniques, dependant on the type of sampling location. A summary of specific sampling methodologies relevant to each technique is discussed in the following sections. In each case, the following general sampling methodology was also adopted:

- Samples were collected directly into dedicated laboratory-supplied sample containers with a gloved hand;
- The sample bottles were filled to the top to minimise headspace with the cap immediately applied after sample collection;
- A new pair of nitrile disposable gloves was worn at each sampling location;
- Each of the sample bottles were labelled with the project ID, date, sampler's initials and unique sample ID (or QC sample name);
- In order to minimise exposure to sunlight, sample bottles were placed immediately into a transport container, for subsequent international transport to the testing laboratory;
- Chain of custody documentation was completed for each batch of samples relinquished to the laboratory and accompanied the samples during transport;
- A calibrated water quality meter was used to measure field parameters including pH, EC, redox potential, dissolved oxygen, and temperature. Parameters were measured within an additional volume of water collected at each sampling location, after each purge volume (where relevant); and
- General observations of the water quality were recorded during sampling on the field sampling sheets.

It should be noted that groundwater samples were not filtered prior to sample collection such to be representative of the point of use application (i.e. filtering of water by villagers does not occur prior to consumption).

3.2.1 Village Springs

Sampling of village springs was undertaken via collection of samples direct from the spring tap outlet.

3.2.2 Village Water Wells

Sampling of village water wells was completed using the in-situ hand pumps, with collection of water samples from the general water outlet. Prior to sample collection, a nominal volume of water was purged (pumped) from the well.

3.2.3 Mine Piezometer Wells

Sampling of the mine groundwater monitoring wells was undertaken using a purge method with an approximate four well volumes removed prior to sampling using a Waterra foot valve and tubing.

4. Analytical Results

All results of analysis summarised in the tables in this section are concentrations reported as measured at the time of analysis. Note that concentrations of Po210 and Th228 for all samples have not been age-corrected to allow for decay or ingrowth between sample collection and analysis.

4.1 Round 1

4.1.1 Drinking Water Surface Water

U238 concentrations for all the waters were calculated from ICPMS results on filtrated waters. All values were below the detection limit of 0.12 Bq/L (corresponding to a concentration of uranium in water of less than 0.01 mg/L).

Total water samples (including filtrate) were submitted for thorium (Th230, Th232 and Th228) and Ra226 analysis by alpha spectrometry. Thorium values are typically below the detection limit, except for sample SW01, which shows a Th232 activity concentration of 0.0035 Bq/L and sample SW06, with a Th230 activity concentration of 0.0009 Bq/L and Th232 activity concentration of 0.0014 Bq/L. Ra226 was detected in most samples analysed and activity concentrations vary between 0.0015 and 0.014 Bq/L, with an average of 0.013 Bq/L. Duplicate samples were submitted for location SW07. Analyses show a good agreement between samples.

Table 3 Activity Concentrations in Surface Water in Bq/L

Sample ID	SW 01	SW 02	SW 03	SW 04	SW 05	SW 06
Bq/L	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
U238 (a)	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12
Th-230 (b)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0.0009 ± 0.0005
Ra-226 (b)	0.007 ± 0.001	0.011 ± 0.002	0.0015 ± 0.0003	0.014 ± 0.002	0.0060 ± 0.0007	0.011 ± 0.002
Th-232 (b)	0.0035 ± 0.0014	< 0.002	< 0.002	< 0.002	< 0.002	0.0014 ± 0.0006
Th-228 (b)	0.0020 ± 0.0009	< 0.002	< 0.002	< 0.002	< 0.002	0.0006 ± 0.0003

Table 3 Continued

Sample ID	SW 07	DUP 02 (SW07)	SW 08	SW 10	SW 13	SW 14	WMC 703A
Bq/L	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
U238 (a)	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12
Th-230 (b)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Ra-226 (b)	0.0053±0.0008	0.0077± 0.0008	< 0.002	0.0052±0.0008	0.0021±0.0004	0.0021±0.0004	0.083 ± 0.008
Th-232 (b)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Th-228 (b)	< 0.002	< 0.002	0.0018±0.0014	< 0.002	< 0.002	< 0.002	0.016 ± 0.007

(a) calculated from ICPMS

(b) Alpha spectrometry

A subset of four samples were submitted for gamma spectrometry on Pb210 and Ra228 and further alpha spectrometry on U238, U234, and Po210. The subset samples returned gamma spectrometry values below the detection limits, which vary between 0.50 and 0.57 Bq/L for Pb210 and between 0.050 and 0.090 Bq/L for Ra228 (Table 4).

Table 4 Activity Concentrations in Surface Water in Bq/L (subset samples)

Sample ID	SW 09	SW 11	SW 12	SW 15
Bq/L	Surface Water	Surface Water	Surface Water	Surface Water
U-238 (a)	0.0033 ± 0.0007	0.005 ± 0.001	0.005 ± 0.001	0.0032 ± 0.0006
U-238 (b)	< 0.41	< 0.39	< 0.41	< 0.32
U-234 (a)	0.0042 ± 0.0008	0.005 ± 0.001	0.006 ± 0.002	0.0035 ± 0.0006
Th-230 (a)	< 0.003	< 0.004	0.003 ± 0.002	< 0.003
Th-230 (b)	< 1.0	< 2.9	< 2.3	< 2.4
Ra-226 (a)	0.0084 ± 0.0009	0.0094 ± 0.0009	< 0.003	0.0019 ± 0.0003
Ra-226 (b)	< 0.04	< 0.05	< 0.05	< 0.05
Pb-210 (b)	< 0.57	< 0.51	< 0.57	< 0.50
Po-210 (a)	0.004 ± 0.001	0.005 ± 0.001	0.004 ± 0.001	0.005 ± 0.001
U-235 (a)	< 0.002	< 0.002	< 0.002	< 0.002
U-235 calc (c)	0.00015 ± 0.00003	0.00023 ± 0.00005	0.00023 ± 0.00005	0.00015 ± 0.00003
U-235 (b)	< 0.13	< 0.19	< 0.16	< 0.07
Pa-231 (b)	< 0.25	< 0.69	< 0.53	< 0.44
Ac-227 (c)	< 0.05	< 0.08	< 0.08	< 0.09
Th-232 (a)	< 0.003	< 0.004	< 0.003	< 0.003
Ra-228 (b)	< 0.05	< 0.09	< 0.09	< 0.08
Th-228 (a)	< 0.003	< 0.004	< 0.003	< 0.003
Th-228 (b)	< 0.02	< 0.03	< 0.02	< 0.02
K-40 (b)	< 0.46	< 0.70	< 0.71	< 0.69

(a) Alpha spectrometry
(b) Gamma spectrometry
(c) Calculated from the measured alpha spectrometry U-238 concentration assuming natural abundance.

Alpha spectrometry on uranium radionuclides and Po210 returned low concentrations, with values consistently below 0.006 Bq/L. This translates to concentrations of uranium in water of less than 0.0005 mg/L. The U238 : Ra226 ratio is highly variable, and it may be related to the presence of solids in the sample. All isotopes from the thorium decay chain returned values below detection limits. Ratios cannot be established for Th232 and its decay products.

Stagnant water was collected within the release channel WMC0073A. Ra226 and Th228 concentrations are higher than surface water collected out of the mine operation area by about one order of magnitude. Other radionuclides analysed are low, below limits of detection. This water is however not representative of water released or consumed.

4.1.2 Drinking Water Groundwater

U238 concentrations for all the waters were calculated from ICPMS results on filtrated waters. All values are below the detection limit of 0.12 Bq/L, except one sample from GW07, located within the Mandena mine site, which returned a value of 0.145 Bq/L.

Two ground water samples collected in the village of Mandromondromotra have been analysed by alpha spectrometry. GW02 was sampled from a well and GW03 from a fountain (water sourced from a spring). Both samples are located upgradient from mine release channels. All water samples were submitted for thorium (Th230, Th232 and Th228) and Ra226 by alpha spectrometry. Thorium values are below the detection limit of 0.002 Bq/L in the community water samples GW02 and GW03, but were measurable in samples from the mine. Ra226 was detected in all samples analysed and activity concentrations vary between 0.0024 and 0.0044 Bq/L.

Four ground water samples were collected from piezometers within the mine perimeter and were analysed by alpha spectrometry. Thorium isotopes and Ra226 returned values one to two orders of magnitude higher than what was measured in community wells. It highlights the fact that radium and to a lesser degree, thorium is mobile in waters within the aquifers intersecting the orebody or within process water. This may also be driven by the presence of solids, as the samples were analysed without filtration. There is an apparent disequilibrium between U238 and Ra226 in water wells within the mine perimeter, with Ra226 concentrations higher than U238 and Th230. However, Th228 concentrations indicate a near equilibrium with the parent isotope.

Table 5 Activity Concentrations in Surface Water in Bq/L

Sample ID	GW 02	GW 03	GW 04	GW 05	GW 06	GW 07	DUP 01 (GW07)
Bq/L	Community Ground Water		Mine Ground Water				
U238 (a)	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12	0.145
Th-230 (b)	< 0.002	< 0.002	0.015 ± 0.007	0.005 ± 0.002	0.05 ± 0.03	0.06 ± 0.04	0.004 ± 0.002
Ra-226 (b)	0.0044 ± 0.0007	0.0024 ± 0.0004	0.22 ± 0.02	0.17 ± 0.01	0.42 ± 0.03	0.33 ± 0.03	0.34 ± 0.03
Th-232 (b)	< 0.002	< 0.002	0.035 ± 0.014	0.023 ± 0.008	0.026 ± 0.014	0.28 ± 0.16	0.049 ± 0.019
Th-228 (b)	< 0.002	< 0.002	0.030 ± 0.012	0.020 ± 0.007	0.025 ± 0.013	0.23 ± 0.13	0.021 ± 0.009

(a) calculated from ICPMS

(b) Alpha spectrometry

Duplicate samples were submitted for the piezometer GW07. Uranium and Ra226 concentrations show good agreement. Thorium isotopes reported an order of magnitude difference, which may be explained by the sampling of distinct samples in the field and the varying presence of solids in the water. Increased sampling volumes and an improvement in sample homogenisation prior to analysis were recommended for future rounds to address potential homogenisation issues.

One subset sample was collected from a community downstream from the mine release point (GW01). The sample was submitted for gamma spectrometry on Pb210 and Ra228 and further alpha spectrometry on U238, U234, and Po210. The subset sample returned gamma spectrometry results below the detection limits of

0.61 Bq/L for Pb210, and 0.11 Bq/L for Ra228. Alpha spectrometry on uranium and Po210 returned low values, with U238 concentrations of 0.014 Bq/L and Po210 concentration of 0.011 Bq/L. There is no observed disequilibrium in the U238 and Th232 decay chains.

4.2 Round 2

All 24 water samples were analysed by ANSTO via alpha spectrometry to determine concentrations of thorium isotopes and Ra226. Selected upstream samples were also analysed by alpha spectrometry for Po210.

A subset of five samples were analysed by ANSTO using gamma spectrometry for U and Th series radionuclides, and by alpha spectrometry for U238, U234, and Po210.

The results of analysis are summarised below. Note that concentrations of Po210 and Th228 for all samples are reported as measured at the time of analysis (October – early November 2021) and have not been age-corrected to allow for decay or ingrowth between sample collection and analysis.

Table 6 Radionuclide Concentration Data for Upstream/Upgradient Water samples

Sample ID Bq/L	GW021 Ground Water	GW022 Ground Water	GW03 Ground Water	SW02 Surface Water	SW13 Surface Water	SW14 Surface Water
U-238 (a)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Th-230 (b)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Ra-226 (b)	< 0.001	0.0005 ± 0.0002	0.0009 ± 0.0002	0.0007 ± 0.0002	0.0004 ± 0.0001	0.0009 ± 0.0003
Po-210 (b)			0.0046 ± 0.0016		0.0031 ± 0.0019	
Po-210 Count Date			1/11/2021		3/11/2021	
Th-227 (b)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Th-232 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Th-232 (b)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Th-228 (b)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Th-228 Count Date	1/10/2021	1/10/2021	1/10/2021	6/10/2021	13/10/2021	13/10/2021

(a) ICPMS.
(b) Alpha spectrometry.

Many results were below detection limits. The results generally show that samples collected off the mine lease (both upgradient/upstream and downgradient/downstream) contain lower levels of radionuclides than those collected on the mine lease (in piezometers and discharge channels).

Table 7 Radionuclide Concentration Data for Samples Collected at Mine Discharge Point or on Mine Lease

Sample ID	GW04	GW05	GW06	GW07	SW01	SW07-1	SW07-2	SW08
Bq/L	Ground Water	Ground Water	Ground Water	Ground Water	Surface Water	Surface Water	Surface Water	Surface Water
U-238 (a)	0.033 ± 0.003	0.014 ± 0.001	0.10 ± 0.01	0.0049 ± 0.0005	< 0.001	< 0.001	< 0.001	< 0.001
Th-230 (b)	0.0007 ± 0.0004	< 0.001	0.0007 ± 0.0004	0.0028 ± 0.0019	< 0.001	< 0.001	< 0.001	< 0.001
Ra-226 (b)	0.053 ± 0.005	0.020 ± 0.002	0.16 ± 0.02	0.074 ± 0.006	0.015 ± 0.002	0.0005 ± 0.0002	0.0010 ± 0.0003	0.0010 ± 0.0003
Th-227 (b)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Th-232 (a)	0.0017 ± 0.0007	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Th-232 (b)	0.0017 ± 0.0007	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Th-228 (b)	0.0015 ± 0.0007	0.0006 ± 0.0004	< 0.001	0.0029 ± 0.0019	< 0.001	< 0.001	< 0.001	< 0.001
Th-228 Count Date	1/10/2021	8/10/2021	8/10/2021	6/10/2021	6/10/2021	8/10/2021	8/10/2021	8/10/2021

(a) ICPMS.
(b) Alpha spectrometry.

Table 8 Radionuclide Concentration Data for Downstream/Downgradient Water Samples

Sample ID	SW03	SW04	SW05	SW06	SW10
Bq/L	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
U-238 (a)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Th-230 (b)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Ra-226 (b)	< 0.001	0.0014 ± 0.0003	0.0007 ± 0.0002	0.0005 ± 0.0001	0.0012 ± 0.0003
Th-227 (b)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Th-232 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Th-232 (b)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Th-228 (b)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Th-228 Count Date	6/10/2021	6/10/2021	8/10/2021	8/10/2021	8/10/2021

(a) ICPMS.
(b) Alpha spectrometry.

Results at mine discharge points into the MMM river were similar to those for samples collected from locations off the mine lease (both up and downgradient). Average Ra226 concentrations provide the best analogy for comparison, as there were measurable concentrations for most. These are similar in upgradient and downgradient samples. Po210 concentrations are also comparable between background areas and samples collected close to critical groups, and within the range of typical drinking water[1].

Four ground water samples (GW04 to GW07) were collected from piezometers within the mine perimeter and were analysed by alpha spectrometry. Ra226 returned values of one order of magnitude higher than what was measured in community wells. As per the previous round, it does highlight that radium may mobilise in ground water. However, thorium isotopes have concentrations comparable to community ground and surface water.

A subset of five representative samples were further analysed by ANSTO via gamma spectrometry to provide concentrations of Pb210 and Ra228.

Table 9 Radionuclide Concentration Data for Subset Samples

Sample ID	GW08	SW09	SW11	SW12	SW15
Bq/L	Ground Water	Surface Water	Surface Water	Surface Water	Surface Water
U-238 (a)	0.0017 ± 0.0004	0.0005 ± 0.0002	0.0009 ± 0.0003	0.0014 ± 0.0004	< 0.002
U-234 (a)	0.0014 ± 0.0004	0.0002 ± 0.0001	0.0009 ± 0.0003	0.0014 ± 0.0004	0.0002 ± 0.0001
Th-230 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Ra-226 (a)	0.0029 ± 0.0007	0.0049 ± 0.0015	0.0017 ± 0.0006	0.0022 ± 0.0006	0.0006 ± 0.0003
Pb-210 (b)	< 0.11	< 0.11	< 0.08	< 0.16	< 0.08
Po-210 (a)	0.0020 ± 0.0009	< 0.002	0.0008 ± 0.0004	0.0003 ± 0.0002	0.0006 ± 0.0004
Po-210 Count Date	22/10/2021	22/10/2021	27/10/2021	27/10/2021	27/10/2021
U-235 (c)	0.00008 ± 0.00002	0.000023 ± 0.000009	0.000042 ± 0.000014	0.00007 ± 0.00002	< 0.002
Pa-231 (b)	< 0.09	< 0.10	< 0.04	< 0.09	< 0.07
Ac-227 (d)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Th-227 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Th-232 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Ra-228 (e)	< 0.05	< 0.03	< 0.02	< 0.02	< 0.02
Th-228 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Th-228 Count Date	15/10/2021	15/10/2021	15/10/2021	20/10/2021	20/10/2021

[1] INTERNATIONAL ATOMIC ENERGY AGENCY, The environmental behaviour of polonium / International Atomic Energy Agency, Technical Reports Series No. 484, IAEA, Vienna (2017).

Sample ID	GW08	SW09	SW11	SW12	SW15
Bq/L	Ground Water	Surface Water	Surface Water	Surface Water	Surface Water
K-40 (b)	< 0.58	< 0.29	< 0.42	< 0.15	< 0.13

(a) Alpha spectrometry.
(b) Gamma spectrometry.
(c) Below alpha spectrometry detection limit of 0.002 Bq/L. Calculated from the measured U-238 concentration.
(d) Based on the measured concentration of Th-227, assuming secular equilibrium.
(e) Gamma spectrometry. Based on the measured concentration of Ac-228, assuming secular equilibrium.

The full series data sets broadly show that for both the uranium and thorium decay chains, concentrations of radium and resulting decay products are higher than for the less mobile parent radionuclides.

All gamma spectrometry returned results below limits of detection. The relative concentrations of radionuclides in the sub-set samples are aligned to those observed in analysis of the larger sample set, for each of the sampling location types (based on location relative to the QMM operation and discharge points).

4.3 Round 3

All 20 water samples were analysed by Eurofins for a suite of metals[2], and by ANSTO via alpha spectrometry to determine concentrations of thorium isotopes and Ra226. Selected upstream samples were also analysed by alpha spectrometry for Po210.

A subset of five samples were analysed by ANSTO using gamma spectrometry for U and Th series radionuclides, and by alpha spectrometry for U238, U234, and Po210.

The results of analysis are summarised below. Note that concentrations of Po210 and Th228 for all samples are reported as measured at the time of analysis (late August – early September 2021) and have not been age-corrected to allow for decay or ingrowth between sample collection and analysis.

Table 10 Radionuclide Concentration Data for Upstream/Upgradient Water Samples

Sample ID	GW03	SW02	SW13	SW14
Unit : Bq/L	Groundwater	Surface water	Surface water	Surface water
U238 Decay Chain				
U238 (a)	< 0.06	< 0.06	< 0.06	< 0.06
Th230	< 0.001	0.0044 ± 0.0022	< 0.001	< 0.001
Ra226	0.0009 ± 0.0002	0.0012 ± 0.0003	< 0.001	0.0007 ± 0.0002
Po210	0.0057 ± 0.0016	not requested	0.0015 ± 0.0012	not requested
Th232 Decay Chain				
Th232	< 0.001	0.0010 ± 0.0009	< 0.001	< 0.001
Th228	< 0.001	0.0018 ± 0.0013	< 0.001	< 0.001

(a) Calculated from the measured U concentration (Eurofins) using the specific activity.

[2] JBS&G, QMM Mandena Mine Madagascar – Second Incidental Water Quality Sampling Report, JBS&G, Adelaide, 2021

Table 11 Radionuclide Concentration Data for Samples Collected at Mine Discharge or on Mine Lease

Sample ID	GW04	SW01	SW07	SW08	SW16	SW17
Unit : Bq/L	Groundwater	Surface water	Surface water	Surface water	Surface water	Surface water
U238 Decay Chain						
U238 (a)	not analysed	< 0.06	< 0.06	< 0.06	not analysed	not analysed
Th230	0.0023 ± 0.0007	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Ra226	0.0220 ± 0.0020	0.0043 ± 0.0007	0.0014 ± 0.0003	0.0010 ± 0.0003	0.0850 ± 0.0080	0.0370 ± 0.0040
Po210	not requested	not requested	not requested	not requested	not requested	not requested
Th232 Decay Chain						
Th232	0.0009 ± 0.0004	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Th228	0.0067 ± 0.0014	< 0.002	< 0.001	< 0.001	< 0.001	0.0200 ± 0.0050

(a) Calculated from the measured U concentration (Eurofins) using the specific activity

Table 12 Radionuclide Concentration Data for Downstream/Downgradient Water Samples

Sample ID	SW03	SW04	SW05	SW06	SW10
Unit : Bq/L	Drinking water	Surface water	Surface water	Surface water	Surface water
U238 Decay Chain					
U238 (a)	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Th230	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Ra226	0.0010 ± 0.0003	0.0054 ± 0.0011	0.0013 ± 0.0003	0.0014 ± 0.0004	0.0017 ± 0.0004
Po210	not requested	not requested	not requested	not requested	not requested
Th232 Decay Chain					
Th232	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Th228	< 0.001	< 0.001	< 0.001	0.0006 ± 0.0004	< 0.001

(a) Calculated from the measured U concentration (Eurofins) using the specific activity

Many results were below detection limits. It can generally be seen that samples collected off the mine lease (both upgradient/upstream and downgradient/downstream) contain lower levels of radionuclides than those collected on the mine lease (in piezometers and discharge channels).

Results at mine discharge points into the MMM river were similar to those for samples collected from locations off the mine lease (both up and downgradient). Average Ra226 concentrations can be used for comparison, as they are typically measured values. These are similar in upgradient and downgradient samples. Po210 concentrations are also comparable between background areas and samples collected close to critical groups, and within the range of typical drinking water[3].

One ground water sample (GW04) was collected from a piezometer within the mine perimeter and were analysed by alpha spectrometry. As per round 2 results, Ra226 displays a value that is slightly higher than parent isotopes and decay products. Thorium isotopes are at similar concentrations to community wells.

Two water samples (SW16 and SW17) were collected from release channels within the mine operation area. Ra226 concentrations are higher than surface water collected out of the mine operation area by about one order of magnitude. Th232 is low for both samples. Th228 is low for SW16, but about one order of magnitude higher in SW17 compared to surface water outside of the mine area. This water is however not representative of water released or consumed. A subset of five representative samples were further analysed by ANSTO via gamma spectrometry to provide concentrations of Pb210 and Ra228.

Table 13 Radionuclide Concentration Data for Subset Samples

Sample ID Unit : Bq/L	GW01 Groundwater Downgradient	SW09 Surface water Mine discharge	SW11 Surface water Downgradient	SW12 Surface water Downgradient	SW15 Surface water Mine discharge
U238 Decay Chain					
U238 (a)	0.0170 ± 0.0020	0.0002 ± 0.0001	0.0002 ± 0.0001	0.0016 ± 0.0004	0.0008 ± 0.0003
U234 (a)	0.0210 ± 0.0020	0.0003 ± 0.0001	0.0002 ± 0.0001	0.0018 ± 0.0005	0.0007 ± 0.0003
Th230 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Ra226 (a)	0.0008 ± 0.0002	0.0011 ± 0.0003	0.0004 ± 0.0001	0.0020 ± 0.0005	0.0003 ± 0.0001
Pb210 (b)	< 0.10	< 0.06	< 0.19	< 0.06	< 0.16
Po210 (a)	0.0120 ± 0.0010	0.0051 ± 0.0008	0.0075 ± 0.0011	0.0035 ± 0.0009	0.0038 ± 0.0007
U235 Decay Chain					
U235 (c)	0.0008 ± 0.00009	0.000009 ± 0.000005	0.000009 ± 0.000005	0.00007 ± 0.00002	0.00004 ± 0.00001
Pa231 (b)	< 0.08	< 0.05	< 0.07	< 0.04	< 0.10
Ac227 (d)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002

[3] INTERNATIONAL ATOMIC ENERGY AGENCY, The environmental behaviour of polonium / International Atomic Energy Agency, Technical Reports Series No. 484, IAEA, Vienna (2017).

Sample ID Unit : Bq/L	GW01 Groundwater Downgradient	SW09 Surface water Mine discharge	SW11 Surface water Downgradient	SW12 Surface water Downgradient	SW15 Surface water Mine discharge
Th227 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Th232 Decay Chain					
Th232 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Ra228 (e)	< 0.03	< 0.03	< 0.02	< 0.02	< 0.03
Th228 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
K40 (b)	< 1.1	< 0.46	< 0.70	< 0.71	< 0.69

(a) Alpha spectrometry.
(b) Gamma spectrometry.
(c) Below alpha spectrometry detection limit of 0.002 Bq/L. Calculated from the measured U238 concentration.
(d) Based on the measured concentration of Th-227, assuming secular equilibrium.
(e) Gamma spectrometry. Based on the measured concentration of Ac228, assuming secular equilibrium.

It can also be broadly noted that for both the uranium and thorium decay chains, concentrations of radium and resulting decay products are higher than for the less mobile parent radionuclides.

All gamma spectrometry returned results below limits of detection. The relative concentrations of radionuclides in the sub-set samples are aligned to those observed in analysis of the larger sample set, for each of the sampling location types (based on location relative to the QMM operation and discharge points).

4.4 Round 4

Targeted water samples were analysed by Eurofins and Envirolab for a suite of metals[4], and by ANSTO via alpha spectrometry to determine concentrations of thorium isotopes and Ra226. Selected samples were also analysed by alpha spectrometry for U238, U234 and, or Po210.

A subset of six samples were analysed by ANSTO using gamma spectrometry for U and Th series radionuclides, and by alpha spectrometry for U238, U234, and Po210.

[4] JBS&G, QMM Mandena Mine Madagascar – Third Incidental Water Quality Sampling Report, JBS&G, Adelaide, 2022

Table 14 Radionuclide Concentration Data for Upstream/Upgradient Water Samples

Sample ID	SW02	SW03	SW13	SW14
Bq/L	Surface Water	Surface Water	Surface Water	Surface Water
U-238 (a)	Not analysed	< 0.06	< 0.06	< 0.06
Th-230 (b)	< 0.002	< 0.001	< 0.002	< 0.001
Ra-226 (b)	< 0.002	0.0006 ± 0.0002	0.0044 ± 0.0008	0.0012 ± 0.0003
Po-210 (b)	0.0008 ± 0.0004	-	0.014 ± 0.002	-
Th-232 (b)	< 0.002	< 0.001	< 0.002	< 0.001
Th-228 (b)	< 0.002	< 0.001	< 0.002	< 0.001

(a) Calculated from the measured U concentration (Eurofins) using the specific activity.
(b) Alpha spectrometry

Table 15 Radionuclide Concentration Data for Samples Collected in Piezometers within the Mine Lease

Sample ID	GW04 (1)	GW04 (2)	GW05 (1)	GW05 (2)	GW07
Bq/L	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
U-238	0.022 ± 0.004	0.069 ± 0.007	0.041 ± 0.006	0.043 ± 0.006	-
Th-230	0.014 ± 0.003	0.057 ± 0.008	0.042 ± 0.007	0.020 ± 0.004	0.054 ± 0.009
Ra-226	0.039 ± 0.005	0.14 ± 0.01	0.034 ± 0.004	0.071 ± 0.008	0.37 ± 0.03
Po-210	0.039 ± 0.005	0.083 ± 0.009	0.11 ± 0.01	0.095 ± 0.009	-
Th-232	0.053 ± 0.008	0.13 ± 0.02	0.098 ± 0.013	0.064 ± 0.008	0.37 ± 0.05
Th-228	0.026 ± 0.005	0.055 ± 0.008	0.14 ± 0.02	0.069 ± 0.009	0.51 ± 0.07

All radionuclides by alpha spectrometry

Duplicate samples were submitted for samples GW04, GW05, SW07 and SW15. While some discrepancies are observed on waters collected from piezometers within the mine site, results generally show reasonable agreement between duplicate samples. Discrepancies are likely related to heterogeneity of the samples collected from mine site infrastructure, most notably to the solid fraction, which is integrated in the analysis.

Table 16 Radionuclide Concentration Data for Downstream/Downgradient Water Samples

Sample ID	SW01	SW04	SW05	SW06	SW071	SW072	SW08	SW10
Bq/L	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
U-238 (a)	< 0.06	< 0.06	< 0.06	< 0.06	-	-	< 0.06	< 0.06
Th-230 (b)	< 0.002	< 0.001	< 0.001	< 0.001	< 0.002	< 0.002	< 0.001	< 0.002
Ra-226 (b)	0.006 ± 0.001	0.0022 ± 0.0004	0.0019 ± 0.0005	0.0019 ± 0.0005	0.0015 ± 0.0004	0.0004 ± 0.0001	0.0014 ± 0.0003	0.0029 ± 0.0007
Po-210 (b)	0.0005 ± 0.0003				0.0003 ± 0.0002	0.0004 ± 0.0002		0.0048 ± 0.001
Th-232 (b)	< 0.002	< 0.001	< 0.001	< 0.001	< 0.002	< 0.002	< 0.001	< 0.002
Th-228 (b)	< 0.002	0.0006 ± 0.0005	< 0.001	0.0012 ± 0.0006	< 0.002	0.0009 ± 0.0005	< 0.001	0.0012 ± 0.0006

(a) Calculated from the measured U concentration (Eurofins) using the specific activity.
(b) Alpha spectrometry

Generally, samples collected off the mine lease (both upgradient/upstream and downgradient/downstream) contain lower levels of radionuclides than those collected on the mine lease (in piezometers), by one to two orders of magnitude. This is comparable to observations made in Round 1. It is important to reiterate that the water samples were unfiltered and solids are taken into account in the analyses. This constitutes a conservative approach.

Samples from locations off the mine lease (at discharge points, and both up and downgradient) returned radionuclide concentrations that are comparable, and at the lower end of reported ranges for fresh water[5] [6].

The concentrations of Pb210 and Ra228 by gamma spectrometry on six subset samples returned less than values.

Table 17 Radionuclide Concentration Data for Subset Samples

Sample ID	GW01	SW09	SW11	SW12	SW151	SW152
Bq/L	Ground Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
U-238 (a)	0.028 ± 0.004	0.0004 ± 0.0003	0.0004 ± 0.0003	0.0006 ± 0.0003	0.0013 ± 0.0006	0.0008 ± 0.0005
U-234 (a)	0.028 ± 0.004	0.0003 ± 0.0002	0.0004 ± 0.0003	0.0009 ± 0.0004	0.0018 ± 0.0008	0.0011 ± 0.0007
Th-230 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002

[5] INTERNATIONAL ATOMIC ENERGY AGENCY, The environmental behaviour of polonium / International Atomic Energy Agency, Technical Reports Series No. 484, IAEA, Vienna (2017).
[6] INTERNATIONAL ATOMIC ENERGY AGENCY, The environmental behaviour of radium: revised edition / International Atomic Energy Agency, Technical Reports Series No. 476, IAEA, Vienna (2014).

Sample ID	GW01	SW09	SW11	SW12	SW151	SW152
Bq/L	Ground Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Ra-226 (a)	< 0.002	0.0029 ± 0.0006	< 0.002	0.0008 ± 0.0002	< 0.003	< 0.005
Pb-210 (b)	< 0.16	< 0.11	< 0.14	< 0.13	< 0.16	< 0.31
Po-210 (a)	0.0075 ± 0.0011	0.0015 ± 0.0005	0.0011 ± 0.0004	0.0016 ± 0.0005	0.0007 ± 0.0004	0.0009 ± 0.0006
U-235 (c)	0.0013 ± 0.0002	0.00002 ± 0.00001	0.00002 ± 0.00001	0.00003 ± 0.00001	0.00006 ± 0.00003	0.00004 ± 0.00002
Pa-231 (b)	< 0.14	< 0.1	< 0.13	< 0.12	< 0.15	< 0.29
Ac-227 (d)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Th-227 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Th-232 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Ra-228 (e)	< 0.02	< 0.02	< 0.02	< 0.02	< 0.03	< 0.05
Th-228 (a)	< 0.002	< 0.002	< 0.002	0.0009 ± 0.0005	< 0.002	< 0.002

(a) Alpha spectrometry.
(b) Gamma spectrometry.
(c) Below alpha spectrometry detection limit of 0.002 Bq/L. Calculated from the measured U238 concentration.
(d) Based on the measured concentration of Th-227, assuming secular equilibrium.
(e) Gamma spectrometry. Based on the measured concentration of Ac228, assuming secular equilibrium.

All gamma spectrometry returned results below limits of detection.

The relative concentrations of radionuclides in the sub-set samples are aligned to those observed in analysis of the larger sample set, for each of the sampling location types (based on location relative to the QMM operation and discharge points).

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4.5 Round 5 Samples

Targeted surface water samples were collected from within the mining lease, starting at the mineral separation plant and along the internal settlement pond and wetland system.

Table 18 Round 5 Targeted Radionuclide Concentrations in Water by Alpha Spectrometry

Sample ID Unit : Bq/L	MSP03 Waste water	MSW1 Settlement Pond	MSW2 Wetlands	MSW3 Holding pond	QC5&6 Duplicate of MSW3	SP1 Settlement Pond
U238 Decay Chain						
U238	0.51 ± 0.06	0.0087 ± 0.0020	0.012 ± 0.001	0.030 ± 0.004	0.029 ± 0.004	0.013 ± 0.003
U234	0.51 ± 0.06	0.0081 ± 0.0020	0.012 ± 0.001	0.027 ± 0.004	0.026 ± 0.004	0.013 ± 0.003
Th230	0.52 ± 0.08	0.0050 ± 0.0018	0.0020 ± 0.0011	0.013 ± 0.004	0.018 ± 0.014	0.0077 ± 0.0032
Ra226	0.23 ± 0.02	0.094 ± 0.0080	0.13 ± 0.01	0.11 ± 0.01	0.075 ± 0.0080	0.090 ± 0.009
Po210	0.52 ± 0.02	0.011 ± 0.0010	0.0049 ± 0.0009	0.018 ± 0.0020	0.017 ± 0.002	0.013 ± 0.002
U235 Decay Chain						
U235	0.024 ± 0.0003	0.0004 ± 0.0001	0.0006 ± 0.0001	0.0014 ± 0.0002	0.0014 ± 0.0002	0.0006 ± 0.0001
Th227	0.11 ± 0.03	0.0059 ± 0.0020	0.027 ± 0.006	0.020 ± 0.0060	0.042 ± 0.008	0.0080 ± 0.0033
Th232 Decay Chain						
Th232	2.9 ± 0.5	0.025 ± 0.005	0.011 ± 0.003	0.084± 0.018	0.10 ± 0.02	0.039 ± 0.010
Th228	2.2± 0.3	0.051 ± 0.009	0.26 ± 0.04	0.17 ± 0.04	0.21 ± 0.03	0.085 ± 0.019

Radionuclides in waters collected within settlement ponds and decantation circuits are on average one to two orders of magnitude higher than waters collected in rivers and lake systems. Radionuclide concentrations in the MSP waste water are one order of magnitude higher. This is the highest concentration in the mining process and is not representative of released or consumed water.

U238 concentration in waters within the mining area are within the range of concentrations measured for U238 in upgradient and downgradient waters from previous rounds. Th232, Ra226 & Th228 (Ra228) concentrations in waters within the mining area are higher than those in surface water samples collected in previous rounds in the river and lake (by one to two orders of magnitude), and comparable to ground water and stagnant release channel waters collected in previous rounds. Po210 concentration is approximately double natural concentration.

Ra226 and Th228 are typically higher than head of chain radionuclides, indicating that radium is typically more soluble and susceptible to preferential leaching out of its parent material. Note that Ra228 was not measured directly but can be inferred from Th228 concentrations. Th228 concentrations being larger than Th232 indicates disequilibrium, it suggests that Ra228 concentrations are at least equal, but could be larger than Th228 concentrations).

Yet, all waters within release and decantation ponds and all waters outside of the mine perimeter returned concentrations within baseline LODs and within the range of radionuclides measured in the baseline survey (Pb210, up to 13 Bq/L, Th228 up to 0.7 Bq/L, and Ra228 up to 2.4 Bq/L).

Comparison with guidance levels

Radionuclide concentrations are generally low. Values of radionuclides in water collected in communities are typically at least two orders of magnitude lower than the World Health Organisation guidance levels[7] for the radionuclides with the highest dose coefficients (and lowest guidance levels) (**Table 19**).

Table 19 WHO Guidance levels for radionuclides with the highest dose coefficients

Isotope	Guideline value	
$U_{chemical}$	0.375	Bq/L = 30 ug/L
U238	10	Bq/L
U234	1	Bq/L
Th230	1	Bq/L
Ra226	1	Bq/L
Pb210	0.1	Bq/L
Po210	0.1	Bq/L
Th232	1	Bq/L
Ra228	0.1	Bq/L
Th228	1	Bq/L

Apart from the MSP waste water, all samples of water, inside and outside of the mining area (including released water collected at the SP plant outlet and decantation circuit) returned concentrations of radionuclides that are below the *WHO guideline concentration levels in drinking water*.

It must be noted that Ra228, which was not measured directly in the decantation circuit, may exceed the guidance level of 0.1 Bq/L in the two samples collected in the decantation circuit, further from the plant (MSW02 and MSW03).

The only water analysis that returned concentrations higher than the WHO guideline concentration levels in drinking water are $U_{chemical,}$ Po210, Th232 and Th228 in the MSP waste water discharge, which returned values within one order of magnitude of the guideline values. It is important to note that the MSP waste water is not representative of water that can be discharged to surface water from the mine. There is a series of decantation ponds and channels which filter out the solids content and improve the water quality before it can be considered for discharge from the mine.

[7] WORLD HEALTH ORGANISATION, Guidelines for drinking water quality, 4th Edition, Geneva, 2011

A4 Attachment 1 – Water Sampling Procedures

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PROCEDURE G01 – GROUNDWATER SAMPLING

DESCRIPTION OF WORK

QMM Responsible Person

Name

Phone Number: +123456

Email: mail

This procedure provides instructions for the collection of groundwater samples from community wells and minesite monitoring wells

Protective equipment required:	• Safety boots • Hi-visibility clothing	• Safety Glasses • Gloves
Additional Equipment / Tools:	• GPS • Interface Probe • Sample Bottles • Calibrated Water Quality Meter • Additional pH meter (if pH probe not working on YSI) • Camera/Mobile phone for photographs	• Data sheets • Marker Pen for Labelling Sample Bottle • Ice box for sample storage • Tubing • Waterra Foot valve • Open mouth bottle or flow cell (for water quality parameters • Bucket (known volume)

PROCEDURE G01 – GROUNDWATER SAMPLING

Hazards / Safety:	• Trips, slips, falls • Cuts and pinches – wear gloves • Strain – use correct lifting and handling techniques • Dehydration – physical work in hot environment, hydrate

TASK	STEPS
Preparation	• Ensure Planning undertaken for access through community locations • Ensure calibration of water quality meter, using the calibration standards before departing and calibration record completed and signed • Ensure all field data sheets and sampling equipment/bottles coolers etc are prepared

Sample Locations for Groundwater

Location	Description	Easting	Northing	Volume (L)
GW01	Emanaka Village Hand Pump	705941	7236338	5
GW02	MMM Village Spring	704976	7242956	4
GW03	MMM Village Pump	704888	7243096	2
GW04	Minesite GW062	702661	7237802	2
GW05	GBH 074	702736	7238991	2
GW06	GBH071	702731	7239615	2
GW07	GWV064	703599	7237159	2
GW08	Andrakaraka pump operational near the school	TBA	TBA	2

Sampling Method Community water wells

- Ensure all field data sheets and sampling equipment/bottles coolers etc are prepared
- Proceed to sample location using the GPS
- Take a photograph of the GPS displaying the location in front of the well (no children in photograph)

PROCEDURE G01 – GROUNDWATER SAMPLING

- Prepare Sample Bottle Label
    i. Project Code: 57082
    ii. Unique Sample ID (20200920 GW01),
    iii. Samplers initials,
- Commence water flow from the well using the tap or pump handle
- Place the open sample bottle into the water stream
- Fill the bottle to the top and place the screw cap on securely
- Fill a second-wide mouth bottle or flow cell into the water stream and collect a second sample for water quality parameters
- A calibrated water quality meter will be used to measure field parameters including pH, electrical conductivity (EC), reduction/oxidation potential (redox), dissolved oxygen and temperature by lowering the probes directly into the bottle.
- For sample GW01, fill three more bottles to the top and place the screw cap on securely
- Complete the details of the sample, the location, the water quality parameters on the Groundwater Field Data Sheet
- Place the sample bottles in the cooler box.
- Rinse the water quality probe with fresh water
- Proceed to the next sample location



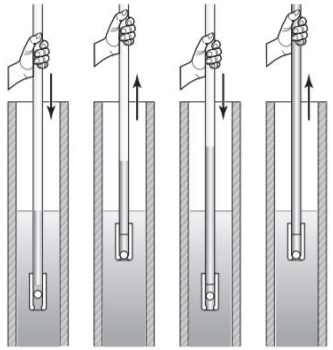


PROCEDURE G01 – GROUNDWATER SAMPLING

Sample Mine site Wells	Groundwater Wells at the Minesite



- Proceed to the location using the GPS.
- Take a photograph of the GPS display beside the well, showing the well and standpipe as per image.
- Prepare Sample Bottle Label
    - Project Code: 57082
    - Unique Sample ID (20200920 GW05),
    - Samplers initials
-
- Using the Interface Probe (IP) measure the depth to groundwater (instrument beeps) and record depth to 2 decimal places. Record depth to water on Datasheet (DTW).
- Lower the IP down to measure the bottom of the well and record the total depth on Datasheet (TD).
- Calculate the height of the water column by subtracting the DTW from the TD.
- Multiply the Water column by the volume per metre in the table below to get the volume of water in the well.
- Record the water volume in the well on the Datasheet.
- IT IS NECESSARY TO PURGE 4 WELL WATER VOLUMES FROM THE WELL BEFORE SAMPLING
- Using a waterra footvalve and tubing, lower the tubing to approximately 3m above the bottom of the well.
- Using an up and down motion rock the tubing to engage the inertia pump and commence pumping of water from the well.
- Use a known volume bucket to measure the volume of water displaced.
- Collect a sample for water quality parameters after 10 litres and then after each purged well volume (5 water quality measurements per well to be recorded on the field sheet).



Waterra Pump Operation

PROCEDURE G01 – GROUNDWATER SAMPLING

- A calibrated water quality meter will be used to measure field parameters including pH, electrical conductivity (EC), reduction/oxidation potential (redox), dissolved oxygen and temperature by lowering the probes directly into the bottle.
- Following purging 4 well volumes, place the tubing above the sample bottle, filling the bottle to the top and placing the cap on immediately following collection of the sample. Repeat this step for the second bottle.

Well ID	Standpipe mm	ID	Purge Volume	Vol per m
GW062	237	25	Purge 4 volumes	0.5 Litre
GBH74	520	38	Purge 4 volumes	1.1 Litre
GBH071	336	38	Purge 4 volumes	1.1 Litre
GWV64	5	25	Purge 4 volumes	0.5 Litre



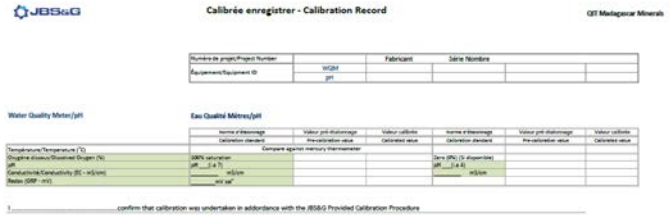
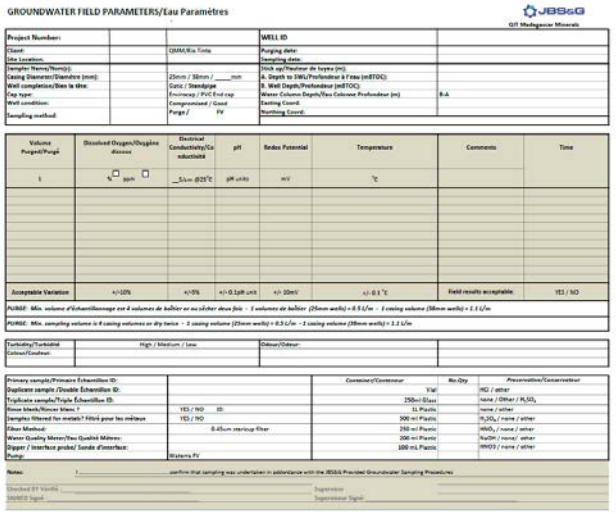
- Complete the sampling details on the Field Data Sheet
- Place the sample bottle into the ice box.

The completed data sheet for each location needs to be signed by the field supervisor.

Each Day - Calibration Record Water Quality Meter

Each Well - Groundwater Data Sheet, Photo of GPS with coordinates and well standpipe and samples bottles

PROCEDURE G01 – GROUNDWATER SAMPLING

	 JBS&G Calibrée enregistrer - Calibration Record QIT Madagascar Minerals Water Quality Meter/pH Eau Qualité Mètres/pH Checked BY Verifié : DATE: SIGNED Signé : Supervisor Supervisor Signé:  GROUNDWATER FIELD PARAMETERS/Eau Paramètres JBS&G QIT Madagascar Minerals
End of day	Cooler boxes and samples to be returned to the Minesite Upload the following to the project folder • **Signed** Calibration Record for the Water Quality Meter Named as **QAQC_WQM_DDMMYYYY** • Photograph of the GPS location and standpipe for each well **GWXX_GPSLOC_Photo_DDMMYYYY** • **Signed** Completed Data Sheets **GWXX_Datasheet_ DDMMYYYY** • Photograph of the sample bottles with the labels visible **57082_GWSamplebottles_ DDMMYYYY**

PROCEDURE S01 – SURFACE WATER SAMPLING

DESCRIPTION OF WORK

QMM Responsible Person

Name

Phone Number: +123456

Email: Mail

This procedure provides instructions for the sampling of surface water.

Protective equipment required:	• Safety boots • Hi-visibility clothing • Lifejacket	• Safety Glasses • Gloves
Additional Equipment / Tools:	• GPS • Sample Bottles • Calibrated Water Quality Meter • Additional pH meter (if pH probe not working on YSI) • Field Data Forms • Camera/Mobile phone for photographs	• Data sheets • Marker Pen for Labelling Sample Bottle • Ice box for sample storage • Sampling Pole

PROCEDURE S01 – SURFACE WATER SAMPLING

Hazards / Safety:	• Trips, slips, falls • Open water body • Cuts and pinches – wear gloves • Strain – use correct lifting and handling techniques • Dehydration – physical work in hot environment, hydrate

TASK	STEPS
Preparation	• Ensure Planning undertaken coordination with boat contractor and access through community locations • Ensure calibration of water quality meter, using the calibration standards before departing and calibration record completed and signed • Ensure all field data sheets and sampling equipment/bottles coolers etc are prepared

Sample Locations for Surface Water

Location	Description	Easting	Northing	Volume (L)
SW01	Minesite Pond	706878	7238368	2
SW02	"Under the bridge over the MMM River (eastern side), west of the adjacent MMM village.	704907	7242933	2
SW03	Enandrano River adjacent to the Mangaiky village	701482	7241274	2
SW04	"Adjacent to the discharge point of the MMM River into Lake Ambavarano.	707648	7237627	2
SW05	MMM River	707727	7238411	2
SW06	MMM River Downstream of mine discharge points.	706634	7238899	2
SW07	MMM River adjacent to discharge point from the mine (WM603); Located adjacent to the established S42 sampling location	706507	7239196	4
SW08	MMM River adjacent to discharge point from the mine (WM703); Located adjacent to the established S43 sampling location	706006	7239263	2
SW09	MMM River adjacent to discharge point from the mine (WM803); Located adjacent to the established S44 sampling location	705,858	7239792	5
SW10	Lake Ambavarano close to the weir. Located adjacent (WS0701)	707664	7236900	2

SW11	Meander River at Andrakaraka	704301	7236076	5
SW12	Lake Ambavarano at Emanaka	706242	7236395	5
SW13	"Eastern bank of the MMM River, approximately 1.2 km south (downstream) of the MMM village.	705584	7242298	2
SW14	Upstream of mine discharge points."	706488	7241458	2
SW15	"Eastern bank of the MMM River, approximately 2.5 km south (downstream) of the MMM village.	706298	7240230	5

Sampling Method

- Ensure all field data sheets and sampling equipment/bottles coolers etc are prepared
- Proceed to sample location using the GPS
- Take a photograph of the GPS displaying the location
- Prepare Sample Bottle Label
    i. Project Code: 57082
    ii. Unique Sample ID (20200920 SW01),
    iii. Samplers initials,
- Place sample bottle onto the sample pole, place into the water below the immediate surface level, facing upstream and fill the bottle to the top with the cap immediately placed on top after sample collection. Repeat this step to achieve the required volume to be sampled.
- A calibrated water quality meter will be used to measure field parameters including pH, electrical conductivity (EC), reduction/oxidation potential (redox), dissolved oxygen and temperature by lowering the probes directly into the water, or
- If sampling from the bank of the river/lake, recover an extra sample using the swing pole with an open sample container and place the probe into the sample container
- Complete the details of the sample, the location, the water quality parameters on the Surface Water Field Data Sheet
- Place the sample bottles in the cooler box.

PROCEDURE S01 – SURFACE WATER SAMPLING

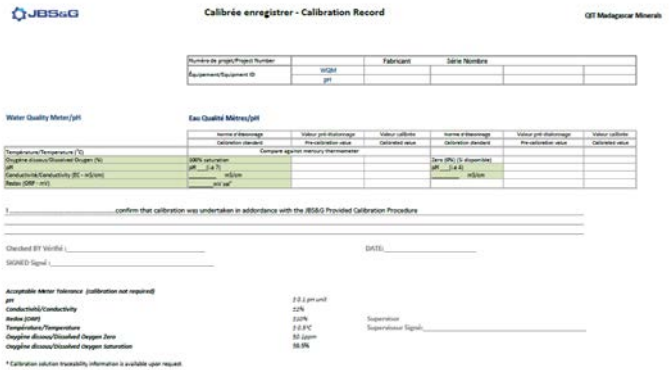
	• Rinse the water quality probe with fresh water • Proceed to the next sample location Photo showing swing pole with open sample bottle for water quality sample and recording details on the data sheet  
Sample using buckets	For the surface water samples to be collected at Andrakaraka and Emanaka (SW11 and SW12) • Proceed to the location using the GPS. • Take a photograph of the GPS display. o Prepare Sample Bottle Labels for each bottle ▪ Project Code: 57082 ▪ Unique Sample ID (20200920 SW11),

- Samplers initials,Using a clean plastic bucket, rinse the bucket with river water before gathering a sample by filling the bucket
- Place the sample bottle directly into the bucket to collect the sample, filling the bottle to the top and placing the cap on immediately following collection of the sample.
- Repeat the two previous steps to achieve the required volume to be sampled.
- Fill an open sample container and measure the water quality parameters
- Complete the details on the Surface Water Field Data Sheet
- Place the sample bottles into the ice box.

The completed data sheet for each location needs to be signed by the field supervisor.

Each Day - Calibration Record Water Quality Meter

Each Well - Surface Water Data Sheet, Photo of GPS with coordinates and samples bottles



JBS&G

Calibrée enregistrer - Calibration Record

QIT Madagascar Minerals

Numéro de projet/Project Number		Fabricant	Série Nombre		
Équipement/Equipment ID	WQM				
	pH				

Water Quality Meter/pH

Eau Qualité Mètres/pH

	Norme d'étalonnage / Calibration standard	Valeur pré-étalonnage / Pre-calibration value	Valeur calibrée / Calibrated value	Norme d'étalonnage / Calibration standard	Valeur pré-étalonnage / Pre-calibration value	Valeur calibrée / Calibrated value
Température/Temperature (°C)	Compare against mercury thermometer					
Oxygène dissous/Dissolved Oxygen (%)	100% saturation			Zero (0%) (S dispersible)		
pH	pH __ (-4 7)			pH __ (-4 8)		
Conductivité/Conductivity (EC - mS/cm)	_____ mS/cm			_____ mS/cm		
Redox (ORP - mV)	_____ mV vol*					

I _____ confirm that calibration was undertaken in addordance with the JBS&G Provided Calibration Procedure

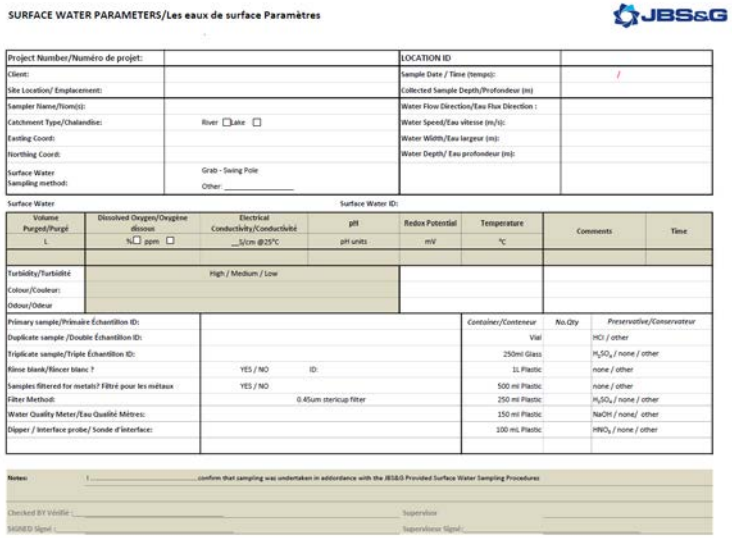
Checked BY Vérifié : _____ DATE: _____

SIGNED Signé : _____

Acceptable Meter Tolerance (calibration not required)

pH	±0.1 pH unit	
Conductivité/Conductivity	±2%	
Redox (ORP)	±10%	
Température/Temperature	±0.5°C	Supervisor
Oxygène dissous/Dissolved Oxygen Zero	50 ppm	Supervisor Signé: _____
Oxygène dissous/Dissolved Oxygen Saturation	98.9%	

* Calibration solution traceability information is available upon request.



SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

JBS&G

Project Number/Numéro de projet:		LOCATION ID	
Client:		Sample Date / Time (temps):	/
Site Location/ Emplacement:		Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☐ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:		Water Width/Eau largeur (m):	
Northing Coord:		Water Depth/ Eau profondeur (m):	
Surface Water Sampling method:	Grab - Swing Pole Other: _____		

Surface Water Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	%☐ ppm ☐	__S/cm @25°C	pH units	mV	°C		
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

Primary sample/Primaire Échantillon ID:		Container/Conteneur	No.Qty	Preservative/Conservateur
Duplicate sample /Double Échantillon ID:		Vial		HCl / other
Triplicate sample/Triple Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	1L Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter/Eau Qualité Mètres:		150 ml Plastic		NaOH / none/ other
Dipper / Interface probe/ Sonde d'interface:		100 mL Plastic		HNO_3 / none / other

Notes: I _____ confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : _____ Supervisor _____

SIGNED Signé : _____ Supervisor Signé: _____

PROCEDURE S01 – SURFACE WATER SAMPLING

End of day	Cooler boxes and samples to be returned to the Minesite Upload the following to the project folder • **Signed** Calibration Record for the Water Quality Meter Named as **QAQC_WQM_DDMMYYYY** • Photograph of the GPS location for each location **SWXX_GPSLOC_Photo_DDMMYYYY** • **Signed** Completed Data Sheets **SWXX_Datasheet_ DDMMYYYY** • Photograph of the sample bottles with the labels visible **57082_SWSamplebottles_ DDMMYYYY**

A4 Attachment 2 – Water Sampling Field Sheets

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GROUNDWATER FIELD PARAMETERS

JBS&G

Project Number:	57082	**WELL ID**	GW01.
Client:	QNNI / Rio Tinto.	**Purging date:**	
Site Location:	EMANAKA	**Sampling date:**	2/12/19 @ 11.35.
Field Sampler(s):	D OBrien	**Stick up (m):**	N/A Manual pump.
Casing Diameter (mm):	50mm / (100mm) / 150mm	**Depth to NAPL (mBTOC):**	
Well completion:	Gatic / Standpipe	**Depth to SWL (mBTOC):**	
Cap type:	Envirocap / PVC End cap	**NAPL thickness (m):**	
Well condition:	Comprimised / Good	**Well Depth (mBTOC):**	12M
Sampling method:	(Purge) / FV	**Water Column Depth (m)**	12m.
	Low Flow: Pump submersion depth (mBTOC):_____		Sampling SWL (mBTOC):_____

12m @ 8L P/M = 96Litres

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☑	_S/cm @25°C	pH units	mV	°C	SWL for low flow (mBTOC)	
10	2.26	637	7.4	75.6.	25.3.		
20	2.59	643	7.41	54.7	25.3		
40	2.65	640	7.45	51.7	25.2.		
50	2.46	641	7.42.	34	25.3.		
70	2.58	641	7.43	29.2	25.3.		
90	2.59	641	7.47	31.5	25.3		
100	2.46	638	7.47	31.3	25.3		
Acceptable Variation	+/-10%	+/-5%	+/- 0.1pH unit	+/- 10mV	+/- 0.1 °C	Field results acceptable:	(YES) / NO

LOW FLOW: Max. flow rate = 0.5 L/min - Max. drawdown = 0.1 m - Well stable when 3 consecutive readings (either 3min apart or 1L apart)

PURGE: Min. sampling volume is 4 casing volumes or dry twice - 1 casing volume (50mm wells) = 2 L/m - 1 casing volume (100mm wells) = 8 L/m

Turbidity	High / Medium / (Low)	**Hydrocarbon sheen?**	YES / (NO)
Colour:	Slight brn tinge.	**Odour:**	NO.

Primary sample ID:	GW01 (1000001)	*Container*	*No.*	*Preservative*
Duplicate sample ID:		Vial		HCl / other
Triplicate sample ID:		1L/500ml Glass		none / H_2SO_4
Rinse blank after?	YES / (NO) ID:	(1L) Plastic	2	(none) / other
Samples filtered for metals?	YES / (NO)	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	200 ml Plastic		HNO_3 / none / other
Water Quality Meter:	YSI (Hiro)	150 mL Plastic		NaOH / none/ other
Dipper / Interface probe:	Solinst (N/A)			
Pump:	Waterra FV			

Notes: Water well installed by funding from Council / Sister City informed by local teacher, well installed to 12 m.

GROUNDWATER FIELD PARAMETERS

JBS&G

Project Number:	57082.	WELL ID	GW02.
Client:	QMM/Rio Tinto	Purging date:	
Site Location:	MMM.	Sampling date:	2/12/19 @ 5.19pm.
Field Sampler(s):	Dobroin	Stick up (m):	
Casing Diameter (mm):	50mm / 100mm / 150mm	Depth to NAPL (mBTOC):	
Well completion:	Gatic / Standpipe	Depth to SWL (mBTOC):	
Cap type:	Envirocap / PVC End cap	NAPL thickness (m):	
Well condition:	Comprimised / Good	Well Depth (mBTOC):	
Sampling method:	Purge / FV	Water Column Depth (m)	
	Low Flow: Pump submersion depth (mBTOC):_____	Sampling SWL (mBTOC):_____	

Grab Sampling of Village Spring.

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☑	µS/cm @25°C	pH units	mV	°C	SWL for low flow (mBTOC)	
1 L	4.67	62.8	7.52	115.4	28		
Acceptable Variation	+/-10%	+/-5%	+/- 0.1pH unit	+/- 10mV	+/- 0.1 °C	Field results acceptable:	YES / NO

LOW FLOW: Max. flow rate = 0.5 L/min - Max. drawdown = 0.1 m - Well stable when 3 consecutive readings (either 3min apart or 1L apart)

PURGE: Min. sampling volume is 4 casing volumes or dry twice - 1 casing volume (50mm wells) = 2 L/m - 1 casing volume (100mm wells) = 8 L/m

Turbidity	High / Medium / Low	Hydrocarbon sheen?	YES / NO
Colour:	Clear	Odour:	No.

		Container	No.	Preservative
Primary sample ID:	GW02 (1000002)			
Duplicate sample ID:	—	Vial		HCl / other
Triplicate sample ID:	—	500ml Glass		none / H_2SO_4
Rinse blank after?	YES / NO ID:	1L Plastic	2	none / other
Samples filtered for metals?	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	200 ml Plastic		HNO_3 / none / other
Water Quality Meter:	YSI	150 mL Plastic		NaOH / none/ other
Dipper / Interface probe:	N/A			
Pump:	Waterra FV			

Notes: Local spring installed by Unicef / Top fed by gravity feed from mountain spring water.

GROUNDWATER FIELD PARAMETERS

JBS&G

Project Number:	57082	**WELL ID**	GW03
Client:	QMM/Rio Tinto	**Purging date:**	2/12/19.
Site Location:	MMM School.	**Sampling date:**	2/12/19.
Field Sampler(s):	DOBrain	**Stick up (m):**	
Casing Diameter (mm):	50mm / 100mm / 150mm	**Depth to NAPL (mBTOC):**	
Well completion:	Gatic / Standpipe	**Depth to SWL (mBTOC):**	
Cap type:	Envirocap / PVC End cap	**NAPL thickness (m):**	
Well condition:	Comprimised / Good	**Well Depth (mBTOC):**	c 10M.
Sampling method:	(Purge) / FV	**Water Column Depth (m)**	
	Low Flow: Pump submersion depth (mBTOC):_____		Sampling SWL (mBTOC):_____

Background Sample of installed GW well | Hand Pump.

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☑	µS/cm @25°C	pH units	mV	°C	SWL for low flow (mBTOC)	
c50	3.51	193.5	4.7.	182.1	25.2.		
c90	4.20	179.	4.1	217.6	24.7		
Acceptable Variation	+/-10%	+/-5%	+/- 0.1pH unit	+/- 10mV	+/- 0.1 °C	**Field results acceptable:**	YES / NO

LOW FLOW: Max. flow rate = 0.5 L/min - Max. drawdown = 0.1 m - Well stable when 3 consecutive readings (either 3min apart or 1L apart)

PURGE: Min. sampling volume is 4 casing volumes or dry twice - 1 casing volume (50mm wells) = 2 L/m - 1 casing volume (100mm wells) = 8 L/m

Turbidity	High / Medium / (Low)	**Hydrocarbon sheen?**	YES / (NO)
Colour:	Clear.	**Odour:**	No.

Primary sample ID:	GW03 (1000003)	*Container*	*No.*	*Preservative*
Duplicate sample ID:	—	Vial		HCl / other
Triplicate sample ID:		1L/500ml Glass		none / H_2SO_4
Rinse blank after?	YES / NO ID:	(1L) Plastic	2	(none) / other
Samples filtered for metals?	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	200 ml Plastic		HNO_3 / none / other
Water Quality Meter:	YSI	150 mL Plastic		NaOH / none/ other
Dipper / Interface probe:	N/A.			
Pump:	Waterra FV			

Notes: Hand pump well installed with head works. Witnessed Locals filling approx 90 Litres of water into plastic containers took 3 WQ parameters prior to taking sample.

GROUNDWATER FIELD PARAMETERS

MINE ID – (GWCF2)

Project Number:	57082	**WELL ID**	GW04
Client:	OMMIRIO	**Purging date:**	
Site Location:	Off Mine - Mordena	**Sampling date:**	3/12/19.
Field Sampler(s):	DO Brown	**Stick up (m):**	0.37m m
Casing Diameter (mm):	25 / 50mm / 100mm / 150mm	**Depth to NAPL (mBTOC):**	—
Well completion:	Gatic / Standpipe	**Depth to SWL (mBTOC):**	7.449
Cap type:	NO Envirocap / PVC End cap	**NAPL thickness (m):**	—
Well condition:	Comprimised / Good	**Well Depth (mBTOC):**	19.
Sampling method:	Purge / FV	**Water Column Depth (m)**	11.6.
	Low Flow: Pump submersion depth (mBTOC): 17		Sampling SWL (mBTOC):

11.6 X 0.5 Litres = 6 Litres per Volume – 24 litres.

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	µS/cm @25°C	pH units	mV	°C	SWL for low flow (mBTOC)	
20	1.1	95.4	5.09	32.5	26.4		
~~30~~ 40	1.09	91.6	5.01	3.8	25.9		
~~20~~							
~~25~~							
Acceptable Variation	+/-10%	+/-5%	+/- 0.1pH unit	+/- 10mV	+/- 0.1 °C	Field results acceptable:	YES / NO

LOW FLOW: Max. flow rate = 0.5 L/min - Max. drawdown = 0.1 m - Well stable when 3 consecutive readings (either 3min apart or 1L apart)

PURGE: Min. sampling volume is 4 casing volumes or dry twice - 1 casing volume (50mm wells) = 2 L/m - 1 casing volume (100mm wells) = 8 L/m

Turbidity	High / Medium / Low	**Hydrocarbon sheen?**	YES / NO
Colour:	brown	**Odour:**	Slight egg / H_2S

Primary sample ID:	GW04 (1000004)	*Container*	*No.*	*Preservative*
Duplicate sample ID:	—	Vial		HCl / other
Triplicate sample ID:	—	1L/500ml Glass		none / H_2SO_4
Rinse blank after?	YES / NO ID:	1L Plastic	2	none / other
Samples filtered for metals?	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	200 ml Plastic		HNO_3 / none / other
Water Quality Meter:	YSI	150 mL Plastic		NaOH / none/ other
Dipper / Interface probe:	Solinst			
Pump:	Waterra FV			

Notes: LT brown water - lots of Sediment - No well CAP. Sediment reduced, colour still brown

Depth after 19.088 m

GROUNDWATER FIELD PARAMETERS

JBS&G

MINE ID GSH 74

Project Number:	52082	**WELL ID**	GW 05
Client:	QMM / RIOTINTO	**Purging date:**	3/12/19
Site Location:	Mandana.	**Sampling date:**	3/12/19.
Field Sampler(s):	DeBroin / MAXIM.	**Stick up (m):**	~~40cm~~ 52cm
Casing Diameter (mm):	38 ~~50~~mm / 100mm / 150mm	**Depth to NAPL (mBTOC):**	—
Well completion:	Gatic / Standpipe	**Depth to SWL (mBTOC):**	1.68 m.
Cap type:	NO Envirocap / PVC End cap	**NAPL thickness (m):**	—
Well condition:	Comprimised / Good	**Well Depth (mBTOC):**	23.8 m.
Sampling method:	Purge / FV	**Water Column Depth (m)**	22.12
	Low Flow: Pump submersion depth (mBTOC): 22.8	Sampling SWL (mBTOC):	

38mm Well 1.1 litre/m = 24 x 4 = 97L.

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☑	S/cm @25°C	pH units	mV	°C	SWL for low flow (mBTOC)	
20	1.1	69.5	4.92	64.9	25.8	Slight H2S/Egg odour	3.41
40	.14	64.3	4.92	32.8	25.7		
60	.16	62.9	4.96	4.86	25.7		
80	3.2	63.1	4.91	4.4	25.7		
100	1.1	62.5	4.89	-14	25.8		
120	1.6	62.1	5.01	-29.7	25.8		
140	0.7	62.3	4.89	-29.9	25.6	"	
Acceptable Variation	+/-10%	+/-5%	+/- 0.1pH unit	+/- 10mV	+/- 0.1 °C	Field results acceptable:	YES / NO

LOW FLOW: Max. flow rate = 0.5 L/min - Max. drawdown = 0.1 m - Well stable when 3 consecutive readings (either 3min apart or 1L apart)

PURGE: Min. sampling volume is 4 casing volumes or dry twice - 1 casing volume (50mm wells) = 2 L/m - 1 casing volume (100mm wells) = 8 L/m

Turbidity	High / Medium / Low	**Hydrocarbon sheen?**	YES / NO
Colour:	Brown	**Odour:**	Slight egg / H2S odour.

		Container	*No.*	*Preservative*
Primary sample ID:	GW 05 (1000005)			
Duplicate sample ID:	—	Vial		HCl / other
Triplicate sample ID:	—	1L/500ml Glass		none / H_2SO_4
Rinse blank after?	YES / NO ID:	1L Plastic	2	none / other
Samples filtered for metals?	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	200 ml Plastic		HNO_3 / none / other
Water Quality Meter:	YSI	150 mL Plastic		NaOH / none/ other
Dipper / Interface probe:	Solinst			
Pump:	Waterra FV ✓			

Notes: brown - High turbid water.
After Purging depth 23.33

GROUNDWATER FIELD PARAMETERS

JBS&G

Mine ID (GBH071)

Project Number:	57092	WELL ID	GW06
Client:	QMM / Rio Tinto	Purging date:	
Site Location:	Mandena	Sampling date:	3/12/18
Field Sampler(s):	DO'Brien	Stick up (m):	336mm
Casing Diameter (mm):	38mm ~~50mm / 100mm / 150mm~~	Depth to NAPL (mBTOC):	—
Well completion:	Gatic / ~~Standpipe~~	Depth to SWL (mBTOC):	2.975
Cap type:	No ~~Envirocap / PVC End cap~~ No	NAPL thickness (m):	—
Well condition:	~~Comprimised~~ / Good	Well Depth (mBTOC):	21.56
Sampling method:	Purge / (FV)	Water Column Depth (m)	18.5
	Low Flow: Pump submersion depth (mBTOC): 20.5	Sampling SWL (mBTOC):	

1.1 litre Row M. 18.5 = 20.4L x 4 82

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	_S/cm @25°C	pH units	mV	°C	SWL for low flow (mBTOC)	
(20)	1.70	85.7	5.65	-19.5	26.1		
(40)	1.60	65.4	5.4	-.7	26.1		
(60)	.8	63.3	5.13	6.7	26.1		
(80)	.65	62.9	5.16	-8.7	26.1		
(100)	.65	63.1	5.15	-14.5	26.1		
(120)	.7	62.2	5.2	-10.3	26.1		
Acceptable Variation	+/-10%	+/-5%	+/- 0.1pH unit	+/- 10mV	+/- 0.1 °C	Field results acceptable: (YES) / NO	

LOW FLOW: Max. flow rate = 0.5 L/min - Max. drawdown = 0.1 m - Well stable when 3 consecutive readings (either 3min apart or 1L apart)

PURGE: Min. sampling volume is 4 casing volumes or dry twice - 1 casing volume (50mm wells) = 2 L/m - 1 casing volume (100mm wells) = 8 L/m

Turbidity	(High) / Medium / Low	Hydrocarbon sheen?	YES / (NO)
Colour:	Brown	Odour:	Slight eggs / H_2S.

Primary sample ID:	GW06. (1000006)	*Container*	*No.*	*Preservative*
Duplicate sample ID:	—	Vial		HCl / other
Triplicate sample ID:	—	1L/500ml Glass		none / H_2SO_4
Rinse blank after?	YES / (NO) ID:	(1L Plastic)	2	(none) / other
Samples filtered for metals?	YES / (NO)	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	200 ml Plastic		HNO_3 / none / other
Water Quality Meter:	YSI	150 mL Plastic		NaOH / none/ other
Dipper / Interface probe:	Solinst			
Pump:	Waterra FV			

Notes: Depth of bn. 21.51 m

GROUNDWATER FIELD PARAMETERS

JBS&G

MINE ID – (GWU64)

Project Number:	57082	**WELL ID**	GW07
Client:	QMM / Rio Tinto	**Purging date:**	
Site Location:	MANDONA	**Sampling date:**	3/12/19
Field Sampler(s):	DOBSON / MAXIM.	**Stick up (m):**	.05
Casing Diameter (mm):	25 ~~50~~mm / 100mm / 150mm	**Depth to NAPL (mBTOC):**	—
Well completion:	Gatic / Standpipe	**Depth to SWL (mBTOC):**	4.38
Cap type:	~~No~~ Envirocap / PVC End cap	**NAPL thickness (m):**	—
Well condition:	Comprimised / Good	**Well Depth (mBTOC):**	19.71
Sampling method:	Purge / (FV)	**Water Column Depth (m)**	15.33
	Low Flow: Pump submersion depth (mBTOC):_____	Sampling SWL (mBTOC):_____	

50 L per M = 7.6 L x MW 61.3.

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	_S/cm @25°C	pH units	mV	°C	SWL for low flow (mBTOC)	
20	0.4	577	5.2	26.9	25.8		
40	0.3	580	5.18	27.2	25.7		
60	0.3	589	5.23	16.9	25.7		
Acceptable Variation	+/-10%	+/-5%	+/- 0.1pH unit	+/- 10mV	+/- 0.1 °C	Field results acceptable:	(YES) / NO

LOW FLOW: Max. flow rate = 0.5 L/min - Max. drawdown = 0.1 m - Well stable when 3 consecutive readings (either 3min apart or 1L apart)

PURGE: Min. sampling volume is 4 casing volumes or dry twice - 1 casing volume (50mm wells) = 2 L/m - 1 casing volume (100mm wells) = 8 L/m

Turbidity	High / (Medium) / Low	**Hydrocarbon sheen?**	YES / (NO)
Colour:	Brown	**Odour:**	Slight egg / H_2S.

Primary sample ID:	GW07 (1000007)	*Container*	*No.*	*Preservative*
Duplicate sample ID:	Dupo1 (1000008)	Vial		HCl / other
Triplicate sample ID:	—	1L/500ml Glass		none / H_2SO_4
Rinse blank after?	YES / (NO) ID:	(1L Plastic)	2	(none) / other
Samples filtered for metals?	YES / (NO)	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	200 ml Plastic		HNO_3 / none / other
Water Quality Meter:	YSI	150 mL Plastic		NaOH / none/ other
Dipper / Interface probe:	Solinst.			
Pump:	Waterra FV			

Notes:

SURFACE WATER & SEDIMENT FIELD PARAMETERS

JBS&G

Project Number:	57082	**LOCATION ID**	SW01
Client:	QMM / RIO TINTO	**Sample Date / Time:**	28/11/19 / 3:05 pm
Site Location:	Mandora Pond	**Collected Sample Depth (m)**	.05 cm
Field Sampler(s):	DO BROWN	**Water Flow Direction:**	Pond
Catchment Type:		**Water Speed (m/s):**	—
Catchment Width (m):	> 50m	**Water Width (m):**	> 100 M
Catchment Depth (m):	1 M	**Water Depth (m):**	1 M
Surface Water Present:	YES / NO	**Pore Water Collected:**	YES / NO
Surface Water Sampling method:	Grab / Pump Other: _____	**Pore Water Sampling method:**	Push Point Sample & Peristaltic Pump Other: Swing Pole.

Surface Water **Surface Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☑	S/cm @25°C	pH units	mV	°C		
1L	3.8	177.	5.49	198	28.9		1505

Turbidity	High / Medium / Low	**Hydrocarbon sheen?** N	YES / NO
Colour:	Slight tinge of YL/br	**Odour:** N	N
Shaker Test:	YES / NO	**Foam Observed**	High / Medium / Low / None

Pore Water **Pore Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	S/cm @25°C	pH units	mV	°C		

Turbidity	High / Medium / Low	**Hydrocarbon sheen?**	YES / NO
Colour:		**Odour:**	
Shaker Test:	YES / NO	**Foam Observed**	High / Medium / Low / None

Sediment Sample **Sediment Sample ID:**

Depth	Method	Water	Primary Component: UCS	Clayey	Silty	Sandy	Gravelly	CLAY	SILT	SAND	GRAVEL	Plasticity / Grain Size	Colour	Secondary Comp. %	Plasticity / Grain Size	Fines	Sand	Gravel	Minor Components: with	trace of	Moisture	Observations / Well Construction Details	Sampling and Field Testing: Sample ID & depth	PID (ppm)
0.5																								

Primary sample ID:	SW01 (1000009)	*Container*	*No.*	*Preservative*
Duplicate sample ID:	—	Vial		HCl / other
Triplicate sample ID:	—	250ml Glass		H_2SO_4 / none / other
Rinse blank after?	YES / NO ID:	1L Plastic	2	none / other
Samples filtered for metals?	YES / NO	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter:	YSI	150 ml Plastic		NaOH / none/ other
Dipper / Interface probe:	N/A.	100 mL Plastic		HNO_3 / none / other

Notes:

SURFACE WATER & SEDIMENT FIELD PARAMETERS

JBS&G

Project Number:	57082	**LOCATION ID**	SW02.
Client:	QMM / RIO.	**Sample Date / Time:**	28/11/19 /
Site Location:	mmm village	**Collected Sample Depth (m)**	.05M.
Field Sampler(s):	DOBson	**Water Flow Direction:**	South.
Catchment Type:	SW River	**Water Speed (m/s):**	
Catchment Width (m):	30M	**Water Width (m):**	30M
Catchment Depth (m):	.5M	**Water Depth (m):**	.5M.
Surface Water Present:	YES / NO	**Pore Water Collected:**	YES / NO.
Surface Water Sampling method:	Grab / Pump Other:	**Pore Water Sampling method:**	Push Point Sample & Peristaltic Pump Other: SWING Pole.

Surface Water **Surface Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
1L	5.8	78	6.8	191.6.	25.9		
Turbidity	High / Medium / Low			**Hydrocarbon sheen?**	N	YES / NO	
Colour:	Clear - slight tint			**Odour:**	N	N.	
Shaker Test:	YES / NO			**Foam Observed**	N	High / Medium / Low / None	

Pore Water **Pore Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	__S/cm @25°C	pH units	mV	°C		
Turbidity	High / Medium / Low			**Hydrocarbon sheen?**		YES / NO	
Colour:				**Odour:**			
Shaker Test:	YES / NO			**Foam Observed**		High / Medium / Low / None	

Sediment Sample **Sediment Sample ID:**

Depth	Method Water	Primary Component: UCS	Clayey	Silty	Sandy	Gravelly	CLAY	SILT	SAND	GRAVEL	Plasticity / Grain Size	Colour	Secondary Comp. %	Plasticity / Grain Size	Fines	Sand	Gravel	Minor Components: with	trace of	Moisture	Observations / Well Construction Details	Sampling and Field Testing: Sample ID & depth	PID (ppm)
0.5																							

Primary sample ID:	SW02 (1000010)	*Container*	*No.*	*Preservative*
Duplicate sample ID:	—	Vial		HCl / other
Triplicate sample ID:	—	250ml Glass		H_2SO_4 / none / other
Rinse blank after?	YES / NO ID:	1L Plastic	2	none / other
Samples filtered for metals?	YES / NO	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter:	YSI	150 ml Plastic		NaOH / none/ other
Dipper / Interface probe:		100 mL Plastic		HNO_3 / none / other

Notes:

SURFACE WATER & SEDIMENT FIELD PARAMETERS

JBS&G

Project Number:	57082.	LOCATION ID	SW03
Client:	QMM / RIO TINTO	Sample Date / Time:	28/11/19 / 4.34 PM
Site Location:	MANGAIKY.	Collected Sample Depth (m)	
Field Sampler(s):	D OBROU	Water Flow Direction:	South.
Catchment Type:	Niger River	Water Speed (m/s):	
Catchment Width (m):	30 M.	Water Width (m):	30M.
Catchment Depth (m):	Unsure.	Water Depth (m):	1M.
Surface Water Present:	YES / NO	Pore Water Collected:	YES / NO
Surface Water Sampling method:	Grab / Pump Other:	Pore Water Sampling method:	Push Point Sample & Peristaltic Pump Other: SwingPole.

Surface Water **Surface Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	S/cm @25°C	pH units	mV	°C		
1L	7.1	66.9.	6.2	183.5	26.1		

Turbidity	High / Medium / Low	Hydrocarbon sheen? N	YES / NO
Colour:	Slight brown Tint.	Odour: N	
Shaker Test:	YES / NO	Foam Observed N	High / Medium / Low / None

Pore Water **Pore Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	S/cm @25°C	pH units	mV	°C		

Turbidity	High / Medium / Low	Hydrocarbon sheen?	YES / NO
Colour:		Odour:	
Shaker Test:	YES / NO	Foam Observed	High / Medium / Low / None

Sediment Sample **Sediment Sample ID:**

Depth	Method Water	Primary Component: UCS	Primary Component: Clayey Silty Sandy Gravelly	Primary Component: CLAY SILT SAND GRAVEL	Primary Component: Plasticity / Grain Size	Primary Component: Colour	Secondary Comp. %: Plasticity / Grain Size	Secondary Comp. %: Fines Sand Gravel	Minor Components: with	Minor Components: trace of	Moisture	Observations / Well Construction Details	Sampling and Field Testing: Sample ID & depth	Sampling and Field Testing: PID (ppm)
0.5														

		Container	No.	Preservative
Primary sample ID:	SW03 (1000011)			
Duplicate sample ID:	—	Vial		HCl / other
Triplicate sample ID:	—	250ml Glass		H_2SO_4 / none / other
Rinse blank after?	YES / NO ID:	1L Plastic	2	none / other
Samples filtered for metals?	YES / NO	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter:	YSI.	150 ml Plastic		NaOH / none/ other
Dipper / Interface probe:		100 mL Plastic		HNO_3 / none / other

Notes:

SURFACE WATER & SEDIMENT FIELD PARAMETERS

JBS&G

Project Number:	57082	**LOCATION ID**	SW #4
Client:	OMM / Rio Tinto	**Sample Date / Time:**	29/11/19 / 11:15
Site Location:		**Collected Sample Depth (m)**	
Field Sampler(s):	DeBruin / Green	**Water Flow Direction:**	
Catchment Type:	Swing Pole	**Water Speed (m/s):**	—
Catchment Width (m):		**Water Width (m):**	50 m
Catchment Depth (m):		**Water Depth (m):**	3m
Surface Water Present:	YES / NO	**Pore Water Collected:**	YES / (NO)
Surface Water Sampling method:	Grab / Pump Other:	**Pore Water Sampling method:**	Push Point Sample & Peristaltic Pump Other: Swing Pole.

Surface Water **Surface Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	__S/cm @25°C	pH units	mV	°C		
In-Situ	5.8	76.6	5.86	168.7	29.8	River Centre.	11:15
Turbidity	High / Medium / (Low)		**Hydrocarbon sheen?**	YES / (NO)			
Colour:	Slight brn tinge		**Odour:**	No			
Shaker Test:	YES / NO		**Foam Observed**	High / Medium / Low / None			

Pore Water **Pore Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	__S/cm @25°C	pH units	mV	°C		
Turbidity	High / Medium / Low		**Hydrocarbon sheen?**	YES / NO			
Colour:			**Odour:**				
Shaker Test:	YES / NO		**Foam Observed**	High / Medium / Low / None			

Sediment Sample **Sediment Sample ID:**

Depth	Method	Water	Primary Component: UCS	Clayey	Silty	Sandy	Gravelly	CLAY	SILT	SAND	GRAVEL	Plasticity / Grain Size	Colour	Secondary Comp. %	Plasticity / Grain Size	Fines	Sand	Gravel	Minor Components: with	trace of	Moisture	Observations / Well Construction Details	Sampling and Field Testing: Sample ID & depth	PID (ppm)
0.5																								

Primary sample ID:	SW04 (1000012)	*Container*	*No.*	*Preservative*
Duplicate sample ID:	—	Vial		HCl / other
Triplicate sample ID:	—	250ml Glass		H_2SO_4 / none / other
Rinse blank after?	YES / (NO) ID:	(1L Plastic)	2	(none) / other
Samples filtered for metals?	YES / (NO)	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter:	YSI	150 ml Plastic		NaOH / none/ other
Dipper / Interface probe:	N/A	100 mL Plastic		HNO_3 / none / other

Notes:

SURFACE WATER & SEDIMENT FIELD PARAMETERS

JBS&G

Project Number:	57082	**LOCATION ID**	SW05
Client:	QMM/RIOTINTO	**Sample Date / Time:**	29/11/19 / 11:33
Site Location:	MMM River	**Collected Sample Depth (m)**	
Field Sampler(s):	DoBrain / SGreen	**Water Flow Direction:**	South
Catchment Type:	~~Swing Polo~~ River	**Water Speed (m/s):**	
Catchment Width (m):		**Water Width (m):**	50m
Catchment Depth (m):		**Water Depth (m):**	3m
Surface Water Present:	YES / NO	**Pore Water Collected:**	YES / NO
Surface Water Sampling method:	Grab / Pump Other: _____	**Pore Water Sampling method:**	Push Point Sample & Peristaltic Pump Other: Swing Polo

Surface Water **Surface Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
1 L	% ☐ ppm ☑	US/cm @25°C	pH units	mV	°C		
Boat.	5.07	74.4	5.22	164.2	30		

Turbidity	High / Medium / Low	**Hydrocarbon sheen?**	YES / NO
Colour:		**Odour:**	
Shaker Test:	YES / NO	**Foam Observed**	High / Medium / Low / None

Pore Water **Pore Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	__S/cm @25°C	pH units	mV	°C		

Turbidity	High / Medium / Low	**Hydrocarbon sheen?**	YES / NO
Colour:		**Odour:**	
Shaker Test:	YES / NO	**Foam Observed**	High / Medium / Low / None

Sediment Sample **Sediment Sample ID:**

Depth	Method	Water	Primary Component: UCS	Clayey	Silty	Sandy	Gravelly	CLAY	SILT	SAND	GRAVEL	Plasticity / Grain Size	Colour	Secondary Comp.: %	Plasticity / Grain Size	Fines	Sand	Gravel	Minor Components: with	trace of	Moisture	Observations / Well Construction Details	Sampling and Field Testing: Sample ID & depth	PID (ppm)
0.5																								

Primary sample ID:	SW05 (1000013)	*Container*	*No.*	*Preservative*
Duplicate sample ID:	—	Vial		HCl / other
Triplicate sample ID:	—	250ml Glass		H_2SO_4 / none / other
Rinse blank after?	YES / NO ID:	1L Plastic	2	none / other
Samples filtered for metals?	YES / NO	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter:	YSI	150 ml Plastic		NaOH / none/ other
Dipper / Interface probe:	—	100 mL Plastic		HNO_3 / none / other

Notes:

SURFACE WATER & SEDIMENT FIELD PARAMETERS

JBS&G

Project Number:	57082.	**LOCATION ID**	SW06
Client:	QMM/Rio Tinto.	**Sample Date / Time:**	29/11/19 / 11.50.
Site Location:	MMM River	**Collected Sample Depth (m)**	.05M
Field Sampler(s):	DoBrain/S Green.	**Water Flow Direction:**	South
Catchment Type:	Swing Pole River	**Water Speed (m/s):**	
Catchment Width (m):		**Water Width (m):**	40m
Catchment Depth (m):		**Water Depth (m):**	4.5m
Surface Water Present:	YES / NO	**Pore Water Collected:**	YES / NO
Surface Water Sampling method:	Grab / Pump Other: _____	**Pore Water Sampling method:**	Push Point Sample & Peristaltic Pump Other: Swing Pole.

Surface Water **Surface Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	__S/cm @25°C	pH units	mV	°C		
1 SITU.	4.7	71.7	4.6	191.9	29.4		11.50

Turbidity	High / Medium / Low	**Hydrocarbon sheen?**	YES / NO
Colour:	Slight brn tinge	**Odour:**	No.
Shaker Test:	YES / NO	**Foam Observed**	High / Medium / Low / None

Pore Water **Pore Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	__S/cm @25°C	pH units	mV	°C		

Turbidity	High / Medium / Low	**Hydrocarbon sheen?**	YES / NO
Colour:		**Odour:**	
Shaker Test:	YES / NO	**Foam Observed**	High / Medium / Low / None

Sediment Sample **Sediment Sample ID:**

Depth	Method	Water	Primary Component: UCS	Clayey	Silty	Sandy	Gravelly	CLAY	SILT	SAND	GRAVEL	Plasticity / Grain Size	Colour	Secondary Comp.: %	Plasticity / Grain Size	Fines	Sand	Gravel	Minor Components: with	trace of	Moisture	Observations / Well Construction Details	Sampling and Field Testing: Sample ID & depth	PID (ppm)
0.5																								

Primary sample ID:	SW06(1000014)	*Container*	*No.*	*Preservative*
Duplicate sample ID:	—	Vial		HCl / other
Triplicate sample ID:	—	250ml Glass		H_2SO_4 / none / other
Rinse blank after?	YES / NO ID:	1L Plastic	2	none / other
Samples filtered for metals?	YES / NO	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter:	YSI	150 ml Plastic		NaOH / none/ other
Dipper / Interface probe:	—	100 mL Plastic		HNO_3 / none / other

Notes:

SURFACE WATER & SEDIMENT FIELD PARAMETERS

MMM River

Project Number:	57082	**LOCATION ID**	SW 07.
Client:	BMM / Rio Tinto	**Sample Date / Time:**	29/11/19 / 11.57
Site Location:	MANDENA	**Collected Sample Depth (m)**	.05m
Field Sampler(s):	DeBrain / SGreen.	**Water Flow Direction:**	S E
Catchment Type:	Estuary / Rocky River	**Water Speed (m/s):**	
Catchment Width (m):		**Water Width (m):**	35m
Catchment Depth (m):		**Water Depth (m):**	4M
Surface Water Present:	YES / NO	**Pore Water Collected:**	YES / (NO)
Surface Water Sampling method:	Grab / Pump Other: _____	**Pore Water Sampling method:**	Push Point Sample & Peristaltic Pump Other: Swing Pole

Surface Water **Surface Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
In Situ	4.65	73.1	4.5	214.8	29		11.57.
Turbidity	High / Medium / (Low)			**Hydrocarbon sheen?**		YES / (NO)	
Colour:	~~Light~~ Slight brown tinge			**Odour:**		N	
Shaker Test:	YES / (NO)			**Foam Observed**		High / Medium / Low / None	

Pore Water **Pore Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	S/cm @25°C	pH units	mV	°C		
Turbidity	High / Medium / Low			**Hydrocarbon sheen?**		YES / NO	
Colour:				**Odour:**			
Shaker Test:	YES / NO			**Foam Observed**		High / Medium / Low / None	

Sediment Sample **Sediment Sample ID:**

Depth	Method Water	Primary Component: UCS	Clayey Silty Sandy Gravelly	CLAY Silt SAND GRAVEL	Plasticity / Grain Size	Colour	Secondary Comp: %	Plasticity / Grain Size	Fines Sand Gravel	Minor Components: with	trace of	Moisture	Observations / Well Construction Details	Sampling and Field Testing: Sample ID & depth	PID (ppm)
0.5															

Primary sample ID:	SW07 (1000015)	*Container*	*No.*	*Preservative*
Duplicate sample ID:	—	Vial		HCl / other
Triplicate sample ID:	—	250ml Glass		H_2SO_4 / none / other
Rinse blank after?	YES / (NO) ID:	(1L Plastic)	2	(none) / other
Samples filtered for metals?	YES / (NO)	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter:	YSI	150 ml Plastic		NaOH / none/ other
Dipper / Interface probe:	—	100 mL Plastic		HNO_3 / none / other

Notes:

SURFACE WATER & SEDIMENT FIELD PARAMETERS

Project Number:	57082	**LOCATION ID**	SW 08
Client:	QNM / Rio Tinto	**Sample Date / Time:**	29/11/19 /
Site Location:	MMM River	**Collected Sample Depth (m)**	.05M
Field Sampler(s):	DeBroin / S Green	**Water Flow Direction:**	South
Catchment Type:	Swing Pole River	**Water Speed (m/s):**	
Catchment Width (m):		**Water Width (m):**	30M
Catchment Depth (m):		**Water Depth (m):**	3M
Surface Water Present:	YES / NO	**Pore Water Collected:**	YES / (NO)
Surface Water Sampling method:	Grab / Pump Other: _____	**Pore Water Sampling method:**	Push Point Sample & Peristaltic Pump Other: Swing Pole

Surface Water **Surface Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	__S/cm @25°C	pH units	mV	°C		
SITE	4.8	65.4	4.7	214.4	28.1		

Turbidity	High / Medium / (Low)	**Hydrocarbon sheen?**	YES / (NO)
Colour:	Slight brn tinge	**Odour:**	NO
Shaker Test:	YES / (NO)	**Foam Observed**	High / Medium / Low / None

Pore Water **Pore Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	__S/cm @25°C	pH units	mV	°C		

Turbidity	High / Medium / Low	**Hydrocarbon sheen?**	YES / NO
Colour:		**Odour:**	
Shaker Test:	YES / NO	**Foam Observed**	High / Medium / Low / None

Sediment Sample **Sediment Sample ID:**

Depth	Method	Water	Primary Component: UCS	Clayey / Silty / Sandy / Gravelly	CLAY	SILT	SAND	GRAVEL	Plasticity / Grain Size	Colour	Secondary Comp. %	Plasticity / Grain Size	Fines	Sand	Gravel	Minor Components: with	trace of	Moisture	Observations / Well Construction Details	Sampling and Field Testing: Sample ID & depth	PID (ppm)
0.5																					

Primary sample ID:	SW08	*Container*	*No.*	*Preservative*
Duplicate sample ID:	—	Vial		HCl / other
Triplicate sample ID:	—	250ml Glass		H_2SO_4 / none / other
Rinse blank after?	YES / (NO) ID:	(1L Plastic)	2	(none) / other
Samples filtered for metals?	YES / (NO)	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter:	YSI	150 ml Plastic		NaOH / none/ other
Dipper / Interface probe:		100 mL Plastic		HNO_3 / none / other

Notes:

SURFACE WATER & SEDIMENT FIELD PARAMETERS

MNM River

Project Number:	57082	**LOCATION ID**	SW09
Client:	CMM / Rio Tinto	**Sample Date / Time:**	29/11/19 / 12.13.
Site Location:	MANDORA	**Collected Sample Depth (m)**	.05M
Field Sampler(s):	DoBroin / S Green	**Water Flow Direction:**	South
Catchment Type:	Mining Pole River	**Water Speed (m/s):**	Slow
Catchment Width (m):		**Water Width (m):**	30M
Catchment Depth (m):		**Water Depth (m):**	2M ?
Surface Water Present:	YES / NO	**Pore Water Collected:**	YES / (NO)
Surface Water Sampling method:	Grab / Pump Other: _____	**Pore Water Sampling method:**	Push Point Sample & Peristaltic Pump Other: Swing Pole

Surface Water **Surface Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	_S/cm @25°C	pH units	mV	°C		
	4.5	63.1	4.9	207	28.8		

Turbidity	High / Medium / (Low)	**Hydrocarbon sheen?**	YES / (NO)
Colour:	Slight brn tinge	**Odour:**	NO
Shaker Test:	YES / (NO)	**Foam Observed**	High / Medium / Low / None

Pore Water **Pore Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	_S/cm @25°C	pH units	mV	°C		

Turbidity	High / Medium / Low	**Hydrocarbon sheen?**	YES / NO
Colour:		**Odour:**	
Shaker Test:	YES / NO	**Foam Observed**	High / Medium / Low / None

Sediment Sample **Sediment Sample ID:**

Depth	Method Water	Primary Component: UCS	Clayey Silty	Sandy Gravelly	CLAY	SILT	SAND	GRAVEL	Plasticity / Grain Size	Colour	Secondary Comp. %	Plasticity / Grain Size	Fines	Sand	Gravel	Minor Components: with	trace of	Moisture	Observations / Well Construction Details	Sampling and Field Testing: Sample ID & depth	PID (ppm)
0.5																					

Primary sample ID:	SW09 (1000017)	*Container*	*No.*	*Preservative*
Duplicate sample ID:	—	Vial		HCl / other
Triplicate sample ID:	—	250ml Glass		H_2SO_4 / none / other
Rinse blank after?	YES / (NO) ID:	(1L Plastic)	2	(none) / other
Samples filtered for metals?	YES / (NO)	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter:	YSI	150 ml Plastic		NaOH / none/ other
Dipper / Interface probe:	—	100 mL Plastic		HNO_3 / none / other

Notes:

SURFACE WATER & SEDIMENT FIELD PARAMETERS

LAKE AMBA NEAR WEIR.

Project Number:	57082	**LOCATION ID**	SW10
Client:	QNNI/RIO TINTO	**Sample Date / Time:**	29/11/19 / 12.46.
Site Location:	MANDURA	**Collected Sample Depth (m)**	0.05M
Field Sampler(s):	DOBSON SGreen	**Water Flow Direction:**	LAKE.
Catchment Type:	Mainly Rural LAKE	**Water Speed (m/s):**	
Catchment Width (m):		**Water Width (m):**	>10M.
Catchment Depth (m):		**Water Depth (m):**	3M
Surface Water Present:	YES / NO	**Pore Water Collected:**	YES / (NO)
Surface Water Sampling method:	Grab / Pump Other: _____	**Pore Water Sampling method:**	Push Point Sample & Peristaltic Pump Other: SWING POLO

Surface Water **Surface Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	☑ S/cm @25°C	pH units	mV	°C		
SITU	6.48	81	5.61	220.6	28.7		
Turbidity	High / Medium / (Low)		**Hydrocarbon sheen?**			YES / (NO)	
Colour:	Slight brn tinge		**Odour:**			NO.	
Shaker Test:	YES / (NO)		**Foam Observed**			High / Medium / Low / None	

Pore Water **Pore Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	S/cm @25°C	pH units	mV	°C		
Turbidity	High / Medium / Low		**Hydrocarbon sheen?**			YES / NO	
Colour:			**Odour:**				
Shaker Test:	YES / NO		**Foam Observed**			High / Medium / Low / None	

Sediment Sample **Sediment Sample ID:**

Depth	Method	Water	Primary Component: UCS	Clayey	Silty	Sandy	Gravelly	CLAY	SILT	SAND	GRAVEL	Plasticity / Grain Size	Colour	Secondary Comp. %	Plasticity / Grain Size	Fines	Sand	Gravel	Minor Components: with	trace of	Moisture	Observations / Well Construction Details	Sampling and Field Testing: Sample ID & depth	PID (ppm)
0.5																								

Primary sample ID:	SW10 (1000018)		*Container*	*No.*	*Preservative*
Duplicate sample ID:	—		Vial		HCl / other
Triplicate sample ID:	—		250ml Glass		H_2SO_4 / none / other
Rinse blank after?	YES / (NO)	ID:	(1L) Plastic	2	none / other
Samples filtered for metals?	YES / (NO)		500 ml Plastic		none / other
Filter Method:	0.45um stericup filter		250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter:	YSI		150 ml Plastic		NaOH / none/ other
Dipper / Interface probe:	—		100 mL Plastic		HNO_3 / none / other

Notes:

SURFACE WATER & SEDIMENT FIELD PARAMETERS

ANAKORAKANA

Project Number:	57082	**LOCATION ID**	SW 11
Client:	QMM/RIOTINTO	**Sample Date / Time:**	2/12/19 / 1020
Site Location:	MANDENA	**Collected Sample Depth (m)**	.05M (bucket)
Field Sampler(s):	DOSON	**Water Flow Direction:**	South
Catchment Type:	~~Brackish Water~~	**Water Speed (m/s):**	
Catchment Width (m):	River 50M	**Water Width (m):**	50M.
Catchment Depth (m):	.5M	**Water Depth (m):**	0.5M.
Surface Water Present:	YES / NO	**Pore Water Collected:**	YES / (NO)
Surface Water Sampling method:	Grab / Pump Other:	**Pore Water Sampling method:**	Push Point Sample & Peristaltic Pump Other: bucket

Surface Water **Surface Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
10 L	% ☐ ppm ☐	µS/cm @25°C	pH units	mV	°C		
10	5.77	83.6	7.29	143.4	27.6		10.20

Turbidity	High / Medium / (Low)	**Hydrocarbon sheen?**	YES / (NO)
Colour:	Slight Brn Tinge	**Odour:**	NO
Shaker Test:	YES / NO	**Foam Observed**	High / Medium / Low / None

Pore Water **Pore Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	µS/cm @25°C	pH units	mV	°C		

Turbidity	High / Medium / Low	**Hydrocarbon sheen?**	YES / NO
Colour:		**Odour:**	
Shaker Test:	YES / NO	**Foam Observed**	High / Medium / Low / None

Sediment Sample **Sediment Sample ID:**

Depth	Method	Water	Primary Component: UCS	Clayey	Silty	Sandy	Gravelly	CLAY	SILT	SAND	GRAVEL	Plasticity / Grain Size	Colour	Secondary Comp. %	Plasticity / Grain Size	Fines	Sand	Gravel	Minor Components: with	trace of	Moisture	Observations / Well Construction Details	Sampling and Field Testing: Sample ID & depth	PID (ppm)
0.5																								

Primary sample ID:	SW 11 (1000019)	*Container*	*No.*	*Preservative*
Duplicate sample ID:	—	Vial		HCl / other
Triplicate sample ID:	—	250ml Glass		H_2SO_4 / none / other
Rinse blank after?	YES / (NO) ID:	(1L Plastic)	2	(none) / other
Samples filtered for metals?	YES / (NO)	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter:	YSI	150 ml Plastic		NaOH / none/ other
Dipper / Interface probe:		100 mL Plastic		HNO_3 / none / other

Notes:

SURFACE WATER & SEDIMENT FIELD PARAMETERS

EMANAKA.

Project Number:	57082	**LOCATION ID**	SW12
Client:	QMM / RioTinto	**Sample Date / Time:**	2/12/19 / 11:51
Site Location:	MANDONA	**Collected Sample Depth (m)**	0.05m.
Field Sampler(s):	DOBroin	**Water Flow Direction:**	South.
Catchment Type:	River	**Water Speed (m/s):**	
Catchment Width (m):	40M.	**Water Width (m):**	40M.
Catchment Depth (m):	1M. 0.5m.	**Water Depth (m):**	0.5
Surface Water Present:	YES / NO	**Pore Water Collected:**	YES / NO
Surface Water Sampling method:	Grab / Pump Other: Bucket	**Pore Water Sampling method:**	Push Point Sample & Peristaltic Pump Other: Bucket.

Surface Water **Surface Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	S/cm @25°C	pH units	mV	°C		
10L.	6.9	127	7.8	74.4	28.1		
Turbidity	High / Medium / Low			**Hydrocarbon sheen?**		YES / NO	
Colour:	Slight brn tinge			**Odour:**		NO.	
Shaker Test:	YES / NO			**Foam Observed**		High / Medium / Low / None	

Pore Water **Pore Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	S/cm @25°C	pH units	mV	°C		
Turbidity	High / Medium / Low			**Hydrocarbon sheen?**		YES / NO	
Colour:				**Odour:**			
Shaker Test:	YES / NO			**Foam Observed**		High / Medium / Low / None	

Sediment Sample **Sediment Sample ID:**

Depth	Method	Water	Primary Component: UCS	Clayey, Silty, Sandy, Gravelly	CLAY	SILT	SAND	GRAVEL	Plasticity / Grain Size	Colour	Secondary Comp. %	Plasticity / Grain Size	Fines	Sand	Gravel	Minor Components: with	trace of	Moisture	Observations / Well Construction Details	Sampling and Field Testing: Sample ID & depth	PID (ppm)
0.5																					

Primary sample ID:	SW12(1000020)	*Container*	*No.*	*Preservative*
Duplicate sample ID:	—	Vial		HCl / other
Triplicate sample ID:	—	250ml Glass		H_2SO_4 / none / other
Rinse blank after?	YES / NO ID:	1L Plastic	2	none / other
Samples filtered for metals?	YES / NO	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter:	YSI	150 ml Plastic		NaOH / none / other
Dipper / Interface probe:	—	100 mL Plastic		HNO_3 / none / other

Notes:

SURFACE WATER & SEDIMENT FIELD PARAMETERS

JBS&G

MMM River North.

Project Number:	57080	**LOCATION ID**	SW13
Client:	MMM/RIOTINTO	**Sample Date / Time:**	5/12/18 / 9.02am
Site Location:	MANDENA.	**Collected Sample Depth (m)**	.05
Field Sampler(s):	DoBROW / MAXIM	**Water Flow Direction:**	West
Catchment Type:	~~Swing~~ River	**Water Speed (m/s):**	slow <0.5
Catchment Width (m):		**Water Width (m):**	15m
Catchment Depth (m):		**Water Depth (m):**	0.5m.
Surface Water Present:	YES / NO	**Pore Water Collected:**	YES / NO
Surface Water Sampling method:	Grab / Pump Other: Swing Pole	**Pore Water Sampling method:**	Push Point Sample & Peristaltic Pump Other: Swing Pole

Surface Water **Surface Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
1	4.4	69.4	7.04	129.7	25.2		
Turbidity	High / Medium / Low		**Hydrocarbon sheen?**		YES / NO		
Colour:	Slight to clear		**Odour:**				
Shaker Test:	YES / NO		**Foam Observed**		High / Medium / Low / None		

Pore Water **Pore Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	S/cm @25°C	pH units	mV	°C		
~~HHHO~~	~~HH~~	~~69.4~~	~~7.04~~	~~129.7~~	~~25.2~~		
Turbidity	High / Medium / Low		**Hydrocarbon sheen?**		YES / NO		
Colour:			**Odour:**				
Shaker Test:	YES / NO		**Foam Observed**		High / Medium / Low / None		

Sediment Sample **Sediment Sample ID:**

Depth	Method	Water	Primary Component: UCS	Clayey, Silty, Sandy, Gravelly	CLAY	SILT	SAND	GRAVEL	Plasticity / Grain Size	Colour	Secondary Comp. %	Plasticity / Grain Size	Fines	Sand	Gravel	Minor Components: with	trace of	Moisture	Observations / Well Construction Details	Sampling and Field Testing: Sample ID & depth	PID (ppm)
0.5																					

Primary sample ID:	SW13(1000021)	*Container*	*No.*	*Preservative*	
Duplicate sample ID:	DUP02(1000024).	Vial		HCl / other	
Triplicate sample ID:	-	250ml Glass		H_2SO_4 / none / other	
Rinse blank after?	YES / NO ID:	1L Plastic	2	none / other	
Samples filtered for metals?	YES / NO	500 ml Plastic		none / other	
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other	
Water Quality Meter:	YSI	150 ml Plastic		NaOH / none/ other	
Dipper / Interface probe:	-	100 mL Plastic		HNO_3 / none / other	

Notes:

SURFACE WATER & SEDIMENT FIELD PARAMETERS

North MMM River

Project Number:	57082	**LOCATION ID**	SW14
Client:	OMM/RIOTINTO	**Sample Date / Time:**	5/12/19 / 9.21
Site Location:	MANDORA	**Collected Sample Depth (m)**	
Field Sampler(s):	DO/SG/MAXIM	**Water Flow Direction:**	South.
Catchment Type:	River	**Water Speed (m/s):**	Moderate wind affected
Catchment Width (m):		**Water Width (m):**	20M.
Catchment Depth (m):		**Water Depth (m):**	c
Surface Water Present:	YES / NO	**Pore Water Collected:**	YES / NO
Surface Water Sampling method:	Grab / Pump Other:	**Pore Water Sampling method:**	Push Point Sample & Peristaltic Pump Other: Swing Pole.

Surface Water **Surface Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
1Litre.	4.2	63.2	6.6	147.2.	25.8		
Turbidity	High / Medium / Low			**Hydrocarbon sheen?**		YES / NO	
Colour:	Light tinge Yellow			**Odour:**		N	
Shaker Test:	YES / NO			**Foam Observed**		High / Medium / Low / None	

Pore Water **Pore Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	µS/cm @25°C	pH units	mV	°C		
Turbidity	High / Medium / Low			**Hydrocarbon sheen?**		YES / NO	
Colour:				**Odour:**			
Shaker Test:	YES / NO			**Foam Observed**		High / Medium / Low / None	

Sediment Sample **Sediment Sample ID:**

Depth	Method	Water	Primary Component: UCS	Clayey / Silty / Sandy / Gravelly	CLAY	SILT	SAND	GRAVEL	Plasticity / Grain Size	Colour	Secondary Comp. %: Plasticity / Grain Size	Fines	Sand	Gravel	Minor Components: with	trace of	Moisture	Observations / Well Construction Details	Sampling and Field Testing: Sample ID & depth	PID (ppm)
0.5																				

Primary sample ID:	SW14 (1000022)	*Container*	*No.*	*Preservative*
Duplicate sample ID:	—	Vial		HCl / other
Triplicate sample ID:	—	250ml Glass		H_2SO_4 / none / other
Rinse blank after?	YES / NO ID:	1L Plastic	2	none / other
Samples filtered for metals?	YES / NO	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter:	YSI	150 ml Plastic		NaOH / none/ other
Dipper / Interface probe:	—	100 mL Plastic		HNO_3 / none / other

Notes:

SURFACE WATER & SEDIMENT FIELD PARAMETERS

JBS&G

MMM River above discharge.

Project Number:	57082	**LOCATION ID**	SW05
Client:	QMM / RIOTINTO	**Sample Date / Time:**	5/12/19 / 9:40
Site Location:	MANDENA	**Collected Sample Depth (m)**	.05m.
Field Sampler(s):	PO / SG / MAXIM	**Water Flow Direction:**	South.
Catchment Type:	River	**Water Speed (m/s):**	
Catchment Width (m):		**Water Width (m):**	20m
Catchment Depth (m):		**Water Depth (m):**	2-3m
Surface Water Present:	YES / NO	**Pore Water Collected:**	YES / NO
Surface Water Sampling method:	Grab / Pump Other: _____	**Pore Water Sampling method:**	Push Point Sample & Peristaltic Pump Other: Swing Pole

Surface Water **Surface Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☑	S/cm @25°C	pH units	mV	°C		
1C	5.03	62.41	6.5	184.9	26.6		

Turbidity	High / Medium / Low	**Hydrocarbon sheen?**	YES / NO
Colour:	Slight translocent / Clear	**Odour:**	no
Shaker Test:	YES / NO	**Foam Observed**	High / Medium / Low / None

Pore Water **Pore Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	S/cm @25°C	pH units	mV	°C		

Turbidity	High / Medium / Low	**Hydrocarbon sheen?**	YES / NO
Colour:		**Odour:**	
Shaker Test:	YES / NO	**Foam Observed**	High / Medium / Low / None

Sediment Sample **Sediment Sample ID:**

Depth	Method Water	Primary Component: UCS	Clayey Silt	Sandy Gravelly	CLAY	SILT	SAND	GRAVEL	Plasticity / Grain Size	Colour	Secondary Comp. %	Plasticity / Grain Size	Fines	Sand	Gravel	Minor Components: with	trace of	Moisture	Observations / Well Construction Details	Sampling and Field Testing: Sample ID & depth	PID (ppm)
0.5																					

Primary sample ID:	SW05(1000023)	*Container*	*No.*	*Preservative*
Duplicate sample ID:	—	Vial		HCl / other
Triplicate sample ID:	—	250ml Glass		H_2SO_4 / none / other
Rinse blank after?	YES / NO ID:	1L Plastic	2.	none / other
Samples filtered for metals?	YES / NO	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter:	4	150 ml Plastic		NaOH / none / other
Dipper / Interface probe:		100 mL Plastic		HNO_3 / none / other

Notes:

JBS&G

GW02

RioTinto **QIT Madagascar Minerals**







GROUNDWATER FIELD PARAMETERS/Eau Paramètres

JBS&G
QIT Madagascar Minerals

Project Number:			**WELL ID**	GW02
Client:		OMM/Rio Tinto	**Purging date:**	
Site Location:		MMM Source	**Sampling date:**	27-11-20
Sampler Name/Nom(s):			**Stick up/Hauteur de tuyau (m):**	
Casing Diameter/Diamètre (mm):		25mm / 38mm / ____mm	**A. Depth to SWL/Profondeur à l'eau (mBTOC):**	
Well completion/Bien la tête:		Gatic / **Standpipe**	**B. Well Depth/Profondeur (mBTOC):**	
Cap type:		Envirocap / PVC End cap	**Water Column Depth/Eau Colonne Profondeur (m)**	B-A
Well condition:		**Compromised** / Good	**Easting Coord:**	0704982
Sampling method:		**Purge** / FV	**Northing Coord:**	7242958

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm (%)	µS/cm @25°C	pH units	mV	°C		
	8,36	57	6,13	136,7	25,44		11:48
Acceptable Variation	+/-10%	+/-5%	+/- 0.1pH unit	+/- 10mV	+/- 0.1 °C	Field results acceptable:	YES / NO

PURGE: Min. volume d'échantillonnage est 4 volumes de boîtier or ou sécher deux fois - 1 volumes de boîtier (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

PURGE: Min. sampling volume is 4 casing volumes or dry twice - 1 casing volume (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

Turbidity/Turbidité	High / Medium / Low	**Odour/Odeur:**	
Colour/Couleur:			

Primary sample/Primaire Échantillon ID:		***Container/Conteneur***	***No. Qty***	***Preservative/Conservateur***
Duplicate sample /Double Échantillon ID:		Vial		HCl / other
Triplicate sample/Triple Échantillon ID:		250ml Glass		none / Other / H_2SO_4
Rinse blank/Rincer blanc ?	YES / NO ID:	1L Plastic	4	none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	500 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		HNO_3 / none / other
Water Quality Meter/Eau Qualité Mètres:		200 ml Plastic		NaOH / none/ other
Dipper / Interface probe/ Sonde d'interface:		100 mL Plastic	2	HNO3 / none / other
Pump:	Waterra FV			

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Groundwater Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime

SIGNED Signé :

Supervisor
Superviseur Signé:

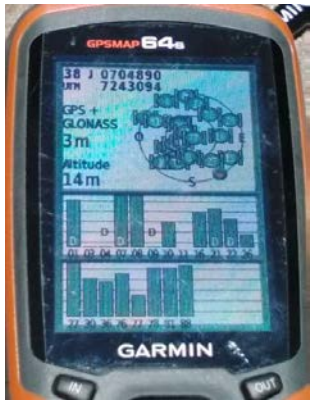
JBS&G

GW03

RioTinto QIT Madagascar Minerals







GROUNDWATER FIELD PARAMETERS/Eau Paramètres

JBS&G
QIT Madagascar Minerals

Project Number:			**WELL ID**	GW 03
Client:		QMM/Rio Tinto	Purging date:	
Site Location:		MMM pompe	Sampling date:	27-11-20
Sampler Name/Nom(s):			Stick up/Hauteur de tuyau (m):	
Casing Diameter/Diamètre (mm):		25mm / 38mm / ____mm	A. Depth to SWL/Profondeur à l'eau (mBTOC):	
Well completion/Bien la tête:		Gatic / Standpipe	B. Well Depth/Profondeur (mBTOC):	
Cap type:		Envirocap / PVC End cap	Water Column Depth/Eau Colonne Profondeur (m)	B-A
Well condition:		Compromised / Good	Easting Coord:	0704890
Sampling method:		Purge / FV	Northing Coord:	7243094

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	6,05	210	4,37	133,5	25,44		11:33
Acceptable Variation	+/-10%	+/-5%	+/- 0.1pH unit	+/- 10mV	+/- 0.1 °C	Field results acceptable:	YES / NO

PURGE: Min. volume d'échantillonnage est 4 volumes de boîtier or ou sécher deux fois - 1 volumes de boîtier (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

PURGE: Min. sampling volume is 4 casing volumes or dry twice - 1 casing volume (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

Turbidity/Turbidité Colour/Couleur:	High / Medium / Low	Odour/Odeur:	

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		none / Other / H_2SO_4
Triplicate sample/Triple Échantillon ID:		1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		H_2SO_4 / none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		HNO_3 / none / other
Filter Method:	0.45um stericup filter	200 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO3 / none / other
Dipper / Interface probe/ Sonde d'interface:				
Pump:	Waterra FV			

Notes: I.....confirm that sampling was undertaken in addordance with the JBS&G Provided Groundwater Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime
SIGNED Signé : [signature]

Supervisor
Superviseur Signé: [signature] Onisa M.

JBS&G

GW04

RioTinto **QIT Madagascar Minerals**







GROUNDWATER FIELD PARAMETERS/Eau Paramètres

JBS&G
QIT Madagascar Minerals

Project Number:			**WELL ID**		GW 04
Client:		QMM/Rio Tinto	**Purging date:**		26/11/2020
Site Location:		Site Rivière GW062	**Sampling date:**		26/11/2020 à 12:34
Sampler Name/Nom(s):			**Stick up/Hauteur de tuyau (m):**		
Casing Diameter/Diamètre (mm):		25mm / 38mm / ____mm	**A. Depth to SWL/Profondeur à l'eau (mBTOC):**		8,09
Well completion/Bien la tête:		**Gatic / Standpipe**	**B. Well Depth/Profondeur (mBTOC):**		19,15
Cap type:		Envirocap / PVC End cap	**Water Column Depth/Eau Colonne Profondeur (m)**	B-A	11,06
Well condition:		**Compromised / Good**	**Easting Coord:**		0702648
Sampling method:		**Purge /** FV	**Northing Coord:**		7237803

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑ %	µS/cm @25°C	pH units	mV	°C		
	3,47	110	3,31	76,5	25,99		12:34
Acceptable Variation	+/-10%	+/-5%	+/- 0.1pH unit	+/- 10mV	+/- 0.1 °C	Field results acceptable:	YES / NO

PURGE: Min. volume d'échantillonnage est 4 volumes de boîtier or ou sécher deux fois - 1 volumes de boîtier (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

PURGE: Min. sampling volume is 4 casing volumes or dry twice - 1 casing volume (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

Turbidity/Turbidité	High / Medium / Low	**Odour/Odeur:**	
Colour/Couleur:			

Primary sample/Primaire Échantillon ID:		***Container/Conteneur***	***No.Qty***	***Preservative/Conservateur***
Duplicate sample /Double Échantillon ID:		Vial		HCl / other
Triplicate sample/Triple Échantillon ID:		250ml Glass		none / Other / H_2SO_4
Rinse blank/Rincer blanc ?	YES / NO ID:	1L Plastic	02	none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	500 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		HNO_3 / none / other
Water Quality Meter/Eau Qualité Mètres:		200 ml Plastic		NaOH / none/ other
Dipper / Interface probe/ Sonde d'interface:		100 mL Plastic		HNO3 / none / other
Pump:	Waterra FV			

Notes: I ..... confirm that sampling was undertaken in addordance with the JBS&G Provided Groundwater Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime

SIGNED Signé :

Supervisor
Superviseur Signé: Onilson. M

Rotate

JBS&G

GW05

RioTinto QIT Madagascar Minerals







GROUNDWATER FIELD PARAMETERS/Eau Paramètres

JBS&G
QIT Madagascar Minerals

Project Number:			**WELL ID**	GW05
Client:		QMM/Rio Tinto	**Purging date:**	27/11/2020
Site Location:	site minier GBH 074		**Sampling date:**	27/11/2020
Sampler Name/Nom(s):			**Stick up/Hauteur de tuyau (m):**	
Casing Diameter/Diamètre (mm):		25mm / 38mm / _____mm	**A. Depth to SWL/Profondeur à l'eau (mBTOC):**	4,75
Well completion/Bien la tête:		Gatic / **Standpipe**	**B. Well Depth/Profondeur (mBTOC):**	23,25
Cap type:		Envirocap / PVC End cap	**Water Column Depth/Eau Colonne Profondeur (m)**	B-A 18,50
Well condition:		**Compromised** / Good	**Easting Coord:**	0702735
Sampling method:		**Purge /** FV	**Northing Coord:**	7238988

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	5,05	62	5,30	71,3	26,04		9:47
Acceptable Variation	+/-10%	+/-5%	+/- 0.1pH unit	+/- 10mV	+/- 0.1 °C	Field results acceptable:	YES / NO

PURGE: Min. volume d'échantillonnage est 4 volumes de boîtier or ou sécher deux fois - 1 volumes de boîtier (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

PURGE: Min. sampling volume is 4 casing volumes or dry twice - 1 casing volume (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

Turbidity/Turbidité	High / Medium / Low	**Odour/Odeur:**	
Colour/Couleur:			

		Container/Conteneur	*No.Qty*	*Preservative/Conservateur*
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		none / Other / H_2SO_4
Triplicate sample/Triple Échantillon ID:		1L Plastic	,2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		H_2SO_4 / none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		HNO_3 / none / other
Filter Method:	0.45um stericup filter	200 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic		HNO3 / none / other
Dipper / Interface probe/ Sonde d'interface:				
Pump:	Waterra FV			

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Groundwater Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime
SIGNED Signé : Rux

Supervisor
Superviseur Signé: [signature] Anisa M

JBS&G

GW06

RioTinto QIT Madagascar Minerals







GROUNDWATER FIELD PARAMETERS/Eau Paramètres

JBS&G
QIT Madagascar Minerals

Project Number:			**WELL ID**	GW 06
Client:		QMM/Rio Tinto	**Purging date:**	27-11-2020
Site Location:	site Mirher GBH071		**Sampling date:**	27-11-2020
Sampler Name/Nom(s):			**Stick up/Hauteur de tuyau (m):**	
Casing Diameter/Diamètre (mm):		25mm / 38mm / ____mm	**A. Depth to SWL/Profondeur à l'eau (mBTOC):**	4,38
Well completion/Bien la tête:		Gatic / Standpipe	**B. Well Depth/Profondeur (mBTOC):**	22,92
Cap type:		Envirocap / PVC End cap	**Water Column Depth/Eau Colonne Profondeur (m)**	B-A 18,54
Well condition:		Compromised / Good	**Easting Coord:**	0702730
Sampling method:		Purge / FV	**Northing Coord:**	7239614

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	5,55	63	5,56	90,5	26,14		10:22
Acceptable Variation	+/-10%	+/-5%	+/- 0.1pH unit	+/- 10mV	+/- 0.1 °C	Field results acceptable:	YES / NO

PURGE: Min. volume d'échantillonnage est 4 volumes de boîtier or ou sécher deux fois - 1 volumes de boîtier (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

PURGE: Min. sampling volume is 4 casing volumes or dry twice - 1 casing volume (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

Turbidity/Turbidité	High / Medium / Low	**Odour/Odeur:**	
Colour/Couleur:			

Primary sample/Primaire Échantillon ID:		*Container/Conteneur*	*No.Qty*	*Preservative/Conservateur*
Duplicate sample /Double Échantillon ID:		Vial		HCl / other
Triplicate sample/Triple Échantillon ID:		250ml Glass		none / Other / H_2SO_4
Rinse blank/Rincer blanc ?	YES / NO ID:	1L Plastic	2	none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	500 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		HNO_3 / none / other
Water Quality Meter/Eau Qualité Mètres:		200 ml Plastic		NaOH / none/ other
Dipper / Interface probe/ Sonde d'interface:		100 mL Plastic		HNO3 / none / other
Pump:	Waterra FV			

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Groundwater Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime
SIGNED Signé :

Supervisor
Superviseur Signé: Oniba M

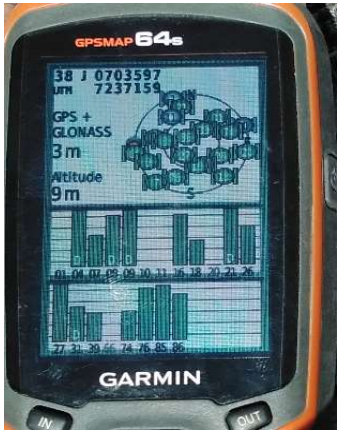
JBS&G

GW07

RioTinto QIT Madagascar Minerals







GROUNDWATER FIELD PARAMETERS/Eau Paramètres

JBS&G
QIT Madagascar Minerals

Project Number:			**WELL ID**	GW 07
Client:		QMM/Rio Tinto	**Purging date:**	26-11-2020
Site Location:	site minier GW064		**Sampling date:**	26-11-2020
Sampler Name/Nom(s):			**Stick up/Hauteur de tuyau (m):**	
Casing Diameter/Diamètre (mm):		25mm / 38mm / ____mm	**A. Depth to SWL/Profondeur à l'eau (mBTOC):**	3,93
Well completion/Bien la tête:		**Gatic / Standpipe**	**B. Well Depth/Profondeur (mBTOC):**	19,74
Cap type:		Envirocap / PVC End cap	**Water Column Depth/Eau Colonne Profondeur (m)**	B-A 15,81
Well condition:		**Compromised** / Good	**Easting Coord:**	0703597
Sampling method:		**Purge /** FV	**Northing Coord:**	7237159

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	5,21	564	5,48	77,6	26,05		10:06
Acceptable Variation	+/-10%	+/-5%	+/- 0.1pH unit	+/- 10mV	+/- 0.1 °C	Field results acceptable:	YES / NO

PURGE: Min. volume d'échantillonnage est 4 volumes de boîtier or ou sécher deux fois - 1 volumes de boîtier (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

PURGE: Min. sampling volume is 4 casing volumes or dry twice - 1 casing volume (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

Turbidity/Turbidité	High / Medium / Low	**Odour/Odeur:**	
Colour/Couleur:			

		Container/Conteneur	*No.Qty*	*Preservative/Conservateur*
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		none / Other / H_2SO_4
Triplicate sample/Triple Échantillon ID:		1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		H_2SO_4 / none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		HNO_3 / none / other
Filter Method:	0.45um stericup filter	200 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic		HNO3 / none / other
Dipper / Interface probe/ Sonde d'interface:				
Pump:	Waterra FV			

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Groundwater Sampling Procedures

Checked BY Vérifié : RAKOTOARISEN Maxime
SIGNED Signé : [signature]

Supervisor
Superviseur Signé: [signature] Onitsa M

JBS&G

GW08

RioTinto **QIT Madagascar Minerals**







GROUNDWATER FIELD PARAMETERS/Eau Paramètres

JBS&G QIT Madagascar Minerals

Project Number:			**WELL ID**	GW08
Client:		QMM/Rio Tinto	**Purging date:**	
Site Location:		Andrakaraka	**Sampling date:**	04-12-2020
Sampler Name/Nom(s):			**Stick up/Hauteur de tuyau (m):**	
Casing Diameter/Diamètre (mm):		25mm / 38mm / ____mm	**A. Depth to SWL/Profondeur à l'eau (mBTOC):**	
Well completion/Bien la tête:		Gatic / Standpipe	**B. Well Depth/Profondeur (mBTOC):**	
Cap type:		Envirocap / PVC End cap	**Water Column Depth/Eau Colonne Profondeur (m)**	B-A
Well condition:		**Compromised** / Good	**Easting Coord:**	0704434
Sampling method:		**Purge** / FV	**Northing Coord:**	7235851

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	6,04	448	7,14	148,9	26,03		10:29
Acceptable Variation	+/-10%	+/-5%	+/- 0.1pH unit	+/- 10mV	+/- 0.1 °C	Field results acceptable:	YES / NO

PURGE: Min. volume d'échantillonnage est 4 volumes de boîtier or ou sécher deux fois - 1 volumes de boîtier (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

PURGE: Min. sampling volume is 4 casing volumes or dry twice - 1 casing volume (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

Turbidity/Turbidité	High / Medium / Low	**Odour/Odeur:**	
Colour/Couleur:			

Primary sample/Primaire Échantillon ID:			***Container/Conteneur***	***No. Qty***	***Preservative/Conservateur***
Duplicate sample /Double Échantillon ID:			Vial		HCl / other
Triplicate sample/Triple Échantillon ID:			250ml Glass		none / Other / H_2SO_4
Rinse blank/Rincer blanc ?	YES / NO	ID:	1L Plastic	5	none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO		500 ml Plastic		H_2SO_4 / none / other
Filter Method:		0.45um stericup filter	250 ml Plastic		HNO_3 / none / other
Water Quality Meter/Eau Qualité Mètres:			200 ml Plastic		NaOH / none/ other
Dipper / Interface probe/ Sonde d'interface:			100 mL Plastic	1	HNO3 / none/ other
Pump:	Waterra FV				

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Groundwater Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime

SIGNED Signé :

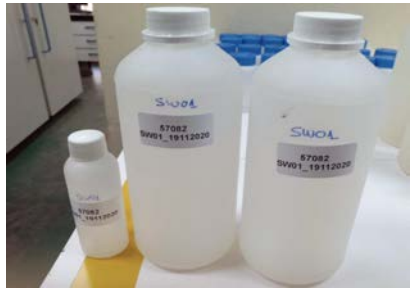
Supervisor
Supervisseur Signé: Onisoa M

JBS&G

RioTinto QIT Madagascar Minerals



SW01





SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 01
Client:	QMM Madagascar	Sample Date / Time (temps):	19/11/20 / 8:52
Site Location/ Emplacement:	Etang site Minier	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):	Mbola Dominique	Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☐ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	706880	Water Width/Eau largeur (m):	
Northing Coord:	7238369	Water Depth/ Eau profondeur (m):	
Surface Water	Grab - Swing Pole		
Sampling method:	Other:		

Surface Water — Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	7,74	827	6,01	130,6	25,58		8:52
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTO ARISON Maxime — Supervisor Superviseur Signé: Onisor MAMITRANJA

SIGNED Signé : Rux

JBS&G

RioTinto QIT Madagascar Minerals

SW02







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 02
Client:	QMM Madagascar	Sample Date / Time (temps):	19/11/20/
Site Location/ Emplacement:	Pont rivière MMM (rive gauche)	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):	Mbola Dominique	Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	704899	Water Width/Eau largeur (m):	
Northing Coord:	7242930	Water Depth/ Eau profondeur (m):	
Surface Water	Grab - Swing Pole		
Sampling method:	Other:		

Surface Water — Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	11 S/cm @25°C	pH units	mV	°C		
	7,31	55	5,98	138,2	26,29		17:57
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : R.Maxime — Supervisor Superviseur Signé: Onison MAMITRIANTA

SIGNED Signé : Rux

JBS&G

RioTinto QIT Madagascar Minerals

SW03







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	**LOCATION ID**	SW: 03
Client:	QMM Madagascar	**Sample Date / Time (temps):**	19-11-20
Site Location/ Emplacement:	Rivière Enandrano	**Collected Sample Depth/Profondeur (m)**	
Sampler Name/Nom(s):	Mbola Dominique	**Water Flow Direction/Eau Flux Direction :**	
Catchment Type/Chalandise:	River ☑ Lake ☐	**Water Speed/Eau vitesse (m/s):**	
Easting Coord:	7014 79	**Water Width/Eau largeur (m):**	
Northing Coord:	7241274	**Water Depth/ Eau profondeur (m):**	
Surface Water	Grab - Swing Pole		
Sampling method:	Other:		

Surface Water **Surface Water ID:**

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	11 S/cm @25°C	pH units	mV	°C		
	6,63	59	6	102,6	27,81		18:27
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	*No.Qty*	*Preservative/Conservateur*
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime

SIGNED Signé : Rux

Supervisor Superviseur Signé: Onifor MANITRIANJA

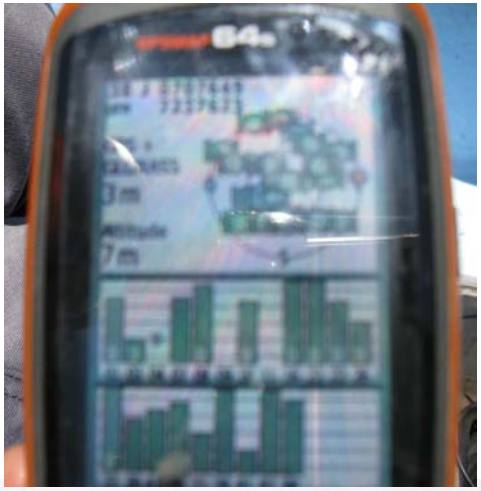
JBS&G

RioTinto QIT Madagascar Minerals

SW04







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	**LOCATION ID**	SW: 04
Client:	QMM Madagascar	**Sample Date / Time (temps):**	19-11-20/
Site Location/ Emplacement:	Lac Ambavaiano	**Collected Sample Depth/Profondeur (m)**	
Sampler Name/Nom(s):	Mbola Dominique	**Water Flow Direction/Eau Flux Direction :**	
Catchment Type/Chalandise:	River ☐ Lake ☑	**Water Speed/Eau vitesse (m/s):**	
Easting Coord:	707648	**Water Width/Eau largeur (m):**	
Northing Coord:	7237627	**Water Depth/ Eau profondeur (m):**	
Surface Water Sampling method:	Grab - Swing Pole Other: _____		

Surface Water **Surface Water ID:**

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	8,93	144	7,14	128,7	26,14		12:20
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

			Container/Conteneur	*No.Qty*	*Preservative/Conservateur*
Primary sample/Primaire Échantillon ID:			Vial		HCl / other
Duplicate sample /Double Échantillon ID:			250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:			1 1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO	ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO		250 ml Plastic		H_2SO_4 / none / other
Filter Method:	.	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:			100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:					

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOKRISON Maxime

SIGNED Signé : Rux

Supervisor Superviseur Signé: [signature] Onisoa MANITRIANZA

JBS&G

RioTinto QIT Madagascar Minerals

SW05





SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	**LOCATION ID**	SW: 05
Client:	QMM Madagascar	**Sample Date / Time (temps):**	19-11-20 /
Site Location/ Emplacement:	Rivière MMM	**Collected Sample Depth/Profondeur (m)**	
Sampler Name/Nom(s):	Mbola Dominique	**Water Flow Direction/Eau Flux Direction :**	
Catchment Type/Chalandise:	River ☑ Lake ☐	**Water Speed/Eau vitesse (m/s):**	
Easting Coord:	707727	**Water Width/Eau largeur (m):**	
Northing Coord:	7238411	**Water Depth/ Eau profondeur (m):**	
Surface Water Sampling method:	Grab - Swing Pole Other:		

Surface Water **Surface Water ID:**

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	1 S/cm @25°C	pH units	mV	°C		
	8,73	102	6,85	165	27,09		12:32
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

Primary sample/Primaire Échantillon ID:		*Container/Conteneur*	*No.Qty*	*Preservative/Conservateur*
Duplicate sample /Double Échantillon ID:		Vial		HCl / other
Triplicate sample/Triple Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	1L Plastic	2	none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter/Eau Qualité Mètres:		150 ml Plastic		NaOH / none/ other
Dipper / Interface probe/ Sonde d'interface:		100 mL Plastic	1	HNO_3 / none / other

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime

SIGNED Signé : Rux

Supervisor Superviseur Signé: [signature] Onitsa MAMITRAMTA

JBS&G

RioTinto QIT Madagascar Minerals

SW06





SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	**LOCATION ID**	SW: 06
Client:	QMM Madagascar	**Sample Date / Time (temps):**	19-11-20
Site Location/ Emplacement:	Rivière MMM	**Collected Sample Depth/Profondeur (m)**	
Sampler Name/Nom(s):	Mbola Dominique	**Water Flow Direction/Eau Flux Direction :**	
Catchment Type/Chalandise:	River ☑ Lake ☐	**Water Speed/Eau vitesse (m/s):**	
Easting Coord:	706634	**Water Width/Eau largeur (m):**	
Northing Coord:	7238899	**Water Depth/ Eau profondeur (m):**	
Surface Water	Grab - Swing Pole		
Sampling method:	Other:		

Surface Water **Surface Water ID:**

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	7,97	86	6,28	144,7	28,31		12:46
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	*No.Qty*	*Preservative/Conservateur*
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime

SIGNED Signé : Rux

Supervisor Superviseur Signé: Onison MANITRIANTA

JBS&G

RioTinto QIT Madagascar Minerals

SW07





SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 07
Client:	QMM Madagascar	Sample Date / Time (temps):	19-11-2017
Site Location/ Emplacement:	Rivière MMM (coté WMC 603)	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):	MDOQ Dominique	Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	706507	Water Width/Eau largeur (m):	
Northing Coord:	7239196	Water Depth/ Eau profondeur (m):	
Surface Water Sampling method:	Grab - Swing Pole Other:		

Surface Water — Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	1x S/cm @25°C	pH units	mV	°C		
	7,82	77	6,10	15,6	21,99		12:34
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	4	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	2	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

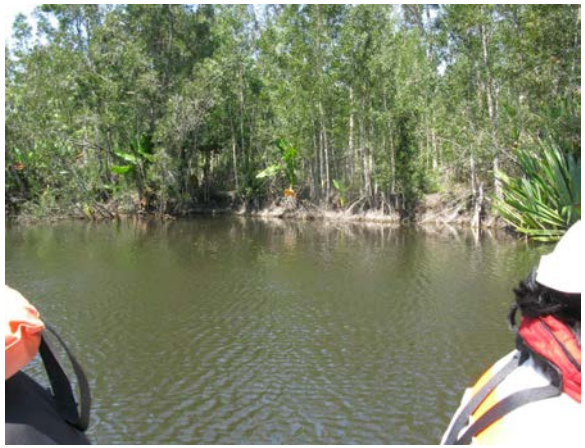
Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime — Supervisor Superviseur Signé: Onison MANITRIANTA

SIGNED Signé : Rux

JBS&G

RioTinto QIT Madagascar Minerals



SW08



SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 08
Client:	QMM Madagascar	Sample Date / Time (temps):	19-11-20
Site Location/ Emplacement:		Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):	RIVIERE MMM (coté WMC 703)	Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	706006	Water Width/Eau largeur (m):	
Northing Coord:	7239263	Water Depth/ Eau profondeur (m):	
Surface Water	Grab - Swing Pole		
Sampling method:	Other:		

Surface Water — Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	11 S/cm @25°C	pH units	mV	°C		
	7,93	75	6,12	165,8	29,55		13:16
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime — Supervisor Superviseur Signé: Onison MANITRIANTA

SIGNED Signé : Rux

JBS&G

RioTinto QIT Madagascar Minerals

SW09





SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	**LOCATION ID**	SW: 09
Client:	QMM Madagascar	**Sample Date / Time (temps):**	19.11.20
Site Location/ Emplacement:		**Collected Sample Depth/Profondeur (m)**	
Sampler Name/Nom(s):	RIVIERE MMM (code WMC 803.1)	**Water Flow Direction/Eau Flux Direction :**	
Catchment Type/Chalandise:	River ☑ Lake ☐	**Water Speed/Eau vitesse (m/s):**	
Easting Coord:		**Water Width/Eau largeur (m):**	
Northing Coord:		**Water Depth/ Eau profondeur (m):**	
Surface Water Sampling method:	Grab - Swing Pole Other:		

Surface Water **Surface Water ID:**

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	149,3	69	6,07	149,3	27,95		13:24
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

Primary sample/Primaire Échantillon ID:		*Container/Conteneur*	*No.Qty*	*Preservative/Conservateur*
Duplicate sample /Double Échantillon ID:		Vial		HCl / other
Triplicate sample/Triple Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	1L Plastic	5	none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter/Eau Qualité Mètres:		150 ml Plastic		NaOH / none/ other
Dipper / Interface probe/ Sonde d'interface:		100 ml Plastic	1	HNO_3 / none / other

Notes: I ..... confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOARISOA Maxime Supervisor

SIGNED Signé : Rux Superviseur Signé: ONJOA MANITRINIAINA

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RioTinto QIT Madagascar Minerals

SW10





SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 10
Client:	QMM Madagascar	Sample Date / Time (temps):	19-11-20 /
Site Location/ Emplacement:	Lac Ambavalara	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):	Mbola Dominique	Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☐ Lake ☑	Water Speed/Eau vitesse (m/s):	
Easting Coord:	707664	Water Width/Eau largeur (m):	
Northing Coord:	7236900	Water Depth/ Eau profondeur (m):	
Surface Water	Grab - Swing Pole		
Sampling method:	Other:		

Surface Water Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	11 S/cm @25°C	pH units	mV	°C		
	8,45	162	7,21	135	25,57		12:08
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures.

Checked BY Vérifié : RAKOTOARISON Maxime Supervisor Chrison MANITE'AUTA

SIGNED Signé : Rux Superviseur Signé: [signature]

JBS&G

RioTinto QIT Madagascar Minerals

SW11







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	**LOCATION ID**	SW: 11
Client:	QMM Madagascar	**Sample Date / Time (temps):**	19-11-201
Site Location/ Emplacement:	Andrakaraka Mbola Dominique	**Collected Sample Depth/Profondeur (m)**	
Sampler Name/Nom(s):		**Water Flow Direction/Eau Flux Direction :**	
Catchment Type/Chalandise:	River ☐ Lake ☐	**Water Speed/Eau vitesse (m/s):**	
Easting Coord:	704291	**Water Width/Eau largeur (m):**	
Northing Coord:	7236078	**Water Depth/ Eau profondeur (m):**	
Surface Water Sampling method:	Grab - Swing Pole Other:		

Surface Water — **Surface Water ID:**

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	8,8	121	6,45	178,7	28,06		11:20
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	*No.Qty*	*Preservative/Conservateur*
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	5	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime

SIGNED Signé : Rux

Supervisor

Superviseur Signé: RAHITIDIAH Tiana

JBS&G

RioTinto QIT Madagascar Minerals

SW12







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	**LOCATION ID**	SW: 12
Client:	QMM Madagascar	**Sample Date / Time (temps):**	19_11_2021
Site Location/ Emplacement:	Lac Ambaiaina à Emanaka	**Collected Sample Depth/Profondeur (m)**	
Sampler Name/Nom(s):	Mbola Dominique	**Water Flow Direction/Eau Flux Direction :**	
Catchment Type/Chalandise:	River ☐ Lake ☑	**Water Speed/Eau vitesse (m/s):**	
Easting Coord:	706232	**Water Width/Eau largeur (m):**	
Northing Coord:	7236446	**Water Depth/ Eau profondeur (m):**	
Surface Water Sampling method:	Grab - Swing Pole Other:		

Surface Water **Surface Water ID:**

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	9,43		7,38	148,3	27,43		11:49
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

Primary sample/Primaire Échantillon ID:		***Container/Conteneur***	***No.Qty***	***Preservative/Conservateur***
Duplicate sample /Double Échantillon ID:		Vial		HCl / other
Triplicate sample/Triple Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	1L Plastic	5	none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter/Eau Qualité Mètres:		150 ml Plastic		NaOH / none/ other
Dipper / Interface probe/ Sonde d'interface:		100 mL Plastic	1	HNO_3 / none / other

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime

SIGNED Signé : Rax

Supervisor

Superviseur Signé: Rajo ONJOA MANITRIAHJA

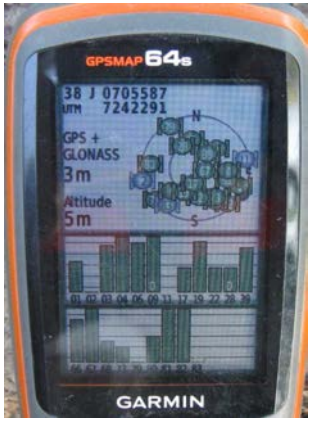
JBS&G

RioTinto QIT Madagascar Minerals

SW13







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 13
Client:	QMM Madagascar	Sample Date / Time (temps):	19-11-20
Site Location/ Emplacement:	Rivière MMM 1.2 km à l'aval village Mbolo Dominique	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	705584	Water Width/Eau largeur (m):	
Northing Coord:	7242291	Water Depth/ Eau profondeur (m):	
Surface Water	Grab - Swing Pole		
Sampling method:	Other:		

Surface Water

Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	6,75	60	5,93	166,8	27,13		17:16
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime

SIGNED Signé : Rux

Supervisor Superviseur Signé: [signature] Onisoa MAMITR'AHJA

JBS&G

RioTinto QIT Madagascar Minerals

SW14







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	**LOCATION ID**	SW: 14
Client:	QMM Madagascar	**Sample Date / Time (temps):**	24-11-20
Site Location/ Emplacement:	à l'amont des points de charges	**Collected Sample Depth/Profondeur (m)**	
Sampler Name/Nom(s):	Mbola, Dominique	**Water Flow Direction/Eau Flux Direction :**	
Catchment Type/Chalandise:	River ☐ Lake ☐	**Water Speed/Eau vitesse (m/s):**	
Easting Coord:	706485	**Water Width/Eau largeur (m):**	
Northing Coord:	7241456	**Water Depth/ Eau profondeur (m):**	
Surface Water	Grab - Swing Pole		
Sampling method:	Other:		

Surface Water **Surface Water ID:**

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	7,25	67	5,57	167,7	27,28		16:34
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	*No.Qty*	*Preservative/Conservateur*
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I.....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime Supervisor Onidoc MANITRIANTO

SIGNED Signé : Rux Superviseur Signé: [signature]

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RioTinto QIT Madagascar Minerals



SW15



SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 15
Client:	QMM Madagascar	Sample Date / Time (temps):	19-11-20/
Site Location/ Emplacement:	MMM (2,5 km avant Ind village)	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):	Mbola Dominique	Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	706290	Water Width/Eau largeur (m):	
Northing Coord:	7240233	Water Depth/ Eau profondeur (m):	
Surface Water	Grab - Swing Pole		
Sampling method:	Other:		

Surface Water Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	1 µS/cm @25°C	pH units	mV	°C		
	7,22	63	5,91	146,1	28,17		13:52
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	5	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures:

Checked BY Vérifié : RAKOTOARISON Maxime Supervisor Superviseur Signé: [signature] Unitor MAMITRIANDA

SIGNED Signé : [signature]

Calibrée enregistrer - Calibration Record

JBS&G

QIT Madagascar Minerals

Numéro de projet/Project Number		Fabricant	Série Nombre	
Équipement/Equipment ID	WQM	YSI	13G100490	556 MPS
	pH	AQUA	AQUA PH	

Water Quality Meter/pH **Eau Qualité Mètres/pH**

	Norme d'étalonnage Calibration standard	Valeur pré-étalonnage Pre-calibration value	Valeur calibrée Calibrated value	Norme d'étalonnage Calibration standard	Valeur pré-étalonnage Pre-calibration value	Valeur calibrée Calibrated value
Température/Temperature (°C)	Compare against mercury thermometer					
Oxygène dissous/Dissolved Oxygen (%)	100% saturation	101	99.9	Zero (0%) (Si disponible)		
pH	pH 7 (i.e 7)	6,97	7.00	pH 4 (i.e 4)	4,02	4,00
Conductivité/Conductivity (EC - mS/cm)	1413 mS/cm	13,76	1413	____ mS/cm		
Redox (ORP - mV)	____ mV sol*					

I .....confirm that calibration was undertaken in addordance with the JBS&G Provided Calibration Procedure

Checked BY Vérifié : Maxime et Onisoa

SIGNED Signé : flux

DATE: 26/11/2020

Acceptable Meter Tolerance (calibration not required)	
pH	*± 0.1 pH unit*
Conductivité/Conductivity	*±2%*
Redox (ORP)	*±10%*
Température/Temperature	*± 0.5°C*
Oxygène dissous/Dissolved Oxygen Zero	*±0.1ppm*
Oxygène dissous/Dissolved Oxygen Saturation	±0.5%

Supervisor

Superviseur Signé: ONISOA

* Calibration solution traceability information is available upon request.

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RioTinto QIT Madagascar Minerals



GW01



GROUNDWATER FIELD PARAMETERS/Eau Paramètres

JBS&G
QIT Madagascar Minerals

Project Number:			WELL ID	GW01
Client:		QMM/Rio Tinto	Purging date:	
Site Location:		Emanaba	Sampling date:	09/04/2021
Sampler Name/Nom(s):			Stick up/Hauteur de tuyau (m):	
Casing Diameter/Diamètre (mm):		25mm / 38mm / ____mm	A. Depth to SWL/Profondeur à l'eau (mBTOC):	
Well completion/Bien la tête:		Gatic / Standpipe	B. Well Depth/Profondeur (mBTOC):	
Cap type:		Envirocap / PVC End cap	Water Column Depth/Eau Colonne Profondeur (m)	B-A
Well condition:		Compromised / Good	Easting Coord:	705940
Sampling method:		Purge / FV	Northing Coord:	7236335

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	5,75	754	6,82		25.96		13.20
Acceptable Variation	+/-10%	+/-5%	+/- 0.1pH unit	+/- 10mV	+/- 0.1 °C	Field results acceptable:	YES / NO

PURGE: Min. volume d'échantillonnage est 4 volumes de boîtier or ou sécher deux fois - 1 volumes de boîtier (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

PURGE: Min. sampling volume is 4 casing volumes or dry twice - 1 casing volume (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

Turbidity/Turbidité	High / Medium / Low	Odour/Odeur:	
Colour/Couleur:			

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		none / Other / H_2SO_4
Triplicate sample/Triple Échantillon ID:		1L Plastic	5	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		H_2SO_4 / none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		HNO_3 / none / other
Filter Method:	0.45um stericup filter	200 ml Plastic		NaOH / none / other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO3 / none / other
Dipper / Interface probe/ Sonde d'interface:				
Pump:	Waterra FV			

Notes: I ..... confirm that sampling was undertaken in addordance with the JBS&G Provided Groundwater Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime

SIGNED Signé : Rux

Supervisor Superviseur Signé: Omisoa MANITRIANJA

JBS&G

GW03

RioTinto QIT Madagascar Minerals





GROUNDWATER FIELD PARAMETERS/Eau Paramètres

JBS&G
QIT Madagascar Minerals

Project Number:			WELL ID	GW03
Client:		QMM/Rio Tinto	Purging date:	
Site Location:		MMM, Pompe Manu	Sampling date:	09/04/2021
Sampler Name/Nom(s):			Stick up/Hauteur de tuyau (m):	
Casing Diameter/Diamètre (mm):		25mm / 38mm / ____mm	A. Depth to SWL/Profondeur à l'eau (mBTOC):	
Well completion/Bien la tête:		Gatic / Standpipe	B. Well Depth/Profondeur (mBTOC):	
Cap type:		Envirocap / PVC End cap	Water Column Depth/Eau Colonne Profondeur (m)	B-A
Well condition:		Compromised / Good	Easting Coord:	704887
Sampling method:		Purge / FV	Northing Coord:	7243095

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	5,19	204	4,34		25,49		11:46
Acceptable Variation	+/-10%	+/-5%	+/- 0.1pH unit	+/- 10mV	+/- 0.1 °C	Field results acceptable:	YES / NO

PURGE: Min. volume d'échantillonnage est 4 volumes de boîtier or ou sécher deux fois - 1 volumes de boîtier (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

PURGE: Min. sampling volume is 4 casing volumes or dry twice - 1 casing volume (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

Turbidity/Turbidité Colour/Couleur:	High / Medium / Low	Odour/Odeur:	

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		none / Other / H_2SO_4
Triplicate sample/Triple Échantillon ID:		1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		H_2SO_4 / none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		HNO_3 / none / other
Filter Method:	0.45um stericup filter	200 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO3 / none / other
Dipper / Interface probe/ Sonde d'interface:				
Pump:	Waterra FV			

Notes: I ..... confirm that sampling was undertaken in addordance with the JBS&G Provided Groundwater Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime

SIGNED Signé : Rux

Supervisor Superviseur Signé: Onifoa MANITR'ANJA

JBS&G

GW04

RioTinto **QIT Madagascar Minerals**





GROUNDWATER FIELD PARAMETERS/Eau Paramètres

JBS&G QIT Madagascar Minerals

Project Number:		WELL ID	GW04
Client:	QMM/Rio Tinto	Purging date:	03/04/2021
Site Location:	site minier GW04	Sampling date:	
Sampler Name/Nom(s):		Stick up/Hauteur de tuyau (m):	8,30
Casing Diameter/Diamètre (mm):	25mm / 38mm / ____mm	A. Depth to SWL/Profondeur à l'eau (mBTOC):	19,14
Well completion/Bien la tête:	Gatic / Standpipe	B. Well Depth/Profondeur (mBTOC):	
Cap type:	Envirocap / PVC End cap	Water Column Depth/Eau Colonne Profondeur (m)	B-A 10,84
Well condition:	Compromised / Good	Easting Coord:	702649
Sampling method:	Purge / FV	Northing Coord:	7237803

Volume Purged/Purgé L	Dissolved Oxygen/Oxygène dissous ☐ ppm ☑	Electrical Conductivity/Conductivité µS/cm @25°C	pH pH units	Redox Potential mV	Temperature °C	Comments	Time
10 l (1)	4,24	85	5,65		26,27		15:46
10 l (2)	5,74	87	5,49		26,09		15:50
10 l (3)	5,54	88	5,39		26,06		15:55
10 l (4)	5,41	87	5,49		25,80		16:04
Acceptable Variation	+/-10%	+/-5%	+/- 0.1pH unit	+/- 10mV	+/- 0.1 °C	Field results acceptable:	YES / NO

PURGE: Min. volume d'échantillonnage est 4 volumes de boîtier or ou sécher deux fois - 1 volumes de boîtier (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

PURGE: Min. sampling volume is 4 casing volumes or dry twice - 1 casing volume (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

Turbidity/Turbidité	High / Medium / Low	Odour/Odeur:	
Colour/Couleur:			

			Container/Conteneur	No. Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:			Vial		HCl / other
Duplicate sample /Double Échantillon ID:			250ml Glass		none / Other / H_2SO_4
Triplicate sample/Triple Échantillon ID:			1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO	ID:	500 ml Plastic		H_2SO_4 / none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO		250 ml Plastic		HNO_3 / none / other
Filter Method:	0.45um stericup filter		200 ml Plastic		NaOH / none / other
Water Quality Meter/Eau Qualité Mètres:			100 mL Plastic	0	HNO3 / none / other
Dipper / Interface probe/ Sonde d'interface:					
Pump:	Waterra FV				

Notes: I _____ confirm that sampling was undertaken in addordance with the JBS&G Provided Groundwater Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime Supervisor

ENEO Signé : Supervisor Signé: omba MANITRIANJA

JBS&G

RioTinto QIT Madagascar Minerals

SW01







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 01
Client:	QMM Madagascar	Sample Date / Time (temps):	08/04/2024
Site Location/ Emplacement:	Etang site minier	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☐ Lake ☑	Water Speed/Eau vitesse (m/s):	
Easting Coord:	7058891	Water Width/Eau largeur (m):	
Northing Coord:	7238370	Water Depth/ Eau profondeur (m):	
Surface Water Sampling method:	Grab - Swing Pole Other:		

Surface Water — Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	6,23	724	5,99		28,11		15:50

Turbidity/Turbidité	High / Medium / Low
Colour/Couleur:	
Odour/Odeur	

Primary sample/Primaire Échantillon ID:			
Duplicate sample /Double Échantillon ID:			
Triplicate sample/Triple Échantillon ID:			
Rinse blank/Rincer blanc ?	YES / NO	ID:	
Samples filtered for metals? Filtré pour les métaux	YES / NO		
Filter Method:	0.45um stericup filter		
Water Quality Meter/Eau Qualité Mètres:			
Dipper / Interface probe/ Sonde d'interface:			

Container/Conteneur	No.Qty	Preservative/Conservateur
Vial		HCl / other
250ml Glass		H_2SO_4 / none / other
1L Plastic	2	none / other
500 ml Plastic		none / other
250 ml Plastic		H_2SO_4 / none / other
150 ml Plastic		NaOH / none / other
100 mL Plastic	1	HNO_3 / none / other

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime

SIGNED Signé :

Supervisor
Superviseur Signé: Onisa MANITRANJA

JBS&G

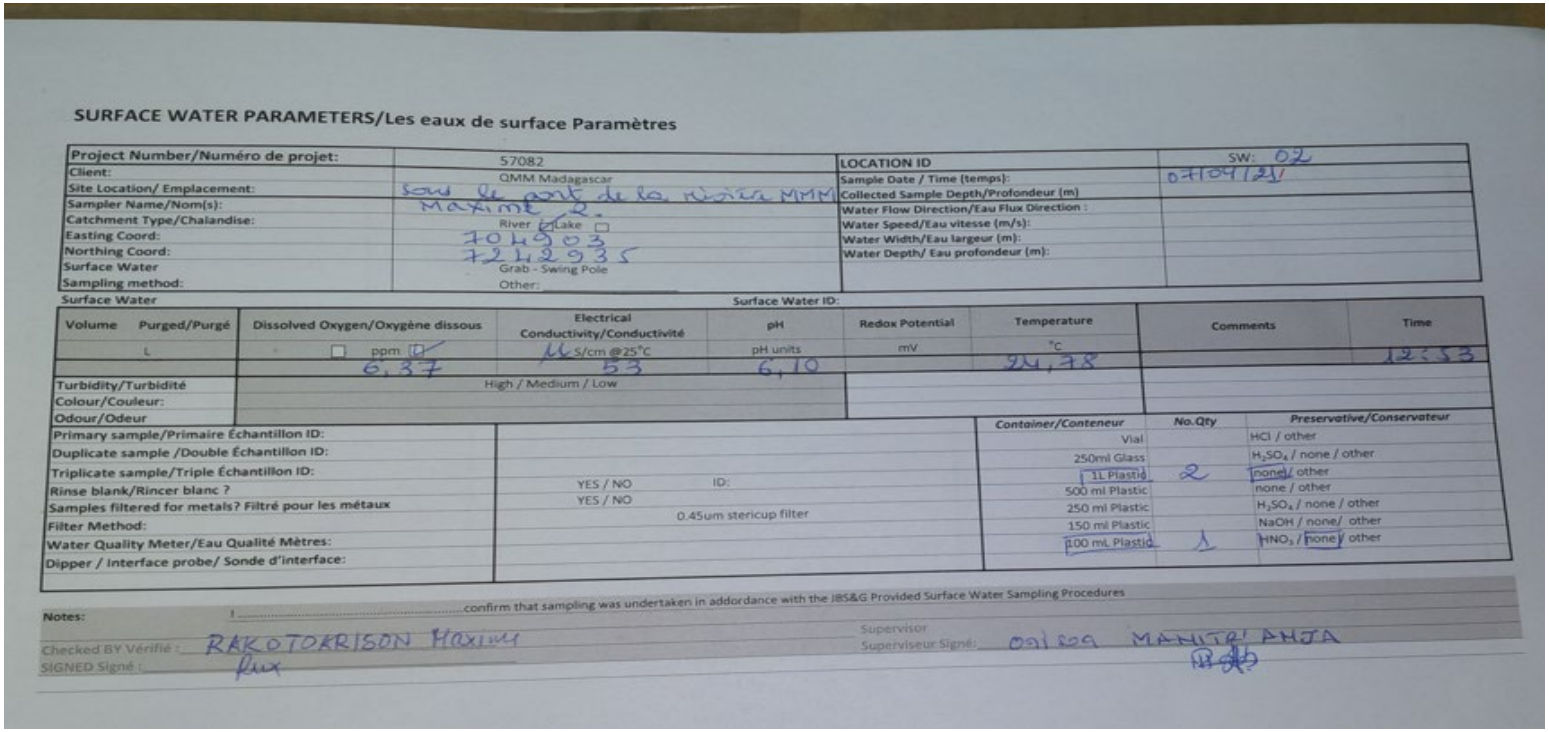
RioTinto QIT Madagascar Minerals

SW02









SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 02
Client:	QMM Madagascar	Sample Date / Time (temps):	07/04/21
Site Location/ Emplacement:	Sous le pont de la rivière MMM	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):	Maxime 2.	Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	704903	Water Width/Eau largeur (m):	
Northing Coord:	7242935	Water Depth/ Eau profondeur (m):	
Surface Water	Grab - Swing Pole		
Sampling method:	Other:		

Surface Water — Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	6,37	53	6,10		24,78		12:53
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I ..... confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime

SIGNED Signé : flux

Supervisor
Superviseur Signé: 09/04 MANITRIANJA

JBS&G

SW03

RioTinto **QIT Madagascar Minerals**







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 03
Client:	QMM Madagascar	Sample Date / Time (temps):	07/09/21 13:30
Site Location/ Emplacement:	Rivière Fanandrano	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):	Maxime RAKOTOARISOA	Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	701479	Water Width/Eau largeur (m):	
Northing Coord:	7241280	Water Depth/ Eau profondeur (m):	
Surface Water Sampling method:	Grab - Swing Pole / Other:		

Surface Water — Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	6,74	53	6,11		25,32		13:30

Turbidity/Turbidité	High / Medium / Low
Colour/Couleur:	
Odour/Odeur	

			Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:			Vial		HCl / other
Duplicate sample /Double Échantillon ID:			250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:			1 L Plastic	02	none / other
Rinse blank/Rincer blanc ?	YES / NO	ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO		250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter		150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:			100 mL Plastic		HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:					

Notes: I.....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime

SIGNED Signé :

Supervisor
Superviseur Signé: Onisa MAHITRIANJA

JBS&G

SW04

RioTinto QIT Madagascar Minerals







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 04
Client:	QMM Madagascar	Sample Date / Time (temps):	08042021
Site Location/ Emplacement:	Proximité embouchure MMM/Ambavaram	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	707637	Water Width/Eau largeur (m):	
Northing Coord:	7237616	Water Depth/ Eau profondeur (m):	
Surface Water	Grab - Swing Pole		
Sampling method:	Other:		

Surface Water

Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	11 S/cm @25°C	pH units	mV	°C		
	5,80	181	668		27,12		10:09
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I ..... confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime

SIGNED Signé : Rux

Supervisor Superviseur Signé: Onisoa MANITRIANTA

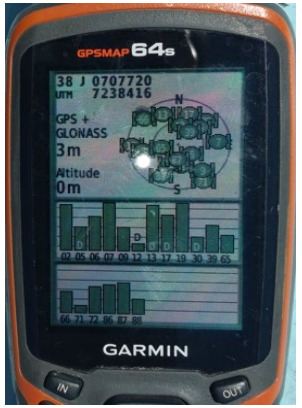
JBS&G

SW05

RioTinto QIT Madagascar Minerals







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 05
Client:	QMM Madagascar	Sample Date / Time (temps):	08/04/2021
Site Location/ Emplacement:	RIVIERE MMM	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	707720	Water Width/Eau largeur (m):	
Northing Coord:	7238416	Water Depth/ Eau profondeur (m):	
Surface Water	Grab - Swing Pole		
Sampling method:	Other:		

Surface Water — Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	11 S/cm @25°C	pH units	mV	°C		
	5.42	123	5.06		26.22		10:22

Turbidity/Turbidité	High / Medium / Low		
Colour/Couleur:			
Odour/Odeur			

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime

SIGNED Signé : Rux

Supervisor Superviseur Signé: OMBOA MANITRIANJA

JBS&G

SW06

RioTinto **QIT Madagascar Minerals**







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 06
Client:	QMM Madagascar	Sample Date / Time (temps):	08/04/2021
Site Location/ Emplacement:	MMM, aval du point de décharge MINE	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	706642	Water Width/Eau largeur (m):	
Northing Coord:	7238907	Water Depth/ Eau profondeur (m):	
Surface Water Sampling method:	Grab - Swing Pole / Other:		

Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	5.65	92	5.72		26.58		10:35

Turbidity/Turbidité	High / Medium / Low
Colour/Couleur:	
Odour/Odeur	

Primary sample/Primaire Échantillon ID:		*Container/Conteneur*	*No.Qty*	*Preservative/Conservateur*
Duplicate sample /Double Échantillon ID:		Vial		HCl / other
Triplicate sample/Triple Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	1L Plastic	2	none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter/Eau Qualité Mètres:		150 ml Plastic		NaOH / none/ other
Dipper / Interface probe/ Sonde d'interface:		100 mL Plastic	1	HNO_3 / none / other

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTARISON Maxime

SIGNED Signé :

Supervisor

Superviseur Signé: Onisa MANITRANTA

JBS&G

RioTinto QIT Madagascar Minerals



SW07





SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 07
Client:	QMM Madagascar	Sample Date / Time (temps):	08/04/2021
Site Location/ Emplacement:	Rivière MMM (rate du point SW2)	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☒ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	706509	Water Width/Eau largeur (m):	
Northing Coord:	7239189	Water Depth/ Eau profondeur (m):	
Surface Water Sampling method:	Grab - Swing Pole / Other:		

Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☐	µS/cm @25°C	pH units	mV	°C		
	5,01	93	5,27		27,00		11:22
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	4	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none / other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes:

I ..... confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime

SIGNED Signé : Supervisor Superviseur Signé: ONJA MANITRIANTA

JBS&G

SW08

RioTinto **QIT Madagascar Minerals**







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 08
Client:	QMM Madagascar	Sample Date / Time (temps):	08/04/2021
Site Location/ Emplacement:	RIVIERE MMM (RTE S43)	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	706008	Water Width/Eau largeur (m):	
Northing Coord:	7239259	Water Depth/ Eau profondeur (m):	
Surface Water Sampling method:	Grab - Swing Pole Other:		

Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	5,40	86	5,50		25,64		10:45
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

			Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:			Vial		HCl / other
Duplicate sample /Double Échantillon ID:			250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:			1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO	ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO		250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter		150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:			100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:					

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime

SIGNED Signé : Rux

Supervisor
Superviseur Signé: ONJA MANITRANIRINA

JBS&G

SW09

RioTinto QIT Madagascar Minerals







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 09
Client:	QMM Madagascar	Sample Date / Time (temps):	08/04/2024
Site Location/ Emplacement:	Rivière MMM (côté du point S44)	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	705856	Water Width/Eau largeur (m):	
Northing Coord:	7239793	Water Depth/ Eau profondeur (m):	
Surface Water Sampling method:	Grab - Swing Pole Other:		

Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	11 S/cm @25°C	pH units	mV	°C		
	5,59	71	5,76		26,69		10:55
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	5	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic		HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime

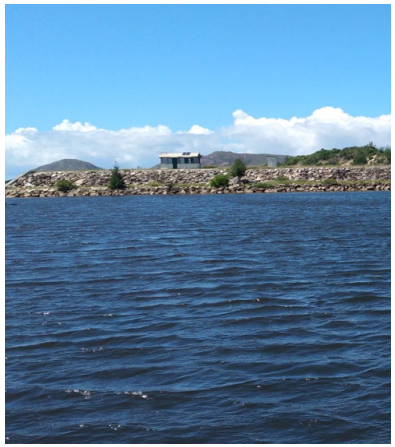
SIGNED Signé : Rux

Supervisor Superviseur Signé: Onika MANITRIANJA

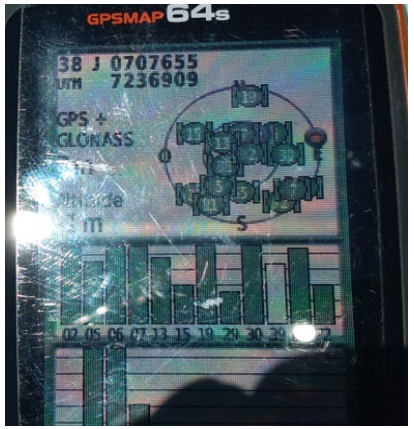
JBS&G

SW10

RioTinto **QIT Madagascar Minerals**







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 10
Client:	QMM Madagascar	Sample Date / Time (temps):	08/04/2021
Site Location/ Emplacement:	Lac Ambavarano à proximité digue	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☐ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	707655	Water Width/Eau largeur (m):	
Northing Coord:	7236909	Water Depth/ Eau profondeur (m):	
Surface Water Sampling method:	Grab - Swing Pole Other:		

Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	6,39	308	6,33		27,10		11:53

Turbidity/Turbidité	High / Medium / Low
Colour/Couleur:	
Odour/Odeur	

Primary sample/Primaire Échantillon ID:		
Duplicate sample /Double Échantillon ID:		
Triplicate sample/Triple Échantillon ID:		
Rinse blank/Rincer blanc ?	YES / NO	ID:
Samples filtered for metals? Filtré pour les métaux	YES / NO	
Filter Method:	0.45um stericup filter	
Water Quality Meter/Eau Qualité Mètres:		
Dipper / Interface probe/ Sonde d'interface:		

Container/Conteneur	No.Qty	Preservative/Conservateur
Vial		HCl / other
250ml Glass		H_2SO_4 / none / other
1L Plastic	2	none / other
500 ml Plastic		none / other
250 ml Plastic		H_2SO_4 / none / other
150 ml Plastic		NaOH / none / other
100 mL Plastic	1	HNO_3 / none / other

Notes:

I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime

SIGNED Signé : flux

Supervisor
Superviseur Signé: ONJA MANITRIONJA

JBS&G

RioTinto QIT Madagascar Minerals

SW11







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 11
Client:	QMM Madagascar	Sample Date / Time (temps):	08/04/21
Site Location/ Emplacement:	Riviera Méandres, Andrabaraha	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	704292	Water Width/Eau largeur (m):	
Northing Coord:	7236086	Water Depth/ Eau profondeur (m):	
Surface Water	Grab - Swing Pole		
Sampling method:	Other:		

Surface Water — Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	6.91	112	6.86		26.97		9:21
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	5	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I ..... confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime

SIGNED Signé : Rux

Supervisor Superviseur Signé: Onitsa MANITDIANZA

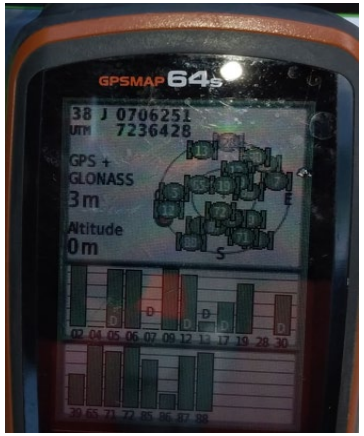
JBS&G

SW12

RioTinto QIT Madagascar Minerals







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 12
Client:	QMM Madagascar	Sample Date / Time (temps):	08/04/2021
Site Location/ Emplacement:	Lac Ambavasaro /Emanaba	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	0706251	Water Width/Eau largeur (m):	
Northing Coord:	7236428	Water Depth/ Eau profondeur (m):	
Surface Water	Grab - Swing Pole		
Sampling method:	Other:		

Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	7,21	383	8.04		26,50		9:53

Turbidity/Turbidité	High / Medium / Low		
Colour/Couleur:			
Odour/Odeur			

			Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:			Vial		HCl / other
Duplicate sample /Double Échantillon ID:			250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:			1L Plastic	5	none / other
Rinse blank/Rincer blanc ?	YES / NO	ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO		250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter		150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:			100 mL Plastic	1	HNO_3 / none / other
Upper / Interface probe/ Sonde d'interface:					

...es: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

...cked BY Vérifié : RAKOTOARISON Maxime

...NED Signé : Rux

Supervisor Onisa MAMITRIAMOA

Superviseur Signé:

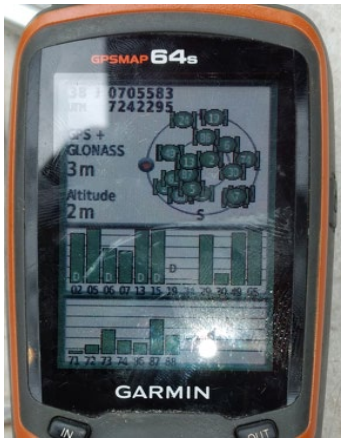
JBS&G

SW13

RioTinto **QIT Madagascar Minerals**







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 13
Client:	QMM Madagascar	Sample Date / Time (temps):	07/04/21
Site Location/ Emplacement:	Rive gauche rivière MMM	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ✓ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	705583	Water Width/Eau largeur (m):	
Northing Coord:	7242295	Water Depth/ Eau profondeur (m):	
Surface Water Sampling method:	Grab - Swing Pole Other:		

Surface Water — Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	6,70	56	6,01		25,17		12:20

Turbidity/Turbidité	High / Medium / Low
Colour/Couleur:	
Odour/Odeur	

			Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:			Vial		HCl / other
Duplicate sample /Double Échantillon ID:			250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:			1L Plastic		none / other
Rinse blank/Rincer blanc ?	YES / NO	ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO		250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter		150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:			100 mL Plastic		HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:					

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maximi

SIGNED Signé : Pmx

Supervisor
Superviseur Signé: Onisoa MANITR'ANTA

JBS&G

RioTinto QIT Madagascar Minerals

SW14







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 14
Client:	QMM Madagascar	Sample Date / Time (temps):	07/04/21 / 11h39
Site Location/ Emplacement:		Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	706484	Water Width/Eau largeur (m):	
Northing Coord:	7241452	Water Depth/ Eau profondeur (m):	
Surface Water Sampling method:	Grab - Swing Pole / Other:		

Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	5,01	58	6,01		25		
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

			Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:			Vial		HCl / other
Duplicate sample /Double Échantillon ID:			250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:			1L Plastic	02	none / other
Rinse blank/Rincer blanc ?	YES / NO	ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO		250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter		150 ml Plastic		NaOH / none / other
Water Quality Meter/Eau Qualité Mètres:			100 mL Plastic	01	HNO_3 / none / other
Dipper / interface probe/ Sonde d'interface:					

Notes: I _____ confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

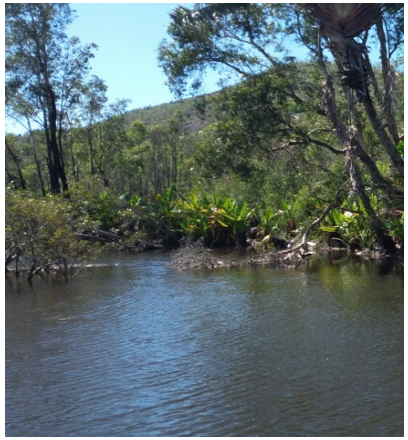
Checked BY Vérifié: RAKOTOARISON Maxime Supervisor Superviseur Signé: OHIPA MANITRAHJA

SIGNED Signé :

JBS&G

SW15

RioTinto QIT Madagascar Minerals







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 15
Client:	QMM Madagascar	Sample Date / Time (temps):	08/04/2021
Site Location/ Emplacement:	Rive gauche MMM / 2,5km sud village	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	706287	Water Width/Eau largeur (m):	
Northing Coord:	7240235	Water Depth/ Eau profondeur (m):	
Surface Water	Grab - Swing Pole		
Sampling method:	Other:		

Surface Water — Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	11 S/cm @25°C	pH units	mV	°C		
	5,77	62	5,85		26,13		11:08
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	5	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I.....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : RAKOTOARISON Maxime

SIGNED Signé : Rux

Supervisor Superviseur Signé: Onisoa MANITRIANJA

JBS&G

Calibrée enregistrer - Calibration Record

QIT Madagascar Minerals

Numéro de projet/Project Number		Fabricant	Série Nombre	
Équipement/Equipment ID	(WQM) OD		850045	DO OPEN
	pH	HANNA	SN 0507000 1101	HI 9811-5

Water Quality Meter/pH **Eau Qualité Mètres/pH**

	Norme d'étalonnage Calibration standard	Valeur pré-étalonnage Pre-calibration value	Valeur calibrée Calibrated value	Norme d'étalonnage Calibration standard	Valeur pré-étalonnage Pre-calibration value	Valeur calibrée Calibrated value
Température/Temperature (°C)	Compare against mercury thermometer					
Oxygène dissous/Dissolved Oxygen (%)	100% saturation	98%	100%	Zero (0%) (Si disponible)	21%	0%
pH	pH 7 (i.e 7)	6.8	7.0	pH 4 (i.e 4)	4.10	4.0
Conductivité/Conductivity (EC - mS/cm)	1413 mS/cm	1370	1390	4 mS/cm		
Redox (ORP - mV)	____mV sol^n					

calibration conductivité à 24°C (valeur cible = 1386)

I .....confirm that calibration was undertaken in addordance with the JBS&G Provided Calibration Procedure

Checked BY Vérifié : R. Maxime

SIGNED Signé : [signature]

DATE: 28/07/2021

Acceptable Meter Tolerance (calibration not required)	
pH	*± 0.1 pH unit*
Conductivité/Conductivity	*±2%*
Redox (ORP)	*±10%*
Température/Temperature	*± 0.5°C*
Oxygène dissous/Dissolved Oxygen Zero	*±0.1ppm*
Oxygène dissous/Dissolved Oxygen Saturation	*±0.5%*

Supervisor

Superviseur Signé: Onisa M.

[signature]

* Calibration solution traceability information is available upon request.

JBS&G

RioTinto QIT Madagascar Minerals

GW01







GROUNDWATER FIELD PARAMETERS/Eau Paramètres

JBS&G
QIT Madagascar Minerals

Project Number:			WELL ID	GW 01
Client:		QMM/Rio Tinto	Purging date:	
Site Location:		Fourchu	Sampling date:	28-07-21
Sampler Name/Nom(s):			Stick up/Hauteur de tuyau (m):	
Casing Diameter/Diamètre (mm):		25mm / 38mm / ____mm	A. Depth to SWL/Profondeur à l'eau (mBTOC):	
Well completion/Bien la tête:		Gatic / Standpipe	B. Well Depth/Profondeur (mBTOC):	
Cap type:		Envirocap / PVC End cap	Water Column Depth/Eau Colonne Profondeur (m)	B-A
Well condition:		Compromised / Good	Easting Coord:	705942
Sampling method:		Purge / FV	Northing Coord:	7236336

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	8.1	1040	7,1		24.0		16h30
Acceptable Variation	+/-10%	+/-5%	+/- 0.1pH unit	+/- 10mV	+/- 0.1 °C	Field results acceptable:	YES / NO

PURGE: Min. volume d'échantillonnage est 4 volumes de boitier or ou sécher deux fois - 1 volumes de boitier (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

PURGE: Min. sampling volume is 4 casing volumes or dry twice - 1 casing volume (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

Turbidity/Turbidité	High / Medium / Low	Odour/Odeur:	
Colour/Couleur:			

Primary sample/Primaire Échantillon ID:		*Container/Conteneur*	*No. Qty*	*Preservative/Conservateur*
Duplicate sample /Double Échantillon ID:		Vial		HCl / other
Triplicate sample/Triple Échantillon ID:		250ml Glass		none / Other / H_2SO_4
Rinse blank/Rincer blanc ?	YES / NO ID:	1L Plastic	5	none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	500 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		HNO_3 / none / other
Water Quality Meter/Eau Qualité Mètres:		200 ml Plastic		NaOH / none/ other
Dipper / Interface probe/ Sonde d'interface:		100 mL Plastic	1	HNO3 / none / other
Pump:	Waterra FV			

Notes: I ..... confirm that sampling was undertaken in addordance with the JBS&G Provided Groundwater Sampling Procedures

Checked BY Vérifié : R. Maxime

SIGNED Signé : ____

Supervisor

Superviseur Signé: ____ Onisa M

JBS&G

GW04

RioTinto QIT Madagascar Minerals







QIT Madagascar Minerals

GROUNDWATER FIELD PARAMETERS/Eau Paramètres

Project Number:			WELL ID	GW04
Client:		QMM/Rio Tinto	Purging date:	29-07-21
Site Location:		GW062	Sampling date:	
Sampler Name/Nom(s):			Stick up/Hauteur de tuyau (m):	
Casing Diameter/Diamètre (mm):		25mm / 38mm / ____mm	A. Depth to SWL/Profondeur à l'eau (mBTOC):	6,95
Well completion/Bien la tête:		Gatic / Standpipe	B. Well Depth/Profondeur (mBTOC):	19,13
Cap type:		Envirocap / PVC End cap	Water Column Depth/Eau Colonne Profondeur (m)	B-A 12,18
Well condition:		Compromised / Good	Easting Coord:	702650
Sampling method:		Purge / FV	Northing Coord:	7237804

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☒	µS/cm @25°C	pH units	mV	°C		9:18
	7,1	110	5,4		23,4		
	6,1	110	5,4		24,6		
	9,1	100	5,4		24,2		
	7,2	110	5,4		24,4		
	7,4	140	5,5		24,2		
Acceptable Variation	+/-10%	+/-5%	+/- 0.1pH unit	+/- 10mV	+/- 0.1 °C	Field results acceptable:	YES / NO

PURGE: Min. volume d'échantillonnage est 4 volumes de boîtier or ou sécher deux fois - 1 volumes de boîtier (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

PURGE: Min. sampling volume is 4 casing volumes or dry twice - 1 casing volume (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

Turbidity/Turbidité	High / Medium / Low	Odour/Odeur:	
Colour/Couleur:			

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		none / Other / H_2SO_4
Triplicate sample/Triple Échantillon ID:		1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		H_2SO_4 / none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		HNO_3 / none / other
Filter Method:	0.45um stericup filter	200 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic		HNO3 / none / other
Dipper / Interface probe/ Sonde d'interface:				
Pump:	Waterra FV			

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Groundwater Sampling Procedures

Checked BY Vérifié : R. Maxime

SIGNED Signé : [signature]

Supervisor Superviseur Signé: [signature] Onisa M

JBS&G

GW05

RioTinto QIT Madagascar Minerals







QIT Madagascar Minerals

GROUNDWATER FIELD PARAMETERS/Eau Paramètres

Project Number:			WELL ID	GW05
Client:		QMM/Rio Tinto	Purging date:	29/07/2021
Site Location:		GBH074	Sampling date:	
Sampler Name/Nom(s):			Stick up/Hauteur de tuyau (m):	
Casing Diameter/Diamètre (mm):		25mm / 38mm / ____mm	A. Depth to SWL/Profondeur à l'eau (mBTOC):	6,73
Well completion/Bien la tête:		Gatic / Standpipe	B. Well Depth/Profondeur (mBTOC):	14,73
Cap type:		Envirocap / PVC End cap	Water Column Depth/Eau Colonne Profondeur (m)	B-A 8,49
Well condition:		Compromised / Good	Easting Coord:	702552
Sampling method:		Purge / FV	Northing Coord:	7239002

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☒	µS/cm @25°C	pH units	mV	°C		
	8,8	60	5,4		23,6		10:10
	6,7	40	5,4		24,4		
	7,6	90	5,6		24,5		
	6,8	100	5,5		24,8		
	6.2	110	5,5		24.7		
Acceptable Variation	+/-10%	+/-5%	+/- 0.1pH unit	+/- 10mV	+/- 0.1 °C	Field results acceptable:	YES / NO

PURGE: Min. volume d'échantillonnage est 4 volumes de boîtier or ou sécher deux fois - 1 volumes de boîtier (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

PURGE: Min. sampling volume is 4 casing volumes or dry twice - 1 casing volume (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

Turbidity/Turbidité	High / Medium / Low	Odour/Odeur:	
Colour/Couleur:			

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		none / Other / H_2SO_4
Triplicate sample/Triple Échantillon ID:		1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		H_2SO_4 / none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		HNO_3 / none / other
Filter Method:	0.45um stericup filter	200 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic		HNO3 / none / other
Dipper / Interface probe/ Sonde d'interface:				
Pump:	Waterra FV			

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Groundwater Sampling Procedures

Checked BY Vérifié : R. Maxime

SIGNED Signé :

Supervisor
Superviseur Signé: [signature] Onitsa M.

JBS&G

GW07

RioTinto QIT Madagascar Minerals





QIT Madagascar Minerals

GROUNDWATER FIELD PARAMETERS/Eau Paramètres

Project Number:			WELL ID	GW07
Client:		QMM/Rio Tinto	Purging date:	29/07/2021
Site Location:		GW004	Sampling date:	
Sampler Name/Nom(s):			Stick up/Hauteur de tuyau (m):	
Casing Diameter/Diamètre (mm):		25mm / 38mm / ____mm	A. Depth to SWL/Profondeur à l'eau (mBTOC):	4,16
Well completion/Bien la tête:		Gatic / Standpipe	B. Well Depth/Profondeur (mBTOC):	14,98
Cap type:		Envirocap / PVC End cap	Water Column Depth/Eau Colonne Profondeur (m)	B-A 10,74.
Well condition:		Compromised / Good	Easting Coord:	703595
Sampling method:		Purge / FV	Northing Coord:	7237154

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☒	µS/cm @25°C	pH units	mV	°C		
	8.1	470	5.2		24,8		11:17
	7.4	390	5.2		25,7		
	7.4	420	5.1		25,4		
	7.4	460	5.2		25,2		
	8,1	490	5,1		26.0		
Acceptable Variation	+/-10%	+/-5%	+/- 0.1pH unit	+/- 10mV	+/- 0.1 °C	Field results acceptable:	YES / NO

PURGE: Min. volume d'échantillonnage est 4 volumes de boîtier or ou sécher deux fois - 1 volumes de boîtier (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

PURGE: Min. sampling volume is 4 casing volumes or dry twice - 1 casing volume (25mm wells) = 0.5 L/m - 1 casing volume (38mm wells) = 1.1 L/m

Turbidity/Turbidité	High / Medium / Low	Odour/Odeur:	
Colour/Couleur:			

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		none / Other / H_2SO_4
Triplicate sample/Triple Échantillon ID:		1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		H_2SO_4 / none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		HNO_3 / none / other
Filter Method:	0.45um stericup filter	200 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic		HNO3 / none / other
Dipper / Interface probe/ Sonde d'interface:				
Pump:	Waterra FV			

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Groundwater Sampling Procedures

Checked BY Vérifié : R. Maxime

SIGNED Signé : [signature]

Supervisor
Superviseur Signé: [signature] Onisa K.

JBS&G

RioTinto QIT Madagascar Minerals

SW01





SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 01
Client:	QMM Madagascar	Sample Date / Time (temps):	23/04/21 11:40
Site Location/ Emplacement:	Etang Ste Hinier	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☐ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	706818	Water Width/Eau largeur (m):	
Northing Coord:	7238368	Water Depth/ Eau profondeur (m):	
Surface Water Sampling method:	Grab - Swing Pole Other:		

Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☒ 8.4	µS/cm @25°C 290	pH units 4.9	mV	°C 22.0		11:40
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : R. Maxime

SIGNED Signé : Rux

Supervisor

Supervisseur Signé: Omisa M.

JBS&G

SW02

RioTinto **QIT Madagascar Minerals**







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	**LOCATION ID**	SW: 02
Client:	QMM Madagascar	**Sample Date / Time (temps):**	28.07.21
Site Location/ Emplacement:	sous le pont MMM	**Collected Sample Depth/Profondeur (m)**	
Sampler Name/Nom(s):		**Water Flow Direction/Eau Flux Direction :**	
Catchment Type/Chalandise:	River ☐ Lake ☐	**Water Speed/Eau vitesse (m/s):**	
Easting Coord:	704899	**Water Width/Eau largeur (m):**	
Northing Coord:	7242930	**Water Depth/ Eau profondeur (m):**	
Surface Water Sampling method:	Grab - Swing Pole Other:		

Surface Water **Surface Water ID:**

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	7,6	60	5,5		20.8		12h05
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

Primary sample/Primaire Échantillon ID:		*Container/Conteneur*	*No.Qty*	*Preservative/Conservateur*
Duplicate sample /Double Échantillon ID:		Vial		HCl / other
Triplicate sample/Triple Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	1L Plastic	2	none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter/Eau Qualité Mètres:		150 ml Plastic		NaOH / none/ other
Dipper / Interface probe/ Sonde d'interface:		100 mL Plastic	1	HNO_3 / none / other

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : R Maxime

SIGNED Signé :

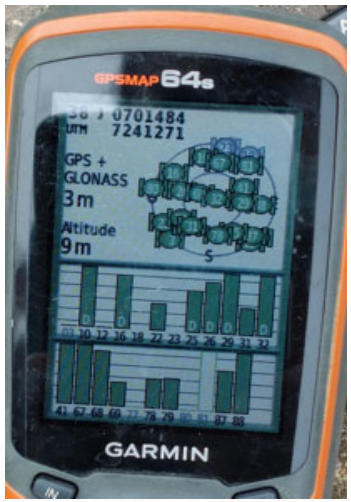
Supervisor
Superviseur Signé: Onitsa M

JBS&G

SW03

RioTinto **QIT Madagascar Minerals**





SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	**LOCATION ID**	SW: 03
Client:	QMM Madagascar	**Sample Date / Time (temps):**	28-07-21
Site Location/ Emplacement:	Riviere Enandrano	**Collected Sample Depth/Profondeur (m)**	
Sampler Name/Nom(s):		**Water Flow Direction/Eau Flux Direction :**	
Catchment Type/Chalandise:	River ☑ Lake ☐	**Water Speed/Eau vitesse (m/s):**	
Easting Coord:	701484	**Water Width/Eau largeur (m):**	
Northing Coord:	7241271	**Water Depth/ Eau profondeur (m):**	
Surface Water Sampling method:	Grab - Swing Pole Other:		

Surface Water **Surface Water ID:**

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	6.8	60	6.1		20.2		12h35
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

Primary sample/Primaire Échantillon ID:		*Container/Conteneur*	*No.Qty*	*Preservative/Conservateur*
Duplicate sample /Double Échantillon ID:		Vial		HCl / other
Triplicate sample/Triple Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	1L Plastic	2	none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter/Eau Qualité Mètres:		150 ml Plastic		NaOH / none/ other
Dipper / Interface probe/ Sonde d'interface:		100 mL Plastic	1	HNO_3 / none / other

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : R. Maxime

SIGNED Signé : Rux

Supervisor

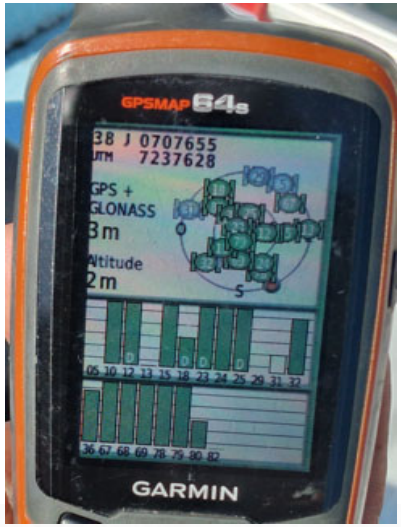
Superviseur Signé:

JBS&G

SW04

RioTinto **QIT Madagascar Minerals**





SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 04
Client:	QMM Madagascar	Sample Date / Time (temps):	30/09/21 9:35
Site Location/ Emplacement:	Embouchure MMM / Lac Amboty	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	707635	Water Width/Eau largeur (m):	
Northing Coord:	7237628	Water Depth/ Eau profondeur (m):	
Surface Water Sampling method:	Grab - Swing Pole Other:		

Surface Water — Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	7,8	80	5.0		21.0		9:35
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

Primary sample/Primaire Échantillon ID:		Container/Conteneur	No.Qty	Preservative/Conservateur
Duplicate sample /Double Échantillon ID:		Vial		HCl / other
Triplicate sample/Triple Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	1L Plastic	2	none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter/Eau Qualité Mètres:		150 ml Plastic		NaOH / none / other
Dipper / Interface probe/ Sonde d'interface:		100 mL Plastic	1	HNO_3 / none / other

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : R. Maxime

SIGNED Signé :

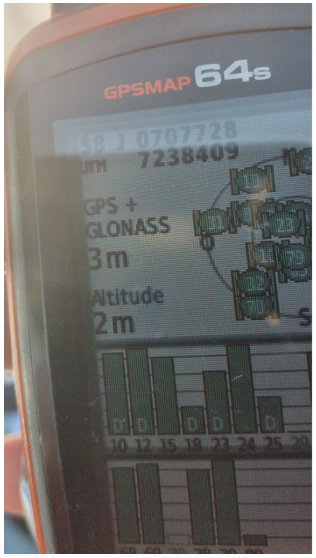
Supervisor
Superviseur Signé: Onilos M.

JBS&G

SW05

RioTinto **QIT Madagascar Minerals**





SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 05
Client:	QMM Madagascar	Sample Date / Time (temps):	30/07/21 9:16
Site Location/ Emplacement:	Rivière MMM	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☒ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	707728	Water Width/Eau largeur (m):	
Northing Coord:	7238409	Water Depth/ Eau profondeur (m):	
Surface Water Sampling method:	Grab - Swing Pole		
	Other:		

Surface Water — Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	9.6	10	4.9		22.1		9:16
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

Primary sample/Primaire Échantillon ID:		*Container/Conteneur*	*No.Qty*	*Preservative/Conservateur*
Duplicate sample /Double Échantillon ID:		Vial		HCl / other
Triplicate sample/Triple Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	1L Plastic	2	none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter/Eau Qualité Mètres:		150 ml Plastic		NaOH / none/ other
Dipper / Interface probe/ Sonde d'interface:		100 mL Plastic	1	HNO_3 / none / other

Notes: I ..... confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : R. Maxime

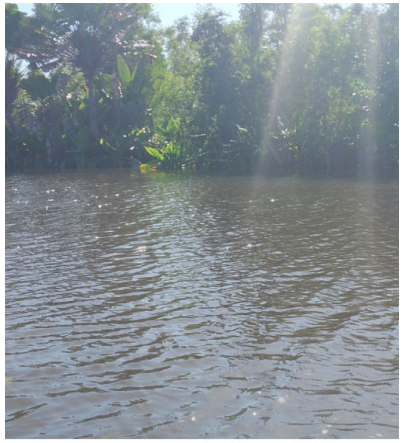
SIGNED Signé : ....

Supervisor
Superviseur Signé: ....

JBS&G

SW06

RioTinto QIT Madagascar Minerals





SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 06
Client:	QMM Madagascar	Sample Date / Time (temps):	30-07-21 10:15
Site Location/ Emplacement:	MMM, aval du décharge. Mine.	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	706631	Water Width/Eau largeur (m):	
Northing Coord:	723899	Water Depth/ Eau profondeur (m):	
Surface Water Sampling method:	Grab - Swing Pole Other:		

Surface Water

Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	8.3	80	4.9		23,4	2	10:15
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : R. Maxime

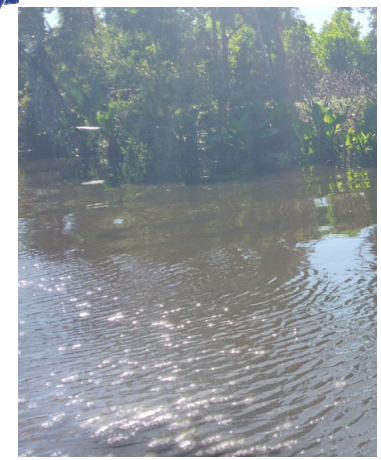
SIGNED Signé : Rux

Supervisor

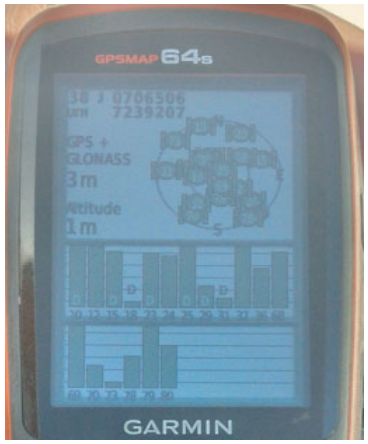
Superviseur Signé: [signature] Onifor M.

JBS&G

RioTinto QIT Madagascar Minerals



SW07



SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 07
Client:	QMM Madagascar	Sample Date / Time (temps):	30.07.21 10:35
Site Location/ Emplacement:	S42	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	706506	Water Width/Eau largeur (m):	
Northing Coord:	7239207	Water Depth/ Eau profondeur (m):	
Surface Water Sampling method:	Grab - Swing Pole Other:		

Surface Water

Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	9.2	80	5.0		25.8		10:35
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	4	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : R. Maxime

SIGNED Signé : [signature]

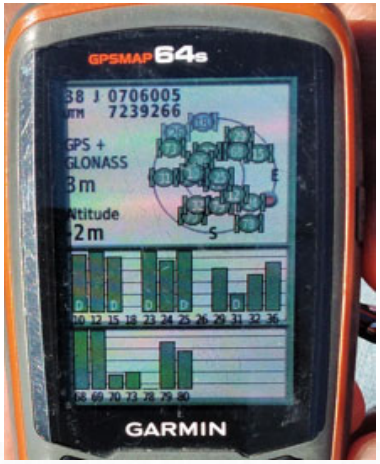
Supervisor Superviseur Signé: [signature] Onisoa M.

JBS&G

SW08

RioTinto **QIT Madagascar Minerals**





SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 08
Client:	QMM Madagascar	Sample Date / Time (temps):	30-07-21 / 10:30
Site Location/ Emplacement:	843	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	706005	Water Width/Eau largeur (m):	
Northing Coord:	7239266	Water Depth/ Eau profondeur (m):	
Surface Water Sampling method:	Grab / Swing Pole Other:		

Surface Water ID:

Volume Purged/Purgé L	Dissolved Oxygen/Oxygène dissous ☐ ppm ☑	Electrical Conductivity/Conductivité µS/cm @25°C	pH pH units	Redox Potential mV	Temperature °C	Comments	Time
	7,3	100	4,9		24,7		10:30
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : R. Maxime

SIGNED Signé : Rux

Supervisor
Superviseur Signé: Onilox M.

JBS&G

SW09

RioTinto QIT Madagascar Minerals





SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 09
Client:	QMM Madagascar	Sample Date / Time (temps):	30.07.21 / 11:14
Site Location/ Emplacement:	SW4	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	705854	Water Width/Eau largeur (m):	
Northing Coord:	7239790	Water Depth/ Eau profondeur (m):	
Surface Water	Grab - Swing Pole		
Sampling method:	Other:		

Surface Water

Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µ S/cm @25°C	pH units	mV	°C		
	7,9	50	6		25,6		11:14
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

			Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:			Vial		HCl / other
Duplicate sample /Double Échantillon ID:			250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:			1L Plastic	5	none / other
Rinse blank/Rincer blanc ?	YES / NO	ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO		250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter		150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:			100 ml Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:					

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : R. Maxime

SIGNED Signé : Rux

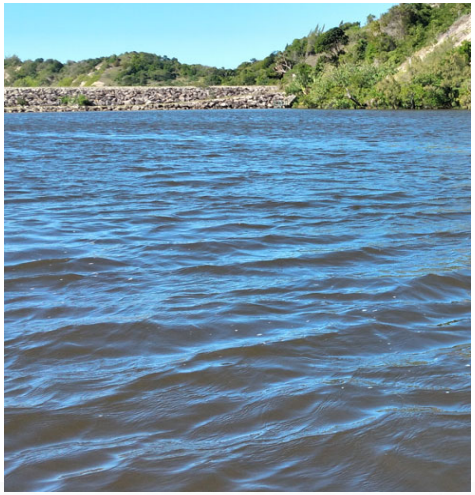
Supervisor

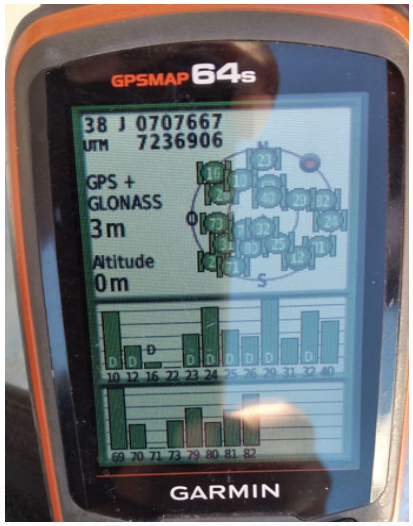
Superviseur Signé: [signature] Onika M

JBS&G

SW10

RioTinto QIT Madagascar Minerals





SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 10
Client:	QMM Madagascar	Sample Date / Time (temps):	30.07.21 / 12:10
Site Location/ Emplacement:	Lac Ambava proximité digue	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☒ Lake ☒	Water Speed/Eau vitesse (m/s):	
Easting Coord:	707667	Water Width/Eau largeur (m):	
Northing Coord:	7236906	Water Depth/ Eau profondeur (m):	
Surface Water Sampling method:	Grab - Swing Pole Other:		

Surface Water

Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☒	µS/cm @25°C	pH units	mV	°C		
	9.7	100	5,6		24.2		12:10
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : R. Maxime

SIGNED Signé : Rux

Supervisor

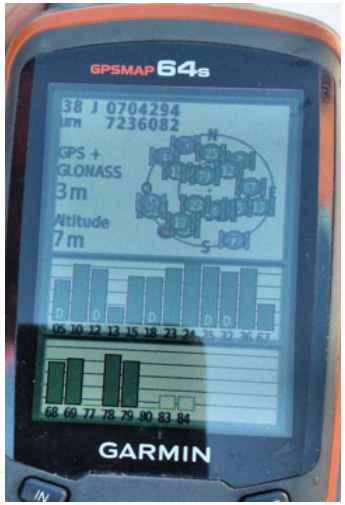
Superviseur Signé: [signature] Onisoa M.

JBS&G

RioTinto QIT Madagascar Minerals

SW11





SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 11
Client:	QMM Madagascar	Sample Date / Time (temps):	30/04/21 9:05
Site Location/ Emplacement:		Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):	Neandre Andrakarka.	Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	704294	Water Width/Eau largeur (m):	
Northing Coord:	7236082	Water Depth/ Eau profondeur (m):	
Surface Water Sampling method:	Grab - Swing Pole		
Surface Water	Other:		

Surface Water ID:

Volume Purged/Purgé L	Dissolved Oxygen/Oxygène dissous ☐ ppm ☑	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
	8,7	M S/cm @25°C 60	pH units 5.8	mV	°C 20.3		
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

			Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:			Vial		HCl / other
Duplicate sample /Double Échantillon ID:			250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:			1L Plastic	5	none / other
Rinse blank/Rincer blanc ?	YES / NO	ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO		250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter		150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:			100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:					

Notes: I ..... confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : Maxime R.

SIGNED Signé :

Supervisor
Superviseur Signé: Onilog M

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SW12

RioTinto QIT Madagascar Minerals





SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 12
Client:	QMM Madagascar	Sample Date / Time (temps):	30/07/21 9:25
Site Location/ Emplacement:	Emanaba Ambavarano	Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):		Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☐ Lake ☑	Water Speed/Eau vitesse (m/s):	
Easting Coord:	7062410	Water Width/Eau largeur (m):	
Northing Coord:	7236410	Water Depth/ Eau profondeur (m):	
Surface Water	Grab - Swing Pole		
Sampling method:	Other:		

Surface Water

Surface Water ID:

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	8.4	11.9	6,5		20.7		9:25
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	5	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I.....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : R. Maxime

SIGNED Signé : Rux

Supervisor

Superviseur Signé: [signature] Onika M

JBS&G

SW13

RioTinto **QIT Madagascar Minerals**







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	**LOCATION ID**	SW: 13
Client:	QMM Madagascar	**Sample Date / Time (temps):**	28-07-21
Site Location/ Emplacement:	Rive gauche MMM / 1,2km à l'aval	**Collected Sample Depth/Profondeur (m)**	
Sampler Name/Nom(s):		**Water Flow Direction/Eau Flux Direction :**	
Catchment Type/Chalandise:	River ☑ Lake ☐	**Water Speed/Eau vitesse (m/s):**	
Easting Coord:	705599	**Water Width/Eau largeur (m):**	
Northing Coord:	7242300	**Water Depth/ Eau profondeur (m):**	
Surface Water Sampling method:	Grab - Swing Pole Other:		

Surface Water **Surface Water ID:**

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	8,1	40	5,5		21,1		11h39
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	*No.Qty*	*Preservative/Conservateur*
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	2	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 mL Plastic		HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : R Maxime
SIGNED Signé : Rux

Supervisor
Superviseur Signé: Onisos M.

JBS&G

SW14

RioTinto **QIT Madagascar Minerals**







SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	**LOCATION ID**	SW: 14
Client:	QMM Madagascar	**Sample Date / Time (temps):**	28 07 2021 10 h 58
Site Location/ Emplacement:	A l'amont des points decharge Mine	**Collected Sample Depth/Profondeur (m)**	
Sampler Name/Nom(s):		**Water Flow Direction/Eau Flux Direction :**	
Catchment Type/Chalandise:	River ☑ Lake ☐	**Water Speed/Eau vitesse (m/s):**	
Easting Coord:	706487	**Water Width/Eau largeur (m):**	
Northing Coord:	7241458	**Water Depth/ Eau profondeur (m):**	
Surface Water Sampling method:	Grab - Swing Pole Other:		

Surface Water **Surface Water ID:**

Volume Purged/Purgé	Dissolved Oxygen/Oxygène dissous	Electrical Conductivity/Conductivité	pH	Redox Potential	Temperature	Comments	Time
L	☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	8.0	60	5,6		20.2		10:58
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

Primary sample/Primaire Échantillon ID:		***Container/Conteneur***	***No.Qty***	***Preservative/Conservateur***
Duplicate sample /Double Échantillon ID:		Vial		HCl / other
Triplicate sample/Triple Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	1L Plastic	2	none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	500 ml Plastic		none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter/Eau Qualité Mètres:		150 ml Plastic		NaOH / none/ other
Dipper / Interface probe/ Sonde d'interface:		100 mL Plastic	1	HNO_3 / none/ other

Notes: I .....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : R Maxime Rux

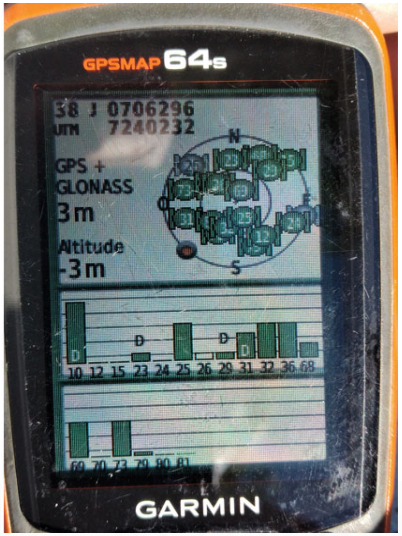
Supervisor Supervisseur Signé: Onisoa M.

JBS&G

SW15

RioTinto QIT Madagascar Minerals





SURFACE WATER PARAMETERS/Les eaux de surface Paramètres

Project Number/Numéro de projet:	57082	LOCATION ID	SW: 15
Client:	QMM Madagascar	Sample Date / Time (temps):	30.07.21 / 11h35
Site Location/ Emplacement:		Collected Sample Depth/Profondeur (m)	
Sampler Name/Nom(s):	Rive Gauche MMM	Water Flow Direction/Eau Flux Direction :	
Catchment Type/Chalandise:	River ☑ Lake ☐	Water Speed/Eau vitesse (m/s):	
Easting Coord:	706296	Water Width/Eau largeur (m):	
Northing Coord:	7240232	Water Depth/ Eau profondeur (m):	
Surface Water Sampling method:	Grab - Swing Pole Other:		

Surface Water ID:

Volume Purged/Purgé L	Dissolved Oxygen/Oxygène dissous ☐ ppm ☑	Electrical Conductivity/Conductivité µS/cm @25°C	pH pH units	Redox Potential mV	Temperature °C	Comments	Time
	6.3	100	5,6		25,7		11h35
Turbidity/Turbidité	High / Medium / Low						
Colour/Couleur:							
Odour/Odeur							

		Container/Conteneur	No.Qty	Preservative/Conservateur
Primary sample/Primaire Échantillon ID:		Vial		HCl / other
Duplicate sample /Double Échantillon ID:		250ml Glass		H_2SO_4 / none / other
Triplicate sample/Triple Échantillon ID:		1L Plastic	5	none / other
Rinse blank/Rincer blanc ?	YES / NO ID:	500 ml Plastic		none / other
Samples filtered for metals? Filtré pour les métaux	YES / NO	250 ml Plastic		H_2SO_4 / none / other
Filter Method:	0.45um stericup filter	150 ml Plastic		NaOH / none/ other
Water Quality Meter/Eau Qualité Mètres:		100 ml Plastic	1	HNO_3 / none / other
Dipper / Interface probe/ Sonde d'interface:				

Notes: I.....confirm that sampling was undertaken in addordance with the JBS&G Provided Surface Water Sampling Procedures

Checked BY Vérifié : Rux

SIGNED Signé : R. Maxime

Supervisor

Superviseur Signé: [signature] Onisoa M

SURFACE WATER & SEDIMENT FIELD PARAMETERS

Project Number:	57082.	**LOCATION ID**	MSP03
Client:	QMM	**Sample Date / Time:**	13/10/2022
Site Location:	MSP.	**Collected Sample Depth (m)**	
Field Sampler(s):	DO	**Water Flow Direction:**	
Catchment Type:		**Water Speed (m/s):**	
Catchment Width (m):		**Water Width (m):**	
Catchment Depth (m):		**Water Depth (m):**	
Surface Water Present:	YES / NO	**Pore Water Collected:**	YES / NO
Surface Water Sampling method:	Grab / Pump Other: _____	**Pore Water Sampling method:**	Push Point Sample & Peristaltic Pump Other: _____

Surface Water **Surface Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
1	7.75	384	4.0	—	26.8		10:30

Turbidity	High / Medium / Low	**Hydrocarbon sheen?**	YES / NO
Colour:	Brown / Dk Brown	**Odour:**	
~~Shaker Test:~~	~~YES / NO~~	~~Foam Observed~~	~~High / Medium / Low / None~~

~~**Pore Water**~~ Sal: 0.18 ~~**Pore Water ID:**~~ TSS: 22,000 mg/L

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	_S/cm @25°C	pH units	mV	°C		

Turbidity	High / Medium / Low	**Hydrocarbon sheen?**	YES / NO
Colour:		**Odour:**	
Shaker Test:	YES / NO	**Foam Observed**	High / Medium / Low / None

Sediment Sample **Sediment Sample ID:**

Depth	Method	Water	Primary Component: UCS	Clayey	Silty	Sandy	Gravelly	CLAY	SILT	SAND	GRAVEL	Plasticity / Grain Size	Colour	Secondary Comp.: %	Plasticity / Grain Size	Fines	Sand	Gravel	Minor Components: with	trace of	Moisture	Observations / Well Construction Details	Sampling and Field Testing: Sample ID & depth	PID (ppm)
0.5																								

Primary sample ID:	MSP_131022.	***Container***	***No.***	***Preservative***
Duplicate sample ID:		Vial		HCl / other
Triplicate sample ID:		250ml Glass		H_2SO_4 / none / other
Rinse blank after?	YES / NO ID:	1L Plastic	2	none / other
Samples filtered for metals?	YES / NO	500 ml Plastic	2.	none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter:		150 ml Plastic		NaOH / none/ other
Dipper / Interface probe:		100 mL Plastic		HNO_3 / none / other

Notes:

SURFACE WATER & SEDIMENT FIELD PARAMETERS

JBS&G

Project Number:	S70382	**LOCATION ID**	SP01
Client:	QMM.	**Sample Date / Time:**	13/10/22/ 11:45 -
Site Location:	Settlement Pond	**Collected Sample Depth (m)**	
Field Sampler(s):	DO	**Water Flow Direction:**	Background 270.
Catchment Type:		**Water Speed (m/s):**	
Catchment Width (m):		**Water Width (m):**	
Catchment Depth (m):		**Water Depth (m):**	
Surface Water Present:	YES / NO	**Pore Water Collected:**	YES / NO
Surface Water Sampling method:	Grab / Pump Other: _____	**Pore Water Sampling method:**	Push Point Sample & Peristaltic Pump Other: _____

Surface Water **Surface Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	7.2.	476	3.9.	—	27.29.		
Turbidity	High / (Medium) / Low			**Hydrocarbon sheen?**		YES / (NO)	
Colour: Sol	0.22			**Odour:** TSS		Effluent 104	
Shaker Test:	YES / NO			**Foam Observed**		High / Medium / Low / None	

Pore Water **Pore Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	__S/cm @25°C	pH units	mV	°C		
Turbidity	High / Medium / Low			**Hydrocarbon sheen?**		YES / NO	
Colour:	brown.			**Odour:**			
Shaker Test:	YES / NO			**Foam Observed**		High / Medium / Low / None	

Sediment Sample **Sediment Sample ID:**

Depth	Method	Water	Primary Component: UCS	Clayey	Silty	Sandy	Gravelly	CLAY	SILT	SAND	GRAVEL	Plasticity / Grain Size	Colour	Secondary Comp.: %	Plasticity / Grain Size	Fines	Sand	Gravel	Minor Components: with	trace of	Moisture	Observations / Well Construction Details	Sampling and Field Testing: Sample ID & depth	PID (ppm)
0.5																								

Primary sample ID:	SP01_131022.	***Container***	***No.***	***Preservative***
Duplicate sample ID:		Vial		HCl / other
Triplicate sample ID:		250ml Glass		H_2SO_4 / none / other
Rinse blank after?	YES / NO ID:	1L Plastic		none / other
Samples filtered for metals?	YES / NO	500 ml Plastic	2	none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter:		150 ml Plastic		NaOH / none/ other
Dipper / Interface probe:		100 mL Plastic		HNO_3 / none / other

Notes:

SURFACE WATER & SEDIMENT FIELD PARAMETERS

JBS&G

Project Number:	57082	**LOCATION ID**	MSW-1
Client:	QMM.	**Sample Date / Time:**	13/10/22 / 12:11
Site Location:	Mine Wetland 1.	**Collected Sample Depth (m)**	
Field Sampler(s):		**Water Flow Direction:**	R = 23,
Catchment Type:		**Water Speed (m/s):**	
Catchment Width (m):		**Water Width (m):**	
Catchment Depth (m):		**Water Depth (m):**	
Surface Water Present:	YES / NO	**Pore Water Collected:**	YES / NO
Surface Water Sampling method:	Grab / Pump Other: _____	**Pore Water Sampling method:**	Push Point Sample & Peristaltic Pump Other: _____

Surface Water **Surface Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☑	_S/cm @25°C	pH units	mV	°C		
	7.11	401	4.0	—	25.88		
Turbidity	High / Medium / (Low)		**Hydrocarbon sheen?**		YES / NO		
Colour: Sal	~~Grey~~ 0.19.		**Odour:**	TSS	67		
Shaker Test:	YES / NO		**Foam Observed**		High / Medium / Low / None		

Pore Water **Pore Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	_S/cm @25°C	pH units	mV	°C		
Turbidity	High / (Medium) / Low		**Hydrocarbon sheen?**		YES / (NO)		
Colour:			**Odour:**				
Shaker Test:	YES / NO		**Foam Observed**		High / Medium / Low / None		

Sediment Sample **Sediment Sample ID:**

Depth	Method	Water	Primary Component: UCS	Clayey	Silty	Sandy	Gravelly	CLAY	SILT	SAND	GRAVEL	Plasticity / Grain Size	Colour	Secondary Comp.: %	Plasticity / Grain Size	Fines	Sand	Gravel	Minor Components: with	trace of	Moisture	Observations / Well Construction Details	Sampling and Field Testing: Sample ID & depth	PID (ppm)
0.5																								

Primary sample ID:	MSW1_131022.	***Container***	***No.***	***Preservative***
Duplicate sample ID:		Vial		HCl / other
Triplicate sample ID:		250ml Glass		H_2SO_4 / none / other
Rinse blank after?	YES / NO ID:	1L Plastic		none / other
Samples filtered for metals?	YES / NO	500 ml Plastic	2	none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter:		150 ml Plastic		NaOH / none/ other
Dipper / Interface probe:		100 mL Plastic		HNO_3 / none / other

Notes:

SURFACE WATER & SEDIMENT FIELD PARAMETERS

JBS&G

Project Number:	57082.	**LOCATION ID**	MSW-2.
Client:	QMM.	**Sample Date / Time:**	13/10/22 / 12-38.
Site Location:	Mine Wetland	**Collected Sample Depth (m)**	
Field Sampler(s):		**Water Flow Direction:**	BIC 28.
Catchment Type:		**Water Speed (m/s):**	
Catchment Width (m):		**Water Width (m):**	
Catchment Depth (m):		**Water Depth (m):**	
Surface Water Present:	YES / NO	**Pore Water Collected:**	YES / NO
Surface Water Sampling method:	Grab / Pump Other: _____	**Pore Water Sampling method:**	Push Point Sample & Peristaltic Pump Other: _____

Surface Water **Surface Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☑	µS/cm @25°C	pH units	mV	°C		
	7.82.	658	3.3	—	26.99		
Turbidity	High / Medium / (Low)		**Hydrocarbon sheen?**		YES / (NO)		
Colour: Sol	0.31		**Odour:** TURB		0.		
Shaker Test:	YES / NO		**Foam Observed**		High / Medium / Low / None		

Pore Water **Pore Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	__S/cm @25°C	pH units	mV	°C		
Turbidity	High / Medium / (Low)		**Hydrocarbon sheen?**		YES / NO		
Colour: —	clear		**Odour:**				
Shaker Test:	YES / NO		**Foam Observed**		High / Medium / Low / None		

Sediment Sample **Sediment Sample ID:**

Depth	Method	Water	Primary Component: UCS	Clayey	Silty	Sandy	Gravelly	CLAY	SILT	SAND	GRAVEL	Plasticity / Grain Size	Colour	Secondary Comp.: %	Plasticity / Grain Size	Fines	Sand	Gravel	Minor Components: with	trace of	Moisture	Observations / Well Construction Details	Sampling and Field Testing: Sample ID & depth	PID (ppm)
0.5																								

Primary sample ID:	MSW2-131022.	***Container***	***No.***	***Preservative***
Duplicate sample ID:		Vial		HCl / other
Triplicate sample ID:		250ml Glass		H_2SO_4 / none / other
Rinse blank after?	YES / NO ID:	1L Plastic		none / other
Samples filtered for metals?	YES / NO	500 ml Plastic	2	none / other
Filter Method:	0.45um stericup filter	250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter:		150 ml Plastic		NaOH / none/ other
Dipper / Interface probe:		100 mL Plastic		HNO_3 / none / other

Notes:

SURFACE WATER & SEDIMENT FIELD PARAMETERS

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Project Number:	57082.	**LOCATION ID**	MSW-3
Client:	QMM	**Sample Date / Time:**	13/10/22. / 13.07.
Site Location:	Paddock 8	**Collected Sample Depth (m)**	
Field Sampler(s):	DO.	**Water Flow Direction:** B	49.
Catchment Type:		**Water Speed (m/s):**	
Catchment Width (m):		**Water Width (m):**	
Catchment Depth (m):		**Water Depth (m):**	
Surface Water Present:	YES / NO	**Pore Water Collected:**	YES / NO
Surface Water Sampling method:	Grab / Pump Other: _____	**Pore Water Sampling method:**	Push Point Sample & Peristaltic Pump Other: _____

Surface Water **Surface Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☑	_S/cm @25°C	pH units	mV	°C		
	7.18	644	3.7	—	26.77		
Turbidity	High / (Medium) / Low		**Hydrocarbon sheen?**			YES / (NO)	
Colour: S	0-30		**Odour:** TSS			1410	
Shaker Test:	YES / NO		**Foam Observed**			High / Medium / Low / None	

Pore Water **Pore Water ID:**

Volume Purged	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Comments	Time
L	% ☐ ppm ☐	_S/cm @25°C	pH units	mV	°C		
Turbidity	High / Medium / Low		**Hydrocarbon sheen?**			YES / NO	
Colour:			**Odour:**				
Shaker Test:	YES / NO		**Foam Observed**			High / Medium / Low / None	

Sediment Sample **Sediment Sample ID:**

Depth	Method	Water	Primary Component: UCS	Clayey	Silty	Sandy	Gravelly	CLAY	SILT	SAND	GRAVEL	Plasticity / Grain Size	Colour	Secondary Comp.: %	Plasticity / Grain Size	Fines	Sand	Gravel	Minor Components: with	trace of	Moisture	Observations / Well Construction Details	Sampling and Field Testing: Sample ID & depth	PID (ppm)
0.5																								

Primary sample ID:	MSW3_131022.		***Container***	***No.***	***Preservative***
Duplicate sample ID:			Vial		HCl / other
Triplicate sample ID:			250ml Glass		H_2SO_4 / none / other
Rinse blank after?	YES / NO ID:		1L Plastic		none / other
Samples filtered for metals?	YES / NO		500 ml Plastic	2	none / other
Filter Method:	0.45um stericup filter		250 ml Plastic		H_2SO_4 / none / other
Water Quality Meter:			150 ml Plastic		NaOH / none/ other
Dipper / Interface probe:			100 mL Plastic		HNO_3 / none / other

Notes: _____

A4 Attachment 3 – Laboratory Analytical Results

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CERTIFICATE OF ANALYSIS

Certificate Number:	SARAD-100720 RN
Company / Organisation:	Mathieu Messeiller, JBS&G
Client Identification:	Madagascar - Liquors
AM Identification:	MAD-160120-1 to 25
AM Request Number:	2000174
Analysis Requested:	Radionuclides by Gamma and Alpha Spectrometry

Twenty five (25) samples of water were received on 16 January 2020. None of the samples received had been filtered or acidified. All samples were acidified (pH 1[1]) upon receipt and left for three days to equilibrate.

Five (5) of the samples received (IDs 1000004 to 100008) contained a significant amount of sediment. For each sample, after extracting a 20 mL aliquot for ICPMS analysis, the remaining liquor was filtered through a 1.5 µm hardened ashless filter paper and retained. The solid on the filter was transferred to a Teflon beaker. The filter paper with remaining solid was ashed and the residue transferred to the same Teflon beaker. The solid/ash residue was digested in hydrofluoric acid followed by aqua regia according to ANSTO Minerals controlled document I-5942 Dissolution of Solid Samples for Radiochemical Analysis. The digest liquors were then recombined with the respective retained filtrates prior to assay.

Gamma spectrometry for radionuclides in the naturally occurring uranium-238, uranium-235 and thorium-232 decay chains in five (5) selected samples (1000001, 1000017, 1000019, 1000020, 1000023) was carried out according to ANSTO Minerals controlled documents AM-I-052-002 Preparation of Solutions for Gamma Ray Analysis, AM-I-052-004 Counting Procedure using Maestro and AM-I-052-006 Gamma Spectrum Analysis of Liquid Samples using GammaVision.

Alpha spectrometry for thorium isotopes and radium-226 in all samples, and for uranium isotopes and polonium-210 in the selected samples, was carried out according to ANSTO Minerals controlled document I-4303 Radiochemical Analysis for U, Th, Pb and Po.

The gamma and alpha spectrometry results are given in Table 1 and Table 2, respectively.

[1] 3 mL of concentrated nitric acid per 1 L of water is approximately pH 1.

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Dr Sue Brown, Senior Radiochemist **Date: 13 October 2020**

Table 1 – Radionuclide Concentrations in Selected Samples – Gamma Spectrometry (Bq/L)

Client ID	1000001 GW 01	1000017 SW 9	1000019 SW 11	1000020 SW 12	1000023 SW 15
ANSTO ID: SARAD-160120-	1	17	19	20	23
Sample Volume (mL)	1010	987	883	1030	956
U-238 Decay Chain					
U-238 (a)	< 0.33	< 0.41	< 0.39	< 0.41	< 0.32
Th-230	< 1.1	< 1.0	< 2.9	< 2.3	< 2.4
Ra-226 (b)	< 0.06	< 0.04	< 0.05	< 0.05	< 0.05
Pb-210	< 0.61	< 0.57	< 0.51	< 0.57	< 0.50
U-235 Decay Chain					
U-235	< 0.16	< 0.13	< 0.19	< 0.16	< 0.07
Pa-231	< 0.42	< 0.25	< 0.69	< 0.53	< 0.44
Ac-227 (c)	< 0.09	< 0.05	< 0.08	< 0.08	< 0.09
Th-232 Decay Chain					
Ra-228 (d)	< 0.11	< 0.05	< 0.09	< 0.09	< 0.08
Th-228 (e)	< 0.03	< 0.02	< 0.03	< 0.02	< 0.02
K-40	< 1.1	< 0.46	< 0.70	< 0.71	< 0.69

(a) Based on the measured concentration of Th-234, assuming secular equilibrium.

(b) Based on the measured concentrations of Pb-214 and Bi-214, assuming secular equilibrium.

(c) Based on the measured concentration of Th-227, assuming secular equilibrium.

(d) Based on the measured concentration of Ac-228, assuming secular equilibrium.

(e) Based on the measured concentration of Pb-212, assuming secular equilibrium.

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Table 2 – Radionuclide Concentrations in Water Samples – Alpha Spectrometry (Bq/L)

Client ID		ANSTO ID	U-238	U-234	U-235	U-235 calc (a)	Th-230	Ra-226	Po-210	Th-232	Th-228	Ra-228
1000001	GW 01	MAD-160120-1	0.014 ± 0.002	0.016 ± 0.002	< 0.002	0.0007 ± 0.0001	< 0.003 (b)	0.0060 ± 0.0009	0.011 ± 0.002	< 0.003 (b)	< 0.003 (b)	not requested
1000002	GW 02	MAD-160120-2	not requested	not requested	not requested	not requested	< 0.002	0.0044 ± 0.0007	not requested	< 0.002	< 0.002	0.0026 ± 0.0016
1000003	GW 03	MAD-160120-3	not requested	not requested	not requested	not requested	< 0.002	0.0024 ± 0.0004	not requested	< 0.002	< 0.002	not requested
1000004	GW 04	MAD-160120-4	not requested	not requested	not requested	not requested	0.015 ± 0.007	0.22 ± 0.02	not requested	0.035 ± 0.014	0.030 ± 0.012	not requested
1000005	GW 05	MAD-160120-5	not requested	not requested	not requested	not requested	0.005 ± 0.002	0.17 ± 0.01	not requested	0.023 ± 0.008	0.020 ± 0.007	0.20 ± 0.02
1000006	GW 06	MAD-160120-6	not requested	not requested	not requested	not requested	0.05 ± 0.03	0.42 ± 0.03	not requested	0.026 ± 0.014	0.025 ± 0.013	not requested
1000007	GW 07	MAD-160120-7	not requested	not requested	not requested	not requested	0.06 ± 0.04	0.33 ± 0.03	not requested	0.28 ± 0.16	0.23 ± 0.13	not requested
1000008	DUP 01	MAD-160120-8	not requested	not requested	not requested	not requested	0.004 ± 0.002	0.34 ± 0.03	not requested	0.049 ± 0.019	0.021 ± 0.009	not requested
1000009	SW 1	MAD-160120-9	not requested	not requested	not requested	not requested	< 0.002	0.007 ± 0.001	not requested	0.0035 ± 0.0014	0.0020 ± 0.0009	not requested
1000010	SW 2	MAD-160120-10	not requested	not requested	not requested	not requested	< 0.002	0.011 ± 0.002	not requested	< 0.002	< 0.002	not requested
1000011	SW 3	MAD-160120-11	not requested	not requested	not requested	not requested	< 0.002	0.0015 ± 0.0003	not requested	< 0.002	< 0.002	not requested
1000012	SW 4	MAD-160120-12	not requested	not requested	not requested	not requested	< 0.002	0.014 ± 0.002	not requested	< 0.002	< 0.002	not requested
1000013	SW 5	MAD-160120-13	not requested	not requested	not requested	not requested	< 0.002	0.0060 ± 0.0007	not requested	< 0.002	< 0.002	not requested
1000014	SW 6	MAD-160120-14	not requested	not requested	not requested	not requested	0.0009 ± 0.0005	0.011 ± 0.002	not requested	0.0014 ± 0.0006	0.0006 ± 0.0003	not requested
1000015	SW 7	MAD-160120-15	not requested	not requested	not requested	not requested	< 0.002	0.0053 ± 0.0008	not requested	< 0.002	< 0.002	not requested
1000016	SW 8	MAD-160120-16	not requested	not requested	not requested	not requested	< 0.002	< 0.002	not requested	< 0.002	0.0018 ± 0.0014	not requested
1000017	SW 9	MAD-160120-17	0.0033 ± 0.0007	0.0042 ± 0.0008	< 0.002	0.00015 ± 0.00003	< 0.003 (b)	0.0084 ± 0.0009	0.004 ± 0.001	< 0.003 (b)	< 0.003 (b)	not requested
1000018	SW 10	MAD-160120-18	not requested	not requested	not requested	not requested	< 0.002	0.0052 ± 0.0008	not requested	< 0.002	< 0.002	not requested
1000019	SW 11	MAD-160120-19	0.005 ± 0.001	0.005 ± 0.001	< 0.002	0.00023 ± 0.00005	< 0.004 (b)	0.0094 ± 0.0009	0.005 ± 0.001	< 0.004 (b)	< 0.004 (b)	not requested
1000020	SW 12	MAD-160120-20	0.005 ± 0.001	0.006 ± 0.002	< 0.002	0.00023 ± 0.00005	0.003 ± 0.002	< 0.003	0.004 ± 0.001	< 0.003 (b)	< 0.003 (b)	not requested
1000021	SW 13	MAD-160120-21	not requested	not requested	not requested	not requested	< 0.002	0.0021 ± 0.0004	not requested	< 0.002	< 0.002	not requested
1000022	SW 14	MAD-160120-22	not requested	not requested	not requested	not requested	< 0.002	0.0021 ± 0.0004	not requested	< 0.002	< 0.002	not requested
1000023	SW 15	MAD-160120-23	0.0032 ± 0.0006	0.0035 ± 0.0006	< 0.002	0.00015 ± 0.00003	< 0.003 (b)	0.0019 ± 0.0003	0.005 ± 0.001	< 0.003 (b)	< 0.003 (b)	not requested
1000024	DUP 2	MAD-160120-24	not requested	not requested	not requested	not requested	< 0.002	0.0077 ± 0.0008	not requested	< 0.002	< 0.002	not requested
1000025	WMC 703A	MAD-160120-25	not requested	not requested	not requested	not requested	< 0.002	0.083 ± 0.008	not requested	< 0.002	0.016 ± 0.007	not requested
		Detection Limit	0.002	0.002	0.002	0.00009	0.002	0.002	0.002	0.002	0.002	0.002

(a) Calculated from the measured alpha spectrometry U-238 concentration assuming natural abundance. (b) Detection limit increased due to reduced sample volume.

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CERTIFICATE OF ANALYSIS

Certificate Number:	SARAD-240122 RN
Company / Organisation:	Mathieu Messeiller, JBS&G
Client Identification:	Madagascar - Waters
AM Identification:	MAD-130921-1 to 24
AM Request Numbers:	2101850 and 2102223
Analysis Requested:	Radionuclides by Gamma and Alpha Spectrometry and ICPMS

Twenty four (24) samples of water from the Round 2 sampling program were received on 13 September 2021. None of the samples received had been filtered or acidified. All samples were acidified (pH 1[1]) upon receipt and left for three days to equilibrate prior to filtration.

Five selected samples (GW08, SW09, SW 11, SW12, SW15) were analysed for the full radionuclide suite. Uranium (U-238, U-234, U-235) and thorium (Th-232, Th-230, Th-228, Th-227) isotopes and Po-210 were analysed by alpha spectrometry according to ANSTO Minerals controlled document I-4303 Radiochemical Analysis for U, Th, Pb and Po. Radium-226 was analysed by alpha spectrometry according to ANSTO Minerals controlled document I-4304 Radiochemical Analysis for Radium. Lead-210 and Ra-228 were analysed by gamma spectrometry according to ANSTO Minerals controlled documents AM-I-052-002 Preparation of Solutions for Gamma Ray Analysis, AM-I-052-004 Counting Procedure using Maestro and AM-I-052-006 Gamma Spectrum Analysis of Liquid Samples using GammaVision.

The remaining nineteen (19) samples were all analysed for thorium isotopes and Ra-226, while selected samples (GW03, SW13) were analysed for Po-210, by alpha spectrometry, as described above.

All samples were analysed for U and Th by inductively coupled plasma mass spectrometry (ICPMS) by ANSTO's Nuclear Science and Technology group according to ANSTO controlled document I-8143 Agilent Triple Quadrupole ICPMS.

The results for the samples for full radionuclide assay are given in Table 1 and those for alpha spectrometry only and ICPMS in Table 2.

S. A. Brown

Dr Sue Brown, Senior Radiochemist **Date: 24 January 2022**

[1] 3 mL of concentrated nitric acid per 1 L of water is approximately pH 1.

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Table 1 – Full Radionuclide Analysis for Selected Samples (Bq/L)

Client ID	GW08	SW09	SW11	SW12	SW15
Sampling Date	04-Dec-20	19-Nov-20	19-Nov-20	19-Nov-20	19-Nov-20
ANSTO ID: MAD-130921-	8	18	20	21	24
Sample Volume (mL)	1907	2885	2586	2394	3082
U-238 Decay Chain					
U-238 (a)	0.0017 ± 0.0004	0.0005 ± 0.0002	0.0009 ± 0.0003	0.0014 ± 0.0004	< 0.002
U-234 (a)	0.0014 ± 0.0004	0.0002 ± 0.0001	0.0009 ± 0.0003	0.0014 ± 0.0004	0.0002 ± 0.0001
Th-230 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Ra-226 (a)	0.0029 ± 0.0007	0.0049 ± 0.0015	0.0017 ± 0.0006	0.0022 ± 0.0006	0.0006 ± 0.0003
Pb-210 (b)	< 0.11	< 0.11	< 0.08	< 0.16	< 0.08
Po-210 (a)	0.0020 ± 0.0009	< 0.002	0.0008 ± 0.0004	0.0003 ± 0.0002	0.0006 ± 0.0004
Po-210 Count Date	22-Oct-21	22-Oct-21	27-Oct-21	27-Oct-21	27-Oct-21
U-235 Decay Chain					
U-235 (c)	0.00008 ± 0.00002	0.000023 ± 0.000009	0.000042 ± 0.000014	0.00007 ± 0.00002	< 0.002
Pa-231 (b)	< 0.09	< 0.10	< 0.04	< 0.09	< 0.07
Ac-227 (d)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Th-227 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Th-232 Decay Chain					
Th-232 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Ra-228 (e)	< 0.05	< 0.03	< 0.02	< 0.02	< 0.02
Th-228 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Th-228 Count Date	15-Oct-21	15-Oct-21	15-Oct-21	20-Oct-21	20-Oct-21
K-40 (b)	< 0.58	< 0.29	< 0.42	< 0.15	< 0.13

(a) Alpha spectrometry.

(b) Gamma spectrometry.

(c) Below alpha spectrometry detection limit of 0.002 Bq/L. Calculated from the measured U-238 concnetration.

(d) Based on the measured concentration of Th-227, assuming secular equilibrium.

(e) Gamma spectrometry. Based on the measured concentration of Ac-228, assuming secular equilibrium.

Table 2 – Radionuclide Concentrations in Water Samples (Bq/L)

Client ID	GW021	GW022	GW03	GW04	GW05	GW06	GW07	SW01	SW02	SW03
Sampling Date	27-Nov-20	27-Nov-20	27-Nov-20	26-Nov-20	27-Nov-20	27-Nov-20	26-Nov-20	19-Nov-20	19-Nov-20	19-Nov-20
ANSTO ID: MAD-130921-	1	2	3	4	5	6	7	9	10	11
U-238 Decay Chain										
U-238 (a)	< 0.001	< 0.001	< 0.001	0.033 ± 0.003	0.014 ± 0.001	0.10 ± 0.01	0.0049 ± 0.0005	< 0.001	< 0.001	< 0.001
Th-230 (b)	< 0.001	< 0.001	< 0.001	0.0007 ± 0.0004	< 0.001	0.0007 ± 0.0004	0.0028 ± 0.0019	< 0.001	< 0.001	< 0.001
Ra-226 (b)	< 0.001	0.0005 ± 0.0002	0.0009 ± 0.0002	0.053 ± 0.005	0.020 ± 0.002	0.16 ± 0.02	0.074 ± 0.006	0.015 ± 0.002	0.0007 ± 0.0002	< 0.001
Po-210 (b)	not requested	not requested	0.0046 ± 0.0016	not requested	not requested	not requested	not requested	not requested	not requested	not requested
Po-210 Count Date			01-Nov-21							
U-235 Decay Chain										
Th-227 (b)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Th-232 Decay Chain										
Th-232 (a)	< 0.002	< 0.002	< 0.002	0.0017 ± 0.0007	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Th-232 (b)	< 0.001	< 0.001	< 0.001	0.0017 ± 0.0007	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Th-228 (b)	< 0.001	< 0.001	< 0.001	0.0015 ± 0.0007	0.0006 ± 0.0004	< 0.001	0.0029 ± 0.0019	< 0.001	< 0.001	< 0.001
Th-228 Count Date	01-Oct-21	01-Oct-21	01-Oct-21	01-Oct-21	08-Oct-21	08-Oct-21	06-Oct-21	06-Oct-21	06-Oct-21	06-Oct-21

(a) ICPMS.

(b) Alpha spectrometry.

continued overleaf

Table 2 (continued) – Radionuclide Concentrations in Water Samples (Bq/L)

Client ID	SW04	SW05	SW06	SW071	SW072	SW08	SW10	SW13	SW14
Sampling Date	19-Nov-20	19-Nov-20	19-Nov-20	19-Nov-20	19-Nov-20	19-Nov-20	19-Nov-20	19-Nov-20	19-Nov-20
ANSTO ID: MAD-130921-	12	13	14	15	16	17	19	22	23
U-238 Decay Chain									
U-238 (a)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Th-230 (b)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Ra-226 (b)	0.0014 ± 0.0003	0.0007 ± 0.0002	0.0005 ± 0.0001	0.0005 ± 0.0002	0.0010 ± 0.0003	0.0010 ± 0.0003	0.0012 ± 0.0003	0.0004 ± 0.0001	0.0009 ± 0.0003
Po-210 (b)	not requested	not requested	not requested	not requested	not requested	not requested	not requested	0.0031 ± 0.0019	not requested
Po-210 Count Date								03-Nov-21	
U-235 Decay Chain									
Th-227 (b)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Th-232 Decay Chain									
Th-232 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Th-232 (b)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Th-228 (b)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Th-228 Count Date	06-Oct-21	08-Oct-21	08-Oct-21	08-Oct-21	08-Oct-21	08-Oct-21	08-Oct-21	13-Oct-21	13-Oct-21

(a) ICPMS.

(b) Alpha spectrometry.

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CERTIFICATE OF ANALYSIS

Certificate Number:	SARAD-250122 RN
Company / Organisation:	Mathieu Messeiller, JBS&G
Client Identification:	Madagascar - Waters
AM Identification:	MAD-100821-1 to 20
AM Request Numbers:	2101576 and 2102223
Analysis Requested:	Radionuclides by Gamma and Alpha Spectrometry and ICPMS

Twenty (20) samples of water from the Round 3 sampling program were received on 10 August 2021. None of the samples received had been filtered or acidified. All samples were acidified (pH 1[1]) upon receipt and left for three days to equilibrate prior to filtration.

Five selected samples (GW01, SW09, SW11, SW12, SW15) were analysed for the full radionuclide suite. Uranium (U-238, U-234, U-235) and thorium (Th-232, Th-230, Th-228, Th-227) isotopes and Po-210 were analysed by alpha spectrometry according to ANSTO Minerals controlled document I-4303 Radiochemical Analysis for U, Th, Pb and Po. Radium-226 was analysed by alpha spectrometry according to ANSTO Minerals controlled document I-4304 Radiochemical Analysis for Radium. Lead-210 and Ra-228 were analysed by gamma spectrometry according to ANSTO Minerals controlled documents AM-I-052-002 Preparation of Solutions for Gamma Ray Analysis, AM-I-052-004 Counting Procedure using Maestro and AM-I-052-006 Gamma Spectrum Analysis of Liquid Samples using GammaVision.

The remaining fifteen (15) samples were all analysed for thorium isotopes and Ra-226, while selected samples (GW03, SW13) were analysed for Po-210, by alpha spectrometry, as described above. The samples were analysed for U by inductively coupled plasma mass spectrometry (ICPMS) at Eurofins, Lane Cove (Sydney).

The results for the samples for full radionuclide assay are given in Table 1 and those for alpha spectrometry only and ICPMS in Table 2.

Dr Sue Brown, Senior Radiochemist **Date: 25 January 2022**

[1] 3 mL of concentrated nitric acid per 1 L of water is approximately pH 1.

Table 1 – Full Radionuclide Analysis for Selected Round 3 Water Samples (Bq/L)

Client ID	GW01	SW09	SW11	SW12	SW15
Sampling Date	03-Apr-21	08-Apr-21	08-Apr-21	08-Apr-21	08-Apr-21
ANSTO ID: MAD-100821-	1	12	14	15	18
Sample Volume (mL)	4820	4955	4923	4820	4785
U-238 Decay Chain					
U-238 (a)	0.017 ± 0.002	0.0002 ± 0.0001	0.0002 ± 0.0001	0.0016 ± 0.0004	0.0008 ± 0.0003
U-234 (a)	0.021 ± 0.002	0.0003 ± 0.0001	0.0002 ± 0.0001	0.0018 ± 0.0005	0.0007 ± 0.0003
Th-230 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Ra-226 (a)	0.0008 ± 0.0002	0.0011 ± 0.0003	0.0004 ± 0.0001	0.0020 ± 0.0005	0.0003 ± 0.0001
Pb-210 (b)	< 0.10	< 0.06	< 0.19	< 0.06	< 0.16
Po-210 (a)	0.012 ± 0.001	0.0051 ± 0.0008	0.0075 ± 0.0011	0.0035 ± 0.0009	0.0038 ± 0.0007
Po-210 Count Date	20-Aug-21	20-Aug-21	20-Aug-21	25-Aug-21	20-Aug-21
U-235 Decay Chain					
U-235 (c)	0.00079 ± 0.00009	0.000009 ± 0.000005	0.000009 ± 0.000005	0.00007 ± 0.00002	0.00004 ± 0.00001
Pa-231 (b)	< 0.08	< 0.05	< 0.07	< 0.04	< 0.10
Ac-227 (d)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Th-227 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Th-232 Decay Chain					
Th-232 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Ra-228 (e)	< 0.03	< 0.03	< 0.02	< 0.02	< 0.03
Th-228 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Th-228 Count Date	01-Sep-21	01-Sep-21	03-Sep-21	03-Sep-21	08-Sep-21
K-40 (b)	< 1.1	< 0.46	< 0.70	< 0.71	< 0.69

(a) Alpha spectrometry.

(b) Gamma spectrometry.

(c) Below alpha spectrometry detection limit of 0.002 Bq/L. Calculated from the measured U-238 concnetration.

(d) Based on the measured concentration of Th-227, assuming secular equilibrium.

(e) Gamma spectrometry. Based on the measured concentration of Ac-228, assuming secular equilibrium.

Table 2 – Radionuclide Concentrations in Round 3 Water Samples (Bq/L)

Client ID	GW03	GW04	SW01	SW02	SW03	SW04	SW05	SW06
Sampling Date	03-Apr-21	08-Apr-21	08-Apr-21	08-Apr-21	08-Apr-21	03-Apr-21	08-Apr-21	08-Apr-21
ANSTO ID: MAD-100821-	2	3	4	5	6	7	8	9
U-238 Decay Chain								
U-238 (a)	< 0.06	not analysed	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Th-230	< 0.001	0.0023 ± 0.0007	< 0.001	0.0044 ± 0.0022	< 0.001	< 0.001	< 0.001	< 0.001
Ra-226	0.0009 ± 0.0002	0.022 ± 0.002	0.0043 ± 0.0007	0.0012 ± 0.0003	0.0010 ± 0.0003	0.0054 ± 0.0011	0.0013 ± 0.0003	0.0014 ± 0.0004
Po-210	0.0057 ± 0.0016	not requested	not requested	not requested	not requested	not requested	not requested	not requested
Po-210 Count Date	01-Nov-21							
U-235 Decay Chain								
Th-227	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Th-232 Decay Chain								
Th-232	< 0.001	0.0009 ± 0.0004	< 0.001	0.0010 ± 0.0009	< 0.001	< 0.001	< 0.001	< 0.001
Th-228	< 0.001	0.0067 ± 0.0014	< 0.002	0.0018 ± 0.0013	< 0.001	< 0.001	< 0.001	0.0006 ± 0.0004
Th-228 Count Date	08-Sep-21	10-Sep-21	10-Sep-21	15-Sep-21	15-Sep-21	17-Sep-21	17-Sep-21	22-Sep-21

(a) Calculated from the measured U concentration (Eurofins) using the specific activity.

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Table 2 (continued) – Radionuclide Concentrations in Round 3 Water Samples (Bq/L)

Client ID	SW07	SW08	SW10	SW13	SW14	SW16	SW17
Sampling Date	08-Apr-21	08-Apr-21	08-Apr-21	08-Apr-21	08-Apr-21	08-Apr-21	08-Apr-21
ANSTO ID: MAD-100821-	10	11	13	16	17	19	20
U-238 Decay Chain							
U-238 (a)	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	not analysed	not analysed
Th-230	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Ra-226	0.0014 ± 0.0003	0.0010 ± 0.0003	0.0017 ± 0.0004	< 0.001	0.0007 ± 0.0002	0.085 ± 0.008	0.037 ± 0.004
Po-210	not requested	not requested	not requested	0.0015 ± 0.0012	not requested	not requested	not requested
Po-210 Count Date				01-Nov-21			
U-235 Decay Chain							
Th-227	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Th-232 Decay Chain							
Th-232	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Th-228	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.020 ± 0.005
Th-228 Count Date	22-Sep-21	24-Sep-21	24-Sep-21	01-Oct-21	01-Oct-21	01-Oct-21	01-Oct-21

(a) Calculated from the measured U concentration (Eurofins) using the specific activity.

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CERTIFICATE OF ANALYSIS

Certificate Number:	SARAD-110922 RN
Company / Organisation:	Mathieu Messeiller, JBS&G
Client Identification:	Madagascar - Waters
AM Identification:	MAD-180122-1 to 25
AM Request Numbers:	2200130
Analysis Requested:	Radionuclides by Gamma and Alpha Spectrometry and ICPMS

Twenty five (25) samples of water from the Round 4 sampling program were received on 18 January 2022. None of the samples received had been filtered or acidified. All samples were acidified (pH 1[1]) upon receipt and left for three days to equilibrate prior to filtration, where required[2] (see Appendix A).

Six (6) selected samples (GW01, SW09, SW11, SW12, SW151, SW152) were analysed for the full radionuclide suite. Uranium (U-238, U-234, U-235) and thorium (Th-232, Th-230, Th-228, Th-227) isotopes and Po-210 were analysed by alpha spectrometry according to ANSTO Minerals controlled document I-4303 Radiochemical Analysis for U, Th, Pb and Po. Radium-226 was analysed by alpha spectrometry according to ANSTO Minerals controlled document I-4304 Radiochemical Analysis for Radium. Lead-210 and Ra-228 were analysed by gamma spectrometry according to ANSTO Minerals controlled documents AM-I-052-002 Preparation of Solutions for Gamma Ray Analysis, AM-I-052-004 Counting Procedure using Maestro and AM-I-052-006 Gamma Spectrum Analysis of Liquid Samples using GammaVision.

Seventeen (17) of the remaining samples were analysed for thorium isotopes and Ra-226, while ten (10) selected samples were analysed for Po-210, by alpha spectrometry, as described above. Selected samples were analysed for U by inductively coupled plasma mass spectrometry (ICPMS) at Eurofins, Lane Cove (Sydney).

No analysis was carried out on samples SW16 (-24) and SW17 (-25).

The results for the samples for full radionuclide assay are given in Table 1 and those for alpha spectrometry only and ICPMS in Table 2.

Dr Sue Brown, Senior Radiochemist **Date: 11 September 2022**

[1] 3 mL of concentrated nitric acid per 1 L of water is approximately pH 1.
[2] GW041, GW042, GW051, GW052, GW07.

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Table 1 – Full Radionuclide Analysis for Selected Round 4 Water Samples (Bq/L)

Client ID	GW01	SW09	SW11	SW12	SW151	SW152
Sampling Date	28-Jul-21	30-Jul-21	30-Jul-21	30-Jul-21	30-Jul-21	30-Jul-21
ANSTO ID: MAD-180122-	1	16	18	19	22	23
Sample Volume (mL)	2473	2528	2368	2473	1500	978
U-238 Decay Chain						
U-238 (a)	0.028 ± 0.004	0.0004 ± 0.0003	0.0004 ± 0.0003	0.0006 ± 0.0003	0.0013 ± 0.0006	0.0008 ± 0.0005
U-234 (a)	0.028 ± 0.004	0.0003 ± 0.0002	0.0004 ± 0.0003	0.0009 ± 0.0004	0.0018 ± 0.0008	0.0011 ± 0.0007
Th-230 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Ra-226 (a)	< 0.002	0.0029 ± 0.0006	< 0.002	0.0008 ± 0.0002	< 0.003	< 0.005
Pb-210 (b)	< 0.16	< 0.11	< 0.14	< 0.13	< 0.16	< 0.31
Po-210 (a)	0.0075 ± 0.0011	0.0015 ± 0.0005	0.0011 ± 0.0004	0.0016 ± 0.0005	0.0007 ± 0.0004	0.0009 ± 0.0006
Po-210 Count Date	02-Mar-22	02-Mar-22	02-Mar-22	02-Mar-22	02-Mar-22	02-Mar-22
U-235 Decay Chain						
U-235 (c)	0.0013 ± 0.0002	0.00002 ± 0.00001	0.00002 ± 0.00001	0.00003 ± 0.00001	0.00006 ± 0.00003	0.00004 ± 0.00002
Pa-231 (b)	< 0.14	< 0.10	< 0.13	< 0.12	< 0.15	< 0.29
Ac-227 (d)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Th-227 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Th-232 Decay Chain						
Th-232 (a)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Ra-228 (e)	< 0.02	< 0.02	< 0.02	< 0.02	< 0.03	< 0.05
Th-228 (a)	< 0.002	< 0.002	< 0.002	0.0009 ± 0.0005	< 0.002	< 0.002
Th-228 Count Date	07-Mar-22	09-Mar-22	09-Mar-22	09-Mar-22	09-Mar-22	09-Mar-22
K-40 (b)	< 0.30	< 0.23	< 0.28	< 0.27	< 0.35	< 0.67

(a) Alpha spectrometry.

(b) Gamma spectrometry.

(c) Below alpha spectrometry detection limit of 0.002 Bq/L. Calculated from the measured U-238 concentration.

(d) Based on the measured concentration of Th-227, assuming secular equilibrium.

(e) Gamma spectrometry. Based on the measured concentration of Ac-228, assuming secular equilibrium.

Table 2 – Radionuclide Concentrations in Round 4 Water Samples (Bq/L)

Client ID	GW041	GW042	GW051	GW052	GW07	SW01	SW02
Sampling Date	29-Jul-21	29-Jul-21	29-Jul-21	29-Jul-21	29-Jul-21	29-Jul-21	28-Jul-21
ANSTO ID: MAD-180122-	2	3	4	5	6	7	8
U-238 Decay Chain							
U-238	0.022 ± 0.004	0.069 ± 0.007	0.041 ± 0.006	0.043 ± 0.006	not requested	< 0.06 (a)	not requested
U-234	0.027 ± 0.004	0.085 ± 0.008	0.037 ± 0.005	0.046 ± 0.006	not requested	not requested	not requested
Th-230	0.014 ± 0.003	0.057 ± 0.008	0.042 ± 0.007	0.020 ± 0.004	0.054 ± 0.009	< 0.002	< 0.002
Ra-226	0.039 ± 0.005	0.14 ± 0.01	0.034 ± 0.004	0.071 ± 0.008	0.37 ± 0.03	0.0060 ± 0.0010	< 0.002
Po-210	0.039 ± 0.005	0.083 ± 0.009	0.11 ± 0.01	0.095 ± 0.009	not requested	0.0005 ± 0.0003	0.0008 ± 0.0004
Po-210 Count Date	28-Feb-22	28-Feb-22	28-Feb-22	02-Mar-22		17-Feb-22	17-Feb-22
U-235 Decay Chain							
U-235	0.0010 ± 0.0002	0.0032 ± 0.0003	0.0019 ± 0.0003	0.0020 ± 0.0003	not requested	not requested	not requested
Th-227	0.0023 ± 0.0012	0.0010 ± 0.0007	0.0041 ± 0.0016	0.0011 ± 0.0007	< 0.001	< 0.002	< 0.002
Th-232 Decay Chain							
Th-232	0.053 ± 0.008	0.13 ± 0.02	0.098 ± 0.013	0.064 ± 0.008	0.37 ± 0.05	< 0.002	< 0.002
Th-228	0.026 ± 0.005	0.055 ± 0.008	0.14 ± 0.02	0.069 ± 0.009	0.51 ± 0.07	< 0.002	< 0.002
Th-228 Count Date	11-Mar-22	11-Mar-22	11-Mar-22	11-Mar-22	14-Mar-22	23-Feb-22	23-Feb-22

(a) Calculated from the measured U concentration (Eurofins) using the specific activity.

continued overleaf

Table 2 (continued) – Radionuclide Concentrations in Round 4 Water Samples (Bq/L)

Client ID	SW03	SW04	SW05	SW06	SW071	SW072
Sampling Date	28-Jul-21	28-Jul-21	30-Jul-21	30-Jul-21	30-Jul-21	30-Jul-21
ANSTO ID: MAD-180122-	9	10	11	12	13	14
U-238 Decay Chain						
U-238	< 0.06 (a)	< 0.06 (a)	< 0.06 (a)	< 0.06 (a)	not requested	not requested
U-234	not requested	not requested	not requested	not requested	not requested	not requested
Th-230	< 0.001	< 0.001	< 0.001	< 0.001	< 0.002	< 0.002
Ra-226	0.0006 ± 0.0002	0.0022 ± 0.0004	0.0019 ± 0.0005	0.0025 ± 0.0005	0.0015 ± 0.0004	0.0004 ± 0.0001
Po-210	not requested	not requested	not requested	not requested	0.0003 ± 0.0002	0.0004 ± 0.0002
Po-210 Count Date					17-Feb-22	17-Feb-22
U-235 Decay Chain						
U-235	not requested	not requested	not requested	not requested	not requested	not requested
Th-227	< 0.001	< 0.001	< 0.001	< 0.001	< 0.002	< 0.002
Th-232 Decay Chain						
Th-232	< 0.001	< 0.001	< 0.001	< 0.001	< 0.002	< 0.002
Th-228	< 0.001	0.0006 ± 0.0005	< 0.001	0.0012 ± 0.0006	< 0.002	0.0009 ± 0.0005
Th-228 Count Date	28-Feb-22	28-Feb-22	09-Mar-22	23-Feb-22	09-Mar-22	09-Mar-22

(a) Calculated from the measured U concentration (Eurofins) using the specific activity.

continued overleaf

Table 2 (continued) – Radionuclide Concentrations in Round 4 Water Samples (Bq/L)

Client ID	SW08	SW10	SW13	SW14	SW16	SW17
Sampling Date	30-Jul-21	30-Jul-21	28-Jul-21	28-Jul-21	29-Jul-21	29-Jul-21
ANSTO ID: MAD-180122-	15	17	20	21	24	25
U-238 Decay Chain						
U-238	< 0.06 (a)	< 0.06 (a)	< 0.06 (a)	< 0.06 (a)	not requested	not requested
U-234	not requested	not requested	not requested	not requested	not requested	not requested
Th-230	< 0.001	< 0.002	< 0.002	< 0.001	not requested	not requested
Ra-226	0.0014 ± 0.0003	0.0029 ± 0.0007	0.0044 ± 0.0008	0.0012 ± 0.0003	not requested	not requested
Po-210	not requested	0.0048 ± 0.0010	0.014 ± 0.002	not requested	not requested	not requested
Po-210 Count Date		17-Feb-22	23-Feb-22			
U-235 Decay Chain						
U-235	not requested	not requested	not requested	not requested	not requested	not requested
Th-227	< 0.001	< 0.002	< 0.002	< 0.001	not requested	not requested
Th-232 Decay Chain						
Th-232	< 0.001	< 0.002	< 0.002	< 0.001	not requested	not requested
Th-228	< 0.001	0.0012 ± 0.0006	< 0.002	< 0.001	not requested	not requested
Th-228 Count Date	23-Feb-22	23-Feb-22	23-Feb-22	23-Feb-22		

(a) Calculated from the measured U concentration (Eurofins) using the specific activity.

Appendix A

Sample Preparation Procedure for Samples Containing Sediment

Commensurate with the Round 1 samples containing sediment, a 20 mL aliquot of each acidified sample was extracted for ICPMS analysis. The remaining liquor was filtered through a 1.5 µm hardened ashless filter paper and retained. The solid on the filter was transferred to a Teflon beaker. The filter paper with remaining solid was ashed and the residue transferred to the same Teflon beaker. The solid/ash residue was digested in hydrofluoric acid followed by aqua regia according to ANSTO Minerals controlled document I-5942 Dissolution of Solid Samples for Radiochemical Analysis. The digest liquors were then recombined with the respective retained filtrates prior to assay.

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CERTIFICATE OF ANALYSIS

Certificate Number:	JBS&G-220523 RN
Company / Organisation:	Dean OBrion, JBS&G
Client Identification:	Madagascar - Waters
AM Identification:	MAD-070323-39 to 44
AM Request Numbers:	2300521
Analysis Requested:	U and Th Isotopes, Ra-226 and Po-210 by Alpha Spectrometry

Six (6) samples of water from the Round 5 sampling program were received on 7 March 2023. None of the samples received had been filtered or acidified. All samples were acidified (pH 1[1]) upon receipt and left for three days to equilibrate prior to filtration. Sample MSW2 was filtered through a 0.45 µm filter paper prior to assay. The remaining five samples[2], which contained solids, were treated according to Appendix A prior to assay.

The samples were analysed by alpha spectrometry for uranium (U-238, U-234, U-235) and thorium (Th-232, Th-230, Th-228, Th-227) isotopes, according to ANSTO Minerals controlled document I-8229 Uranium and Thorium Separation using UTEVA Resin, for Ra-226, according to ANSTO Minerals controlled document I-4304 Radiochemical Analysis for Radium, and for Po-210, according to ANSTO Minerals controlled document I-4303 Radiochemical Analysis for U, Th, Pb and Po.

The results are given in Table 1.

Dr Sue Brown, Senior Radiochemist **Date: 22 May 2023**

[1] 3 mL of concentrated nitric acid per 1 L of water is approximately pH 1.
[2] MSW1, MSW3, MSP03, SP1, QC 5&6.

Table 1 – Radionuclide Concentrations in Round 5 Water Samples (Bq/L)

Client ID	MSW1	MSW2	MSW3	MSP03	SP1	QC 5&6
Sampling Date	12-Oct-22	12-Oct-22	12-Oct-22	12-Oct-22	12-Oct-22	12-Oct-22
ANSTO ID: MAD-070323-	39	40	41	42	43	44
Sample Volume (mL)	500	500	500	500	500	500
U-238 Decay Chain						
U-238	0.0087 ± 0.0020	0.012 ± 0.001	0.030 ± 0.004	0.51 ± 0.06	0.013 ± 0.003	0.029 ± 0.004
U-234	0.0081 ± 0.0020	0.012 ± 0.001	0.027 ± 0.004	0.51 ± 0.06	0.013 ± 0.003	0.026 ± 0.004
Th-230	0.0050 ± 0.0018	0.0020 ± 0.0011	0.013 ± 0.004	0.52 ± 0.08	0.0077 ± 0.0032	0.018 ± 0.014
Ra-226	0.094 ± 0.008	0.13 ± 0.01	0.11 ± 0.01	0.23 ± 0.02	0.090 ± 0.009	0.075 ± 0.008
Po-210	0.011 ± 0.001	0.0049 ± 0.0009	0.018 ± 0.002	0.52 ± 0.02	0.013 ± 0.002	0.017 ± 0.002
Po-210 Count Date	06-Apr-23	06-Apr-23	06-Apr-23	06-Apr-23	06-Apr-23	06-Apr-23
U-235 Decay Chain						
U-235	0.0004 ± 0.0001	0.0006 ± 0.0001	0.0014 ± 0.0002	0.024 ± 0.003	0.0006 ± 0.0001	0.0014 ± 0.0002
Th-227	0.0059 ± 0.0020	0.027 ± 0.006	0.020 ± 0.006	0.11 ± 0.03	0.0080 ± 0.0033	0.042 ± 0.008
Th-232 Decay Chain						
Th-232	0.025 ± 0.005	0.011 ± 0.003	0.084 ± 0.018	2.9 ± 0.5	0.039 ± 0.010	0.10 ± 0.02
Th-228	0.051 ± 0.009	0.26 ± 0.04	0.17 ± 0.04	2.2 ± 0.3	0.085 ± 0.019	0.21 ± 0.03
Th-228 Count Date	14-Apr-23	14-Apr-23	14-Apr-23	17-Apr-23	14-Apr-23	17-Apr-23

Appendix A

Sample Preparation Procedure for Samples Containing Sediment

The acidified liquors for samples MSW1, MSW3, SP1 and QC 5&6 were filtered through a 0.45 µm cellulose nitrate filter paper and sample MSP03 through 8, 1.5, 0.7 and 0.45 µm cellulose nitrate filter papers filter papers. The filtrates were retained. All respective filter papers were dried and weights recorded before being placed in Teflon beakers prior to multiple digestions using hydrofluoric acid followed by aqua regia, according to ANSTO Minerals controlled document I-5942 Dissolution of Solid Samples for Radiochemical Analysis.

After two weeks for samples MSW1, MSW3, SP1 and QC 5&6 and three weeks for sample MSP03, solid still remained. The digest liquors were filtered and recombined with the respective retained filtrates prior to assay. The filter papers were dried and the amount of solid remaining determined. The data for the solids is given in Table A1.

Table A1
Summary of Solids Dissolution Data

Sample	Total Solids in Liquors (g)	Solids after digestion (g)	% Digested
MSW1	0.1313	0.2791	-113
MSW3	0.0116	0.1293	-1015
MSP03	14.2561	5.8358	59
SP1	0.1769	0.0569	68
QC 5&6	0.2009	0.1364	32

The solids were unable to be processed further because of the requirement for Po-210 assays. Polonium-210 is volatile and therefore high temperature dissolution processes could not be used.

The increase in the weight for samples MSW1 and MSW3 is not known, however, is possibly due to the formation of insoluble fluorides.

A4 Attachment 4 – Photographs

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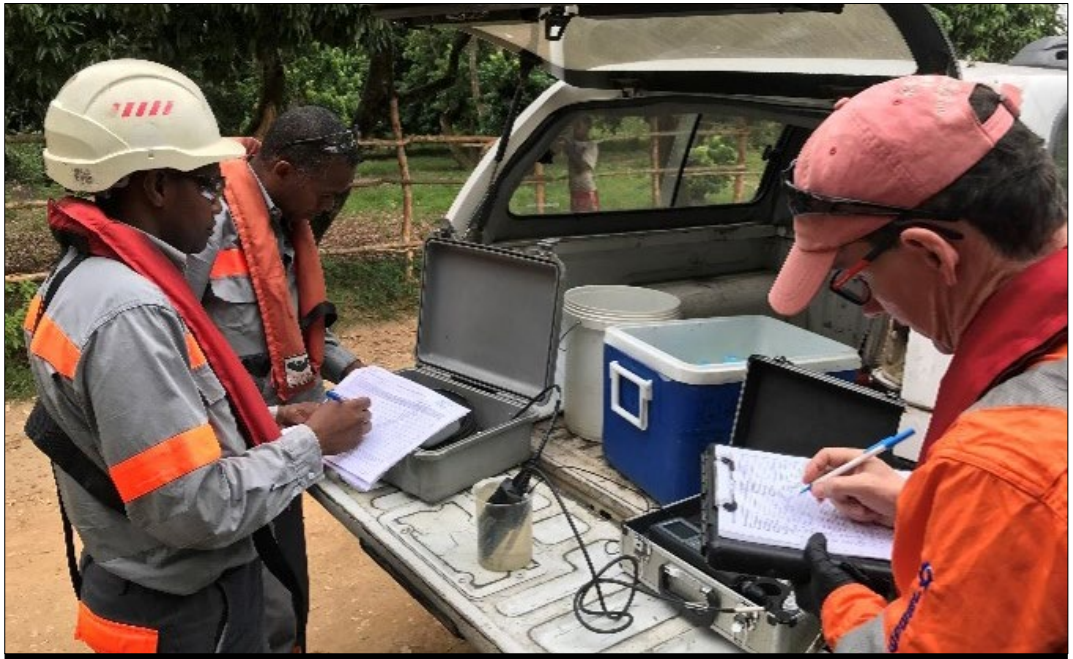

PLATE 1 - ROUND 1 JBS&G AND QMM COMBINED SURFACE WATER QUALITY SAMPLING



PLATE 2 - QMM ENVIRONMENTAL TEAM MEMBERS SURFACE WATER SAMPLING



PLATE 3 - QMM ENVIRONMENTAL TEAM MEMBERS SURFACE WATER SAMPLING MANGAIKY



PLATE 4 - JBS&G GROUNDWATER SAMPLING AT EMANAKA



PLATE 5 - QMM GROUNDWATER SPRING SAMPLING MMM VILLAGE



PLATE 6 - DAMAGED COMMUNITY GROUNDWATER WELL AT ANDRAKARAKA



PLATE 7 - STORAGE OF COLLECTED SURFACE WATER SAMPLES IN CHILLED COOLERS



PLATE 8 - PURGING GROUNDWATER FROM MINE PIEZOMETER USING WATERRA FOOTVALVE



PLATE 9 - GAUGING OF GROUNDWATER LEVEL IN ONSITE MINE PIEZOMETER



PLATE 10 - GROUNDWATER SAMPLING AT MMM VILLAGE



PLATE 11 - NON FUNCTIONING WELLS AT ANDRAKARAKA



PLATE 12 - SURFACE WATER SAMPLING FROM THE BANK OF THE MMM RIVER



PLATE 13 - COLLECTION OF DRINKING WATER FROM THE MMM RIVER AT ANDRAKARAKA



PLATE 14 - CALIBRATION OF THE QMMPH METER

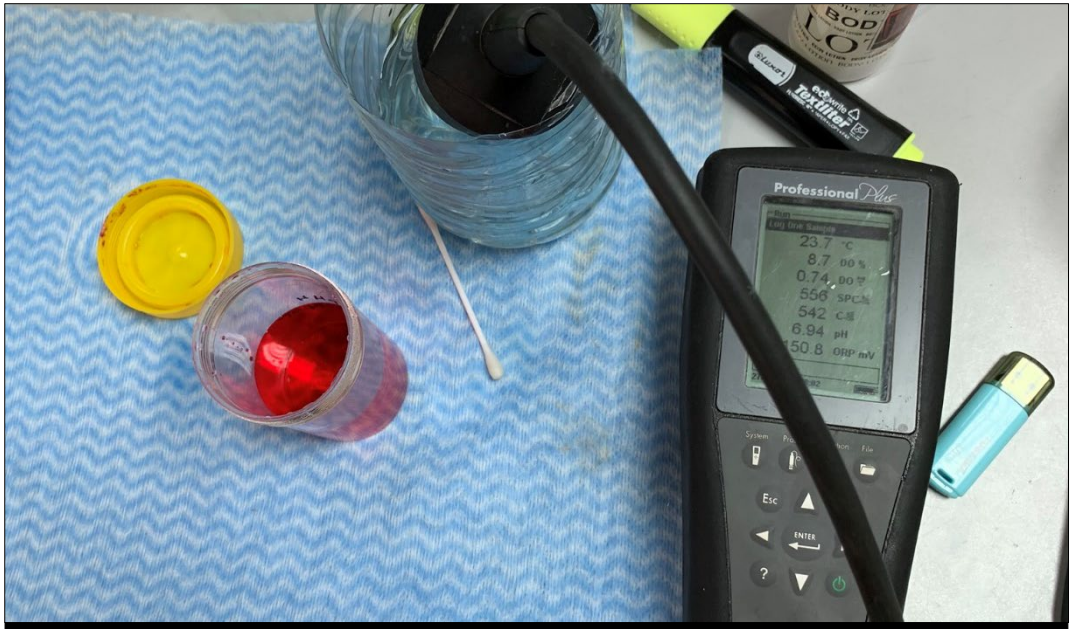

PLATE 15 - CALIBRATION OF WATER QUALITY METER



PLATE 16 - WATER SAMPLES PACKED IN COOLER BOXES FOR SHIPPING



PLATE 17 – ROUND 5 WASTE WATER SAMPLE SOUTHERN WETLAND



PLATE 18 ROUND 5 WASTE WATER SAMPLES FROM MINE DECANTATION PONDS



PLATE 19 WATER MINISTRY REPRESENTATIVE SEALING WATER SAMPLES FOR EXPORT



PLATE 20 WATER SAMPLE CONTAINERS TAPED AND SECURED

Appendix A5 Soil and Sediment

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Appendix A5 Soil and Sediment

1. Background

A limited soil and sediment sampling program was designed as part of the first sampling round in November 2019, targeting collection of samples for comparison against extensive soil sampling results undertaken by QMM across the Mandena mine lease and regionally as part of the baseline assessment undertaken by SENES (2000). No additional soil or sediment sampling was undertaken across sampling rounds 2 through 4.

On receipt of the Round 4 analytical data a review was undertaken of the complete radionuclide analytical data set in October 2022 and a data gap assessment completed. A potential data gap was identified due to an absence of monitoring data representative of mine process water discharge events. To investigate the potential data gap, a program of sediment sampling of potential current and historical discharge pathways was designed targeting collection of representative sediments from within the mine lease, along the wastewater pond system, along the current and historical discharge channels and offsite along the surrounding receiving water environments. For regional representative comparison, sediment samples were also collected along the background western Enandrano river system and in the village of Evathraha.

2. Sample Locations

2.1 Sampling Round 1

Three soil samples were collected at the locations where selected food types were grown. These locations included rice and cassava fields and banana plantations. They were all collected downwind from the mine, within areas of the Ampasy critical group. Two soil samples were collected in the same area, in the immediate vicinity of dust stations DS02 and DS03 amongst pineapple and cassava fields. A duplicate soil sample from the DS03 site was submitted to the laboratory.

Three representative river and lake sediments were sampled where community members from the villages of Mandromondromotra (MMM), Andrakaraka and Emanaka interact with the river and lake sediments through fishing or swimming activities (**Figure 1**).

2.2 Sampling Round 5

Sediment samples were collected at representative sampling locations within the Mandena mining operations, at targeted locations within the mine process water settlement pond network, starting at the mineral separation plant discharge pond, at the first the settlement pond and progressing along the interconnected channels including the current and former discharge channel points from the mine lease (before the wetland channel to the MMM river).

Offsite, sediment samples were collected at locations along the receiving water environment within the MMM river at locations collocated with historical water quality sampling locations starting up gradient at the MMM village following down to the discharge point into the Ambavarano Lake. Background sample points were also identified at Maingaiky and along the Enandrano River, along the Meander River, at locations within the Meader and Ambavarano lakes and in the village of Evathraha (**Figure 2**).

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Figure 1 Soil Sampling Locations Round 1

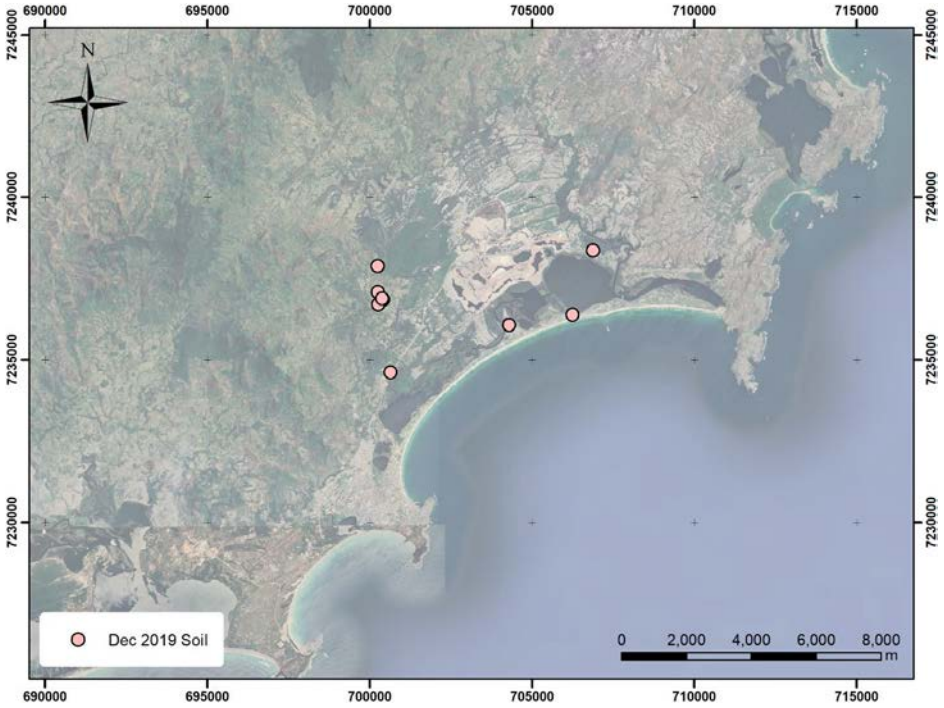
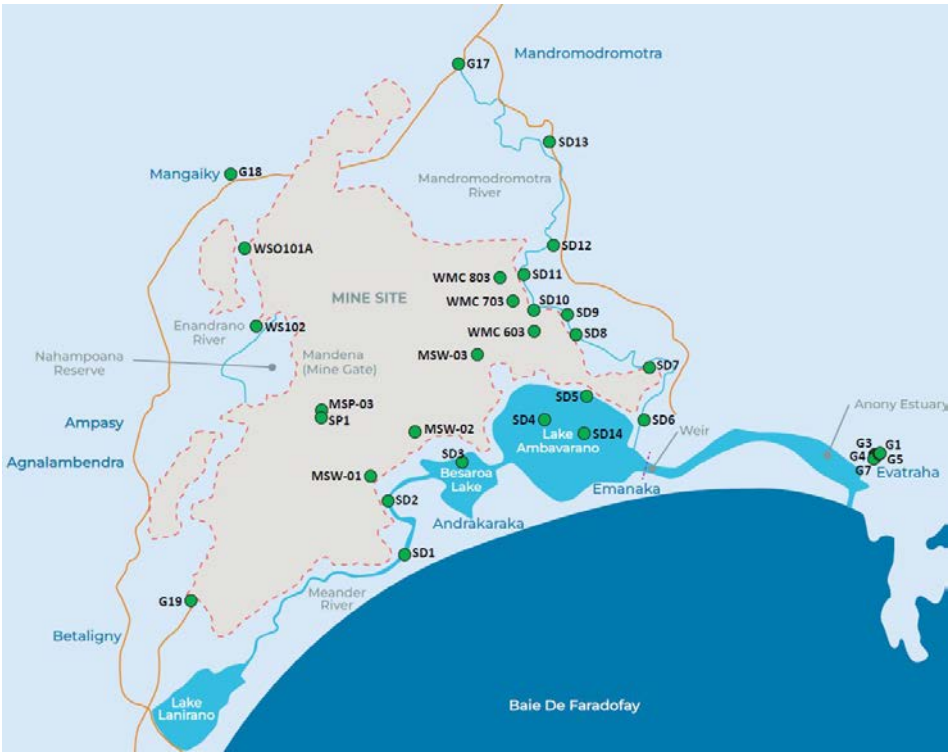


Figure 2 Sediment Sampling Locations Round 5



3. Methodology

3.1 Soils

The Australian Standard AS 4482.1-2005[1] and the IAEA technical report series No.486[2] were used as references for soil sampling activities.

The soil was sampled to the depth of the root system (approximately 0.1 m below ground surface (bgs)) in unploughed fields. Sampling arable fields was conducted to the base of the topsoil (approximately 0.2m bgs) or to the base of the ploughed layer (approximately 0.3 m bgs). Sample size was approximately 200 g, based on analytical requirements.

Between each sample location, all soil was removed from the sampling equipment by scraping, brushing or wiping with disposable towels. The equipment was then washed thoroughly in a bucket and air dried.

3.2 Sediments

Sediment samples were collected using a grab sampler (Petit ponar), trowel, hand auger or via gloved hand (where access permits) to a maximum depth of 0.2 m bgs.

Collected samples were placed into a tin, filled to the top with the lid carefully screwed on (taking care to remove any sand etc from the thread of the tin).

Re-usable sampling equipment (i.e. grab sampler, swing pole) were decontaminated by rinsing clean using available water source;

In order to minimise exposure to sunlight, sample jars were immediately placed into an ice chest, for storage and during transport to the testing laboratories.

[1] Standards Australia, Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi volatile compounds, AS4482.1--2005

[2] Guidelines on soil and vegetation sampling for radiological monitoring, Technical report series no. 486. — Vienna : International Atomic Energy Agency, 2019.

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Figure 3 Round 1 Soil Sample Collection and Laboratory Preparation



Figure 4 Round 5 Petit Ponar sediment sampler being deployed October 2023



4. Analytical Preparation and Analysis

At the QMM laboratory, all samples were dried at 110°C for at least 6 hours in glassware and transferred to airtight aluminium tins. The final samples were at least 100 g (dry weight), so that laboratory analysis minimum detection limits would be suitably low and consistent for all samples taken.

Chain-of-custody documentation was completed and sent together with the appropriate biosecurity import permit with the samples to the ANSTO laboratories at Lucas Heights in Sydney for Analysis.

The selected analysis suite for soil and sediment samples from Round 1 and Round 5 is presented in **Table 1**.

Table 1 Soil and Sediment Analytical Summary

Sampling Round	Analytical Analysis	Description/Comment
Round 1	Gamma Spectrometry	Analysis at ANSTO - Full U and Th series and K40,
Round 5	ICPMS, Gamma Spectrometry and X Ray Fluorescence	Field screening for XRF, selected samples analysed at ANSTO for full U and Th series and K40, ICPMS analysis for Pb, Th, U, Zn.

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5. Analytical Results

5.1 Round 1

In the study area, the measurable U238 activity concentration in soil and sediment averages 78 Bq/kg, with a range of 45 to 150 Bq/kg. Two samples returned activity concentrations below detection limits (below 11 and 14 Bq/kg). The Ra226 activity concentration averages 59 Bq/kg, with a range of 11 to 140 Bq/kg.

Note that all radionuclides from the U235 decay series returned values below detection limit.

Measurable Th232 activity concentration in soil and sediment averages 149 Bq/kg, with a range of 60 to 360 Bq/kg. The Ra228 activity concentration averages 170 Bq/kg, with a range of 28 to 470 Bq/kg.The K40 activity concentration was below limit of detection for seven out of nine samples. The K40 activity concentration ranges between 50 and 90 Bq/kg and averages 70 Bq/kg for samples S02, S04 and S07. When compared to uranium concentrations found in soils around the world as given by UNSCEAR[3] and IAEA[4] (**see Table 3**), U238 and K40 activity concentrations are within worldwide reported ranges.

Table 2 Activity Concentration in Soil from the Study Area, Gamma Spectrometry

Units: Bq/kg	Sample ID								
Radionuclide	S02	S03	S04	S05	S06	S07	S08	S09	S10 (S08 Duplicate)
U-238	45	< 14	80	< 11	60	150	48	90	70
Th-230	< 98	< 63	<13	< 36	< 17	140	< 75	< 180	< 130
Ra-226	85	25	68	11	39	140	39	61	66
Pb-210	86	< 11	70	25	44	130	44	60	62
Th-232	60	70	120	< 20	130	360	110	140	200
Ra-228	110	100	160	28	110	470	150	180	230
Th-228	100	110	160	20	110	510	160	190	250
K-40	50	< 22	70	< 17	< 38	90	< 20	< 42	< 27

[3] UNSCEAR, Ionising Radiation: Sources and Biological Effects, United Nations Scientific Committee on the Effects of Atomic Radiation, 2000.

[4] IAEA, Generic Procedures for Assessment and Response during a Radiological Emergency, IAEA TECDOC Series No. 1162, 2000.

Table 3 Worldwide Average Radionuclide Concentrations and Typical Range in Soils

Units: Bq/kg	Reference	
Radionuclide	UNSCEAR	IAEA
U-238	35 (16 to 110)	25 (10 to 50)
Ra-226	35 (17 to 60)	25 (10 to 50)
Th232	30 (11 to 64)	25 (7 to 50)
K-40	400 (140 to 850)	370 (100 to 700)

Sample S07 returned the highest activity concentrations for all radionuclides analysed (U238 and Th232 decay series and K40). This sediment sample was collected in a background area, on the shore of the Mandromondromotra River, within the village of Mandromondromotra. It is a common point of water collection. It is also an area where villagers frequently swim and play.

There is equilibrium within the U238 decay chains for all samples, apart from sediment sample S02 where a minor disequilibrium can be observed between U238 and Ra226. Th232 decay products are found out of equilibrium in all samples.A duplicate sample (S10) was submitted to the laboratory for the soil sample S08. Discrepancies of 45 to 70% are observed between the duplicate and reference samples. Such variations can be expected and are considered acceptable.

Activity concentrations for all soil and sediment samples are within the range of measurements conducted during baseline surveys. Relatively high Th232 concentrations are indicative of the regional presence of the orebody in the study area.

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5.2 Round 5

A combination of methods was adopted in assessing representative sediment samples collected during the Round 5 sampling event. An initial screen of all sediment samples was undertaken using an infield X-Ray Fluorescence (XRF) analyser. The results of the XRF screening were then used to select targeted representative samples for both elemental analysis using inductively coupled plasma mass spectrometry (ICPMS) and radiochemistry analysis using gamma spectrometry.

5.2.1 Field screening X Ray Fluorescence

A field scientist from JBS&G attended the ANSTO laboratories at Lucas Heights in Sydney to undertake field screening of all Round 5 sediment samples. A Vanta XRF analyser was used to collect two 30 second readings per sample with analysis reporting for a targeted suite of metals.

The results of the field XRF screening is presented in **Table 4**. As the dominant measured radionuclide reported thorium by XRF concentration trends were used to select samples for elemental analysis by ICPMS and gamma spectrometry analysis.

On completion of the ICPMS analysis by ANSTO a comparison of results against the initial XRF screening was undertaken to assess the dependability of the screening results. In greater than 60% of reported values, there was a consistent under reporting of measured concentrations of thorium, averaging circa 35 % lower than those values reported by ICPMS analysis. Note the data collected using the field XRF has been utilised to represent trends in radionuclides measured in sediments across the study area and has not been used in any dose calculations.

Thorium

Samples representative of background and upgradient locations collected from Mangaiky and along the Enandrano river reported concentrations of thorium averaging 56 ppm, with a maximum of 101 ppm reported for the sample collected at Mangaiky. Samples collected at Mandromondromotra and upgradient of discharge locations on the MMM river reported concentrations of thorium averaging 42.4 ppm, with a maximum of 54.5 ppm reported for the sample collected at location SD12-2, north of the historical discharge channels. Samples collected from the Meander River and within the southern lake system reported concentrations of thorium averaging 88 ppm, with a maximum of 140 ppm reported for the sample SD 5-2 collected from the northern area of Lake Ambavarano. A soil sample collected from the Evatraha village (G9) reported a thorium concentration of 439 ppm.

Table 4 Round 5 Field Screening of Sediment Samples Using XRF

Sample ID	Pb	Th	U	Zn
	XRF (ppm)	XRF (ppm)	XRF (ppm)	XRF (ppm)
G9	38.5	439	10	100.5
G17	12.5	52.5	14.5	42
G18	20.5	101	16	68
G19	5	36.5	9	20
SD1-2	10.5	88.5	11.5	25
SD2-1	9	83	11	21.5
SD3-1	12.5	93	13.5	34.5

Sample ID	Pb	Th	U	Zn
	XRF (ppm)	XRF (ppm)	XRF (ppm)	XRF (ppm)
QC1	12	96.5	11.5	39.5
SD3-2	9.5	76	11	25.5
SD5-1	16.5	132.5	11	48
SD5-2	16.5	140	11.5	41
SD7-1	7.2	47.5	8	24.5
SD7-2	12	59.5	12.5	26.5
SD8-1	7	64.5	12.5	25
SD8-2	17.5	133.5	15	63.5
SD9-1	6	44.5	10.5	18.5
SD9-2	6.5	42	11.5	17.5
SD10-1	5.5	26	10	10.5
SD10-2	12	130.5	14.5	28
SD11-1	12.5	101	15.5	50.5
SD11-2	13.5	92	14	38
SD12-1	5	37.5	10	19.5
SD12-2	6.5	54.5	12.5	13
SD13-1	6	35.5	9	21.5
SD13-2	7	32	8.5	25
MSW01	7	82.5	8.5	15
MSW02	5	41	10.5	13
MSW03	20	175.5	10.5	25
QC4	13.5	111	6.5	21
WMC603	6.5	51	11.5	12.5
WMC703	8	50.5	11.5	16.5
WMC803	5.5	42.5	11	14.5
WSO101A	6	41.5	10.5	13

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Sample ID	Pb	Th	U	Zn
	XRF (ppm)	XRF (ppm)	XRF (ppm)	XRF (ppm)
WS102	17	45	9	38.5

5.2.2 Elemental Analysis (ICPMS)

Elemental analysis results for lead, thorium, uranium and zinc by ICPMS are presented in **Table 5**. Results for thorium and uranium are discussed below.

Background and Upgradient Locations

Thorium

Samples representative of background and upgradient locations collected from Mangaiky and along the Enandrano river reported concentrations of thorium averaging 92.8 ppm (373 Bq/kg), with a maximum of 152 ppm (611 Bq/kg), reported for the sample collected at Mangaiky (G18). Samples collected at Mandromondromotra and upgradient of discharge locations on the MMM river reported concentrations of thorium averaging 50.7 ppm (204 Bq/kg), with a maximum of 102 ppm (410 Bq/kg), reported for the sample collected at location SD12, north of the historical discharge channels. Samples collected from the Meander River and within the southern lake system reported concentrations of thorium averaging 158 ppm (635 Bq/kg), with a maximum of 202 ppm (812 Bq/kg) reported for the sample collected from the northern area of Lake Ambavarano. A soil sample collected from the Evatraha village (G9) reported a thorium concentration of 810 ppm (3,256 Bq/kg).

Uranium

Samples representative of background and upgradient locations collected from Mangaiky and along the Enandrano river reported concentrations of uranium averaging 10 ppm (124 Bq/kg), with a maximum of 17.8 ppm (221 Bq/kg), reported for the sample collected at Mangaiky. Samples collected at Mandromondromotra and upgradient of discharge locations on the MMM river reported concentrations of thorium averaging 5.2 ppm (65Bq/kg), with a maximum of 8.5 ppm (105 Bq/kg) reported for the sample collected at location SD12, north of the historical discharge channels. Samples collected from the Meander River and within the southern lake system reported concentrations of thorium averaging 8.3 ppm (103 Bq/kg), with a maximum of 10.3 ppm (128 Bq/kg) reported for the sample collected from the northern area of Lake Ambavarano (SD5). A soil sample collected from the Evatraha village (G9) reported a uranium concentration of 34.7 ppm (430 Bq/kg).

Mining Lease Samples

Thorium

A sediment sample collected at the discharge point of the mineral separation plant (MSP) reported a concentration of thorium of 1,630 ppm (6,553 Bq/kg). Three sediment samples collected from within the mine waste water natural filtration pond network reported an average concentration of thorium of 105.8 ppm (425 Bq/kg). The maximum concentrations reported within the pond network was at MSW03 with thorium concentrations of 214 ppm (860 Bq/kg).

Uranium

A sediment sample collected at the discharge point of the mineral separation plant reported a concentration of uranium of 103 ppm (1,277 Bq/kg). Three sediment samples collected from within the mine waste water natural filtration pond network reported an average concentration of uranium of 5.2 ppm (65 Bq/kg). The

maximum concentrations reported within the pond network was at MSW03 with uranium reported at 10.4 ppm (129 Bq/kg).

Mine Discharge and Receiving River Sample Points (MMM)

Thorium

Sediment samples analysed from the discharge point of the three current and historical discharge channels to the MMM River reported average concentrations of thorium of 47.5 ppm (191 Bq/kg), with a maximum concentration of 75.2 ppm (302 Bq/kg) reported from the current discharge channel (WMC603). Sediment samples collected from within the MMM river adjacent to and down gradient of the discharge points reported average concentrations of thorium of 105.2 ppm (423 Bq/kg), with a maximum concentration of 294 ppm (1182 Bq/kg) reported at the location adjacent to the surface water sample location SW08, south of the historical discharge points.

Uranium

Sediment samples analysed from the discharge point of the three current and historical discharge channels to the MMM River reported average concentrations of thorium of 3.5 ppm (43 Bq/kg), with a maximum concentration of 4.5 ppm (56 Bq/kg) reported from the current discharge channel (WMC603). Sediment samples collected from within the MMM river adjacent to and down gradient of the discharge points reported average concentrations of uranium of 8.8 ppm (109 Bq/kg), with a maximum concentration of 23.5 ppm (291 Bq/kg) reported at the location adjacent to the surface water sample location SW08, south of the historical discharge points.

Table 5 Round 5 Sediment Elemental Analysis Results ICPMS (ANSTO)

Sample	ANSTO	PPM				Bq/Kg	
ID	ID	Pb	Th	U	Zn	Th-232	U-238
G9	1	71.8	810	34.7	140	3,300	430
G17	2	16.9	49.7	6.4	75	200	79
G18	3	38.3	152	17.8	142	610	220
SD1-2	5	22.9	165	6.6	48	660	82
SD2-1	6	16.9	146	6.9	44	590	86
SD3-1	7	21.9	123	8.2	66	490	100
SD3-2	8	18.2	121	7.5	54	490	93
SD5-1	9	25.8	202	10.3	80	810	130
SD5-2	10	29.5	185	9.4	88	740	120
SD7-1	12	18.4	106	8.2	79	430	100
SD7-2	13	16.3	56.6	5.1	64	230	63
SD8-1	14	10.8	41.6	3.9	66	170	48
SD8-2	15	39.4	294	23.5	123	1,200	290

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Sample	ANSTO	PPM				Bq/Kg	
ID	ID	Pb	Th	U	Zn	Th-232	U-238
SD9-1	16	8.7	30.4	3.0	41	120	37
SD9-2	17	11.0	44.2	3.9	54	180	48
SD10-1	18	12.9	27.3	4.8	29	110	60
SD10-2	19	23.3	205	13.5	84	820	170
SD11-1	20	18.1	124	12.6	99	500	160
SD11-2	21	18.4	123	9.8	81	490	120
SD12-1	22	10.2	38.7	3.7	48	160	46
SD12-2	23	18.4	102	8.5	85	410	110
SD13-1	24	13.5	32.7	4.2	59	130	52
SD13-2	25	8.3	30.6	3.3	38	120	41
MSW01	26	10.5	81.2	3.7	39	330	46
MSW02	27	6.7	22.2	1.5	29	89	19
MSW03	28	35.9	214	10.4	48	860	130
WMC603	29	16.6	75.2	4.5	61	300	56
WMC703	30	12.1	34.8	2.6	46	140	32
WMC803	31	15.7	32.5	3.6	63	130	45
WSO101A	32	14.2	40.5	4.5	76	160	56
WS102	33	31.6	85.9	7.7	111	350	95
Monazite	34	544	17400	767	1290	69,900	9,500
QC1	36	21.3	166	9.6	60	670	120
QC4	37	30.6	192	9.3	42	770	120
MSP03-2	38	75.5	1630	103	274	6,600	1,300

5.2.3 Radionuclide Analysis

Results of radionuclide analysis undertaken on selected representative sediment samples by gamma spectrometry are presented in **Table 6**.

Background and Upgradient Locations

U-238 Decay Chain

Measurable U-238 activity concentration of 220 Bq/kg was reported in the upgradient background river sediment sample collected at Mangaiky. Measurable activity concentrations within the same sample were also reported for Th-230 (340 Bq/kg), Ra-226 (220 Bq/kg) and Pb-210 (210 Bq/kg). Samples collected at Mandromondromotra and upgradient of discharge locations on the MMM river reported measurable U-238 activity concentrations averaging 95 Bq/kg, measurable Ra-226 averaging 100 Bq/kg and Pb-210 averaging 101 Bq/kg. Samples collected from the Meander River reported measurable U-238 activity concentrations above the limit of detection averaging 108 Bq/kg, Ra-226 activity concentrations averaging 97 Bq/kg and Pb-210 activity concentrations averaging 117 Bq/kg. A representative soil sample collected from the Evatraha village reported activity concentration of U-238 of 430 Bq/kg, Th-230 activity concentration of 530 Bq/kg, Ra-226 activity concentration of 600 Bq/kg and Pb-210 activity concentration of 550 Bq/kg.

U-235 Decay Chain

Measurable U-235 activity concentration of 10 Bq/kg was reported in the upgradient background river sediment sample collected at Mangaiky. No activity concentrations above the limit of detection were reported for Pa-231 or Ac-227. Samples collected at Mandromondromotra and upgradient of discharge locations on the MMM river reported an average measurable U-235 activity concentration above the limit of detection of 9 Bq/kg. Samples collected from the Meander River and within the southern lake system reported measurable U-235 activity concentrations above the limit of detection averaging 5 Bq/kg. A representative soil sample collected from the Evatraha village reported activity concentration of U-235 of 20 Bq/kg. No activity concentrations above the limit of detection were reported for Pa-231 or Ac-227 in any of the samples analysed.

Th-232 Decay Chain

Measurable Th-232 activity concentration of 610 Bq/kg was reported in the upgradient background river sediment sample collected at Mangaiky. Measurable activity concentrations within the same sample were also reported for Ra-228 (550 Bq/kg) and Th-228 (560 Bq/kg). Samples collected at Mandromondromotra and upgradient of discharge locations on the MMM river reported an average measurable Th-232 activity concentration of 305 Bq/kg, Ra-228 activity concentrations averaging 280 Bq/kg and Th-228 activity concentrations averaging 285 Bq/kg. Samples collected from the Meander River and within the southern lake system reported measurable U-235 activity concentrations above the limit of detection averaging 675 Bq/kg measurable Ra-228 averaging 481 Bq/kg and Th-228 averaging 485 Bq/kg. A representative soil sample collected from the Evatraha village reported activity concentration of Th-232 of 3,300 Bq/Kg, activity concentration of Ra-228 of 3700 Bq/kg and Th-228 of 3800 Bq/kg.

Table 6 Round 5 Activity Concentration in Sediments from the Study Area, Gamma Spectrometry

Units: Bq/kg	Sample ID							
Radionuclide	G9	G17	G18	SD1-1	SD1-2	SD3-1	SD5-1	SD5-2
U-238 Decay Chain								
U-238(a)	430±40	79 ± 8	220±20	<22 ±	82 ± 8	100 ± 10	130±10	120±10
Th-230	530± (e)	130±30	340±30	<110	<84	<140	<120	<130
Ra-226(b)	600±60	89±9	220±20	20±2	100 ± 10	85 ± 9	140 ± 10	140 ± 10
Pb-210	550±60	91±9	210±20	<16	100 ± 10	87 ± 9	160 ± 10	120 ± 10
U-235 Decay Chain								

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Units: Bq/kg Radionuclide	Sample ID G9	G17	G18	SD1-1	SD1-2	SD3-1	SD5-1	SD5-2
U-235	20±2	3.7±.04	10±1	<12	3.8±0.4	4.7±0.5	6.1±0.6	5.6±0.6
Th-232 Decay Chain								
Th-232 (a)	3300 ± 400	200±	610±60	-	660±60	490±50	810±80	740±70
Ra-228 (c)	3700 ± 400	190 ± 20	550±60	55±6	510±50	440±40	750±80	650±70
Th-228 (d)	3800 ± 400	190 ± 20	560±60	55±6	510±50	440±40	770±80	650±70
K-40	<34	<76	<230	<31	100±10	<87	<48	<31

Table 6 Continued

Units: Bq/kg Radionuclide	Sample ID SD6-2	SD8-2	SD12-2	MSW03	Monazite	QC4 (Duplicate MSW03)	MSP03-02
U-238 Decay Chain							
U-238(a)	110±10	290±30	110 ±10	130 ±10	9500 ±1000	120 ±10	1300±100
Th-230	140±30	300±(e)	<150	<290	8700±(e)	<330	1200±(e)
Ra-226(b)	100±10	290±30	110±10	120±10	8700±900	110±10	1200±100
Pb-210	110±10	310±30	110±10	120±10	8400±800	140±10	1000±100
U-235 Decay Chain							
U-235	<8.4	14±1	5.1±.5	6.1±.6	440±40	5.6±.6	61±6
Th-232 Decay Chain							
Th-232 (a)	-	1200±100	410±40	860±90	69900±7000	770±80	6600±700
Ra-228 (c)	380±40	1100±100	370±40	770±80	68000±7000	590±60	5600±600
Th-228 (d)	390±40	1100±100	380±40	730±70	71000±7000	610±60	5700±60
K-40	88±11	59±6	<74	<39	<360	88±8	<70

(a) Digest/ICPMS.

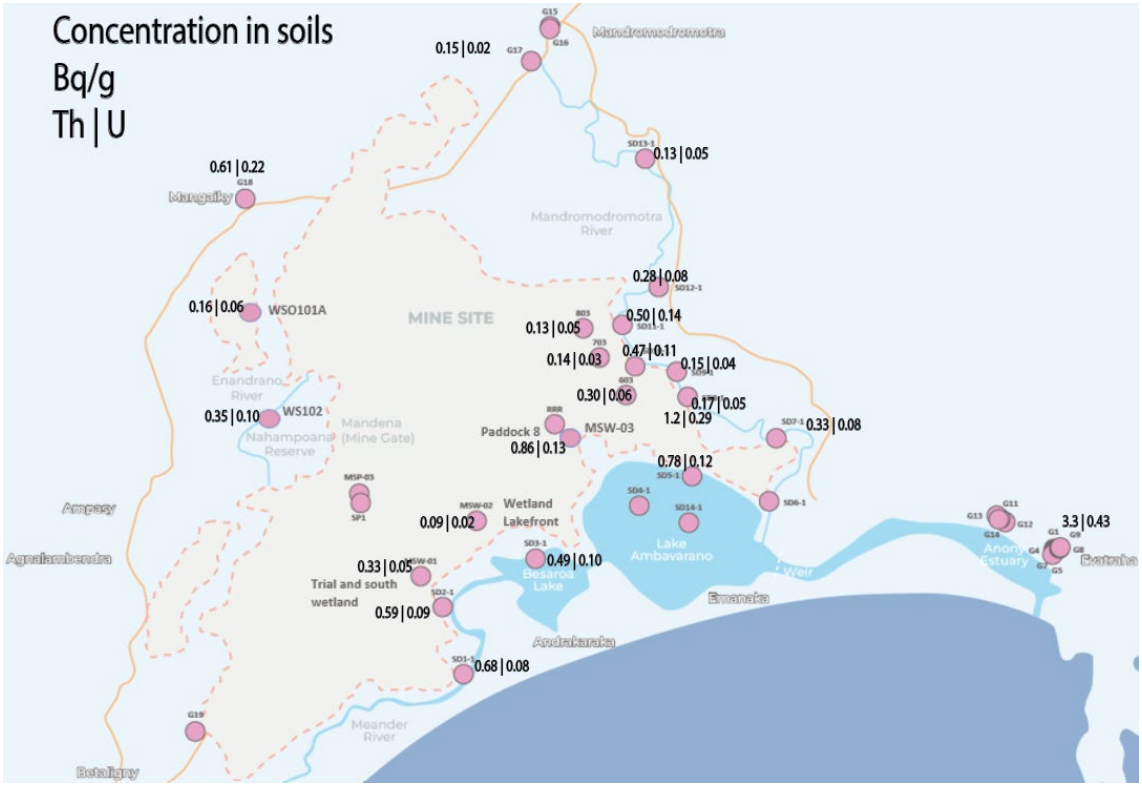
(b) Based on the measured concentrations of Pb-214 and Bi-214, assuming secular equilibrium.

(c) Based on the measured concentration of Ac-228, assuming secular equilibrium.

(d) Based on the measured concentration of Pb-212, assuming secular equilibrium.

(e) Interference from high concentrations of Th-232 decay chain radionuclides. Average of measured U-238, Ra-226 and Pb-210 concentrations.

Figure 5 Round 5 Thorium and Uranium Concentrations in Sediment



Radionuclides in soils, sediments and mining products are in equilibrium (U238:Ra226 and Th232:Ra228 ratios in downstream sediments average 1.0 when considering uncertainties).

There is therefore no evidence of Ra226 or Ra228 enhancement in downstream sediments.

5.3 Sediment Descriptions

The lithology present in sediment across the Round 5 targeted sample locations varied significantly representative of the different depositional environments. The lithologies ranged from sub angular gravels and very coarse sand through to organic rich silts and clays. Sediment lithology descriptions for Round 5 samples are presented in **Table 7** and photographs of the samples are presented as **Attachment 1**.

Table 7 Round 5 Sediment Sample Lithological Descriptions

Sample ID	Lithology
SD01-1	SAND, grey brown to pale grey brown, medium grained with minor organics
SD01-2	SAND, dark grey brown, fine to medium grained with silt and minor organics
SD02-1	SAND, grey brown, fine to medium grained with silt and minor organics
SD02-2	SAND, grey brown, fine to medium grained with silt and minor organics
SD03-1	Clayey, sandy SILT, dark grey brown, grading to clayey silt
SD03-2	Clayey, sandy SILT, dark grey brown, grading to clayey silt with organic matter
SD04-1	Clayey SILT, dark grey brown, with minor fine sand

Sample ID	Lithology
SD04-2	Clayey SILT, dark grey brown, with trace of fine sand
SD05-1	SAND, grey brown, fine to medium grained with silt and minor organics
SD05-2	SAND, grey brown, fine to medium grained with silt and minor organics
SD06-1	Clayey SILT, dark grey, with minor fine sand
SD06-2	Silty SAND, dark grey, fine grained
SD07-1	SILT, black to dark grey, with minor fine sand
SD07-2	Silty SAND, dark grey brown, fine grained
SD08-1	SAND, grey brown, fine to coarse grained
SD08-2	Clayey SILT, dark grey brown with fine sand
SD09-1	SAND, light grey brown, fine to medium grained
SD09-2	SAND, grey brown, fine to medium grained
SD10-1	Sandy GRAVEL, light grey, sub angular to rounded
SD10-2	Silty SAND, grey brown, fine grained
SD11-1	Sandy SILT, dark grey, with fine grained sand
SD11-2	Sandy SILT, dark grey, with fine grained sand
SD12-1	SAND, grey, fine to medium grained
SD12-2	SAND, grey, fine to medium grained
SD13-1	SAND, grey, coarse grained with fine gravel
SD13-2	SAND, grey, fine to coarse grained with fine gravel
SD14-1	Clayey SILT, dark grey with fine sand
SD14-2	Clayey SILT, dark grey with fine sand
MSW1	SAND, light brown grey, fine to medium grained
MSW2	SAND, grey brown, fine to medium grained with trace organics
MSW3	Clayey SILT, black to dark grey with fine grained sand
MSP01	Clayey Silt, dark brown grey
MSP02	Clayey Silt, dark brown grey
MSP03	Clayey Silt, dark brown grey
SP1	SAND, grey brown, fine to medium grained with silt

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Sample ID	Lithology
WMC603	SAND, grey brown, fine grained
WMC703	Silty SAND, dark brown, fine grained with organics
WMC803	SAND, brown grey, fine to medium grained
G5	Silty SAND, light grey, fine grained
G6	Silty SAND, light grey, fine grained
G7	Silty SAND, light grey to dark grey, fine grained
G8	Clayey sandy SILT, dark brown, fine grained sand with organics
G9	Clayey sandy SILT, dark brown, fine grained sand with organics
G10	Clayey sandy SILT, dark brown, fine grained sand with organics
G17	Silty SAND, brown, fine to medium grained
G18	Clayey silty SAND, light green brown, fine grained
G19	SAND, brown grey, fine to coarse grained with fine gravels
WS0101A	SAND, brown grey, fine to medium grained with silt
WS102	Clayey SILT, with fine sand and organics

A5 Attachment 1 – Photographs

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PLATE 1 - ROUND 1 SOIL SAMPLING AT AMPASY



PLATE 2 - WEIGHING DRIED SEDIMENT SAMPLES

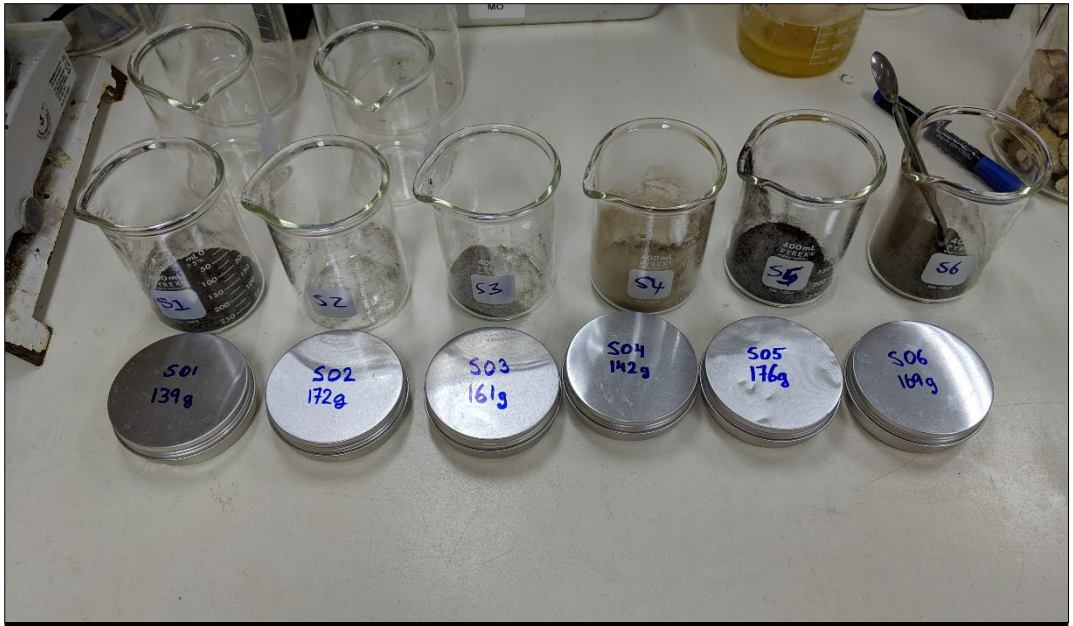

PLATE 3 - DRIED SOIL/SEDIMENT SAMPLES FROM EVENT 1



PLATE 4 - ROUND 1 SOIL/SEDIMENT SAMPLES PACKED FOR SHIPPING

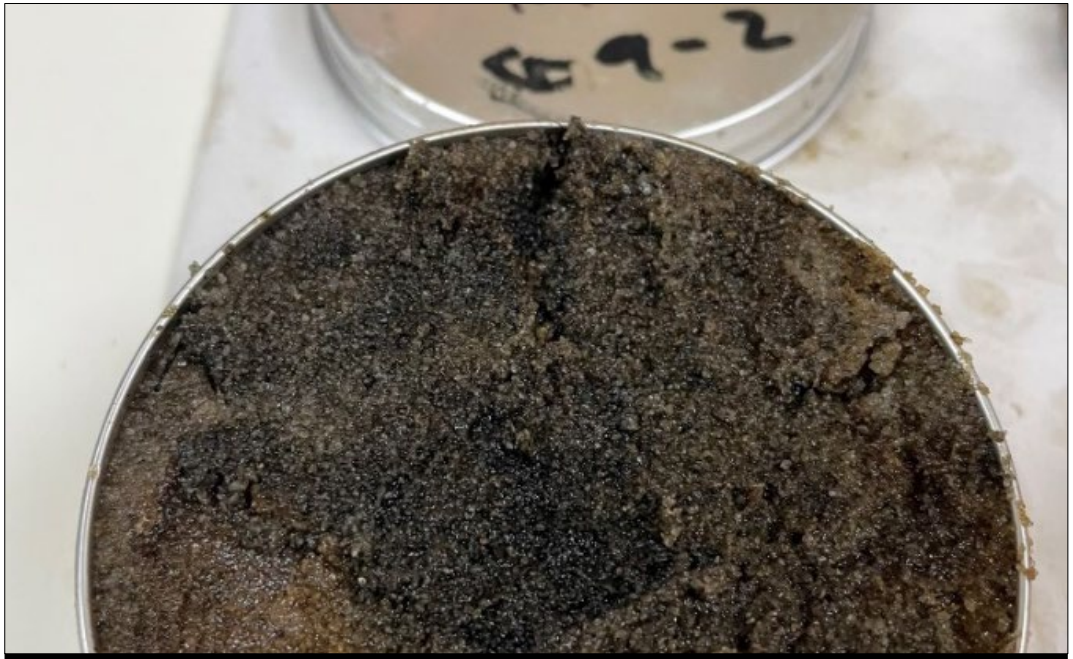

PLATE 5 - R5 SEDIMENT SD9-1 MMM RIVER LOCATION S42



PLATE 6 - R5 SEDIMENT SD8-1 MMM RIVER LOCATION S41



PLATE 7 - R5 SEDIMENT SD8-2 MMM RIVER LOCATION S41



PLATE 8 - R5 SEDIMENT SD7-1 MMM RIVER SOUTH OF LOCATION S41 (SW05)



PLATE 9 - R5 SEDIMENT SD6-1 MMM RIVER SOUTH OF LOCATION S41 (SW04)



PLATE 10 - R5 SEDIMENT SD8-1 MMM RIVER LOCATION S41



PLATE 11 - R5 SEDIMENT SD8-2 MMM RIVER LOCATION S41



PLATE 12 - R5 SEDIMENT SD14-1 LAKE AMBAVARANO



PLATE 13 - R5 PLATE 22 – SEDIMENT G17 MMM BRIDGE



PLATE 14 - R5 SEDIMENT SD 13-1 MMM RIVER NORTH OF DISCHARGE LOCATIONS



PLATE 15 - R5 SEDIMENT SD12-1 MMM RIVER LOCATION S46



PLATE 16 - R5 SEDIMENT SD11-1 MMM RIVER LOCATION S44



PLATE 17 - SEDIMENT SD10-1 MMM RIVER LOCATION S43



PLATE 18 - SEDIMENT SD10-2 MMM RIVER LOCATION S43

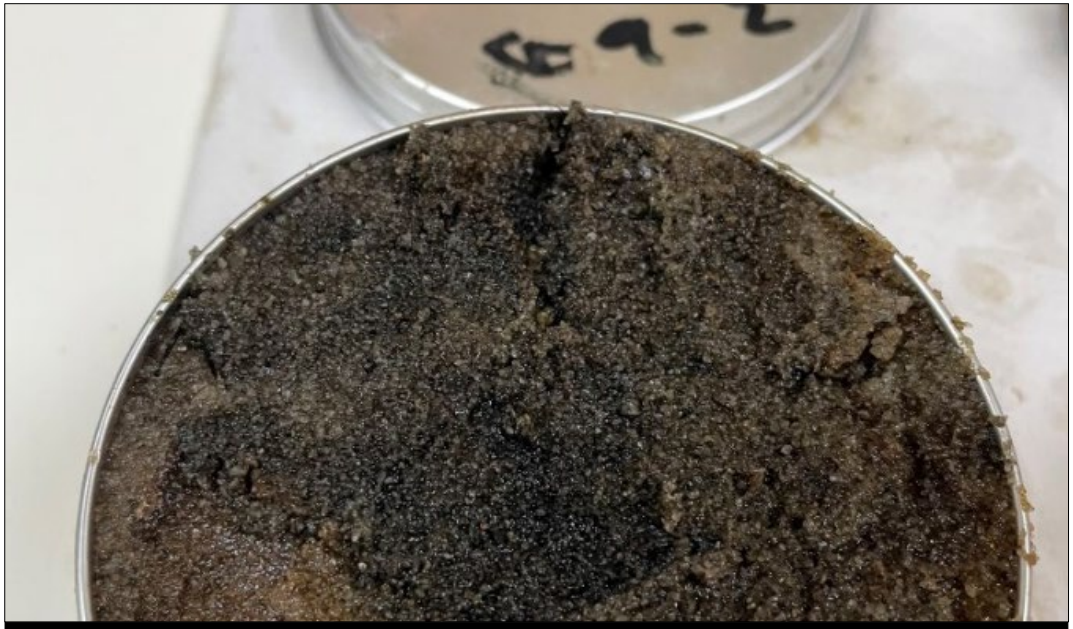

PLATE 19 - SEDIMENT SD9-2 MMM RIVER LOCATION S42

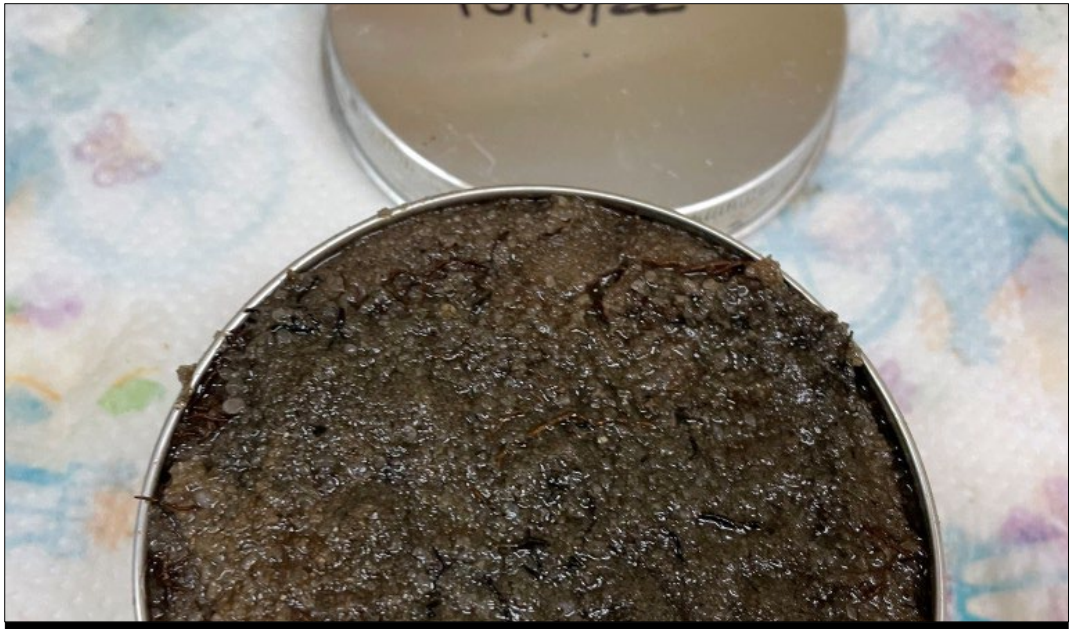

PLATE 20 SEDIMENT MSW-01PLATE 33 – SEDIMENT MSW-01



PLATE 21 - R5 SEDIMENT MSW-02 (WESTERN LAKE FRONT)



PLATE 22 - R5 SEDIMENT MSW-03 (PADDOCK 8)



PLATE 23 - R5 SEDIMENT G8 (EVATRAHA RICE PADDY 1)



PLATE 24 - R5 SEDIMENT G10 (EVATRAHA RICE PADDY 3



PLATE 25 - R5 MANGAIKY BRIDGE ENANDRANO RIVER



PLATE 26 - R5 WS101A ENANDRANO RIVER



PLATE 27 - R5 WS102 ENANDRANO RIVER



PLATE 28 - R5 WS102 ENANDRANO RIVER



PLATE 29 - R5 COLLECTION OF SEDIMENT AT SOUTHERN WETLAND



PLATE 30 - R5 COLLECTION OF SEDIMENT ON MMM RIVER



PLATE 31 - R5 COLLECTION OF SEDIMENT AT WMC603



PLATE 32 - R5 SEDIMENT SAMPLE DRYING

A5 Attachment 2 – Certified Laboratory Results

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CERTIFICATE OF ANALYSIS

Certificate Number:	JBS&G-190523
Company / Organisation:	Dean OBroin, JBS&G
Client Identification:	Madagascar - Sediments
AM Identification:	Refer to results table
AM Request Number:	2300515
Analysis Requested:	U-238, U-235 and Th-232 Decay Chain Progeny by Gamma Spectrometry U, Th, Pb and Zn by Digestion/ICPMS[1]

Thirty eight (38) selected sediment samples from the Round 5 sampling program were listed on the chain of custody documentation (COC) for assay. Thirty seven (37) samples were received on 7 March 2023. One sample of sludge, RRR, was not received. The received samples were dried (105 °C) and pulverised prior to assay.

Gamma spectrometry for radionuclides in the naturally occurring uranium-238, uranium-235 and thorium-232 decay chains was carried out for fifteen (15) selected samples according to ANSTO Minerals controlled documents AM-I-052-003 Preparation of Powdered Samples for Gamma Ray Analysis, AM-I-052-004 Counting Procedure using Maestro and AM-I-052-005 Gamma Spectrum Analysis of Solid Samples using GammaVision. Due to the unexpected higher concentrations of Th-232 decay chain radionuclides in three (3) samples[2], x-ray fluorescence spectrometry (XRF) was carried out and the results used for self-absorption corrections in gamma spectrometry for these three samples.

For elemental assays, all samples received were fused using lithium tetra:meta borate (12:22, Pt crucible), according to ANSTO Minerals controlled document G-5913 Analytical Methods Manual, and analysed for U, Th, Pb and Zn using ICPMS, according to Nuclear Science & Technology controlled document I-3775 Inorganic: Thermo Fisher iCAP 7600 ICPAES Analysis and I-8143 Agilent Triple Quadrupole ICPMS.

The concentrations of parent U-238 and Th-232 were calculated from the measured U and Th concentrations from ICPMS using the respective specific activities.

The radionuclide, elemental and XRF results are given in Tables 1, 2 and 3, respectively.

[1] Inductively coupled plasma mass spectrometry.
[2] SD8-2, monazite and MSP03-02.

The total contained activity in the samples was calculated from the measured radionuclide activity concentrations for the long-lived decay progeny in each of the U-238, U-235 and Th-232 decay chains, together with K-40, as reported in Table 1. The value does, however, include the contribution of all radionuclides in the sample, both long- and short-lived. A less than value assumes zero activity concentration for that particular radionuclide in the calculation.

A comparison of uranium-238, radium-226, thorium-232 and potassium-40 concentrations in the sediment samples with worldwide background soil concentrations is provided for the information of the client in Table 4.

S. A. Brown

Dr Sue Brown, Senior Radiochemist **Date: 19 May 2023**

Table 1 – Radionuclide Concentrations in Round 5 Sediment Samples (Bq/g)

Client ID	G9	G17	G18	SD1-1	SD1-2	SD3-1	SD5-1	SD5-2
ANSTO ID: MAD-070323-	1	2	3	4	5	7	9	10
Sample Weight (grams)	36.20	38.18	35.19	38.41	39.79	26.38	37.12	37.04
U-238 Decay Chain								
U-238 (a)	0.43 ± 0.04	0.079 ± 0.008	0.22 ± 0.02	< 0.022 (i)	0.082 ± 0.008	0.10 ± 0.01	0.13 ± 0.01	0.12 ± 0.01
Th-230	0.53 ± (h)	0.13 ± 0.03	0.34 ± 0.03	< 0.11	< 0.084	< 0.14	< 0.12	< 0.13
Ra-226 (b)	0.60 ± 0.06	0.089 ± 0.009	0.22 ± 0.02	0.020 ± 0.002	0.10 ± 0.01	0.085 ± 0.009	0.14 ± 0.01	0.14 ± 0.01
Pb-210	0.55 ± 0.06	0.091 ± 0.009	0.21 ± 0.02	< 0.016	0.10 ± 0.01	0.087 ± 0.009	0.16 ± 0.02	0.12 ± 0.01
U-235 Decay Chain								
U-235 (c)	0.020 ± 0.002	0.0037 ± 0.0004	0.010 ± 0.001	< 0.012 (j)	0.0038 ± 0.0004	0.0047 ± 0.0005	0.0061 ± 0.0006	0.0056 ± 0.0006
Pa-231	< 0.078	< 0.022	< 0.037	< 0.029	< 0.025	< 0.032	< 0.037	< 0.055
Ac-227 (d)	< 0.025	< 0.0045	< 0.0077	< 0.0069	< 0.0056	< 0.0070	< 0.0079	< 0.014
Th-232 Decay Chain								
Th-232 (a)	3.3 ± 0.3	0.20 ± 0.02	0.61 ± 0.06	not analysed	0.66 ± 0.06	0.49 ± 0.05	0.81 ± 0.08	0.74 ± 0.07
Ra-228 (e)	3.7 ± 0.4	0.19 ± 0.02	0.55 ± 0.06	0.055 ± 0.006	0.51 ± 0.05	0.44 ± 0.04	0.75 ± 0.08	0.65 ± 0.07
Th-228 (f)	3.8 ± 0.4	0.19 ± 0.02	0.56 ± 0.06	0.055 ± 0.006	0.51 ± 0.05	0.44 ± 0.04	0.77 ± 0.08	0.65 ± 0.07
K-40	< 0.034	< 0.076	< 0.021	< 0.031	< 0.020	< 0.087	< 0.048	< 0.031
U (ppm) (a)	34.7 ± 3.5	6.4 ± 0.6	17.8 ± 1.8	not analysed	6.6 ± 0.7	8.2 ± 0.8	10.3 ± 1.0	9.4 ± 0.9
Th (ppm) (a)	810 ± 81	49.7 ± 5.0	152 ± 15	not analysed	165 ± 17	123 ± 12	202 ± 20	185 ± 19
Total Contained Activity (g)	41.5	3.0	8.2	0.62	5.8	5.1	8.7	7.5

(a) Digest/ICPMS.

(b) Based on the measured concentrations of Pb-214 and Bi-214, assuming secular equilibrium.

(c) Below gamma spectrometry detection limit. Calculated from the measured U-238 concentration.

(d) Based on the measured concentration of Th-227, assuming secular equilibrium.

(e) Based on the measured concentration of Ac-228, assuming secular equilibrium.

(f) Based on the measured concentration of Pb-212, assuming secular equilibrium.

(g) Calculated from the measured concentrations for the long-lived radionuclides. Refer to further comments in the text.

(h) Interference from high concentrations of Th-232 decay chain radionuclides. Average of measured U-238, Ra-226 and Pb-210 concentrations.

(i) Based on the measured concentration of Th-234, assuming secular equilibrium.

(j) Gamma spectrometry.

Table 1 – Radionuclide Concentrations in Round 5 Sediment Samples (Bq/g) (continued)

Client ID	SD6-2	SD8-2	SD12-2	MSW03	Monazite	RRR	QC4	MSP03-02
ANSTO ID: MAD-070323-	11	15	23	28	34	35	37	38
Sample Weight (grams)	28.91	23.10	30.45	19.72	40.70	not received	20.40	25.16
U-238 Decay Chain								
U-238 (a)	0.11 ± 0.01 (h)	0.29 ± 0.03	0.11 ± 0.01	0.13 ± 0.01	9.5 ± 1.0	±	0.12 ± 0.01	1.3 ± 0.1
Th-230	0.14 ± 0.03	0.30 ± (i)	< 0.15	< 0.29	8.7 ± (i)	±	< 0.33	1.2 ± (i)
Ra-226 (b)	0.10 ± 0.01	0.29 ± 0.03	0.11 ± 0.01	0.12 ± 0.01	8.7 ± 0.9	±	0.11 ± 0.01	1.2 ± 0.1
Pb-210	0.11 ± 0.01	0.31 ± 0.03	0.11 ± 0.01	0.12 ± 0.01	8.4 ± 0.8	±	0.14 ± 0.01	1.0 ± 0.1
U-235 Decay Chain								
U-235 (c)	< 0.0084 (j)	0.014 ± 0.001	0.0051 ± 0.0005	0.0061 ± 0.0006	0.44 ± 0.04	±	0.0056 ± 0.0006	0.061 ± 0.006
Pa-231	< 0.037	< 0.049	< 0.034	< 0.052	< 0.76	±	< 0.036	< 0.17
Ac-227 (d)	< 0.0061	< 0.011	< 0.0069	< 0.012	< 0.094	±	< 0.0075	< 0.044
Th-232 Decay Chain								
Th-232 (a)	not analysed	1.2 ± 0.1	0.41 ± 0.04	0.86 ± 0.09	69.9 ± 7.0	±	0.77 ± 0.08	6.6 ± 0.7
Ra-228 (e)	0.38 ± 0.04	1.1 ± 0.1	0.37 ± 0.04	0.77 ± 0.08	68 ± 7	±	0.59 ± 0.06	5.6 ± 0.6
Th-228 (f)	0.39 ± 0.04	1.1 ± 0.1	0.38 ± 0.04	0.73 ± 0.07	71 ± 7	±	0.61 ± 0.06	5.7 ± 0.6
K-40	0.088 ± 0.011	0.059 ± 0.006	< 0.074	< 0.039	< 0.36	±	0.080 ± 0.008	< 0.070
U (ppm) (a)	8.9 ± 0.9 (i)	23.5 ± 2.4	8.5 ± 0.9	10.4 ± 1.0	767 ± 77	±	9.3 ± 0.9	103 ± 10
Th (ppm) (a)	not analysed	294 ± 29	102 ± 10	214 ± 21	17400 ± 1740	±	192 ± 19	1630 ± 163
Total Contained Activity (g)	5.1	14.1	4.8	8.3	758	0.00	7.1	67.8

(a) Digest/ICPMS.

(b) Based on the measured concentrations of Pb-214 and Bi-214, assuming secular equilibrium.

(c) Below gamma spectrometry detection limit. Calculated from the measured U-238 concentration.

(d) Based on the measured concentration of Th-227, assuming secular equilibrium.

(e) Based on the measured concentration of Ac-228, assuming secular equilibrium.

(f) Based on the measured concentration of Pb-212, assuming secular equilibrium.

(g) Calculated from the measured concentrations for the long-lived radionuclides. Refer to further comments in the text.

(h) Based on the measured concentration of Th-234, assuming secular equilibrium.

(i) Interference from high concentrations of Th-232 decay chain radionuclides. Average of measured U-238, Ra-226 and Pb-210 concentrations.

(j) Gamma spectrometry.

Table 2 – Elemental Concentrations in Round 5 Sediment Samples (ppm)

Client ID:	ANSTO ID:	ppm[2]				Bq/g	
Sediment	MAD-070323-	Pb	Th	U	Zn	Th-232	U-238
G9	1	71.8	810	34.7	140	3.3	0.43
G17	2	16.9	49.7	6.4	75	0.20	0.079
G18	3	38.3	152	17.8	142	0.61	0.22
SD1-2	5	22.9	165	6.6	48	0.66	0.082
SD2-1	6	16.9	146	6.9	44	0.59	0.086
SD3-1	7	21.9	123	8.2	66	0.49	0.10
SD3-2	8	18.2	121	7.5	54	0.49	0.093
SD5-1	9	25.8	202	10.3	80	0.81	0.13
SD5-2	10	29.5	185	9.4	88	0.74	0.12
SD7-1	12	18.4	106	8.2	79	0.43	0.10
SD7-2	13	16.3	56.6	5.1	64	0.23	0.063
SD8-1	14	10.8	41.6	3.9	66	0.17	0.048
SD8-2	15	39.4	294	23.5	123	1.2	0.29
SD9-1	16	8.7	30.4	3.0	41	0.12	0.037
SD9-2	17	11.0	44.2	3.9	54	0.18	0.048
SD10-1	18	12.9	27.3	4.8	29	0.11	0.060
SD10-2	19	23.3	205	13.5	84	0.82	0.17
SD11-1	20	18.1	124	12.6	99	0.50	0.16
SD11-2	21	18.4	123	9.8	81	0.49	0.12
SD12-1	22	10.2	38.7	3.7	48	0.16	0.046
SD12-2	23	18.4	102	8.5	85	0.41	0.11
SD13-1	24	13.5	32.7	4.2	59	0.13	0.052
SD13-2	25	8.3	30.6	3.3	38	0.12	0.041
MSW01	26	10.5	81.2	3.7	39	0.33	0.046
MSW02	27	6.7	22.2	1.5	29	0.089	0.019
MSW03	28	35.9	214	10.4	48	0.86	0.13
WMC603	29	16.6	75.2	4.5	61	0.30	0.056
WMC703	30	12.1	34.8	2.6	46	0.14	0.032
WMC803	31	15.7	32.5	3.6	63	0.13	0.045
WSO101A	32	14.2	40.5	4.5	76	0.16	0.056
WS102	33	31.6	85.9	7.7	111	0.35	0.095
Monazite	34	544	17400	767	1290	69.9	9.5
RRR[1]	35	sample not received					
QC1	36	21.3	166	9.6	60	0.67	0.12
QC4	37	30.6	192	9.3	42	0.77	0.12
MSP03-2	38	75.5	1630	103	274	6.6	1.3
[1] Sludge	Limit of reporting	0.5	0.5	0.1	10	0.002	0.001

[2] Error: Pb, Th, U - 10%;

Zn: ≥ 100 ppm - 10%; < 100 ppm to ≥ 50 ppm - 20%; < 50 ppm - 50%

Table 3 – XRF Results for Selected Round 5 Sediment Samples (%)

Client ID	SD8-2	Monazite	MSP03-02	
Sample ID	MAD-070323-15	MAD-070323-34	MAD-070323-38	
Bead No.	127067	127068	127069	LOR[2]
Al	3.9	14.8	5.8	0.01
Ba	0.010	0.006	0.013	0.001
Ca	0.089	0.24	0.064	0.001
Ce	0.07	4.3	0.35	0.01
Cr	0.073	0.047	0.029	0.001
Fe	4.1	9.4	5.1	0.001
Gd	< 0.01	0.13	0.02	0.01
Hf	0.003	0.047	0.026	0.001
K	0.19	0.003	0.26	0.001
La	0.03	2.0	0.18	0.01
Mg	0.14	5.4	0.28	0.01
Mn	0.024	0.11	0.045	0.001
Na	< 0.05	< 0.05	< 0.05	0.05
Nb	0.013	0.057	0.029	0.001
Nd	0.03	1.8	0.16	0.001
P	0.061	2.4	0.24	0.001
Pb	0.001	0.032	0.004	0.001
Pr	< 0.01	0.51	0.05	0.01
S	0.22	0.020	0.15	0.001
Si	33.5	2.9	21.8	0.01
Sm	< 0.01	0.26	0.03	0.01
Sn	< 0.001	< 0.001	0.001	0.001
Th	0.025	1.9	0.16	0.001
Ti	2.3	11.2	5.4	0.001
U	0.003	0.074	0.010	0.001
V	0.011	0.038	0.022	0.001
Y	0.002	0.076	0.009	0.001
Zn	0.009	0.12	0.027	0.001
Zr	0.24	3.1	1.3	0.001

[1] Error: ≥ 10 x LOR - 10%; < 10 to ≥ 5 x LOR - 20%; < 5 x LOR - 50%

[2] Limit of reporting.

Table 4 – Comparison of Uranium-238, Radium-226, Thorium-232 and Potassium-40 Concentrations with IAEA and UNSCEAR Background Soil Concentrations (Bq/g)

World Background Soils	U-238	U (ppm)	Ra-226	Th-232	Th (ppm)	K-40
UNSCEAR (a)	0.035 (0.016 - 0.110)	2.8 (1.3 - 8.9)	0.035 (0.017 - 0.060)	0.030 (0.011 - 0.064)	7.5 (2.7 - 15.9)	0.400 (0.140 - 0.850)
IAEA (b)	0.025 (0.010 - 0.050)	2.0 (0.81 - 4.0)	0.025 (0.010 - 0.050)	0.025 (0.007 - 0.050)	6.2 (1.7 - 12.4)	0.370 (0.100 - 0.700)
G9	0.43	34.7	0.60	3.3	810	< 0.034
G17	0.079	6.4	0.089	0.20	49.7	< 0.076
G18	0.22	17.8	0.22	0.61	152	< 0.021
SD1-1	< 0.022	na	0.020	na	na	< 0.031
SD1-2	0.082	6.6	0.10	0.66	165	< 0.020
SD3-1	0.10	8.2	0.085	0.49	123	< 0.087
SD5-1	0.13	10.3	0.14	0.81	202	< 0.048
SD5-2	0.12	9.4	0.14	0.74	185	< 0.031
SD6-2	0.11	8.9	0.10	na	na	0.088
SD8-2	0.29	23.5	0.29	1.2	294	0.059
SD12-2	0.11	8.5	0.11	0.41	102	< 0.074
MSW03	0.13	10.4	0.12	0.86	214	< 0.039
Monazite	9.5	767	8.4	69.9	17400	< 0.36
QC4	0.12	9.3	0.14	0.77	192	0.080
MSP03-02	1.3	103	1.0	6.6	1630	< 0.070

(a) UNSCEAR, Ionising Radiation: Sources and Biological Effects, United Nations Scientific Committee on the Effects of Atomic Radiation, 2000.

(b) IAEA, Generic Procedures for Assessment and Response during a Radiological Emergency, IAEA TECDOC Series No. 1162, 2000.

na - not analysed.

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CERTIFICATE OF ANALYSIS

Certificate Number:	SARAD-130720 RN
Company / Organisation:	Mathieu Messeiller, SA Radiation
Client Identification:	Madagascar - Soils
AM Identification:	MAD-160120-26 to 34
AM Request Number:	2000404 (RN) and 2000633 (Th)
Analysis Requested:	Radionuclides by Gamma Spectrometry Thorium by Digestion/ICPMS[1]

Nine (9) soil samples were received on 16 January 2020. The samples were dried (105 °C) and pulverised prior to assay.

Gamma spectrometry for radionuclides in the naturally occurring uranium-238, uranium-235 and thorium-232 decay chains was carried out according to ANSTO Minerals controlled documents AM-I-052-003 Preparation of Powdered Samples for Gamma Ray Analysis, AM-I-052-004 Counting Procedure using Maestro and AM-I-052-005 Gamma Spectrum Analysis of Solid Samples using GammaVision.

The samples were digested with ammonium bifluoride, sulfuric acid and aqua regia, and made to 50 mL (volumetrically) with MilliQ water according to ANSTO Minerals controlled document I-5942 Dissolution of Solid Samples for Radiochemical Analysis.

ICPMS for thorium was carried out according to ANSTO Minerals controlled document G-5913 Analytical Methods Manual.

The results are given in Table 1.

A comparison of uranium-238, radium-226, thorium-232 and potassium-40 concentrations in the soil samples with worldwide background soil concentrations is provided for the information of the client in Table 2.

Dr Sue Brown, Senior Radiochemist **Date: 13 July 2020**

[1] Inductively coupled plasma mass spectrometry.

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Table 1 – Radionuclide Concentrations in Soil Samples (Bq/g)

Client ID	1000026 SO2	1000027 SO3	1000028 SO4	1000029 SO5	1000030 SO6	1000031 SO7	1000032 SO8	1000033 SO9	1000034 SO10
ANSTO ID: SARAD-160120-	26	27	28	29	30	31	32	33	34
Sample Weight (g)	41.48	33.37	30.36	31.27	32.78	33.88	33.57	31.10	33.50
U-238 Decay Chain									
U-238 (a)	0.045 ± 0.009	< 0.014	0.08 ± 0.01	< 0.011	0.06 ± 0.01	0.15 ± 0.02	0.048 ± 0.008	0.09 ± 0.02	0.07 ± 0.01
Th-230	< 0.098	< 0.063	< 0.13	< 0.036	< 0.17	0.14 ± 0.03	< 0.075	< 0.18	< 0.13
Ra-226 (b)	0.085 ± 0.009	0.025 ± 0.003	0.068 ± 0.007	0.011 ± 0.001	0.039 ± 0.004	0.14 ± 0.01	0.039 ± 0.004	0.061 ± 0.006	0.066 ± 0.007
Pb-210	0.086 ± 0.009	< 0.011	0.070 ± 0.007	0.025 ± 0.003	0.044 ± 0.004	0.13 ± 0.01	0.044 ± 0.004	0.060 ± 0.006	0.062 ± 0.007
U-235 Decay Chain									
U-235	< 0.0092	< 0.0086	< 0.016	< 0.0085	< 0.014	< 0.015	< 0.0090	< 0.014	< 0.013
Pa-231	< 0.030	< 0.026	< 0.035	< 0.018	< 0.045	< 0.047	< 0.022	< 0.045	< 0.042
Ac-227 (c)	< 0.0050	< 0.0053	< 0.0062	< 0.0032	< 0.0082	< 0.013	< 0.0068	< 0.0092	< 0.010
Th-232 Decay Chain									
Th-232 (d)	0.06 ± 0.03	0.07 ± 0.03	0.12 ± 0.02	< 0.02	0.13 ± 0.02	0.36 ± 0.04	0.11 ± 0.02	0.14 ± 0.03	0.20 ± 0.02
Ra-228 (e)	0.11 ± 0.01	0.10 ± 0.01	0.16 ± 0.02	0.028 ± 0.003	0.11 ± 0.01	0.47 ± 0.05	0.15 ± 0.02	0.18 ± 0.02	0.23 ± 0.02
Th-228 (f)	0.10 ± 0.01	0.11 ± 0.01	0.16 ± 0.02	0.020 ± 0.002	0.11 ± 0.01	0.51 ± 0.05	0.16 ± 0.02	0.19 ± 0.02	0.25 ± 0.03
K-40	0.05 ± 0.01	< 0.022	0.07 ± 0.02	< 0.017	< 0.038	0.09 ± 0.01	< 0.020	< 0.042	< 0.027
U (ppm) (a)	3.6 ± 0.7	< 1.1	6.5 ± 0.8	< 0.89	4.8 ± 0.8	12 ± 2	3.9 ± 0.6	7.3 ± 1.6	5.6 ± 0.8
Th (ppm) (d)	16 ± 8	17 ± 8	29 ± 6	< 5	32 ± 6	90 ± 9	27 ± 5	36 ± 7	50 ± 5
Total Contained Activity (g)	1.92	1.12	2.45	0.34	1.60	6.57	1.98	2.60	3.07

(a) Based on the measured concentration of Th-234, assuming secular equilibrium.

(b) Based on the measured concentrations of Pb-214 and Bi-214, assuming secular equilibrium.

(c) Based on the measured concentration of Th-227, assuming secular equilibrium.

(d) Digestion/ICPMS.

(e) Based on the measured concentration of Ac-228, assuming secular equilibrium.

(f) Based on the measured concentration of Pb-212, assuming secular equilibrium.

(g) Calculated from the measured concentrations for the long-lived radionuclides. Value includes the contribution of all radionuclides in the sample, both long- and short-lived, including K-40. Less than values assume zero concentration in the calculations.

Table 2 – Comparison of Uranium-238, Radium-226, Thorium-232 and Potassium-40 Concentrations with IAEA and UNSCEAR Background Soil Concentrations (Bq/g)

Client ID	1000026	1000027	1000028	1000029	1000030	1000031	1000032	1000033	1000034	World Background Soils	
	SO2	SO3	SO4	SO5	SO6	SO7	SO8	SO9	SO10	UNSCEAR (a)	IAEA (b)
U-238	0.045	< 0.014	0.08	< 0.011	0.06	0.15	0.048	0.09	0.07	0.035 (0.016 - 0.110)	0.025 (0.010 - 0.050)
Ra-226	0.085	0.025	0.068	0.011	0.039	0.14	0.039	0.061	0.066	0.035 (0.017 - 0.060)	0.025 (0.010 - 0.050)
Th-232	0.06	0.07	0.12	< 0.02	0.13	0.36	0.11	0.14	0.20	0.030 (0.011 - 0.064)	0.025 (0.007 - 0.050)
K-40	0.05	< 0.022	0.07	< 0.017	< 0.038	0.09	< 0.020	< 0.042	< 0.027	0.400 (0.140 - 0.850)	0.370 (0.100 - 0.700)
U (ppm)	3.6	< 1.1	6.5	< 0.89	4.8	12	3.9	7.3	5.6	2.8 (1.3 - 8.9)	2.0 (0.81 - 4.0)
Th (ppm)	16	17	29	< 5	32	90	27	36	50	7.5 (2.7 - 15.9)	6.2 (1.7 - 12.4)

(a) UNSCEAR, Ionising Radiation: Sources and Biological Effects, United Nations Scientific Committee on the Effects of Atomic Radiation, 2000.

(b) IAEA, Generic Procedures for Assessment and Response during a Radiological Emergency, IAEA TECDOC Series No. 1162, 2000.

A5 Attachment 3 – Field XRF Calibration

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Olympus Scientific Solutions America
48 Woerd Ave
Waltham, MA 02453

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CERTIFICATE OF CALIBRATION

Certificate number: 002-20220517-10230050
Equipment: VANTA
Serial number: 843130
Equipment description: XRF Analyzer
Calibration date (YYYY/MM/DD): 2022/05/17
Manufacturer facility: Massachusetts, Waltham
Status after calibration: Within tolerances
Calibration type: New Unit

Calibrated by:
Peter Ho
Peter Ho (ID# 002-105)

Verified by:
Marc Vaccarello
Marc Vaccarello (ID# 002-108)

This instrument was calibrated according to Olympus Scientific Solutions Americas calibration procedures. This instrument conforms to Olympus Scientific Solutions Americas Quality Assurance standards. Analyzers configured with different method are tested to meet the below criteria.

Olympus Scientific Solutions America
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Waltham, MA 02453

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Fax: 781-419-3980
www.olympus-ims.com

Miscellaneous

Package	Rev
INST-00121	5

Test configuration #
3.1.1.7

Temperature
Results
23.33 (°C)
74.00 (°F)

Humidity
Results (%)
42.10

OLYMPUS

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Vanta

XRF Calibration

Results

Test status	PASS

Model type: VANTA-VCA
Method used: Geochem(3-Beam)

Calibration				
Sample	Element	Results (%)	Tolerances	
			Min	Max
OREAS 74a	S	7.766	4.000	10.000
OREAS 74a	Ni	3.285	2.290	4.190
OREAS 74a	Cr	0.163	0.100	0.240
OREAS 74a	Cu	0.123	0.080	0.190
OREAS 98	Cu	15.410	11.000	18.600
OREAS 100a	Fe	4.677	2.500	8.000
OREAS 100a	Ti	0.262	0.013	0.465
OREAS 100a	U	0.014	0.004	0.025
OREAS 100a	Ce	0.055	0.005	0.150
OREAS 100a	La	0.038	0.005	0.125
OREAS 133a	S	11.721	8.600	14.200
OREAS 133a	Ca	4.117	1.600	6.500
OREAS 133a	Fe	7.623	5.400	10.400
OREAS 133a	Zn	11.247	8.370	13.000
OREAS 133a	Pb	4.485	3.700	6.000
OREAS 133a	Ba	0.113	0.020	0.240
GBM 398-4	Cr	0.169	0.140	0.270
GBM 398-4	Ni	0.414	0.250	0.570
GBM 398-4	Cu	0.453	0.200	0.570
GBM 398-4	Zn	0.583	0.410	0.620
GBM 398-4	Pb	1.068	0.900	1.300

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Results

Test status	PASS

Model type: VANTA-VCA
Method used: RoHS Plus

Calibration				
Sample	Element	Results (PPM)	Tolerances	
			Min	Max
PVC High	Br	1092.657	934.000	1264.000
PVC High	Hg	1028.015	900.000	1300.000
PVC High	Cd	302.378	240.000	345.000
PVC High	Pb	1168.405	1020.000	1380.000
PVC High	Cr	966.652	800.000	1152.000
PE Low	Br	500.634	425.000	575.000
PE Low	Hg	214.009	150.000	250.000
PE Low	Cd	102.887	80.000	120.000
PE Low	Pb	406.005	340.000	465.000
PE Low	Cr	382.941	300.000	500.000
316	Pb	0.000	0.000	165.000
4340	Pb	0.000	0.000	250.000
PVC Low	Br	461.308	425.000	575.000
PVC Low	Hg	187.051	150.000	250.000
PVC Low	Cr	342.119	260.000	510.000
PVC Low	Pb	366.882	341.000	461.000
PVC Low	Cd	104.464	80.000	120.000
PE High	Br	1100.933	920.000	1270.000
PE High	Hg	1179.534	920.000	1270.000
PE High	Cr	1032.151	850.000	1150.000
PE High	Pb	1198.425	1015.000	1380.000
PE High	Cd	296.007	255.000	345.000
7050	Pb	282.485	100.000	350.000

END OF TEST

Appendix A6 Foodstuff

Appendix A6 Foodstuff

1. Background

Measurement of radionuclides was performed on staple food and common representative seasonal products following interviews with the QMM community engagement team, interactions and interviews with communities in the field, and observations of seasonal dietary habits. The scope and scale of sample collection was iterative, consistent with the overall project sampling methodology, sample foodstuff types and quantities were adjusted based on a variety of inputs including laboratory results and limits of detection, availability and seasonality associated with different plants, grains, fruits and vegetables and seafood (shrimp, prawns and fish).

Food samples were obtained from points of sale and/or production as close to the representative critical community groups as possible.

1.1 Plants

The details of the sample locations for all plant collected over the four sampling events is presented **Table 1**.

Table 1 Summary of Plant Samples

Location ID	Plant	Sample ID	Easting	Northing	Location ID
Ampasy	Rice 01	Rice 01	700301	7237068	Round 1
Ampasy Elersen	Pineapple	Pineapple	700274	7237079	Round 1
Ampasy Georgette	Papaya	Papaya	700248	7237091	Round 1
Ampasy Georgette	Cassava	Cassava	700242	7237902	Round 1
Ampasy Georgette	Cassave Leaves	Cassave Leaves	700242	7237902	Round 1
Ampasy Paulin	Banana	Banana	700414	7236856	Round 1
MMM	Rice	Rice MMM	705068	7242934	Round 1
Ampasy	Pineapple	Pineapple 2	700019	7242934	Round 1
Ampasy	Lychee	Lychee	699851	7235509	Round 1
Mandromondromotra	Riz1	20201111 Riz1	705576	7243279	Round 2
Ampasy	Manioc 1	20201111 Manioc 1	700254	7237870	Round 2
Ampasy	Soursot 1	20201112 Soursot01	700249	7237080	Round 2
Ampasy	Riz 02	20201112 Riz 02	700256	7236960	Round 2
Ampasy	Papaya	20201112 Papaya 1	700210	7237130	Round 2
Ampasy	Jack fruit 01	20201112 Jack fruit 01	700259	7237854	Round 2
Ampasy	Cassava leaves	20201112 Cassava leaves	700256	7237868	Round 2
Ampasy	Letchis 01	20201118 Letchis 01	700224	7237795	Round 2
Ampasy	Banana 01	20201118 Banana 01	700423	7236859	Round 2
Ampasy	Jackfruit 02	20201118 Jackfruit 02	700449	7236835	Round 2
Betaligny	Rice 03	20201118 Riz 03	700174	7234650	Round 2
Betaligny	Letchis 02	20201118 Letchis 02	699818	7234636	Round 2
BETALIGNY	Riz3Betaligny (Duplicata)	20210331 Riz3 Betaligny	700149	7234416	Round 3

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Location ID	Plant	Sample ID	Easting	Northing	Location ID
BETALIGNY	Riz3Betaligny	20210331 Riz3Betaligny	700149	7234416	Round 3
BETALIGNY	CASSAVA LEAVES	20210331 FEUILLE MANIOC BETALIGNY	700179	7234431	Round 3
BETALIGNY	CASSAVA	20210331 MANIOC BETALIGNY	700179	7234431	Round 3
AMPASY	ORANGES	20210401 ORANGES AMPASY	700409	7236868	Round 3
AMPASY	PAPAYA	20210401 PAPAYA AMPASY	700418	7236870	Round 3
AMPASY	POKANNELS	20210401 POKANNEL AMPASY	700398	7237364	Round 3
Ampasy	RIZ	20210402 RICEPAULIN AMPASY	700419	7236962	Round 3
Ampasy	RIZ DUPLICATA	20210402 RICEPAULIN AMPASY DUPLICATA	700419	7236962	Round 3
AMPASY	ORANGES	20210401 ORANGEGEFFEAMPASY	700400	7237389	Round 3
AMPASY	MANIOC	20210402 MANIOC AMPASY OLIVIER	700518	7237409	Round 3
AMPASY	FEUILLE MANIOC	20210402 FEUILLEMANIOAMPASY	700518	7237409	Round 3
AMPASY	BANANA	20210402 BANANAAMPASY	700377	7237351	Round 3
AMPASY	GEVILLES	20210406 GEVILLE GEORGETTE	700174	7237736	Round 3
AMPASY	MANIOC	20210406 MANIOC GEORGETTE	700295	7237895	Round 3
AMPASY	FEUILLE MANIOC	20210406 FEUILLEMANIOC GEORGETTE	700295	7237895	Round 3
AMPASY	FRUIT A PAIN	20210406 FRUITAPAIN	700269	7237849	Round 3
AMPASY	MANIOC	20210412 MANIOC SŒUR AMPASY	700323	7235616	Round 3
AMPASY	FEUILLE MANIOC	20210412 FEUILLES MANIOC SŒUR	700323	7235616	Round 3
AMPASY	AVOCATS SŒUR	20210412 AVOCATS SŒUR	700437	7235822	Round 3
AMPASY	FRUIT A PAIN	20210412 FRUIT A PAIN SŒUR	700465	7235849	Round 3
Mandromondromotra	MANIOC MMM	20210413 MANIOC MMM	705592	7243288	Round 3
Mandromondromotra	FEUILLE MANIOC	20210413 FEUILLE MANIOC MMM	705592	7243288	Round 3
Mandromondromotra	RIZ MMM	20210415 RIZ MMM	705585	7243228	Round 3

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Location ID	Plant	Sample ID	Easting	Northing	Location ID
Mandromondromotra	RIZ MMM Duplicata	20210415 RIZ MMM DUPLICATA	705585	7243228	Round 3
AMPASY	Cassava	20210719 MANIOC01 AMPASY	700488	7237277	Round 4
AMPASY	Cassava	20210722 MANIOC SŒUR AMPASY	700372	7235627	Round 4
AMPASY	Cassava	20210722 MANIOC 04 AMPASY	700450	7236826	Round 4
AMPASY	Cassava leaves	20210719 FEUILLES MANIOC01 AMPASY	700488	7237277	Round 4
AMPASY	Cassava leaves	20210721 MANIOC 03 AMPASY	700309	7237671	Round 4
AMPASY	Orange	20210719 ORANGES01 AMPASY	700395	7237340	Round 4
AMPASY	Orange	20210721 ORANGE 02 AMPASY	700258	7237644	Round 4
BETALIGNY	Papaya	20210722 PAPAYA BETELIGNY	700176	7234002	Round 4
AMPASY	Banana	20210722 BANANE SŒUR AMPASY	700372	7235622	Round 4
AMPASY	Soursop	20210719 COROSSOLES01 AMPASY	700393	7237356	Round 4
BETELIGNY	Zucchini	20210722 COURGETTE BETALIGNY	700094	7233984	Round 4
MANDROMONDROMOTRA	Jackfruit	20210721 COROSSOLE MMM	705099	7242876	Round 4
MANDROMONDROMOTRA	Jackfruit	20210721 JAQUE MMM 1	705076	7242878	Round 4
MANDROMONDROMOTRA	Soursop	20210721 JAQUE MMM 2	705076	7242878	Round 4
MANDROMONDROMOTRA	Cassava	20210721 MANIOC 02 MMM	706390	7242471	Round 4
MANDROMONDROMOTRA	Cassava leaves	20210721 FEUILLES MANIOC MMM	706390	7242471	Round 4
ANDRAKARAKA	Cassava	20210723 MANIOC ANDRAKARAKA	703618	7235202	Round 4
ANDRAKARAKA	Papaya	20210723 PAPAYA ANDRAKARAKA	704321	7236055	Round 4
EMANAKA	Papaya	20210723 PAPAYA EMANAKA	705975	7236332	Round 4
EMANAKA	Sweet potato	20210723 PATATE DOUCE EMANAKA	705654	7236332	Round 4

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1.2 Fish and Prawns

The details of the fish, shrimp and prawn samples collected over the four sampling rounds are presented in Table 2.

Table 2 Summary of Fish, Shrimp and Prawns Samples

Fish	Description	Easting	Northing	Sampling Round	Sample
Fish 01	Paddock 3	704637	7238247	Round 1	Source
Fish 03	Andrauonokana	702238	7234560	Round 1	Downgradient - Receptor
F01	Mine Paddock	704637	7238247	Rounds 1, 2, 3, 4	Source
F02	MMM Village	704900	7242922	Rounds 2, 3, 4	Background
F03	MMM River (WM603)	706507	7239196	Rounds 2, 3, 4	Downgradient Pathway
F04	MMM River Discharge (WSO502)	707648	7237627	Rounds 2, 3, 4	Downgradient Pathway
F05	Lake Ambavarano	705513	7237488	Rounds 2, 3, 4	Downgradient - Receptor
F06	Lake Ambavarano	706137	7238097	Rounds 2, 3, 4	Downgradient - Receptor
F07	Lake Ambinanibe			Round 4	Background
Patsa	Lake Ambavarano	704328	7236047	Round 1	Downgradient - Receptor
Patsa	Lake Baseroy	705479	7236689	Round 1	Downgradient - Receptor
Prawns	Lake Ambavarano	704443	7236128	Round 2	Downgradient - Receptor
Prawns	Lake Ambavarano	707477	7236892	Round 3	Downgradient - Receptor
Prawns	Lake Besaroy	705203	7237059	Round 3	Downgradient - Receptor

2. Methodology

The IAEA technical report series No.295[1] was used as a guide for food sampling activities.

Samples were chosen based on the variety of available food types at the time of the assessment targeting rice and grains, root vegetables, leafy vegetables, fruits and fish and shrimps. Samples had to be representative of what the community were eating and freshly harvested. Food sampling was undertaken targeting the producer's and subsequently at the retail market if necessary. Environmental contractors are used for the collection of fish in specific areas.

The initial round 1 samples were collected by JBS&G personnel in Madagascar, however, rounds 2 to 4 were undertaken by QMM staff and contractors due to Covid-19.

[1] Measurement of radionuclides in food and the environment, Technical report series no. 295. — Vienna : International Atomic Energy Agency, 1989

To ensure program independence, a series of tools and practices were developed for the remote sampling events (in English and French) along with a series of operating procedures and daily review forms including a process requiring daily independent sign off from supervisors in Madagascar confirming that the field sampling was undertaken as described on the field sheets and compliant with the operating procedures.

Field forms including calibration certificates, water quality measurements, sample location coordinates, sample weights, photographs and supporting field notes were uploaded onto the project data portal and reviewed by the appropriate JBS&G project manager.

The JBS&G project manager undertook a review of uploaded field documents to ensure that field data was reviewed and any anomalies or concerns raised as soon as possible to ensure data quality and process adherence was appropriately validated

A standard operating procedure for sample collection and laboratory sample preparation for freight was developed by JBS&G and is provided as Attachment A. Sample collection field sheets were required to be completed together with recoding of sample location GPS coordinates and photographic evidence of sampling undertaken for quality control review by JBS&G in Australia. Copies of the field sheets completed for all of the sampling rounds are provided as Attachment B.

The samples initially targeted a minimum of 500g (fresh weight) for gamma spectrometry analysis, this was later expanded to 1 kg. At collection, the samples were placed in airtight sealable bags. Non-edible portions were discarded. Fresh masses were determined in the laboratory by weighing the total mass, as well as the fresh edible and non-edible portions of food that were retained for analyses.

Fish and shrimp samples were prepared and submitted as full specimens, including all parts (bones, scales, flesh, organs etc.). While some of the smaller organisms may be consumed as a whole, the consideration of whole specimens adopts a conservative approach for larger fish, which may be filleted and gutted prior to consumption.

All samples including fish and shrimp were dried at a temperature of 100°C - not exceeding 110°C - for 12 hours. The samples were then weighed after drying and finally placed in vacuum pack airtight plastic bags. Sun dried samples such as shrimps from the first round or rice were weighed and placed directly in vacuum pack airtight plastic bags.

Fish and shrimp samples were split into portions of less than 20 g, in accordance with the Australian import permit requirements. Upon receipt at the radiochemistry laboratory, samples were recombined.

Laboratory preparation procedures were revised after each round, in order to optimise homogenisation and lower limits of detections. This involved the following:

- freeze drying all samples upon receipt
- pulverising and/or grinding material , depending on the sample type,
- ashing all subsamples, except fractions kept for Po210
- increasing volumes and masses of ashed material and prolonging ashing procedures
- increasing volumes and masses of samples destined for digestion prior to alpha spectrometry.

The optimal sample preparation procedure included the following steps. Samples were initially freeze dried. Samples were then ground and/or pulverised before a final homogenisation. Portions destined for alpha spectrometry on Po210, were digested in acid solutions. Remaining portions were then ashed and analysed by gamma spectrometry, ICPMS or digested in acid solutions and analysed by alpha spectrometry for Th and Ra226.

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3. Analytical Techniques

Samples from Rounds 1 to 4 were submitted to the ANSTO laboratory in Sydney for the following analytical suites.

Table 3 Summary of Radionuclide Analytical Techniques

Round	Media	Analysis	Description
Round 1	Fish	Gamma Spectrometry Th, Ra226 and Po210 by alpha spectrometry	Gamma Spectrometry (Full U and Th series and K40), reported in Bq/kg, fresh and dry basis. Alpha spectrometry (Th230, Ra226, Po210, Th232 and Th228), reported in Bq/kg, fresh basis.
Round 1	Plants	Gamma Spectrometry Th and Ra226 by alpha spectrometry	Gamma Spectrometry (Full U and Th series and K40), reported in Bq/kg, fresh and dry basis. Alpha spectrometry (Th230, Ra226, Th232 and Th228), reported in Bq/kg, fresh basis.
Round 2	Biota (grains, fruits, roots, leafy vegetables, crustaceans and fish)	Gamma spectrometry Alpha spectrometry ICPMS	Gamma Spectrometry (Full U and Th series and K40), reported in Bq/kg, fresh and dry basis. Alpha spectrometry (Th230, Ra226, Po210, Th232 and Th228), reported in Bq/kg, fresh and dry basis. ICPMS (U, Th), , reported in ppm, converted to Bq/kg, fresh basis.
Round 3	Food basket (fish and crustaceans)	Gamma spectrometry Alpha spectrometry ICPMS	Gamma Spectrometry (Full U and Th series), reported in Bq/kg, fresh basis. Alpha spectrometry (Th230, Ra226, Po210, Th232 and Th228), reported in Bq/kg, fresh basis. ICPMS (U, Th), reported in ppm, converted to Bq/kg, fresh basis
Round 3	Food basket (grains, fruits, roots, leafy vegetables)	Alpha spectrometry ICPMS	Alpha spectrometry (Th230, Ra226, Po210, Th232 and Th228), reported in Bq/kg, fresh and dry basis. Alpha spectrometry repeat analysis (Po210 and Th228 to give Pb210 and Ra228), reported in Bq/kg, fresh and dry basis. ICPMS (U, Th), reported in ppm, converted to Bq/kg, fresh basis.
Round 4	Food basket (fish and crustaceans)	Gamma spectrometry Alpha spectrometry ICPMS	Gamma Spectrometry (Full U and Th series), reported in Bq/kg, fresh basis. Alpha spectrometry (Th230, Ra226, Po210, Th232 and Th228), reported in Bq/kg, fresh basis.

Round	Media	Analysis	Description
			ICPMS (U, Th) , reported in ppm, converted to Bq/kg, fresh basis.
Round 4	Food basket (grains, fruits, roots, leafy vegetables)	Alpha spectrometry ICPMS	Alpha spectrometry (Th230, Ra226, Po210, Th232 and Th228), reported in Bq/kg, fresh and dry basis. ICPMS (U, Th), reported in ppm, converted to Bq/kg, fresh and dry basis .

4. Analytical Results

4.1 Fish and shrimp

4.1.1 Round 1

Results of analysis for fish and shrimp samples from Round 1 are summarised in Table 4. Fish results are given on a fresh weight basis. Prawns were collected after being sundried on coarse hessian mats. Their results are therefore given on a dry weight basis.

Measurable concentrations of Ra226 and Po210 were analysed by alpha spectrometry in all aquatic products. Th228 was measurable in shrimp. Gamma spectrometry was unable to detect any radionuclides above LOD, except Pb210, Ra228 and Th228, and only in shrimps. Other than Ra226, Ra228, Th228 and Po210, all other radionuclides returned concentrations below detection limits. Based on these observations, sample sizes were increased, and laboratory preparation were improved in order to lower limits of detection.

Round 1 results were not included in the dose assessment, as they are associated major uncertainties about fishing locations. Also, shrimps had been drying on mats placed on the ground and potential contamination by local soil was not excluded and could not be quantified. While contributing to overall dose, the inclusion of local soil is inconsistent with later rounds and is not attributable to the aquatic pathway. Sample sizes were increased between the first round and later rounds to decrease limits of detections.

Table 4 Activity concentrations in Round 1 Fish and Shrimp Samples

Sample ID Unit : Bq/kg	Fish 01 Paddock 3, mine site (fresh basis)	Fish 3 Downstream (fresh basis)	Shrimp 1 Downstream (dry basis)	Shrimp 2 Downstream (dry basis)
U-238 (a)	< 9.1	< 14	< 51	< 67
Th-230 (b)	< 0.53	< 0.62	< 2.2	< 2.0
Th-230 (a)	< 38	< 57	< 180	< 380
Ra-226 (b)	2.8 ± 0.4	5.4 ± 0.6	0.95 ± 0.16	5.3 ± 0.9
Ra-226 (a)	< 1.8	< 2.8	< 13	< 12
Pb-210 (a)	< 6.9	< 12	< 41	< 61
Pb-210 (c)	< 2.4	< 2.2	180 ± 25	105 ± 15
Po-210 (b)	30 ± 3	28 ± 3	34 ± 4	16 ± 3
U-235 (a)	< 6.1	< 9.9	< 33	< 39
Pa-231 (a)	< 14	< 23	< 66	< 110
Ac-227 (g)	< 2.3	< 5.4	< 15	< 19
Th-232 (b)	< 5.3	< 0.62	< 2.2	< 2.0
Ra-228 (a)	< 3.6	< 4.5	160 ± 20	75 ± 10
Ra-228 (d)	0.43 ± 0.15			

Sample ID Unit : Bq/kg	Fish 01 Paddock 3, mine site (fresh basis)	Fish 3 Downstream (fresh basis)	Shrimp 1 Downstream (dry basis)	Shrimp 2 Downstream (dry basis)
Th-228 (b)	3.0 ± 1.2	3.2 ± 1.3	< 2.2	< 2.0
Th-228 (a)	< 1.0	< 1.9	16 ± 2	19 ± 2
K-40 (a)	110 ± 10	< 28	250 ± 50	< 130

(a) Gamma spectrometry.
(b) Alpha spectrometry.
(c) Alpha spectrometry of Po-210 after one half-life ingrowth (~140 days), followed by back-calculation to t=0.
(d) Recount of Ra-226 source measuring Rn-220 from Th-228 ingrowth (from Ra-228) and back-calculating to t=0 to determine Ra-228.

4.1.2 Round 2

Round 2 fish and shrimp species and sample numbers were dependant on the fishing location and environment. Sample sizes varied significantly across the study area, as detailed in **Table 5**. Fresh samples of fish and prawns were collected. All results are therefore given on a fresh weight basis.

Table 5 Round 2 Fish Species, Specimen and Samples

Sample ID	Specimen #	Average mass (g)	Total mass (g)	Environment
Fish 01	10	100	998	Lacustrine
Tilapia rendalli	7	125	874	Rehabilitation Pond
Paratilapia sp (cf. polleni)	3	41	124	
Fish 02	**24**	**34**	**819**	**Fluvial**
Oreochromus mossambicus	17	35	587	(Background, MMM River)
Paratilapia sp (cf. polleni)	2	56	112	
Eleotris fusca	1	70	70	
Tilapia rendalli	2	14	27	
Glossogobius giuris	2	12	23	
Fish 03	**29**	**28**	**809**	**Fluvial**
Tilapia rendalli	21	27	574	(Discharge point)
Glossogobius giuris	3	32	96	
Oreochromus mossambicus	2	22	44	

Ptychochromis grandidieri	1	36	36	
Paratilapia sp (cf. polleni)	1	30	30	
Gobius aenofuscus	1	29	29	
Fish 04	**12**	**84**	**1007**	**Fluvial/Estuarine**
Gobius aenofuscus	3	148	443	(MMM river mouth)
Tilapia rendalli	4	90	361	
Ptychochromis grandidieri	3	39	116	
Oreochromus mossambicus	1	49	49	
Ptychochromus grandidieri	1	38	38	
Fish 05	**14**	**73**	**1016**	**Lagoon**
Glossogobius giuris	2	90	181	(Lake Ambavarano)
Gobius aenofuscus	3	118	354	
Oreochromus mossambicus	1	40	40	
Tilapia rendalli	8	55	442	

The results of Round 2 alpha and gamma spectrometry analysis are presented in **Table 6**. Measurable activity concentrations were achieved for key radionuclides by alpha and gamma spectrometry and ICPMS.

Table 6 Round 2 Activity concentrations in Fish Samples in Bq/kg

Sample ID	Fish	Fish	Fish	Fish	Fish	Shrimp
Unit : Bq/kg (fresh weight)	Fish 01	Fish 02 Background	Fish 03	Fish 04	Fish 05	Shrimp
U238 Decay Chain						
U238 (a)	0.30 ± 0.03	0.59 ± 0.06	0.40 ± 0.04	1.7 ± 0.2	1.1 ± 0.10	0.92 ± 0.09
U238 (b)	0.79 ± 0.40	2.71 ± 0.44	0.78 ± 0.39	3.94 ± 0.57	2.98 ± 0.59	1.89 ± 0.53
Th234 (b)	0.95 ± 0.23	2.15 ± 0.25	< 0.62	3.98 ± 0.37	3.08 ± 0.37	<0.75
Th230 (b)	< 5.91	< 4.62	<5.71	<6.62	<6.73	<4.73

Sample ID Unit : Bq/kg (fresh weight)	Fish Fish 01	Fish Fish 02 Background	Fish Fish 03	Fish Fish 04	Fish Fish 05	Shrimp Shrimp
Th230 (c)	< 1.3	< 1.5	< 1.3	< 1.7	< 1.6	< 0.93
Ra226 (b)	2.41 ± 0.06	3.97 ± 0.07	1.78 ± 0.05	4.10 ± 0.08	3.02 ± 0.08	9.74 ± 0.13
Ra226 (c)	1.6 ± 0.4	< 1.5	< 1.3	2.0 ± 0.5	< 1.6	2.5 ± 0.5
Pb210 (b)	3.49 ± 0.30	2.80 ± 0.30	2.46 ± 0.30	3.63 ± 0.40	2.70 ± 0.41	1.47 ± 0.28
Po210 (c)	6.1 ± 1.1	5.2 ± 1.1	11 ± 2	10 ± 2	6.2 ± 1.1	8.5 ± 1.2
Th232 Decay Chain						
Th232 (a)	0.86 ± 0.09	0.54 ± 0.05	0.37 ± 0.04	13 ± 1	7.6 ± 0.8	1.1 ± 0.1
Th232 (c)	< 1.3	< 1.5	< 1.3	< 1.7	< 1.6	< 0.93
Ra228 (b)	12.73 ± 0.24	7.05 ± 0.19	9.80 ± 0.22	30.04 ± 0.45	21.66 ± 0.38	63.14 ± 0.78
Th228 (b)	6.74 ± 0.13	5.89 ± 0.12	6.52 ± 0.13	24.19 ± 0.39	17.04 ± 0.29	16.18 ± 0.26
Th228 (c)	< 1.3	< 1.5	< 1.3	< 1.7	< 1.6	< 0.93

(a) Digest / ICPMS

(b) Gamma spectrometry

(c) Alpha spectrometry

4.1.3 Round 3

Round 3 fish and shrimp species and sample numbers were dependant on the fishing location and environment. Sample sizes varied significantly across the study area, as detailed in **Table 7**.

Table 7 Summary of Round 3 Fish and Crustacean sampling

Sample ID	Specimen #	Average mass (g)	Total mass (g)	Environment
Fish 01	**11**	**95**	**1043**	**Lacustrine**
Tilapia rendalli	11	95	1043	Mine rehabilitation pond, within QMM operations
Fish 02	**34**	**26**	**871**	**Fluvial**
Oreochromus mossambicus	18	21	369	(Background, MMM River)
Paratilapia sp (cf. polleni)	11	23	255	

Ptychochromis grandidieri	3	31	92	
Liza macrolepis	2	78	155	
Fish 03	**13**	**49**	**640**	**Fluvial**
Tilapia rendalli	2	45	90	(Discharge point)
Oreochromus mossambicus	3	57	170	
Ptychochromis grandidieri	8	48	380	
Fish 04	**21**	**35**	**724**	**Fluvial/Estuarine**
Gobius aenofuscus	11	34	372	(MMM river mouth)
Tilapia rendalli	5	35	173	
Ptychochromis grandidieri	4	30	121	
Oreochromus mossambicus	1	68	68	
Fish 06	**11**	**97**	**1065**	**Fluvial/Estuarine**
Glossogobius giuris	5	138	690	(Lake Ambavarano)
Ptychochromis grandidieri	3	54	162	
Oreochromus mossambicus	1	88	88	
Liza macrolepis	1	65	65	
Gobius sp.	1	60	60	
Patsa Am			**208**	**Lagoon**
Caridina gracilirostris	-	-	208	(Lake Ambavarano)
Patsa An			**1743**	**Lagoon**
Caridina gracilirostris	-	-	1743	(Lake Besaroa, Andrakaraka)

The results of Round 3 alpha and gamma spectrometry analysis for fish are presented in Table 8. Fresh samples of fish and prawns were collected. All results are therefore given on a fresh weight basis.

Table 8 Activity Concentrations in Round 3 Fish Samples

Sample ID Unit : Bq/kg	Fish 01 Pond adjacent within mine site	Fish 02 Upstream	Fish 03 Mine discharge	Fish 04 Downstream	Fish 06 Downstream
U238 Decay Chain					
U238 (a)	0.42 ± 0.04	0.56 ± 0.06	0.7 ± 0.07	0.35 ± 0.04	0.78 ± 0.08
Th230 (b)	< 0.032	0.26 ± 0.11	0.18 ± 0.08	0.11 ± 0.06	< 0.033
Th230 (c)	< 7.7	< 6.8	< 9.6	< 4.9	< 10
Ra226 (b)	1.7 ± 0.2	6.0 ± 0.5	6.0 ± 0.2	1.7 ± 0.1	0.1 ± 0.08
Ra226 (d)	2.4 ± 0.2	6.1 ± 0.6	1.7 ± 0.2	1.7 ± 0.2	1.3 ± 0.1
Pb210 (c)	< 1.7	4.0 ± 0.8	< 2.2	< 1.1	< 1.3
Po210 (b)	3.6 ± 0.2	6.6 ± 0.5	8.4 ± 0.5	6.6 ± 0.5	5.6 ± 0.5
Th232 Decay Chain					
Th232 (a)	1.2 ± 0.1	1.7 ± 0.2	2.2 ± 0.2	1.8 ± 0.2	3.5 ± 0.4
Th232 (b)	1.4 ± 0.7	2.1 ± 0.7	2.4 ± 0.7	2.3 ± 0.9	3.3 ± 1.3
Ra228 (e)	15 ± 2	11 ± 1.0	15 ± 2.0	8.3 ± 0.8	8.2 ± 0.8
Th228 (b)	8.5 ± 3	5.3 ± 1.5	2.8 ± 0.7	4.0 ± 1.3	2.9 ± 1.0
Th228 (f)	9.5 ± 1.0	6.2 ± 0.6	5.5 ± 0.6	4.7 ± 0.5	3.5 ± 0.4

a) Digest/ICPMS.
(b) Alpha spectrometry.
(c) Gamma spectrometry.
(d) Gamma spectrometry. Based on the measured concentration of Pb-214 and Bi-214, assuming secular equilibrium.
(e) Gamma spectrometry. Based on the measured concentration of Ac-228, assuming secular equilibrium.
(f) Gamma spectrometry. Based on the measured concentration of Pb-212, assuming secular equilibrium.

The results of Round 3 alpha and gamma spectrometry analysis for shrimp are presented in Table 9.

Table 9 Activity Concentrations in Round 3 Shrimp Samples

Sample ID Unit : Bq/kg	Patsa Ambavarano Downstream	Patsa Andrakaraka Downstream
U238 Decay Chain		
U238 (a)	0.21 ± 0.02	0.34 ± 0.03
Th230 (b)	0.31 ± 0.09	0.19 ± 0.04

Sample ID Unit : Bq/kg	Patsa Ambavarano Downstream	Patsa Andrakaraka Downstream
Th230 (c)	< 22 (g)	< 6.0
Ra226 (b)	4.8 ± 0.5	9.1 ± 0.7
Ra226 (d)	5.5 ± 0.6	9.8 ± 1.0
Pb210 (c)	< 4.4 (e)	< 1.3
Po210 (b)	5.8 ± 0.3	4.9 ± 0.3
Th232 Decay Chain		
Th232 (a)	0.84 ± 0.08	1.4 ± 0.1
Th232 (b)	1.2 ± 0.2	1.9 ± 0.3
Ra228 (e)	52 ± 5	30 ± 3
Th228 (b)	11 ± 1	7.8 ± 1.2
Th228 (f)	15 ± 2	8.6 ± 0.9

a) Digest/ICPMS.
(b) Alpha spectrometry.
(c) Gamma spectrometry.
(d) Gamma spectrometry. Based on the measured concentration of Pb-214 and Bi-214, assuming secular equilibrium.
(e) Gamma spectrometry. Based on the measured concentration of Ac-228, assuming secular equilibrium.
(f) Gamma spectrometry. Based on the measured concentration of Pb-212, assuming secular equilibrium.
(g) Freeze dried material assayed resulting in higher detection limit.

4.1.4 Round 4

Round 3 fish and shrimp species and sample numbers were dependant on the fishing location and environment. Sample sizes varied significantly across the study area, as detailed in **Table 10**. Fresh samples of fish and prawns were collected. All results are therefore given on a fresh weight basis.

Table 10 Summary of Round 4 fish and crustacean sampling

Sample ID	Specimen #	Average mass (g)	Total mass (g)	Environment
Fish 01	**19**	40	**764**	**Lacustrine**
Tilapia rendalli	16	45	713	Mine rehabilitation pond, within QMM operations
Paratilapia sp (cf. polleni)	3	17	51	
Fish 02	**19**	44	**842**	**Fluvial**

Paratilapia sp (cf. polleni)	7	44	306	(Background, MMM River)
Eleotris fusca	5	67	333	
Oreochromus mossambicus (Malemiloha)	2	38	76	
Paratilapia sp (Fogny)	1	27	27	
Ptychocromis grandidieri (Saroa)	4	25	100	
Fish 03	23	30	**701**	**Fluvial**
Ptychocromis grandidieri (Saroa)	21	28	587	(Discharge point)
Tilapia rendali (Fiambazaha)	1	21	21	
Oreochromus mossambicus (Malemiloha)	1	93	93	
Fish 04	30	26	**766**	**Fluvial/Estuarine**
Ptychochromis gradidieri (Saroa)	29	26	744	(MMM river mouth)
Gobius sp (Ambanivava)	1	22	22	
Fish 06	**28**	31	**859**	**Fluvial/Estuarine**
Ptychochromis grandidieri (Saroa)	26	31	807	(Lake Ambavarano)
Oreochromus mossambicus (Malemiloha)	1	26	26	
Tilapia rendali (Fiambazaha)	1	27	27	
Fish 07 M	**9**	**79**	**519**	**Fluvial/Estuarine**
Mugil robusta (kely vondraky)	8	43	344	Lake Ambinanibe
Ravimbaro	1	175	175	

Fish 07 D	**29**	**18**	**530**	**Fluvial/Estuarine**
Gobius aenofuscus (Ambanivava)	22	18	394	Lake Ambinanibe
Ptychochromis grandidieri (Saroa)	6	16	97	
Glossogobius giuris (Damilava)	1	39	39	
Prawn			**750**	**Lagoon**
Caridina gracilirostris	-	-	750	(Lake Ambavarano)
Patsa An			**3200**	**Lagoon**
Caridina gracilirostris	-	-	1301	Meander River, Andrakaraka
Caridina gracilirostris	-	-	1899	Meander River, Andrakaraka

The results of Round 4 alpha and gamma spectrometry analysis for fish are presented in **Table 11**.

Table 11 Activity Concentrations in Round 4 Fish Samples

Sample ID Unit : Bq/kg	Fish 01 Mine site rehabilitation pond	Fish 02 Upstream	Fish 03 Mine discharge point	Fish 04 Downstream	Fish 06 Downstream	Fish 07 M Western Lake	Fish 07 D Western Lake
U-238 Decay Chain							
U-238 (a)	2.8 ± 0.3	1.3 ± 0.1	1.9 ± 0.2	1.4 ± 0.1	0.56 ± 0.06	0.66 ± 0.07	0.25 ± 0.03
Th-230 (b)	2.3 ± 0.5	3.2 ± 0.6	1.6 ± 0.3	1.2 ± 0.3	0.37 ± 0.09	0.56 ± 0.11	0.29 ± 0.09
Th-230 (c)	<6.3	<4.1	<4.9	<5.5	<5.4	<6.2	<7.7
Ra-226 (b)	2.5 ± 0.3	0.91 ± 0.1	1.8 ± 0.2	0.90 ± 0.15	0.51 ± 0.07	0.67 ± 0.1	0.31 ± 0.1
Ra-226 (d)	2.0 ± 0.2	1.1 ± 0.1	2.7 ± 0.3	3.8 ± 0.4	5.3 ± 0.5	2.0 ± 0.2	0.67 ± 0.07
Pb-210 (c)	2.0 ± 0.2	<0.49	2.5 ± 0.4	4.7 ± 0.5	5.3 ± 0.5	2.1 ± 0.5	<1.0
Po-210 (b)	5.3 ± 0.3	2.3 ± 0.3	8.5 ± 0.6	10.4 ± 0.6	9.9 ± 0.5	5.8 ± 0.5	1.6 ± 0.1
Th-232 Decay Chain							

Sample ID Unit : Bq/kg	Fish 01 Mine site rehabilitation pond	Fish 02 Upstream	Fish 03 Mine discharge point	Fish 04 Downstream	Fish 06 Downstream	Fish 07 M Western Lake	Fish 07 D Western Lake
Th-232 (a)	3.3 ± 0.3	2.3 ± 0.2	1.1 ± 0.1	8.7 ± 0.9	3.2 ± 0.3	3.8 ± 0.4	0.19 ± 0.02
Th-232 (b)	2.0 ± 0.4	1.4 ± 0.3	0.95 ± 0.23	7.9 ± 1.3	2.4 ± 0.3	3.1 ± 0.4	0.18 ± 0.07
Ra-228 (e)	11 ± 1	6.1 ± 0.6	3.8 ± 0.4	12 ± 1	6.0 ± 0.6	8.7 ± 0.9	<1.1
Th-228 (b)	6.3 ± 1.2	3.2 ± 0.6	2.2 ± 0.4	8.3 ± 1.3	3.4 ± 0.5	3.8 ± 0.5	0.58 ± 0.15
Th-228 (f)	8.6 ± 0.9	4.1 ± 0.4	2.3 ± 0.2	8.3 ± 1.3	4.3 ± 0.4	6.7 ± 0.7	0.98 ± 0.12

(a) Digest/ICPMS.
(b) Alpha spectrometry.
(c) Gamma spectrometry.
(d) Gamma spectrometry. Based on the measured concentration of Pb-214 and Bi-214, assuming secular equilibrium.
(e) Gamma spectrometry. Based on the measured concentration of Ac-228, assuming secular equilibrium.
(f) Gamma spectrometry. Based on the measured concentration of Pb-212, assuming secular equilibrium.

The results of Round 3 alpha and gamma spectrometry analysis for shrimp are presented in **Table 12**.

Table 12 Activity Concentrations in Round 4 Shrimp Samples

Sample ID Unit : Bq/kg	Prawn Western Lake	Patsa 1 Downstream	Patsa 2 Downstream
U238 Decay Chain			
U238 (a)	0.11 ± 0.01	0.45 ± 0.05	0.61 ± 0.06
Th230 (b)	0.22 ± 0.07	0.12 ± 0.06	0.37 ± 0.09
Th230 (c)	< 6.3	< 9.0	< 12
Ra226 (b)	0.33 ± 0.1	1.6 ± 0.2	1.6 ± 0.2
Ra226 (d)	1.6 ± 0.2	6.1 ± 0.6	11 ± 1
Pb210 (c)	1.6 ± 0.4	2.5 ± 0.4	3.2 ± 0.4
Po210 (b)	3.3 ± 0.2	3.9 ± 0.3	3.8 ± 0.2
Th232 Decay Chain			
Th232 (a)	1.6 ± 0.2	0.62 ± 0.06	0.86 ± 0.09
Th232 (b)	1.5 ± 0.3	0.57 ± 0.16	0.80 ± 0.15
Ra228 (e)	8.1 ± 0.8	42 ± 4	81 ± 8
Th228 (b)	2.1 ± 0.4	3.1 ± 0.6	5.6 ± 0.8
Th228 (f)	5.6 ± 0.6	13 ± 1	22 ± 2

(a) Digest/ICPMS.
(b) Alpha spectrometry.
(c) Gamma spectrometry.
(d) Gamma spectrometry. Based on the measured concentration of Pb-214 and Bi-214, assuming secular equilibrium.
(e) Gamma spectrometry. Based on the measured concentration of Ac-228, assuming secular equilibrium.
(f) Gamma spectrometry. Based on the measured concentration of Pb-212, assuming secular equilibrium.
(g) Freeze dried material assayed resulting in higher detection limit.

Species and specimen numbers for each fish and prawn or shrimp sample depended on the fishing location and environment. Specimen sizes also vary significantly across the study area. It is therefore difficult to carry out direct comparison between fish product sample caught in Mandena and between analyses listed in this appendix and ranges reported in literature.

Radionuclide concentrations and ratios between radioisotopes are highly variable. Discrepancies can be observed between gamma and alpha spectrometry results for some radionuclides in some fish samples. These observations highlight the difficulties of sample homogenisation and representativeness for alpha spectrometry. Note that where gamma spectrometry returns a measurable value, those results are considered to be more representative in dose assessment calculations.

There are no guideline values for radionuclides in fish products. Fish products typically returned radionuclide concentrations within reported ranges, but above UNSCEAR reference values (see **Table 13**). Po210 and Ra226 are well within reported ranges. Pb210 and Ra228 are for some samples higher than reported ranges, however there is limited data on Pb210 and Ra228 available in literature. Reported data also typically report edible portions of fish products (bones, shells, organs discarded). As a result, comparison with reported ranges must be made with care and concentrations can be overestimated by the inclusion of all fish portions.

Table 13 UNSCEAR Concentrations of Uranium and Thorium Series Radionuclides in Foods

Units: Bq/kg Radionuclides	Fish products
U238 Decay Chain	
U238	0.03 (0.003 to 1.9)
Th230	(0.001 to 0.03)
Ra226	0.1 (0.028 to 7.4)
Pb210	0.2 (0.001 to 4.8)
Po210	2 (0.05 to 120)
Th232 Decay Chain	
Th232	0.01 (0.001 to 0.03)
Ra228	-
Th228	0.1 (0.056 to 0.7)

4.2 Plants

4.2.1 Round 1

All plant samples were ashed and initially analysed by gamma spectrometry. All radionuclides returned concentrations below the limits of detection, except for Ra226, Ra228 and Th228 in rice samples and cassava leaves. Pb210 was also measurable by gamma spectrometry in cassava leaves.

Samples were therefore processed for alpha spectrometry to improve the resolution of Ra226 and thorium isotopes. Due to the volatility of Po210, it could not be analysed on ashed material. Alpha spectrometry resulted in improved detection limits for Ra226 and thorium isotopes.

The results from analysis of Round 1 samples are summarised in **Table 14** with radionuclide concentrations given on a fresh-weight basis, except for rice, which is on a dry basis. These values can be compared to reference values and ranges given by the UNSCEAR [2]and summarised in **Table 25**.

Table 14 Round 1 Activity concentrations in Plants (Leafy Vegetables, Grain and Fruits) in Bq/kg

Sample ID	Rice F015	Rice F016	Pineapple	Papaya	Cassava
Unit : Bq/kg	Ampasy	Duplicate	Ampasy	Ampasy	Ampasy
U-238 (a)	< 1.2	< 1.0	< 0.77	< 0.95	< 0.97
Th-230 (b)	< 0.048	< 0.052	< 0.025	< 0.041	< 0.032
Th-230 (a)	< 6.6	< 6.7	< 2.7	< 2.4	< 4.4
Ra-226 (b)	0.26 ± 0.04	0.40 ± 0.05	0.038 ± 0.007	0.07 ± 0.01	0.11 ± 0.02
Ra-226 (a)	0.5 ± 0.1	0.5 ± 0.1	< 0.20	< 0.24	< 0.18
Pb-210 (a)	< 0.89	< 0.70	< 0.67	< 0.82	< 0.62
U-235 (a)	< 0.68	< 0.50	< 0.47	< 0.57	< 0.62
Pa-231 (a)	< 1.5	< 1.8	< 1.2	< 1.0	< 1.8
Ac-227 (a)	< 0.41	< 0.26	< 0.26	< 0.29	< 0.24
Th-232 (b)	< 0.048	< 0.052	< 0.025	< 0.041	< 0.032
Ra-228 (a)	1.2 ± 0.3	0.9 ± 0.2	< 0.29	< 0.38	< 0.40
Th-228 (b)	0.069 ± 0.022	< 0.052	0.056 ± 0.022	0.028 ± 0.012	< 0.032
Th-228 (a)	0.23 ± 0.06	0.29 ± 0.05	< 0.087	< 0.10	< 0.11
K-40 (a)	56 ± 6	61 ± 6	58 ± 6	170 ± 20	66 ± 7
U-238 (a)	< 0.96	< 0.78	< 0.73	< 0.72	< 1.6
Th-230 (b)	0.03 ± 0.01	< 0.11	< 0.042	< 0.024	0.14 ± 0.05
Th-230 (a)	< 3.8	< 1.4	< 1.8	< 4.3	< 8.1
Ra-226 (b)	0.11 ± 0.02	0.13 ± 0.02	0.14 ± 0.02	< 0.024	< 0.20
Ra-226 (a)	0.5 ± 0.1	< 0.17	< 0.14	< 0.19	< 0.30
Pb-210 (a)	4.3 ± 0.3	< 0.69	< 0.54	< 0.62	< 1.2
U-235 (a)	< 0.56	< 0.46	< 0.37	< 0.47	< 0.89
Pa-231 (a)	< 1.7	< 1.3	< 1.3	< 1.3	< 2.2
Ac-227 (a)	< 0.30	< 0.27	< 0.20	< 0.25	< 0.43

[2] UNSCEAR, Ionising Radiation: Sources and Biological Effects, United Nations Scientific Committee on the Effects of Atomic Radiation, 2000.

Sample ID Unit : Bq/kg	Rice F015 Ampasy	Rice F016 Duplicate	Pineapple Ampasy	Papaya Ampasy	Cassava Ampasy
Th-232 (b)	0.10 ± 0.03	< 0.11	< 0.042	0.011 ± 0.005	0.29 ± 0.09
Ra-228 (a)	2.5 ± 0.3	< 0.36	< 0.29	< 0.33	< 0.70
Th-228 (b)	0.32 ± 0.06	0.10 ± 0.04	0.048 ± 0.017	0.029 ± 0.010	0.64 ± 0.16
Th-228 (a)	0.75 ± 0.08	< 0.086	0.22 ± 0.04	< 0.086	0.74 ± 0.07

(a) Gamma spectrometry
(b) Alpha spectrometry

4.2.2 Round 2

The edible portions of plant samples (grains, fruits, roots, leafy vegetables) were submitted for laboratory preparation, alpha spectrometry and ICPMS at ANSTO. Biota samples were submitted to the Centre for Radiation Research Education and Innovation (CREEI) laboratory at the University of Adelaide for gamma spectrometry. Portions of samples destined for Po210 were set aside after homogenisation of the whole sample mass, and prior to ashing.

Results are presented in **Tables 15** through to **Table 18**.

Table 15 Round 2 Activity concentrations in Grain and Leafy Vegetable samples in Bq/kg

	Rice			Cassava
Unit : Bq/kg (fresh weight)	Riz 01	Riz02	Riz03	01 - #1 and #2
U238 Decay Chain				
U238 (a)	0.063 ± 0.013	0.50 ± 0.05	0.16 ± 0.02	1.0 ± 0.1
U238 (b)	4.09 ± 0.91	<0.17	4.32 ± 0.78	11.06 ± 2.29
Th234 (b)	3.42 ± 0.45	<2.21	3.09 ± 0.46	8.07 ± 1.13
Th230 (b)	<10.51	<14.90	< 8.70	<32.51
Th230 (c)	< 2.4	< 2.5	< 2.1	< 2.7
Ra226 (b)	2.17 ± 0.13	<0.58	<0.55	<1.58
Ra226 (c)	< 2.0	< 2.10	< 1.8	< 2.3
Pb210 (b)	1.91 ± 0.51	<2.60	1.88 ± 0.28	<4.32
Po210 (c)	< 2.4	< 2.50	< 2.1	5.4 ± 1.5
Th232 Decay Chain				
Th232 (a)	0.10 ± 0.01	0.063 ± 0.006	0.027 ± 0.003	0.54 ± 0.05
Th232 (c)	< 2.4	< 2.5	< 2.1	< 2.7

Unit : Bq/kg (fresh weight)	Rice			Cassava
	Riz 01	Riz02	Riz03	01 - #1 and #2
Ra228 (b)	6.57 ± 0.38	<1.30	1.88 ± 0.28	<5.05
Th228 (c)	< 2.4	< 2.5	< 2.1	< 2.7
Th228 (b)	4.26 ± 0.14	<0.62	<0.79	<2.22

(a) Digest / ICPMS

(b) Gamma spectrometry

(c) Alpha spectrometry

Table 16 Round 2 Activity concentrations in Fruit and Root Samples in Bq/kg

Unit : Bq/kg (fresh weight)	Jackfruit			Cassava	
	01 - #1	01- #2 (Duplicate)	02 - #1	Manioc01	Manioc01 (Duplicate)
U238 Decay Chain					
U238 (a)	< 0.023	< 0.025	0.53 ± 0.05	0.78 ± 0.08	0.65 ± 0.07
U238 (b)	0.23 ± 0.35	1.22 ± 0.24	0.23 ± 0.08	1.30 ± 0.47	
Th234 (b)	<0.77	0.81 ± 0.14	0.34 ± 0.05	< 1.00	
Th230 (b)	< 6.32	<3.96	1.51	<7.94	
Th230 (c)	< 0.92	< 1.1	< 0.98	< 1.2	< 1.2
Ra226 (b)	<0.17	< 0.18	< 0.05	<0.22	
Ra226 (c)	< 1.3	< 1.9	< 0.43	< 1.0	< 1.0
Pb210 (b)	< 1.03	<0.69	<0.26	<1.10	
Po210 (c)	0.81 ± 0.31	0.62 ± 0.22	0.41 ± 0.16	< 1.2	< 1.2
Th232 Decay Chain					
Th232 (a)	0.037 ± 0.004	0.031 ± 0.003	0.19 ± 0.02	0.11 ± 0.01	0.076 ± 0.008
Th232 (c)	< 0.92	< 1.1	< 0.98	< 1.2	< 1.2
Ra228 (b)	< 0.42	<0.54	0.23 ± 0.03	<0.55	
Th228 (b)	<0.19	< 0.24	0.10 ± 0.01	<0.25	
Th228 (c)	< 0.92	< 1.1	< 0.98	< 1.2	< 1.2

(a) Digest / ICPMS (b) Gamma spectrometry

(c) Alpha spectrometry

Table 17 Round 2 Activity concentrations in fruit samples in Bq/kg

	Banana	Lychee		Soursop	Papaya
Unit : Bq/kg (fresh weight)	01 - #1 to #5	Letchis01	Letchis02	Soursot01	Papaya01
U238 Decay Chain					
U238 (a)	< 0.025	0.087 ± 0.009	0.04 ± 0.004	< 0.014	< 0.005
U238 (b)	1.26 ± 0.23	0.11 ± 0.24	1.26 ± 0.23	0.68 ± 0.19	0.13 ± 0.12
Th234 (b)	0.48 ± 0.13	< 0.51	0.59 ± 0.12	0.66 ± 0.11	< 0.27
Th230 (b)	< 3.65	< 4.13	< 2.83	< 3.19	< 2.16
Th230 (c)	< 0.86	< 0.67	< 1.0	< 0.60	< 0.42
Ra226 (b)	<0.16	< 0.12	< 0.17	< 0.13	< 0.06
Ra226 (c)	< 1.4	< 1.1	< 1.0	< 1.0	< 3.4
Pb210 (b)	<0.64	< 0.71	< 0.53	< 0.55	< 0.37
Po210 (c)	3.5 ± 0.6	2.6 ± 0.5	0.59 ± 0.2	1.4 ± 0.3	0.31 ± 0.09
Th232 Decay Chain					
Th232 (a)	0.064 ± 0.006	0.10 ± 0.01	1.3 ± 0.1	0.52 ± 0.05	0.063 ± 0.01
Th232 (c)	< 0.86	< 0.67	< 1.0	< 0.60	< 0.42
Ra228 (b)	<0.52	< 0.28	< 0.50	0.70 ± 0.07	<0.14
Th228 (b)	<0.22	< 0.12	< 0.22	< 0.19	< 0.06
Th228 (c)	< 0.86	< 0.67	< 1.0	< 0.60	< 0.42

(a) Digest / ICPMS

(b) Gamma spectrometry

(c) Alpha spectrometry

4.2.3 Round 3

Plant samples from round 3 (grains, fruits, roots, leafy vegetables) were submitted for alpha spectrometry and ICPMS at ANSTO. The results are presented in **Tables 19** through to **Table 21**.

Table 18 Round 3 Radionuclide analysis of plant samples - grains

Sample ID Unit : Bq/kg	Riz03 Rice (composite) Downgradient	Riz 04 Rice (composite) Downgradient	MMM Rice (composite) Background
U238 Decay Chain			
U238 (a)	0.10 ± 0.01	0.17 ± 0.02	0.084 ± 0.008
Th230 (b)	0.81 ± 0.11	0.16 ± 0.04	0.080 ± 0.031
Ra226 (b)	0.90 ± 0.09	0.25 ± 0.05	<0.04
Po210 (b)	0.16 ± 0.05	0.19 ± 0.13	0.16 ± 0.05
Th232 Decay Chain			
Th232 (a)	0.45 ± 0.05	0.42 ± 0.04	0.37 ± 0.04
Th232 (b)	0.47 ± 0.07	0.42 ± 0.07	0.25 ± 0.06
Th228 (b)	1.6 ± 0.2	1.7 ± 0.2	0.31 ± 0.08

(a) Digest/ICPMS.
(b) Alpha spectrometry.
(c) Analysis on processed material

Table 19 Round 3 Radionuclide analysis of plant samples – leafy vegetables

Sample ID Unit : Bq/kg	Feuille de Manioc Cassava Leaves (Composite)	Feuille de Manioc Cassava Leaves (MMM)
U238 Decay Chain		
U238 (a)	0.73 ± 0.07	0.16 ± 0.02
Th230 (b)	0.13 ± 0.03	0.11 ± 0.02
Ra226 (b)	0.58 ± 0.05	0.42 ± 0.03
Po210 (b)	4.1 ± 0.3	4.3 ± 0.3
Th232 Decay Chain		
Th232 (a)	1.30 ± 0.10	0.51 ± 0.05
Th232 (b)	0.11 ± 0.03	0.26 ± 0.04
Th228 (b)	0.58 ± 0.12	0.39 ± 0.07

(a) Digest/ICPMS.
(b) Alpha spectrometry.
(c) Analysis on processed material

Table 20 Round 3 Radionuclide analysis of plant samples – root vegetables and fruits

Sample ID Unit : Bq/kg	Manioc Cassava (composite) Downgradient	Manioc MMM Cassava (composite) Background	Pokannel Sugar Apple (Ampasy Olivier)	Avocats Avocado (Ampasy Soeur)
U238 Decay Chain				
U238 (a)	0.19 ± 0.02	0.20 ± 0.02	0.70 ± 0.07	1.8 ± 0.2
Th230 (b)	0.17 ± 0.03	0.12 ± 0.03	0.022 ± 0.007	0.025 ± 0.01
Ra226 (b)	0.31 ± 0.04	0.13 ± 0.02	0.079 ± 0.013	< 0.021
Po210 (b)	0.52 ± 0.14	0.61 ± 0.33	0.092 ± 0.040	0.13 ± 0.02
Th232 Decay Chain				
Th232 (a)	1.5 ± 0.2	1.2 ± 0.1	0.54 ± 0.05	0.82 ± 0.08
Th232 (b)	1.2 ± 0.2	0.65 ± 0.13	0.084 ± 0.019	0.22 ± 0.04
Th228 (b)	1.3 ± 0.2	0.57 ± 0.11	0.13 ± 0.02	0.19 ± 0.04

Table 21 Continued

Sample ID Unit : Bq/kg	Banana Banana (Ampasy Olivier)	Fruit a Pain Bread Fruit (Ampasy Georgette)	Geville June Plum (Ampasy Georgette)	Orange Oranges (Composite)	Papaye Papaya (Ampasy Paulin)
U238 Decay Chain					
U238 (a)	0.89 ± 0.09	0.40 ± 0.04	0.32 ± 0.03	0.47 ± 0.05	0.17 ± 0.02
Th230 (b)	0.090 ± 0.042	0.17 ± 0.04	0.03 ± 0.013	0.012 ± 0.008	0.007 ± 0.004
Ra226 (b)	0.15 ± 0.02	0.10 ± 0.02	0.093 ± 0.012	0.23 ± 0.05	0.078 ± 0.038
Po210 (b)	0.050 ± 0.018	0.29 ± 0.08	0.12 ± 0.03	0.021 ± 0.006	0.053 ± 0.011
Th232 Decay Chain					
Th232 (a)	0.088 ± 0.009	1.4 ± 0.1	0.085 ± 0.009	0.072 ± 0.007	0.15 ± 0.02
Th232 (b)	0.58 ± 0.15	0.91 ± 0.18	0.10 ± 0.03	0.093 ± 0.028	0.017 ± 0.006
Th228 (b)	0.68 ± 0.21	1.1 ± 0.2	0.16 ± 0.04	0.28 ± 0.06	0.11 ± 0.02

(a) Digest/ICPMS.
(b) Alpha spectrometry.
(c) Analysis on processed material

4.2.4 Round 4

Plant samples from Round 4 (fruits, roots, leafy vegetables) were submitted for alpha spectrometry and ICPMS at ANSTO. The results are presented in **Tables 22** through to **Table 24**.

Table 21 Radionuclide analysis of plant samples – leafy vegetables

Sample ID Unit : Bq/kg	Feuille de Manioc Cassava Leaves (Ampasy)	Feuille de Manioc Cassava Leaves (MMM)
U-238 Decay Chain		
U-238 (a)	2.0 ± 0.2	0.57 ± 0.06
Th-230 (b)	0.88 ± 0.16	0.20 ± 0.07
Ra-226 (b)	1.4 ± 0.1	0.48 ± 0.06
Po-210 (b)	3.3 ± 0.2	4.3 ± 0.2
Th-232 Decay Chain		
Th-232 (a)	2.0 ± 0.2	0.85 ± 0.09
Th-232 (b)	0.78 ± 0.14	0.26 ± 0.08
Th-228 (b)	1.2 ± 0.2	0.39 ± 0.11

(a) Digest/ICPMS.
(b) Alpha spectrometry.

Table 22 Round 4 Radionuclide analysis of plant samples – root vegetables

Sample ID Unit : Bq/kg	Manioc 01 Cassava (Ampasy)	Manioc 03 Cassava (Ampasy)	Manioc 04 Cassava (Ampasy)	Manioc Cassava (Ampasy Soeur)	Manic 02 Cassava (MMM)
U238 Decay Chain					
U238 (a)	0.27 ± 0.03	0.64 ± 0.06	0.73 ± 0.07	0.12 ± 0.01	0.40 ± 0.04
Th230 (b)	0.062 ± 0.024	0.096 ± 0.03	0.15 ± 0.039	0.039 ± 0.02	0.12 ± 0.03
Ra226 (b)	0.32 ± 0.05	0.34 ± 0.040	0.33 ± 0.05	0.17 ± 0.03	0.19 ± 0.03
Po210 (b)	0.72 ± 0.08	0.42 ± 0.06	0.36 ± 0.04	0.33 ± 0.04	0.42 ± 0.06
Th232 Decay Chain					
Th232 (a)	0.31 ± 0.03	0.16 ± 0.02	0.39 ± 0.04	0.15 ± 0.02	0.21 ± 0.02
Th232 (b)	0.11 ± 0.030	0.049 ± 0.021	0.096 ± 0.030	0.048 ± 0.021	0.052 ± 0.020
Th228 (b)	0.21 ± 0.05	0.17 ± 0.04	0.29 ± 0.06	0.30 ± 0.07	0.064 ± 0.022

(a) Digest/ICPMS.
(b) Alpha spectrometry.

Table 23 Round 4 Radionuclide analysis of plant samples – fruits and root vegetable

Sample ID Unit : Bq/kg	Orange 01	Papaya	Banana Ampasy Soeur	Soursop Ampasy	Soursop MMM
U238 Decay Chain					
U238 (a)	0.31 ± 0.03	0.11 ± 0.01	0.17 ± 0.02	0.25 ± 0.03	0.13 ± 0.01
Th230 (b)	0.12 ± 0.02	0.030 ± 0.008	0.049 ± 0.014	0.075 ± 0.020	0.064 ± 0.012
Ra226 (b)	0.51 ± 0.04	0.084 ± 0.010	0.32 ± 0.03	0.14 ± 0.02	0.12 ± 0.02
Po210 (b)	0.13 ± 0.01	0.092 ± 0.010	0.077 ± 0.014	0.11 ± 0.02	0.079 ± 0.010
Th232 Decay Chain					
Th232 (a)	0.53 ± 0.05	0.53 ± 0.05	1.0 ± 0.1	0.79 ± 0.08	0.68 ± 0.07
Th232 (b)	0.59 ± 0.08	0.20 ± 0.03	0.34 ± 0.05	0.41 ± 0.07	0.24 ± 0.03
Th228 (b)	0.77 ± 0.10	0.30 ± 0.04	1.0 ± 0.1	0.28 ± 0.05	0.31 ± 0.0

(a) Digest/ICPMS.
(b) Alpha spectrometry.

Table 24 Continued

Sample ID Unit : Bq/kg	Zucchini	Jackfruit MMM1	Jackfruit MMM2	Papaya Emanaka	Sweet Potato Emanaka
U238 Decay Chain					
U238 (a)	0.14 ± 0.01	0.31 ± 0.03	1.1 ± 0.1	0.24 ± 0.02	5.8 ± 0.6
Th230 (b)	0.074 ± 0.017	0.16 ± 0.03	0.42 ± 0.14	0.059 ± 0.022	1.8 ± 0.20
Ra226 (b)	0.13 ± 0.02	0.25 ± 0.03	0.88 ± 0.08	0.74 ± 0.20	2.2 ± 0.2
Po210 (b)	0.053 ± 0.008	0.16 ± 0.02	0.44 ± 0.04	0.089 ± 0.016	1.8 ± 0.2
Th232 Decay Chain					
Th232 (a)	0.70 ± 0.07	0.90 ± 0.09	0.49 ± 0.05	0.90 ± 0.09	0.42 ± 0.04
Th232 (b)	0.27 ± 0.04	0.28 ± 0.05	0.22 ± 0.09	0.45 ± 0.08	0.14 ± 0.03
Th228 (b)	0.34 ± 0.1	0.88 ± 0.13	0.92 ± 0.27	0.40 ± 0.08	0.20 ± 0.04

(a) Digest/ICPMS.
(b) Alpha spectrometry

The radionuclide results for plants obtained from rounds 1 to 4 can be compared to reference values and ranges given by the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR[3]), summarised in **Table 25**. It is important to note that the UNSCEAR database has a very limited number of samples, especially for radionuclides in the thorium decay chain.

Table 24 UNSCEAR Concentrations of Uranium and Thorium Series Radionuclides in Foods

Units: Bq/kg	UNSCEAR, reference value (range)		
Radionuclides	Leafy vegetables	Root vegetables and fruits	Grain products
U238 Decay Chain			
U238	0.02 (0.006 to 2.2)	0.003 (0.001 to 2.9)	0.02 (0.001 to 0.4)
Th230	0.02 (0.006 to 0.38)	0.0005	0.01 (0 to 0.017)
Ra226	0.05 (0.002 to 1.15)	0.03 (0.007 to 9.4)	0.08 (0.007 to 5.2)
Pb210	0.08 (0.004 to 4.1)	0.03 (0.008 to 4.9)	0.05 (0.03 to 4)
Po210	0.1 (0.004 to 7.4)	0.04 (0.012 to 5.2)	0.06 (0.015 to 1.9)
Th232 Decay Chain			
Th232	0.015 (0.004 to 0.023)	0.005 (0 to 0.007)	0.003 (0.0001 to 0.033)
Ra228	0.04 (up to 0.22)	0.02 (up to 0.11)	0.06
Th228	0.015	0.0005	0.003 (0.18 to 2.3)

Gamma spectrometry on ashed samples in Rounds 1 and 2 resulted in common less than values, highlighting the difficulties to accurately determine levels of radionuclides in plants. Alpha spectrometry and ICPMS were therefore targeted as the only viable techniques for the measurements of radionuclides in plants. Trials of Po210 and Th228 re-analysis for Round 2 samples led to inconclusive results. In the absence of measurable data, equilibrium would be assumed between Pb210 and Ra228 and their decay products.

All plant samples show a high variability of radionuclide concentration.

Concentrations of uranium and thorium series radionuclides are commonly above the reference value reported by UNSCEAR for grains but most concentrations fall within the reported ranges.

Cassava leaves show relatively high concentrations of Po210 in comparison to other uranium series radionuclides. The Po210 results will be updated following reanalysis of Po210 to determine Pb210 concentrations. Relatively high concentrations of Po210 and Pb210 are commonly observed in leafy vegetables and grass, due to wet and dry deposition effects. Wet or dry deposition is the removal of radionuclides (in this specific case, the long lived radon decay products, Pb210 and Po210) from the atmosphere and their deposition to the ground. Root uptake is generally a secondary pathway for the presence of Po210 in leaves. Po210 values are comparable between up and down wind samples (upwind showing a slightly higher concentration), indicating that regional effects may be dominant in this process. Concentrations of radionuclides in samples of cassava leaves are all above the reference value given by UNSCEAR. However, concentrations are within observed ranges.

[3] United Nations. Sources and Effects of Ionizing Radiation. United Nations Scientific Committee on the Effects of Atomic Radiation, UNSCEAR 2000 Report to the General Assembly, with scientific annexes. United Nations, New York, 2000.

The concentration of radionuclides in fruits vary widely, as do ratios between radionuclides. Uranium and thorium series radionuclides are generally above the reference values reported by UNSCEAR for all analysed fruit and root vegetable samples. However, most values are within observed ranges. A sweet potato was collected in round 4 from the southern community of Emanaka. The sweet potato shows relatively high levels of uranium decay products, but interestingly low concentrations of thorium decay products.

A6 Attachment 1 – Sampling Procedures

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PROCEDURE P01 – PLANT COLLECTION

DESCRITPION OF WORK

QMM Responsible Person

Name

Phone Number: 123456

Email: mail

This procedure provides instructions on the safe collection of plant food samples.

A separate procedure is provided to give instructions for preparation of food samples for transport and analysis.

Protective equipment required:	n/a	
Additional Equipment / Tools:	• Zip lock bags • Scale • Camera • Market Bags	• Data sheets
Hazards / Safety:	• Trips, slips, falls	

PROCEDURE P01 – PLANT COLLECTION

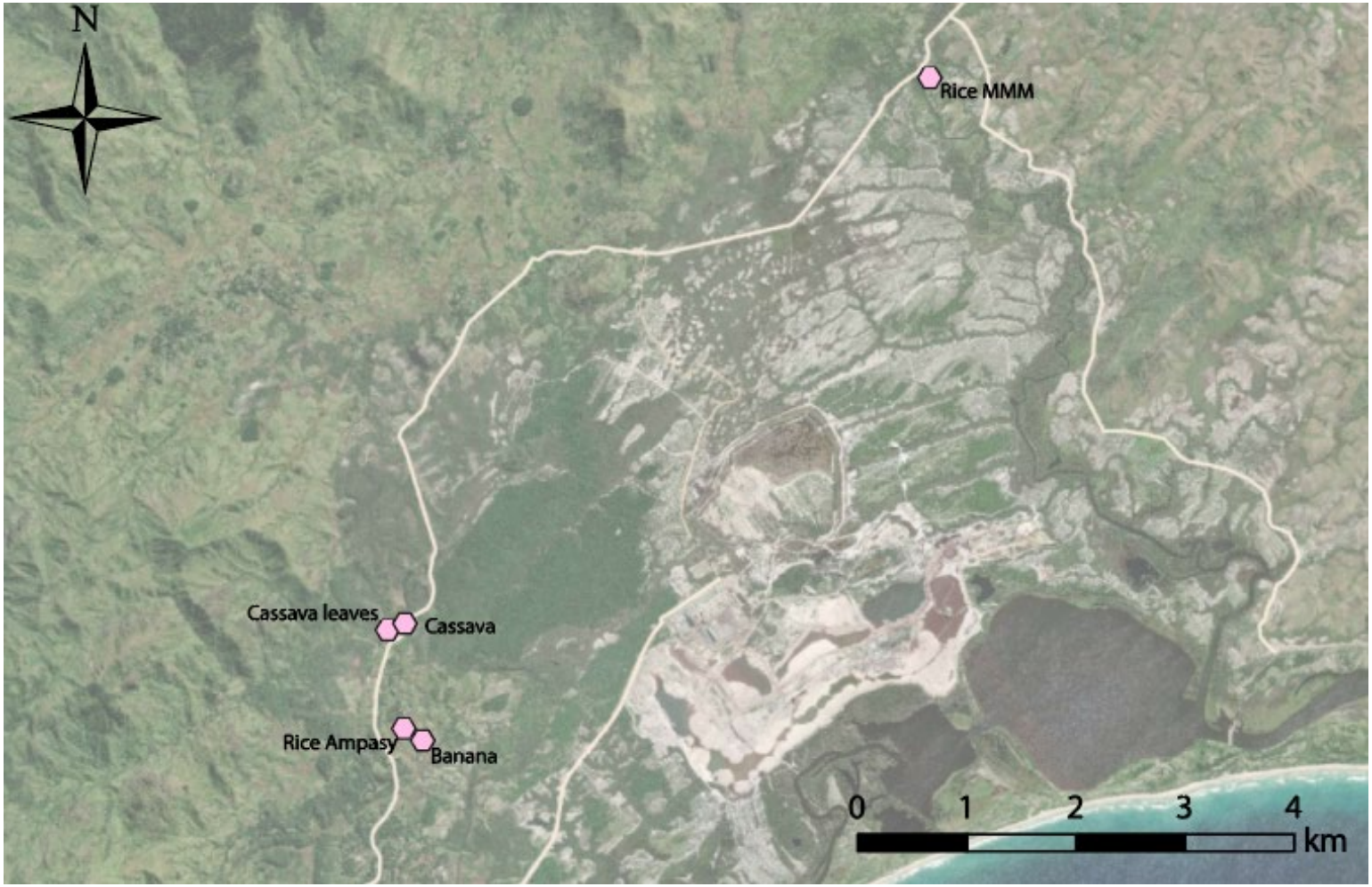
TASK	STEPS
Preparation	1. There are two (2) groups of food samples: • staple foods are consistently available all year round and are to be included in every sampling round. • Seasonal foods are those that are only available at a specific time of year. 2. Locations where staple food was sampled in the first round will be targeted for the second round. This includes the following items:

Sample ID	Grower	Area	Easting	Northing	Fresh weight (kg)
Rice 01	Elersen	Ampasy	700301	7237068	1
Rice 01	Elersen	Ampasy	700301	7237068	1
Cassava	Georgette	Ampasy	700242	7237902	2
Cassava leaves	Georgette	Ampasy	700242	7237902	2
Banana	Paulin	Ampasy	700414	7236856	3
Rice MMM	Lalao Andrine	MMM	705068	7242934	1

3. QMM Community Team to confirm and select five (5) common seasonal fruits or vegetables grown and consumed in the area of Ampasy.

4. Before heading out to collect samples, print copies of:
   a. The table of staple food sampling locations shown above
   b. Field data sheet for sample collection
   c. Maps of staple food sample locations

PROCEDURE P01 – PLANT COLLECTION



PROCEDURE P01 – PLANT COLLECTION

Collecting staple food samples	5. The community team must liaise with the growers listed above to arrange a meeting at the farms to buy the food where it is produced. 6. The QMM community staff will collect cassava, cassava leaves and bananas samples directly from the plant. 7. For rice, composite samples from several fields are acceptable if the fields are within a 2 km^2 area and are cultivated by the same grower. Collect rice samples in new and clean zip lock bags.  Collect bananas, cassava and cassava leaves in market bags or buckets as required. 8. **Weigh food samples in the field**, immediately after collection to ensure that the required fresh weight has been collected. The fresh weight that is required varies for different food types. Minimum sample weights for staple foods are listed in the table above.

PROCEDURE P01 – PLANT COLLECTION

9. Take a picture of the sampling area and of the plant in situ and record the following on the field datasheet:
    - Unique sample number with following syntax:
      yyyymmdd Food type number
      Examples:
      20200915 Rice 1
      20200915 Rice 2
      20200912 Banana 1
    - Date and time
    - Food type
    - Grower details
    - Area
    - GPS coordinate (several coordinates may be required for rice samples, where rice all fields need to be located)
    - Fresh weight





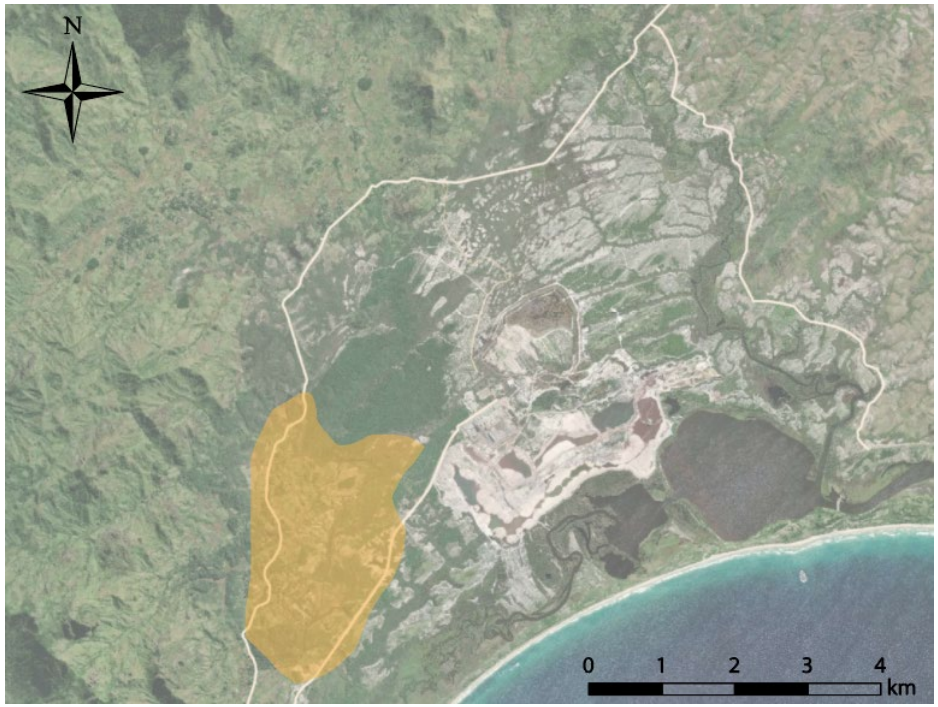
10. Take a photo of the packaged, labelled sample.

11. Return collected samples to the mine. Refrigerate the samples waiting for validation.

12. Send all photos and datasheets to JBS&G for validation.

13. Validation of samples and sample locations follows discussions between JBS&G and QMM.

PROCEDURE P01 – PLANT COLLECTION

Collecting seasonal food samples	**14.** Five (5) common seasonal fruits or vegetables grown and consumed in the area of Ampasy have been identified (step 3 of this procedure) Samples of at least four (4) of these food types must be collected for analysis. A total of at least 10 different samples (i.e. multiple samples of each food type) must be collected in the area of Ampasy. When location data for these 10 samples is provided to JBS&G for validation, JBS&G will assess the information and decide which samples are to be prepared for transport and analysis. Samples must not be collected from a single location. The aim is to achieve an optimal spatial coverage of Ampasy area, directly west of the mined portions of Mandena (see orange area in the map below). 

PROCEDURE P01 – PLANT COLLECTION

15. Weigh food samples in the field, immediately after collection. If possible, collect a fresh weight of 3kg. The fresh weight must exceed 2 kg.





Samples of large items can be collected in market bags or buckets.

Collect loose samples (or small items) in new and clean zip lock bags.



16. Take a picture of the sampling area or plant in situ and record the following:
    - Unique sample number with following syntax:

PROCEDURE P01 – PLANT COLLECTION

yyyymmdd Food type number

Examples:

20200914 Mango 1

20200914 Papaya 1

20200912 Pumpkin 1

- Date and time
- Food type
- Grower details
- Area
- GPS coordinate
- Fresh weight

17. Take a photo of the packaged, labelled sample.

18. Return collected samples to the mine. Refrigerate the samples waiting for validation.

19. Send all photos and datasheets to JBS&G for validation.

20. Validation of samples and sample locations follows discussions between JBS&G and QMM.

21. Further sampling may be required if deemed necessary by JBS&G.

PROCEDURE L01 – PLANT LABORATORY PREPARATION

DESCRIPTION OF WORK

QMM Responsible Person

Name

Phone Number: +123456

Email: name

This procedure provides instructions how to prepare plants items in the laboratory for the export to Australia.

Protective equipment required:	• Nitrile gloves • Glasses	• Lab coats • Oven mitts
Additional Equipment / Tools:	• Scale • Camera • Oven proof dishes • Scales • Oven • Brushes • Towels	• Data sheets • Food vacuum sealer • Food vacuum bags • Food vacuum rolls • Knifes • Cutting boards • Baking paper
Hazards / Safety:	• Burns • Cuts	

PROCEDURE L01 – PLANT LABORATORY PREPARATION

TASK	STEPS
Preparation	1. Once the plants samples have been validated by both QMM and JBS&G, they are transferred to the laboratory for preparation. 2. Locate the samples that have been selected for preparation and transport. Crosscheck the sample ID on the container against the details on the field sample collection datasheet. Samples that are not required for transport and analysis can be discarded or given away. 3. Record the sample ID, date and time in the datasheet. 4. Weight the sample as received from the field and record the weight in the datasheet Take a picture of the sample INSERT PIC OF FRUIT ON SCALE 5. Plants are prepared as for home use. 6. The sample is washed and left to dry in ambient temperature. 7. Once air dried, weigh the sample and record the weight in the data sheet Take a picture of the sample 8. Cut Weigh a clean, dry, and empty oven proof dish for blank weight and record the weight in the datasheet. Write the sample ID on the dish with a texter. Baking paper must be used for all samples and must be included in the blank weight.

PROCEDURE L01 – PLANT LABORATORY PREPARATION

	9. The inedible portion of plants must be separated. This is achieved by peeling and cutting parts of the plant that is not consumed. Follow the decontamination procedures: • For each sample preparation, use a new set of disposable nitrile gloves • Between each sample, remove all food material from preparation equipment (such as knife, cutting board) by scraping, brushing or wiping with disposable towels. • Wash the preparation equipment thoroughly in a sink with tap water and detergent using brushes and towels. • Rinse the preparation equipment with water only • Dry the equipment with disposable towels, or air-dry. 10. Place the edible portion in the pre-weighed dish lined with baking paper Weigh the dish + fresh edible portion and record the weight in the datasheet Take pictures of the fresh edible portion in the dish 11. Weigh and record the inedible portion and record the weight on the datasheet Take pictures of inedible portion Discard the inedible portion 
Sample drying	12. Preheat the oven at 110°C. It is important that the oven is not hotter than 110°C, as one of the radionuclides can become volatile at relatively low temperatures.

PROCEDURE L01 – PLANT LABORATORY PREPARATION

	13. Place the oven proof dishes containing the edible portion in the oven. Take a photo of the dishes full of samples in the oven  14. Dry the sample for at least 12 hours, or until the majority of the moisture has been dried out of the sample  15. Weigh the dish + dried edible portion and record the weight in the datasheet Take pictures of the dried edible portion in the dish
Vacuum pack	16. Prepare a new and clean food vacuum bag. Write the sample ID on the vacuum bag using a permanent texter. Weigh the empty bag and record the weight in the datasheet

PROCEDURE L01 – PLANT LABORATORY PREPARATION

17. Transfer all dried food from the dish and baking paper into the vacuum bag.

18. Vacuum and seal the bag using the food vacuum sealer (call Mathieu Messeiller on +61 490 770 110 for food vacuum sealer instructions if needed)



19. Weigh the sealed bag containing the dried edible portion and record the weight in the datasheet. Write the sample weight on the vacuum bag using a permanent texter



20. Record the date and time and time on the sample preparation datasheet

PROCEDURE F01 – FISH CATCHING

DESCRIPTION OF WORK

QMM Responsible Person

Phone Number:

Email: mail

This procedure provides instructions on the safe catching of fish samples.

A separate procedure is provided to give instructions for preparation of fish samples for transport and analysis.

Protective equipment required	• Safety jacket	
Additional Equipment / Tools:	• Bags • Scale • Camera • GPS	• Data sheets
Hazards / Safety:	• Trips, slips, falls	

PROCEDURE F01 – FISH CATCHING

TASK	STEPS
Preparation	The following details regarding fish sampling are important and must be followed. It is critical that a representative of QMM attends each site and supervises the collection of the fish to record the: • GPS location (Easting and Northing); • Weight of fish to ensure a minimum of 1 kg collected per location; and • photographs of the fish collected at each location. The fish are to be placed in separate clean plastic bags which must be marked with a **Sample ID** and **Date** as per instructions in the next section. It is preferable that fish samples are collected from the following proposed sample locations.

Table 1: Proposed Fish Sampling Points

Sample ID	Location Description	Easting	Northing	Fresh Weight (kg)
Fish 01	Mine rehabilitation Pond	704637	7238247	1
Fish 02	MMM River Close proximity to the MMM Village	704900	7242922	1
Fish 03	MMM River adjacent to discharge point from the mine (WM603)	706507	7239196	1
Fish 04	Sample collected adjacent to the established WS0502 location	707648	7237627	1
Fish 05	Northern portion of Lake Ambavarano	705513-706137	7237488-7238097	1

If fish cannot be collected from these locations or a similar location within 100m, contact JBS&G to verify whether available alternative locations are suitable.

The proposed fish sampling locations are graphically presented in Tab 1 of the Fish Sampling Workbook.

Print copies of the field data sheet so that details of field sampling (e.g. sample location, fresh weight) can be recorded in the field.

PROCEDURE F01 – FISH CATCHING

Catching fish samples	1. Catch fish in the locations listed in the table above and place them in separate labelled bags **It is critical that the fish from each location are not mixed up and that the fish bags from each location are separated from each other** Bags are to be labelled with a unique sample number with following syntax: *yyyymmdd Fish (location number) # (Fish number)* Examples*:* *20200920 Fish 01 #1, 20200920 Fish 01 #2, 20200920 Fish 01 #3.,…* *20200922 Fish 02 #1, 20200922 Fish 02 #2, 20200922 Fish 02 #3,…* *Etc* 2. **Weigh fish samples in the field**, immediately after collection to ensure that the required fresh weight has been collected. **One kilogram of fish is required from each location.** (if there are no fish available or a low number and weight of fish, just record the details and return the fish to the mine site and communicate this with JBS&G). 3. Take a picture of the sampling area and of fish caught and fill in the following details on the datasheet: • Unique sample number with syntax: *yyyymmdd Fish (location number) # (Fish number)* • Date and time • Fish species or description • Area • GPS coordinate • Fresh weight of sample NOTE: Field sampling records, location GPS, photographs and sample weights are to be communicated to JBS&G via the excel sampling workbook for validation before any sample preparation is undertaken.

PROCEDURE F01 – FISH CATCHING

	4. Take a photo of the packaged, labelled samples. 5. Return collected samples to the mine. Refrigerate the samples waiting for validation. 6. Send all photos and datasheets to JBS&G for validation. 7. Validation of samples and sample locations follows discussions between JBS&G and QMM. The field data sheet is to be completed in the field with a QMM Supervisor Signature for each of the sampling locations.

PROCEDURE F01 – FISH LABORATORY PREPARATION

DESCRIPTION OF WORK

QMM Responsible Person

Name

Phone Number: +123456

Email: Mail

This procedure provides instructions for the preparation of fish samples in the laboratory for export to Australia.

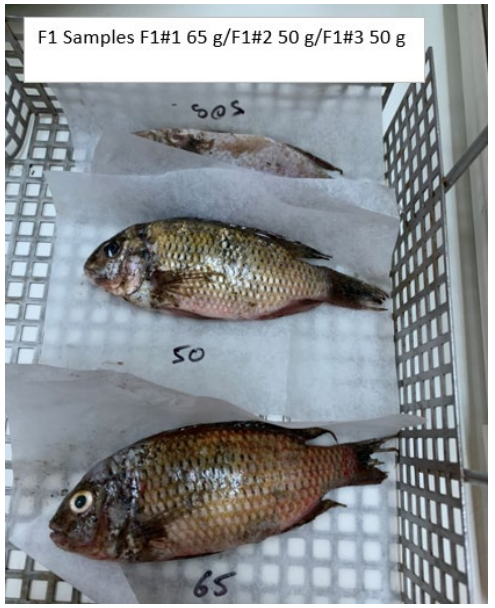
Protective equipment required:	• Nitrile gloves • Glasses	• Lab coats • Oven mitts
Additional Equipment / Tools:	• Scale • Camera • Oven proof dishes or baskets • Scales • Oven • Brushes • Towels	• Data sheets • Food vacuum sealer • Food vacuum bags • Food vacuum rolls • Knifes • Cutting boards
Hazards / Safety:	• Burns • Cuts	

PROCEDURE F01 – FISH LABORATORY PREPARATION

TASK	STEPS
Preparation	1. Fish samples will be submitted to the laboratory by the field personnel responsible for catching them. The samples must only be submitted after they have been validated by both QMM and JBS&G to verify that all criteria have been met as follows: • Fish samples in separate bags for each location and correctly labelled with the ID • Samples photographed and weighed  2. If there may be a delay before the fish can be prepared according to this procedure, the samples must be refrigerated or frozen 3. Record the sample ID, date and time in the datasheet. The sample ID should have the following syntax: *yyyymmdd Fish (location number) # (Fish number)* Examples*:* *20200920 Fish 01 #1, 20200920 Fish 01 #2, 20200920 Fish 01 #3.,…* *20200922 Fish 02 #1, 20200922 Fish 02 #2, 20200922 Fish 02 #3,…* *Etc* 4. Weigh each fish sample individually as received from the field and record the weight in the datasheet, using the sample ID described above Take a picture of the sample 5. Wash each sample and allow to dry at ambient temperature. 6. Once air dried, cut a piece of baking paper to fit the fish size. Place the baking paper on the scales and record the weight on the datasheet

PROCEDURE F01 – FISH LABORATORY PREPARATION

7. Tare/zero the scales. Place the fish on the scales (on the paper) and record the weight of the fish on the data sheet.



8. Write the fish sample number (e.g. F1#1) and the weight of the fish on the baking paper

   Take a picture of each fish sample on the baking paper.

9. Transfer the fish on the paper into a stainless steel basket. Use a separate basket for each sampling location, and place fish samples **from the same location** side by side.

10. Place a label on **each basket** with the **identification numbers** of the samples that it holds to ensure that the baskets and samples do not get mixed up.

11. Take a photograph of each basket noting the location of each fish sample in the basket (as per photograph).

12. Preheat the oven at 110°C. It is important that the oven is not hotter than 110°C, as one of the radionuclides can become volatile at relatively low temperatures.

13. Place the oven proof dishes containing the edible portion in the oven. Take a photo of the basket full of samples in the oven (separate basket per sampling location)

14. Dry the samples for at least 12 hours.

15. Remove each basket from the oven and take a photograph. Allow to cool to room temperature.

PROCEDURE F01 – FISH LABORATORY PREPARATION

	16. Weigh each fish sample with the paper that it is resting on and record the dried weight on the datasheet.
Vacuum pack	17. Once each dried fish has been weighed and recorded, cut **the fish with a sharp knife into pieces/portions each weighing less than 20g** (this is a requirement of the import permit into Australia). 18. Weigh the first piece/portion of the first fish separately, and assign it a unique sample ID using the following syntax: • ***F (Location Number) # (Fish Number) S (Portion number) Mass*** Examples: Three pieces/portions of Fish 1 from Location 1 will be F1 #1 S1 19g, F1 #1 S2 17g, F1 #1 S3 16g Two pieces/portions of Fish 2 from Location 1 will be F1 #2 S1 17g, F1 #2 S2 15g Two pieces/portions of Fish 3 from Location 2 will be F2 #3 S1 19g, F2 #3 S2 18g Etc. 19. Record the sample ID of each portion / piece and mass on the datasheet 20. Prepare a new and clean food vacuum bag. Write the sample ID of the portion / piece on the vacuum bag using a permanent marker. Weigh the empty bag and record the weight in the datasheet 21. Transfer the individual dried fish portion / piece (less than 20g) into the vacuum bag. 22. Vacuum and seal the bag using the food vacuum sealer



23. Weigh the sealed bag containing the dried sample and record the weight in the datasheet. Write the sample weight on the vacuum bag using a permanent marker as '*Dried weight = xx g*'



24. Record the date and time that sample preparation is completed on the datasheet

25. Repeat steps 17 – 24 for each piece of each fish.

PROCEDURE F01 – FISH LABORATORY PREPARATION

Data Sheets	The Excel Workbook contains the data sheet that needs to be completed for each stage in the fish preparation process. The original data sheet is to be completed by hand in black or blue ink and signed off by the Laboratory Supervisor and Procedure Owner to validate that the procedure has been followed and the details are true and correct. The details from the datasheet are to be transferred into the Excel Workbook, with photographs as evidence of the processes being followed and the fish samples at each stage of the process. The Excel Workbook is to be saved on the JBS&G one drive

A6 Attachment 2 – Field Sampling Sheets

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Food

Project QMM Company JBSG Sampled by Mathieu Messeiller

Survey Meter AT1125 Serial number 6487

Point	Sample ID	Date	Time	final Easting m	final Northing m	Dose rate ground uSv/h	Dose rate @1m uSv/h	Background Check	Source Check	Food type	Fresh Mass (g)	Site description
	Fish 03	2/12/2019	10:00	702238	7234560					Fish		Andrauonokana fished in the river @-24.990954, 47.003768 by Raymond Ratelo, fisherman and community leader Bought at his house, 703146E / 7234743N Dose rate at 1m, 0.103uSv/h
	Shrimp 1	2/12/2019	11:00	704328	7236047					Shrimp		Caught by women in the river adjacent to the village of Andrakaraka, with nets, sold by Tiry, Dried for one day in the sun. No fish available in the village. Likely to be few fish (cominaison of seaon and strong winds that day). Shrimps are typical food between Sep-Dec, when the lake level is low. Best specimen sold to the market, rest eaten by community. Bought in front of Tiry's house, 704328E / 7236047N Dose rate at 1m, 0.033uSv/h
	Shrimp 2	2/12/2019	12:05	705479	7236689					Shrimp		Caught and sold by Raissa, at Lake Basaroa, closest point to Emanaka village. Dried for one day in the sun. No fish available in the village. Likely to be few fish (cominaison of seaon and strong winds that day). Shrimps are typical food between Sep-Dec, when the lake level is low. Best specimen sold to the market, rest eaten by community. bought in front of Tiry's house, 705946E / 7236337N Dose rate at 1m, 0.125uSv/h
	Rice 01	2/12/2019	15:10	700301	7237068		0.039			Rice	1028	Grown and sold by Elersen (born 1959 here), leader in the Ampasy community, grown in rice fields around his house. Split sample
	Pineapple	2/12/2019	15:15	700274	7237079		0.046			Pineapple	794	Grown and sold by Elersen (born 1959 here), leader in the Ampasy community, grown at his house, next to bee hives. Collected fresh from tree/bush with him.
	Papaya	2/12/2019	15:25	700248	7237091		0.06			Papaya	1648	Grown and sold by Elersen (born 1959 here), leader in the Ampasy community, grown at his house. Soil sample collected under the papaya tree
	Cassava	2/12/2019	16:00	700242	7237902	0.118	0.119			Cassava	>1200	Sold by Georgette at Ampasy, dug from the ground and collected with community man working for Georgette. Soil sample collected
	Cassava leaves	2/12/2019	16:05	700242	7237902	0.118	0.119			Cassava leaves	>500	Sold by Georgette at Ampasy, collected from the tree with community man working for Georgette. Soil sample collected
	Banana	2/12/2019	16:25	700414	7236856	0.152	0.148			Banana	>1000	Grown by Paulin, next to dust station. Paulin was selling his bananas along the road to Ampasy. Walked with him to the banana tree and collected fruit and soil sample.
	Rice MMM	2/12/2019	17:25	705068	7242934		0.096			Rice		Lalao Andrine, grower and producer of rice. Collected at the centre of the village of MMM. Rice grown to the East, around MMM
	Pineapple 2	4/12/2019	11:45	700019	7235777					Pineapple		Shop on the side of the road, Ampasy commune
	Lychee	4/12/2019	11:55	699851	7235509		0.093			Lychee		Shop on the side of the road, Ampasy commune, amongst jackfruit and lychee trees
	Fish01	4/12/2019	9:40	704637	7238247					Fish		Caught in paddock 3 (contractor, TBSA, using pirogue and nets)

Note Fresh Mass recorded in the field includes the inedible portion of the food and is not the value recorded on the chain of custody

JBS&G

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20201111 / 09:40	Rice MMM coordinate	705576	7243279	Y
20201111 / 10:25	Rice mmm	705068	7242934	Y

Plant collected by:
Plantes collectées par: Mr TOVO (Association FAGNINA)
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
Mandromondromotra	Riz1	1000	20201111 Riz1	Y

Comments/Observations:

Cultivateur: Mme Lalao Andrine
Tél:0341075353

Rice MMM coordinate : coordonnée du rizière
Rice mmm: coordonnée village du collecte.



Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par: CHRISTOPHE

SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

JBS&G

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20201111 / 11:20	Manioc georgette	700254	7237870	Y

Plant collected by:
Plantes collectées par: Mr TOVO (Association FAGNINA)
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
Ampasy	Manioc 1	2054	20201111 Manioc 1	Y

Comments/Observations:

Cultivateur: Mme Georgette
Tél: 0342123141 / 0332050762

Manioc georgette : coordonnée du nouveau champs pour la collecte du manioc.







Plant Placed in labelled bag/plante placée dans un sac étiqueté	**Y**

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par: CHRISTOPHE
SIGNED Signé :

Supervisor signature
Signature du superviseur:

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

JBS&G

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Min

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20201112 / 08:55	Soursot	700249	7237080	Y

Plant collected by:
Plantes collectées par: Mr TOVO (Association F
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
Ampasy	Soursot 1	1476	20201112 Soursot01	Y

Comments/Observations:

Cultivateur: Mr Elersen (Tovo)
Tél: 0344500571





Plant Placed in labelled bag/plante placée dans un sac étiqueté	**Y**

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par: CHRISTOPHE
SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

JBS&G

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20201112 / 09:05	Rice field elersene	700256	7236960	Y

Plant collected by:
Plantes collectées par: Mr TOVO (Association FAGNINA)
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
Ampasy	Riz 02	1000	20201112 Riz 02	Y

Comments/Observations:

Cultivateur: Mr Elersen (Tovo)
Tél: 0344500571



Plant Placed in labelled bag/plante placée dans un sac étiqueté	**Y**

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par: CHRISTOPHE

SIGNED Signé : _____

Supervisor signature
Signature du superviseur: _____

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

JBS&G

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20201112 / 09:16	Papayaelersene	700210	7237130	Y

Plant collected by:
Plantes collectées par : Mr TOVO (Association FAGNINA)
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
Ampasy	Papaya	1128	20201112 Papaya 1	Y

Comments/Observations:

Cultivateur: Mr Elersen (Tovo)
Tél: 0344500571



Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par: CHRISTOPHE
SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20201112 / 10:25	Cassava leaves georgette	700256	7237868	Y

Plant collected by:
Plantes collectées par: Mr TOVO (Association FAGNINA)
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
Ampasy	Cassava leaves	2245	20201112 Cassavaleaves	Y

Comments/Observations:

Cultivateur: Mme Georgette
Tél: 0342123141 / 0332050762







Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par: CHRISTOPHE
SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20201112 / 10:05	Jack fruit georgette	700259	7237854	Y

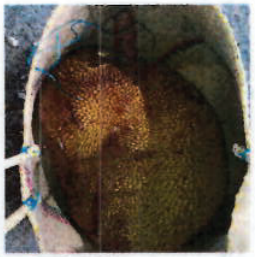
Plant collected by:
Plantes collectées par: Mr TOVO (Association FAGNINA)
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
Ampasy	Jack fruit 01	18160	20201112 Jack fruit 01	Y

Comments/Observations:

Cultivateur: Mme Georgette
Tél: 0342123141 / 0332050762


Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par: CHRISTOPHE
SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20201118 / 09:20	Letchisgeorgette	700224	7237795	Y

Plant collected by:
Plantes collectées par: Mr TOVO (Association FAGNINA)
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
Ampasy	Letchis 01	2008	20201118 Letchis 01	Y

Comments/Observations:

Cultivateur: Mme Georgette
Tél: 0342123141 / 0332050762



Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par: CHRISTOPHE
SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20201118 / 10:05	Bananapaulin	700423	7236859	Y

Plant collected by:
Plantes collectées par: Mr TOVO (Association FAGNINA)
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
Ampasy	Banana 01	3220	20201118 Banana 01	Y

Comments/Observations:

Cultivateur: Paulin (Mr Tovo)
Tél: 0344500571



Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par: CHRISTOPHE
SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20201118 / 10:20	Jackfruit Paulin	700449	7236835	Y

Plant collected by:
Plantes collectées par: Mr TOVO (Association FAGNINA)
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
Ampasy	Jackfruit 02	4205	20201118 Jackfruit 02	Y

Comments/Observations:

Cultivateur: Paulin (Mr Tovo)
Tél: 0344500571







Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par: CHRISTOPHE

SIGNED Signé : _____

Supervisor signature
Signature du superviseur: _____

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20201118 / 10:45	Rice Betaligny	700174	7234650	Y
	Village Betaligny	699809	7234625	Y

Plant collected by:
Plantes collectées par: Mr TOVO (Association FAGNINA)
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
Betaligny	Rice 03	1011	20201118 Riz 03	Y

Comments/Observations:

Cultivateur: Mr Justin
Tél: 0346486284





Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par: CHRISTOPHE
SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

JBS&G

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20201118 / 10:55	Betaligny letchis	699818	7234636	Y

Plant collected by:
Plantes collectées par: Mr TOVO (Association FAGNINA)
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
Betaligny	Letchis 02	2019	20201118 Letchis 02	Y

Comments/Observations:

Cultivateur: Mr Justin
Tél: 0346486284







Plant Placed in labelled bag/plante placée dans un sac étiqueté — **Y**

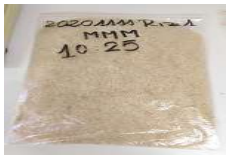
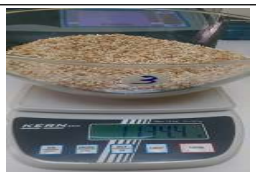
I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par: CHRISTOPHE
SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

Sample ID	Sample	Inedible Portion	Final Dried Sample (including bag weight)
20201112soursot01			
20201118LETCHIS 01			
20201112papaya 01			
20201118LETCHIS 02			
2020banana 01 #1			
2020banana 01 #2			
2020Cassava Leaves 01 #1			
2020Cassava Leaves 01 #2			

Sample ID	Sample	Inedible Portion	Final Dried Sample (including bag weight)
2020Jackfruit 01 #1			
2020Jackfruit 01 #2			
2020Jackfruit 02 #1			
20201112Manioc01			
20201111 RIZ01			
20201111 RIZ02			
20201111 RIZ03			

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
	Fish F01 (Mine site)	704637	7238247	Y/N

Fish collected by:TBSE team
Poissons collectés par QMM
QMM Supervisor Name:Christophe RAMBOLAMANANA
Nom du superviseur

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon	
Fish F01 (Mine site)	#1	120	20200930Fish01#1	
Fish F01 (Mine site)	#2	147	20200930Fish01#2	
Fish F01 (Mine site)	#3	130	20200930Fish01#3	
Fish F01 (Mine site)	#4	46	20200930Fish01#4	
Fish F01 (Mine site)	#5	135	20200930Fish01#5	
Fish F01 (Mine site)	#6	135	20200930Fish01#6	
Fish F01 (Mine site)	#7	102	20200930Fish01#7	
Fish F01 (Mine site)	#8	48	20200930Fish01#8	
Fish F01 (Mine site)	#9	118	20200930Fish01#9	
Fish F01 (Mine site)	#10	35	20200930Fish01#10	
	Total	1016		

Comments/Observations

20200930Fish01#1: Fiambazaha

20200930Fish01#2: Fiambazaha

20200930Fish01#3: Fiambazaha (presence d'une anomalie à la tete)

20200930Fish01#4: Fogny ((presence d'une anomalie à la tete)

20200930Fish01#5: Fiambazaha

20200930Fish01#6: Fiambazaha

20200930Fish01#7: Fiambazaha

20200930Fish01#8: Fogny (presence d'une anomalie à la tete

20200930Fish01#9: Fiambazaha

20200930Fish01#10: Fogny (presence d'une anomalie à la tete)

We caught in total 1016 grams compliance as per protocol

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté	Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :_____

SIGNED Signé :_____

Supervisor

Superviseur Signé:_____

New form to be completed for each location

Nouveau formulaire à remplir pour chaque emplacement

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
30/09/2020 10:20	Fish F01	704637	7238247	Y/N

Fish collected by:
Poissons collectés par TBSE Team (Gervais, Stelle, Beniface)
QMM Supervisor Name: Christophe RAMBOLAMANANA
Nom du superviseur

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / Identification de l'échantillon
F01	#1	250	F0101
Fish F01	#1	120	20200930Fish01#1 Fiambazaha
Fish F01	#2	147	20200930Fish01#2 Fiambazaha
Fish F01	#3	130	20200930 Fish01#3 Fiambazaha → Presence d'une anomalie à la tête
Fish F01	#4	46	20200930 Fish01#4 Fôgny → Presence d'une anomalie à la tête
Fish F01	#5	135	20200930 Fish01#5 Fiambazaha
Fish F01	#6	135	20200930 Fish01#6 Fiambazaha
Fish F01	#7	102	20200930 Fish01#7 Fiambazaha
Fish 01	#8	48	20200930 Fish01#8 Fôgny → Presence d'une anomalie à la tête
Fish 01	#9	118	20200930 Fish01#9 Fiambazaha
Fish 01	#10	35	20200930 Fish01#10 Fôgny → Presence d'une anomalie à la tête

Comments/Observations

Fish placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté
I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié : Christophe RAMBOLAMANANA
SIGNED Signé :

Supervisor
Superviseur Signé:

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	30/09/2020
Fish Location ID:	**Fish F01**
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Christophe RAMBOLAMANANA

Location Coordinates

Northing:	704637
Easting:	7238247

Photograph/Photographier du GPS



Fish ID	Fish Photograph/photographier	Fish Species Name (vernacular and scientific)/Nom Vernaculaire/Nom Scientifique	Weight/Poids(g)
#1		Nom vernaculaire: Fiambazaha Nom scientifique:Tilapia rendalli	120
#2		Nom vernaculaire: Fiambazaha Nom scientifique:Tilapia rendalli	147
#3		Nom vernaculaire: Fiambazaha Nom scientifique: Tilapia rendalli	130
#4		Nom vernaculaire: Fogny Nom scientifique: Paratilapia polleni	46
#5		Nom vernaculaire: Fiambazaha Nom scientifique: Tilapia rendalli	135
#6		Nom vernaculaire: Fiambazaha Nom scientifique: Tilapia rendalli	135

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	30/09/2020
Fish Location ID:	**Fish F01**
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Christophe RAMBOLAMANANA
Location Coordinates	
Northing:	704637
Easting:	7238247

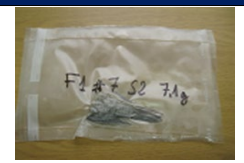
Photograph/Photographier du GPS



#7		Nom vernaculaire: Fiambazaha Nom scientifique: Tilapia rendalli	102
#8		Nom vernaculaire: Fogny Nom scientifique: Paratilapia polleni	48
#9		Nom vernaculaire: Fiambazaha Nom scientifique: Tilapia rendalli	118
#10		Nom vernaculaire: Fogny Nom scientifique: Paratilapia polleni	35
		Total	**1016**

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
30/09/2020	16:07	FISH	**20200930Fish01#1**	117.2	1.4	117.7	26.9	**F1#1 S1**	11.6	8.8	20.4	
								F1#1 S2	11.6	2.7	14.3	
								F1#1 S3	11.5	2.1	13.6	
								F1#1 S4	11.2	5.5	16.7	
30/09/2020	16:09	FISH	**20200930Fish01#2**	145.9	1.7	144	45.9	**F1#2 S1**	11.1	15.4	26.5	
								F1#2 S2	10.8	19.2	30	
								F1#2 S3	11.4	6.6	18	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
30/09/2020	16:11	FISH	**20200930Fish01#3**	128.8	1.4	127.6	34.1	**F1#3 S1**	11.2	16	27.2	
								F1#3 S2	11.5	15.5	27	
30/09/2020	16:13	FISH	**20200930Fish01#4**	45	1.5	45	13.9	**F1#4 S1**	12.6	12.6	19.4	
30/09/2020	16:15	FISH	**20200930Fish01#5**	133.8	1.6	133.2	31.2	**F1#5 S1**	11.5	14.7	26.2	
								F1#5 S2	11.7	10.4	22.1	
30/09/2020	16:17	FISH	**20200930Fish01#6**	132.3	1.7	128.7	38.3	**F1#6 S1**	11.6	18	29.6	
								F1#6 S2	11.7	17.2	28.9	
30/09/2020	16:19	FISH	**20200930Fish01#7**	100;2	1.5	101.6	25.8	**F1#7 S1**	16	11.5	27.5	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
								F1#7 S2	7.1	11.5	18.6	
30/09/2020	16:21	FISH	**20200930Fish01#8**	44.8	1.7	42.9	12.8	**F1#8 S1**	11	11.5	22.5	
30/09/2020	16:23	FISH	**20200930Fish01#9**	115.7	1.3	114.5	24.1	**F1#9 S1**	13.2	11.4	24.6	
								F1#9 S2	6.9	11	17.9	
30/09/2020	16:25	FISH	**20200930Fish01#10**	33.8	1.8	33.7	9.8	**F1#10 S1**	8.4	9.3	17.7	

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
16/10/2020 (10h59mn)	Fish F02 (MMM River)	704900	7242922	Y/N

Fish collected by: **Pecheur du Village de MMM**

Poissons collectés par: **TBSE Team & QMM**

QMM Supervisor Name: **Remboho Josua**

Nom du superviseur: **RANDRIAMBOLARAINY Erick**

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon	
Fish F02 (MMM River)	#1	44	20201016Fish02#1	
Fish F02 (MMM River)	#2	85	20201016Fish02#2	
Fish F02 (MMM River)	#3	75	20201016Fish02#3	
Fish F02 (MMM River)	#4	58	20201016Fish02#4	
Fish F02 (MMM River)	#5	76	20201016Fish02#5	
Fish F02 (MMM River)	#6	49	20201016Fish02#6	
Fish F02 (MMM River)	#7	41	20201016Fish02#7	
Fish F02 (MMM River)	#8	45	20201016Fish02#8	
Fish F02 (MMM River)	#9	56	20201016Fish02#9	
Fish F02 (MMM River)	#10	49	20201016Fish02#10	
Fish F02 (MMM River)	#11	39	20201016Fish02#11	
Fish F02 (MMM River)	#12	47	20201016Fish02#12	
Fish F02 (MMM River)	#13	33	20201016Fish02#13	
Fish F02 (MMM River)	#14	51	20201016Fish02#14	
Fish F02 (MMM River)	#15	38	20201016Fish02#15	
Fish F02 (MMM River)	#16	24	20201016Fish02#16	
Fish F02 (MMM River)	#17	21	20201016Fish02#17	
Fish F02 (MMM River)	#18	18	20201016Fish02#18	
Fish F02 (MMM River)	#19	17	20201016Fish02#19	
Fish F02 (MMM River)	#20	18	20201016Fish02#20	
Fish F02 (MMM River)	#21	16	20201016Fish02#21	
Fish F02 (MMM River)	#22	22	20201016Fish02#22	
Fish F02 (MMM River)	#23	14	20201016Fish02#23	
Fish F02 (MMM River)	#24	20	20201016Fish02#24	
	Total	956		

Comments/Observations

20201016Fish02#1: *Oreochomus Mossambicus*
20201016Fish02#2: *Parathillapia sp*
20201016Fish02#3: *Eleotrie Fusca*
20201016Fish02#4: *Oreochromus Mossambicus*
20201016Fish02#5: *Oreochromus Mossambicus*
20201016Fish02#6: *Oreochromus Mossambicus*
20201016Fish02#7: *Oreochromus Mossambicus*
20201016Fish02#8: *Oreochromus Mossambicus*
20201016Fish02#9: *Oreochromus Mossambicus*
20201016Fish02#10: *Oreochromus Mossambicus*
20201016Fish02#11: *Oreochromus Mossambicus*
20201016Fish02#12: *Oreochromus Mossambicus*
20201016Fish02#13: *Oreochromus Mossambicus*
20201016Fish02#14: *Oreochromus Mossambicus*
20201016Fish02#15: *Parathillapia sp*
20201016Fish02#16: *Oreochromus Mossambicus*
20201016Fish02#17: *Oreochromus Mossambicus*
20201016Fish02#18: *Oreochromus Mossambicus*
20201016Fish02#19: *Oreochromus Mossambicus*
20201016Fish02#20: *Oreochromus Mossambicus*
20201016Fish02#21: *Tilapia Rendalli*
20201016Fish02#22: *Tilapia Rendalli*
20201016Fish02#23: *Glossogobus Girus*
20201016Fish02#24: *Glossogubus Girus*

We caught in total 956 grams compliance as per protocol

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :_____

SIGNED Signé :_____

Supervisor

Superviseur Signé:_____

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
16/10/2020	FishF02	704900	7242922	Y/N
10H:59'				

Fish collected by: Pêcheur du Village
Poissons collectés par Qmm & TBSE.
QMM Supervisor Name: REHBOHO Josua
Nom du superviseur:

Comments/Observations

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon	
FishF02	#1	44	20201016Fish02#1	Oreochromus Mossambicus
FishF02	#2	85	20201016Fish02#2	Parathillapia. sp.
FishF02	#3	75	20201016Fish02#3	Electrie Fusca
FishF02	#4	58	20201016Fish02#4	Oreochromus Mossambicus.
FishF02	#5	76	20201016Fish02#5	Oreochromus Mossambicus.
FishF02	#6	49	20201016Fish02#6	Oreochromus Mossambicus
FishF02	#7	41	20201016Fish02#7	Oreochromus Mossambicus.
FishF02	#8	45	20201016Fish02#8	Oreochromus Mossambicus.

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté	Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :_____
SIGNED Signé :_____

Supervisor
Superviseur Signé:_____
R. Josua

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
16/10/2020	Fish Fo2	704900	7242922	Y/N
10H: 59'				

Fish collected by: Pecheur du Village (HHH).

Poissons collectés par: Qmm & TBSE (Josua - Stella - Gervais Boniface

QMM Supervisor Name: REMBOHO Josua.

Nom du superviseur:

Comments/Observations

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / Identification de l'échantillon	
Fish Fo2	#9	56	20201016Fish02#9	Oreochromus Mossambicus
Fish Fo2	#10	49	20201016Fish02#10	Oreochromus Mossambicus
Fish Fo2	#11	39	20201016Fish02#11	Oreochromus Mossambicus
Fish Fo2	#12	47	20201016Fish02#12	Oreochromus Mossambicus.
Fish Fo2	#13	33	20201016Fish02#13	Oreochromus Mossambicus
Fish Fo2	#14	51.	20201016Fish02#14	Oreochromus Mossambicus
Fish Fo2	#15	38	20201016Fish02#15	Parathilapia. sp.
Fish Fo2	#16	24.	20201016Fish02#16	Oreochromus Mossambicus.

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté	Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié : _____

SIGNED Signé : _____

Supervisor

Superviseur Signé: _____

R. Josua

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
16/10/2020	FishFo2	704900	7242922	Y/N
10h:59'				

Fish collected by:	Pêcheur du Village de(HHH).
Poissons collectés par	Qmm & TBSE (Josua - Stélla -
QMM Supervisor Name:	REMBOHO. Josua Gervais - Bonifac
Nom du superviseur:	

Comments/Observations

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / Identification de l'échantillon	
FishFo2	#17	21	20201016	Fish02 #17 - Oreochromus - Mossambicus
FishFo2	#18	18	20201016	Fish02 #18 - Oreochromus - Mossambicus
FishFo2	#19	17	20201016	Fish02 #19 - Oreochromus - Mossambicus
FishFo2	#20	18	20201016	Fish02 #20 - Oreochromus Mossambicus
FishFo2	#21	16	20201016	Fish02 #21 - Tilapia Rendalli
FishFo2	#22	22	20201016	Fish02 #22 - Tilapia Rendalli
FishFo2	#23	14	20201016	Fish02 #23 - Glossogobus - Ginus
FishFo2	#24	20	20201016	Fish02 #24 - Glossogobus - Ginus

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté	Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié : _____

SIGNED Signé : _____

Supervisor
Superviseur Signé: _____

R. Josua

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	16/10/2020
Fish Location ID:	Fish F02
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua

Location Coordinates

Easting:	0704900
Northing:	7242922

Photograph/Photographier du GPS Location/Emplacement





Fish ID	Fish Photograph/photographier	Fish Species Name (vernacular and scientific)/Nom Vernaculaire/Nom Scientifique	Weight/Poids (g)
#1		**Nom vernaculaire:** **Nom scientifique**: *Oreochromus Mossambicus*	44
#2		**Nom vernaculaire:** **Nom scientifique:** *Parathilapia sp*	85
#3		**Nom vernaculaire:** **Nom scientifique:** *Eleotrie Fusca*	75
#4		**Nom vernaculaire:** **Nom scientifique:** *Oreochromus Mossambicus*	58

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	16/10/2020
Fish Location ID:	Fish F02
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua

Location Coordinates

Easting:	0704900
Northing:	7242922

Photograph/Photographier du GPS Location/Emplacement





#5		**Nom vernaculaire:** **Nom scientifique:** *Oreochromus Mossambicus*	76
#6		**Nom vernaculaire:** **Nom scientifique:** *Oreochromus Mossambicus*	49
#7		**Nom vernaculaire:** **Nom scientifique:** *Oreochromus Mossambicus*	41
#8		**Nom vernaculaire:** **Nom scientifique:** *Oreochromus Mossambicus*	45

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	16/10/2020
Fish Location ID:	Fish F02
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua
Location Coordinates	
Easting:	0704900
Northing:	7242922

Photograph/Photographier du GPS Location/Emplacement





#9		**Nom vernaculaire:** **Nom scientifique:** *Oreochromus Mossambicus*	56
#10		**Nom vernaculaire:** **Nom scientifique:** *Oreochromus Mossambicus*	49
#11		**Nom vernaculaire:** **Nom scientifique:** Oreochromus Mossambicus	39
#12		**Nom vernaculaire:** **Nom scientifique:** *Oreochromus Mossambicus*	47

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	16/10/2020
Fish Location ID:	Fish F02
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua

Location Coordinates

Easting:	0704900
Northing:	7242922

Photograph/Photographier du GPS Location/Emplacement





#13		**Nom vernaculaire:** **Nom scientifique:** *Oreochromus Mossambicus*	33
#14		**Nom vernaculaire:** **Nom scientifique:** *Oreochromus Mossambicus*	51
#15		**Nom vernaculaire:** **Nom scientifique:** *Parathilapia sp*	38
#16		**Nom vernaculaire:** **Nom scientifique:** *Oreochromus Mossambicus*	24

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	16/10/2020
Fish Location ID:	Fish F02
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua
Location Coordinates	
Easting:	0704900
Northing:	7242922

Photograph/Photographier du GPS Location/Emplacement





#17		**Nom vernaculaire:** **Nom scientifique:** *Oreochromus Mossambicus*	21
#18		**Nom vernaculaire:** **Nom scientifique:** *Oreochromus Mossambicus*	18
#19		**Nom vernaculaire:** **Nom scientifique:** *Oreochromus Mossambicus*	17
#20		**Nom vernaculaire:** **Nom scientifique:** *Oreochromus Mossambicus*	18

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	16/10/2020
Fish Location ID:	Fish F02
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua
Location Coordinates	
Easting:	0704900
Northing:	7242922

Photograph/Photographier du GPS Location/Emplacement





#21		**Nom vernaculaire:** **Nom scientifique:** *Tilapia Rendalli*	16
#22		**Nom vernaculaire:** **Nom scientifique:** *Tilapia Rendalli*	22
#23		**Nom vernaculaire:** **Nom scientifique:** *Glossogobus Girus*	14
#24		**Nom vernaculaire:** **Nom scientifique:** *Glossogobus Girus*	20

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air et papier cuisson (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) et papier cuisson (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
21/10/2020	9h48	FISH	**20201016Fish02#1**	37.8	0.9	35.3	9.5	**F2#1S1**	10.9	8.4	19.5	
21/10/2020	9h48	FISH	**20201016Fish02#2**	79.3	0.3	77.6	20.1	**F2#2S1**	10.9	19.5	30.4	
21/10/2020	9h47	FISH	**20201016Fish02#3**	70	0.5	67.6	16.9	**F2#3S1**	10.8	16	27	
21/10/2020	9h47	FISH	**20201016Fish02#4**	51.7	0.8	49.1	13.2	**F2#4S1**	10.7	12.1	23	
21/10/2020	9h46	FISH	**20201016Fish02#5**	69.3	0.5	66.7	19.7	**F2#5S1**	11	18.9	29.7	
21/10/2020	9h46	FISH	**20201016Fish02#6**	43.4	0.5	40.6	11.1	**F2#6S1**	10.9	10.2	21	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air et papier cuisson (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) et papier cuisson (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
21/10/2020	9h45	FISH	**20201016Fish02#7**	35.3	0.6	33.3	9.8	**F2#7S1**	11	8.8	19.8	
21/10/2020	9h44	FISH	**20201016Fish02#8**	39.9	0.5	38.4	10.7	**F2#8S1**	11	9.6	20.7	
21/10/2020	9h44	FISH	**20201016Fish02#9**	49.7	0.5	48	13	**F2#9S1**	10.7	12	22.7	
21/10/2020	9h43	FISH	**20201016Fish02#10**	42.9	0.3	41	11.1	**F2#10S1**	10.9	10.4	21.3	
21/10/2020	9h43	FISH	**20201016Fish02#11**	33.7	0.6	31.7	8.7	**F2#11S1**	11	7.7	18.7	
21/10/2020	9h42	FISH	**20201016Fish02#12**	42.1	0.6	37.5	11.2	**F2#12S1**	10.8	10.2	21.1	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air et papier cuisson (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) et papier cuisson (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
21/10/2020	9h42	FISH	**20201016Fish02#13**	27	0.5	24.9	8.4	**F2#13S1**	11	6.9	17.9	
21/10/2020	9h41	FISH	**20201016Fish02#14**	45.2	0.6	42.9	14.6	**F2#14S1**	10.9	13.6	24.4	
21/10/2020	9h41	FISH	**20201016Fish02#15**	32.2	0.6	30.8	8.9	**F2#15S1**	10.9	8.2	19	
21/10/2020	9h40	FISH	**20201016Fish02#16**	18.5	0.4	17.1	5.9	**F2#16S1**	10.9	5.4	16.2	
21/10/2020	9h40	FISH	**20201016Fish02#17**	14.9	0.5	13.1	4.3	**F2#17S1**	10.8	3.6	24.4	
21/10/2020	9h39	FISH	**20201016Fish02#18**	12.4	0.5	11.1	4	**F2#18S1**	10.9	3.1	14	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air et papier cuisson (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) et papier cuisson (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
21/10/2020	9h38	FISH	**20201016Fish02#19**	11	0.7	9.8	3.4	**F2#19S1**	10.9	2.7	13.6	
21/10/2020	9h37	FISH	**20201016Fish02#20**	11.9	0.5	10.6	3.8	**F2#20S1**	10.8	3	14	
21/10/2020	9h37	FISH	**20201016Fish02#21**	10.8	0.5	9.2	2.9	**F2#21S1**	10.8	2.1	13.1	
21/10/2020	9h36	FISH	**20201016Fish02#22**	16.5	0.5	15.1	4.5	**F2#22S1**	10.8	3.8	14.5	
21/10/2020	9h35	FISH	**20201016Fish02#23**	8.6	0.7	7.4	2.3	**F2#23S1**	10.8	1.9	12.8	
21/10/2020	9h34	FISH	**20201016Fish02#24**	14.6	0.6	``	4.1	**F2#24S1**	10.6	3.3	14.2	

JBS&G	Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons	QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
14/10/2020 (10h43mn)	Fish F03(MMM River)	706,507	7,239,196	Y/N

Fish collected by: **Association FIMIRA**
Poissons collectés par: **TBSE Team & QMM**
QMM Supervisor Name: **Remboho Josua**
Nom du superviseur: **RANDRIAMBOLARAINY Erick**

Fish Samples

Location/ Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon	
Fish F03 (MMM River)	#1	35	20201014Fish03#1	
Fish F03 (MMM River)	#2	59	20201014Fish03#2	
Fish F03 (MMM River)	#3	85	20201014Fish03#3	
Fish F03 (MMM River)	#4	40	20201014Fish03#4	
Fish F03 (MMM River)	#5	45	20201014Fish03#5	
Fish F03 (MMM River)	#6	41	20201014Fish03#6	
Fish F03 (MMM River)	#7	36	20201014Fish03#7	
Fish F03 (MMM River)	#8	36	20201014Fish03#8	
Fish F03 (MMM River)	#9	34	20201014Fish03#9	
Fish F03 (MMM River)	#10	32	20201014Fish03#10	
Fish F03 (MMM River)	#11	30	20201014Fish03#11	
Fish F03 (MMM River)	#12	39	20201014Fish03#12	
Fish F03 (MMM River)	#13	26	20201014Fish03#13	
Fish F03 (MMM River)	#14	29	20201014Fish03#14	
Fish F03 (MMM River)	#15	43	20201014Fish03#15	
Fish F03 (MMM River)	#16	29	20201014Fish03#16	
Fish F03 (MMM River)	#17	30	20201014Fish03#17	
Fish F03 (MMM River)	#18	28	20201014Fish03#18	
Fish F03 (MMM River)	#19	25	20201014Fish03#19	
Fish F03 (MMM River)	#20	28	20201014Fish03#20	
Fish F03 (MMM River)	#21	26	20201014Fish03#21	
Fish F03 (MMM River)	#22	35	20201014Fish03#22	
Fish F03 (MMM River)	#23	28	20201014Fish03#23	
Fish F03 (MMM River)	#24	25	20201014Fish03#24	
Fish F03 (MMM River)	#25	27	20201014Fish03#25	
Fish F03 (MMM River)	#26	25	20201014Fish03#26	
Fish F03 (MMM River)	#27	26	20201014Fish03#27	
Fish F03 (MMM River)	#28	28	20201014Fish03#28	
Fish F03 (MMM River)	#29	25	20201014Fish03#29	
	Total	995		

Comments/Observations

20201014Fish03#1: *Paratilapia sp*
20201014Fish03#2: *Tilapia Rendalli*
20201014Fish03#3: *Tilapia Rendalli*
20201014Fish03#4: *Tilapia Rendalli*
20201014Fish03#5: *Tilapia Rendalli*
20201014Fish03#6: *Glossogobus Girus*
20201014Fish03#7: *Glossogobus Girus*
20201014Fish03#8: *Glossogobus Girus*
20201014Fish03#9: *Tilapia Rendalli*
20201014Fish03#10: *Tilapia Rendalli*
20201014Fish03#11: *Tilapia Rendalli*
20201014Fish03#12: *Tilapia Rendalli*
20201014Fish03#13: *Tilapia Rendalli*
20201014Fish03#14: *Tilapia Rendalli*
20201014Fish03#15: *Ptytichromus Grandidieri*
20201014Fish03#16: *Tilapia Rendalli*
20201014Fish03#17: *Oreochromus Mossambicus*
20201014Fish03#18: *Tilapia Rendalli*
20201014Fish03#19: *Tilapia Rendalli*
20201014Fish03#20: *Tilapia Rendalli*
20201014Fish03#21: *Tillapia Rendalli*
20201014Fish03#22: *Gobus Fusca*
20201014Fish03#23: *Tilapia Rendalli*
20201014Fish03#24: *Tilapia Rendalli*
20201014Fish03#25: *Tilapia Rendalli*
20201014Fish03#26: *Tilapia Rendalli*
20201014Fish03#27: *Tilapia Rendalli*
20201014Fish03#28: *Oreochromus Mossambicus*
20201014Fish03#29: *Tilapia Rendalli*

We caught in tota 995 grams compliance as per protocol

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :_____ Supervisor
SIGNED Signé :_____ Superviseur Signé:_____

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS Y/N
14/10/2020 · 08H 47 à 10H 43	FishF03	706507 ·	7239196	

Fish collected by:	ASSOCIATION - FIMIRA - Boniface
Poissons collectés par	QMM & TBSE (Josua. stella. Gervais -
QMM Supervisor Name:	REHBOHO Josua.
Nom du superviseur:	

Comments/Observations

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / Identification de l'échantillon	
- FishF03	#1 .	35 .	20201014FishF03#1	- Paratilapia - sp.
FishF03	#2 -	59 -	20201014FishF03#2	- Tilapia Rendalli
- FishF03	#3 .	85 .	20201014FishF03#3	- Tilapia Rendalli
- FishF03	#4 .	40 -	20201014FishF03#4	- Tilapia Rendalli
- FishF03	#5 -	45 -	20201014Fish03#5	- Tilapia Rendalli
- Fish F03	#6 -	41 -	20201014Fish03#6	- Glossogobus Giurus.
- FishF03	#7 -	36 -	20201014Fish03#7	- Glossogobus Giurus
- Fish F03	#8 -	36 -	20201014Fish03#8.	- Glossogobus Giurus.

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté	Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié : _____

SIGNED Signé : _____

Supervisor
Superviseur Signé: _____

R. Josua

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
14/10/2020	Fish F03	706507	7239196	Y/N
08H:47' à 10H43'				

Fish collected by: ASSOCIATION-FIMIRA Boniface

Poissons collectés par Qmm & TBSE (Josua - stella - Gervais

QMM Supervisor Name: REMBOHO - Josua.

Nom du superviseur:

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / Identification de l'échantillon	Comments/Observations
Fish F03	#9	34	20201014Fish03#9	Tillapia Rendalli
Fish F03	#10	32	20201014Fish03#10	Tillapia Rendalli
Fish F03	#11	30	20201014Fish03#11	Tillapia Rendalli
Fish F03	#12	39	20201014Fish03#12	Tillapia Rendalli
Fish F03	#13	26	20201014Fish03#13	Tillapia Rendalli
Fish F03	#14	29	20201014Fish03#14	Tillapia Rendalli
Fish F03	#15	43	20201014Fish03#15	Plytichromus Grandidieri
Fish F03	#16	29	20201014Fish03#16	Tilapia Rendalli

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté	Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié : _____

SIGNED Signé : _____

Supervisor
Superviseur Signé: _____

R. Josua

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
14/10/2020	Fish F03	706507	7239196	Y/N
08h47 à 10h43				

Fish collected by:	ASSOCIATION FIMIRA Boniface
Poissons collectés par	QMM & TBSE (Josua. Stella. Gervais
QMM Supervisor Name:	REHBOHO Josua.
Nom du superviseur:	

Comments/Observations

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / Identification de l'échantillon	
Fish F03	#17	30	20201014Fish03#17	- Oreochromus Mossambicus.
Fish F03	#18	28	20201014Fish03#18	- Tilapia Rendalli
Fish F03	#19	25	20201014Fish03#19.	- Tilapia Rendalli
Fish F03	#20	28	20201014Fish03#20	- Tilapia Rendalli
Fish F03	#21	26	20201014Fish03#21.	- Tilapia Rendalli
Fish F03	#22	35	20201014Fish03#22	- Gobus Fusca.
Fish F03	#23	28	20201014Fish03#23	- Tilapia Rendalli
Fish F03.	#24.	25.	20201014Fish03#24.	- Tilapia Rendalli

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté	Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié : _____

SIGNED Signé : _____

Supervisor
Superviseur Signé: _____
R. Josua

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS Y/N
14/10/2020.	FishF03	706507	7239198	
08h47 à 10h43				

Fish collected by: ASSOCIATION. FIMIRA Boniface

Poissons collectés par QMM / TBSE (Josua - Stella - Gervais.

QMM Supervisor Name: REHBOHO. Josue

Nom du superviseur:

Comments/Observations

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / Identification de l'échantillon	
FishF03	#25	27	20201014FishF03#25	- Tilapia Rendalli
FishF03	#26	25	20201014FishF03#26	- Tilapia Rendalli
FishF03	#27	26	20201014FishF03#27	- Tilapia Rendalli
FishF03	#28	28	20201014FishF03#28	Oreochromus Mossambicus
FishF03	#29.	25	20201014FishF03#29	- Tilapia Rendalli.

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :_____

SIGNED Signé :_____

Supervisor

Superviseur Signé:_____

R. Josua

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	14/10/2020
Fish Location ID:	**Fish F03**
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua
Location Coordinates	
Easting:	706 507
Northing:	7239196

Photograph/Photographier du GPS Location/Emplacement



Fish ID	Fish Photograph/photographier	Fish Species Name (vernacular and scientific)/Nom Vernaculaire/Nom Scientifique	Weight/Poids
#1		**Nom vernaculaire:** **Nom Scientifique:** *Paratilapia sp*	35
#2		**Nom vernaculaire:** **Nom Scientifique:** *Tilapia Rendalli*	59
#3		**Nom vernaculaire:** **Nom Scientifique:** *Tilapia Rendalli*	85

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	14/10/2020
Fish Location ID:	**Fish F03**
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua
Location Coordinates	
Easting:	706 507
Northing:	7239196

Photograph/Photographier du GPS Location/Emplacement



#4		**Nom vernaculaire:** **Nom Scientifique:** *Tilapia Rendalli*	40
#5		**Nom vernaculaire:** **Nom Scientifique:** *Tilapia Rendalli*	45
#6		**Nom vernaculaire:** **Nom Scientifique:** *Glossogobus Girus*	41
#7		**Nom vernaculaire:** **Nom Scientifique:** *Glossogobus Girus*	36

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	14/10/2020
Fish Location ID:	**Fish F03**
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua
Location Coordinates	
Easting:	706 507
Northing:	7239196

Photograph/Photographier du GPS Location/Emplacement



#8		**Nom vernaculaire:** **Nom Scientifique:** *Glossogobus Girus*	36
#9		**Nom vernaculaire:** **Nom Scientifique:** *Tilapia Rendalli*	34
#10		**Nom vernaculaire:** **Nom Scientifique:** *Tilapia Rendalli*	32
#11		**Nom vernaculaire:** **Nom Scientifique:** *Tilapia Rendalli*	30

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	14/10/2020
Fish Location ID:	**Fish F03**
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua
Location Coordinates	
Easting:	706 507
Northing:	7239196

Photograph/Photographier du GPS Location/Emplacement



#12		**Nom vernaculaire:** **Nom Scientifique:** *Tilapia Rendalli*	39
#13		**Nom vernaculaire:** **Nom Scientifique:** *Tilapia Rendalli*	26
#14		**Nom vernaculaire:** **Nom Scientifique:** *Tilapia Rendalli*	29
#15		**Nom vernaculaire:** **Nom Scientifique:** *Ptytichromus Grandidieri*	43

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	14/10/2020
Fish Location ID:	**Fish F03**
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua
Location Coordinates	
Easting:	706 507
Northing:	7239196

Photograph/Photographier du GPS Location/Emplacement



#16		**Nom vernaculaire:** **Nom Scientifique:** *Tilapia Rendalli*	29
#17		**Nom vernaculaire:** **Nom Scientifique:** *Oreochromus Mossambicus*	30
#18		**Nom vernaculaire:** **Nom Scientifique:** *Tilapia Rendalli*	28
#19		**Nom vernaculaire:** **Nom Scientifique:** *Tilapia Rendalli*	25

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	14/10/2020
Fish Location ID:	**Fish F03**
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua
Location Coordinates	
Easting:	706 507
Northing:	7239196

Photograph/Photographier du GPS Location/Emplacement



#20		**Nom vernaculaire:** **Nom Scientifique:** *Tilapia Rendalli*	28
#21		**Nom vernaculaire:** **Nom Scientifique:** *Tilapia Rendalli*	26
#22		**Nom vernaculaire:** **Nom Scientifique:** *Gobus Fusca*	35
#23		**Nom vernaculaire:** **Nom Scientifique:** *Tilapia Rendalli*	28

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	14/10/2020
Fish Location ID:	**Fish F03**
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua
Location Coordinates	
Easting:	706 507
Northing:	7239196

Photograph/Photographier du GPS Location/Emplacement



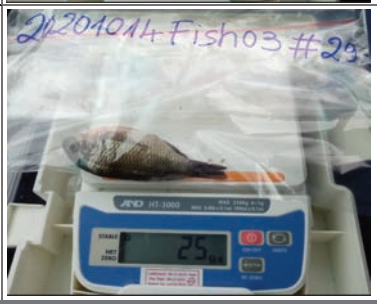
#24		**Nom vernaculaire:** **Nom Scientifique:** *Tilapia Rendalli*	25
#25		**Nom vernaculaire:** **Nom Scientifique:** *Tilapia Rendalli*	27
#26		**Nom vernaculaire:** **Nom Scientifique:** *Tilapia Rendalli*	25
#27		**Nom vernaculaire:** **Nom Scientifique:** *Tilapia Rendalli*	26

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	14/10/2020
Fish Location ID:	**Fish F03**
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua
Location Coordinates	
Easting:	706 507
Northing:	7239196

Photograph/Photographier du GPS Location/Emplacement



#28		**Nom vernaculaire:** **Nom Scientifique:** *Oreochromus Mossambicus*	28
#29		**Nom vernaculaire:** **Nom Scientifique:** *Tilapia Rendalli*	25

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

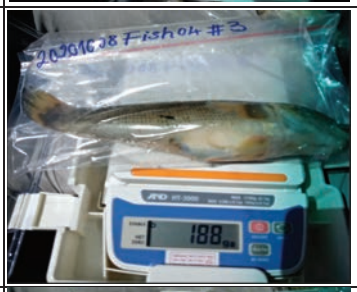
Date:	08/10/2020 13/10/2020
Fish Location ID:	Fish F04
Fishing Contractor Name	Entreprise TBSE Fort
QMM Supervisor Name	Remboho Josua

Location Coordinates

Northing:	707 648
Easting:	723 7627

Photograph/Photographier du GPS Location/Emplacement



Fish ID	Fish Photograph/photographier	Fish Species Name (vernacular and scientific)/Nom Vernaculaire/Nom Scientifique	Weight/Poids
#1		**Nom Vernaculaire**: **Nom Scientifique:** *Oreochromus Mossambicus*	53
#2		**Nom Vernaculaire**: **Nom Scientifique:** *T ilapia Rendalli*	153
#3		**Nom Vernaculaire**: **Nom Scientifique:** *Gobus Fusca*	188
#4		**Nom Vernaculaire**: **Nom Scientifique:** *Ptytichromus Grandidieri*	46

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

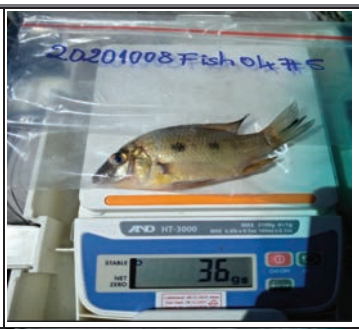
JBS&G

Date:	08/10/2020 13/10/2020
Fish Location ID:	Fish F04
Fishing Contractor Name	Entreprise TBSE Fort
QMM Supervisor Name	Remboho Josua

Location Coordinates	
Northing:	707 648
Easting:	723 7627

Photograph/Photographier du GPS Location/Emplacement



#5		**Nom Vernaculaire**: **Nom Scientifique:** *Ptytichromus Grandidieri*	36
#6		**Nom Vernaculaire**: **Nom Scientifique:** *Ptytichromus Grandidieri*	51
#7		**Nom Vernaculaire**: **Nom Scientifique:** *Ptytichromus Grandidieri*	42
#8		**Nom Vernaculaire**: **Nom Scientifique:** *Tilapia Rendalli*	65

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	08/10/2020 13/10/2020
Fish Location ID:	Fish F04
Fishing Contractor Name	Entreprise TBSE Fort
QMM Supervisor Name	Remboho Josua

Location Coordinates	
Northing:	707 648
Easting:	723 7627

Photograph/Photographier du GPS Location/Emplacement



#9		**Nom Vernaculaire**: **Nom Scientifique:** *Tilapia Rendalli*	58
#10		**Nom Vernaculaire**: **Nom Scientifique:** *Tilapia Rendalli*	57
#11		**Nom Vernaculaire**: **Nom Scientifique:** *Gobus Fusca*	132
#12		**Nom Vernaculaire**: **Nom Scientifique:** *Gobus Fusca*	135

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air et papier cuisson (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) et papier cuisson (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
28/10/2020	9h49	FISH	**20201014Fish03#1**	29.5	1.1	28.1	9.5	**F3#1S1**	10.6	8.2	19.2	
28/10/2020	9h49	FISH	**20201014Fish03#2**	52.5	1	49.6	13.5	**F3#2S1**	10.8	12.1	23	
28/10/2020	9h48	FISH	**20201014Fish03#3**	77.5	1	73	17.6	**F3#3S1**	10.7	16.2	26.8	
28/10/2020	9h48	FISH	**20201014Fish03#4**	33.5	0.8	30.6	8.9	**F3#4S1**	10.8	7.7	18.5	
28/10/2020	9h47	FISH	**20201014Fish03#5**	38.6	0.8	35.9	9.5	**F3#5S1**	10.8	8.5	19.2	
28/10/2020	9h47	FISH	**20201014Fish03#6**	35.2	0.9	32.6	9.5	**F3#6S1**	10.8	8.3	19.3	
28/10/2020	9h47	FISH	**20201014Fish03#7**	30.2	0.8	28.2	8	**F3#7S1**	10.8	7.1	17.8	
28/10/2020	9h46	FISH	**20201014Fish03#8**	30.1	0.8	27.9	7.8	**F3#8S1**	10.7	6.7	17.6	
28/10/2020	9h46	FISH	**20201014Fish03#9**	25.8	0.6	24.7	7.2	**F3#9S1**	10.9	6.2	17.1	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air et papier cuisson (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) et papier cuisson (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
28/10/2020	9h46	FISH	**20201014Fish03#10**	25.6	0.6	23.6	6.8	**F3#10S1**	10.8	5.7	16.8	
28/10/2020	9h45	FISH	**20201014Fish03#11**	24.2	0.9	22	5.9	**F3#11S1**	10.9	5	15.7	
28/10/2020	9h45	FISH	**20201014Fish03#12**	32.1	0.8	29.6	7.9	**F3#12S1**	10.9	6.9	17.8	
28/10/2020	9h45	FISH	**20201014Fish03#13**	20.1	0.7	18.4	5.7	**F3#13S1**	10.8	4.7	15.7	
28/10/2020	9h44	FISH	**20201014Fish03#14**	21.9	0.8	20.1	5.8	**F3#14S1**	10.8	4.9	15.7	
28/10/2020	9h44	FISH	**20201014Fish03#15**	36.4	0.8	33.9	10.8	**F3#15S1**	10.7	9.6	20.5	
28/10/2020	9h44	FISH	**20201014Fish03#16**	22.5	0.8	20.2	5.7	**F3#16S1**	10.8	4.9	15.7	
28/10/2020	9h43	FISH	**20201014Fish03#17**	22.9	0.7	20.5	6.3	**F3#17S1**	11	5.3	16.2	
28/10/2020	9h43	FISH	**20201014Fish03#18**	22	0.6	20	5.7	**F3#18S1**	10.8	4.8	15.7	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air et papier cuisson (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) et papier cuisson (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
28/10/2020	9h43	FISH	**20201014Fish03#19**	18.6	0.7	16.5	5.1	**F3#19S1**	10.9	4.1	15.1	
28/10/2020	9h42	FISH	**20201014Fish03#20**	21.8	0.8	20.1	6.1	**F3#20S1**	10.9	5.1	16	
28/10/2020	9h42	FISH	**20201014Fish03#21**	20.4	1	18.5	5.7	**F3#21S1**	10.8	4.7	15.6	
28/10/2020	9h42	FISH	**20201014Fish03#22**	28.7	0.9	25.9	7.7	**F3#22S1**	10.9	6.3	17.3	
28/10/2020	9h41	FISH	**20201014Fish03#23**	21.2	0.8	19.3	5.7	**F3#23S1**	10.9	5	15.8	
28/10/2020	9h41	FISH	**20201014Fish03#24**	18.2	0.9	16.5	5.4	**F3#24S1**	10.7	4.3	15.1	
28/10/2020	9h41	FISH	**20201014Fish03#25**	20.5	0.7	18.4	5.7	**F3#25S1**	10.6	4.7	15.5	
28/10/2020	9h40	FISH	**20201014Fish03#26**	18.7	0.7	17.2	5.4	**F3#26S1**	10.8	4.2	15.1	
28/10/2020	9h40	FISH	**20201014Fish03#27**	19.7	0.8	17.6	5.2	**F3#27S1**	10.7	4.2	15	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air et papier cuisson (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) et papier cuisson (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
28/10/2020	9h39	FISH	**20201014Fish03#28**	21.3	0.8	19	5.5	**F3#28S1**	10.8	4.4	15.1	
28/10/2020	9h39	FISH	**20201014Fish03#29**	18.9	0.9	17	5.6	**F3#29S1**	10.6	4.3	15.1	

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
08.10.2020 (11h:15mn)	Fish F04 (Lac Ambavarano)	707,648	7,237,627	Y/N
13.10.2020 (10h:42mn)				

Fish collected by: **Association FIMIRA**
Poissons collectés par: **TBSE Team & QMM**
QMM Supervisor Name: **Remboho Josua**
Nom du superviseur: **RANDRIAMBOLARAINY Erick**

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon	
Fish F04 (Lac Ambavarano)	#1	53	20201008Fish04#1	
Fish F04 (Lac Ambavarano)	#2	153	20201008Fish04#2	
Fish F04 (Lac Ambavarano)	#3	188	20201008Fish04#3	
Fish F04 (Lac Ambavarano)	#4	46	20201008Fish04#4	
Fish F04 (Lac Ambavarano)	#5	36	20201008Fish04#5	
Fish F04 (Lac Ambavarano)	#6	51	20201008Fish04#6	
Fish F04 (Lac Ambavarano)	#7	42	20201008Fish04#7	
Fish F04 (Lac Ambavarano)	#8	65	20201008Fish04#8	
Fish F04 (Lac Ambavarano)	#9	58	20201008Fish04#9	
Fish F04 (Lac Ambavarano)	#10	57	20201008Fish04#10	
Fish F04 (Lac Ambavarano)	#11	132	20201013Fish04#11	
Fish F04 (Lac Ambavarano)	#12	135	20201013Fish04#12	
	Total	1016		

Comments/Observations

20201008Fish04#1: *Oreochromus Mossambicus*
20201008Fish04#2: *Tilapia Rendalli*
20201008Fish04#3: *Gobus Fusca*
20201008Fish04#4: *Ptytichromus Grandidieri*
20201008Fish04#5: *Ptytichromus Grandidieri*
20201008Fish04#6: *Ptytichromus Grandidieri*
20201008Fish04#7: *Ptytichromus Grandidieri*
20201008Fish04#8: *Tilapia Rendalli*
20201008Fish04#9: *Tilapia Rendalli*
20201008Fish04#10: *Tilapia Rendalli*
20201013Fish04#11: *Gobus Fusca*
20201013Fish04#12: *Gobus Fusca*

We caught in total 1016 grams compliance as per protocol

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :_____ Supervisor

SIGNED Signé :_____ Superviseur Signé:_____

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
08.10.2020	Fish Fo4	707648	7237627	Y/N
08H05-11H15				

Fish collected by: ASOCIATION-FIMIRA

Poissons collectés par: TBSE & QHM (Josue. Stella. Gervais)

QMM Supervisor Name: REHOOHO Josue.

Nom du superviseur:

Comments/Observations

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / Identification de l'échantillon	
Fish Fo4	#1	53	20201008Fish04#1	Oreochromis Hossambicus
Fish Fo4	#2	153	20201008Fish04#2	Tilapia rendali
Fish Fo4	#3	188	20201008Fish04#3	Obus Fusca
Fish Fo4	#4	46	20201008Fish04#4	Ptytichromus Grandidieri
Fish Fo4	#5	36	20201008Fish04#5	Ptytichromus Grandidieri
Fish Fo4	#6	51	20201008Fish04#6	Ptytichromus Grandidieri
Fish Fo4	#7	42	20201008Fish04#7	Ptytichromus Grandidieri
Fish Fo4	#8	65	20201008Fish04#8	Tilapia rendali

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :

SIGNED Signé :

Supervisor

Superviseur Signé:

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
08-10-2020 08h05 - 11h15	FishFO4	707648	7237627	Y/N

Fish collected by: ASSOCIATION - FIHIRA

Poissons collectés par: TBSE & GHH (Josue . Stella - Gervais

QMM Supervisor Name: DEHOHO Josue

Nom du superviseur

Comments/Observations

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / Identification de l'échantillon	
- FishFO4	#9	58	20201008FishO4#9	- Tilapia Rendali
- FishFO4	#10	57	20201008FishO4#10	- Tilapia Rendali
- FishFO4	#11	132	20201013FishO4#11	- Gobus Fusca
- FishFO4	#12	135	20201013FishO4#12	- Gobus Fusca.

13/10/2020 (10h42')

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :

SIGNED Signé :

Supervisor
Superviseur Signé:

R. Josue

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	30/09/2020 07/10/2020
Fish Location ID:	Fish F05
Fishing Contractor Name	Entreprise TBSE Fort
QMM Supervisor Name	Remboho Josua

Location Coordinates

Northing:	705 513
Easting:	723 7488

Photograph/Photographier du GPS Location/Emplacement



Fish ID	Fish Photograph/photographier	Fish Species Name (vernacular and scientific)/Nom Vernaculaire/Nom Scientifique	Weight/Poids
#1		**Nom Vernaculaire**: **Nom Scientifique:** *Gobus Fusca*	72
#2		**Nom Vernaculaire**: **Nom Scientifique:** *Glossogobus Girus*	88
#3		**Nom Vernaculaire**: **Nom Scientifique:** *Glossogobus Girus*	94
#1		**Nom Vernaculaire**: **Nom Scientifique:** *Tilapia Rendalli*	68

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	30/09/2020 07/10/2020
Fish Location ID:	Fish F05
Fishing Contractor Name	Entreprise TBSE Fort
QMM Supervisor Name	Remboho Josua

Location Coordinates	
Northing:	705 513
Easting:	723 7488

Photograph/Photographier du GPS Location/Emplacement



#2		**Nom Vernaculaire**: **Nom Scientifique:** *Tilapia Rendalli*	60
#3		**Nom Vernaculaire**: **Nom Scientifique:** *Tilapia Rendalli*	53

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air et papier cuisson (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) et papier cuisson (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
3/11/2020	16h01	FISH	**20201008Fish04#1**	48.7	0.7	45.6	11.6	**F4#1S1**	10.7	10.8	21.9	
3/11/2020	16h09	FISH	**20201008Fish04#4**	41.6	0.9	39.3	12.6	**F4#4S1**	10.7	11.4	22.4	
3/11/2020	16h03	FISH	**20201008Fish04#5**	31	0.8	29.1	9	**F4#5S1**	10.7	7.9	18.4	
3/11/2020	16h06	FISH	**20201008Fish04#6**	43.7	0.7	41.7	12.6	**F4#6S1**	10.6	11.7	22.5	
3/11/2020	16h11	FISH	**20201008Fish04#7**	38	0.9	35.6	10.9	**F4#7S1**	10.8	9.9	20.9	
3/11/2020	16h13	FISH	**20201008Fish04#8**	61	0.9	59	17.8	**F4#8S1**	10.8	16.5	27.7	
3/11/2020	16h16	FISH	**20201008Fish04#9**	53.6	0.8	50.7	14.6	**F4#9S1**	10.8	13.6	24.5	
3/11/2020	16h18	FISH	**20201008Fish04#10**	51.7	0.5	48.5	14.2	**F4#10S1**	10.5	13.3	24.1	

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
30/09/2020 (15h:21mn)	Fish F05 (Lac Ambavarano)	705,513	7,237,488	Y/N
07/10/2020 (08h:05mn)				

Fish collected by: **Association FIMIRA**

Poissons collectés par: **TBSE Team & QMM**

QMM Supervisor Name: **Remboho Josua**

Nom du superviseur: **RANDRIAMBOLARAINY Erick**

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon	
Fish F05 (Lac Ambavarano)	#1	72	20200930Fish05#1	
Fish F05 (Lac Ambavarano)	#2	88	20200930Fish05#2	
Fish F05 (Lac Ambavarano)	#3	94	20200930Fish05#3	
Fish F05 (Lac Ambavarano)	#1	68	20201007Fish05#1	
Fish F05 (Lac Ambavarano)	#2	60	20201007Fish05#2	
Fish F05 (Lac Ambavarano)	#3	53	20201007Fish05#3	
	Total	435		

Comments/Observations

20200930Fish05#1: *Gobus Fusca*
20200930Fish05#2: *Glossogobus Girus*
20200930Fish05#3: *Glossogobus Girus*
20201007Fish05#1: *Tilapia Rendalli*
20201007Fish05#2: *Tilapia Rendalli*
20201007Fish05#3: *Tilapia Rendalli*

We caught in total 435 grams compliance as per protocol

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :_____

SIGNED Signé :_____

Supervisor

Superviseur Signé:_____

New form to be completed for each location

Nouveau formulaire à remplir pour chaque emplacement

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
30/09/2020 15h 21	Fish F05	706137	7238097	Y/N

Fish collected by:
Poissons collectés par
QMM Supervisor Name:
Nom du superviseur

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon
F01	#1	250	F0141
Fish F05	#1	72	20200930Fish05#1 Ambenivave (Gobius fusca)
Fish F05	#2	88	20200930Fish05#2 Damilava (Glossogobius girus)
Fish F05	#3	94	20200930Fish05#3 Damilava (Glossogobius girus)

Comments/Observations

As it was windy, nettingrare full of woods.

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :
SIGNED Signé :

Supervisor Christophe DAMBOLAMANANA
Superviseur Signé:

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location Info/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
07.10.2020 08h05'	FishF05	705513	7237488	Y/N

Fish collected by: ASOCIATION · FIHIRA

Poissons collectés par: TBSE & QHH (Josua. Stella. Gervais

QMM Supervisor Name: REHBOHO Josua.

Nom du superviseur:

Comments/Observations

Fish Sample Info/Details

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / Identification de l'échantillon
FishF05	#1.	68	20201007Fish05#1.
FishF05	#2.	60.	20201007Fish05#2
FishF05	#3.	53	20201007Fish05#3

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :

SIGNED Signé :

Supervisor
Superviseur Signé: REHBOHO. Josua

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

JBS&G

Date:	07/10/2020
Fish Location ID:	Fish F06
Fishing Contractor Name	Entreprise TBSE Fort
QMM Supervisor Name	Remboho Josua

Location Coordinates	
Northing:	706 137
Easting:	723 8097

Photograph/Photographier du GPS Location/Emplacement



Fish ID	Fish Photograph/photographier	Fish Species Name (vernacular and scientific)/Nom Vernaculaire/Nom Scientifique	Weight/Poids
#4		**Nom Vernaculaire**: **Nom Scientifique:** *T ilapia Rendalli*	63
#5		**Nom Vernaculaire**: **Nom Scientifique:** *T ilapia Rendalli*	59
#6		**Nom Vernaculaire**: **Nom Scientifique:** *T ilapia Rendalli*	53
#7		**Nom Vernaculaire**: **Nom Scientifique:** *T ilapia Rendalli*	56

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	07/10/2020
Fish Location ID:	Fish F06
Fishing Contractor Name	Entreprise TBSE Fort
QMM Supervisor Name	Remboho Josua

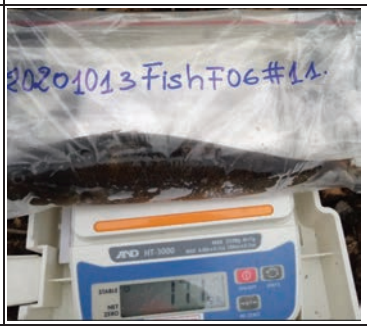
Location Coordinates

Northing:	706 137
Easting:	723 8097

Photograph/Photographier du GPS Location/Emplacement





#8		**Nom Vernaculaire**: **Nom Scientifique:** *T ilapia Rendalli*	72
#9		**Nom Vernaculaire**: **Nom Scientifique:** *Oreochromus Mossambicus*	46
#10		**Nom Vernaculaire**: **Nom Scientifique:** *Gobus Fusca*	124
#11		**Nom Vernaculaire**: **Nom Scientifique:** *Gobus Fusca*	171

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air et papier cuisson (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) et papier cuisson (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
4/11/2020	11h32	FISH	**20200930Fish05#1**	71.1	1	68.7	22.4	**F5#1S1 (20200930)**	10.7	16.2	31.7	
4/11/2020	11h39	FISH	**20200930Fish05#2**	86.8	1.2	84.4	27.8	**F5#2S1 (20200930)**	10.7	14.4	37.1	
4/11/2020	11h40	FISH	**20200930Fish05#3**	93.9	1.3	86.7	22.5	**F5#3S1 (20200930)**	10.8	13.6	32.2	
4/11/2020	11h50	FISH	**20201007Fish06#4**	59.3	0.8	56.5	15.8	**F6#4S1**	10.8	14.3	24.9	
4/11/2020	11h52	FISH	**20201007Fish06#5**	53	0.7	50.7	14.1	**F6#5S1**	10.8	13.3	24.2	
4/11/2020	11h55	FISH	**20201007Fish06#6**	47	0.7	44.2	11	**F6#6S1**	10.9	10.1	20.9	
4/11/2020	11h57	FISH	**20201007Fish06#7**	49.4	0.6	47.4	12.9	**F6#7S1**	10.9	11.8	22.9	
4/11/2020	11h59	FISH	**20201007Fish06#8**	65.2	0.7	62.4	17.3	**F6#8S1**	10.7	16.2	26.9	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air et papier cuisson (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) et papier cuisson (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
4/11/2020	12h01	FISH	**20201007Fish06#9**	40.4	0.6	37.8	9.4	**F6#9S1**	10.7	8.6	18.4	
4/11/2020	12h05	FISH	**20201013Fish06#10**	117.6	1	114	41.5	**F6#10S1**	10.8	20	30.6	
	12h07	FISH						**F6#10S2**	10.7	19.4	30.1	

JBS&G	Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons	QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing /Coordonnée Y	Photograph/photographie du GPS
07.10.2020 (08h:05mn)	Fish F06 (Lac Ambavarano)	706,137	7,238,097	Y/N

Fish collected by: **Association FIMIRA**
Poissons collectés par: **TBSE Team & QMM**
QMM Supervisor Name: **Remboho Josua**
Nom du superviseur: **RANDRIAMBOLARAINY Erick**

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon	
Fish F006 (Lac Ambavarano)	#4	63	20201007Fish06#4	
Fish F006 (Lac Ambavarano)	#5	59	20201007Fish06#5	
Fish F006 (Lac Ambavarano)	#6	53	20201007Fish06#6	
Fish F006 (Lac Ambavarano)	#7	56	20201007Fish06#7	
Fish F006 (Lac Ambavarano)	#8	72	20201007Fish06#8	
Fish F006 (Lac Ambavarano)	#9	46	20201007Fish06#9	
Fish F006 (Lac Ambavarano)	#10	124	20201007Fish06#10	
Fish F006 (Lac Ambavarano)	#11	171	20201007Fish06#11	
	Total	644		

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

Comments/Observations

20201007Fish06#4: *Tilapia Rendalli*
20201007Fish06#5: *Tilapia Rendalli*
20201007Fish06#6: *Tilapia Rendalli*
20201007Fish06#7: *Tilapia Rendalli*
20201007Fish06#8: *Tilapia Rendalli*
20201007Fish06#9: *Oreochromus Mossambicus*
20201007Fish06#10:*Gobus Fusca*
20201007Fish06#11:*Gobus Fusca*

We caught in total 644 grams compliance as per protocol

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :_____ Supervisor
SIGNED Signé :_____ Superviseur Signé:_____

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
07.10.2020	FishF06	706137	7238097	(Y)/N
08h:05'				

Fish collected by: ASSOCIATION - FIMIRA

Poissons collectés par: TBSE & QHH (Josua. Stella - Gervais

QMM Supervisor Name: REMBOHO Josua.

Nom du superviseur:

Comments/Observations

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / Identification de l'échantillon	
FishF06	#4	63	20201007Fish06#4	- (Tillapia Rendali)
FishF06	#5	59	20201007Fish06#5	- (Tillapia Rendali)
FishF06	#6	53	20201007Fish06#6	- (Tillapia Rendali)
FishF06	#7	56	20201007Fish06#7	- (Tillapia Rendali.)
FishF06	#8	72	20201007Fish06#8	- (Tillapia Rendali)
FishF06	#9	46	20201007Fish06#9	- (Oreochromis Hassambicus)
13/10/2020 (10h25') -FishF06	#10	124	20201013Fish06#10	- Gobus Fusca (Ambanivava)
-FishF06	#11	171	20201013Fish06#11	- Gobus Fusca (Ambanivava).

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

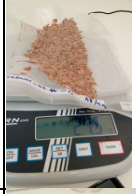
I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :

SIGNED Signé :

Supervisor

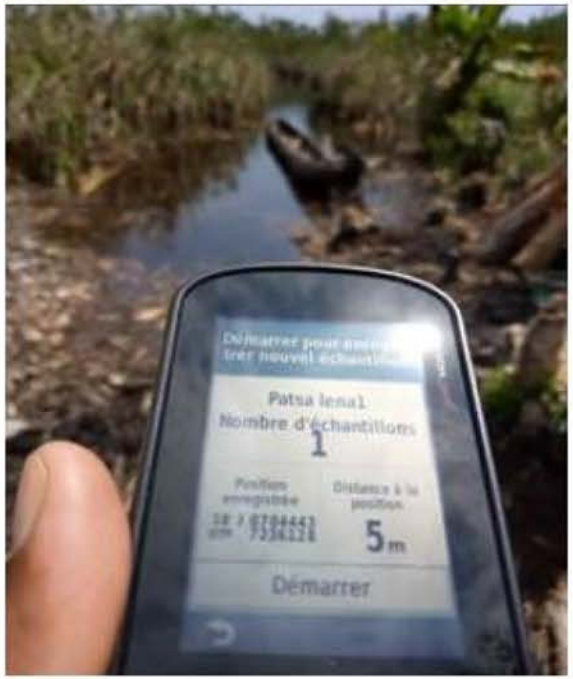
Superviseur Signé:

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
785.1	13h55	TRAWN	**TRAWN_01 05/11/2020**	785.1	7.2	779.5	135.3	**TRAWN_01#S1**	11.6	19.7	31	
								**TRAWN_01#S2**	10.3	18.7	27	
								TRAWN_01#S3	9.4	19.1	27	
								TRAWN_01#S4	9.6	18.4	27.5	
								TRAWN_01#S5	11.5	16.4	24.6	
								TRAWN_01#S6	11.6	19.6	28.9	
								TRAWN_01#S7	9.9	13.8	25.4	

- **<u>Coordonnée au rive :</u> 070 44 43 / 723 61 28,**
- **<u>Poids net du Patsa</u> : 840 g,**
- **<u>Leu de collecte</u>** : Au bord du **Lac d'Ambavarano** et **la Rivière d'Andrakaraka,**

Je ne peux pas prendre le coordonnées du point de capture parce qu'elles sont utilisés la petite pirogue seulement pour une personne.







JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
31/03/2021 15H57	FISH FO1 (PADOCK-3)	7046 37	7238247 M	

Fish collected by:	
Poissons collectés par	TBSE
QMM Supervisor Name	
Nom du superviseur	REMBOHO Josua

Comments/Observations

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / Identification de l'échantillon	
Fish FO1	#1	97	20210331Fish01#1	Tilapia rendali (Fiambazaha).
Fish FO1	#2	118	20210331Fish01#2	Tilapia rendali (Fiambazaha).
Fish FO1	#3	111	20210331Fish01#3	Tilapia rendali (Fiambazaha)
Fish FO1	#4	85	20210331Fish01#4	Tilapia rendali (Fiambazaha).
Fish FO1	#5	87	20210331Fish01#5	Tilapia rendali (Fiambazaha)
Fish FO1	#6	100	20210331Fish01#6	Tilapia rendali (Fiambazaha).
Fishfo1	#7	105	20210331Fish01#7	Tilapia rendali (Fiambazaha).
Fish FO1	#8	119	20210331Fish01#8	Tilapia rendali (Fiambazaha)

Y/N

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :

SIGNED Signé :

Supervisor

Superviseur Signé :

REMBOHO Josua

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
31/03/2021	FISH F01	704637	7238247	Y/N
15H57'	(PADOCK.3			

Fish collected by:

Poissons collectés par: TBSE

QMM Supervisor Name:

Nom du superviseur: DEMBOHO JOSUA

Comments/Observations

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / Identification de l'échantillon	
Fish F01	#9	87	20210331	Fish01#9 Tilapia rendali (Fiambogala).
Fish F01	#10	123.	20210331	Fish01#10 Tilapia rendali (Fiambogala).
Fish F01	#11	77.	20210331	Fish01#11 Tilapia rendali (Fiambogala)
~~Fish F01~~	~~#12~~	~~X~~	~~20210331~~	~~Fish01#12~~
		T: 1.109		

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Y/N

Checked BY Vérifié: _____

SIGNED Signé: _____

Supervisor

Superviseur Signé: [signature]

DEMBOHO JOSUA

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
31/03/2021	Fish F01 (Mine site)	704637	7238247	Y/N
15:57	PADDOCK 03			

Fish collected by:**TBSE team**
Poissons collectés par QMM
QMM Supervisor Name: **Josua REMBOHO**
Nom du superviseur:**RANDRIAMBOLARAINY Erick**

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon	
Fish F01 (Mine site)	**#1**	**97**	**20210331Fish01#1**	
Fish F01 (Mine site)	**#2**	**118**	**20210331Fish01#2**	
Fish F01 (Mine site)	**#3**	**111**	**20210331Fish01#3**	
Fish F01 (Mine site)	**#4**	**85**	**20210331Fish01#4**	
Fish F01 (Mine site)	**#5**	**87**	**20210331Fish01#5**	
Fish F01 (Mine site)	**#6**	**100**	**20210331Fish01#6**	
Fish F01 (Mine site)	**#7**	**105**	**20210331Fish01#7**	
Fish F01 (Mine site)	**#8**	**119**	**20210331Fish01#8**	
Fish F01 (Mine site)	**#9**	**87**	**20210331Fish01#9**	
Fish F01 (Mine site)	**#10**	**123**	**20210331Fish01#10**	
Fish F01 (Mine site)	**#11**	**77**	**20210331Fish01#11**	
	Total	**1109**		

Comments/ Observation

20210331Fish01#1	*Tilapia rendalli (Fiambazaha)*
20210331Fish01#2	*Tilapia rendalli (Fiambazaha)*
20210331Fish01#3	*Tilapia rendalli (Fiambazaha)*
20210331Fish01#4	*Tilapia rendalli (Fiambazaha)*
20210331Fish01#5	*Tilapia rendalli (Fiambazaha)*
20210331Fish01#6	*Tilapia rendalli (Fiambazaha)*
20210331Fish01#7	*Tilapia rendalli (Fiambazaha)*
20210331Fish01#8	*Tilapia rendalli (Fiambazaha)*
20210331Fish01#9	*Tilapia rendalli (Fiambazaha)*
20210331Fish01#10	*Tilapia rendalli (Fiambazaha)*
20210331Fish01#11	*Tilapia rendalli (Fiambazaha)*

We caught in total 1109 grams compliance as per protocol

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté	Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :_____ Supervisor

SIGNED Signé :_____ Superviseur Signé:_____

New form to be completed for each location

Nouveau formulaire à remplir pour chaque emplacement

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	31/03/2021
Fish Location ID:	**Fish F01**
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Josua REMBOHO

Location Coordinates

Northing:	704637
Easting:	7238247

Photograph/Photographier du GPS





Fish ID	Fish Photograph/photographier	Fish Species Name (vernacular and scientific)/Nom Vernaculaire/Nom Scientifique	Weight/Poids(g)
#1		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	97
#2		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	118
#3		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	111
#4		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	85
#5		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	87
#6		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	100

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	31/03/2021
Fish Location ID:	**Fish F01**
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Josua REMBOHO
Location Coordinates	
Northing:	704637
Easting:	7238247

Photograph/Photographier du GPS





#7		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	105
#8		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	119
#9		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	87
10		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	123
#11		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	77
		Total	**1109**

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
20/04/2021	9:08	FISH	 20210331Fish1#1	 90	0.7	 86.6	 19.8	F1#1 S1	5.6	18.5	24.1	
20/04/2021	9:18	FISH	 20210331Fish1#2	 111	1	 107.5	 22.3	F1 #2 S1	4.4	11.1	14	
								F1 #2 S2	4.3	9.7	15.5	
20/04/2021	9:23	FISH	 20210331Fish1#3	 106	0.8	 102.4	 27.8	F1#3 S1	4	12.4	16.4	
								F1#3 S2	4.3	14	18.5	
20/04/2021	9:33	FISH	 20210331Fish01#4	 82	0.9	 79.4	 18.2	F1#4 S1	4.7	16.9	21.8	
								F1#5 S1	4.5	8.2	12.6	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
20/04/2021	9:38	FISH	20200331Fish01#5	83	0.7	79.8	23.9	F1#5 S2	4.3	14.7	18.8	
20/04/2021	10:02	FISH	20210331Fish01#6	92	0.9	89.4	25.5	F1#6 S1	4.2	9.7	13.9	
								F1#6 S2	4.3	14.4	19	
24/04/2021	10:05	FISH	20210331Fish01#7	95	0.7	90.6	19.9	F1#7 S1	4.2	18.3	22.7	
24/04/2021	10:10	FISH	20210331Fish01#8	112	0.6	110	38	F1#8 S1	4.4	18.3	22.9	
								F1#8 S2	4.4	18.1	22.4	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
24/04/2021	10:15	FISH	 20210331Fish01#9	 84	0.8	 81	 18.5	F1#9 S1	4.5	17.3	21.8	
24/04/2021	10:29	FISH	 20210331Fish01#10	 114	0.6	 111	 31.9	F1#10 S1	4.7	12	16.5	
								F1#10 S2	4.3	18.5	23.1	
24/04/2021	10:37	FISH	 20210331Fish01#11	 74	0.7	 71.6	23	F1#11 S1	4.5	9.8	14.4	
								F1#11 S2	4.5	11.8	16.2	

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
08/04/2021 09H:10'	FISH FO2	704900.	7242922	Y

Fish collected by:	
Poissons collectés par	TBSE/ Pêcheur du Village (MHM)
QMM Supervisor Name:	
Nom du superviseur:	REMBOHO Josua

Comments/Observations

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / Identification de l'échantillon	
-Fish FO2	#1	85	20210408	Fish02 #1 - Lysa Machrolepis (Zompo.)
-Fish FO2	#2	83	20210408	Fish02 #2 - Lysa Machrolepis (Zompo)
-Fish FO2	#3.	28	20210408	Fish02 #3 - Oreochromis Hossambicus (Halemilohe)
-Fish FO2	#4	31.	20210408	Fish02 #4 - Oreochromis. Hossambicus (Halemilohe)
-Fish FO2	#5	32	20210408	Fish02 #5 - Paratilapia .sp (Fogny).
-Fish FO2	#6	30	20210408	Fish02 #6 - Oreochromis Hossambicus (Halemilohe).
-Fish FO2	#7	32	20210408	Fish02 #7 - Paratilapia. sp
-Fish FO2	#8	27.	20210408	Fish02 #8 - Oreochromis Hossambicus (.

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

REMBOHO. Josua.

Checked BY Vérifié :

SIGNED Signé :

Supervisor

Superviseur Signé:

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
08/04/2021 09H.10'	FishFo2	704900.	7242922	Y/N

Fish collected by:

Poissons collectés par: TBSE / Pecheur du Village (M.M.M)

QMM Supervisor Name:

Nom du superviseur: REMBOHO. Josua

Comments/Observations

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / Identification de l'échantillon
-FishFo2	#9	32	20210408Fish02#9_Oreochromis Hossambicus (Malemiloha)
-FishFo2	#10	26	20210408Fish02#10_Oreochromis Hossambicus (Malemiloha
-FishFo2	#11	31.	20210408Fish02#11_Oreochromis Hossambicus (Malemiloha)
-FishFo2	#12	30	20210408Fish02#12_Oreochromis Hossambicus (Malemiloha
-FishFo2	#13.	27	20210408Fish02#13_Oreochromis Hossambicus (Malemiloh
-FishFo2	#14.	32	20210408Fish02#14_Oreochromis Hossambicus (Malemilo
-FishFo2	#15	32	20210408Fish02#15_Oreochromis Hossambicus (Malemilo
-FishFo2	#16	26	20210408Fish02#16_Oreochromis Hossambicus (Malemilo

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié: _____

SIGNED Signé: _____

Supervisor

Superviseur Signé: REMBOHO. JOSUA

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT,Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
08/04/2021 09h 10'	FISH 02	704900.	7242922	Y/N

Fish collected by:

Poissons collectés par: TBSE / Pécheur du village (MMM).

QMM Supervisor Name:

Nom du superviseur: REMBOHO Josua.

Comments/Observations

Fish Sample

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / Identification de l'échantillon	
-Fish F02	#17	17	20210408	Fish 02 #17 - Ptytichromis Grandidierii (Saroa)
-Fish F02	#18	15	20210408	Fish 02 #18 - Ptytichromis Grandidierii (Saroa).

T= 617g

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté — Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :

SIGNED Signé :

Supervisor

Superviseur Signé: REMBOHO. Josua

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
07/04/2021 10:05	Fish F02 (MMM River)	704900	7242922	Y/N
08/04/2021 09:10	Fish F02 (MMM River)	704900	7242922	Y/N

Fish collected by: **Pecheur du Village de MMM**

Poissons collectés par: **TBSE Team & QMM**

QMM Supervisor Name: **Remboho Josua**

Nom du superviseur: **RANDRIAMBOLARAINY Erick**

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon	Comments/ observation
Fish F02 (MMM River)	#1	136	20210407Fish02#1	20210407Fish02#1 *Paratilapia sp (Fogny)*
Fish F02 (MMM River)	#2	80	20210407Fish02#2	20210407Fish02#2 *Ptychocromis grandidieri (Saroa)*
Fish F02 (MMM River)	#3	26	20210407Fish02#3	20210407Fish02#3 *Oreochromus mossambicus (Malemiloha)*
Fish F02 (MMM River)	#4	21	20210407Fish02#4	20210407Fish02#4 *Oreochromus mossambicus (Malemiloha)*
Fish F02 (MMM River)	#5	25	20210407Fish02#5	20210407Fish02#5 *Oreochromus mossambicus (Malemiloha)*
Fish F02 (MMM River)	#6	16	20210407Fish02#6	20210407Fish02#6 *Oreochromus mossambicus (Malemiloha)*
Fish F02 (MMM River)	#7	22	20210407Fish02#7	20210407Fish02#7 *Oreochromus mossambicus (Malemiloha)*
Fish F02 (MMM River)	#8	16	20210407Fish02#8	20210407Fish02#8
Fish F02 (MMM River)	#9	20	20210407Fish02#9	20210407Fish02#9 *Paratilapia sp (Fogny)*
Fish F02 (MMM River)	#10	15	20210407Fish02#10	20210407Fish02#10 *Paratilapia sp (Fogny)*
Fish F02 (MMM River)	#11	14	20210407Fish02#11	20210407Fish02#11 *Paratilapia sp (Fogny)*
Fish F02 (MMM River)	#12	16	20210407Fish02#12	20210407Fish02#12 *Paratilapia sp (Fogny)*
Fish F02 (MMM River)	#13	13	20210407Fish02#13	20210407Fish02#13 *Paratilapia sp (Fogny)*
Fish F02 (MMM River)	#14	13	20210407Fish02#14	20210407Fish02#14 *Paratilapia sp (Fogny)*
Fish F02 (MMM River)	#15	16	20210407Fish02#15	20210407Fish02#15 *Paratilapia sp (Fogny)*
Fish F02 (MMM River)	#16	13	20210407Fish02#16	20210407Fish02#16 *Paratilapia sp (Fogny)*
	Total	462		We caught in total 462
Fish F02 (MMM River)	#1	85	20210408Fish02#1	20210408Fish02#1 *Lysa machrolepis (Zompo)*
Fish F02 (MMM River)	#2	83	20210408Fish02#2	20210408Fish02#2 *Lysa machrolepis (Zompo)*
Fish F02 (MMM River)	#3	28	20210408Fish02#3	20210408Fish02#3 *Oreochromus mossambicus (Malemiloha)*
Fish F02 (MMM River)	#4	31	20210408Fish02#4	20210408Fish02#4 *Oreochromus mossambicus (Malemiloha)*
Fish F02 (MMM River)	#5	32	20210408Fish02#5	20210408Fish02#5 *Paratilapia sp (Fogny)*
Fish F02 (MMM River)	#6	30	20210408Fish02#6	20210408Fish02#6 *Oreochromus mossambicus (Malemiloha)*
Fish F02 (MMM River)	#7	32	20210408Fish02#7	20210408Fish02#7 *Paratilapia sp (Fogny)*
Fish F02 (MMM River)	#8	27	20210408Fish02#8	20210408Fish02#8 *Oreochromus mossambicus (Malemiloha)*
Fish F02 (MMM River)	#9	32	20210408Fish02#9	20210408Fish02#9 *Oreochromus mossambicus (Malemiloha)*
Fish F02 (MMM River)	#10	26	20210408Fish02#10	20210408Fish02#10 *Oreochromus mossambicus (Malemiloha)*
Fish F02 (MMM River)	#11	31	20210408Fish02#11	20210408Fish02#11 *Oreochromus mossambicus (Malemiloha)*
Fish F02 (MMM River)	#12	30	20210408Fish02#12	20210408Fish02#12 *Oreochromus mossambicus (Malemiloha)*
Fish F02 (MMM River)	#13	27	20210408Fish02#13	20210408Fish02#13 *Oreochromus mossambicus (Malemiloha)*
Fish F02 (MMM River)	#14	32	20210408Fish02#14	20210408Fish02#14 *Oreochromus mossambicus (Malemiloha)*
Fish F02 (MMM River)	#15	32	20210408Fish02#15	20210408Fish02#15 *Oreochromus mossambicus (Malemiloha)*
Fish F02 (MMM River)	#16	26	20210408Fish02#16	20210408Fish02#16
Fish F02 (MMM River)	#17	17	20210408Fish02#17	20210408Fish02#17 *Ptychocromis grandidieri (Saroa)*
Fish F02 (MMM River)	#18	15	20210408Fish02#18	20210408Fish02#18 *Ptychocromis grandidieri (Saroa)*
	Total	616		We caught in total 616

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :_____ Supervisor

SIGNED Signé :_____ Superviseur Signé:_____

New form to be completed for each location

Nouveau formulaire à remplir pour chaque emplacement

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	07/04/2021 08/04/2021
Fish Location ID:	Fish F02
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua
Location Coordinates	
Easting:	0704900
Northing:	7242922

Photograph/Photographier du GPS Location/Emplacement



Fish ID	Fish Photograph/photographier	Fish Species Name (vernacular and scientific)/Nom Vernaculaire/Nom Scientifique	Weight/Poids (g)
7/04/2021			
#1		**Nom vernaculaire:** Fogny **Nom scientifique**: *Paratilapia sp*	136
#2		**Nom vernaculaire:** Saroa **Nom scientifique:** *Ptychocromis grandidieri*	80
#3		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	26
#4		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	21
#5		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	25
#6		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	16

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	07/04/2021 08/04/2021
Fish Location ID:	Fish F02
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua
Location Coordinates	
Easting:	0704900
Northing:	7242922

Photograph/Photographier du GPS Location/Emplacement



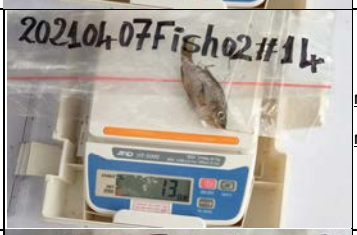
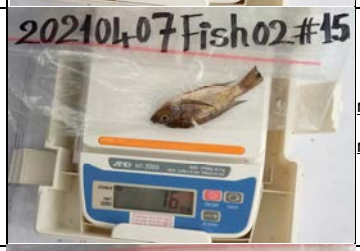
#7		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	22
#8		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	16
#9		**Nom vernaculaire:** Fogny **Nom scientifique:** *Paratilapia sp*	20
#10		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	15
#11		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	14
#12		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	16

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	07/04/2021 08/04/2021
Fish Location ID:	Fish F02
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua
Location Coordinates	
Easting:	0704900
Northing:	7242922

Photograph/Photographier du GPS Location/Emplacement



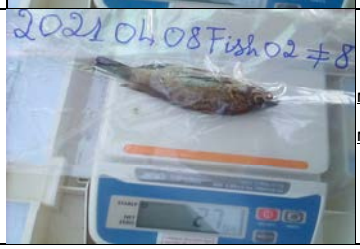
#13		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	13
#14		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	13
#15		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	16
#16		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	13
8/04/2021			
#1		**Nom vernaculaire:** Zompo **Nom scientifique:** *Lyza machrolepis*	85
#2		**Nom vernaculaire:** Zompo **Nom scientifique:** *Lyza macrolepis*	83

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	07/04/2021 08/04/2021
Fish Location ID:	Fish F02
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua
Location Coordinates	
Easting:	0704900
Northing:	7242922

Photograph/Photographier du GPS Location/Emplacement



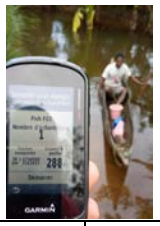
#3		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	28
#4		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	31
#5		**Nom vernaculaire:** Fogny **Nom scientifique:** *Oreochromus mossambicus*	32
#6		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	30
#7		**Nom vernaculaire:** Fogny **Nom scientifique:** *Paratilapia sp*	32
#8		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	27

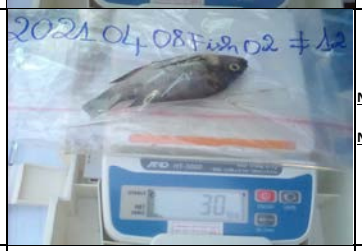
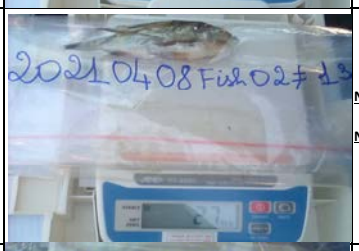
MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	07/04/2021 08/04/2021
Fish Location ID:	Fish F02
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua
Location Coordinates	
Easting:	0704900
Northing:	7242922

Photograph/Photographier du GPS Location/Emplacement





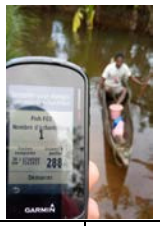
#9		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	32
#10		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	26
#11		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	31
#12		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	30
#13		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	27
#14		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	32

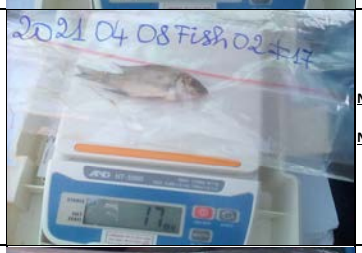
MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

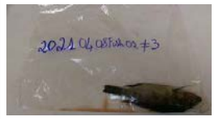
Date:	07/04/2021 08/04/2021
Fish Location ID:	Fish F02
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua
Location Coordinates	
Easting:	0704900
Northing:	7242922

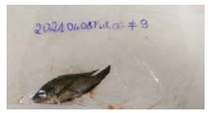
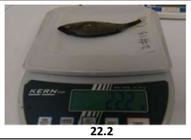
Photograph/Photographier du GPS Location/Emplacement





#15		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	33
#16		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	26
#17		**Nom vernaculaire:** Saroa **Nom scientifique:** *Ptychocromis grandidieri*	17
#18		**Nom vernaculaire:** Saroa **Nom scientifique:** *Ptychocromis grandidieri*	15

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
20/04/2021	13:57:00	FISH	 20210408Fish2#1	 78	1.1	 74.3	31.1	F2 #1 S1	4.3	14.4	18.7	
								F2 #1 S2	3.8	14.6	18.6	
20/04/2021	14:00:00	FISH	 20210408Fish2#2	 77	0.6	 74.1	22.6	F2 #2 S1	3.9	9.9	13.8	
								F2 #2 S2	3.8	11.4	15.6	
20/04/2021	14:05:00	FISH	 20210408Fish2#3	 26	0.4	 24.4	6.9	F2 #3 S1	4	6.2	10.2	
20/04/2021	14:06:00	FISH	 20210408Fish2#4	 30	0.5	 29.7	8	F2 #4 S1	3.9	7.1	11.1	
20/04/2021	14:09:00	FISH	 20210408Fish2#5	 25	0.4	 22.3	6.1	F2 #5 S1	4.1	5.5	9.8	
20/04/2021	14:13:00	FISH	 20210408Fish2#6	 24	0.6	 23.1	6.1	F2 #6 S1	4.2	5.1	9.6	
20/04/2021	14:16:00	FISH	 20210408Fish2#7	 27	0.6	 25.8	7.5	F2 #7 S1	4	6.7	11	
20/04/2021	14:19:00	FISH	 20210408Fish2#8	 22	0.3	 20.4	5.8	F2 #8 S1	4	4.8	9	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
20/04/2021	14:22:00	FISH	 20210408Fish2#9	 27	0.4	 25	6.1	F2 #9 S1	4	5.4	9.3	
20/04/2021	14:25:00	FISH	 20210408Fish2#10	 19	0.6	 17	5.4	F2 #10 S1	4.2	4.6	8.8	
20/04/2021	14:29:00	FISH	 20210408Fish2#11	 25	0.5	 24.2	6.4	F2 #11 S1	3.7	5.7	9.7	
20/04/2021	14:31:00	FISH	 20210408Fish2#12	 22	0.3	 20.3	5.7	F2 #12 S1	4	4.8	8.8	
20/04/2021	14:36:00	FISH	 20210408Fish2#13	 20	0.6	 18.7	5.2	F2 #13 S1	4.4	4.3	8.8	
20/04/2021	14:39:00	FISH	 20210408Fish2#14	 24	0.5	 21.9	5.9	F2 #14 S1	3.9	5.1	9	
20/04/2021	14:42:00	FISH	 20210408Fish2#15	 24	0.5	 22.2	6.3	F2 #15 S1	4.2	5.7	9.8	
20/04/2021	14:44:00	FISH	 20210408Fish2#16	 19	0.5	 18.5	4.4	F2 #16 S1	4.7	3.7	8.5	
20/04/2021	14:47:00	FISH	 20210408Fish2#17	 11	0.3	 10.3	2.8	F2 #17 S1	4.2	2	6.4	
20/04/2021	14:51:00	FISH	 20210408Fish2#18	 9	0.5	 8.7	2.7	F2 #18 S1	5.1	2.1	7.1	

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Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
02/04/2021	FISH 03	706507	7239196	Y/N
10H: 50'				

Fish collected by:

Poissons collectés par: TBSE / Association Pêcheurs (FIMIRA).

QMM Supervisor Name:

Nom du superviseur: DEHBOHO Josua.

Comments/Observations

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / Identification de l'échantillon	
Fish F03	#1	78	20210402FISH03#1	- Oreochromis mossambicus (Malemiloha)
Fish F03	#2	46	20210402FISH03#2	- Ptytichromis Grandidierii (Saroa).
Fish F03	#3	63	20210402FISH03#3	- Ptytichromis Grandidierii (Saroa).
Fish F03	#4	56	20210402FISH03#4	- Tilapia rendali (Fiambatoka).
Fish F03	#5	55	20210402FISH03#5	- Ptytichromis Grandidierii. (Saroa)
Fish F03	#6	74	20210402FISH03#6	- Ptytichromis Grandidierii (Saroa)
Fish F03	#7	62	20210402FISH03#7	- Oreochromis Mossambicus (Malemiloha)
Fish F03	#8	50	20210402FISH03#8	- Oreochromis Mossambicus (Malemiloha)

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :

SIGNED Signé :

Supervisor
Superviseur Signé:

DEHBOHO Josua

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
				Y/N

Fish collected by:
Poissons collecté par
QMM Supervisor Name
Nom du superviseur

Comments/Observations

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / Identification de l'échantillon	
-FishF03	#9	82	20210402Fish03#9	- Ptycochromis. Grandidieri (Sarea)
-FishF03	#10	46	20210402Fish03#10	- Tilapia. rendali (Fiambazoha)
-FishF03	#11	38	20210402Fish03#11	- Pticochromis Grandidieri (Sarea)
-FishF03	#12	40.	20210402Fish03#12	- Ptychochromis grandidieri (Sarea)
-FishF03	#13	35	20210402Fish03#13	- Pticochromis Grandidieri (Sarea)
	T=	724.		

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiquetté — Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :

SIGNED Signé :

Supervisor
Supervisor Signé:

RÉMBOHO Josue

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
2/04/2021	Fish F03(MMM River)	706,507	7,239,196	Y/N
10:50				

Fish collected by: **Association FIMIRA**

Poissons collectés par: **TBSE Team & QMM**

QMM Supervisor Name: **Remboho Josua**

Nom du superviseur: **RANDRIAMBOLARAINY Erick**

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon	
Fish F03 (MMM River)	#1	78	20210402Fish03#1	
Fish F03 (MMM River)	#2	46	20210402Fish03#2	
Fish F03 (MMM River)	#3	63	20210402Fish03#3	
Fish F03 (MMM River)	#4	56	20210402Fish03#4	
Fish F03 (MMM River)	#5	55	20210402Fish03#5	
Fish F03 (MMM River)	#6	74	20210402Fish03#6	
Fish F03 (MMM River)	#7	62	20210402Fish03#7	
Fish F03 (MMM River)	#8	50	20210402Fish03#8	
Fish F03 (MMM River)	#9	81	20210402Fish03#9	
Fish F03 (MMM River)	#10	46	20210402Fish03#10	
Fish F03 (MMM River)	#11	38	20210402Fish03#11	
Fish F03 (MMM River)	#12	40	20210402Fish03#12	
Fish F03 (MMM River)	#13	35	20210402Fish03#13	
	Total	724		

Comments/ Observation

20210402Fish03#1	*Oreochromus mossambicus (Malemiloha)*
20210402Fish03#2	*Ptychocromis grandidieri (Saroa)*
20210402Fish03#3	*Ptychocromis grandidieri (Saroa)*
20210402Fish03#4	*Tilapia rendali (Fiambazaha)*
20210402Fish03#5	*Ptychocromis grandidieri (Saroa)*
20210402Fish03#6	*Ptychocromis grandidieri (Saroa)*
20210402Fish03#7	*Oreochromus mossambicus (Malemiloha)*
20210402Fish03#8	*Oreochromus mossambicus (Malemiloha)*
20210402Fish03#9	*Ptychocromis grandidieri (Saroa)*
20210402Fish03#10	*Tilapia rendali (Fiambazaha)*
20210402Fish03#11	*Ptychocromis grandidieri (Saroa)*
20210402Fish03#12	*Ptychocromis grandidieri (Saroa)*
20210402Fish03#13	*Ptychocromis grandidieri (Saroa)*

We caught in total 724 grams compliance as per protocol

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :_____ Supervisor

SIGNED Signé :_____ Superviseur Signé:_____

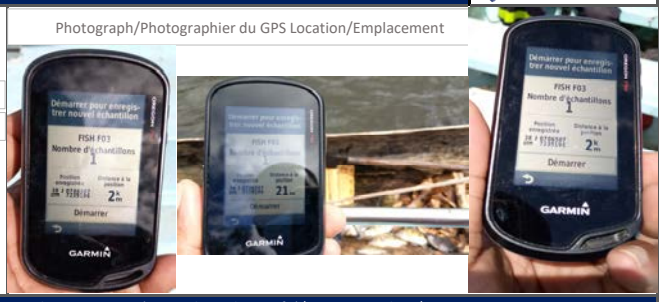
New form to be completed for each location

Nouveau formulaire à remplir pour chaque emplacement

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	02/04/2021
Fish Location ID:	Fish F03
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua
Location Coordinates	
Easting:	706 507
Northing:	7239196

Photograph/Photographier du GPS Location/Emplacement



Fish ID	Fish Photograph/photographier	Fish Species Name (vernacular and scientific)/Nom Vernaculaire/Nom Scientifique	Weight/Poids
#1		**Nom vernaculaire:** Malemiloha **Nom Scientifique:** *Oreochromus mossambicus*	78
#2		**Nom vernaculaire:** Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	46
#3		**Nom vernaculaire:** Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	63
#4		**Nom vernaculaire:** Fiambazaha **Nom Scientifique:** *Tilapia rendali*	56
#5		**Nom vernaculaire:** Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	55

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	02/04/2021
Fish Location ID:	Fish F03
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua
Location Coordinates	
Easting:	706 507
Northing:	7239196

Photograph/Photographier du GPS Location/Emplacement





#6		**Nom vernaculaire:** Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	74
#7		**Nom vernaculaire:** Malemiloha **Nom Scientifique:** *Oreochromus mossambicus*	62
#8		**Nom vernaculaire:** Malemiloha **Nom Scientifique:** *Oreochromus mossambicus*	50
#9		**Nom vernaculaire:** Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	81
#10		**Nom vernaculaire:** Fiambazaha **Nom Scientifique:** *Tilapia rendali*	10

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

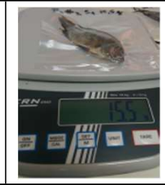
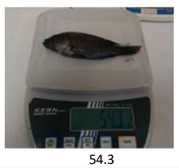
Date:	02/04/2021
Fish Location ID:	Fish F03
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua
Location Coordinates	
Easting:	706 507
Northing:	7239196

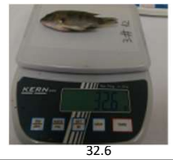
Photograph/Photographier du GPS Location/Emplacement





#11		**Nom vernaculaire:** Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	38
#12		**Nom vernaculaire:** Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	40
#13		**Nom vernaculaire:** Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	35

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
20/04/2021	08:25:00	FISH	 20210402Fish3#1	 70	0.5	 67.4	18.1	F3 #1 S1	5	16.9	22.2	
20/04/2021	08:27:00	FISH	 20210402Fish3#2	 39	0.7	 37.3	11.7	F3 #2 S1	4.7	11.1	15.5	
20/04/2021	08:31:00	FISH	 20210402Fish3#3	 56	0.5	 53.9	14.7	F3 #3 S1	4.6	13.8	18.7	
20/04/2021	08:33:00	FISH	 20210402Fish3#4	 50	0.3	 48	12.8	F3 #4 S1	4.9	12.3	17.3	
20/04/2021	08:54:00	FISH	 20210402Fish3#5	 50	0.3	 47.5	14.9	F3 #5 S1	4	14	18	
20/04/2021	08:57:00	FISH	 20210402Fish3#6	 65	0.5	 62.6	18.2	F3 #6 S1	4	17.1	21.1	
20/04/2021	09:01:00	FISH	 20210402Fish3#7	 56	0.4	 54.3	14.9	F3 #7 S1	3.9	13.7	17.8	
20/04/2021	09:06:00	FISH	 20210402Fish3#8	 44	0.6	 41.7	9.9	F3 #8 S1	4.1	9	12.9	

20/04/2021	09:17:00	FISH	 20210402Fish3#9	 75	0.6	 72.6	21.2	F3 #9 S1	4.2	10.6	15	
								F3 #9 S2	4.5	9.1	13.7	
20/04/2021	09:23:00	FISH	 20210402Fish3#10	 40	0.5	 38.3	9.7	F3 #10 S1	4.1	8.4	12.5	
20/04/2021	09:26:00	FISH	 20210402Fish3#11	 32	0.5	 30.9	8.9	F3 #11 S1	4.1	8.1	12.2	
20/04/2021	09:29:00	FISH	 20210402Fish3#12	 34	0.6	 32.6	10	F3 #12 S2	3.9	9.2	13.2	
20/04/2021	09:42:00	FISH	 20210402Fish3#13	 29	0.5	 28.1	8.2	F3 #13 S2	4.1	7.6	11.7	

JBSsG

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
01/04/2021 10H:58'	FISH FOH	707648	723627	Y/N

Fish collected by:

Poissons collectés par: TBBE / FIHIDA (Pecheur du village).

QMM Supervisor Name:

Nom du superviseur: REMBOHO JOSUA

Comments/Observations

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon	
Fish FOH	#1	74	20210401FishOH#1	Ptytichromis grandidieri (Sarona).
Fish FOH	#2	41	20210401FishOH#2	Gobius sp. (Ambanivava).
Fish OH	#3	50	20210401FishOH#3	Mugil (robustus) sp. (Lelivondaky).
FishFOH	#4	48.	20210401FishOH#4	Gobius sp. (Ambanivava).
Fish FOH	#5	62	20210401FishOH#5	Gobius sp. (Ambanivava).
Fish FOH	#6	42	20210401FishOH#6	Ptytichromis grandidieri (Sarona).
Fish FOH	#7	41	20210401FishOH#7	Gobius sp. (Ambanivava).
FishFOH	#8	29	20210401FishOH#8	Ptytichromis grandidieri (Sarona).

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié:

SIGNED Signé:

Supervisor

Superviseur Signé:

REMBOHO JOSUA

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

GIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
01/04/2021	FISH F04	707648	723627	Y/N
10h 58				

Fish collected by

Poissons collectés par TBSE / FIMIRA (Pecheur du Village

GMM Supervisor Name

Nom du supervisseur RĒMBOHO Josua

Comments/Observations

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / Identification de l'échantillon	
Fish F04	#9	37	20210401	Fish04 #9 Gobius sp (Ambanivara).
Fish F04	#10	39	20210401	Fish04 #10 Gobius sp. (Ambanivara)
Fish F04	#11	39	20210401	Fish04 #11 Gobius sp. (Ambanivara)
Fish F04	#12	45	20210401	Fish04 #12. Gobius sp. (Ambanivara).
Fish F04	#13	32	20210401	Fish04 #13. Gobius sp. (Ambanivara).
Fish F04	#14	38	20210401	Fish04 #14 Gobius sp. (Ambanivara).
Fish F04	#15	37	20210401	Fish04 #15. Gobius sp. (Ambanivara)
Fish F04	#16	36	20210401	Fish04 #16. Gobius sp. (Ambanivara).

Y/N

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié : _____

SIGNED Signé : _____

Supervisor

Supervisseur Signé

RĒMBOHO Josua

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
01/04/2021	FISH FO4	707648	723627	Y/N
10H:58'				

Fish collected by:

Poissons collectés par: TBBE / FIMIOA (Pêcheur du Village)

QMM Supervisor Name:

Nom du superviseur: DEMBOHO Josua

Comments/Observations

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / Identification de l'échantillon	
Fish FO4	#17	32	20210401	Fish04 #17
Fish FO4	#18	36	20210401	Fish04 #18
Fish FO4	#19	35	20210401	Fish04 #19
Fish FO4	#20	32	20210401	Fish04 #20
Fish FO4	#21	26	20210401	Fish04 #21
	T=	852g		

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté: Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié:

SIGNED Signé:

Supervisor
Superviseur Signé:

DEMBOHO Josua

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
1/04/2021	Fish F04 (Lac Ambavarano)	707,648	7,237,627	Y/N
10:58				

Fish collected by: **Association FIMIRA**

Poissons collectés par: **TBSE Team & QMM**

QMM Supervisor Name: **Remboho Josua**

Nom du superviseur: **RANDRIAMBOLARAINY Erick**

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon	Comments/ Observation
Fish F04 (Lac Ambavarano)	#1	74	20210401Fish04#1	20210401Fish04#1 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#2	41	20210401Fish04#2	20210401Fish04#2 *Gobius sp (Ambanivava)*
Fish F04 (Lac Ambavarano)	#3	50	20210401Fish04#3	20210401Fish04#3 *Mugil robustus (Kelivondraky)*
Fish F04 (Lac Ambavarano)	#4	48	20210401Fish04#4	20210401Fish04#4 *Gobius sp (Ambanivava)*
Fish F04 (Lac Ambavarano)	#5	62	20210401Fish04#5	20210401Fish04#5 *Gobius sp (Ambanivava)*
Fish F04 (Lac Ambavarano)	#6	42	20210401Fish04#6	20210401Fish04#6 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#7	41	20210401Fish04#7	20210401Fish04#7 *Gobius sp (Ambanivava)*
Fish F04 (Lac Ambavarano)	#8	29	20210401Fish04#8	20210401Fish04#8 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#9	37	20210401Fish04#9	20210401Fish04#9 *Gobius sp (Ambanivava)*
Fish F04 (Lac Ambavarano)	#10	39	20210401Fish04#10	20210401Fish04#10 *Gobius sp (Ambanivava)*
Fish F04 (Lac Ambavarano)	#11	39	20210401Fish04#11	20210401Fish04#11 *Gobius sp (Ambanivava)*
Fish F04 (Lac Ambavarano)	#12	45	20210401Fish04#12	20210401Fish04#12 *Gobius sp (Ambanivava)*
Fish F04 (Lac Ambavarano)	#13	32	20210401Fish04#13	20210401Fish04#13 *Gobius sp (Ambanivava)*
Fish F04 (Lac Ambavarano)	#14	38	20210401Fish04#14	20210401Fish04#14 *Gobius sp (Ambanivava)*
Fish F04 (Lac Ambavarano)	#15	38	20210401Fish04#15	20210401Fish04#15 *Gobius sp (Ambanivava)*
Fish F04 (Lac Ambavarano)	#16	36	20210401Fish04#16	20210401Fish04#16 *Gobius sp (Ambanivava)*
Fish F04 (Lac Ambavarano)	#17	32	20210401Fish04#17	20210401Fish04#17 *Gobius sp (Ambanivava)*
Fish F04 (Lac Ambavarano)	#18	36	20210401Fish04#18	20210401Fish04#18 *Gobius sp (Ambanivava)*
Fish F04 (Lac Ambavarano)	#19	35	20210401Fish04#19	20210401Fish04#19 *Gobius sp (Ambanivava)*
Fish F04 (Lac Ambavarano)	#20	32	20210401Fish04#20	20210401Fish04#20 *Gobius sp (Ambanivava)*
Fish F04 (Lac Ambavarano)	#21	26	20210401Fish04#21	20210401Fish04#21 *Ptychochromis gradidieri (Saroa)*
	Total	852		

We caught in total 852 grams compliance as per protocol

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :_____ Supervisor

SIGNED Signé :_____ Superviseur Signé:_____

New form to be completed for each location

Nouveau formulaire à remplir pour chaque emplacement

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	01/04/2021
Fish Location ID:	Fish F04
Fishing Contractor Name	Entreprise TBSE Fort
QMM Supervisor Name	Remboho Josua

Location Coordinates

Northing:	707 648
Easting:	723 7627

Photograph/Photographier du GPS Location/Emplacement



Fish ID	Fish Photograph/photographier	Fish Species Name (vernacular and scientific)/Nom Vernaculaire/Nom Scientifique	Weight/Poids
#1		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	74
#2		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius sp*	41
#3		**Nom Vernaculaire**: Kelivondraky **Nom Scientifique:** *Mugil robustus*	50
#4		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius sp*	48
#5		**Nom Vernaculaire:** Ambanivava **Nom Scientifique:** *Gobius sp*	62
#6		**Nom Vernaculaire**: Saroa **Nom Scientifique:** Ptychochromis grandidieri	42

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

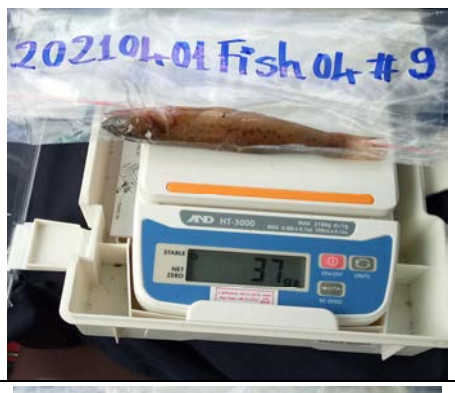
Date:	01/04/2021
Fish Location ID:	Fish F04
Fishing Contractor Name	Entreprise TBSE Fort
QMM Supervisor Name	Remboho Josua

Location Coordinates

Northing:	707 648
Easting:	723 7627

Photograph/Photographier du GPS Location/Emplacement



#7		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** Gobius sp	41
#8		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius sp*	29
#9		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius sp*	37
#10		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius sp*	39
#11		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius sp*	39
#12		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius sp*	45

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	01/04/2021
Fish Location ID:	Fish F04
Fishing Contractor Name	Entreprise TBSE Fort
QMM Supervisor Name	Remboho Josua

Location Coordinates

Northing:	707 648
Easting:	723 7627

Photograph/Photographier du GPS Location/Emplacement



#13		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius sp*	32
#14		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius sp*	38
#15		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius sp*	38
#16		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius sp*	36
#17		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius sp*	32
#18		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius sp*	36

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	01/04/2021
Fish Location ID:	Fish F04
Fishing Contractor Name	Entreprise TBSE Fort
QMM Supervisor Name	Remboho Josua

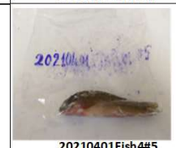
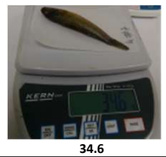
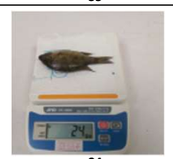
Location Coordinates

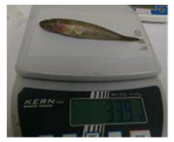
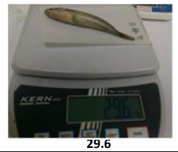
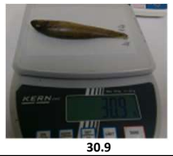
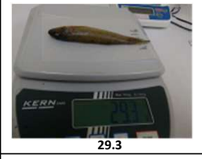
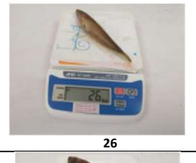
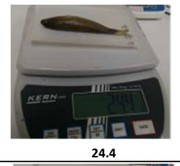
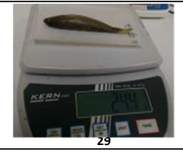
Northing:	707 648
Easting:	723 7627

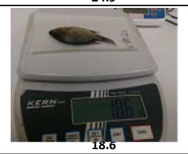
Photograph/Photographier du GPS Location/Emplacement



#19		**Nom Vernaculaire**: Ambanivava **Nom Scientifique**: *Gobius sp*	35
#20		**Nom Vernaculaire**: Ambanivava **Nom Scientifique**: *Gobius sp*	32
#21		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	26

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
20/04/2021	09:48:00	FISH	 20210401Fish4#1	 68	0.3	 66.7	18.3	F4 #1 S1	4.3	17.1	21.3	
20/04/2021	09:51:00	FISH	 20210401Fish4#2	 35	0.3	 33.9	9.9	F4 #2 S1	4.3	8.7	13.1	
20/04/2021	09:54:00	FISH	 20210401Fish4#3	 44	0.6	 42.7	16.3	F4 #3 S1	4.1	15.4	18.7	
20/04/2021	09:57:00	FISH	 20210401Fish4#4	 43	0.6	 41.7	11.2	F4 #4 S1	4.1	10.2	14.6	
20/04/2021	10:00:00	FISH	 20210401Fish4#5	 56	0.3	 54.8	16.4	F4 #5 S1	4.3	15.3	19.6	
20/04/2021	10:05:00	FISH	 20210401Fish4#6	 37	0.4	 35.3	10.4	F4 #6 S1	3.9	9.3	13.3	
20/04/2021	10:11:00	FISH	 20210401Fish4#7	 35	0.5	 34.6	10.5	F4 #7 S1	3.8	9.3	13.2	
20/04/2021	10:16:00	FISH	 20210401Fish4#8	 24	0.5	 23.2	7.1	F4 #8 S1	3.6	6	9.5	
20/04/2021	10:18:00	FISH	 20210401Fish4#9	 32	0.4	 31.2	9.3	F4 #9 S1	3.9	8.3	12.3	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
20/04/2021	10:25:00	FISH	 20210401Fish4#10	 35	0.5	 33.9	10.1	F4 #10 S1	4.1	8.7	12.9	
20/04/2021	10:27:00	FISH	 20210401Fish4#11	 30	0.3	 29.6	8.8	F4 #11 S1	4.3	7.6	11.9	
20/04/2021	10:31:00	FISH	 20210401Fish4#12	 36	0.4	 35	10.6	F4 #12 S1	3.7	9	12.8	
20/04/2021	10:34:00	FISH	 20210401Fish4#13	 26	0.4	 24.6	7.6	F4 #13 S1	4	6.8	10.7	
20/04/2021	10:37:00	FISH	 20210401Fish4#14	 32	0.6	 30.9	9.3	F4 #14 S1	4	8.2	12.3	
20/04/2021	10:40:00	FISH	 20210401Fish4#15	 33	0.5	 31.3	9.3	F4 #15 S1	3.9	7.8	11.8	
20/04/2021	10:43:00	FISH	 20210401ish4#16	 31	0.3	 29.3	8.6	F4 #16 S1	4.3	7.6	12	
20/04/2021	10:46	FISH	 20210401ish4#17	 26	0.3	 24.4	7.7	F4 #17 S1	3.8	7.1	10.9	
20/04/2021	10:49	FISH	 20210401ish4#18	 30	0.5	 29	8.2	F4 #18 S1	4.1	7.1	11.4	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
20/04/2021	10:51	FISH	 20210401ish4#19	 29	0.5	 28.2	8	F4 #19 S1	4.5	7	11.6	
20/04/2021	10:53	FISH	 20210401ish4#20	 26	0.6	 24.9	7.9	F4 #20 S1	4.6	6.8	11.3	
20/04/2021	10:56	FISH	 20210401ish4#21	 26	0.5	 18.6	5.8	F4 #21 S1	4.7	5.2	9.6	

JBSG

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

(FIMIRA)

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
31/03/2021 10:47	FishF06	706137	7238097	Y

Fish collected by: TBSE - PECHEUR - VILLAGE.

Poissons collectés par: TBSE. Josue. Pecheur. V.

QMM Supervisor Name: REHABOHO Josua.

Nom du superviseur:

Comments/Observations

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / Identification de l'échantillon
Fish F06	#1	145	20210331Fish06#1 - Glossogobius giurus (Damilava)
FishF06	#2	119	20210331Fish06#2 - Glossogobius giurus (Damilava).
Fish F06.	#3	97	20210331Fish06#3. Glossogobius giurus (Damilava).
Fish F06	#4	69.	20210331Fish06#4 Liza macrolepis. (Zompo).
Fish F06	#5	94.	20210331Fish06#5 - Oreochromis mossambicus (Halemilahe
Fish F06	#6	141.	20210331Fish06#6 - Glossogobius giurus (Damilava).
Fish F06	#7	135	20210331Fish06#7 - Glossogobius giurus (Damilava).
Fish F06	#8	66	20210331Fish06#8 - Gobius.sp (Ambanivava).

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté (Y)N

I confirm the fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Verifié: _____

SIGNED Signé: _____

Supervisor
Superviseur Signé: REHABOHO. JOSUA

JBSG

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
31/03/2021 10:47	FISH FO6	706137	7238097	

Fish collected by

Poissons collectés par: TBSE. PECHEUR DU VILLAGE (FIMIRA)

QMM Supervisor Name

Nom du superviseur: REMBOHO. Joshua

Comments/Observations

Location/Emplacement ID	Fish Poisson ID	Fish Weight/Poisson Poids (g)	Sample / Identification de l'échantillon	
Fish FO6	# 9	50	20210331Fish06#9 – Ptytichromis grandidieri (Saroa)	
Fish FO6	# 10	39.	20210331Fish06#10 – Ptytichromis grandidieri (Saroa)	
Fish FO6	# 11	88.	20210331Fish06#11 – Ptytichromis grandidieri (Saroa)	
	Tot	10h39.		

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté: Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Verifié: _____

SIGNED Signé: _____

Supervisor

Superviseur Signé: _____

REMBOHO Joshua

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing /Coordonnée Y	Photograph/photographie du GPS
31.03.2021 (10h:47mn)	Fish F06 (Lac Ambavarano)	706,137	7,238,097	Y/N

Fish collected by: **Association FIMIRA**

Poissons collectés par: **TBSE Team & QMM**

QMM Supervisor Name: **Remboho Josua**

Nom du superviseur: **RANDRIAMBOLARAINY Erick**

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon	
Fish F06 (Lac Ambavarano)	#1	145	20210331Fish06#1	
Fish F06 (Lac Ambavarano)	#2	119	20210331Fish06#2	
Fish F06 (Lac Ambavarano)	#3	97	20210331Fish06#3	
Fish F06 (Lac Ambavarano)	#4	69	20210331Fish06#4	
Fish F06 (Lac Ambavarano)	#5	94	20210331Fish06#5	
Fish F06 (Lac Ambavarano)	#6	141	20210331Fish06#6	
Fish F06 (Lac Ambavarano)	#7	135	20210331Fish06#7	
Fish F06 (Lac Ambavarano)	#8	66	20210331Fish06#8	
Fish F06 (Lac Ambavarano)	#9	50	20210331Fish06#9	
Fish F06 (Lac Ambavarano)	#10	39	20210331Fish06#10	
Fish F06 (Lac Ambavarano)	#11	88	20210331Fish06#11	
	Total	1043		

Comments/ Observation

20210331Fish06#1	*Glossogobius giuris (Damilava)*
20210331Fish06#2	*Glossogobius giuris (Damilava)*
20210331Fish06#3	*Glossogobius giuris (Damilava)*
20210331Fish06#4	*Liza macrolepis (Zompo)*
20210331Fish06#5	*Oreochromus mossambicus (Malemiloha)*
20210331Fish06#6	*Glossogobius giuris (Damilava)*
20210331Fish06#7	*Glossogobius giuris (Damilava)*
20210331Fish06#8	*Gobius sp (Ambanivava)*
20210331Fish06#9	*Ptychochromis grandidieri (Saroa)*
20210331Fish06#10	*Ptychochromis grandidieri (Saroa)*
20210331Fish06#11	*Ptychochromis grandidieri (Saroa)*

We caught in total 1043 grams compliance as per protocol

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :_____

SIGNED Signé :_____

Supervisor

Superviseur Signé:_____

New form to be completed for each location

Nouveau formulaire à remplir pour chaque emplacement

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	31/03/2021
Fish Location ID:	Fish F06
Fishing Contractor Name	Entreprise TBSE Fort
QMM Supervisor Name	Remboho Josua

Location Coordinates

Northing:	706 137
Easting:	723 8097

Photograph/Photographier du GPS Location/Emplacement



Fish ID	Fish Photograph/photographier	Fish Species Name (vernacular and scientific)/Nom Vernaculaire/Nom Scientifique	Weight/Poids
#1		**Nom Vernaculaire**: Damilava **Nom Scientifique:** *Glossogobius giuris*	145
#2		**Nom Vernaculaire**: Damilava **Nom Scientifique:** *Glossogobius giuris*	119
#3		**Nom Vernaculaire**: Damilava **Nom Scientifique:** *Glossogobius giuris*	97
#4		**Nom Vernaculaire**: Zompo **Nom Scientifique:** *Liza macrolepis*	69

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	31/03/2021
Fish Location ID:	Fish F06
Fishing Contractor Name	Entreprise TBSE Fort
QMM Supervisor Name	Remboho Josua

Location Coordinates

Northing:	706 137
Easting:	723 8097

Photograph/Photographier du GPS Location/Emplacement





#5		**Nom Vernaculaire**: Malemiloha **Nom Scientifique:** *Oreochromus mossambicus*	94
#6		**Nom Vernaculaire**: Damilava **Nom Scientifique:** *Glossogobius giuris*	141
#7		**Nom Vernaculaire**: Damilava **Nom Scientifique:** *Glossogobius giuris*	135
#8		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius sp*	66

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	31/03/2021
Fish Location ID:	Fish F06
Fishing Contractor Name	Entreprise TBSE Fort
QMM Supervisor Name	Remboho Josua

Location Coordinates

Northing:	706 137
Easting:	723 8097

Photograph/Photographier du GPS Location/Emplacement

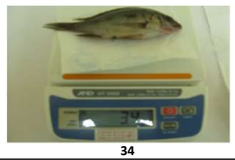




#9		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	50
#10		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	39
#11		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	88

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
21/04/2021	17:00	FISH	20210331Fish6#1	154	1.3	152	54.6	F6 #1 S1	4.7	16.9	21.3	
								F6 #1 S2	4.5	18.2	22.7	
								F6 #1 S3	4.2	18	22.4	
21/04/2021	17:04	FISH	20210331Fish6#2	177	1.8	116	40.6	F6 #2 S1	4.4	19.5	23.8	
								F6 #2 S2	3.1	19	22.5	
21/04/2021	17:10	FISH	20210331Fish6#3	93	1.4	91.4	29.6	F6 #3 S1	5.4	15.1	20.7	
								F6 #3 S2	5	12.2	17.5	
21/04/2021	17:14	FISH	20210331Fish6#4	65	1.8	62.5	24.5	F6 #4 S1	5.4	10.8	16.5	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	F6 #4 S2	4.8	8.5	13.2	
21/04/2021	11:28	FISH	 20210331Fish6#5	 88	1.5	 85.7	23.3	F6 #5 S1	3.9	10.4	14.4	
								F6 #5 S2	4	10.3	14.4	
21/04/2021	17:18	FISH	 20210331Fish6#6	 137	1.5	 134.3	44.2	F6 #6 S1	4.8	16.3	21.2	
								F6 #6 S2	5.1	14.3	19.5	
								F6 #6 S3	4.9	11.7	16.7	
21/04/2021	17:25	FISH	 20210331Fish6#7	 129	1.4	 127.1	41.1	F6 #7 S1	3.7	14.4	18.1	
								F6 #7 S2	3.2	15.5	18.7	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
								F6 #7 S3	4.7	9.4	14.1	
21/04/2021	11:35	FISH	 20210331Fish6#8	 60	1	 60	19	F6 #8 S1	4.6	17.2	21.7	
21/04/2021	11:41	FISH	 20210331Fish6#9	 45	0.5	 42.9	13.3	F6 #9 S1	4.2	12.7	16.7	
21/04/2021	11:45	FISH	 20210331Fish6#10	 34	0.6	 32.8	10.2	F6 #10 S1	4.7	9.2	14.1	
21/04/2021	11:49	FISH	 20210331Fish6#11	 83	1	 80.3	26.8	F6 #11 S1	4.4	15	19.3	
								F6 #11 S2	4.5	9.6	15	

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210719 / 10:19	MANIOC01 AMPASY	700488	7237277	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Comments/Observations:

Cultivateur: Mr OLIVIER
Tél: 034 50 814 18

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
AMPASY	MANIOC01	2102	20210719 MANIOC01 AMPASY	Y



Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

R. Tsasahoby

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210719 / 10:45	MANIOC01 AMPASY	700488	7237277	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
AMPASY	FEUiLLES MANIOC01	2232	10719 FEUILLES MANIOC01 AMPA	Y

Comments/Observations:

Cultivateur: Mr Justin
Tél: 034 50 814 18



Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

R. Tsasahoby

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Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210719 / 11:07	COROSSOLE01 AMPASY	700393	7237356	Y
				Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
AMPASY	COROSSOLES01	1831	20210719 COROSSOLES01 AMPASY	Y

Comments/Observations:

Cultivateur: Mr OLIVEIR
Tél: 034 50 814 18






Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

R. Tsarahoby

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Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210719 / 11:12	ORANGES AMPASY	700395	7237340	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
AMPASY	ORANGES01	2206	20210719 ORANGES01 AMPASY	Y

Comments/Observations:

Cultivateur: Mr OLIVIER
Tél: 034 50 814 18






Plant Placed in labelled bag/plante placée dans un sac étiqueté	**Y**

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

R. Tsaralahy

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210721 / 09:41	JAQUE MMM	705076	7242878	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
MANDROMONDROMOTRA	JAQUE MMM		20210721 JAQUE MMM	Y

Comments/Observations:

Cultivateur: Mr GUL MMM



Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature

Signature du superviseur:_____

R. Tsaralahy

New form to be completed for each location

Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210721 / 09:55	COROSSOLE MMM	705099	7242876	
				Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillo Y/N
MANDROMONDROMOTRA	COROSSOLE MMM	2195	20210721 COROSSOLE MMM	Y

Comments/Observations:

Cultivateur: Mr GUL MMM



Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature

Signature du superviseur:_____

R. Tsoarahoby

New form to be completed for each location

Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210721 / 10:28	MANIOC 02 MMM	706390	7242471	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
MANDROMONDROMOTRA	MANIOC 02 MMM	2350	20210721 MANIOC 02 MMM	Y

Comments/Observations:

Cultivateur: Mr GUL MMM



Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature

Signature du superviseur:_____

R. Isaac Hoby

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Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210721 / 10:28	MANIOC 02 MMM	706390	7242471	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
MANDROMONDROMOTRA	FEUILLES MANIOC MMM	1328	20210721 FEUILLES MANIOC MMM	Y

Comments/Observations:

Cultivateur: Mr GUL MMM







Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature

Signature du superviseur:_____

R. Isaacahoby

New form to be completed for each location

Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210721 / 11:52	MANIOC 03 AMPASY	700309	7237671	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
AMPASY	MANIOC 03 AMPASY	1960	0210721 MANIOC 03 AMPAS	Y

Comments/Observations:

Cultivateur: Mr FLORETTE AMPASY
Village Fenoarivo






Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

R. Tsarahoby

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210721 / 12:05	ORANGE 02 AMPASY	700258	7237644	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
AMPASY	ORANGE 02 AMPASY	2105	20210721 ORANGE 02 AMPASY	Y

Comments/Observations:

Cultivateur: Mm FLORETTE AMPASY
Village Fenoarivo






Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

R. Tsaraloby

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210722 / 08:52	MANIOC SŒUR AMPASY	700372	7235627	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
AMPASY	MANIOC SŒUR	2373	20210722 MANIOC SŒUR AMPASY	Y

Comments/Observations:

Cultivateur: SŒUR AMPASY






Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature

Signature du superviseur:_____

R. Tsaralaby

New form to be completed for each location

Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210722 / 09:03	BANANE SŒUR AMPASY	700372	7235622	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
AMPASY	BANANE SŒUR	23341	20210722 BANANE SŒUR AMPASY	Y

Comments/Observations:

Cultivateur: SŒUR AMPASY



Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature

Signature du superviseur:_____

R. Tsaralahy

New form to be completed for each location

Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210722 / 10:08	MANIOC 04 PAULIN	700450	7236826	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
AMPSAY	MANIOS 04	2051	20210722 MANIOC 04 AMPASY	Y

Comments/Observations:

Cultivateur: Mr PAULIN AMPASY






Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature

Signature du superviseur:_____

R. Isaac Hoby

New form to be completed for each location

Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210722 / 11:06	PAPAYA BETELIGNY	700176	7234002	Y

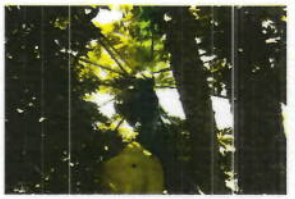
Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
BETALIGNY	PAPAYA	3191	20210722 PAPAYA BETELIGNY	Y

Comments/Observations:

Cultivateur: Mr DAMY
Village: Andeona






Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

R. Tsaralaby

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210722 / 11:23	COURGETTE BETALIGNY	700094	7233984	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
BETELIGNY	COURGETTE	1491	20210722 COURGETTE BETALIGNY	Y

Comments/Observations:

Cultivateur: Mme MADELENE
Village: Andeona






Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

R. Tsaratoby

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Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210723 / 09:57	MANIOC ANDRAKARAKA	703618	7235202	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
ANDRAKARAKA	MANIOC	1991	20210723 MANIOC ANDRAKARAKA	Y

Comments/Observations:

Cultivateur: Mme ESPERANCE
Village: ANDRAKARAKA






Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

R. Tsaca Hoby

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210723 / 10:21	PAPAYA ANDRAKARAKA	704321	7235055	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
ANDRAKARAKA	PAPAYA	2357	20210723 PAPAYA ANDRAKARAKA	Y

Comments/Observations:

Cultivateur: Mr OLIVIER
Village: ANDRAKARAKA





Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

R. Isaac Hoby

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Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210723 / 11:23	PAPAYA EMANAKA	705975	7236332	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
EMANAKA	PAPAYA	901	20210723 PAPAYA EMANAKA	Y

Comments/Observations:

Cultivateur: Mme LOUISA
Village: EMANAKA






Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

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Supervisor signature
Signature du superviseur:_____

R. Tsaralaby

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Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210723 / 11:14	PATATE DOUCE EMENAKA	705654	7236332	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
EMANAKA	PATATE DOUCE	1238	20210723 PATATE DOUCE EMANAKA	Y

Comments/Observations:

Cultivateur: Mme RAVOLA
Village: EMANAKA







Plant Placed in labelled bag/plante placée dans un sac étiqueté	**Y**

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

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SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

R. Tsaralahy

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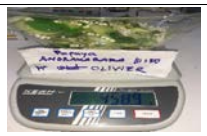
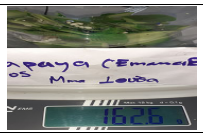
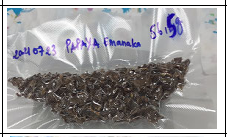
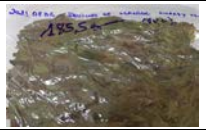
Nouveau formulaire à remplir pour chaque emplacement

Sample ID	Sample	Dried Sample or Inedible Portion	Final Dried Sample (including bag weight)
20210719 COROSSOLES01 AMPASY			
20210719 FEUILLES MANIOC01 AMPASY			
20210719 MANIOC01 AMPASY			
20210719 ORANGES01 AMPASY			
20210721 MANIOC 02 MMM			
20210721 MANIOC 03 AMPASY			
20210721 ORANGE 02 AMPASY			
20210721 COROSSOLE MMM			

Sample ID	Sample	Dried Sample or Inedible Portion	Final Dried Sample (including bag weight)
20210721 JAQUE MMM1			
20210721 JAQUE MMM2			
20210721 FEUILLES MANIOC MMM			
20210722 COURGETTE BETALIGNY			
20210722 MANIOC 04 AMPASY			
20210722 BANANE SŒUR AMPASY			
20210722 PAPAYA BETELIGNY			
20210722 MANIOC SŒUR AMPASY			
20210723 MANIOC ANDRAKARAKA			

Sample ID	Sample	Dried Sample or Inedible Portion	Final Dried Sample (including bag weight)
20210723 PATATE DOUCE EMANAKA			
20210723 PAPAYA ANDRAKARAKA			
20210723 PAPAYA EMANAKA			
20210806 FEUILLESMANIOC AMPASY			
20210806 FEUILLESMANIOC AMPASY 80°C			

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210719 / 10:19	MANIOC01 AMPASY	700488	7237277	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Comments/Observations:

Cultivateur: Mr OLIVIER
Tél: 034 50 814 18

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
AMPASY	MANIOC01	2102	20210719 MANIOC01 AMPASY	Y



Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

R. Tsasahoby

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210719 / 10:45	MANIOC01 AMPASY	700488	7237277	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
AMPASY	FEUiLLES MANIOC01	2232	10719 FEUILLES MANIOC01 AMPA	Y

Comments/Observations:

Cultivateur: Mr Justin
Tél: 034 50 814 18



Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

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SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

R. Tsasahoby

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Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210719 / 11:07	COROSSOLE01 AMPASY	700393	7237356	Y
				Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
AMPASY	COROSSOLES01	1831	20210719 COROSSOLES01 AMPASY	Y

Comments/Observations:

Cultivateur: Mr OLIVEIR
Tél: 034 50 814 18






Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

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Supervisor signature
Signature du superviseur:_____

R. Tsarahoby

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Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210719 / 11:12	ORANGES AMPASY	700395	7237340	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
AMPASY	ORANGES01	2206	20210719 ORANGES01 AMPASY	Y

Comments/Observations:

Cultivateur: Mr OLIVIER
Tél: 034 50 814 18






Plant Placed in labelled bag/plante placée dans un sac étiqueté	**Y**

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

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SIGNED Signé :_____

Supervisor signature
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R. Tsaralahy

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Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210721 / 09:41	JAQUE MMM	705076	7242878	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
MANDROMONDROMOTRA	JAQUE MMM		20210721 JAQUE MMM	Y

Comments/Observations:

Cultivateur: Mr GUL MMM



Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

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Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature

Signature du superviseur:_____

R. Tsaralahy

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Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210721 / 09:55	COROSSOLE MMM	705099	7242876	
				Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillo Y/N
MANDROMONDROMOTRA	COROSSOLE MMM	2195	20210721 COROSSOLE MMM	Y

Comments/Observations:

Cultivateur: Mr GUL MMM



Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

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Supervisor signature

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R. Tsoarahoby

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Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210721 / 10:28	MANIOC 02 MMM	706390	7242471	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
MANDROMONDROMOTRA	MANIOC 02 MMM	2350	20210721 MANIOC 02 MMM	Y

Comments/Observations:

Cultivateur: Mr GUL MMM



Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

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Supervisor signature

Signature du superviseur:_____

R. Isaac Hoby

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Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210721 / 10:28	MANIOC 02 MMM	706390	7242471	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
MANDROMONDROMOTRA	FEUILLES MANIOC MMM	1328	20210721 FEUILLES MANIOC MMM	Y

Comments/Observations:

Cultivateur: Mr GUL MMM







Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

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Supervisor signature

Signature du superviseur:_____

R. Isaacahoby

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Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210721 / 11:52	MANIOC 03 AMPASY	700309	7237671	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
AMPASY	MANIOC 03 AMPASY	1960	0210721 MANIOC 03 AMPAS	Y

Comments/Observations:

Cultivateur: Mr FLORETTE AMPASY
Village Fenoarivo






Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

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SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

R. Tsarahoby

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Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210721 / 12:05	ORANGE 02 AMPASY	700258	7237644	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
AMPASY	ORANGE 02 AMPASY	2105	20210721 ORANGE 02 AMPASY	Y

Comments/Observations:

Cultivateur: Mm FLORETTE AMPASY
Village Fenoarivo






Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

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Supervisor signature
Signature du superviseur:_____

R. Tsaraloby

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Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210722 / 08:52	MANIOC SŒUR AMPASY	700372	7235627	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
AMPASY	MANIOC SŒUR	2373	20210722 MANIOC SŒUR AMPASY	Y

Comments/Observations:

Cultivateur: SŒUR AMPASY






Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature

Signature du superviseur:_____

R. Tsaralaby

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Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210722 / 09:03	BANANE SŒUR AMPASY	700372	7235622	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
AMPASY	BANANE SŒUR	23341	20210722 BANANE SŒUR AMPASY	Y

Comments/Observations:

Cultivateur: SŒUR AMPASY



Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

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Supervisor signature

Signature du superviseur:_____

R. Tsaralahy

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Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210722 / 10:08	MANIOC 04 PAULIN	700450	7236826	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
AMPSAY	MANIOS 04	2051	20210722 MANIOC 04 AMPASY	Y

Comments/Observations:

Cultivateur: Mr PAULIN AMPASY






Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature

Signature du superviseur:_____

R. Isaac Hoby

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Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210722 / 11:06	PAPAYA BETELIGNY	700176	7234002	Y

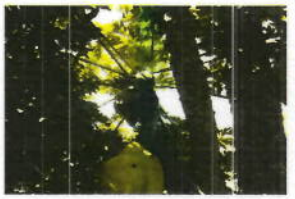
Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
BETALIGNY	PAPAYA	3191	20210722 PAPAYA BETELIGNY	Y

Comments/Observations:

Cultivateur: Mr DAMY
Village: Andeona






Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

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SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

R. Tsaralaby

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Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210722 / 11:23	COURGETTE BETALIGNY	700094	7233984	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
BETELIGNY	COURGETTE	1491	20210722 COURGETTE BETALIGNY	Y

Comments/Observations:

Cultivateur: Mme MADELENE
Village: Andeona






Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

R. Tsaratoby

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210723 / 09:57	MANIOC ANDRAKARAKA	703618	7235202	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
ANDRAKARAKA	MANIOC	1991	20210723 MANIOC ANDRAKARAKA	Y

Comments/Observations:

Cultivateur: Mme ESPERANCE
Village: ANDRAKARAKA






Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

R. Tsaca Hoby

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210723 / 10:21	PAPAYA ANDRAKARAKA	704321	7235055	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
ANDRAKARAKA	PAPAYA	2357	20210723 PAPAYA ANDRAKARAKA	Y

Comments/Observations:

Cultivateur: Mr OLIVIER
Village: ANDRAKARAKA





Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

R. Isaac Hoby

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210723 / 11:23	PAPAYA EMANAKA	705975	7236332	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
EMANAKA	PAPAYA	901	20210723 PAPAYA EMANAKA	Y

Comments/Observations:

Cultivateur: Mme LOUISA
Village: EMANAKA






Plant Placed in labelled bag/plante placée dans un sac étiqueté	Y

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

Supervisor signature
Signature du superviseur:_____

R. Tsaralaby

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

Plant Sampling Data Sheet / Feuille de données d'échantillonnage des plantes

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	GPS Photograph/ photographie du GPS Y/N
20210723 / 11:14	PATATE DOUCE EMENAKA	705654	7236332	Y

Plant collected by:
Plantes collectées par: Association ALAMAITSO
QMM Supervisor Name:
Nom du superviseur: HOBY

Plant Samples / Echantillons de plantes

Location ID / Emplacement	Plant/Plante ID	Plant Weight/Poids des plantes (g)	Sample ID / identification de l'échantillon	Photograph sample/ photographie échantillon Y/N
EMANAKA	PATATE DOUCE	1238	20210723 PATATE DOUCE EMANAKA	Y

Comments/Observations:

Cultivateur: Mme RAVOLA
Village: EMANAKA







Plant Placed in labelled bag/plante placée dans un sac étiqueté	**Y**

I confirm that plants above were collected in this location/Je confirme que les plantes ci-dessus ont été collectées à cet endroit

Checked BY / Vérifié par:_____

SIGNED Signé :_____

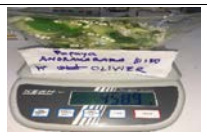
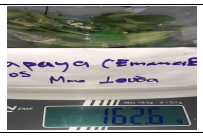
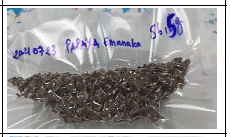
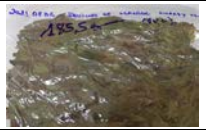
Supervisor signature
Signature du superviseur:_____

R. Tsaralahy

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

Sample ID	Sample	Dried Sample or Inedible Portion	Final Dried Sample (including bag weight)
20210719 COROSSOLES01 AMPASY			
20210719 FEUILLES MANIOC01 AMPASY			
20210719 MANIOC01 AMPASY			
20210719 ORANGES01 AMPASY			
20210721 MANIOC 02 MMM			
20210721 MANIOC 03 AMPASY			
20210721 ORANGE 02 AMPASY			
20210721 COROSSOLE MMM			

Sample ID	Sample	Dried Sample or Inedible Portion	Final Dried Sample (including bag weight)
20210721 JAQUE MMM1			
20210721 JAQUE MMM2			
20210721 FEUILLES MANIOC MMM			
20210722 COURGETTE BETALIGNY			
20210722 MANIOC 04 AMPASY			
20210722 BANANE SŒUR AMPASY			
20210722 PAPAYA BETELIGNY			
20210722 MANIOC SŒUR AMPASY			
20210723 MANIOC ANDRAKARAKA			

Sample ID	Sample	Dried Sample or Inedible Portion	Final Dried Sample (including bag weight)
20210723 PATATE DOUCE EMANAKA			
20210723 PAPAYA ANDRAKARAKA			
20210723 PAPAYA EMANAKA			
20210806 FEUILLESMANIOC AMPASY			
20210806 FEUILLESMANIOC AMPASY 80°C			

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
22/07/2021	Fish F01 (Mine site)	704637	7238247	Y/N
9:00	PADDOCK 03			

Fish collected by:**TBSE team**
Poissons collectés par QMM
QMM Supervisor Name: **Josua REMBOHO**
Nom du superviseur:**RANDRIAMBOLARAINY Erick**

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon	
Fish F01 (Mine site)	**#1**	**100**	**20210722Fish01#1**	
Fish F01 (Mine site)	**#2**	**78**	**20210722Fish01#2**	
Fish F01 (Mine site)	**#3**	**25**	**20210722Fish01#3**	
Fish F01 (Mine site)	**#4**	**76**	**20210722Fish01#4**	
Fish F01 (Mine site)	**#5**	**56**	**20210722Fish01#5**	
Fish F01 (Mine site)	**#6**	**34**	**20210722Fish01#6**	
Fish F01 (Mine site)	**#7**	**30**	**20210722Fish01#7**	
Fish F01 (Mine site)	**#8**	**31**	**20210722Fish01#8**	
Fish F01 (Mine site)	**#9**	**27**	**20210722Fish01#9**	
Fish F01 (Mine site)	**#10**	**26**	**20210722Fish01#10**	
Fish F01 (Mine site)	**#11**	**108**	**20210722Fish01#11**	
	Total	**591**		

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
23/07/2021	Fish F01 (Mine site)	704637	7238247	Y/N
9:00	PADDOCK 03			

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon	
Fish F01 (Mine site)	**#1**	104	**20210723Fish01#1**	
Fish F01 (Mine site)	**#2**	28	**20210723Fish01#2**	
Fish F01 (Mine site)	**#3**	25	**20210723Fish01#3**	
Fish F01 (Mine site)	**#4**	25	**20210723Fish01#4**	
Fish F01 (Mine site)	**#5**	46	**20210723Fish01#5**	
Fish F01 (Mine site)	**#6**	28	**20210723Fish01#6**	
Fish F01 (Mine site)	**#7**	26	**20210723Fish01#7**	
Fish F01 (Mine site)	**#8**	12	**20210723Fish01#8**	
	Total	294		
	GRAND TOTAL	**885**		

	Comments/	Observation			
20210722Fish01#1			*Tilapia rendalli (Fiambazaha)*		
20210722Fish01#2			*Tilapia rendalli (Fiambazaha)*		
20210722Fish01#3			*Tilapia rendalli (Fiambazaha)*		
20210722Fish01#4			*Tilapia rendalli (Fiambazaha)*		
20210722Fish01#5			*Tilapia rendalli (Fiambazaha)*		
20210722Fish01#6			*Tilapia rendalli (Fiambazaha)*		
20210722Fish01#7			*Tilapia rendalli (Fiambazaha)*		
20210722Fish01#8			*Tilapia rendalli (Fiambazaha)*		
20210722Fish01#9			*Tilapia rendalli (Fiambazaha)*		
20210722Fish01#10			*Tilapia rendalli (Fiambazaha)*		
20210722Fish01#11			*Tilapia rendalli (Fiambazaha)*		
	We caught in total 885 grams compliance as per protocol				
20210723Fish01#1			*Tilapia rendalli (Fiambazaha)*		
20210723Fish01#2			*Paratilapia sp (Fogny)*		
20210723Fish01#3			*Tilapia rendalli (Fiambazaha)*		
20210723Fish01#4			*Tilapia rendalli (Fiambazaha)*		
20210723Fish01#5			*Tilapia rendalli (Fiambazaha)*		
20210723Fish01#6			*Paratilapia sp (Fogny)*		
20210723Fish01#7			*Tilapia rendalli (Fiambazaha)*		
20210723Fish01#8			*Paratilapia sp (Fogny)*		

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté	Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :_____ **Supervisor**

SIGNED Signé :_____ **Superviseur Signé:**_____

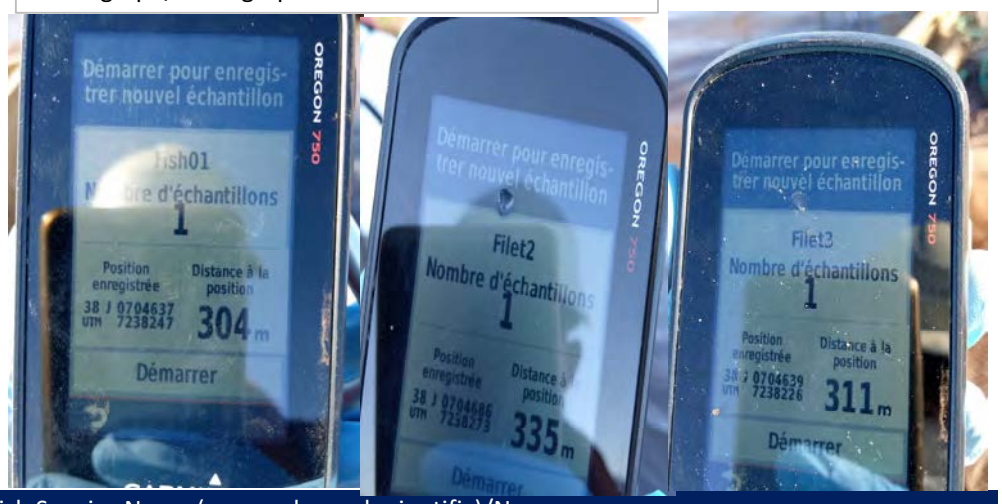
New form to be completed for each location

Nouveau formulaire à remplir pour chaque emplacement

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	22/07/2021
Fish Location ID:	**Fish F01**
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Josua REMBOHO
Location Coordinates	
Northing:	704637
Easting:	7238247

Photograph/Photographier du GPS

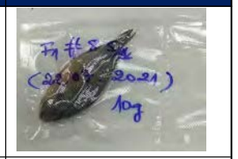
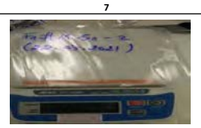
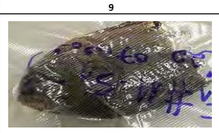
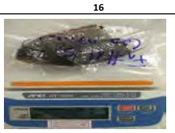
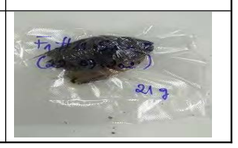


Fish ID	Fish Photograph/photographier	Fish Species Name (vernacular and scientific)/Nom Vernaculaire/Nom Scientifique	Weight/Poids(g)
#1		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	100
#2		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	78
#3		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	25
#4		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	76

#5		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	56
#6		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	34
#7		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	30
#8		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	31
#9		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	27
10		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	26

#11			**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	108
			Total	**591**

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
22.07.2021	9:00	FISH	 20210722FISH F01#1	 90.9	 1.4	 87	 21	20210722FISH F01#1S1	 5	 11	 16	
								20210722FISH F01#1S2	 5	 10	 15	
22.07.2021	9:00	FISH	 20210722FISH F01#2	 69.9	 1.2	 67	 17	20210722FISH F01#2S1	 6	 15	 21	
22.07.2021	9:00	FISH	 20210722FISH F01#3	 19	 0.4	 18	 5	20210722FISH F01#3S1	 3	 5	 8	
22.07.2021	9:00	FISH	 20210722FISH F01#4	 69.7	 1.2	 67.7	 18	20210722FISH F01#4S1	 6	 16	 22	
22.07.2021	9:00	FISH	20210722FISH F01#5	46.2	0.8	43.3	10	20210722FISH F01#5S1	7	9	16	
22.07.2021	9:00	FISH	20210722FISH F01#6	26.3	0.6	24.9	7	20210722FISH F01#6S1	4	6	10	
22.07.2021	9:00	FISH	20210722FISH F01#7	23.5	0.4	22.6	6	20210722FISH F01#7S1	3	5	8	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
22.07.2021	9:00	FISH	 20210722FISH F01#8	 24.3	 0.4	 23.2	 7	20210722FISH F01#8S1	 4	 6	 10	
22.07.2021	9:00	FISH	 20210722FISH F01#9	 19.9	 0.4	 19	 6	20210722FISH F01#9S1	 3	 5	 8	
22.07.2021	9:00	FISH	 20210722FISH F01#10	 19.3	 0.5	 18.5	 5	20210722FISH F01#10S1	 3	 5	 8	
22.07.2021	9:00	FISH	 20210722FISH F01#11	 106.3	 1.1	 102	 28	20210722FISH F01#11S1	 7	 9	 16	
								20210722FISH F01#11S2	 5	 16	 21	

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	23/07/2021
Fish Location ID:	**Fish F01**
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Josua REMBOHO
Location Coordinates	
Northing:	704637
Easting:	7238247

Photograph/Photographier du GPS



Fish ID	Fish Photograph/photographier	Fish Species Name (vernacular and scientific)/Nom Vernaculaire/Nom Scientifique	Weight/Poids(g)
#1		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	104
#2		**Nom vernaculaire**: Fogny **Nom scientifique**: Paratilapia sp	28
#3		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	25
#4		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	25

#5		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	46
#6		**Nom vernaculaire**: Fogny **Nom scientifique**: Paratilapia sp	28
#7		**Nom vernaculaire**: Fiambazaha **Nom scientifique**: *Tilapia rendalli*	26
#8		**Nom vernaculaire**: Fogny **Nom scientifique**: Paratilapia sp	12
		Total	**294**

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
23.07.2021	9:00	FISH	20210723FISH F01#1	97.5	1	94.7	20	20210723FISH F01#1S1	12	17	29	
23.07.2021	9:00	FISH	20210723FISH F01#2	21.7	0.5	20.9	5	20210723FISH F01#2S1	4	4	8	
23.07.2021	9:00	FISH	20210723FISH F01#3	18.3	0.3	18.2	5	20210723FISH F01#3S1	2.1	4	7	
23.07.2021	9:00	FISH	20210723FISH F01#4	22.9	0.5	22.1	6	20210723FISH F01#4S1	6	4	10	
23.07.2021	9:00	FISH	20210723FISH F01#5	38.7	0.3	37.1	11	20210723FISH F01#5S1	6	10	16	
23.07.2021	9:00	FISH	20210723FISH F01#6	22.4	0.4	21.9	5	20210723FISH F01#6S1	5	4	10	
23.07.2021	9:00	FISH	20210723FISH F01#7	20.2	0.3	19.5	6	20210723FISH F01#7S1	6	4	10	
23.07.2021	9:00	FISH	20210723FISH F01#8	6.9	0.4	6.6	2	20210723FISH F01#8S1	4	2	6	

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	03/08/2021 11:10
Fish Location ID:	Fish F02
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua

Location Coordinates	
Easting:	0704900
Northing:	7242922

Photograph/Photographier du GPS Location/Emplacement





Fish ID	Fish Photograph/photographier	Fish Species Name (vernacular and scientific)/Nom Vernaculaire/Nom Scientifique	Weight/Poids (g)
8/3/2021			
#1		**Nom vernaculaire:** Fogny **Nom scientifique**: *Paratilapia sp*	118
#2		**Nom vernaculaire:** Fogny **Nom scientifique**: *Paratilapia sp*	43
#3		**Nom vernaculaire:** Fogny **Nom scientifique**: *Paratilapia sp*	35
#4		**Nom vernaculaire:** Fogny **Nom scientifique**: *Paratilapia sp*	38
#5		**Nom vernaculaire:** Fogny **Nom scientifique**: *Paratilapia sp*	42

#6		**<u>Nom vernaculaire</u>:** Fogny **<u>Nom scientifique</u>**: *Paratilapia sp*	38
#7		**<u>Nom vernaculaire</u>:** **<u>Nom scientifique:</u>** *Eleotris fusca*	79
#8		**<u>Nom vernaculaire</u>:** **<u>Nom scientifique:</u>** *Eleotris fusca*	72
#9		**<u>Nom vernaculaire</u>:** **<u>Nom scientifique:</u>** *Eleotris fusca*	73
#10		**<u>Nom vernaculaire</u>:** **<u>Nom scientifique:</u>** *Eleotris fusca*	69
#11		**<u>Nom vernaculaire</u>:** **<u>Nom scientifique:</u>** *Eleotris fusca*	68
#12		**<u>Nom vernaculaire</u>:** Malemiloha **<u>Nom scientifique:</u>** *Oreochromus mossambicus*	43

#13		**Nom vernaculaire:** Malemiloha **Nom scientifique:** *Oreochromus mossambicus*	40
#14		**Nom vernaculaire: Fogny** **Nom scientifique:** *Paratilapia sp*	32
#15		**Nom vernaculaire: Fiambazaha** **Nom scientifique:** *Tilapia rendalli*	28
#16		**Nom vernaculaire: Saroa** **Nom scientifique:** *Ptychocromis grandidieri*	35
#17		**Nom vernaculaire: Saroa** **Nom scientifique:** *Ptychocromis grandidieri*	31
#18		**Nom vernaculaire: Saroa** **Nom scientifique:** *Ptychocromis grandidieri*	32
#19		**Nom vernaculaire: Saroa** **Nom scientifique:** *Ptychocromis grandidieri*	27
		TOTAL	943

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
03/08/2021 11:10	Fish F02 (MMM River)	704900	7242922	Y/N

Fish collected by: **Pecheur du Village de MMM**

Poissons collectés par: **TBSE Team & QMM**

QMM Supervisor Name: **Remboho Josua**

Nom du superviseur: **RANDRIAMBOLARAINY Erick**

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon	Comments/ observation
Fish F02 (MMM River)	#1	118	20210803Fish02#1	*Paratilapia sp (Fogny)*
Fish F02 (MMM River)	#2	42	20210407Fish02#2	*Paratilapia sp (Fogny)*
Fish F02 (MMM River)	#3	35	20210407Fish02#3	*Paratilapia sp (Fogny)*
Fish F02 (MMM River)	#4	38	20210407Fish02#4	*Paratilapia sp (Fogny)*
Fish F02 (MMM River)	#5	42	20210407Fish02#5	*Paratilapia sp (Fogny)*
Fish F02 (MMM River)	#6	38	20210407Fish02#6	*Paratilapia sp (Fogny)*
Fish F02 (MMM River)	#7	79	20210407Fish02#7	*eleotris fusca*
Fish F02 (MMM River)	#8	72	20210407Fish02#8	*Eleotris fusca*
Fish F02 (MMM River)	#9	73	20210407Fish02#9	*Eleotris fusca*
Fish F02 (MMM River)	#10	69	20210407Fish02#10	*Eleotris fusca*
Fish F02 (MMM River)	#11	68	20210407Fish02#11	*Eleotris fusca*
Fish F02 (MMM River)	#12	43	20210407Fish02#12	*Oreochromus mossambicus (Malemiloha)*
Fish F02 (MMM River)	#13	40	20210407Fish02#13	*Oreochromus mossambicus (Malemiloha)*
Fish F02 (MMM River)	#14	32	20210407Fish02#14	*Paratilapia sp (Fogny)*
Fish F02 (MMM River)	#15	28	20210407Fish02#15	*Tilapia rendalli (Fiambazaha)*
Fish F02 (MMM River)	#16	35	20210407Fish02#16	*Ptychocromis grandidieri (Saroa)*
Fish F02 (MMM River)	#17	31	20210407Fish02#17	*Ptychocromis grandidieri (Saroa)*
Fish F02 (MMM River)	#18	32	20210407Fish02#18	*Ptychocromis grandidieri (Saroa)*
Fish F02 (MMM River)	#19	27	20210407Fish02#19	*Ptychocromis grandidieri (Saroa)*
	Total	942		We caught in total 942

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :_____

SIGNED Signé :_____

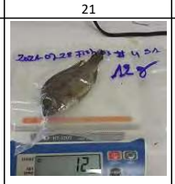
Supervisor

Superviseur Signé:_____

Date	Heure	Sample Type/ Type d'échantillon	20210803 ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
03.08.2021	11:10	FISH	20210803 F02#1	109.6	0.8	107.7	32	20210803FISH02#1S1	3	16	19	
03.08.2021	11:00	FISH	20210803 F02#2	36.6	0.8	35.7	10	20210803FISH02#2S1	3	9	12	
03.08.2021	11:00	FISH	20210803 F02#3	28.6	0.7	27.9	8	20210803FISH02#3S1	3	7	10	
03.08.2021	11:00	FISH	20210803 F02#4	31.9	0.9	31.2	9	20210803FISH02#4S1	3	8	11	
03.08.2021	11:00	FISH	20210803 F02#5	35.3	0.9	34.5	10	20210803FISH02#5S1	3	9	12	
03.08.2021	11:00	FISH	20210803 F02#6	31.7	0.9	30.9	9	20210803FISH02#6S1	4	8	12	
03.08.2021	11:00	FISH	20210803 F02#7	71.6	0.8	69.6	17	20210803FISH02#7S1	4	16	20	

Date	Heure	Sample Type/ Type d'échantillon	20210803 ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
03.08.2021	11:00	FISH	20210803 FOZ#1	67.7	0.6	59.7	15	20210803FISHOZ#11S1	4	14	18	
03.08.2021	11:00	FISH	20210803 FOZ#10	62.4	0.6	61.2	17	20210803FISHOZ#10S1	4	16	20	
03.08.2021	11:00	FISH	20210803 FOZ#9	65.8	0.9	64.3	16	20210803FISHOZ#9S1	4	15	19	
03.08.2021	11:00	FISH	20210803 FOZ#8	65.8	0.7	64.1	16	20210803FISHOZ#8	4	14	18	
03.08.2021	11:00	FISH	20210803 FOZ#12	35.2	0.6	34.3	11	20210803FISHOZ#12S1	4	10	14	
03.08.2021	11:00	FISH	20210803 FOZ#13	40.5	0.6	32.7	10	20210803FISHOZ#13	3	9	12	
03.08.2021	11:00	FISH	20210803 FOZ#14	32.3	0.8	24.9	7	20210803FISHOZ#14	4	6	10	
03.08.2021	11:00	FISH	20210803 FOZ#15	27	0.6	19	5	20210803FISHOZ#15S1	3	4	7	

Date	Heure	Sample Type/ Type d'échantillon	20210803 ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
03.08.2021	11:00	FISH	20210803 FOZ#19	21	0.6	20.1	6	20210803FISHOZ#19S1	3	5	8	
03.08.2021	11:00	FISH	20210803 FOZ#18	25.6	0.6	24.4	7	20210803FISHOZ#18S1	4	6	10	
03.08.2021	11:00	FISH	20210803 FOZ#17	25	0.7	24.2	8	20210803FISHOZ#17S1	4	7	11	
03.08.2021	11:00	FISH	20210803 FOZ#16	28.1	0.5	26.8	8	20210803FISHOZ#16S1	4	7	11	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
28.07.2021	**10:42**	**FISH**	 **20210728FISH03#1**	 **92.9**	 **0.7**	 **90.6**	 27	**20210728FISH03#1S1**	 5	 10	 15	
								20210728FISH03#1S1	 6	 14	 20	
28.07.2021	**10:42**	**FISH**	 **20210728FISH03#2**	**21.3**	 **0.5**	 **20.7**	 5	**20210728FISH03#2S1**	 5	 4	 9	
28.07.2021	**10:42**	**FISH**	 **20210728FISH03#3**	 **50.7**	 **0.7**	 **49.6**	 17	**20210728FISH03#3**	 5	 16	 21	
28.07.2021	**10:42**	**FISH**	 **20210728FISH03#4**	 **28**	 **0.9**	 **27.1**	 9	**20210728FISH03#4S1**	 4	 8	 12	
28.07.2021	**10:42**	**FISH**	 **20210728FISH03#5**	 **20.5**	 **0.7**	 **20.5**	 7	**20210728FISH03#5S1**	 5	 6	 11	

JBS&G	Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons	QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
28/7/2021	Fish F03(MMM River)	706,507	7,239,196	Y/N
10:42				

Fish collected by: **Association FIMIRA**
Poissons collectés par: **TBSE Team & QMM**
QMM Supervisor Name: **Remboho Josua**
Nom du superviseur: **RANDRIAMBOLARAINY Erick**

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon		Comments/ Observation	
Fish F03 (MMM River)	#1	100	20210728Fish03#1		20210728Fish03#1	*Oreochromus mossambicus (Malemiloha)*
Fish F03 (MMM River)	#2	27	20210728Fish03#2		20210728Fish03#2	*Tilapia rendali (Fiambazaha)*
Fish F03 (MMM River)	#3	57	20210728Fish03#3		20210728Fish03#3	*Ptychocromis grandidieri (Saroa)*
Fish F03 (MMM River)	#4	34	20210728Fish03#4		20210728Fish03#4	*Ptychocromis grandidieri (Saroa)*
Fish F03 (MMM River)	#5	26	20210728Fish03#5		20210728Fish03#5	*Ptychocromis grandidieri (Saroa)*
Fish F03 (MMM River)	#6	33	20210728Fish03#6		20210728Fish03#6	*Ptychocromis grandidieri (Saroa)*
Fish F03 (MMM River)	#7	34	20210728Fish03#7		20210728Fish03#7	*Ptychocromis grandidieri (Saroa)*
Fish F03 (MMM River)	#8	29	20210728Fish03#8		20210728Fish03#8	*Ptychocromis grandidieri (Saroa)*
Fish F03 (MMM River)	#9	31	20210728Fish03#9		20210728Fish03#9	*Ptychocromis grandidieri (Saroa)*
Fish F03 (MMM River)	#10	32	20210728Fish03#10		20210728Fish03#10	*Ptychocromis grandidieri (Saroa)*
Fish F03 (MMM River)	#11	29	20210728Fish03#11		20210728Fish03#11	*Ptychocromis grandidieri (Saroa)*
Fish F03 (MMM River)	#12	29	20210728Fish03#12		20210728Fish03#12	*Ptychocromis grandidieri (Saroa)*
Fish F03 (MMM River)	#13	32	20210728Fish03#13		20210728Fish03#13	*Ptychocromis grandidieri (Saroa)*
Fish F03 (MMM River)	#14	24	20210728Fish03#14		20210728Fish03#14	*Ptychocromis grandidieri (Saroa)*
Fish F03 (MMM River)	#15	36	20210728Fish03#15		20210728Fish03#15	*Ptychocromis grandidieri (Saroa)*
Fish F03 (MMM River)	#16	30	20210728Fish03#16		20210728Fish03#16	*Ptychocromis grandidieri (Saroa)*
Fish F03 (MMM River)	#17	43	20210728Fish03#17		20210728Fish03#17	*Ptychocromis grandidieri (Saroa)*
Fish F03 (MMM River)	#18	45	20210728Fish03#18		20210728Fish03#18	*Ptychocromis grandidieri (Saroa)*
Fish F03 (MMM River)	#19	38	20210728Fish03#19		20210728Fish03#19	*Ptychocromis grandidieri (Saroa)*
Fish F03 (MMM River)	#20	24	20210728Fish03#20		20210728Fish03#20	*Ptychocromis grandidieri (Saroa)*
Fish F03 (MMM River)	#21	36	20210728Fish03#21		20210728Fish03#21	*Ptychocromis grandidieri (Saroa)*
Fish F03 (MMM River)	#22	36	20210728Fish03#22		20210728Fish03#22	*Ptychocromis grandidieri (Saroa)*
Fish F03 (MMM River)	#23	32	20210728Fish03#23		20210728Fish03#23	*Ptychocromis grandidieri (Saroa)*
	Total	837			We caught in total 837 grams compliance as per protocol	

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :_____
SIGNED Signé :_____

Supervisor
Superviseur Signé:_____

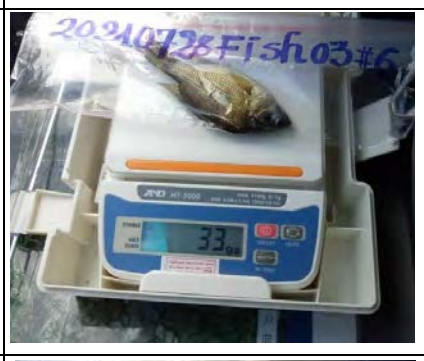
MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	28/07/2021
Fish Location ID:	Fish F03
Fishing Contractor Name	Entreprise TBSE Fort Dauphin
QMM Supervisor Name	Remboho Josua
Location Coordinates	
Easting:	706 507
Northing:	7239196

Photograph/Photographier du GPS Location/Emplaceme

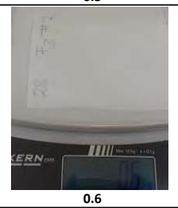
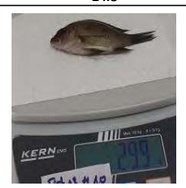


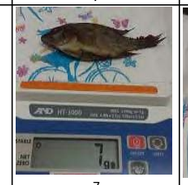
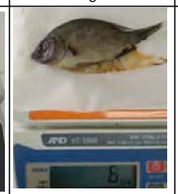


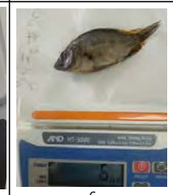
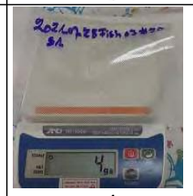
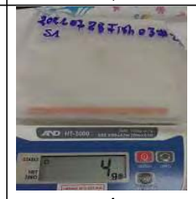
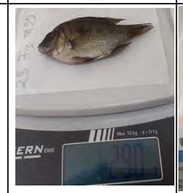
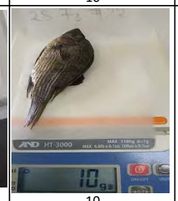
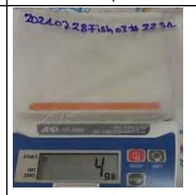
Fish ID	Fish Photograph/photographier	Fish Species Name (vernacular and scientific)/Nom Vernaculaire/Nom Scientifique	Weight/Poids
#1		**Nom vernaculaire**: Malemiloha **Nom Scientifique**: *Oreochromus mossambicus*	100
#2		**Nom vernaculaire**: Fiambazaha **Nom Scientifique**: *Tilapia rendali*	27
#3		**Nom vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	57
#4		**Nom vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	34
#5		**Nom vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	27
#6		**Nom vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	33
#7		**Nom vernaculaire**: Malemiloha **Nom Scientifique**: *Oreochromus mossambicus*	34

#8		**Nom vernaculaire**: Malemiloha **Nom Scientifique**: *Oreochromus mossambicus*	29
#9		**Nom vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	31
#10		**Nom vernaculaire**: Fiambazaha **Nom Scientifique**: *Tilapia rendali*	32
#11		**Nom vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	29
#12		**Nom vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	29
#13		**Nom vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	32
#14		**Nom vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	24
#15		**Nom vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	36

#16		**Nom vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	30
#17		**Nom vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	43
#18		**Nom vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	45
#19		**Nom vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	38
#20		**Nom vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	24
#21		**Nom vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	36
#22		**Nom vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	36
#23		**Nom vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	32
		Total	838

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
28.07.2021	10:42	FISH	 20210728FISH03#6	 26.7	 0.5	 26.7	 8	20210728FISH03#6S1	 5	 8	 13	
28.07.2021	10:42	FISH	 20210728FISH03#7	 27.4	 0.6	 26.6	 9	20210728FISH03#7S1	 5	 8	 13	
28.07.2021	10:42	FISH	 20210728FISH03#8	 23.1	 0.4	 22.3	 8	20210728FISH03#8S1	 5	 7	 12	
28.07.2021	10:42	FISH	 20210728FISH03#9	 24.8	 0.5	 24	 7	20210728FISH03#9S1	 5	 7	 12	
28.07.2021	10:42	FISH	 20210728FISH03#10	 29.9	 0.5	 29.1	9	20210728FISH03#10	5	8	13	
28.07.2021	10:42	FISH	20210728FISH03#11	23.2	0.6	22.7	8	20210728FISH03#11S1	5	7	12	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
28.07.2021	10:42	FISH	 20210728FISH03#12	 23.6	 0.4	 22.8	 8	20210728FISH03#12	 6	 7	 13	
28.07.2021	10:42	FISH	 20210728FISH03#13	 25.7	 0.5	 25	 8	20210728FISH03#13	 5	 7	 12	
28.07.2021	10:42	FISH	 20210728FISH03#14	 18.6	 0.3	 18	 6	20210728FISH03#14S1	 5	 5	 10	
28.07.2021	10:42	FISH	 20210728FISH03#15	 30.5	 0.6	 29.6	 10	20210728FISH03#15	 4	 9	 13	
28.07.2021	10:42	FISH	 20210728FISH03#16	 24	 0.5	 23.4	8	20210728FISH03#16S1	4	7	11	
28.07.2021	10:42	FISH	20210728FISH03#17	36.1	0.6	35.1	11	20210728FISH03#17S1	4	11	15	
28.07.2021	10:42	FISH	20210728FISH03#18	38.9	0.4	38	12	20210728FISH03#18S1	4	12	16	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
28.07.2021	10:42	FISH	 20210728FISH03#19	 31.7	 0.5	 30.9	 11	20210728FISH03#19S1	 4	 10	 14	
28.07.2021	10:42	FISH	 20210728FISH03#20	 18.6	 0.5	 18	 6	20210728FISH03#20S1	 4	 5	 9	
28.07.2021	10:42	FISH	 20210728FISH03#21	 29.5	 0.5	 28.6	 10	20210728FISH03#21S1	 4	 9	 13	
28.07.2021	10:42	FISH	 20210728FISH03#22	 29.7	 0.5	 29	 10	20210728FISH03#22S1	 4	 9	 13	
23.07.2021	10:42	FISH	 20210728FISH03#23	 25.7	 0.3	 24.9	 8	20210728FISH03#23S1	 4	 8	 12	

JBS&G	Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons	QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing / Coordonnée Y	Photograph/photographie du GPS
1/4/2021	Fish F04 (Lac Ambavarano)	707,648	7,237,627	Y/N
10:58				

Fish collected by: **Association FIMIRA**
Poissons collectés par: **TBSE Team & QMM**
QMM Supervisor Name: **Remboho Josua**
Nom du superviseur: **RANDRIAMBOLARAINY Erick**

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon	Comments/ Observation
Fish F04 (Lac Ambavarano)	#1	49	20210723Fish04#1	20210723Fish04#1 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#2	39	20210723Fish04#2	20210723Fish04#2 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#3	28	20210723Fish04#3	20210723Fish04#3 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#4	46	20210723Fish04#4	20210723Fish04#4 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#5	48	20210723Fish04#5	20210723Fish04#5 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#6	28	20210723Fish04#6	20210723Fish04#6 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#7	29	20210723Fish04#7	20210723Fish04#7 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#8	26	20210723Fish04#8	20210723Fish04#8 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#9	25	20210723Fish04#9	20210723Fish04#9 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#10	33	20210723Fish04#10	20210723Fish04#10 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#11	32	20210723Fish04#11	20210723Fish04#11 *Oreochromus mossambicus (Malemiloha)*
Fish F04 (Lac Ambavarano)	#12	34	20210723Fish04#12	20210723Fish04#12 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#13	28	20210723Fish04#13	20210723Fish04#13 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#14	36	20210723Fish04#14	20210723Fish04#14 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#15	33	20210723Fish04#15	20210723Fish04#15 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#16	26	20210723Fish04#16	20210723Fish04#16 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#17	30	20210723Fish04#17	20210723Fish04#17 *Gobius sp (Ambanivava)*
Fish F04 (Lac Ambavarano)	#18	34	20210723Fish04#18	20210723Fish04#18 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#19	28	20210723Fish04#19	20210723Fish04#19 *Gobius sp (Ambanivava)*
Fish F04 (Lac Ambavarano)	#20	30	20210723Fish04#20	20210723Fish04#20 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#21	30	20210723Fish04#21	20210723Fish04#21 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#22	31	20210723Fish04#22	20210723Fish04#22 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#23	36	20210723Fish04#23	20210723Fish04#23 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#24	29	20210723Fish04#24	20210723Fish04#24 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#25	25	20210723Fish04#25	20210723Fish04#25 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#26	22	20210723Fish04#26	20210723Fish04#26 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#27	27	20210723Fish04#27	20210723Fish04#27 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#28	27	20210723Fish04#28	20210723Fish04#28 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#29	27	20210723Fish04#29	20210723Fish04#29 *Ptychochromis gradidieri (Saroa)*
Fish F04 (Lac Ambavarano)	#30	22	20210723Fish04#30	20210723Fish04#30 *Ptychochromis gradidieri (Saroa)*
	Total	938		We caught in total 938 grams compliance as per protocol

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :_____ Supervisor

SIGNED Signé :_____ Superviseur Signé:_____

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	23/07/202 11:04
Fish Location ID:	Fish F04
Fishing Contractor Name	Entreprise TBSE Fort
QMM Supervisor Name	Remboho Josua

Location Coordinates	
Northing:	707 648
Easting:	723 7627

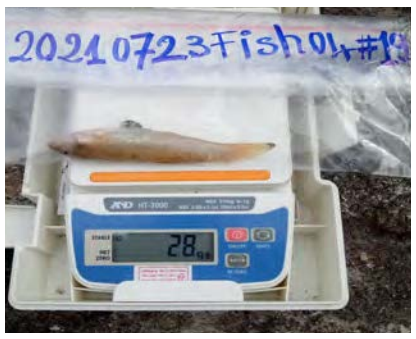
Photograph/Photographier du GPS Location/Emplacement



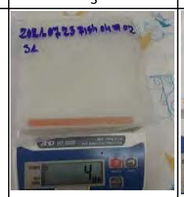


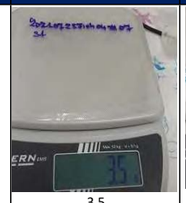
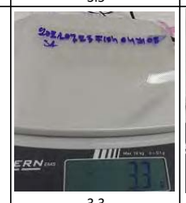
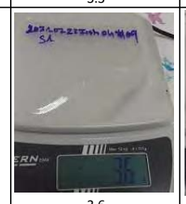
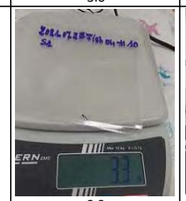
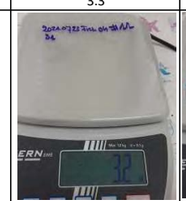
Fish ID	Fish Photograph/photographier	Fish Species Name (vernacular and scientific)/Nom Vernaculaire/Nom Scientifique	Weight/Poids
#1		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	49
#2		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	39
#3		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	28
#4		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	46
#5		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	48
#6		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	28

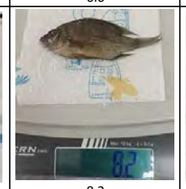
#7		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	29
#8		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	26
#9		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	25
#10		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	33
#11		**Nom Vernaculaire**: Malemiloha **Nom Scientifique:** Oreochromus *mossa* mbicus	32
#12		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	34
#13		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	28
#14		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	36

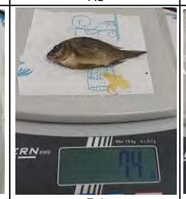
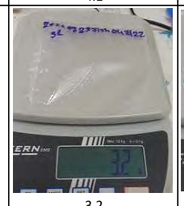
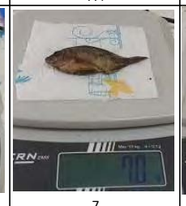
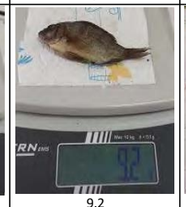
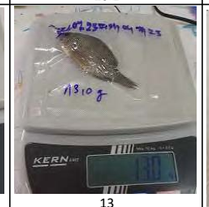
#15		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	**33**
#16		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	**26**
#17		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius sp*	**30**
#18		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	**34**
#19		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius sp*	**28**
#20		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	**30**
#21		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	**30**
#22		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	**31**

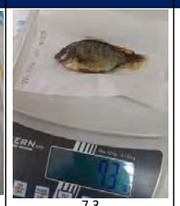
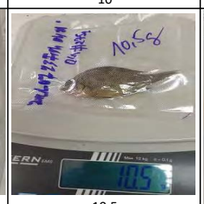
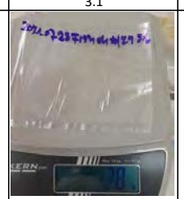
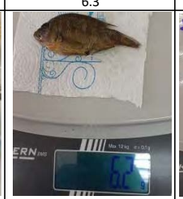
#23		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	36
#24		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	29
#25		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	25
#26		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	22
#27		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	27
#28		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	27
#29		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	27
#30		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	22
		TOTAL	938

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
27/07/2021		**FISH**	**20210723FISH04#1**	 **42.4**	 **0.7**	 **41.1**	 13	**20210723FISH04#1S1**	 3	 12	 15	
27/07/2021		**FISH**	**20210723FISH04#2**	 **33.5**	 **0.7**	 **32.1**	 10	**20210723FISH04#2S1**	 4	 9	 13	
27/07/2021		**FISH**	**20210723FISH04#3**	 **22.2**	 **0.6**	 **21.7**	 7	**20210723FISH04#3S1**	 4	 6	 10	
27/07/2021		**FISH**	**20210723FISH04#4**	 **40.1**	 **0.6**	 **38.8**	 13	**20210723FISH04#4S1**	 4	 12	 16	
27/07/2021		**FISH**	**20210723FISH04#5**	 **41.6**	 **0.6**	 **40.3**	 14	**20210723FISH04#5S1**	 3	 13	 16.56	
27/07/2021		**FISH**	**20210723FISH04#6**	**21.8**	**0.8**	**21**	6.8	**20210723FISH04#6S1**	3.3	5	8.7	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
27/07/2021		**FISH**	**20210723FISH04#7**	 **23**	 **0.7**	 **22.1**	 7.4	**20210723FISH04#7S1**	 3.5	 6.6	 10.2	
27/07/2021		**FISH**	**20210723FISH04#8**	 **20.3**	 **0.6**	 **19.3**	 7	**20210723FISH04#8S1**	 3.3	 6.4	 9.7	
27/07/2021		**FISH**	**20210723FISH04#9**	 **19.4**	 **0.8**	 **18.5**	 6.8	**20210723FISH04#9S1**	 3.6	 5.3	 8.9	
27/07/2021		**FISH**	**20210723FISH04#10**	 **27.4**	 **0.7**	 **26.2**	 8.8	**20210723FISH04#10S1**	 3.3	 8.1	 11.4	
27/07/2021		**FISH**	**20210723FISH04#11**	 **29**	 **0.7**	 **27.3**	 8.1	**20210723FISH04#11S1**	 3.2	 7.4	 10.6	
27/07/2021		**FISH**	**20210723FISH04#12**	**28.1**	**0.7**	**26.9**	8.9	**20210723FISH04#12S1**	3.4	8.1	11.5	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
27/07/2021		**FISH**	**20210723FISH04#13**	 **21.9**	 **0.7**	 **20.9**	 7.5	**20210723FISH04#13S1**	 4	 6.6	 10.6	
27/07/2021		**FISH**	**20210723FISH04#14**	 **29.2**	 **0.8**	 **27.8**	 9.1	**20210723FISH04#14S1**	 3.8	 8.2	 12	
27/07/2021		**FISH**	**20210723FISH04#15**	 **26.6**	 **0.8**	 **25.5**	 8.7	**20210723FISH04#15S1**	 4	 8	 12	
27/07/2021		**FISH**	**20210723FISH04#16**	 **20.2**	 **0.7**	 **19.7**	 6.6	**20210723FISH04#16S1**	 3.6	 5.9	 9.5	
27/07/2021		**FISH**	**20210723FISH04#17**	 **24.3**	 **0.7**	 **22.9**	 6.6	**20210723FISH04#17S1**	 3.5	 5.9	 9.4	
27/07/2021		**FISH**	**20210723FISH04#18**	**27.9**	**0.7**	**26.8**	8.5	**20210723FISH04#18S1**	3.6	7.8	11.4	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
27/07/2021		**FISH**	**20210723FISH04#19**	 **22.1**	 **0.6**	 **19.8**	 5.5	**20210723FISH04#19S1**	 3.6	 4.9	 8.5	
27/07/2021		**FISH**	**20210723FISH04#20**	 **25.4**	 **0.6**	 **24.4**	 7.9	**20210723FISH04#20S1**	 3.8	 7.3	 11.1	
27/07/2021		**FISH**	**20210723FISH04#21**	 **23.8**	 **0.7**	 **23**	 8.1	**20210723FISH04#21S1**	 4.1	 7.4	 11.5	
27/07/2021		**FISH**	**20210723FISH04#22**	 **24.8**	 **0.6**	 **23.5**	 7.6	**20210723FISH04#22S1**	 3.2	 7	 10.2	
27/07/2021		**FISH**	**20210723FISH04#23**	 **29.6**	 **0.7**	 **28.4**	 9.9	**20210723FISH04#23S1**	 3.8	 9.2	 13	
27/07/2021		**FISH**	**20210723FISH04#24**	 22.7	0.7	21.7	7.5	**20210723FISH04#24S1**	3.6	6.8	10.4	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
27/07/2021		**FISH**	**20210723FISH04#25**	 **21.3**	 **0.5**	 **20.8**	 7.3	**20210723FISH04#25S1**	 3.9	 6.8	 10.7	
27/07/2021		**FISH**	**20210723FISH04#26**	 19.9	 0.6	 19.4	 6.8	**20210723FISH04#26S1**	 3.8	 6.2	 10	
27/07/2021		**FISH**	**20210723FISH04#27**	 20.6	 0.5	 19.9	 7	**20210723FISH04#27S1**	 0.4	 6.5	 10.5	
27/07/2021		**FISH**	**20210723FISH04#28**	 20.7	 0.5	 20.1	 6.8	**20210723FISH04#28S1**	 3.1	 6.3	 9.4	
27/07/2021		**FISH**	**20210723FISH04#29**	 20.4		 19.9	 6.8	**20210723FISH04#29S1**	 3.8	 6.2	 10	
27/07/2021		**FISH**	**20210723FISH04#30**	 15.9	0.6	15.1	5.3	**20210723FISH04#30S1**	3.5	4.8	8.3	

JBS&G	Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons	QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing /Coordonnée Y	Photograph/photographie du GPS
22.07.2021 (10h:58mn)	Fish F06 (Lac Ambavarano)	706,137	7,238,097	Y/N

Fish collected by: **Association FIMIRA**
Poissons collectés par: **TBSE Team & QMM**
QMM Supervisor Name: **Remboho Josua**
Nom du superviseur: **RANDRIAMBOLARAINY Erick**

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon	
Fish F06 (Lac Ambavarano)	#1	51	20210722Fish06#1	
Fish F06 (Lac Ambavarano)	#2	44	20210722Fish06#2	
Fish F06 (Lac Ambavarano)	#3	46	20210722Fish06#3	
Fish F06 (Lac Ambavarano)	#4	50	20210722Fish06#4	
Fish F06 (Lac Ambavarano)	#5	26	20210722Fish06#5	
Fish F06 (Lac Ambavarano)	#6	38	20210722Fish06#6	
Fish F06 (Lac Ambavarano)	#7	110	20210722Fish06#7	
Fish F06 (Lac Ambavarano)	#8	50	20210722Fish06#8	
Fish F06 (Lac Ambavarano)	#9	30	20210722Fish06#9	
Fish F06 (Lac Ambavarano)	#10	39	20210722Fish06#10	
Fish F06 (Lac Ambavarano)	#11	24	20210722Fish06#11	
Fish F06 (Lac Ambavarano)	#12	30	20210722Fish06#12	
Fish F06 (Lac Ambavarano)	#13	28	20210722Fish06#13	
Fish F06 (Lac Ambavarano)	#14	29	20210722Fish06#14	
Fish F06 (Lac Ambavarano)	#15	29	20210722Fish06#15	
Fish F06 (Lac Ambavarano)	#16	30	20210722Fish06#16	
Fish F06 (Lac Ambavarano)	#17	29	20210722Fish06#17	
Fish F06 (Lac Ambavarano)	#18	28	20210722Fish06#18	
Fish F06 (Lac Ambavarano)	#19	33	20210722Fish06#19	
Fish F06 (Lac Ambavarano)	#20	31	20210722Fish06#20	
Fish F06 (Lac Ambavarano)	#21	34	20210722Fish06#21	
Fish F06 (Lac Ambavarano)	#22	28	20210722Fish06#22	
Fish F06 (Lac Ambavarano)	#23	27	20210722Fish06#23	
Fish F06 (Lac Ambavarano)	#24	36	20210722Fish06#24	
Fish F06 (Lac Ambavarano)	#25	27	20210722Fish06#25	
Fish F06 (Lac Ambavarano)	#26	33	20210722Fish06#26	
Fish F06 (Lac Ambavarano)	#27	22	20210722Fish06#27	
Fish F06 (Lac Ambavarano)	#28	29	20210722Fish06#28	
	Total	1011		

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Comments/ Observation

20210722Fish06#1	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#2	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#3	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#4	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#5	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#6	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#7	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#8	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#9	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#10	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#11	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#12	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#13	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#14	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#15	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#16	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#17	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#18	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#19	*Tilapia rendali (Fiambazaha)*
20210722Fish06#20	*Oreochromus mossambicus (Malemiloha)*
20210722Fish06#21	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#22	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#23	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#24	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#25	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#26	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#27	*Ptychochromis grandidieri (Saroa)*
20210722Fish06#28	*Ptychochromis grandidieri (Saroa)*

We caught in total 1011 grams compliance as per protocol

Checked BY Vérifié :_____
SIGNED Signé :_____

Supervisor
Superviseur Signé:_____

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	22/07/2021
Fish Location ID:	Fish F06
Fishing Contractor Name	Entreprise TBSE Fort
QMM Supervisor Name	Remboho Josua

Location Coordinates	
Northing:	706 137
Easting:	723 8097

Photograph/Photographier du GPS Location/Emplacement

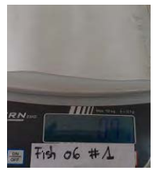
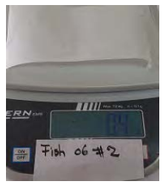
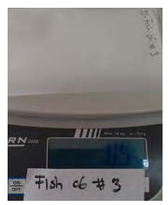
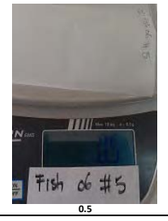


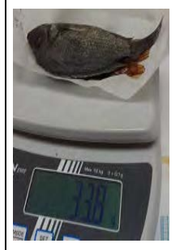
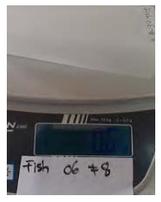
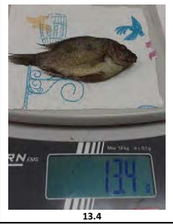
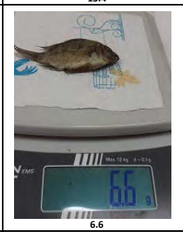
Fish ID	Fish Photograph/photographier	Fish Species Name (vernacular and scientific)/Nom Vernaculaire/Nom Scientifique	Weight/Poids
#1		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	51
#2		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	44
#3		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	46
#4		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	50
#5		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	26
#6		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	38

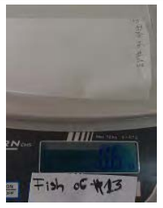
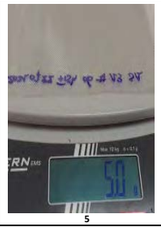
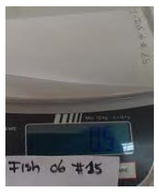
#7		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	110
#8		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	50
#9		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	30
#10		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	39
#11		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	24
#12		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	30
#13		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	28
#14		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	29

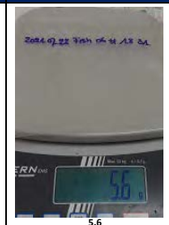
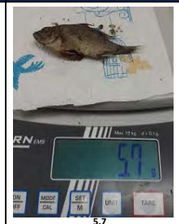
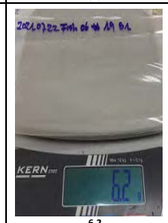
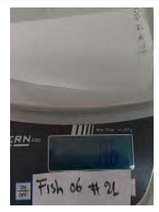
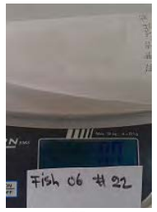
#15		**Nom Vernaculaire**: Fiambazaha **Nom Scientifique**: *Tilapia rendali*	29
#16		**Nom Vernaculaire**: Malemiloha **Nom Scientifique**: *Oreochromus mossambicus*	30
#17		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	29
#18		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	28
#19		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	33
#20		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	31
#21		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	34
#22		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	28

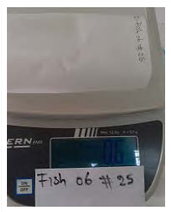
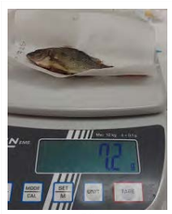
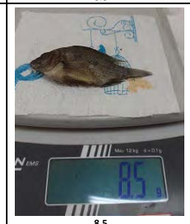
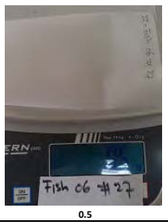
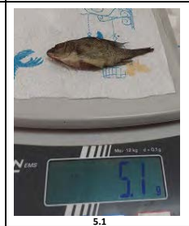
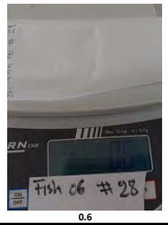
#23		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	27
#24		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	36
#25		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	27
#26		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	33
#27		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	22
#28		**Nom Vernaculaire**: Saroa **Nom Scientifique**: *Ptychochromis grandidieri*	29
		TOTAL	1011

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
22/07/2021		FISH	 20210722FISH06#1	 45.6	 0.7	 44.5	 13.2	20210722FISH06#1	 3.8	 12.4	 16.3	
22/07/2021		FISH	 20210722FISH06#2	 39.1	 0.4	 38.2	 13.4	20210722FISH06#2	 5.5	 12.6	 17.1	
22/07/2021		FISH	 20210722FISH06#3	 39.8	 0.5	 38.6	 10.6	20210722FISH06#3	 6.1	 10.1	 16.2	
22/07/2021		FISH	 20210722FISH06#4	 44	 0.7	 43.2	 14.2	20210722FISH06#4	 6.1	 13.4	 19.4	
22/07/2021		FISH	 20210722FISH06#5	 20.2	 0.5	 19.7	 6.7	20210722FISH06#5	 5.6	 6.1	 11.7	
22/07/2021		FISH	 20210722FISH06#6	 32.5	 0.5	 31.6	 10.3	20210722FISH06#6	 6.5	 9.7	 16.1	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
22/07/2021		FISH	 20210722FISH06#7	 104.3	 0.9	 102.7	 33.8	20210722FISH06#7S1	 4.8	 21.8	 26.6	
								20210722FISH06#7S2	 5.8	 10.2	 16	
22/07/2021		FISH	 20210722FISH06#8	 43.6	 0.6	 42.8	 14	20210722FISH06#8	 5.3	 13.4	 18.6	
22/07/2021		FISH	 20210722FISH06#9	 24.3	 0.6	 23.5	 7.3	20210722FISH06#9	 5.8	 6.6	 12.4	
22/07/2021		FISH	 20210722FISH06#10	 33.2	 0.5	 32.3	 10.2	20210722FISH06#10	 5.2	 9.6	 14.8	
22/07/2021		FISH	 20210722FISH06#11	 19.4	 0.6	 18.8	 6.1	20210722FISH06#11	 3.4	 5.4	 8.7	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
22/07/2021		FISH	 20210722FISH06#12	 26.21	 0.6	 25.7	 7.8	20210722FISH06#12	 3.5	 7.1	 10.5	
22/07/2021		FISH	 20210722FISH06#13	 22.6	 0.6	 21.8	 7.2	20210722FISH06#13	 5	 6.6	 11.5	
22/07/2021		FISH	 20210722FISH06#14	 23.3	 0.6	 22.9	 7.5	20210722FISH06#14	 4.9	 6.9	 11.7	
22/07/2021		FISH	 20210722FISH06#15	 23.3	 0.5	 22.7	 7.8	20210722FISH06#15	 3.2	 7.3	 10.5	
22/07/2021		FISH	 20210722FISH06#16	 24.4	 0.6	 23.6	 7.9	20210722FISH06#16	 3.5	 7.3	 10.7	
22/07/2021		FISH	 20210722FISH06#17	 23.6	 0.6	 22.9	 7.7	20210722FISH06#17	 4.9	 7.1	 12	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
22/07/2021		FISH	 20210722FISH06#18	 22.2	 0.7	 20.5	 6.4	20210722FISH06#18	 5.6	 5.7	 11.3	
22/07/2021		FISH	 20210722FISH06#19	 26.7	 0.7	 25.8	 7.1	20210722FISH06#19	 6.2	 6.4	 12.6	
22/07/2021		FISH	 20210722FISH06#20	 25.6	 0.6	 24.4	 7.2	20210722FISH06#20	 4.7	 6.5	 11.2	
22/07/2021		FISH	 20210722FISH06#21	 28	 0.6	 27.1	 9.4	20210722FISH06#21	 5	 8.7	 13.6	
22/07/2021		FISH	 20210722FISH06#22	 22.8	 0.7	 22.1	8.2	20210722FISH06#22	4.2	7.4	11.6	
22/07/2021		FISH	20210722FISH06#23	22.3	0.7	21.6	7.1	20210722FISH06#23	4.7	6.4	11.1	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
22/07/2021		FISH	 20210722FISH06#24	 30.5	 0.5	 29.5	 9.7	20210722FISH06#24	 4.6	 9.1	 13.7	
22/07/2021		FISH	 20210722FISH06#25	 22	 0.6	 21.2	 7.2	20210722FISH06#25	 3.7	 6.6	 10.3	
22/07/2021		FISH	 20210722FISH06#26	 27.3	 0.7	 26.6	 9.3	20210722FISH06#26	 4.6	 8.5	 13.1	
22/07/2021		FISH	 20210722FISH06#27	 19	 0.5	 18.4	 5.6	20210722FISH06#27	 5	 5.1	 10.1	
22/07/2021		FISH	 20210722FISH06#28	 23.4	 0.6	 22.4	 7.7	20210722FISH06#28	 4.7	 7.1	 11.7	

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	04/08/2021
Fish Location ID:	Fish F07 M Fish F07 D
Fishing Contractor Name	Entreprise TBSE Fort
QMM Supervisor Name	Remboho Josua

Location Coordinates	
Northing:	695 642
Easting:	722 7158

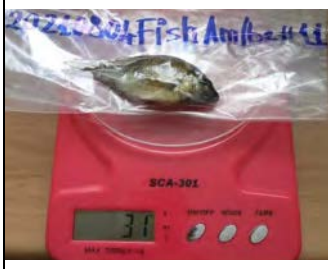
Photograph/Photographier du GPS Location/Emplacement







Fish ID	Fish Photograph/photographier	Fish Species Name (vernacular and scientific)/Nom Vernaculaire/Nom Scientifique	Weight/Poids
#1		**Nom Vernaculaire**: Ravimbaro **Nom Scientifique**:	182
#2		**Nom Vernaculaire**: **Nom Scientifique**: *Gerres punctatus*	79
#3		**Nom Vernaculaire**: kelyvondraky **Nom Scientifique**: *Mugil robusta*	51
#4		**Nom Vernaculaire**: kelyvondraky **Nom Scientifique**: *Mugil robusta*	40
#5		**Nom Vernaculaire**: kelyvondraky **Nom Scientifique**: *Mugil robusta*	51

#6		**Nom Vernaculaire**: kelyvondraky **Nom Scientifique:** *Mugil robusta*	46
#7		**Nom Vernaculaire**: kelyvondraky **Nom Scientifique:** *Mugil robusta*	44
#8		**Nom Vernaculaire**: kelyvondraky **Nom Scientifique:** *Mugil robusta*	48
#9		**Nom Vernaculaire**: kelyvondraky **Nom Scientifique:** *Mugil robusta*	34
#10		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	21
#11		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	31

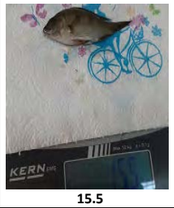
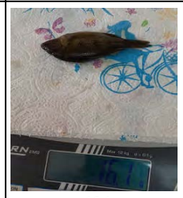
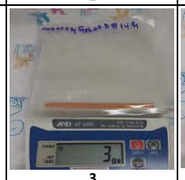
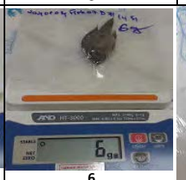
#12		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	25
#13		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	22
#14		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	19
#15		**Nom Vernaculaire**: Saroa **Nom Scientifique:** *Ptychochromis grandidieri*	14
#16		**Nom Vernaculaire**: Damilava **Nom Scientifique:** *Glossogobius giuris*	45
#17		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius aenofuscus*	46

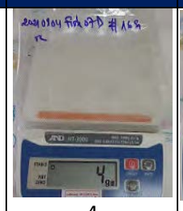
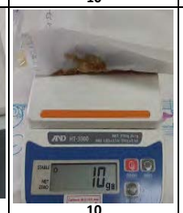
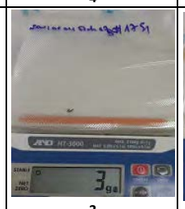
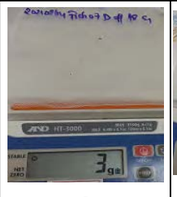
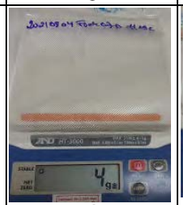
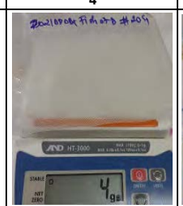
#18		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius aenofuscus*	35
#19		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius aenofuscus*	28
#20		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius aenofuscus*	33
#21		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius aenofuscus*	37
#22		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius aenofuscus*	27
#23		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius aenofuscus*	27

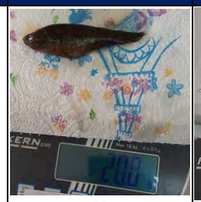
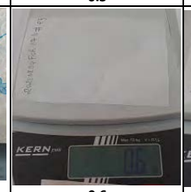
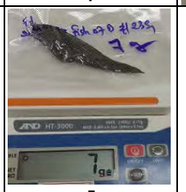
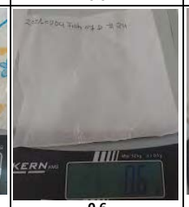
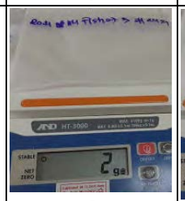
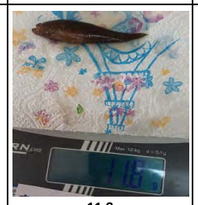
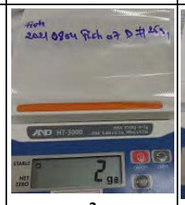
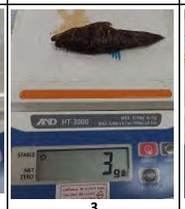
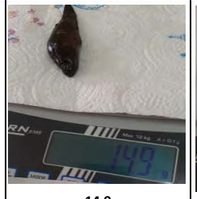
#24		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius aenofuscus*	20
#25		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius aenofuscus*	19
#26		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius aenofuscus*	22
#27		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius aenofuscus*	21
#28		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius aenofuscus*	24
#29		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius aenofuscus*	22

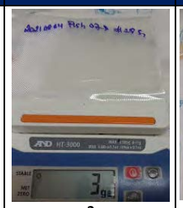
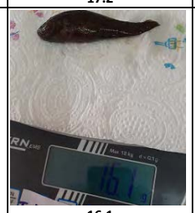
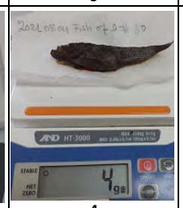
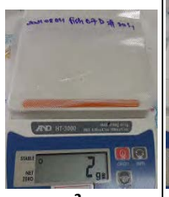
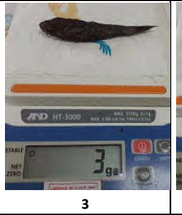
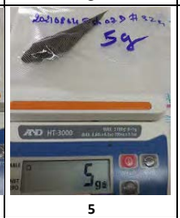
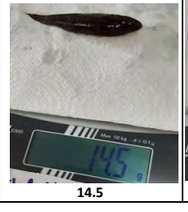
#30		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius aenofuscus*	23
#31		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius aenofuscus*	20
#32		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius aenofuscus*	19
#33		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius aenofuscus*	20
#34		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius aenofuscus*	16
#35		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius aenofuscus*	21

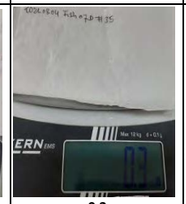
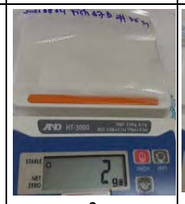
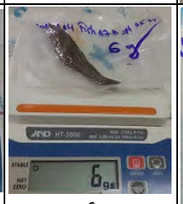
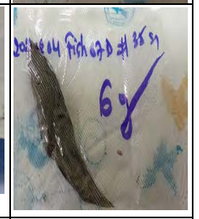
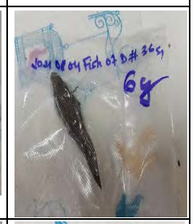
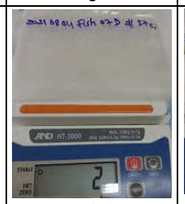
#36		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius aenofuscus*	15
#37		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius aenofuscus*	18
#38		**Nom Vernaculaire**: Ambanivava **Nom Scientifique:** *Gobius aenofuscus*	19
		Total	**709**

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
4/08/2021		FISH(eau-douce)	20210804FISH07#10	 15.5	 0.4	 15.2	 5	20210804FISH07#10	 3	 4	 7	
4/08/2021		FISH(eau-douce)	20210804FISH07#11	 25.1	 0.3	 24.7	 7	20210804FISH07#11	 2	 6	 8	
4/08/2021		FISH(eau-douce)	20210804FISH07#12	 18.5	 0.5	 18.2	 6	20210804FISH07#12	 2	 5	 7	
4/08/2021		FISH(eau-douce)	20210804FISH07#13	 16.1	 0.4	 15.9	 5	20210804FISH07#13	 2	 4	 6	
4/08/2021		FISH(eau-douce)	20210804FISH07#14	 13.2	 0.7	 12.8	 4	20210804FISH07#14	 3	 3	 6	
4/08/2021		FISH(eau-douce)	20210804FISH07#15	8.8	0.5	8.6	3	20210804FISH07#15	3	2	5	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
4/08/2021		FISH(eau-douce)	20210804FISH07#16	 39	 0.7	 38.8	 10	20210804FISH07#16	 4	 9	 13	
4/08/2021		FISH(eau-douce)	20210804FISH07#17	 40	 0.3	 38.1	 10	20210804FISH07#17	 3	 9	 12	
4/08/2021		FISH(eau-douce)	20210804FISH07#18	 27.9	 0.5	 27.8	 7	20210804FISH07#18	 3	 7	 10	
4/08/2021		FISH(eau-douce)	20210804FISH07#19	 20.8	 0.8	 20.4	 6	20210804FISH07#19	 4	 5	 9	
4/08/2021		FISH(eau-douce)	20210804FISH07#20	 26.6	 0.6	 26.3	 7	20210804FISH07#20	 4	 5	 9	
4/08/2021		FISH(eau-douce)	20210804FISH07#21	30.5	0.6	29.8	8	20210804FISH07#21	2	7	9	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
4/08/2021		FISH(eau-douce)	20210804FISH07#22	 20	 0.5	 19.3	 5	20210804FISH07#22	 3	 4	 7	
4/08/2021		FISH(eau-douce)	20210804FISH07#23	 19.6	 0.6	 19.2	 6	20210804FISH07#23	 2	 5	 7	
4/08/2021		FISH(eau-douce)	20210804FISH07#24	 13.5	 0.6	 13.4	 4	20210804FISH07#24	 2	 3	 5	
4/08/2021		FISH(eau-douce)	20210804FISH07#25	 11.8	 0.8	 11.6	 4	20210804FISH07#25	 2	 3	 5	
4/08/2021		FISH(eau-douce)	20210804FISH07#26	 14.9	 0.7	 14.4	 4	20210804FISH07#26	 3	 3	 6	
4/08/2021		FISH(eau-douce)	20210804FISH07#27	14.2	0.7	13.8	4	20210804FISH07#27	2	3	5	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
4/08/2021		FISH(eau-douce)	20210804FISH07#28	 17.2	 0.6	 16.9	 5	20210804FISH07#28	 3	 4	 7	
4/08/2021		FISH(eau-douce)	20210804FISH07#29	 16.1	 0.8	 15.8	 5	20210804FISH07#29	 3	 4	 7	
4/08/2021		FISH(eau-douce)	20210804FISH07#30	 17.3	 0.4	 16.9	 4	20210804FISH07#30	 2	 4	 6	
4/08/2021		FISH(eau-douce)	20210804FISH07#31	 14.3	 0.4	 14	 4	20210804FISH07#31	 2	 3	 5	
4/08/2021		FISH(eau-douce)	20210804FISH07#32	 12.6	 0.3	 12.2	 4	20210804FISH07#32	 2	 3	 5	
4/08/2021		FISH(eau-douce)	20210804FISH07#33	 14.5	 0.3	 14.4	 4	20210804FISH07#33	 2	 4	 6	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
4/08/2021		FISH(eau-douce)	20210804FISH07#34	 11	 0.4	 10.7	 3	20210804FISH07#34	 2	 3	 5	
4/08/2021		FISH(eau-douce)	20210804FISH07#35	 15.3	 0.3	 14.7	 4	20210804FISH07#35	 2	 4	 6	
4/08/2021		FISH(eau-douce)	20210804FISH07#36	 10.1	 0.4	 9.6	 3	20210804FISH07#36	 3	 3	 6	
4/08/2021		FISH(eau-douce)	20210804FISH07#37	 11.9	 0.4	 11.3	 3	20210804FISH07#37	 2	 3	 5	
4/08/2021		FISH(eau-douce)	20210804FISH07#38	 13.7	 0.3	 13.2	 4	20210804FISH07#38	 3	 3	 6	

JBS&G

Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons

QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing /Coordonnée Y	Photograph/photographie du GPS
04.08.2021	Fish F07 M (Lac Ambinanibe)	695,642	7,227,158	Y/N
04.08.2022	Fish F07 M (Lac Ambinanibe)	695,642	7,227,158	Y/N

Fish collected by: **Association FIMIRA**
Poissons collectés par: **TBSE Team & QMM**
QMM Supervisor Name: **Remboho Josua**
Nom du superviseur: **RANDRIAMBOLARAINY Erick**

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon	
Fish F07 M (Lac Ambinanibe)	#1	182	20210804Fish07 M#1	
Fish F07 M (Lac Ambinanibe)	#2	80	20210804Fish07 M#2	
Fish F07 M (Lac Ambinanibe)	#3	51	20210804Fish07 M#3	
Fish F07 M (Lac Ambinanibe)	#4	40	20210804Fish07 M#4	
Fish F07 M (Lac Ambinanibe)	#5	51	20210804Fish07 M#5	
Fish F07 M (Lac Ambinanibe)	#6	46	20210804Fish07 M#6	
Fish F07 M (Lac Ambinanibe)	#7	44	20210804Fish07 M#7	
Fish F07 M (Lac Ambinanibe)	#8	48	20210804Fish07 M#8	
Fish F07 M (Lac Ambinanibe)	#9	34	20210804Fish07 M#9	
	Total	576		
Fish F07 D (Lac Ambinanibe)	#10	21	20210804Fish07 D#10	
Fish F07 D (Lac Ambinanibe)	#11	31	20210804Fish07 D#11	
Fish F07 D (Lac Ambinanibe)	#12	25	20210804Fish07 D#12	
Fish F07 D (Lac Ambinanibe)	#13	22	20210804Fish07 D#13	
Fish F07 D (Lac Ambinanibe)	#14	19	20210804Fish07 D#14	
Fish F07 D (Lac Ambinanibe)	#15	14	20210804Fish07 D#15	
Fish F07 D (Lac Ambinanibe)	#16	45	20210804Fish07 D#16	
Fish F07 D (Lac Ambinanibe)	#17	46	20210804Fish07 D#17	
Fish F07 D (Lac Ambinanibe)	#18	35	20210804Fish07 D#18	
Fish F07 D (Lac Ambinanibe)	#19	28	20210804Fish07 D#19	
Fish F07 D (Lac Ambinanibe)	#20	33	20210804Fish07 D#20	
Fish F07 D (Lac Ambinanibe)	#21	37	20210804Fish07 D#21	
Fish F07 D (Lac Ambinanibe)	#22	27	20210804Fish07 D#22	
Fish F07 D (Lac Ambinanibe)	#23	27	20210804Fish07 D#23	
Fish F07 D (Lac Ambinanibe)	#24	20	20210804Fish07 D#24	
Fish F07 D (Lac Ambinanibe)	#25	19	20210804Fish07 D#25	
Fish F07 D (Lac Ambinanibe)	#26	22	20210804Fish07 D#26	
Fish F07 D (Lac Ambinanibe)	#27	21	20210804Fish07 D#27	
Fish F07 D (Lac Ambinanibe)	#28	24	20210804Fish07 D#28	
Fish F07 D (Lac Ambinanibe)	#29	22	20210804Fish07 D#29	
Fish F07 D (Lac Ambinanibe)	#30	23	20210804Fish07 D#30	
Fish F07 D (Lac Ambinanibe)	#31	20	20210804Fish07 D#31	
Fish F07 D (Lac Ambinanibe)	#32	19	20210804Fish07 D#32	
Fish F07 D (Lac Ambinanibe)	#33	20	20210804Fish07 D#33	
Fish F07 D (Lac Ambinanibe)	#34	16	20210804Fish07 D#34	
Fish F07 D (Lac Ambinanibe)	#35	21	20210804Fish07 D#35	
Fish F07 D (Lac Ambinanibe)	#36	15	20210804Fish07 D#36	
Fish F07 D (Lac Ambinanibe)	#37	18	20210804Fish07 D#37	
Fish F07 D (Lac Ambinanibe)	#38	19	20210804Fish07 D#38	
	Total	709		

Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté Y/N

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

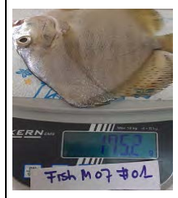
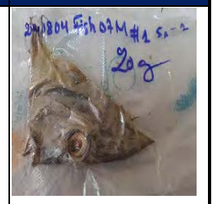
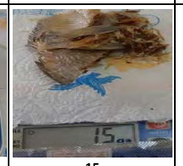
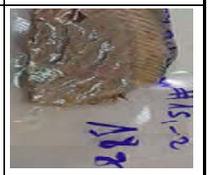
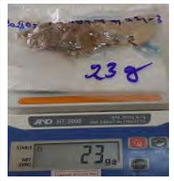
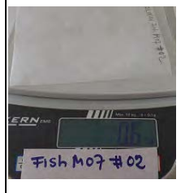
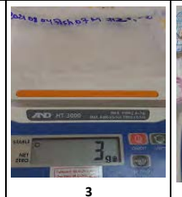
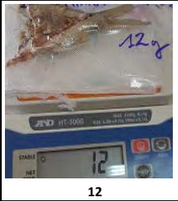
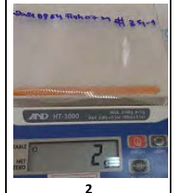
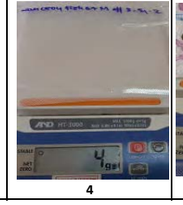
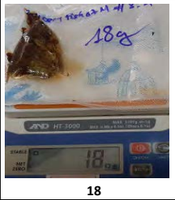
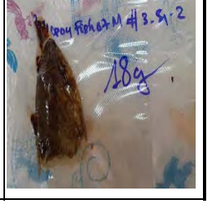
Comments/ Observation

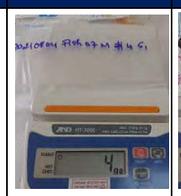
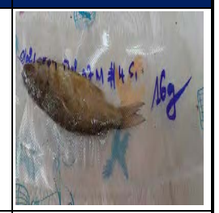
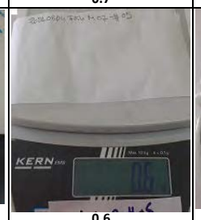
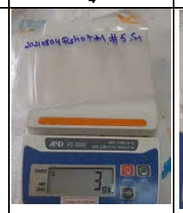
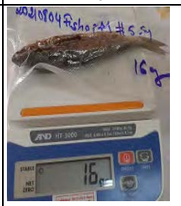
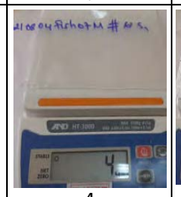
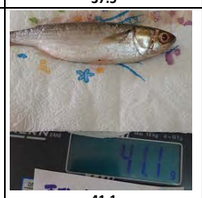
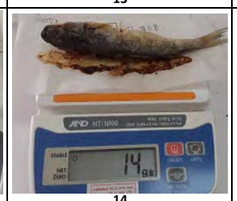
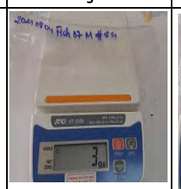
20210804Fish07 M#1	
20210804Fish07 M#2	*Mugil robusta (kely vondraky)*
20210804Fish07 M#3	*Mugil robusta (kely vondraky)*
20210804Fish07 M#4	*Mugil robusta (kely vondraky)*
20210804Fish07 M#5	*Mugil robusta (kely vondraky)*
20210804Fish07 M#6	*Mugil robusta (kely vondraky)*
20210804Fish07 M#7	*Mugil robusta (kely vondraky)*
20210804Fish07 M#8	*Mugil robusta (kely vondraky)*
20210804Fish07 M#9	*Mugil robusta (kely vondraky)*
	We caught in total 576 grams compliance as per protocol
20210804Fish07 D#10	*Ptychochromis grandidieri (Saroa)*
20210804Fish07 D#11	*Ptychochromis grandidieri (Saroa)*
20210804Fish07 D#12	*Ptychochromis grandidieri (Saroa)*
20210804Fish07 D#13	*Ptychochromis grandidieri (Saroa)*
20210804Fish07 D#14	*Ptychochromis grandidieri (Saroa)*
20210804Fish07 D#15	*Ptychochromis grandidieri (Saroa)*
20210804Fish07 D#16	*Glossogobius giuris (Damilava)*
20210804Fish07 D#17	*Gobius aenofuscus (Ambanivava)*
20210804Fish07 D#18	*Gobius aenofuscus (Ambanivava)*
20210804Fish07 D#19	*Gobius aenofuscus (Ambanivava)*
20210804Fish07 D#20	*Gobius aenofuscus (Ambanivava)*
20210804Fish07 D#21	*Gobius aenofuscus (Ambanivava)*
20210804Fish07 D#22	*Gobius aenofuscus (Ambanivava)*
20210804Fish07 D#23	*Gobius aenofuscus (Ambanivava)*
20210804Fish07 D#24	*Gobius aenofuscus (Ambanivava)*
20210804Fish07 D#25	*Gobius aenofuscus (Ambanivava)*
20210804Fish07 D#26	*Gobius aenofuscus (Ambanivava)*
20210804Fish07 D#27	*Gobius aenofuscus (Ambanivava)*
20210804Fish07 D#28	*Gobius aenofuscus (Ambanivava)*
20210804Fish07 D#29	*Gobius aenofuscus (Ambanivava)*
20210804Fish07 D#30	*Gobius aenofuscus (Ambanivava)*
20210804Fish07 D#31	*Gobius aenofuscus (Ambanivava)*
20210804Fish07 D#32	*Gobius aenofuscus (Ambanivava)*
20210804Fish07 D#33	*Gobius aenofuscus (Ambanivava)*
20210804Fish07 D#34	*Gobius aenofuscus (Ambanivava)*
20210804Fish07 D#35	*Gobius aenofuscus (Ambanivava)*
20210804Fish07 D#36	*Gobius aenofuscus (Ambanivava)*
20210804Fish07 D#37	*Gobius aenofuscus (Ambanivava)*
20210804Fish07 D#38	*Gobius aenofuscus (Ambanivava)*
	We caught in total 709 grams compliance as per protocol

Checked BY Vérifié :_____
SIGNED Signé :_____

Supervisor
Superviseur Signé:_____

New form to be completed for each location
Nouveau formulaire à remplir pour chaque emplacement

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
4/08/2021		FISH	20210804FISH07#1	 175.2	 1.8	 173.8	 52	20210804FISH07#1S1	 3	 17	 20	
								20210804FISH07#1S2	 3	 15	 18	
								20210804FISH07#1S3	 3	 20	 23	
4/08/2021		FISH	20210804FISH07#2	 73.5	 0.6	 72.5	 22	20210804FISH07#2S1	 4	 13	 17	
								20210804FISH07#2S2	 3	 9	 12	
4/08/2021		FISH	20210804FISH07#3	 45.2	 0.6	 44.6	 21	20210804FISH07#3S1	 2	 7	 9	
								20210804FISH07#3S2	 4	 14	 18	

Date	Heure	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
4/08/2021		FISH	20210804FISH07#4	 34.2	 0.7	 33.5	 13	20210804FISH07#4S1	 4	 12	 16	
4/08/2021		FISH	20210804FISH07#5	 44.6	 0.6	 43.9	 14	20210804FISH07#5S1	 3	 13	 16	
4/08/2021		FISH	20210804FISH07#6	 39.1	 0.4	 38.2	 13	20210804FISH07#6S1	 4	 12	 16	
4/08/2021			20210804FISH07#7	 37.5	 0.3	 37.2	 13	20210804FISH07#07S1	 5	 12	 17	
4/08/2021			20210804FISH07#8	 41.1	 0.3	 40.6	 14	20210804FISH07#8S1	 3	 13	 16	
4/08/2021			20210804FISH07#9	28.6	0.5	28.1	9	20210804FISH07#9S1	4	8	12	

JBS&G	Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons	QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing /Coordonnée Y	Photograph/photographie du GPS
11/08/2021 à 16H05	PATSA Andrakaraka	704,231	7,236,264	Y/N

Fish collected by: **Association FIMIRA**

Poissons collectés par: **TBSE Team & QMM**

QMM Supervisor Name: **Remboho Josua**

Nom du superviseur: **RANDRIAMBOLARAINY Erick**

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon	
PATSA (Andrakaraka)	PATSA#1	1494	20210811 Patsa#1	
PATSA (Andrakaraka)	PATSA#2	2430	20210811 Patsa#2	
	Total	3924		
Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté				Y/N

Comments/ Observation

20210811 Patsa#1
20210811 Patsa#2

We caught in total 3924 grams compliance as per protocol

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :_____

SIGNED Signé :_____

Supervisor

Superviseur Signé:_____

New form to be completed for each location

Nouveau formulaire à remplir pour chaque emplacement

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	11/08/2021
Fish Location ID:	PATSA
Fishing Contractor Name	Entreprise TBSE Fort
QMM Supervisor Name	Remboho Josua

Location Coordinates

Northing:	704 231
Easting:	723 6264

Photograph/Photographier du GPS Location/Emplacement



Fish ID	Fish Photograph/photographier	Fish Species Name (vernacular and scientific)/Nom Vernaculaire/Nom Scientifique	Weight/Poids
#1		**Nom Vernaculaire**: Patsa **Nom Scientifique**: *Caridina gracilirostris*	1494
#2		**Nom Vernaculaire**: Patsa **Nom Scientifique**: *Caridina gracilirostris*	2430

JBS&G	Fish Sampling Data Sheet / Feuille de données d'échantillonnage des poissons	QIT Madagascar Minerals

Location/Details

Date/Time (date et heure)	Location/Emplacement ID	Easting / Coordonnée X	Northing /Coordonnée Y	Photograph/photographie du GPS
06/08/2021 à 10H55	PATSA PRAWN0 AMBINAGNIBE	703,062	7,238,203	Y/N

Fish collected by: **Association FIMIRA**

Poissons collectés par: **TBSE Team & QMM**

QMM Supervisor Name: **Remboho Josua**

Nom du superviseur: **RANDRIAMBOLARAINY Erick**

Fish Samples

Location/Emplacement ID	Fish/Poisson ID	Fish Weight/Poisson Poids (g)	Sample / identification de l'échantillon	
PATSA PRAWN02 (Ambinagnibe)	#1	888	20210806PRAWN02#1	
	Total	888		
Fish Placed in labelled ziplock plastic bag/Poisson placé dans un sac en plastique ziplock étiqueté				Y/N

Comments/ Observation

20210806PRAWN02#1	*Caridina gracilirostris*

We caught in total 888 grams compliance as per protocol

I confirm that fish above were collected in this location/Je confirme que les poissons ci-dessus ont été collectés à cet endroit

Checked BY Vérifié :_____

SIGNED Signé :_____

Supervisor

Superviseur Signé:_____

New form to be completed for each location

Nouveau formulaire à remplir pour chaque emplacement

MANDENA RADIATION ASSESSMENT - FISH SAMPLING VALIDATION FORM

Date:	06/08/2021
Fish Location ID:	PATSA
Fishing Contractor Name	Entreprise TBSE Fort
QMM Supervisor Name	Remboho Josua

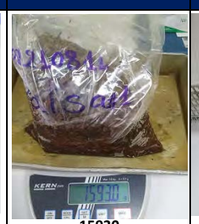
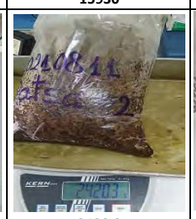
Location Coordinates

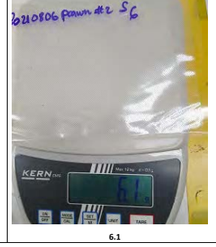
Northing:	069 5518
Easting:	722 6464

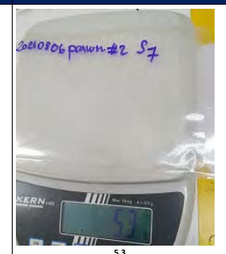
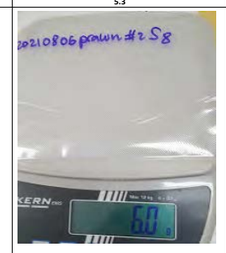
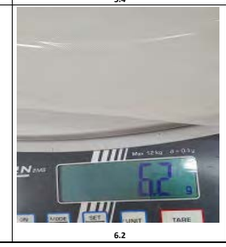
Photograph/Photographier du GPS Location/Emplacement



Fish ID	Fish Photograph/photographier	Fish Species Name (vernacular and scientific)/Nom Vernaculaire/Nom Scientifique	Weight/Poids
#1		**Nom Vernaculaire**: Patsa **Nom Scientifique**: *Caridina gracilirostris*	888

Date	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
11/08/02021	PATSA	 20210811PATSA1#1	 15930	 788.6	 1301	 1041.2	20210811PATSA1#1	 20.9		 272.6	
11/08/02022	PATSA	 20210811PATSA1#2	 2420.3	 787.1	 1899.1	 1153.8	20210811PATSA1#2	 24.6		 391.1	
11/08/02023	PATSA	20210811PATSA80°C#3		 282.3	 200.3	 327.1	20210811PATSA80°C#3	 17.9		 62	

Date	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
6/08/2021	PRAWN	20210806PRAWN02#1	812.9	781.9	749.7	967.7	20210806PRAWN02#1S1				
							20210806PRAWN02#1S2				
							20210806PRAWN02#1S3				
							20210806PRAWN02#1S4				
							20210806PRAWN02#1S5				
							20210806PRAWN02#1S6				

Date	Sample Type/ Type d'échantillon	Fish ID / Code d'identification du poisson	Initial fish weight / Masse initiale du poisson (g)	Baking paper mass / Masse papier cuisson (g)	Air dried fish and baking paper mass / Masse poisson séché à l'air (g)	Dried (110°C) fish and baking paper mass / Masse poisson séché (110°C) (g)	Dried Sample ID / Code d'identification échantillon séché	Empty bag mass / Masse du sac vide (g)	Fish mass / Masse du poisson (g)	Mass after vacuum seal/ Masse après sellage (g)	Photograph dried fish/ Photographie de poisson séché
							20210806PRAWN02#1S7				
							20210806PRAWN02#1S8				
							20210806PRAWN02#1S9				
							20210806PRAWN02#1S10				

A6 Attachment 3 – Analytical Results

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CERTIFICATE OF ANALYSIS

Certificate Number:	SARAD-170720 RN
Company / Organisation:	Mathieu Messeiller, JBS&G
Client Identification:	Madagascar – Fish and Shrimp Samples
AM Identification:	MAD-210220-1 to 4 (Composites)
AM Request Number:	2000273
Analysis Requested:	Radionuclides by Gamma and Alpha Spectrometry

Twenty six (26) fish and shrimp samples, in total, were received. The samples had been dried at 110 °C by the client. Upon receipt at NSTLI[1], the samples were ground in a mortar and pestle and then composited according to the client's instructions, as given in the chain of custody documentation (COC), to produce four (4) composites for assay (1000035, 1000036, 1000037, 1000038). The respective Minerals identifications for the four (4) composite samples were MAD-210220-1 to 4. Data for the fish and shrimp samples, as summarised from the COC received from the client, is given in Appendix A.

Gamma spectrometry for radionuclides in the naturally occurring uranium-238, uranium-235 and thorium-232 decay chains was carried out according to ANSTO Minerals controlled documents AM-I-052-003 Preparation of Powdered Samples for Gamma Ray Analysis, AM-I-052-004 Counting Procedure using Maestro and AM-I-052-005 Gamma Spectrum Analysis of Solid Samples using GammaVision.

The samples were digested using three acid digestion [aqua regia (HCl/HNO_3), perchloric acids]. Each residue was dissolved in concentrated hydrochloric acid and made to 50 mL (volumetrically) with MilliQ water. The digestion procedure was an adaptation of method D2 in ANSTO Minerals controlled document G-5913 Analytical Methods Manual. Hydrofluoric acid was not used to minimise potential loss of radionuclides by insoluble fluorides.

Alpha spectrometry for thorium isotopes, radium-226 and polonium-210 was carried out according to ANSTO Minerals controlled document I-4303 Radiochemical Analysis for U, Th, Pb and Po.

Lead-210 (gamma spectrometry) was not detected in any of the four fish composite samples. Due to the importance of Pb-210 digested via the food chain, it was decided to determine the Pb-210 concentrations via a second measurement of Po-210 after

[1] ANSTO – Nuclear Science and Technology and Landmark Infrastructure.

one half-life had elapsed (~140 days). The two measured Po-210 concentrations for each sample were then used to back-calculate the respective Pb-210 concentrations at t=0.

Polonium-210 in each of the two fish composites was found to exhibit radioactive decay according to its half-life and therefore, the concentration of Pb-210 in the fish composites at t=0 was found to be zero. The less than values quoted in the results table are based on the respective detection limits for Po-210 in the second assays.

Conversely, Po-210 in each of the two shrimp composites was found to exhibit radioactive ingrowth according to its half-life.

Similar to Pb-210, Ra-228 is also important in assessing radiological intake into the body, however, the gamma spectrometry results obtained for Ra-228 in the two fish composites were also below the detection limit.

In a Ra-226 assay by alpha spectrometry, all isotopes of Ra are separated prior to alpha counting. Radium-228 will be present in an alpha source but will not be detected because it is a beta emitter. Over time, however, Th-228, the radioactive daughter of Ra-228, will begin to grow in according to its half-life (2.8 years). Secular equilibrium between Th-228 and its decay progeny is established quite quickly and one of its alpha emitting daughters, Rn-220, can be used to determine the Th-228 concentration. Once the Th-228 concentration is determined, the concentration of Ra-228 at t=0 can be back-calculated. The concentration of Ra-228 in the first fish composite was determined using this methodology to assess its applicability.

The results are given in Table 1. It should be noted that all measurable concentrations are on a fresh weight basis. Additionally, all less than values are on a fresh weight basis and were calculated assuming the measured concentrations were real.

S. A. Brown

Dr Sue Brown, Senior Radiochemist **Date: 25 October 2020**

Table 1 – Radionuclide Concentrations in Fish and Shrimp Samples (Bq/kg (fresh basis))

Client ID	1000035 Fish F01 - F06	1000036 Shrimp F07 - F010	1000037 Shrimp F011 - F014	1000038 Fish 01a - 01l
ANSTO ID: SARAD-210220-	1	2	3	4
Geometry (Petri (mm))	55	55	55	55
Sample Weight (g)	12.64	9.13	10.19	11.35
U-238 Decay Chain				
U-238 (a)	< 9.1	< 51	< 67	< 14
Th-230 (b)	< 0.53	< 2.2	< 2.0	< 0.62
Th-230 (c)	< 38	< 180	< 380	< 57
Ra-226 (b)	2.8 ± 0.4	0.95 ± 0.16	5.3 ± 0.9	5.4 ± 0.6
Ra-226 (d)	< 1.8	< 13	< 12	< 2.8
Pb-210 (c)	< 6.9	< 41	< 61	< 12
Pb-210 (e)	< 2.4	180 ± 25	105 ± 15	< 2.2
Po-210 (b)	30 ± 3	34 ± 4	16 ± 3	28 ± 3
Po-210 (f)	10 ± 2	108 ± 16	61 ± 9	11 ± 2
U-235 Decay Chain				
U-235 (c)	< 6.1	< 33	< 39	< 9.9
Pa-231 (c)	< 14	< 66	< 110	< 23
Ac-227 (g)	< 2.3	< 15	< 19	< 5.4
Th-232 Decay Chain				
Th-232 (b)	< 5.3	< 2.2	< 2.0	< 0.62
Ra-228 (h)	< 3.6	160 ± 20	75 ± 10	< 4.5
Ra-228 (i)	0.43 ± 0.15	not requested	not requested	not requested
Th-228 (b)	3.0 ± 1.2	< 2.2	< 2.0	3.2 ± 1.3
Th-228 (j)	< 1.0	16 ± 2	19 ± 2	< 1.9
K-40 (c)	110 ± 10	250 ± 50	< 130	< 28

(a) Gamma spectrometry. Based on the measured concentration of Th-234, assuming secular equilibrium.
(b) Alpha spectrometry.
(c) Gamma spectrometry.
(d) Gamma spectrometry. Based on the measured concentrations of Pb-214 and Bi-214, assuming secular equilibrium.
(e) Alpha spectrometry of Po-210 after one half-life ingrowth (~140 days), followed by back-calculation to t=0.
(f) Alpha spectrometry after one half-life.
(g) Gamma spectrometry. Based on the measured concentration of Th-227, assuming secular equilibrium.
(h) Gamma spectrometry. Based on the measured concentration of Ac-228, assuming secular equilibrium.
(i) Recount of Ra-226 source measuring Rn-220 from Th-228 ingrowth (from Ra-228) and back-calculating to t=0 to determine Ra-228.
(j) Gamma spectrometry. Based on the measured concentration of Pb-212, assuming secular equilibrium.

Appendix A – Data for Fish and Shrimp Samples

AM ID SARAD-210220-	Sample	Description
1	1000035	Fish F01 to F06
2	1000036	Shrimp F07 to F10
3	1000037	Shrimp F11 to F14
4	1000038	Fish 01(a) to F01(l)

Mass (g)				
Fresh Sample	Dry Sample	Ratio Fresh:Dry	% Fresh	% Water
378	96	3.9	74.6	25.4
80	69	1.2	13.8	86.3
80	71	1.1	11.3	88.8
683	194	3.5	71.6	28.4

Fresh Sample Weights (g)*			
Total (g)	Total (g)	Total (g)	Total (g)
378	80	80	683
Sample 1	Sample 2	Sample 3	Sample 4
75	20	20	56
45	20	20	70
51	20	20	65
70	20	20	50
82			70
55			47
			45
			63
			60
			50
			55
			52

* As given on COC sheet.

Processed (dry) Sample Weights (g)*			
Total (g)**	Total (g)**	Total (g)**	Total (g)**
96	69	71	194
Sample 1	Sample 2	Sample 3	Sample 4
16	17	18	17
11	17	18	20
16	17	18	17
19	18	17	13
20			17
14			15
			14
			17
			16
			14
			17
			17

* As given on COC sheet.

** Samples were ground up and each sample set combined.

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CERTIFICATE OF ANALYSIS

Certificate Number:	SARAD-220720 RN
Company / Organisation:	Mathieu Messeiller, JBS&G
Client Identification:	Madagascar – Vegetation Samples
AM Identification:	MAD-100220-1 to 10
AM Request Number:	2000185
Analysis Requested:	Radionuclides by Gamma and Alpha Spectrometry

Ten (10) varieties of common foodstuffs were received. The client identifications were 1000039 to 1000048.

All samples, with the exception of the three (3) rice samples, had been dried at 110 °C by the client. The rice samples had been sun-dried and no fresh weight for the rice samples was recorded on the chain of custody documentation (COC).

Upon receipt at NSTLI[1], three (3) samples (1000042, 1000045, 1000047) were found to contain moisture and were further dried at 110 °C prior to ashing.

The lychee sample received (1000048) had paper stuck to the sample. This was not removed prior to ashing.

All samples were ashed according to the following program: ramp at 0.2 °C per minute to 450 °C then hold at 450 °C for 23 hours. Upon receipt at Minerals, the ashed samples were rolled in plastic bags prior to assay.

Data for the vegetation samples, as summarised from the COC received from the client and the ashing data provided by NSTLI, is given in Appendix A.

Gamma spectrometry for radionuclides in the naturally occurring uranium-238, uranium-235 and thorium-232 decay chains was carried out according to ANSTO Minerals controlled documents AM-I-052-003 Preparation of Powdered Samples for Gamma Ray Analysis, AM-I-052-004 Counting Procedure using Maestro and AM-I-052-005 Gamma Spectrum Analysis of Solid Samples using GammaVision.

The samples were wet ashed according to the method of Bock[2] using concentrated nitric acid / 30% hydrogen peroxide. The digestion liquor was filtered through a 0.45 µm filter and made to 50 mL (volumetrically) with MilliQ water.

[1] ANSTO – Nuclear Science and Technology and Landmark Infrastructure.
[2] R. Bock, *A Handbook of Decomposition Methods in Analytical Chemistry*, International Textbook Company, Glasgow, 1979.

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Alpha spectrometry for thorium isotopes and radium-226 was carried out according to ANSTO Minerals controlled document I-4303 Radiochemical Analysis for U, Th, Pb and Po. Volatile polonium-210 was not determined in the samples due to potential loss via the ashing procedure.

The results are given in Table 1. It should be noted that all measurable concentrations for the rice samples are on a dry weight basis. Measurable concentrations for all remaining samples are on a fresh weight basis. Additionally, all less than values were calculated assuming the measured concentrations were real and are reported on a dry or fresh weight basis, as appropriate.

Dr Sue Brown, Senior Radiochemist **Date: 26 March 2021**

Table 1 – Radionuclide Concentrations in Vegetation Samples (Bq/kg)

Client ID	1000039 Rice F015	1000040 Rice F016	1000041 Pineapple	1000042 Papaya	1000043 Cassava
ANSTO ID: SARAD-100220-	1	2	3	4	5
Geometry (Petri (mm))	37	37	37	37	37
Sample Weight (g)	5.14	4.68	3.16	9.31	4.17
Results	dry basis	dry basis	fresh basis	fresh basis	fresh basis
U-238 Decay Chain					
U-238 (a)	< 1.2	< 1.0	< 0.77	< 0.95	< 0.97
Th-230 (b)	< 0.048	< 0.052	< 0.025	< 0.041	< 0.032
Th-230 (c)	< 6.6	< 6.7	< 2.7	< 2.4	< 4.4
Ra-226 (b)	0.26 ± 0.04	0.40 ± 0.05	0.038 ± 0.007	0.07 ± 0.01	0.11 ± 0.02
Ra-226 (d)	0.5 ± 0.1	0.5 ± 0.1	< 0.20	< 0.24	< 0.18
Pb-210 (c)	< 0.89	< 0.70	< 0.67	< 0.82	< 0.62
U-235 Decay Chain					
U-235 (c)	< 0.68	< 0.50	< 0.47	< 0.57	< 0.62
Pa-231 (c)	< 1.5	< 1.8	< 1.2	< 1.0	< 1.8
Ac-227 (e)	< 0.41	< 0.26	< 0.26	< 0.29	< 0.24
Th-232 Decay Chain					
Th-232 (b)	< 0.048	< 0.052	< 0.025	< 0.041	< 0.032
Ra-228 (f)	1.2 ± 0.3	0.9 ± 0.2	< 0.29	< 0.38	< 0.40
Th-228 (b)	0.069 ± 0.022	< 0.052	0.056 ± 0.022	0.028 ± 0.012	< 0.032
Th-228 (g)	0.23 ± 0.06	0.29 ± 0.05	< 0.087	< 0.10	< 0.11
K-40 (c)	56 ± 6	61 ± 6	58 ± 6	170 ± 20	66 ± 7

(a) Gamma spectrometry. Based on the measured concentration of Th-234, assuming secular equilibrium.

(b) Alpha spectrometry.

(c) Gamma spectrometry.

(d) Gamma spectrometry. Based on the measured concentrations of Pb-214 and Bi-214, assuming secular equilibrium.

(e) Gamma spectrometry. Based on the measured concentration of Th-227, assuming secular equilibrium.

(f) Gamma spectrometry. Based on the measured concentration of Ac-228, assuming secular equilibrium.

(g) Gamma spectrometry. Based on the measured concentration of Pb-212, assuming secular equilibrium.

continued over

Table 1 – Radionuclide Concentrations in Vegetation Samples (Bq/kg) (continued)

Client ID	1000044 Cassava Leaves	1000045 Banana	1000046 Rice F017	1000047 Pineapple 2	1000048 Lychee
ANSTO ID: SARAD-100220-	6	7	8	9	10
Geometry (Petri (mm))	55	55	37	37	55
Sample Weight (g)	7.48	13.53	4.18	3.18 (not full)	15.66
Results	fresh basis	fresh basis	dry basis	fresh basis	fresh basis
U-238 Decay Chain					
U-238 (a)	< 0.96	< 0.78	< 0.73	< 0.72	< 1.6
Th-230 (b)	0.03 ± 0.01	< 0.11	< 0.042	< 0.024	0.14 ± 0.05
Th-230 (c)	< 3.8	< 1.4	< 1.8	< 4.3	< 8.1
Ra-226 (b)	0.11 ± 0.02	0.13 ± 0.02	0.14 ± 0.02	< 0.024	< 0.20
Ra-226 (d)	0.5 ± 0.1	< 0.17	< 0.14	< 0.19	< 0.30
Pb-210 (c)	4.3 ± 0.3	< 0.69	< 0.54	< 0.62	< 1.2
U-235 Decay Chain					
U-235 (c)	< 0.56	< 0.46	< 0.37	< 0.47	< 0.89
Pa-231 (c)	< 1.7	< 1.3	< 1.3	< 1.3	< 2.2
Ac-227 (e)	< 0.30	< 0.27	< 0.20	< 0.25	< 0.43
Th-232 Decay Chain					
Th-232 (b)	0.10 ± 0.03	< 0.11	< 0.042	0.011 ± 0.005	0.29 ± 0.09
Ra-228 (f)	2.5 ± 0.3	< 0.36	< 0.29	< 0.33	< 0.70
Th-228 (b)	0.32 ± 0.06	0.10 ± 0.04	0.048 ± 0.017	0.029 ± 0.010	0.64 ± 0.16
Th-228 (g)	0.75 ± 0.08	< 0.086	0.22 ± 0.04	< 0.086	0.74 ± 0.07
K-40 (c)	120 ± 10	120 ± 10	38 ± 4	47 ± 5	62 ± 6

(a) Gamma spectrometry. Based on the measured concentration of Th-234, assu

(b) Alpha spectrometry.

(c) Gamma spectrometry.

(d) Gamma spectrometry. Based on the measured concentrations of Pb-214 and Bi-214, assuming secular equilibrium.

(e) Gamma spectrometry. Based on the measured concentration of Th-227, assuming secular equilibrium.

(f) Gamma spectrometry. Based on the measured concentration of Ac-228, assuming secular equilibrium.

(g) Gamma spectrometry. Based on the measured concentration of Pb-212, assuming secular equilibrium.

Appendix A – Data for Vegetation Samples

			Mass (g)		
AM ID SARAD-100220-	Sample	Description	Dish	Dish + Dry Sample	Dish + Ashed Sample
1	1000039	Rice	28.62	529.87	34.46
2	1000040	Rice	28.72	557.12	34.70
3	1000041	Pineapple	28.73	135.93	31.95
4	1000042	Papaya*	28.45	108.97	38.06
5	1000043	Cassava	28.69	463.85	34.39
6	1000044	Cassava leaves	28.69	234.54	39.10
7	1000045	Banana*	28.37	256.43	47.82
8	1000046	Rice	28.60	589.59	33.54
9	1000047	Pineapple*	28.69	87.08	31.90
10	1000048	Lychee**	28.66	151.60	55.24

*needed further drying at 110 °C prior to ashing

** some paper stuck on sample

		Mass (g)						
Description	Drying Process*	Fresh Sample*	Dry Sample	Ashed Sample	Ratio Fresh:Ash	Ratio Dry:Ash	% Organic	% Ash
Rice	sun-dried	-	501.25	5.84	-	85.8	98.8	1.2
Rice	sun-dried	-	528.4	5.98	-	88.4	98.9	1.1
Pineapple	oven; 110 °C	629	107.2	3.22	195.3	33.3	97.0	3.0
Papaya	oven; 110 °C	1009	80.52	9.61	105.0	8.4	88.1	11.9
Cassava	oven; 110 °C	821	435.16	5.70	144.0	76.3	98.7	1.3
Cassava leaves	oven; 110 °C	627	205.85	10.41	60.2	19.8	94.9	5.1
Banana	oven; 110 °C	926	228.06	19.45	47.6	11.7	91.5	8.5
Rice	sun-dried	-	560.99	4.94	-	113.6	99.1	0.9
Pineapple	oven; 110 °C	671	58.39	3.21	209.0	18.2	94.5	5.5
Lychee	oven; 110 °C	687	122.94	26.58	25.8	4.6	78.4	21.6

* as given on COC

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CERTIFICATE OF ANALYSIS

Certificate Number:	SARAD-230721 RN
Company / Organisation:	Mathieu Messeiller, JBS&G
Client Identification:	Madagascar – Fish and Prawn Samples
AM Identification:	MAD-170321-1 to 6 (Composites)
AM Request Number:	2100561
Analysis Requested:	Radionuclides (Alpha Spectrometry) Thorium and Uranium (ICPMS)

Ninety nine (99) fish and prawn samples, in total, were received. The samples had been dried at 110 °C by the client. Upon receipt at ANSTO Minerals, the samples were freeze dried and then composited according to the client's instructions, as given in the chain of custody documentation (COC), to produce six (6) composites for assay (Fish 01, Fish 02, Fish 03, Fish 04, Fish 05, Prawn).

The respective Minerals identifications for the six (6) composite samples were MAD-170321-1 to 6. The six (6) composite samples were pulverised prior to assay. Data for the fish and prawn samples, as summarised from the COC received from the client, are given in Appendix A.

The samples were digested using three acid digestion [aqua regia (HCl/HNO_3), perchloric acids]. Each residue was dissolved in concentrated hydrochloric acid and made to 50 mL (volumetrically) with MilliQ water. The digestion procedure was an adaptation of method D2 in ANSTO Minerals controlled document G-5913 Analytical Methods Manual.

Alpha spectrometry for thorium isotopes, radium-226 and polonium-210 was carried out according to ANSTO Minerals controlled document I-4303 Radiochemical Analysis for U, Th, Pb and Po.

ICPMS for thorium and uranium was carried out on the digestion liquors according to ANSTO NST[1] controlled document I-8143 Agilent Triple Quadrupole ICPMS. The activity concentrations of Th-232 and U-238 were then calculated from the measured Th and U concentrations using the respective specific activities.

[1] Nuclear Science and Technology.

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The results are given in Table 1. It should be noted that all measurable concentrations are on a fresh weight basis. Additionally, all less than values are on a fresh weight basis and were calculated assuming the measured concentrations were real.

Table 1 – Radionuclide Concentrations in Fish and Prawn Samples (Bq/kg (fresh basis))

Client ID	Fish	Fish	Fish	Fish	Fish	Prawn
	Fish 01	Fish 02	Fish 03	Fish 04	Fish 05	Prawn
ANSTO ID: MAD-170321-	1	2	3	4	5	6
U-238 Decay Chain						
U-238 (a)	0.30 ± 0.03	0.59 ± 0.06	0.40 ± 0.04	1.7 ± 0.2	1.1 ± 0.1	0.92 ± 0.09
Th-230 (b)	< 1.3	< 1.5	< 1.3	< 1.7	< 1.6	< 0.93
Ra-226 (b)	1.6 ± 0.4	< 1.5	< 1.3	2.0 ± 0.5	< 1.6	2.5 ± 0.5
Po-210 (b)	6.1 ± 1.1	5.2 ± 1.1	11 ± 2	10 ± 2	6.2 ± 1.1	8.5 ± 1.2
Th-232 Decay Chain						
Th-232 (a)	0.86 ± 0.09	0.54 ± 0.05	0.37 ± 0.04	13 ± 1	7.6 ± 0.8	1.1 ± 0.1
Th-232 (b)	< 1.3	< 1.5	< 1.3	< 1.7	< 1.6	< 0.93
Th-228 (b)	< 1.3	< 1.5	< 1.3	< 1.7	< 1.6	< 0.93

(a) Digest/ICPMS.

(b) Alpha spectrometry.

Appendix A – Data for Fish and Prawn Samples

			Mass (g)		
AM ID MAD-170321-	Sample	Description	Fresh Sample*	Dry Sample	Ratio Fresh:Dry
1	Fish	Fish	997.5	212.30	4.7
2	Fish	Fish	818.7	200.36	4.1
3	Fish	Fish	808.6	181.50	4.5
4	Fish	Fish	369.3	102.99	3.6
5	Fish	Fish	599.5	156.00	3.8
6	Prawn	Prawn	785.1	122.21	6.4

* As given on the COC.

S. A. Brown

Dr Sue Brown, Senior Radiochemist **Date: 23 July 2021**

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CERTIFICATE OF ANALYSIS

Certificate Number:	SARAD-220721 RN
Company / Organisation:	Mathieu Messeiller, JBS&G
Client Identification:	Madagascar – Plant Samples
AM Identification:	MAD-080321-1 to 12
AM Request Number:	2100560
Analysis Requested:	Radionuclides (Alpha Spectrometry) Thorium and Uranium (ICPMS)

Eighteen (18) plant samples, in total, were received. The samples had not been treated by the client prior to arrival at ANSTO Minerals. Upon receipt, the samples were freeze dried and then composited, where required and according to the client's instructions, as given in the chain of custody documentation (COC), to produce twelve (12) samples for assay.

The sample identifications and respective Minerals identifications for the twelve (12) samples are given in Appendix A, together with data for the plant samples, as summarised from the COC received from the client.

The twelve (12) freeze dried samples were homogenised prior to assay by either pulverising or blending in a food processor, depending on the physical nature of the dried sample.

The samples were digested using three acid digestion [aqua regia (HCl/HNO_3), perchloric acids]. Each residue was dissolved in concentrated hydrochloric acid and made to 50 mL (volumetrically) with MilliQ water. The digestion procedure was an adaptation of method D2 in ANSTO Minerals controlled document G-5913 Analytical Methods Manual.

Alpha spectrometry for thorium isotopes (5 samples), radium-226 (all samples) and polonium-210 (all samples) was carried out according to ANSTO Minerals controlled document I-4303 Radiochemical Analysis for U, Th, Pb and Po.

ICPMS for thorium and uranium on all samples was carried out on the digestion liquors according to ANSTO NST[1] controlled document I-8143 Agilent Triple Quadrupole ICPMS. The activity concentrations of Th-232 and U-238 were then calculated from the measured Th and U concentrations using the respective specific activities.

[1] Nuclear Science and Technology.

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Duplicate assays for sample 1 (jackfruit) and sample 5 (manioc) were carried out.

As part of the scope of work, all dried samples were ashed and returned to the client after a sub-sample had been taken for assay.

The ashed samples for the remaining seven (7) samples that had not been assayed for thorium isotopes were pulverised. The samples were then digested and alpha spectrometry for thorium isotopes carried out, as described above. Analysis of the ashed samples resulted in improved detection limits.

The ashing data for these seven (7) samples are given in Appendix B.

The radionuclide results are given in Table 1. It should be noted that all measurable concentrations are on a fresh weight basis. Additionally, all less than values are on a fresh weight basis and were calculated assuming the measured concentrations were real.

All concentrations are based on the respective fresh:ash ratios, with the exception of the final seven (7) samples analysed for thorium isotopes, which are based on the respective fresh:ash ratios.

S. A. Brown

Dr Sue Brown, Senior Radiochemist **Date: 22 July 2021**

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Table 1 – Radionuclide Concentrations in Plant Samples (Bq/kg (fresh basis))

Client ID	Jackfruit			Banana	Cassava Leaves	Cassava	
	01 - #1 and #2		02 - #1	01 - #1 to #5	01 - #1 and #2	Manioc01	
ANSTO ID: MAD-080321-	1	1-dup	2	3	4	5	5-dup
U-238 Decay Chain							
U-238 (a)	< 0.023	< 0.025	0.53 ± 0.05	< 0.025	1.0 ± 0.1	0.78 ± 0.08	0.65 ± 0.07
Th-230 (b)	< 0.92 (c)	< 1.1 (c)	< 0.98	< 0.86 (c)	< 2.7	< 1.2	< 1.2
Ra-226 (b)	< 1.3	< 1.9	< 0.43	< 1.4	< 2.3	< 1.0	< 1.0
Po-210 (b)	0.81 ± 0.31	0.62 ± 0.22	0.41 ± 0.16	3.5 ± 0.6	5.4 ± 1.5	< 1.2	< 1.2
Th-232 Decay Chain							
Th-232 (a)	0.037 ± 0.004	0.031 ± 0.003	0.19 ± 0.02	0.064 ± 0.006	0.54 ± 0.05	0.11 ± 0.01	0.076 ± 0.008
Th-232 (b)	< 0.92 (c)	< 1.1 (c)	< 0.98	< 0.86 (c)	< 2.7	< 1.2	< 1.2
Th-228 (b)	< 0.92 (c)	< 1.1 (c)	< 0.98	< 0.86 (c)	< 2.7	< 1.2	< 1.2

Client ID	Lychee		Soursop	Papaya	Rice		
	Letchis01	Letchis02	Soursot01	Papaya01	Riz01	Riz02	Riz03
ANSTO ID: MAD-080321-	6	7	8	9	10	11	12
U-238 Decay Chain							
U-238 (a)	0.087 ± 0.009	0.040 ± 0.004	< 0.014	< 0.005	0.063 ± 0.013	0.50 ± 0.05	0.16 ± 0.02
Th-230 (b)	< 0.67 (c)	< 1.0 (c)	< 0.60 (c)	< 0.42 (c)	< 2.4	< 2.5	< 2.1
Ra-226 (b)	< 1.1	< 1.0	< 1.0	< 3.4	< 2.0	< 2.1	< 1.8
Po-210 (b)	2.6 ± 0.5	0.59 ± 0.2	1.4 ± 0.3	0.31 ± 0.09	< 2.4	< 2.5	< 2.1
Th-232 Decay Chain							
Th-232 (a)	0.10 ± 0.01	1.3 ± 0.1	0.52 ± 0.05	0.063 ± 0.006	0.10 ± 0.01	0.063 ± 0.006	0.027 ± 0.003
Th-232 (b)	< 0.67 (c)	< 1.0 (c)	< 0.60 (c)	< 0.42 (c)	< 2.4	< 2.5	< 2.1
Th-228 (b)	< 0.67 (c)	< 1.0 (c)	< 0.60 (c)	< 0.42 (c)	< 2.4	< 2.5	< 2.1

(a) Digest/ICPMS.

(b) Alpha spectrometry.

(c) Assay on ashed sample.

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Appendix A – Sample and Drying Data for Plant Samples

AM ID MAD-080321-	Sample	Description	Mass (g) Fresh Sample*	Mass (g) Dry Sample	Ratio Fresh:Dry	Homogenised P or B
1	2020Jackfruit01 #1 and #2	Jackfruit	5187.7	1075.20	4.8	B
2	2020Jackfruit02 #1	Jackfruit	289.9	56.54	5.1	P
3	2020Banana01 #1 to #5	Banana	1439.7	317.27	4.5	B
4	2020CasavaLeaves01 #1 and #2	Cassava leaves	77.2	63.66	1.2	P
5	2020Manioc01	Cassava	1785.3	640.32	2.8	P
6	2020Letchis01	Lychee	1089.2	190.94	5.7	B
7	2020Letchis02	Lychee	1024.5	172.83	5.9	B
8	2020Soursot01	Soursop	975	121.82	8.0	B
9	2020Papaya01	Papaya	758.1	63.33	12.0	B
10	2020Riz01	Rice	1107.5	798.21	1.4	P
11	2020Riz02	Rice	1137.6	852.81	1.3	P
12	2020Riz03	Rice	1134.4	749.51	1.5	P

* As given on COC.

P = pulverised

B = blended

Appendix B – Ashing Data for Selected Plant Samples

AM ID MAD-080321-	Sample	Description	Mass (g) Fresh Sample*	Mass (g) Ashed Sample	Ratio Fresh:Ash
1	2020Jackfruit01 #1 and #2	Jackfruit	4911.5	283.16	17.3
3	2020Banana01 #1 to #5	Banana	1344.6	68.04	19.8
6	2020Letchis01	Lychee	997.0	39.95	25.0
7	2020Letchis02	Lychee	972.2	42.58	22.8
8	2020Soursot01	Soursop	851.2	35.14	24.2
9	2020Papaya01	Papaya	594.2	12.98	45.8

* Back-calculated based on actual weight of dried material to ashing.

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CERTIFICATE OF ANALYSIS

Certificate Number:	SARAD-160322 RN
Company / Organisation:	Mathieu Messeiller, JBS&G
Client Identification:	Madagascar – Fish and Prawn Samples
AM Identification:	MAD-270921-1 to 7 (Composites)
AM Request Number:	2102066
Analysis Requested:	Radionuclides (Alpha and Gamma Spectrometry) Thorium and Uranium (ICPMS)

One hundred and thirty four (134) fish and prawn samples, in total, were received for the Round 3 sampling program on 27 September 2021. The samples had been dried at 110 °C by the client. Upon receipt at ANSTO Minerals, the samples were freeze-dried and then composited according to the client's instructions, as given in the chain of custody documentation (COC), to produce seven (7) composites for assay (Fish 01, Fish 02, Fish 03, Fish 04, Fish 05, Patsa (prawn) Ambavar (Patsa Am), Patsa Andrakaraka (Patsa An)).

The respective Minerals identifications for the seven (7) composite samples were MAD-270921-1 to 7. The seven (7) composite samples were pulverised prior to assay. Data for the fish and prawn samples, as summarised from the COC received from the client, are given in Appendix A.

After retaining a portion of each freeze-dried composite for Po-210, U-238 and Th-232 analysis, with the exception of Patsa AM, where there was insufficient sample to ash, the remaining composite materials were ashed at 450 °C.

Approximately 5 g of each freeze-dried composite was digested using acid (aqua regia (HCl/HNO_3)) and hydrogen peroxide and made up to 100 mL (volumetrically) with MilliQ water for Po-210 (95 mL) and U-238 and Th-232 analysis by ICPMS.

Approximately 5 g of each ashed composite was digested using nitric acid and hydrogen peroxide and made up to 100 mL (volumetrically) with MilliQ water for Ra-226 (50 mL) and thorium isotope analysis (50 mL).

The digestion procedure was an adaptation of method D2 in ANSTO Minerals controlled document G-5913 Analytical Methods Manual.

Alpha spectrometry for thorium isotopes, radium-226 and polonium-210 was carried out according to ANSTO Minerals controlled document I-4303 Radiochemical Analysis for U, Th, Pb and Po.

ICPMS for thorium and uranium was carried out on the digestion liquors according to ANSTO NST[1] controlled document I-8143 Agilent Triple Quadrupole ICPMS. The activity concentrations of Th-232 and U-238 were then calculated from the measured Th and U concentrations using the respective specific activities.

Gamma spectrometry for Pb-210 and Ra-228 was carried out on the ashed portions for all composite samples, with the exception of Patsa Am, where the freeze-dried composite was assayed, according to ANSTO Minerals controlled documents AM-I-052-003 Preparation of Powdered Samples for Gamma Ray Analysis, AM-I-052-004 Counting Procedure using Maestro and AM-I-052-005 Gamma Spectrum Analysis of Solid Samples using GammaVision.

The results are given in Table 1. It should be noted that all measurable concentrations are on a fresh weight basis. Additionally, all less than values are on a fresh weight basis and were calculated assuming the measured concentrations were real.

Table 1 – Radionuclide Concentrations in Fish and Prawn Samples (Bq/kg (fresh basis))

Client ID	Fish Fish 01	Fish Fish 02	Fish Fish 03	Fish Fish 04	Fish Fish 05	Prawn Patsa Am	Prawn Patsa An
ANSTO ID: MAD-270921-	1	2	3	4	5	6	7
U-238 Decay Chain							
U-238 (a)	0.42 ± 0.04	0.56 ± 0.06	0.7 ± 0.07	0.35 ± 0.04	0.78 ± 0.08	0.21 ± 0.02	0.34 ± 0.03
Th-230 (b)	< 0.032	0.26 ± 0.11	0.18 ± 0.08	0.11 ± 0.06	< 0.033	0.31 ± 0.09	0.19 ± 0.04
Th-230 (c)	< 7.7	< 6.8	< 9.6	< 4.9	< 10	< 22 (g)	< 6.0
Ra-226 (b)	1.7 ± 0.2	6.0 ± 0.5	1.6 ± 0.2	1.7 ± 0.1	1.0 ± 0.1	4.8 ± 0.5	9.1 ± 0.7
Ra-226 (d)	2.4 ± 0.2	6.1 ± 0.6	1.7 ± 0.2	1.7 ± 0.2	1.3 ± 0.1	5.5 ± 0.6	9.8 ± 1.0
Pb-210 (c)	< 1.7	4.0 ± 0.8	< 2.2	< 1.1	< 1.3	< 4.4 (g)	< 1.3
Po-210 (b)	3.6 ± 0.2	6.6 ± 0.5	8.4 ± 0.5	6.6 ± 0.5	5.6 ± 0.5	5.8 ± 0.3	4.9 ± 0.3
Po-210 Count Date	17-Nov-21	17-Nov-21	17-Nov-21	17-Nov-21	17-Nov-21	19-Nov-21	17-Nov-21
Th-232 Decay Chain							
Th-232 (a)	1.2 ± 0.1	1.9 ± 0.2	2.2 ± 0.2	1.8 ± 0.2	3.5 ± 0.4	0.84 ± 0.08	1.4 ± 0.1
Th-232 (b)	0.51 ± 0.25	0.50 ± 0.18	0.92 ± 0.28	0.34 ± 0.14	1.1 ± 0.4	1.2 ± 0.2	0.62 ± 0.11
Ra-228 (e)	15 ± 2	11 ± 1	15 ± 2	8.3 ± 0.8	8.2 ± 0.8	52 ± 5	30 ± 3
Th-228 (b)	8.5 ± 3.0	5.3 ± 1.5	2.8 ± 0.7	4.0 ± 1.3	2.9 ± 1.0	11 ± 1	7.8 ± 1.2
Th-228 Count Date	10-Dec-21	06-Dec-21	08-Dec-21	27-Jan-22	08-Dec-21	10-Dec-21	10-Dec-21
Th-228 (f)	9.5 ± 1.0	6.2 ± 0.6	5.5 ± 0.6	4.7 ± 0.5	3.5 ± 0.4	15 ± 2	8.6 ± 0.9
Th-228 Count Date	03-Dec-21	06-Dec-21	08-Dec-21	01-Dec-21	10-Dec-21	13-Dec-21	15-Dec-21

(a) Digest/ICPMS.

(b) Alpha spectrometry.

(c) Gamma spectrometry.

(d) Gamma spectrometry. Based on the measured concentration of Pb-214 and Bi-214, assuming secular equilibrium.

(e) Gamma spectrometry. Based on the measured concentration of Ac-228, assuming secular equilibrium.

(f) Gamma spectrometry. Based on the measured concentration of Pb-212, assuming secular equilibrium.

(g) Freeze dried material assayed resulting in higher detection limit.

[1] Nuclear Science and Technology.

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Appendix A – Data for Fish and Prawn Samples

AM ID MAD-270921-	Sample	Description	Mass (g) Fresh Sample*	Dry Sample	Ashed Sample	Ratio Fresh:Dry	Ratio Fresh:Ash
1	Fish 01	Fish	1043	240.24	86.77	4.3	12.0
2	Fish 02	Fish	871	200.57	46.50	4.3	18.7
3	Fish 03	Fish	640	155.79	58.80	4.1	10.9
4	Fish 04	Fish	734	186.70	26.92	3.9	27.3
5	Fish 05	Fish	1065	267.14	91.36	4.0	11.7
6	Patsa Am (a)	Prawn	208	32.50	-	6.4	-
7	Patsa An (b)	Prawn	1743	299.00	98.22	5.8	17.7

* As given on COC.

(a) Patsa Am = Patsa Ambavar

(b) Patsa An = Patsa Andrakaraka

Dr Sue Brown, Senior Radiochemist **Date: 16 March 2022**

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CERTIFICATE OF ANALYSIS

Certificate Number:	SARAD-210322 RN
Company / Organisation:	Mathieu Messeiller, JBS&G
Client Identification:	Madagascar – Plant Samples
AM Identification:	MAD-240921-1 to 14 (Single and Composites)
AM Request Number:	2102068
Analysis Requested:	Radionuclides (Alpha Spectrometry) Thorium and Uranium (ICPMS)

Twenty five (25) plant samples, in total, were received for the Round 3 sampling program on 24 September 2021. The samples had been dried at 110 °C by the client (processed samples) and upon receipt at ANSTO Minerals, all samples, with the exception of the cassava leaves (5 samples in total), were freeze-dried. Composites for some samples (six (6) in total (cassava, cassava leaves, orange, rice x 3)) were then prepared, according to the client's instructions as given in the chain of custody documentation (COC). This resulted in a total of fourteen (14) samples for analysis.

The Minerals identifications for the fourteen (14) samples were MAD-240921-1 to 14. The individual and composite samples were pulverised prior to assay. Data for the plant samples, as summarised from the COC received from the client, are given in Appendix A.

After retaining a portion of either processed or freeze-dried material for Po-210, U-238 and Th-232 analysis, the remaining materials were ashed at 450 °C.

Approximately 5 g of either processed or freeze-dried material was digested using acid (aqua regia (HCl/HNO_3)) and hydrogen peroxide and made up to 100 mL (volumetrically) with MilliQ water for Po-210 (95 mL) and U-238 and Th-232 analysis by ICPMS.

Approximately 5 g of each ashed composite was digested using nitric acid and hydrogen peroxide and made up to 100 mL (volumetrically) with MilliQ water for Ra-226 (50 mL) and thorium isotope analysis (50 mL).

The digestion procedure was an adaptation of method D2 in ANSTO Minerals controlled document G-5913 Analytical Methods Manual.

Alpha spectrometry for thorium isotopes, radium-226 and polonium-210 was carried out according to ANSTO Minerals controlled document I-4303 Radiochemical Analysis for U, Th, Pb and Po.

ICPMS for thorium and uranium was carried out on the digestion liquors according to ANSTO NST[1] controlled document I-8143 Agilent Triple Quadrupole ICPMS. The activity concentrations of Th-232 and U-238 were then calculated from the measured Th and U concentrations using the respective specific activities.

The results are given in Table 1. It should be noted that all measurable concentrations are on a fresh weight basis. Additionally, all less than values are on a fresh weight basis and were calculated assuming the measured concentrations were real.

Table 1 – Radionuclide Concentrations in Plant Samples (Bq/kg (fresh basis))

Client ID	Pokannel Ampasy Olivier Sugar Apple	Avocats Soeur Ampasy Avocado	Banane Ampasy Olivier Banana	Fruitapain Ampasy Georgette Breadfruit	Manioc Composite Cassava	Feuille de Manioc Composite Cassava Leaves	Geville Ampasy Georgette June Plum
ANSTO ID: MAD-240921-	1	2	3	4	5	6	7
U-238 Decay Chain							
U-238 (a)	0.70 ± 0.07	1.8 ± 0.2	0.89 ± 0.09	0.40 ± 0.04	0.19 ± 0.02	0.73 ± 0.07 (c)	0.32 ± 0.03
Th-230 (b)	0.022 ± 0.007	0.025 ± 0.010	0.090 ± 0.042	0.17 ± 0.04	0.17 ± 0.03	0.13 ± 0.03	0.030 ± 0.0133
Ra-226 (b)	0.079 ± 0.013	< 0.021	0.15 ± 0.02	0.10 ± 0.02	0.31 ± 0.04	0.58 ± 0.05	0.093 ± 0.012
Po-210 (b)	0.092 ± 0.040	0.13 ± 0.02	0.050 ± 0.018	0.29 ± 0.08	0.52 ± 0.14	4.1 ± 0.2 (c)	0.12 ± 0.03
Po-210 Count Date	17-Nov-21	19-Nov-21	19-Nov-21	19-Nov-21	22-Nov-21	01-Dec-21	22-Nov-21
Th-232 Decay Chain							
Th-232 (a)	0.54 ± 0.05	0.82 ± 0.08	0.088 ± 0.009	1.4 ± 0.1	1.5 ± 0.2	1.3 ± 0.1 (c)	0.085 ± 0.009
Th-232 (b)	0.084 ± 0.019	0.22 ± 0.04	0.58 ± 0.15	0.91 ± 0.18	1.2 ± 0.2	0.11 ± 0.03	0.10 ± 0.03
Th-228 (b)	0.13 ± 0.02	0.19 ± 0.04	0.68 ± 0.21	1.1 ± 0.2	1.3 ± 0.2	0.58 ± 0.13	0.16 ± 0.04
Th-228 Count Date	10-Dec-21	17-Feb-22	25-Jan-22	25-Jan-22	07-Feb-22	07-Feb-22	25-Jan-22
Client ID	Oranges Composite Orange	Papaya Ampasy Paulin Papaya	Riz 03 Composite Rice	Riz 04 Composite Rice	Feuille de Manioc MMM 1 Cassava Leaves	Manioc MMM Cassava	MMM Composite Rice
ANSTO ID: MAD-240921-	8	9	10	11	12	13	14
U-238 Decay Chain							
U-238 (a)	0.47 ± 0.05	0.17 ± 0.02	0.10 ± 0.01	0.17 ± 0.02	0.16 ± 0.02 (c)	0.20 ± 0.02	0.084 ± 0.008
Th-230 (b)	0.012 ± 0.008	0.007 ± 0.004	0.81 ± 0.11	0.16 ± 0.04	0.11 ± 0.02 (c)	0.12 ± 0.03	0.080 ± 0.031
Ra-226 (b)	0.23 ± 0.05	0.078 ± 0.038	0.90 ± 0.09	0.25 ± 0.05	0.42 ± 0.03	0.13 ± 0.02	< 0.043
Po-210 (b)	0.021 ± 0.006	0.053 ± 0.011	0.16 ± 0.05	0.19 ± 0.13	4.3 ± 0.3	0.61 ± 0.33	0.16 ± 0.05
Po-210 Count Date	22-Nov-21	22-Nov-21	01-Dec-21	22-Nov-21	01-Dec-21	22-Nov-21	24-Nov-21
Th-232 Decay Chain							
Th-232 (a)	0.072 ± 0.007	0.15 ± 0.02	0.45 ± 0.05	0.42 ± 0.04	0.51 ± 0.05 (c)	1.2 ± 0.1	0.37 ± 0.04
Th-232 (b)	0.093 ± 0.028	0.017 ± 0.006	0.47 ± 0.07	0.42 ± 0.07	0.26 ± 0.04	0.65 ± 0.13	0.25 ± 0.06
Th-228 (b)	0.28 ± 0.06	0.11 ± 0.02	1.6 ± 0.2	1.7 ± 0.2	0.39 ± 0.07	0.57 ± 0.11	0.31 ± 0.08
Th-228 Count Date	27-Jan-22	27-Jan-22	01-Feb-22	01-Feb-22	07-Feb-22	11-Feb-22	11-Feb-22

(a) Digest/ICPMS.

(b) Alpha spectrometry.

(c) Analysis on processed material.

[1] Nuclear Science and Technology.

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Appendix A – Data for Plant Samples

			Mass (g)				Mass (g)		
AM ID MAD-240921-	Sample	Description	Fresh Sample*	Dry Sample	Ratio Fresh:Dry	Homogenised P or B	Fresh Sample**	Ashed Sample	Ratio Fresh:Ash
1	20210401 Pokannel Ampasy Olivier	Pokannel/Sugar apple	616.9	82.28	7.5	P	473.6	22.00	21.5
2	20210412 Avocats Soeur Ampasy	Avocado	1434.8	254.29	5.6	P	1326.1	68.15	19.5
3	20210402 Banane Ampasy Olivier	Banana	1532.7	303.63	5.0	P	1422.9	96.25	14.8
4	20210406 Fruitapain Ampasy Georgette	Fruitapain/Breadfruit	2397.5	637.55	3.8	P	1874.5	90.04	20.8
	20210412 Fruitapain Soeur Ampasy								
5	20210331 Manioc	Cassava	6299.3	2195.94	2.9	P	4202.6	224.19	18.7
	20210402 Manioc Ampasy Olivier								
	20210406 Manioc Ampasy Georgette								
	20210412 Manioc Soeur Ampasy								
6	2021 Feuille de Manioc 1	Cassava Leaves	7738.7	2462.9^	3.1	P	7396.4	130.11	56.8
	20210402 Feuille de Manioc Ampasy Olivier 1								
	20210406 Feuille de Manioc Ampasy Georgette 1								
	20210413 Feuille de Manioc Soeur Ampasy								
7	20210401 Geville Ampasy Georgette	June Plum	1254.2	226.23	5.5	P	1146.3	66.86	17.1
8	20210401 Oranges Ampasy Paulin	Orange	2339.5	244.44	9.6	P	2149.3	74.09	29.0
	20210401 Oranges Greffes Ampasy Olivier								
9	20210401 Papaya Ampasy Paulin	Papaya	1222.5	128.44	9.5	P	1028.0	34.95	29.4
10	20210331 Riz 03	Rice	2044.7	1769.86	1.2	P	1624.5	157.65	10.3
	20210402 Rice 1 Paulin Ampasy								
11	20210331 Riz 04	Rice	2044.2	1757.69	1.2	P	1284.7	77.33	16.6
	20210402 Rice 2 Paulin Ampasy								
12	20210413 Feuille de Manioc MMM 1	Cassava Leaves	2048.9	807.1^	2.5	P	2023.0	65.96	30.7
13	20210413 Manioc MMM	Cassava	1532.4	626.82	2.4	P	1360.3	21.63	62.9
14	20210415 Riz MMM 01	Rice	2059.6	1838.01	1.1	P	2009.6	219.11	9.2
	20210415 Riz MMM 02								

* As given on COC.

P = pulverised

B = blended

** Back-calculated based on actual weight of dried material to ashing.

^ Total processed weight from COC.



Dr Sue Brown, Senior Radiochemist **Date: 21 March 2022**

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CERTIFICATE OF ANALYSIS

Certificate Number:	SARAD-120922 RN
Company / Organisation:	Mathieu Messeiller, JBS&G
Client Identification:	Madagascar – Fish and Prawn Samples
AM Identification:	MAD-170122-1 to 10 (Composites)
AM Request Number:	2200139
Analysis Requested:	Radionuclides (Alpha and Gamma Spectrometry) Thorium and Uranium (ICPMS)

Two hundred and ten (210) fish and prawn samples, in total, were received for the Round 4 sampling program on 17 January 2022. The samples had been dried at 110 °C by the client. Upon receipt at ANSTO Minerals, the samples were freeze-dried and then composited according to the client's instructions, as given in the chain of custody documentation (COC), to produce eleven (11) composites for assay (Fish 01, Fish 02, Fish 03, Fish 04, Fish 06, Fish 07 M, Fish 07 D, Prawn, Patsa (prawn) 1, Patsa 2).

The respective Minerals identifications for the eleven (10) composite samples were MAD-170122-1 to 10. All composite samples were pulverised prior to assay. Data for the fish and prawn samples, as summarised from the COC received from the client, are given in Appendix A.

After retaining a portion of each freeze-dried composite for Po-210, U-238 and Th-232 analysis, the remaining composite materials were ashed at 450 °C.

Approximately 8 g of each freeze-dried composite was digested using acid (aqua regia (HCl/HNO_3)) and hydrogen peroxide and made up to 100 mL (volumetrically) with MilliQ water for Po-210 (35 mL), Ra-226 (30 mL) and thorium isotope analysis (30 mL), with the remaining 5 mL used for U-238 and Th-232 analysis by ICPMS.

The digestion procedure was an adaptation of method D2 in ANSTO Minerals controlled document G-5913 Analytical Methods Manual.

Alpha spectrometry for thorium isotopes, radium-226 and polonium-210 was carried out according to ANSTO Minerals controlled document I-4303 Radiochemical Analysis for U, Th, Pb and Po.

ICPMS for thorium and uranium was carried out on the digestion liquors according to ANSTO NST[1] controlled document I-8143 Agilent Triple Quadrupole ICPMS. The activity concentrations of Th-232 and U-238 were then calculated from the measured Th and U concentrations using the respective specific activities.

Gamma spectrometry for Pb-210 and Ra-228 was carried out on the ashed portions for all composite samples, according to ANSTO Minerals controlled documents AM-I-052-003 Preparation of Powdered Samples for Gamma Ray Analysis, AM-I-052-004 Counting Procedure using Maestro and AM-I-052-005 Gamma Spectrum Analysis of Solid Samples using GammaVision.

The results are given in Table 1. It should be noted that all measurable concentrations are on a fresh weight basis. Additionally, all less than values are on a fresh weight basis and were calculated assuming the measured concentrations were real.

[1] Nuclear Science and Technology.

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Table 1 – Radionuclide Concentrations in Fish and Prawn Samples (Bq/kg (fresh basis))

Client ID	Fish	Fish	Fish	Fish	Fish
	Fish 01	Fish 02	Fish 03	Fish 04	Fish 06
ANSTO ID: MAD-170122-	1	2	3	4	5
U-238 Decay Chain					
U-238 (a)	2.8 ± 0.2	1.3 ± 0.1	1.9 ± 0.2	1.4 ± 0.1	0.56 ± 0.06
Th-230 (b)	2.3 ± 0.5	3.2 ± 0.60	1.6 ± 0.40	1.2 ± 0.3	0.37 ± 0.09
Th-230 (c)	< 6.3	< 4.1	< 4.9	< 5.5	< 5.4
Ra-226 (b)	2.5 ± 0.3	0.91 ± 0.12	1.8 ± 0.2	0.90 ± 0.15	0.51 ± 0.1
Ra-226 (d)	2.0 ± 0.2	1.1 ± 0.1	2.7 ± 0.3	3.8 ± 0.4	5.3 ± 0.5
Pb-210 (c)	2.0 ± 0.4	< 0.49	2.6 ± 0.4	4.7 ± 0.5	5.3 ± 0.5
Po-210 (b)	5.3 ± 0.3	2.3 ± 0.3	8.5 ± 0.6	10.0 ± 0.6	9.9 ± 0.5
Po-210 Count Date	10-Mar-22	07-Apr-22	05-Apr-22	30-Mar-22	30-Mar-22
Th-232 Decay Chain					
Th-232 (a)	3.3 ± 0.3	2.3 ± 0.2	1.1 ± 0.1	8.7 ± 0.9	3.2 ± 0.3
Th-232 (b)	2.0 ± 0.4	1.4 ± 0.3	0.95 ± 0.23	7.9 ± 1.3	2.4 ± 0.3
Ra-228 (e)	11 ± 1	6.1 ± 0.6	3.8 ± 0.4	12 ± 1	6.0 ± 0.6
Th-228 (b)	6.3 ± 1.2	3.2 ± 0.6	2.2 ± 0.4	8.3 ± 1.4	3.4 ± 0.5
Th-228 Count Date	30-Mar-22	30-Mar-22	05-Apr-22	05-Apr-22	01-Apr-22
Th-228 (f)	8.6 ± 0.9	4.1 ± 0.4	2.3 ± 0.2	8.3 ± 0.8	4.3 ± 0.4
Th-228 Count Date	25-Apr-22	27-Apr-22	29-Apr-22	02-May-22	04-May-22
Client ID	Fish	Fish	Prawn	Prawn	Prawn
	Fish 07 M	Fish 07 D	Prawn	Patsa 1	Patsa 2
ANSTO ID: MAD-170122-	6	7	8	9	10
U-238 Decay Chain					
U-238 (a)	0.66 ± 0.06	0.25 ± 0.03	0.11 ± 0.01	0.45 ± 0.05	0.61 ± 0.06
Th-230 (b)	0.56 ± 0.11	0.29 ± 0.09	0.22 ± 0.07	0.12 ± 0.06	0.37 ± 0.09
Th-230 (c)	< 6.2	< 7.7	< 6.3	< 9.0	< 12
Ra-226 (b)	0.67 ± 0.09	0.31 ± 0.05	0.33 ± 0.06	1.6 ± 0.2	1.6 ± 0.2
Ra-226 (d)	2.0 ± 0.3	< 0.67	1.6 ± 0.2	6.1 ± 0.6	11 ± 1
Pb-210 (c)	2.1 ± 0.5	< 1.0	1.6 ± 0.4	2.5 ± 0.4	3.2 ± 0.4
Po-210 (b)	5.8 ± 0.5	1.6 ± 0.1	3.3 ± 0.2	3.9 ± 0.3	3.8 ± 0.2
Po-210 Count Date	30-Mar-22	01-Apr-22	01-Apr-22	01-Apr-22	01-Apr-22
Th-232 Decay Chain					
Th-232 (a)	3.8 ± 0.4	0.19 ± 0.02	1.6 ± 0.2	0.62 ± 0.06	0.86 ± 0.09
Th-232 (b)	3.1 ± 0.4	0.18 ± 0.07	1.5 ± 0.3	0.57 ± 0.16	0.80 ± 0.2
Ra-228 (e)	8.7 ± 0.9	< 1.1	8.1 ± 0.8	42 ± 4	81 ± 8
Th-228 (b)	3.8 ± 0.5	0.58 ± 0.15	2.1 ± 0.4	3.1 ± 0.6	5.6 ± 0.8
Th-228 Count Date	01-Apr-22	01-Apr-22	01-Apr-22	05-Apr-22	01-Apr-22
Th-228 (f)	6.7 ± 0.7	0.93 ± 0.09	5.6 ± 0.6	13 ± 1	22 ± 2
Th-228 Count Date	06-May-22	27-Apr-22	29-Apr-22	02-May-22	04-May-22

(a) Digest/ICPMS.

(b) Alpha spectrometry.

(c) Gamma spectrometry.

(d) Gamma spectrometry. Based on the measured concentration of Pb-214 and Bi-214, assuming secular equilibrium.

(e) Gamma spectrometry. Based on the measured concentration of Ac-228, assuming secular equilibrium.

(f) Gamma spectrometry. Based on the measured concentration of Pb-212, assuming secular equilibrium.

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Appendix A – Data for Fish and Prawn Samples

			Mass (g)				
AM ID MAD-170122-	Sample	Description	Fresh Sample*	Dry Sample	Ashed Sample**	Ratio Fresh:Dry	Ratio Fresh:Ash
1	Fish 01	Fish	763.9	167.38	33.22	4.6	23.0
2	Fish 02	Fish	841.7	200.63	41.23	4.2	20.4
3	Fish 03	Fish	701.1	199.23	79.85	3.5	8.8
4	Fish 04	Fish	766.1	222.21	52.63	3.4	14.6
5	Fish 06	Fish	859.21	242.85	66.37	3.5	12.9
6	Fish 07 M	Fish	519	150.29	63.33	3.5	8.2
7	Fish 07 D	Fish	530	128.28	35.37	4.1	15.0
8	Prawn	Prawn	749.7	178.94	27.06	4.2	27.7
9	Patsa 1	Prawn	1301	243.04	60.76	5.4	21.4
10	Patsa 2	Prawn	1899.1	359.78	112.76	5.3	16.8

* As given on COC.

** Equivalent ashed sample if all dry material was ashed, based on drying/ashing data sheet.

Dr Sue Brown, Senior Radiochemist **Date: 12 September 2022**

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CERTIFICATE OF ANALYSIS

Certificate Number:	SARAD-130922 RN
Company / Organisation:	Mathieu Messeiller, JBS&G
Client Identification:	Madagascar – Plant Samples
AM Identification:	MAD-240222-1 to 17
AM Request Number:	2200696
Analysis Requested:	Radionuclides (Alpha Spectrometry) Thorium and Uranium (ICPMS)

Nineteen (19) plant samples, in total, were received for the Round 4 sampling program on 24 February 2022. The samples had been dried at 110 °C by the client (processed samples). In accordance with the CoC, four (4) samples, cassava, cassava leaves (2) and papaya, were kept and not processed further. Upon receipt at ANSTO Minerals, all remaining samples, with the exception of the cassava leaves (2 samples in total), were freeze-dried.

The Minerals identifications for the seventeen (17) samples assayed were MAD-240222-1 to 17. The samples were pulverised prior to assay. Data for the plant samples, as summarised from the COC received from the client, are given in Appendix A.

After retaining a portion of either processed or freeze-dried material for radionuclide analysis, the remaining materials were ashed at 450 °C for future analysis.

Approximately 30 g of either processed or freeze-dried material was digested using acid (aqua regia (HCl/HNO_3)) and hydrogen peroxide and made up to 100 mL (volumetrically) with MilliQ water for Po-210 (35 mL), Ra-226 (30 mL) and thorium isotope analysis (30 mL), with the remaining 5 mL used for U-238 and Th-232 analysis by ICPMS.

The digestion procedure was an adaptation of method D2 in ANSTO Minerals controlled document G-5913 Analytical Methods Manual.

Alpha spectrometry for thorium isotopes, radium-226 and polonium-210 was carried out according to ANSTO Minerals controlled document I-4303 Radiochemical Analysis for U, Th, Pb and Po.

ICPMS for thorium and uranium was carried out on the digestion liquors according to ANSTO NST[1] controlled document I-8143 Agilent Triple Quadrupole ICPMS. The activity concentrations of Th-232 and U-238 were then calculated from the measured Th and U concentrations using the respective specific activities.

The results are given in Table 1. It should be noted that all measurable concentrations are on a fresh weight basis.

[1] Nuclear Science and Technology.

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Table 1 – Radionuclide Concentrations in Plant Samples (Bq/kg (fresh basis))

Client ID	Manioc 01 Ampasy Cassava	Manioc 03 Ampasy Cassava	Manioc 04 Ampasy Cassava	Manioc Soeur Ampasy Cassava	Feuille de Manioc 01 Ampasy Cassava Leaves	Orange 01 Ampasy Orange
ANSTO ID: MAD-280222-	1	2	3	4	5	6
U-238 Decay Chain						
U-238 (a)	0.27 ± 0.03	0.64 ± 0.06	0.73 ± 0.07	0.12 ± 0.01	2.0 ± 0.2 (c)	0.31 ± 0.03
Th-230 (b)	0.062 ± 0.024	0.096 ± 0.03	0.15 ± 0.039	0.039 ± 0.02	0.88 ± 0.16 (c)	0.12 ± 0.02
Ra-226 (b)	0.32 ± 0.05	0.34 ± 0.040	0.33 ± 0.05	0.17 ± 0.03	1.4 ± 0.1 (c)	0.51 ± 0.04
Po-210 (b)	0.72 ± 0.08	0.42 ± 0.06	0.36 ± 0.04	0.33 ± 0.04	3.3 ± 0.2 (c)	0.13 ± 0.01
Po-210 Count Date	24-May-22	24-May-22	26-May-22	27-Jul-22	01-Jun-22	27-Jul-22
Th-232 Decay Chain						
Th-232 (a)	0.31 ± 0.03	0.16 ± 0.02	0.39 ± 0.04	0.15 ± 0.02	2.0 ± 0.2 (c)	0.53 ± 0.05
Th-232 (b)	0.11 ± 0.030	0.049 ± 0.021	0.096 ± 0.030	0.048 ± 0.021	0.78 ± 0.14 (c)	0.59 ± 0.08
Th-228 (b)	0.21 ± 0.05	0.17 ± 0.04	0.29 ± 0.06	0.30 ± 0.07	1.2 ± 0.2 (c)	0.77 ± 0.10
Th-228 Count Date	30-May-22	30-May-22	30-May-22	29-Jul-22	30-May-22	29-Jul-22
Client ID	Papaya Beteligny Papaya	Banane Soeur Ampasy Banana	Corossole 01 Ampasy Soursop	Courgette Beteligny Zucchini	Corossole MMM Soursop	Jaque MMM 1 Jackfruit
ANSTO ID: MAD-280222-	7	8	9	10	11	12
U-238 Decay Chain						
U-238 (a)	0.11 ± 0.01	0.17 ± 0.02	0.25 ± 0.03	0.14 ± 0.01	0.13 ± 0.01	0.31 ± 0.03
Th-230 (b)	0.030 ± 0.008	0.049 ± 0.014	0.075 ± 0.020	0.074 ± 0.017	0.064 ± 0.012	0.16 ± 0.03
Ra-226 (b)	0.084 ± 0.010	0.32 ± 0.03	0.14 ± 0.02	0.13 ± 0.02	0.12 ± 0.02	0.25 ± 0.03
Po-210 (b)	0.092 ± 0.010	0.077 ± 0.014	0.11 ± 0.02	0.053 ± 0.008	0.079 ± 0.010	0.16 ± 0.02
Po-210 Count Date	29-Jul-22	29-Jul-22	24-May-22	09-May-22	13-Jul-22	14-Jul-22
Th-232 Decay Chain						
Th-232 (a)	0.53 ± 0.05	1.0 ± 0.1	0.79 ± 0.08	0.70 ± 0.07	0.68 ± 0.07	0.90 ± 0.09
Th-232 (b)	0.20 ± 0.03	0.34 ± 0.05	0.41 ± 0.07	0.27 ± 0.04	0.24 ± 0.03	0.28 ± 0.05
Th-228 (b)	0.30 ± 0.04	1.0 ± 0.1	0.28 ± 0.05	0.34 ± 0.1	0.31 ± 0.0	0.88 ± 0.13
Th-228 Count Date	29-Jul-22	29-Jul-22	30-May-22	16-May-22	18-Jul-22	21-Jul-22
Client ID	Jaque MMM 2 Jackfruit	Manioc 02 MMM Cassava	Feuille de Manioc MMM Cassava Leaves	Papaya Emanaka Papaya	Patate Douce Emanaka Sweet Potato	
ANSTO ID: MAD-280222-	13	14	15	16	17	
U-238 Decay Chain						
U-238 (a)	1.1 ± 0.1	0.40 ± 0.04	0.57 ± 0.06	0.24 ± 0.02	5.8 ± 0.6	
Th-230 (b)	0.42 ± 0.14	0.12 ± 0.03	0.20 ± 0.07	0.059 ± 0.022	1.8 ± 0.20	
Ra-226 (b)	0.88 ± 0.08	0.19 ± 0.03	0.48 ± 0.06	0.74 ± 0.20	2.2 ± 0.2	
Po-210 (b)	0.44 ± 0.04	0.42 ± 0.06	4.3 ± 0.2	0.089 ± 0.016	1.8 ± 0.2	
Po-210 Count Date	16-Jun-22	04-May-22	16-Jun-22	11-May-22	13-Jul-22	
Th-232 Decay Chain						
Th-232 (a)	0.49 ± 0.05	0.21 ± 0.02	0.85 ± 0.09	0.90 ± 0.09	0.42 ± 0.04	
Th-232 (b)	0.22 ± 0.09	0.052 ± 0.020	0.26 ± 0.08	0.45 ± 0.08	0.14 ± 0.03	
Th-228 (b)	0.92 ± 0.27	0.064 ± 0.022	0.39 ± 0.11	0.40 ± 0.08	0.20 ± 0.04	
Th-228 Count Date	22-Jun-22	09-May-22	22-Jun-22	16-May-22	21-Jul-22	

(a) Digest/ICPMS.

(b) Alpha spectrometry.

(c) Analysis on processed material.

nr - not requested.

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Appendix A – Data for Plant Samples

AM ID MAD-280222-	Sample	Description	Fresh Sample*	Dry Sample	Ratio Fresh:Dry	Homogenised P or B	Fresh Sample**	Ashed Sample	Ratio Fresh:Ash
1	20210719 Manioc 01 Ampasy	Cassava	1559	678.86	2.3	P	1288.8	11.61	111.0
2	20210721 Manioc 03 Ampasy	Cassava	1485	618.20	2.4	P	1236.9	11.96	103.4
3	20210722 Manioc 04 Ampasy	Cassava	1555	677.67	2.3	P	1332.5	9.60	138.8
4	20210722 Manioc Soeur Ampasy	Cassava	1690	710.57	2.4	P	1175.6	7.39	159.1
5	20210719 Feuille de Manioc 01 Ampasy	Cassava Leaves	1910	529^	3.6	P	1541.8	24.09	64.0
6	20210719 Orange 01 Ampasy	Orange	2254	242.67	9.3	P	1817.8	10.83	167.9
	20210721 Orange 02 Ampasy	Orange				P			
7	20210722 Papaya Beteligny	Papaya	2313	161.77	14.3	P	1969.1	9.72	202.6
8	20210722 Banane Soeur Ampasy	Banana	1012	251.41	4.0	P	809.1	7.42	109.0
9	20210721 Corossole 01 Ampasy	Soursop	1482	260.11	5.7	P	1149.3	12.59	91.3
10	20210722 Courgette Betaligny	Zucchini	587	20.51	28.6	P	179.7	0.71	253.1
11	20210721 Corossole MMM	Soursop	1569	226.02	6.9	P	1252.3	12.14	103.2
12	20210721 Jaque MMM 1	Jackfruit	1834	380.44	4.8	P	1500.4	17.62	85.2
13	20210721 Jaque MMM 2	Jackfruit	1832	377.91	4.8	P	1526.2	20.53	74.3
14	20210721 Manioc 02 MMM	Cassava	1534	610.44	2.5	P	1168.7	11.20	104.4
15	20210721 Feuilles Manioc MMM	Cassava Leaves	1100	339^	3.2	P	797.7	13.14	60.7
16	20210723 Papaya Emanaka	Papaya	603	47.30	12.7	P	258.4	1.23	210.1
17	20210723 Patate Douce Emanaka	Sweet Potato	1053	300.78	3.5	P	768.1	5.17	148.6

* As given on COC.

P = pulverised

B = blended

** Back-calculated based on actual weight of dried material to ashing.

^ Total processed weight from COC.

S. A. Brown

Dr Sue Brown, Senior Radiochemist **Date: 13 September 2022**

Centre for Radiation Research Education and Innovation

THE UNIVERSITY of ADELAIDE

Radionuclide Analysis Report

CRREI Ref: SARad Madagascar Study 1
Report date: 02/12/2021

Company details

SA Radiation
82 Shipsters Road
Kensington Park SA 5068

Sample details

A variety of ashed materials, including fish, prawns, rice, fruits and cassava were received. Samples were loaded into v40 type sample tubes, sealed and allowed to equilibriate for a minimum of 23 days to allow ingrowth of ^{226}Ra daughters. Samples were measured on detectors SAGe120 and SAGe275L.

A subset of samples (fish, prawn, cassava leaves and rice) were submitted for elemental analysis at Intertek Minerals. This elemental data was used to assume composition values for matrix correction during data analysis. Results were analysed using the GammaEyes protocol using a sediment standard as an approximation.

Results are reported in Bq/kg. For measurements with activities above the limit of detection (LOD), activities and uncertainties are reported. For activities below the LOD, results are reported as < LOD.

All activities have been multiplied by the 'ashing mass coefficient', the ratio of original fresh weight of material to the measured ashed weight. The activity measurements therefore represent Bq/kg of fresh weight.

If you have any questions regarding these results, please contact me.

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Results

21-105 Fish 1	Ashing Mass Coefficient 16.40	Live Time (hr) 98.30
Nuclide	Activity (Bq/kg)	±
U238	0.79	0.40
Th234	0.95	0.23
Th230	< 5.91	
Ra226	2.41	0.06
Ra228	12.73	0.24
Th228	6.74	0.13
Pb210	3.49	0.30

21-106 Fish 2	Ashing Mass Coefficient 17.89	Live Time (hr) 73.32
Nuclide	Activity (Bq/kg)	±
U238	2.71	0.44
Th234	2.15	0.25
Th230	< 4.62	
Ra226	3.97	0.07
Ra228	7.05	0.19
Th228	5.89	0.12
Pb210	2.80	0.30

21-107 Fish 3	Ashing Mass Coefficient 20.27	Live Time (hr) 69.38
Nuclide	Activity (Bq/kg)	±
U238	0.78	0.39
Th234	< 0.62	
Th230	< 5.71	
Ra226	1.78	0.05
Ra228	9.80	0.22
Th228	6.52	0.13
Pb210	2.46	0.30

21-108 Fish 4	Ashing Mass Coefficient 12.83	Live Time (hr) 99.48
Nuclide	Activity (Bq/kg)	±
U238	3.94	0.57
Th234	3.98	0.37
Th230	< 6.62	
Ra226	4.10	0.08
Ra228	30.04	0.45
Th228	24.19	0.39
Pb210	3.63	0.40

21-109 Fish 5	Ashing Mass Coefficient 11.88	Live Time (hr) 90.06
Nuclide	Activity (Bq/kg)	±
U238	2.98	0.59
Th234	3.08	0.37
Th230	< 6.73	
Ra226	3.02	0.08
Ra228	21.66	0.38
Th228	17.04	0.29
Pb210	2.70	0.41

21-110 Fish 6 Prawn	Ashing Mass Coefficient 30.66	Live Time (hr) 71.56
Nuclide	Activity (Bq/kg)	±
U238	1.89	0.53
Th234	< 0.75	
Th230	< 4.73	
Ra226	9.74	0.13
Ra228	63.14	0.78
Th228	16.18	0.26
Pb210	1.47	0.28

21-111 Jackfruit 2	Ashing Mass Coefficient 24.67	Live Time (hr) 73.57
Nuclide	Activity (Bq/kg)	±
U238	0.23	0.08
Th234	0.34	0.05
Th230	< 1.51	
Ra226	< 0.05	
Ra228	0.23	0.03
Th228	0.10	0.01
Pb210	< 0.26	

21-112 Cassava Leaves	Ashing Mass Coefficient 2.97	Live Time (hr) 97.17
Nuclide	Activity (Bq/kg)	±
U238	11.06	2.29
Th234	8.07	1.13
Th230	< 32.51	
Ra226	< 1.58	
Ra228	< 5.05	
Th228	< 2.22	
Pb210	< 4.32	

21-122 rice01	Ashing Mass Coefficient 5.35	Live Time (hr) 95.50
Nuclide	Activity (Bq/kg)	±
U238	4.09	0.91
Th234	3.42	0.45
Th230	< 10.51	
Ra226	2.17	0.13
Ra228	6.57	0.38
Th228	4.26	0.14
Pb210	1.91	0.51

21-123 rice02	Ashing Mass Coefficient 4.81	Live Time (hr) 95.33
Nuclide	Activity (Bq/kg)	±
U238	< 0.17	
Th234	< 2.21	
Th230	< 14.90	
Ra226	< 0.58	
Ra228	< 1.30	
Th228	< 0.62	
Pb210	< 2.60	

21-124 rice03	Ashing Mass Coefficient 5.41	Live Time (hr) 146.35
Nuclide	Activity (Bq/kg)	±
U238	4.32	0.78
Th234	3.09	0.46
Th230	< 8.70	
Ra226	< 0.55	
Ra228	1.88	0.28
Th228	< 0.79	
Pb210	< 1.38	

21-125 manioc	Ashing Mass Coefficient 11.73	Live Time (hr) 146.16
Nuclide	Activity (Bq/kg)	±
U238	1.30	0.47
Th234	< 1.00	
Th230	< 7.94	
Ra226	< 0.22	
Ra228	< 0.55	
Th228	< 0.25	
Pb210	< 1.10	

21-144 banana	Ashing Mass Coefficient 19.76	Live Time (hr) 95.42
Nuclide	Activity (Bq/kg)	±
U238	1.26	0.23
Th234	0.48	0.13
Th230	< 3.65	
Ra226	< 0.16	
Ra228	< 0.52	
Th228	< 0.22	
Pb210	< 0.64	

21-145 papaya	Ashing Mass Coefficient 45.78	Live Time (hr) 95.31
Nuclide	Activity (Bq/kg)	±
U238	0.13	0.12
Th234	< 0.27	
Th230	< 2.16	
Ra226	< 0.06	
Ra228	< 0.14	
Th228	< 0.06	
Pb210	< 0.37	

21-146 soursot	Ashing Mass Coefficient 24.22	Live Time (hr) 94.99
Nuclide	Activity (Bq/kg)	±
U238	0.68	0.19
Th234	0.66	0.11
Th230	< 3.19	
Ra226	< 0.13	
Ra228	0.70	0.07
Th228	< 0.19	
Pb210	< 0.55	

21-147 letch 1 01	Ashing Mass Coefficient 24.96	Live Time (hr) 71.01
Nuclide	Activity (Bq/kg)	±
U238	0.11	0.24
Th234	< 0.51	
Th230	< 4.13	
Ra226	< 0.12	
Ra228	< 0.28	
Th228	< 0.12	
Pb210	< 0.71	

21-148 letch 1 02	Ashing Mass Coefficient 22.83	Live Time (hr) 69.02
Nuclide	Activity (Bq/kg)	±
U238	1.26	0.23
Th234	0.59	0.12
Th230	< 2.83	
Ra226	< 0.17	
Ra228	< 0.50	
Th228	< 0.22	
Pb210	< 0.53	

21-149 jackfruit 01	Ashing Mass Coefficient 17.35	Live Time (hr) 72.50
Nuclide	Activity (Bq/kg)	±
U238	0.23	0.35
Th234	< 0.77	
Th230	< 6.32	
Ra226	< 0.17	
Ra228	< 0.42	
Th228	< 0.19	
Pb210	< 1.03	

21-150 jackfruit 01 dup	Ashing Mass Coefficient 17.35	Live Time (hr) 96.90
Nuclide	Activity (Bq/kg)	±
U238	1.22	0.24
Th234	0.81	0.14
Th230	< 3.96	
Ra226	< 0.18	
Ra228	< 0.54	
Th228	< 0.24	
Pb210	< 0.69	

Calibration

Calibration was based on an empirical calibration of a sediment material. Uranium and thorium certified reference materials were measured out with the material of the standard to produce a known activity for the ^{238}U and ^{232}Th decay chains. A second calibration standard was made without addition of uranium and thorium standards to produce a baseline activity for the calibration standard recipe.

Calibration standards were used to produce a series of detection efficiency values for each sample type using several peaks along the energy spectrum. Further corrections were applied for each individual sample based on density and elemental composition, using data from the elemental analysis results.

Certified reference materials:

Certified Reference Material C101-A
1% Uranium in SiO_2
New Brunswick Laboratory – US Department of Energy

Certified Reference Material C106-A
1 % Th and 0.04 % U Monazite sand in SiO_2
New Brunswick Laboratory – US Department of Energy

A6 Attachment 4 – Photographs

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PLATE 1 - ROUND 1 RICE COLLECTION ELERSON AMPASY



PLATE 2 – ROUND 1 CASSAVA SAMPLING AMPASY



PLATE 3 – FISH COLLECTION ONSITE



PLATE 4 - WET FISH SAMPLES PRIOR TO OVEN DRYING



PLATE 13 - COLLECTION OF DRINKING WATER FROM THE MMM RIVER AT ANDRAKARAKA



PLATE 14 - CALIBRATION OF THE QMMPH METER



PLATE 15 - CALIBRATION OF WATER QUALITY METER



PLATE 16 - WATER SAMPLES PACKED IN COOLER BOXES FOR SHIPPING



PLATE 5 – ROUND 1 FOODSTUFF SAMPLES



PLATE 6 – ROUND 1 OVEN DRYING SAMPLES



PLATE 7 – OVEN DRIED SAMPLES



PLATE 8 – ROUND 2 CASSAVA LEAVES AMPASY



PLATE 9 – ROUND 2 CASSAVA AMPASY



PLATE 10 – ROUND 2 RICE AMPASY



PLATE 11 – ROUND 2 BANANA AND LEICHE AMPASY



PLATE 12 – ROUND 2 SOURSOT COLLECTION AMPASY



PLATE 13 RECORDING ROUND 3 GPS COORDINATES AT AMPASY ROUND 3



PLATE 14 ORANGES FROM AMPASY

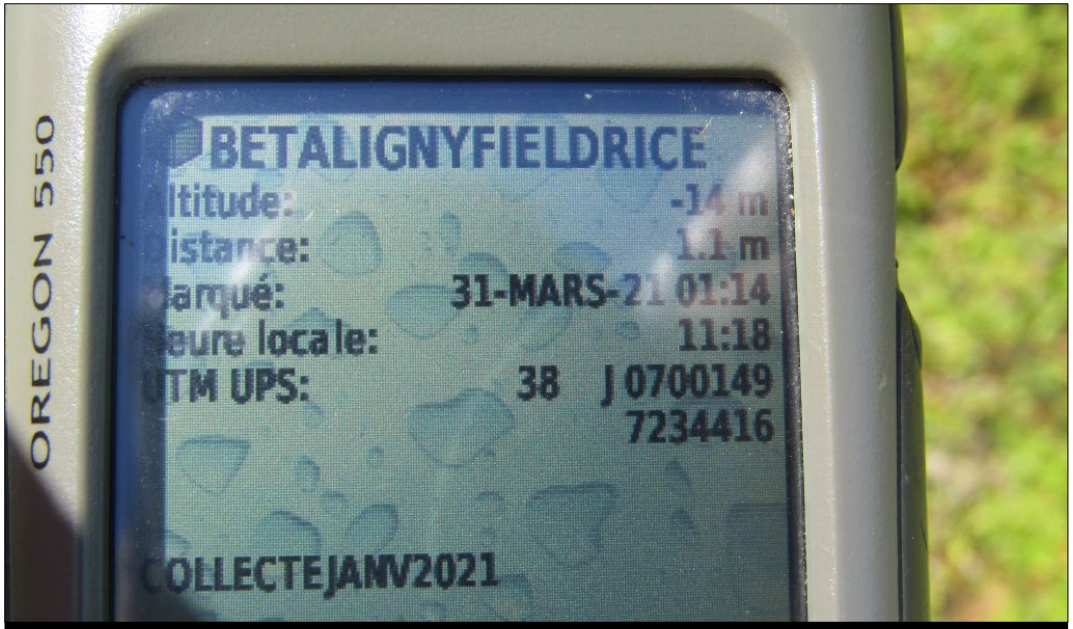

PLATE 15 ROUND 3 COORDINATES RICE BETALINGY

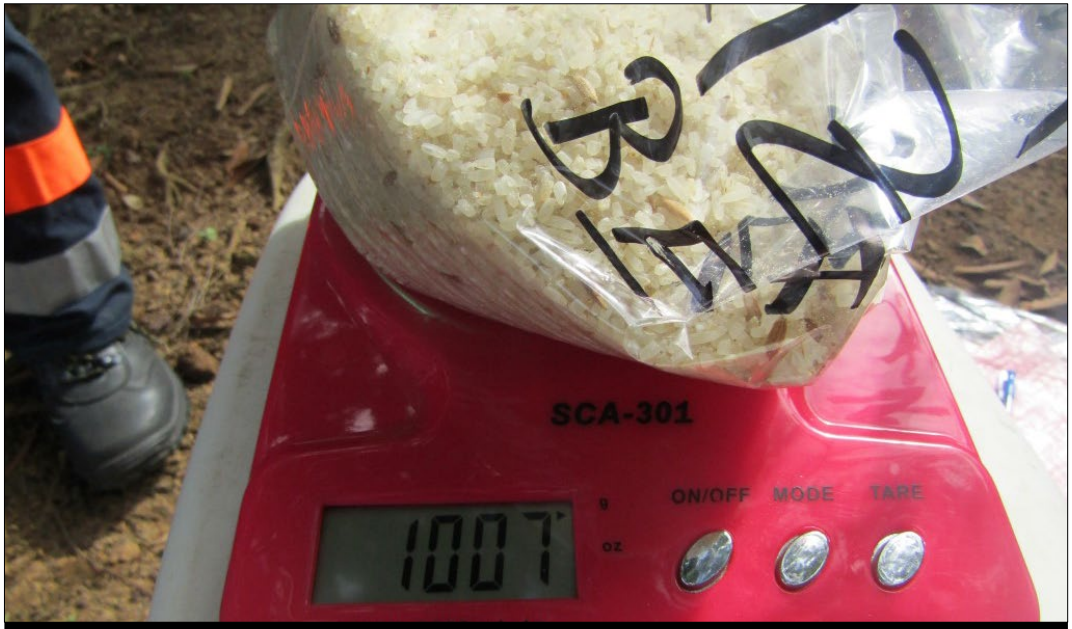

PLATE 16 ROUND 3 RICE COLLECTION BETALINGY

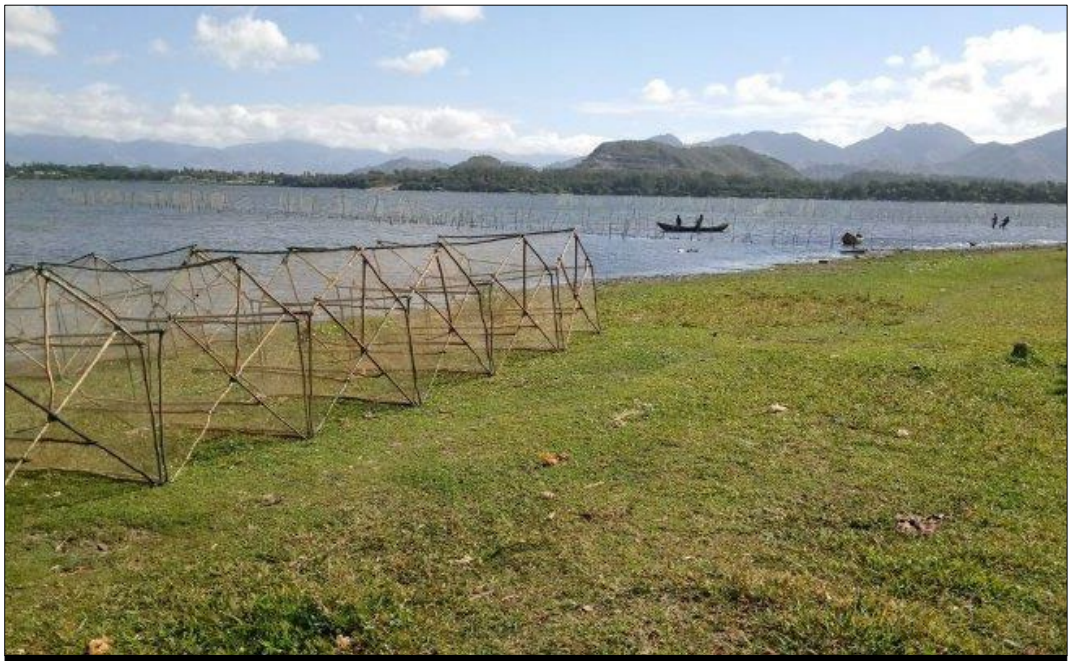

PLATE 13 ROUND 4 PRAWN TRAPS



PLATE 14 ROUND 4 SEPARATING SHRIMP



PLATE 15 ROUND 4 DRIED PLANT SAMPLES



PLATE 16 ROUND 4 SAMPLES PACKED FOR SHIPPING

Appendix A7 Food Survey

Appendix A7 Food Survey

1. Introduction

1.1 Benchmarking to international food survey standards

Two International organisations were identified to provide appropriate guidelines for the assessment of food and hygiene habits: the World Health Organisation (WHO) and the Food and Agricultural Organisation of the United Nations (FAO).

The primary role of the WHO is to direct international health within the United Nations' system and to lead partners in global health responses. With regards to nutrition and food consumption, the organisation was identified to focus largely on addressing malnutrition and promoting healthy diets and lifestyles with the aim of reducing the global burden of non-communicable diseases. A search of WHO's guidelines on dietary assessments returned one result, the countrywide integrated noncommunicable disease intervention (CINDI) dietary guide, published in 2000. The guide was assessed as outdated and did not fit the objectives of the proposed Madagascar Food Survey.

The FAO is a specialized agency of the United Nations that provides countries with technical support to conduct nutrition assessments. The organisation leads international efforts to achieve food security for all and make sure that people have regular access to enough high-quality food to lead active, healthy lives. The objectives of FAO were identified to align with the proposed Madagascar Food Survey objectives. A search for dietary assessment guidelines authored by the FAO returned the "*Dietary Assessment: A resource guide to method selection and application in low resource settings*" published in 2018 (FAO 2018).

The resource guide provides comprehensive insight into dietary assessment as well as the challenges and considerations linked to the selection of the most appropriate method. The guide has been developed to aid in the collection of dietary information, detail conceptual backgrounds of different dietary assessment methods and provide a description of their application, validity, strengths and limitations. FAO's dietary assessment guideline was considered to be appropriate for the proposed Madagascar Food Survey objectives considering the following:

- An internationally recognised guideline for dietary assessment in low resource settings.
- Holds recently published and current advice as well as case studies on dietary assessment in low resource settings.
- Instrumental in selecting a dietary assessment method adaptable to low resource settings and provides a step-by-step guide to facilitate the selection of a dietary method that is fit for purpose and project context.

1.2 Dietary assessment method selection process

The FAO dietary assessment guideline categorises dietary methods into two categories, direct and indirect methods. Indirect methods utilize secondary data for assessing diets whilst direct methods collect primary dietary data directly from individuals. The collected data is used to assess diets and consumption patterns within an identified household or population. Direct methods are considered to be the most relevant to achieve the objectives of the food survey.

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Direct methods are split up into two main categories, prospective and retrospective methods. Prospective methods involve recording the diet when the foods are being consumed whilst retrospective methods are based on a recall of food intake that has already been consumed.

Whilst prospective methods allow for real-time collection of food consumption data, they can be more labour intensive, carry much higher costs and rely heavily on the respondents having good literacy and numeracy skills. Examples of prospective methods include the weighed food record (where respondents are asked to weigh their food using weighing scales) and duplicate food record (where respondents are asked to make duplicate meals). These prospective methods are considered incompatible with low resource and low literacy settings as they place majority of the burden on the respondent and can be inconvenient and expensive on their part. Prospective dietary assessment methods have been assessed as incompatible with the project context.

Retrospective methods, on the other hand, are comparatively less expensive for the respondent. These methods depend heavily on the respondent's ability to recall all foods and portion sizes consumed over a reference period of time. Quantities of foods consumed can be obtained by food models, pictures of foods, standard household measuring cups, spoons or other contextually or culturally relevant methods and tools. Retrospective dietary assessment methods are considered fit for the proposed food survey objectives given that they enable the survey to collect data pertaining to quantities of food consumed, frequency as well as who it is consumed by within each household.

Retrospective dietary assessment methods include:

- 24-hour recall
- Food Frequency Surveys (FFQs)
- Diet histories.

1.2.1 24-hour recall

During 24-hour recall, respondents are asked to recall and report all foods and beverages consumed over the preceding 24 hours. The 24-hour period starts with the first thing eaten by the respondent in the morning until the last food item consumed before he/she got up the next morning. Information on 24-hour recall is collected using an open-ended format. Quantitative information on food intake, as described using portion size, can also be collected through this method and allows for the calculation of nutrient intakes. A single 24-hour recall is not enough to describe an individual's usual intake of food and nutrients thus, multiple non-consecutive 24-hour recalls on the same individual are required in order to capture daily variability. 24-hour recall was ruled out as a potential dietary assessment method given the labour intensive and costly nature of the multiple interviews required. The current time constraints of the project limit the applicability of this method for the proposed food survey.

1.2.2 Dietary History

The dietary history method involves a detailed assessment to describe usual food intake and its variation over a long period of time (six months to a year). It is often carried out in three steps that include: an in-depth interview to assess usual food intake and eating patterns, a food list, and a three-day record with portion size estimates. Dietary histories were originally developed for clinical use, e.g., dietetic counselling, and are not often used in low resource settings because they require well trained nutritionists with experience in dietary assessments. Additionally, the assessment method is not applicable for the proposed food survey given the current time constraints.

1.2.3 Food Frequency Questionnaires

FFQs assess the frequency with which foods and/or food groups are eaten over a certain time period. The questionnaire includes a food list, a frequency category section and can include questions on description or quantification of specific portion sizes supported by food pictures for each item on the food list. The

questionnaire can be self- or interviewer-administered. Depending on the study objectives, data collection might be daily, weekly, monthly, or yearly. FFQs are commonly used in large epidemiological studies (Willett et al., 2013) to capture data on dietary intakes and patterns (Corsi et al., 2008; Merchant et al., 2005), to assess diet-disease associations (Liu et al., 2001; McCullough et al., 2002) and to calculate correlations or relative risks (Hutanasu et al., 2009). The application of FFQs in existing dietary studies aligns with the objectives of the proposed food survey.

Strengths of FFQs as a dietary assessment include:

- Assesses the usual intake over a long period of time.
- Does not influence eating behaviour since it is a retrospective method.
- Has low respondent burden.
- Interview-based FFQs do not rely on the literacy and numeracy skills of the respondent.
- Relatively simple to administer and inexpensive when compared with other assessment methods (i.e., 24-hours recall, dietary records).
- Can include an open section at the end of the questionnaire to collect additional foods that may be regularly consumed but not present in the food list.
- Can be administered using paper (a machine-scannable format of data entry ultimately reducing data entry errors).

Given the identified strengths of the FFQ dietary assessment, its relatively inexpensive and less labour-intensive application, and the low respondent burden, the FFQ dietary assessment method was the most appropriate method. It was adaptable to the project context and was expected to effectively achieve the survey objectives.

2. Food survey design

2.1 Key cultural and community methodological considerations

It was essential to be aware of and account for community and culturally specific aspects and issues in the dietary assessment design. Accounting for culturally specific aspects ensures accurate data collation, higher community co-operation and response and higher chances of project success overall.

General community aspects that were considered in the survey design and implementation included:

- Issues of informed consent, feedback, and benefit to communities, obtaining relevant approvals and information provided to households and communities.
- To improve response and compliance to the survey, field workers administering the study were accompanied by community liaison representatives who provided awareness of the community's attitude towards face-to-face interviews, especially regarding local customs related to food behaviour and meal patterns.
- The survey acknowledges that food in many societies is related to social status which can result in over-reporting of specific foods that reflect a higher status (Kigutha, 1997). The opposite can also occur when survey objectives are poorly communicated and interviewees under-report with the belief of unjustified benefits (such as food aid) (Kigutha, 1997).

Key community aspects that were considered during survey design included:

- Accessibility to the target population (particularly in relation to COVID-19 travel restrictions).

- Seasonality variability in food consumption. Seasonality can influence dietary variability especially in low resource settings. This study considers the fact that seasonal variance impacts which food are consumed more frequently at particular points in the year. The FFQ will be designed to, not only capture which foods are eaten and in what quantity, but also capture when the foods in question are in season.

The questionnaire was developed on a simple template and designed to ease administration and data input for the fieldworker.

2.2 Food Frequency Questionnaire Design

JBS&G together with the QMM environment team drafted the structure of the food frequency questionnaire with the objective of making a primary reference sheet listing all of the known food stuffs categorised into fruit, vegetables, protein, grain and carbohydrates with associated codes that could be referenced on the individual household survey sheets with standard volumes/masses established for each food type. The standard food sizes and masses were based on measurements including cups (e.g. rice/shrimp), bunch (e.g. leaves), number (e.g. banana/fish), % portion (e.g. jackfruit/papaya) or measured weight (Kg) with reference weights based on comparison with field measurements from food samples collected over four rounds of sampling during the study. The food survey template is presented as Attachment 1. The adopted food survey constants are presented in Table 2.

The survey sheet was structured to capture the details of up to three meals a day (nominally breakfast, lunch and dinner) and three seasons, wet season (December to April), mild season (May to August) and dry season (September to November). The seasons were considered appropriate to capture the seasonal availability of certain foodstuffs such as shrimp, fruit (papaya, lychee etc) and grains (rice).

Due to the specific age brackets set by ICRP and used in radiation dose assessment models, a series of clarification questions was also included within the individual survey sheets to capture the food behaviours of children within the specific age brackets of <1, 1-3, 4-8, 9-12 and 13-16.

The food survey was undertaken by Cabinet Excellence Consulting (CEC) who were selected based on previous project experience in delivering in-country projects with US Aid and the World Wildlife Fund.

2.3 Food Survey Results

A minimum household survey percentage of 15% was adopted based on consideration of inputs including project scope, project budget, survey completion timeframe, community access and likelihood of consistency in food behaviour habits (diet and food preparation) due to geographical locations across communities. Guidance was taken from the results of the Australian Health Survey (2011-2012) undertaken by the Australian Bureau of Statistics. The details of the food survey undertaken are summarised in **Table 1**.

Table 1 Summary of Project Food Survey

Community	Households	Surveys Completed
Agnalambendra	174	26
Ampasy Centre	683	103
Andrakaraka	89	14
Betalingy	173	26
Mandromondromotra	153	23
Mangaiky	206	31

The completed food survey forms, sorted by communities are presented as Attachment 2 and the tabulated summaries of results are presented as **Attachment 3**.

2.4 Sampling Error

All sample surveys are subject to sampling and non-sampling error.

Sampling error is the difference between estimates, derived from a sample of persons, and the value that would have been produced if all persons in scope of the survey had been included.

A key strategy to reduce sampling error was undertaken by randomly selecting survey participants from the population of interest. This ensured that all family units within a village are given an equal chance of being chosen to participate.

Non-sampling error may occur in any data collection, whether it is based on a sample or a full count such as a census. Non-sampling errors occur when survey processes work less effectively than intended. Sources of non-sampling error include non-response, errors in reporting by respondents or in recording of answers by interviewers, and occasional errors in coding and processing data.

Of particular importance to food surveys is a widely observed tendency for people to under-report their food intake. This can include:

- actual changes in foods eaten because people know they will be participating in the survey
- misrepresentation (deliberate, unconscious or accidental), e.g., to make their diets appear more 'healthy' or be quicker to report.

However, under-reporting is likely to be less of an issue within the Madagascan culture, particularly in rural areas where their diet already consists of fresh, seasonal, food, rather than going to a supermarket and being able to purchase processed foods.

The findings of JBS&G in review of the survey data indicates that certain households in communities exaggerated or over report quantities of food in certain circumstances.

An example of this was represented anecdotally with discussion with the QMM local medical doctor that was familiar with the food habits of the communities indicated that Andrakaraka families tended to eat cassava and collect fish and shrimp to sell which had in fact led to significant oral health issues, while the reported annual quantities for fish for the village were very high, over 500% greater than the indicted average quantities in available published reference material.

Comparison is made within the Dose Assessment (Appendix A8) with the average food quantities reported by village locations in the food survey with available reference quantities published by the United Nations Scientific Committee on the Effects of Atomic Radiation UNSCEAR 2000, and the World health Organisation in the derived intervention levels for radionuclides in food (WHO 1998).

Table 2 Food Survey Constants

Food type	Edible mass kg	Comment
Jackfruit	1.000	QMM Environment Team weight for representative sample, average 2kg fruit, 1 kg edible
Banana	0.072	QMM Environment Team weight for representative sample and total/inedible ratio 20210722 BANANE SŒUR AMPASY
Lychee	0.010	Based on https://www.medicalnewstoday.com/articles/lychee-fruit#nutritional-content. Supported by QMM Environment Team weight for representative sample photo (17 g full fruit)
Orange	0.089	Based on 20210719 ORANGES01 AMPASY edible/total mass ratio (0.52) and QMM Environment Team weight for representative sample 169 g
Pineapple	0.201	Based on photo (387 g) and 52 % edible, based on https://www.chefs-resources.com/produce/fruit-yields/
June plum	0.071	Based on https://clovegarden.com/ingred/cw_junepz.html#:~:text=Ripe%20June%20Plums&text=They%20were%20typically%201.8%20inch,for%20eating%20out%20of%20hand.
Mango	0.242	QMM Environment Team weight for representative sample and https://www.foodandnutritionjournal.org/volume2number3/processing-and-nutritive-value-of-mango-seed-kernel-flour/
Cassava leaves	0.135	QMM Environment Team weight for representative sample for sweet potato leaves
Sweet potato leaves	0.135	QMM Environment Team weight for representative sample
Black nightshade	0.135	QMM Environment Team weight for representative sample for sweet potato leaves
Rice	0.276	QMM Environment Team weight for representative sample
Cassava	0.247	Based on edible portion of seven cassava roots, samples 20210722 MANIOC SŒUR AMPASY
Sweet potato	0.247	Based on cassava above
Potato	0.100	QMM Environment Team weight for representative sample
Bread	0.148	QMM Environment Team weight for representative sample
Bean	0.274	Photo from Josua
Fish	0.033	QMM Environment Team weight for representative sample from Round 4 fresh fish mass
Patsa	0.08	QMM Environment Team weight for representative sample from Round 1

Food type	Edible mass kg	Comment
Prawn	0.08	QMM Environment Team weight for representative sample from Round 1
Red meat	0.9	Based on kg listed in the food survey. Assuming 100 g of inedible portion (bones…)
Tovy (small fish)	0.1	Reported in cups, QMM Environment Team weight for representative sample from Round 1
Crab (marine)	0.1	Estimate but irrelevant, as marine
Little fish	0.1	Reported in cups, QMM Environment Team weight for representative sample from Round 1

A7 Attachment 1 – Food Survey Template

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FOOD SURVEY FORM

Village Name | Date

Location | Time

Easting | Northing

Name of Person conducting Survey

Sketch

Section 1, Background and general information of village and food behaviour

ESTIMATED VILLAGE POPULATION	
ESTIMATED NUMBER OF CHILDREN AND ADULTS	
ESTIMATE NUMBER OF FAMILIES WITHIN THE COMMUNITY	

THE SURVEY WILL REQUIRE INFORMATION ON ADULTS DIETS AND CHILDREN WITH THE FOLLOWING AGE BRACKETS <1, 1-3, 4-8, 9-12, 13-16

IN GENERAL WHAT WOULD A BABY <1 EAT	
IN GENERAL WHAT WOULD A CHILD 1-3 EAT, is it just a portion of the family meal or different?	
IN GENERAL WHAT WOULD A CHILD 4-8 EAT, is it just a portion of the family meal or different?	
IN GENERAL WHAT WOULD A CHILD 9-12 EAT, is it just a portion of the family meal or different?	
IN GENERAL WHAT WOULD A CHILD 13-16 EAT, is it just a portion of the family meal or different?	

Food Behaviour

IN GENERAL HOW MUCH FOOD IS GROWN OR PRODUCED BY THE VILLAGE AS A PERCENTAGE	
WHAT IS THE FOOD SOURCED OUTSIDE OF THE VILLAGE, WHERE AND HOW OFTEN IS THAT SOURCED	
IS THERE A PARTICULAR SEASON OF TIMEFRAME DURING THE YEAR THAT FOOD IS SOURCED OUTSIDE OF THE VILLAGE	
IN GENERAL HOW IS FOOD PREPARED AND EATEN, IS IT COMMUNAL, AS A FAMILY OR OTHERWISE	
IN GENERAL HOW MANY MEALS PER DAY, DOES THIS CHANGE AT WEEKENDS OR SUNDAYS	
IN GENERAL DO THE ADULTS LEAVE THE VILLAGE DURING THE DAY FOR WORK AND WHERE AND WHAT DO THEY EAT WHILE AT WORK	

PLEASE COMPLETE THE FOOD LIST BY TYPE FOR ALL OF THE FOOD THAT IS EATEN BY THE VILLAGE

Name

Village

Date

No Adults

No Children

Adult Ages

Children Ages

Page ____ of _____

Breakfast

	Usual (Type)	Rainy Season (Dec-Apr)	Mild Season (May-August)	Dry Season (Sept-Nov)
Fruit	**3**	**1** A2 / **0.5** A1	**0.5** A5	
Vegetable	**4**			
Rice/Carbohydrate	**5**			
Protein	**6**			

How is the protein prepared

For prawns and shrimp what part is eaten

For fish what part of the fish is eaten, are small fish eaten whole

IN GENERAL WHAT WOULD A BABY <1 EAT

IN GENERAL WHAT WOULD A CHILD 1-3 EAT, is it just a portion of the family meal or different?

IN GENERAL WHAT WOULD A CHILD 4-8 EAT, is it just a portion of the family meal or different?

IN GENERAL WHAT WOULD A CHILD 9-12 EAT, is it just a portion of the family meal or different?

IN GENERAL WHAT WOULD A CHILD 13-16 EAT, is it just a portion of the family meal or different?

Food List (Example)

Fruit	Name/Type	Vegetable	Name/Type	Grain - Carbohydrate	Name/Type	Protein	Name/Type	Other	
A1	Papaya	B1	Casava leaves - Feuilles Manioc	C1	Rice - Riz	D1	Fish	E1	
A2	Jackfruit	B2	Zuccini	C2	Casava - Manioc	D2	Shrimp - Trawn	E2	
A3	Soursot - Corossoles	B3		C3		D3	Prawn	E3	
A4	Banana	B4		C4		D4		E4	
A5	Lychee	B5		C5		D5		E5	
A6	Oranges	B6		C6		D6		E6	
A7		B7		C7		D7		E7	
A8		B8		C8		D8		E8	
A9		B9		C9		D9		E9	
A10		B10		C10		D10		E10	
A11		B11		C11		D11		E11	
A12		B12		C12		D12		E12	
A13		B13		C13		D13		E13	
A14		B14		C14		D14		E14	
A15		B15		C15		D15		E15	
A16		B16		C16		D16		E16	
A17		B17		C17		D17		E17	
A18		B18		C18		D18		E18	
A19		B19		C19		D19		E19	
A20		B20		C20		D20		E20	

A7 Attachment 2 – Food Survey Fieldsheets

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Nom et prénoms : MOSA Armin

Village : Agnalambendra

Date: 14/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 25/24

Ages des enfants : —

A1

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	40 (mahbe)	40 A5	~~4~~ A6	40 A5
Légume				
Grain/Glucides	2 toko	2 G2	2 G2	2 G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	2 gobelets	2C1 4C8	2C1	2C1
Protéine	6 (nombre)	6D1		6D1

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommées en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	4 gobelets	2G1 2G2	2G1 2G2	2G1 2G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : BAO Justine

Village : Agnalambendra

Date: 14/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 6

Nombre d'enfants 8 A2

Ages des adultes: 32, 21, 21, 30, 55, 18

Ages des enfants : 2, 14, 17, 12, 7, 7, 3, 1

Page 1 sur 6

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	8 grappes	4B5 4B6	4B5 4B6	4B5 4B6
Grain/Glucides	4 gobelets 4 toko	4C2 4C2	4C2 4C2	4C2 4C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	10 grappes	SB5 SB6	SB5 SB6	SB5 SB6
Grain/Glucides	5 tokos	SG2	SG2	SG2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	8 gobelets	8G	8G	8G
Protéine	4 gobelets	4P13	4P13	4P13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 4 tomate et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : RASAMBO Marcellin

Village : Agnalambendra

Date: 14/02/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 27, 41

Ages des enfants : 8, 1

A3

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	1 gobelet 1 toko	1 G 2 G	1 G 2 G	1 G 2 G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	1 grappe	1B5	1B5	1B5
Grain/Glucides	3 tôlo	3C2	3C2	3C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets	3 G	3 G	3 G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : DAMY Julien

Village : Agalambendra

Date: 14/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 48, 72

Ages des enfants : —

A4

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	1,5 gobelets	1,5 g	1,5 g	1,5 g
Protéine	2 (nombre)	2 d4	2 d4	2 d4

Comment est-ce que les protéines sont-elles préparées ?	Sautés.	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	55 (nombre)	3A4 2A13 50A5	3A4	3A4 00A5 2A13
Légume				
Grain/Glucides	3 gobelets	3G1	3G1	3G1
Protéine	2 gobelets 6 (nombre)	2D13 6D1	2D13	2D13 6D1

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	(nombre)	4 Ay	4 Ay	4 Ay
Légume				
Grain/Glucides	4 | 5 gobelets	3 G 1,5 G12	3 G 1,5 G12	3 G 1,5 G12
Protéine	0,25 kilo	0,25 D	0,25 D	0,25 D

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : BONA

Village : Agnalambendra

Date: 24/01/2022

Nombre de repas par jour: 2

Angelo

Nombre d'adultes : 3

Nombre d'enfants 2

Ages des adultes: 28, 18, 60

Ages des enfants : 10, 5

A5

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides				
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	10 (nombre)	5 Ay 5 Ay3	5 Ay	5 Ay 100 Ay 5 Ay3
Légume				
Grain/Glucides	4 toko	4 G2	4 G2	4 G2
Protéine	4 gobelets	4 D13	4 D13	4 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	6 gobelets	6G	6G	6G
Protéine	4 gobelets	4D13	4D13	4D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec ktomate et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : GIMBY

Village : Agnalanbendra

Date: 14/01/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 4

Nombre d'enfants 3

Ages des adultes: 60, 29, 38, 50

Ages des enfants : 10, 9, 2

A6

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	7 grappes	3B5 4B6	3B5 4B6	3B5 4B6
Grain/Glucides	1/5 gobelets 3 tô	1/5 G 3 G	1/5 G 3 G	1/5 G 3 G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	7 (nombre)	7 A13		7 A13 7 O A5
Légume	9 grappes	4 B5 5 B6	4 B5 5 B6	4 B5 5 B6
Grain/Glucides	3 gobelets 5 toko	3 G1 2 G2 3 G3	3 G1 2 G2 3 G3	3 G1 2 G2 3 G3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	9 grappes	4B5 5B6	4B5 5B6	4B5 5B6
Grain/Glucides	5 gobelets ~~3 bols~~ ~~4 C3~~	5G1 3G2 4G3	5G1 3G2 4G3	5G1 3G2 4G3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Elodie

Village : Agnalambendra

Date: 14/01/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 76/30

Ages des enfants : 13/8

A7

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2B6	2B6	2B6
Grain/Glucides	1 gobelet	1G1	1G1	1G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	6 A23		6 A23 80 A5
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	2 gobelets	2G2	2G2	2G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	4 gobelets	4G	4G	4G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Elvine

Village : Agnalambendra

Date: 14/01/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 4

Nombre d'enfants 2

Ages des adultes: 45/40,24,20

Ages des enfants : 17,12

A8

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	12 (nombre)	12 A13		12 A13 120 A5
Légume	6 grapps	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	4 gobelets 5 koko	4G 2G 3G3	4G 2G 3G3	4G 2G 3G3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	7 grappes	3B5 4B6	3B5 4B6	3B5 4B6
Grain/Glucides	7 gobelets	5G1 2G2	5G1 2G2	5G1 2G2
Protéine	12 (nombre)	12D1	12D1	12D1

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Florette

Village : Agnalambendra

Date: 14/02/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 36, 40

Ages des enfants : 4

Ag

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2Bs	2Bs	2Bs
Grain/Glucides	1 koko	1Cs	1Cs	1Cs
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	11 (nombre)	6 A4 5 A13	6 A4	6 A4 80 A5 5 A13
Légume	4 grappes	2 B5 2 B6	2 B5 2 B6	2 B5 2 B6
Grain/Glucides	1 toko	1 C2	1 C2	1 C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets	2G1	2G1	2G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MAGNAHOSOA

Village : Ambelambendoa

Date: 14/01/2022

Nombre de repas par jour: 2

Hermann

Nombre d'adultes : 2

Nombre d'enfants 6

Ages des adultes: 45, 34

Ages des enfants : 17, 16, 12, 8, 5, 3

A10

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides				
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	8 (nombre)	8 A13		8 A13 80 A5
Légume	8 grappes	4B5 4B6	4B5 4B6	4B5 4B6
Grain/Glucides	7 toko	2C2 5C3	2C2 5C3	2C2 5C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	9 grappes	4B5 5B6	4B5 5B6	4B5 5B6
Grain/Glucides	4 gobelets	4C2	4C2	4C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Lisy

Village : Agnalambendra

Date: 14/01/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 2

Nombre d'enfants 4

Ages des adultes: 39, 33

Ages des enfants : 17, 14, 10, 4

A11

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	60 (nombre)	50 A5 10 A13	10 A6	50 A5 10 A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets	2G1	2G1	2G1
Protéine	10 (nombre) 1 gobelet	10 D1 1 D13	10 D1	10 D1 1 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées et frites	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	70 (nombre)	50 A5 10 A6 10 A13	10 A6	50 A5 10 A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets 4 koko	3C1 3C2 1C3	3C1 3C2 1C3	3C1 3C2 1C3
Protéine	10 (nombre)		10 D2	10 D2

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	3B5 2B6	3B5 2B6	3B5 2B6
Grain/Glucides	4 gobelets	3G1 1G2	3G1 1G2	3G1 1G2
Protéine	10 (nombre)	10D1	8D1	10D1

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou frits	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Soanirihy

Village : Agnalambendra

Date: 14/01/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 4

Nombre d'enfants 4

Ages des adultes: 57/22/20/18

Ages des enfants : 13/12/9/8

A12

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	69 (nombre)	100% A2 60 A5 8 A13	100% A2	100% A2 60 A5 8 A13
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	2 gobelets 4 tokos	2G1 2G2 2G3	2G1 2G2 2G3	2G1 2G2 2G3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	69 (nombre)	100% A2 60 A5 8 A23	100% A2	100% A2 60 A5 8 A23
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets 4 tô	3C1 2C2 2C3	3C1 2C2 2C3	3C1 2C2 2C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	8 grappes	4B5 4B6	4B5 4B6	4B5 4B6
Grain/Glucides	4 Gobelets 4 Koko	4G2 2G2 2G3	4G2 2G2 2G3	4G2 2G2 2G3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : RASOLINY Antsa

Village : Agnalambendra

Date: 14/02/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 1

Nombre d'enfants 1

Ages des adultes: 48

Ages des enfants : 12

A13

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	22 (nombre)	20 B5 2 A13		20 B5 2 A13
Légume	3 grappe	1 B5 2 B6	1 B5 ~~2 B6~~	1 B5 2 B6
Grain/Glucides	1 gobelet 2 koko	1 G1 1 G2 1 G3	1 G1 1 G2 1 G3	1 G1 1 G2 1 G3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	22 (nombre)	20 A5 2 A13		20 A5 2 A13
Légume	3 grappes	1 B5 2 B6	1 B5 2 B6	1 B5 2 B6
Grain/Glucides	3 gobelets 1 kabo	1 C1 2 C8	1 C1 1 C3 2 C8	1 C1 1 C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

4/8

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	1 gobelet 2 tôts	1G 2G	1G 2G	1G 2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Malakisoa

Village : Agnalembendra

Date: 14/02/2022

Nombre de repas par jour: 2

Edget

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 30,18

Ages des enfants : 8 mois

A14

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides				
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	34 (nombre)	30 A5 4 A23		30 A5 4 A23
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 gobelet 1 tobo	1C2 1C2	1C2 1C2	1C2 1C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	lait maternel et riz léger (soso)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	lait maternel et [illegible] léger (sosoa)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Paxaline

Village : Agalambendra

Date: 14/01/2022

Nombre de repas par jour: 3

Madagat

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: 30, 27, 30

Ages des enfants : 10,5, 3mois

A15

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6(nombre)	6A4 6A13	12A6 6A4	6A4 60A5
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets 2 tokos	2G2 2G2	2G2 2G2	2G2 2G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel et nourriture (Sosoa)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	12 (nombre)	12 A4 12 A23	12 A6 12 A4	12 A4 60 A5
Légume	8 grappes	4 B5 4 B6	4 B5 4 B6	4 B5 4 B6
Grain/Glucides	4 gobelets 2 kokos	4 G 2 G	4 G 2 G	4 G 2 G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	lait maternel et riz léger (Sosoa)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

4/6

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	8 grappes	4B5 4B6	4B5 4B6	4B5 4B6
Grain/Glucides	6 gobelets	6 G1	6 G1	6 G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel et riz léger (sosoa)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAZANAZANDRY Nirina

Village : Agnalambendra

Date: 14/01/2022

Nombre de repas par jour: 3

Modeste

Nombre d'adultes : 2

Nombre d'enfants 5

Ages des adultes: 34, 37

Ages des enfants : 17, 14, 12, 10, 5

A16

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	28 (nombre)	14 A4 14 A13	14 A4	14 A4 14 A13
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	2 gobelets 2 tsoko	2G 2G	2G 2G	2G 2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	7 grappes	3B5 4B6	3B5 4B6	3B5 4B6
Grain/Glucides	4 gobelets 3 toko	4G 3G	4G 3G	4G 3G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	7 grappes	3B5 4B6	3B5 4B6	3B5 4B6
Grain/Glucides	7 gobelets	7G1	7G1	7G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : SAY Maxime

Village : Agalambendra

Date: 14/01/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: 72, 28

Ages des enfants : 13, 6, 6 mois

A17

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 gapes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	8 (nombre)	8 A4 8 A13	8 A4	8 A4 40 A5
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	2 gobelets 2 tô	2G2 2G2	2G2 2G2	2G2 2G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	3 galettes	3G2	3G2	3G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : HOVA Hortense

Village : Agnalamberha

Date: 14/01/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 1

Nombre d'enfants 2

Ages des adultes: 60

Ages des enfants : 6/4

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PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	1 goblet	1G1	1G1	1G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	6 A4 6 A13	6 A4	30 A5 6 A4
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets 1 toko	2G2 1G2	2G2 1G2	2G2 1G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

4/6

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAHARIMALALA Claudine

Village : Agalambendra

Date: 14/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 30,24

Ages des enfants : 14,1

A19

Page _____ sur _____

lazafet

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	8 (nombre)	8 A13		8 A13
Légume	3 grappes	2B5 1B6	2B5 1B6	2B5 1B6
Grain/Glucides	1 goblet	1G1	1G1	1G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	8/25 (nombre)	25% A2 8 A13	25% A2	25% A2 8 A13
Légume	3 grappes	3B/6	3B/6	3B/6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	3B6	3B6	3B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	3 gobelets	3D13	2D13	3D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : RAZAFINDRAKOTAKA Géline

Village : Agnalambendra

Date: 14/02/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 4

Ages des adultes: 37, 27

Ages des enfants : 16, 12, 7, 11 mois

A20

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	1 grappe	1B/6	1B/6	1B/6
Grain/Glucides	2 gobelets	2 G	2 G	2 G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	12 (nombre)	12 A13		60 A5 12 A13
Légume	6 grappes	3 B5 3 B6	3 B5 3 B6	3 B5 3 B6
Grain/Glucides	4 gobelets	4 G1	4 G1	4 G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	5 gobelets	5G	5G	5G
Protéine	1 gobelet	1D13	1D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Julence

Village : Agnalambendra

Date: 14/01/2022

Nombre de repas par jour: 3

Lazafet

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 46, 18

Ages des enfants : —

A-21

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2B6 2B7	2B6	2B6
Grain/Glucides	1 gobelet 1 toko	1G1 1G1	1G1 1G1	1G1 1G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	4 (nombre)	4 A 23		4 A 23
Légume	3 grappes	3 B 6 2 B 7	3 B 6	3 B 6
Grain/Glucides	2 toko	2 G 2	2 G 2	2 G 2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	3B6 2B7	3B6	3B6
Grain/Glucides	2 gobelets	2G1	2G1	2G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAZAFISOA Francine

Village : Agnalambendra

Date: 14/02/2022

Nombre de repas par jour: 3

Lazafet

Nombre d'adultes : 5

Nombre d'enfants 3

Ages des adultes: 56, 54, 22, 20, 18 A22

Ages des enfants : 8, 4, 2

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2Bs	2Bs	2Bs
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	16/5 (nombre)	50% A2 16 A13	50% A2	50% A2 200 A5 16 A13
Légume	6 grappes	3B5 3B6 2B7	3B5 3B6	3B5 3B6
Grain/Glucides	7 tolo	4 C2 3C3	4 C2 3C3	4 C2 3C3
Protéine	8 (nombre)	8 D2	8 D2	8 D2

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	3B5 3B6 2B7	3B5 3B6	3B5 3B6
Grain/Glucides	8 gobelets	8 G1	8 G1	8 G1
Protéine	16 (nombre)	16 D1	16 D1	16 D1

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RANDRIAMAMPISENTO Augustin

Village : Agnalambendra

Date: 14/01/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 32, 24

Ages des enfants : —

A23

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	60 B5 6 A13		6 A13
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 koko	1G2	1G2	1G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	6 A 5 6 A 13		6 A 13
Légume	2 grappes	2 B 6	2 B 6	2 B 6
Grain/Glucides	1 tô/G	1 G 3	1 G 3	1 G 3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2B/6	2B/6	2B/6
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine	3 (nombre) 1 gobelet	3D2 1D13		3D1 1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : IAMY Jonathan

Village : Agalambendra

Date: 14/01/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 50, 27

Ages des enfants : 3

A24

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit		100 Bs 8 Bj		
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 gobelet	1G1	1G1	1G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6(nombre)	100 As 6 A13		6 A13
Légume				
Grain/Glucides	3 gobelets	2 G1 1 G12	2 G1 1 G12	2 G1 1 G12
Protéine	8(nombre) 1 gobelet	8 D1 1 D13		8 D1 1 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	4 gobelets	3G1 1G12	3G1 1G12	3G1 1G12
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : BAO

Village : Agnalambendra

Date: 14/01/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 60, 40

Ages des enfants : 11

A25

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6(nombre)	G0 A5 6A13		6A13
Légume				
Grain/Glucides	1(nombre)	1G0	1G0	1G0
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6(nombre)	60 B5 6 A13		6 A13
Légume	4 gappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 galettes 2 toko	2G1 2G2	2G1 2G2	2G1 2G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets	2G1	2G1	2G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : ZETHENY

Village : Agnalambendra

Date: 14/01/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 3

Nombre d'enfants 4

Ages des adultes: 30, 22, 52

Ages des enfants : 17, 15, 12, 17

A26

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	7 (nombre)	120 Ar 7 AI3		7 AI3
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	4 kabo	2C2 2C3	2C2 2C3	2C2 2C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	7 (nombre)	~~10~~ A5 7 A13		7 A13
Légume	8 grappes	4B5 4B6	4B5 4B6	4B5 4B6
Grain/Glucides	5 kilo	5C2	5C2	5C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	5 gobelets 2 tô	5C1 2C2	5C1 2C2	5C1 2C2
Protéine	1 gobelet	1D13		1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

AC 1

Nom et prénoms : Jean Claude

Village : Ampany Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 3

Nombre d'enfants 1

Ages des adultes: 63, 60, 18

Ages des enfants : 10

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	2 toko	1C2 1C3	1C2 1C3	1C2 1C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Menerepas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	4 ~~beko~~	2C2 2C3	2C2 2C3	2C2 2C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	4 gobelets	4G	4G	4G
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Rasoanambinty

Village : Ampary Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Modetat

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 36, 24

Ages des enfants : 3

AC2

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 gobelet	1C1	1C1	1C1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	4 (nombre)	4 A4	4 A4	4 A4 30 Aj
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	1 koko	1 Cr	1 Cr	1 Cr
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Baomary Claire

Village : Ampany Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Modekot

Nombre d'adultes : 4

Nombre d'enfants 5

AC3

Ages des adultes: 46, 28, 19, 18

Ages des enfants : 16, 14, 6, 6, 3

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	4 gobelets	4G1	4G1	4G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	20 (nombre)	20 A4 18 A13	20 A4	20 A4 90 AJ
Légume	7 grappes	3B5 4B6	3B5 4B6	3B5 4B6
Grain/Glucides	6 gobelets	6 G1	6 G1	6 G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	8 grappes	3B5 5B6	3B5 5B6	3B5 5B6
Grain/Glucides	8 gobelets	8 G1	8 G1	8 G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Naina Faustin Claude

Village : Ampany Centre

Date: 15/02/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 2

Nombre d'enfants 6

Ages des adultes: 42, 32

Ages des enfants : 12, 9, 7, 5, 3, 1

AC4

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 koko 2 gobelets	2C1 2C2	2C1 2C2	2C1 2C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	14 (nombre)	14 Ay 14 Ans	14 Ay	14 By 70 Aj
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	5 gobelets 2 toko	5G 2G	5G 2G	5G 2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	7 gappes	3 Bs 4 Bb	3 Bs 4 Bb	3 Bs 4 Bb
Grain/Glucides	7 gobelets	7 G	7 G	7 G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MAHAZOMANANA Alain

Village : Ampany Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Modèle

Nombre d'adultes : 6

Nombre d'enfants 5

AG5

Ages des adultes: 52, 43, 28, 25, 22, 20

Ages des enfants : 16, 14, 8, 8, 3

Page _____ sur _____

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	4 gobelets 2 koko	4 G1 2 G2	4 G1 2 G2	4 G1 2 G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	21 (nombre)	21 Ay 21 Ay3	21 Ay	21 Ay 110 Ay
Légume	8 grappes	4B5 4B6	4B5 4B6	4B5 4B6
Grain/Glucides	7 gobelets 3 kbo	7G2 3G2	7G2 3G2	7G2 3G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	9 gobelets	9 G	9 G	9 G
Protéine	21 (nombre) 3 gobelets	3 D13	21 D1 3 D13	21 D1 3 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Manjaka Taratra

Village : Ampasy Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Modestak

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 25/18

Ages des enfants : 2

AC6

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B5 1B1/2	1B5 1B1/2	1B5 1B1/2
Grain/Glucides	1 koko	1C2	1C2	1C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	6 A4 6 A13	6 A4	~~20~~ A5
Légume	3 grappes	1 B5 2 B6	1 B5 2 B6	1 B5 2 B6
Grain/Glucides	1,5 Gobelets 2 tubes	1,5 G1 1 G2 1 G3	1,5 G1 1 G2 1 G3	1,5 G1 1 G2 1 G3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine	6 (nombre) 2 gobelets	6D 2D3	6D 2D3	6D 2D3

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

6/6

Nom et prénoms : Ravaonirina Pascaline

Village : Ampany Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 5

Nombre d'enfants 1

Ages des adultes: 55, 54, 26, 26, 19

Ages des enfants : 17

AC7

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 nombre	6 Ar3 60 Ar		6 Ar3
Légume				
Grain/Glucides	1 gobelet 2 koko	1 Gr 2 Gr	1 Gr 2 Gr	1 Gr 2 Gr
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	100 A5 6 A23		6 A23
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	4 gobelets	4G1	4G1	4G1
Protéine	10 (nombre) 2 gobelets	10D2 2D23	2D23	10D1 2D23

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	5 gobelets	5G1	5G1	5G1
Protéine	6 (nombre) 2 gobelets	6D2 2D13	2D13	6D2 2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Ranaivoson Justine

Village : Ampany Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 5

Nombre d'enfants 6

Ages des adultes: 52, 32, 23, 21, 18

Ages des enfants : 9, 6, 4, 2, 1, 6 mois

AC8

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	4 tsaka	2G2 2G3	2G2 2G3	2G2 2G3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	6 kobo	3C2 3C3	3C2 3C3	3C2 3C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	8 gobelets	6G 2G2	6G 2G2	6G 2G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Noël Platini

Village : Ampasy Centre

Date: 15/02/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 3

Nombre d'enfants 2

Ages des adultes: 25, 23, 29

Ages des enfants : 15, 7

AC9

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	10 (nombre)	10 A23 50 Aj		10 A23
Légume				
Grain/Glucides	2 gobelets 2 koko	2G 2G3	2G 2G3	2G 2G3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	10 (nombre)	10 A13 100 A5		10 A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	4 toko	2C2 2C3	2C2 2C3	2C2 2C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	4 gobelets	4G2	4G2	4G2
Protéine	1 gobelet	1D23	1D23	1D23

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Zafimaritina

Village : Ampary Centre

Date: 15/04/2022

Nombre de repas par jour: 3

Syfiro

Nombre d'adultes : 1

Nombre d'enfants 2

Ages des adultes: 27

Ages des enfants : 10, 3

AG10

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 gobelet	1G1	1G1	1G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	1 kobo	1C3	1C3	1C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 gappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Kara Nadety

Village : Ampary Centre

Date: 15/02/2022

Nombre de repas par jour: 3

Syluco

Nombre d'adultes : 3

Nombre d'enfants 4

Ages des adultes: 40, 55, 18

Ages des enfants : 17, 15, 11, 3

AC11

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	7 (nombre)	7A13 12A5		7A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 tako	2C2	2C2	2C2
Protéine	2 gobelets	2D13		2D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	14 A13	14 A13 150 B5		14 A23
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	4 gobelets 2 tô	4C1 2C2	4C1 2C2	4C1 2C2
Protéine	2 gobelets	2D13		2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	5 gobelets	5 G	5 G	5 G
Protéine	2 gobelets	2D13		2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Rehetriby

Village : Ampany Centre

Date: 15/02/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 5

Nombre d'enfants 4

Ages des adultes: (68, 22, 24, 18, 20)

Ages des enfants : (17, 9, 7, 7)

AG12

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	9 (nombre)	9 Cs	9 Cs	9 Cs
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	9 (nombre)	200 Fs 9 Ans		9 Ans
Légume	6 grappes	3 Bs 3 Bs	3 Bs 3 Bs	3 Bs 3 Bs
Grain/Glucides	5 gobelets	5 G	5 G	5 G
Protéine	2 gobelets	9 Os 2 Ans		2 Ans

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	3B5 3B10	3B5 3B10	3B5 3B10
Grain/Glucides	6 gobelets	6G	6G	6G
Protéine	2 gobelets	2D13		2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Jean Pierre

Village : Ampany Centre

Date: 16/05/2022

Nombre de repas par jour: 3

Syfuio

Nombre d'adultes : 3

Nombre d'enfants —

Ages des adultes: 26, 41, 50

Ages des enfants : —

AG13

Page 1 sur 6

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	6 AG13 6 AG		6 AG13
Légume	1 grappe	1 BG	1 BG	1 BG
Grain/Glucides	1 gobelet	1 G2	1 G2	1 G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	60 Ans 6 Ans		6 Ans
Légume				
Grain/Glucides	2,5 gobelets	2,5 G	2,5 G	2,5 G
Protéine	2 gobelets	2 Ans	2 Ans	2 Ans

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	2 gobelets	2Dj	2Dj	2Dj

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?	Corps	
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : KARA Célestin

Village : Ampany Centre

Date: 16/02/2022

Nombre de repas par jour: 3

Sylvie

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: 50, 48

Ages des enfants : 16, 14, 4

AC14

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	10 (nombre)	10 Bg 100 Bg		10 Bg
Légume	3 grappes	1 Bg 2 Bo	1 Bg 2 Bo	1 Bg 2 Bo
Grain/Glucides	2 goblets	2 G	2 G	2 G
Protéine	1 goblet	1 Dg	1 Dg	1 Dg

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	10 (nombre)	100 BS 10 AZ3		10 AZ3
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	5 koko	3C2 2C3	3C2 2C3	3C2 2C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	4 gobelets	4G	4G	4G
Protéine	2 gobelets	2D3	2D3	2D3

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : SANA Beline

Village : Ampasy Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: 45/22

Ages des enfants : 17/14, 8

AC15

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	10 (nombre)	100 A5 10 A13		10 A13
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	3 gobelets	3C1	3C1	3C1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	10 (nombre)	100 AS 10 AB		10 AB
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3G	3G	3G	3G
Protéine	10 (nombre) 2 kilos	10 D 2D	10 D 2D	10 D 2D

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?	les têtes des crevettes sont enlevées	
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	10 (nombre) 3 Kolo	10D 3D3	10D 3D3	10D 3D3

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?	les têtes des crevettes sont enlevées	
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Bienvenue

Village : Ampary Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 1

Nombre d'enfants 1

Ages des adultes: 33

Ages des enfants : 15

AC16

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	4 (nombre)	40 B5 4 A13		4 B13
Légume	1 grappe	1 B5	1 B5	1 B5
Grain/Glucides	1 gobelet	1 C1	1 C1	1 C1
Protéine	1 gobelet	1 D13	1 D13	1 D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	4 (nombre)	40 A5 4 A23		4 A23
Légume	3 grappes	2 B16 1 B7	2 B16 1 B7	2 B16 1 B7
Grain/Glucides	1 gobelet 1 tdso	1 C1 1 C3	1 C1 1 C3	1 C1 1 C3
Protéine	1 gobelet	1 D23	1 D23	1 D23

Comment est-ce que les protéines sont-elles préparées ?	Bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B6 2B7	2B6 2B7	2B6 2B7
Grain/Glucides	1 gobelet	1G1	1G1	1G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Lalao Candide

Village : Ampary Centre

Date: 16/02/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 4

Nombre d'enfants 3

Ages des adultes: 22, 21, 45, 55

Ages des enfants : 17, 16, 9

AC17

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	14 (nombre)	100 Ar 14 Arj		14 Arj
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	3 toko	3Cr	3Cr	3Cr
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	14 (nombre)	150 A5 14 A13		14 A13
Légume	4 grappes	2 B5 2 B6	2 B5 2 B6	2 B5 2 B6
Grain/Glucides	4 toko	4 C2	4 C2	4 C2
Protéine	2 gobelets	2 D13	2 D13	2 D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	7 gobelets	7G	7G	7G
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Clotilde

Village : Ampany Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Syluso

Nombre d'adultes : 3

Nombre d'enfants 2

Ages des adultes: 40, 30, 18

Ages des enfants : 14, 15

AC18

Page 1 sur 6

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	10 (nombre)	50 A5 10 A13		10 A13
Légume				
Grain/Glucides	2 gobelets	2 C1	2 C1	2 C1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	10 (nombre)	50 AS 10 AI3		10 AI3
Légume	3 grappes	1B5 1B6 1B7	1B5 1B6 1B7	1B5 1B6 1B7
Grain/Glucides	3 tako	3G2	3G2	3G2
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	4 gobelets	4G1	4G1	4G1
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : SEDIMANRY Fidel

Village : Ampary Centre

Date: 26/01/2022

Nombre de repas par jour: 3

Sylvie

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 33, 27

Ages des enfants : —

AG9

Page 1 sur 6

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	4 (nombre)	4 OA5 4 A23	6 A6	4 A23
Légume				
Grain/Glucides	1 gobelet	1 G1	1 G1	1 G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	4 (nombre)	40 B5 4 B23	6 B6	4 B23
Légume	2 grappes	1 B5 1 B6	1 B5 1 B6	1 B5 1 B6
Grain/Glucides	1 gobelet 1 [illegible]	1 C1 1 C3	1 C1 1 C3	1 C1 1 C3
Protéine	1 gobelet	1 D23	1 D23	1 D23

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	2 gobelets	2G1	2G1	2G1
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : SOKATHY

Village : Ampary Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 42,30

Ages des enfants : —

AC20

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	44 (nombre)	40 A5 4 A23		40 A5 4 A23
Légume				
Grain/Glucides	4 (nombre)	4 Cg	4 Cg	4 Cg
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	44 (nombre)	40 A5 4 A23		40 A5 4 A23
Légume	2 grappes	2B5	2B5	2B5
Grain/Glucides	2 ~~toko~~	1C2 1C3	1C2 1C3	1C2 1C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	2gobelets	2G2	2G2	2G2
Protéine	1gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Harivelo

Village : Ampary Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Sylvia

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 68, 26

Ages des enfants : 3

AC21

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 gobelet	1G1	1G1	1G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	3 (nombre)	20 A5 3 A13		3 A13
Légume	3 grappes	1 B5 2 B6	1 B5 2 B6	1 B5 2 B6
Grain/Glucides	2 gobelets	2 C1	2 C1	2 C1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	1 B/S 2 B/G	1 B/S 2 B/G	2 B/S 2 B/G
Grain/Glucides	2,5 gobelets	2,5 G	2,5 G	2,5 G
Protéine	1 gobelet	1 D3		1 D3

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : TAHINJANAHARY Jocelyn

Village : Ampasy Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 47/42

Ages des enfants : 17/8

AC22

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	48 (nombre)	40 A5 8 A23		40 A5 8 A23
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 gobelet	1G1	1G1	1G1
Protéine	1 gobelet	1 D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 oignons et 3 tomates	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	48(nombre)	40 A5 8 A13		40 A5 8 A13
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	2 gobelets 2 tas	2G1 1G2 1G3	2G1 1G2 1G3	2G1 1G2 1G3
Protéine	1 gobelet	1 D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Sossa Gelon

Village : Ampasy Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 1

Nombre d'enfants 1

Ages des adultes: 60

Ages des enfants : 17

AC23

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	4 (nombre)	40 Ar 4 AC23		40 Ar 4 AC23
Légume				
Grain/Glucides	2 (nombre)	2Cg	2Cg	2Cg
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 gappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	2 toko	1C2 1C3	1C2 1C3	1C2 1C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Patsy

Village : Anpary Centre

Date: 16/02/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 3

Nombre d'enfants 6

Ages des adultes: 46,25,50

Ages des enfants : 10,7,5,3,8,1

AC24

Page _____ sur _____

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	2 tobo	2C3	2C3	2C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	200 (nombre)	200 Ag		200 Ag
Légume	5 grappes	2Bs 3Bb	2Bs 3Bb	2Bs 3Bb
Grain/Glucides	6 gobelets	6 G	6 G	6 G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	6 gobelets	6 G1	6 G1	6 G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Nicoline

Village : Ampary Centre

Date: 16/02/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: 48, 38

Ages des enfants : 12, 11, 5

AC25

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	1 grappe	1B/6	1B/6	1B/6
Grain/Glucides	1 gobelet	1G1	1G1	1G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets	2G1	2G1	2G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : TOVANAINA Pierre Nelson

Village : Ampay Centre

Date: 16/02/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 2

Nombre d'enfants 5

Ages des adultes: 40, 34

Ages des enfants : 17, 14, 12, 7, 2

AG26

Page _____ sur _____

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	157 (nombre)	150 A5 7 A13		150 A5 7 A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	4 gobelets 2 tokos	4 G2 2 G2	4 G2 2 G2	4 G2 2 G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	2B5 3B6	2B5 3B6	2B6 3B6
Grain/Glucides	6 gobelets	6 G1	6 G1	6 G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : BABITSY

Village : Ampary Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Anglo

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: 30, 40, 68

Ages des enfants : 14, 6, 3

A(27

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	1 grappe	1B/6	1B/6	1B/6
Grain/Glucides	2 gobelets	2 G	2 G	2 G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	126 (nombre)	120 A5 6 A23		120 A5 6 A23
Légume	Le gappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 toko	2 G2	2 G2	2 G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	1 gobelet	1D23	1D23	1D23

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Justin

Village : Ampary Centre

Date: 16/02/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 2

Nombre d'enfants 4

Ages des adultes: 28/45

Ages des enfants : 10/7/3/2

AC28

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	1 grappe	1B/o	1B/o	1B/o
Grain/Glucides	1 gobelet	1G	1G	1G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	12 (nombre)	60 A5 12 A13		60 A5 12 A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	4 toko	2C2 2C3	2C2 2C3	2C2 2C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets	3G2	3G2	3G2
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Jean Claude

Village : Ampary Centre

Date: 16/02/2022

Nombre de repas par jour: 3

Anglo

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: 38, 40, 47

Ages des enfants : 14, 16, 7

A629

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	6 A23		6 A23
Légume	2 grappes	2B5	2B5	2B5
Grain/Glucides	2 goblets	2G1	2G1	2G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	136 (nombre)	130 A5 6 A3		130 A5 6 A3
Légume	1 grappe	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	4 kilos	2C2 2C3	2C2 2C3	2C2 2C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	kgrappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	5 gobelets	5G	5G	5G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Edmond

Village : Ampany Centre

Date: 16/02/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 5

Nombre d'enfants 5

Ages des adultes: 63,45,28,22,20

Ages des enfants : 17,15,3,2,4

AC30

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2B/6	2B/6	2B/6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	5 Bts	5 Bts	5 Bts
Grain/Glucides	5 gobelets	5 G	5 G	5 G
Protéine	14 (nombre)	14 Dz	14 Dz	14 Dz

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	GB/6	GB/6	GB/6
Grain/Glucides	8 gobelets	6 G 2 G2	6 G 2 G2	6 G 2 G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : George

Village : Ampary Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 4

Nombre d'enfants 4

Ages des adultes: 40, 29, 20, 19

Ages des enfants : 11, 9, 5, 2

AC 31

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	2 gobelets	2G1	2G1	2G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	3B5 2B6	3B5 2B6	3B5 2B6
Grain/Glucides	2,5 gobelets 2 toko	2,5 G2 2 G2	2,5 G2 2 G2	2,5 G2 2 G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	3B5 2B6	3B5 2B6	3B5 2B6
Grain/Glucides	6 gobelets	6G	6G	6G
Protéine	3 gobelets	3D13	3D13	3D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Martine

Village : Ampany Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 70, 80

Ages des enfants : —

AC32

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	32(nombre)	2 Ay 30 Ay	2Ay	2Ay 30 Ay
Légume	2 grapps	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 gobelet 05 tako	1 G1 05 G2	1 G1 05 G2	1 G1 05 G2
Protéine	5(nombre)	5 D2	5 D2	5 D2

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	42 (nombre)	40 A5 2 A23		40 A5 2 A23
Légume	3 grappes	1 B5 2 B6	1 B5 2 B6	1 B5 2 B6
Grain/Glucides	1 gobelet 2 tobo	1 C2 1 C2 1 C3	1 C2 1 C2 1 C3	1 C2 1 C2 1 C3
Protéine	4 (nombre) 925 kilo	4 D2 0,25 D6	4 D2 0,25 D6	4 D2 0,25 D6

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 5 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 gappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	2 gobelets	2G2	2G2	2G2
Protéine	1 gobelet	1D23	1D23	1D23

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAHATIANA Petronie

Village : Ampasy Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Hernanto

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 51,30

Ages des enfants : 17,3

AC33

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	85 (nombre)	80 A5 5 A13		80 A5 5 A13
Légume				
Grain/Glucides	1 gobelet	1C1	1C1	1C1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	95 (nombre)	80 A5 10 A6 5 A23	10 A6	80 A25 5 A23
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	215 gobelets ~~2 tcabo~~ ~~1C3~~	215 C2 1C2 1C3	215 C2 1C2 1C3	215 C1 1C2 1C3
Protéine	14 (nombre)	14 D2	14 D2	14 D2

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 5 tomates et 4 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	4,5 gobelets	3 G2 1,5 G2	3G2 1,5G2	3G2 1,5 G2
Protéine	1 gobelet	1D23	1D23	1D23

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MIZA Nathalline

Village : Ampary Centre

Date: 15/04/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 2

Nombre d'enfants 6

Ages des adultes: 63, 42

Ages des enfants : 16, 14, 12, 10, 8, 3 mois

AC34

Page _____ sur _____

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Riz léger (Sossa)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	208 (nombre)	200 B5 8 A23		200 B5 8 B23
Légume	6 grapps	2B5 4B6	2B5 4B6	2B5 4B6
Grain/Glucides	315 gobelets 4 tako	315 G2 2C2 2C3	315 G2 2C2 2C3	315 G2 2C2 2C3
Protéine	4 (nombre) 0,25 kilo	4D2 0,25 D6	0,25 D6	4D2 0,25 D6

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Riz léger (sosoa)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	9 (nombre)	9 B4	9 B4	9 B4
Légume	6 grappes	2B5 4B6	2B5 4B6	2B5 4B6
Grain/Glucides	7 gobelets	5G 2G2	5G 2G2	5G 2G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Riz léger (sosoa)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : RAZAFINDRATOVO Enjelin

Village : Ampasy Centre

Date: 15/02/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 24, 19

Ages des enfants : 2

AC35

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	53 (nombre)	50 Af 3 Af23		50 Af 3 Af23
Légume	2 grappes	2Bf6	2Bf6	2Bf6
Grain/Glucides	1 goblet	1C1	1C1	1C1
Protéine	6 (nombre)	6 D2	6D2	6D2

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	53(nombre)	50 A5 3 A23		50 A5 3 A23
Légume	2 grappes	2 B6	2 B6	2 B6
Grain/Glucides	1,5 gobelets 2 tôles	1,5 G2 1 G2 1 G3	1,5 G2 1 G2 1 G3	1,5 G2 1 G2 1 G3
Protéine	1 gobelet	1 D23	1 D23	1 D23

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	3B/J	3B/J	3B/J
Grain/Glucides	3 gobelets	2G1 1G12	2G1 1G12	2G1 1G12
Protéine	1 gobelet	1D23	1D23	1D23

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Georges

Village : Ampany Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 4

Nombre d'enfants 2

Ages des adultes: ~~60~~, 82, 45, 22

Ages des enfants : 10, 12

AC36

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	130 (nombre)	100% A2 120 A5 9 A23	100% A2	100% A2 120 A5 9 A23
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 gobelet 1 tobo	1G1 1G2	1G1 1G2	1G1 1G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	130 (nombre)	100% A2 120 A5 9 A13	100% A2	100% A2 120 A5 9 A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	4 toko	2C2 2C3	2C2 2C3	2C2 2C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	4 gobelets	4G1	4G1	4G1
Protéine	2 gobelets	2D10		2D10

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Les têtes des tory sont enlevées.	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : SOANDRINA Pascaline

Village : Ampasy Centre

Date: 15/02/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 2

Nombre d'enfants — AC37

Ages des adultes: 54, 21

Ages des enfants : —

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	4 (nombre)	4 Az3		4 Az3
Légume	1 grappe	1B6	1B6	1B6
Grain/Glucides	1 gobelet	1 G1	1 G1	1 G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	8 (nombre)	4A6 4A13	4A6	4A13
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	2 kabo	1C2 1C3	1C2 1C3	1C2 1C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : PASY Alain

Village : Ampary Centre

Date: 15/02/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: 62, 24

Ages des enfants : 12, 9, 5

AC38

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	10s (nombre)	100 Bs 5 A13		100 Bs 5 B23
Légume	2 grappes	2B6	2B6	2B6
Grain/Glucides	1 gobelet	1 G1	1 G1	1 G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	110 (nombre)	100 B5 10 B23		100 B5 10 B23
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	4 gobelets	3G1 1G2	3G1 1G2	3G1 1G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 gappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3,5 gobelets	3,5 G	3,5 G	3,5 G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : LANTOSOA Honorine

Village : Ampary Centre

Date: 15/02/2022

Nombre de repas par jour: 3

Nombre d'adultes : 4

Nombre d'enfants 2

Ages des adultes: 46, 42, 18, 21

Ages des enfants : 16, 9

AC39

Hermann

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2B/J	2B/J	2B/J
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	126 (nombre)	120 AS 6 AL3		120 AS 6 AL3
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 tôtos	3G2	3G2	3G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	6 gobelets	6G1	6G1	6G1
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : TEMA

Village : Ampary Centre

Date: 15/02/2022

Nombre de repas par jour: 3

Hermans

Nombre d'adultes : 4

Nombre d'enfants 4

Ages des adultes: 20, 22, 40, 45

Ages des enfants : 16, 17, 12, 11

AC40

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	17 (nombre)	100% A2 8B4 8B23	100% A2 8B4	100% A2 8B4 8B23
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Meme repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Meme repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	17 (nombre)	100% A2 8 B4 8 D13	100% A2 8 B4	100% A2 8 B4 8 D13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	4 tasses	2G2 2G3	2G2 2G3	2G2 2G3
Protéine	0,25 kilo 2 gobelets	0,25 D6 2D13	0,25 D6 2D13	0,25 D6 2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	6 gobelets	6 G1	6 G1	6 G1
Protéine	16 (nombre) 3 gobelets	16 D1 3 D13	16 D1 3 D13	16 D1 3 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : VAVISOA Nirina Huguette

Village : Ampany Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: 40,30

Ages des enfants : 13,8,3

AC41

Page 1 sur 6

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	105 (nombre)	100 A5 5 A23		100 A5 5 A23
Légume				
Grain/Glucides	2 gobelets	2 G1	2 G1	2 G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	1 1 5/5 (nombre)	50% A2 10 B4 100 A5 5 A13	50% A2 10 B4	50% A2 10 B4 100 A5 5 A13
Légume	3 grappes	1 B5 2 B6	1 B5 2 B6	1 B5 2 B6
Grain/Glucides	4 toko	2 C2 2 C3	2 C2 2 C3	2 C2 2 C3
Protéine	2 gobelets	2 A13	2 A13	2 A13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	5 (nombre)	5 By	5 By	5 By
Légume	3 grappes	1 B5 2 B6	1 B5 2 B6	1 B5 2 B6
Grain/Glucides	6 gobelets	4 G 2 G2	4 G 2 G2	4 G 2 G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Eraghe

Village : Ampary Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 2

Nombre d'enfants 6

Ages des adultes: 46, 30

Ages des enfants : 13, 10, 16, 4, 6, 1

AC42

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	168 (nombre)	160 Ar5 8 Ar23		160 Ar5 8 Ar23
Légume	4 grappes	2Br5 2Br6	2Br5 2Br6	2Br5 2Br6
Grain/Glucides	3 gobelets	3G1	3G1	3G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	168,5 (nombre)	50% A2 160 A5 8 A13	05% A2	50% A2 160 A5 8 A13
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	5 tô	2C2 3C3	2C2 3C3	2C2 3C3
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	4 B/o	4 B/o	4 B/o
Grain/Glucides	8 gobelets	6 G2 2 G2	6 G2 2 G2	6 G2 2 G2
Protéine	10 (nombre)	10 D2	10 D2	10 D2

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : RAZAFIMADAHY Pascal

Village : Ampary Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 49, 31

Ages des enfants : 2

AC43

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	1 grappe	1B/6	1B/6	1B/6
Grain/Glucides	1 gobelet	1G1	1G1	1G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	66,5 (nombre)	100% A2 60 A5 6 A23	100% A2	100% A2 60 A5 6 A23
Légume	2 groupes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	2 gobelets	2G2	2G2	2G2
Protéine	3 (nombre)	3D2	3D2	3D2

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	3 goblets	2G1 1G12	2G1 1G12	2G1 1G12
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : ZAFY Marie Christine

Village : Ampasy Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 4

Nombre d'enfants 4

Ages des adultes: 80, 56, 52, 18

Ages des enfants : 17, 13, 11, 9

AC44

Page _____ sur _____

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	168 (nombre)	160 A5 8 A13		160 A5 8 A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	4 tobo	2G2 2G3	2G2 2G3	2G2 2G3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	168 (nombre)	160 A5 8 A23		160 A5 8 A23
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	6 tô	3G2 3G3	3G2 3G3	3G2 3G3
Protéine	24 (nombre)	24 D2	24 D2	24 D2

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 5 tomates et 4 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 gappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	6 gobelets	6G	6G	6G
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : TSSRO Augustin

Village : Ampany Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Hernan

Nombre d'adultes : 4

Nombre d'enfants 1

Ages des adultes: 85, 67, 78, 18

Ages des enfants : 2

AC45

Page 1 sur 6

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	119 (nombre)	100 B5 10 A6 9 A13	10 B6	100 B5 9 B13
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	4 kolo	2G2 2G3	2G2 2G3	2G2 2G3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	5 gobelets	4G2 1G2	4G2 1G2	4G2 1G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : NIRINA

Village : Ampasy Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 1

Nombre d'enfants 3

Ages des adultes: 32

Ages des enfants : 17, 7, 7

AC46

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	68 (nombre)	60 As 8 A23		60 As 8 A23
Légume				
Grain/Glucides	1 gobelet	1 G1	1 G1	1 G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	68 (nombre)	60 A5 8 A13		60 A5 8 A13
Légume	3 gappes	1 B5 2 B6	1 B5 2 B6	1 B5 2 B6
Grain/Glucides	3 kilos	2 G2 1 G3	2 G2 1 G3	2 G2 1 G3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	3 gobelets	3G2	3G2	3G2
Protéine	8 (nombre) 1 gobelet	8D2 1D13	8D2 1D13	8D2 1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : VENANCE

Village : Ampary Centre

Date: 16/02/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 27/18

Ages des enfants : —

AC47

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	48 (nombre)	4 B4 40 B5 4 B23	4 B4	4 B4 40 B5 4 B23
Légume	2 grappes	1 B5 1 B6	1 B5 1 B6	1 B5 1 B6
Grain/Glucides	1 gobelet	1 G1	1 G1	1 G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	48 (nombre)	4 B4 40 B5 4 B23	4 B4	4 B4 40 B5 4 B23
Légume	3 grappes	1 B5 2 B6	1 B5 2 B6	1 B5 2 B6
Grain/Glucides	2 tuko	1 G2 1 G3	1 G2 1 G3	1 G2 1 G3
Protéine	1 gobelet	1 D23	1 D23	1 D23

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	2 gobelets	2G1	2G1	2G1
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RASOLONDRAINA Célestine

Village : Ampary Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 44, 35

Ages des enfants : 14

AC 48

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6S (nombre)	6O A5 5 A23		6O A5 5 A23
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 gobelet	1G	2G	1G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

2/8

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	65 (nombre)	60 Bs 5 Bg3		60 Bs 5 Bg3
Légume	3 gappes	1 Bs 2 Bg	1 Bs 2 Bg	1 Bs 2 Bg
Grain/Glucides	2 gobelets	2 G	2 G	2 G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	25 gobelets	25 G	25 G	25 G
Protéine	9 (nombre)	9D	9D	9D

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : DESIRÉ

Village : Ampany Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 5

Nombre d'enfants 4

Ages des adultes: 69, 31, 50, 40, 30

Ages des enfants : 4, 5, 6, 2

AC49

Page 1 sur 6

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	291 (nombre)	100% A2 270 A5 20 A23	100% A2	100% A2 270 A5 20 A23
Légume	2 grappes	2B6	2B6	2B6
Grain/Glucides	4 toko	2G2 2G3	2G2 2G3	2G2 2G3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	290 (nombre)	270 Ab 20 Ab3		270 Ab 20 Ab3
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	6 kabo	3G 3G3	3G 3G3	3G 3G3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	3B6	3B6	3B6
Grain/Glucides	5 gobelets	5 G1	5 G1	5 G1
Protéine	14 (nombre) 2 gobelets	14 D1 2 D13	14 D1 2 D13	14 D1 2 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 5 tomates et 4 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MARIVELO

Village : Anpary Centre

Date: 15/01/2022

Nombre de repas par jour: 2

Lazafet

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 64 / 58

Ages des enfants : —

AC 80

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides				
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ?	
	Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	04 (nombre)	50 Bs 4 Ans		50 Bs 4 Ans
	2 gappes	2 Bs	2 Bs	2 Bs
Légume				
Grain/Glucides	2 [illegible]	2 G	2 G	2 G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 gobelets	2B6	2B6	2B6
Grain/Glucides	1 gobelet 1 tobo	1 C1 1 C2	1 C1 1 C2	1 C1 1 C2
Protéine	1 gobelet	1 D13		1 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Justine Eliane

Village : Ampasy Centre

Date: 15/01/2022

Nombre de repas par jour: 2

Lazofet

Nombre d'adultes : 7

Nombre d'enfants 6

AC 51

Ages des adultes: 66, 45, 38, 33, 24, 19, 18

Ages des enfants : 16, 15, 8, 5, 2, 1 mois

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides				
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	128 (nombre)	2 Ar 100 Ag 26 Ag3	2 Ar	2 Ar 100 Ag 26 Ag3
Légume	5 grappes	5 Bt	5 Bt	5 Bt
Grain/Glucides	6 kilo	6 Cr	6 Cr	6 Cr
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	7 grappes	7B6	7B6	7B6
Grain/Glucides	8 gobelets	8G1	8G1	8G1
Protéine	8 (nombre) 3 gobelets	8D1 3D13	8D1 3D13	8D1 3D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 6 tomates et 4 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : VEVE

Village : Ampany Centre

Date: 15/02/2022

Nombre de repas par jour: 2

Lazafet

Nombre d'adultes : 5

Nombre d'enfants 1

Ages des adultes: 40, 36, 24, 18, 22

Ages des enfants : 14

AC52

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides				
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	126 (nombre)	120 As 6 Ag3		120 As 6 Ag3
Légume	2 grappes	2Bs	2Bs	2Bs
Grain/Glucides	3 ~~kilo~~	3Cs	3Cs	3Cs
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	4 gobelets	4G	4G	4G
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : FILS Christian

Village : Ampasy Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Langafet

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 28/26

Ages des enfants : 4

AC 53

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	36 (nombre)	30 A5 6 A13		30 A5 6 A13
Légume	2 grappes	2B6	2B6	2B6
Grain/Glucides	1,5 gobelets	1,5 G1	1,5 G1	1,5 G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	66 (nombre)	60 Af 6 Af3		60 Af 6 Af3
Légume	3 grappes	3 B6	3 B6	3 B6
Grain/Glucides	1,5 tô	1,5 C2	1,5 C2	1,5 C2
Protéine	3 (nombre)	3 D2		3 D2

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	1c grappes	2B5 2B2	2B5 2B2	2B5 2B2
Grain/Glucides	3 gobelets	3G2	3G2	3G2
Protéine	3 (nombre)	3D2		3D2

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MEZA Myriam Mampiandra

Village : Ampany Centre

Date: 25/02/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: 32, 79

Ages des enfants : 15, 12, 10

AC 54

Langfret

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	55 (nombre)	50 Af 5 A23		50 Af 5 A23
Légume	2 grappes	2 Bf	2 Bf	2 Bf
Grain/Glucides	2 gobelets	2 G1	2 G1	2 G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	110(nombre)	100 A5 10 A13		100 A5 10 A13
Légume	4 gaspes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 tabo	3C2	3C2	3C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : RAKOTOZAFY Didier

Village : Ampany Centre

Date: 25/04/2022

Nombre de repas par jour: 3

Lazafet

Nombre d'adultes : 2

Nombre d'enfants 4

Ages des adultes: 42, 35

Ages des enfants : 14, 9, 5, 2

AC55

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	106 (nombre)	100 A5 6 A23		100 A5 6 A23
Légume				
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	106 (nombre)	100 Bs 6 Ans		100 Bs 6 Ans
Légume	4 gappes	2Bs 2Bb	2Bs 2Bb	2Bs 2Bb
Grain/Glucides	3 gobelets 2 tôles	3G 2G	3G 2G	3G 2G
Protéine	6 (nombre)	6P		6P

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	5 gobelets	5G	5G	5G
Protéine	12 (nombre) 2 gobelets	12 Oz 2Oz3	2Oz3	12 Oz 2Oz3

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 6 tomates et 4 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RASOANANTENAINA Marie Elmire

Village : Ampany Centre

Date: 15/02/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 3

Nombre d'enfants 4

Ages des adultes: 35/31/18

Ages des enfants : 14/11/7/4

AC56

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	7 (nombre)	7Cg	7Cg	7Cg
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	67 (nombre)	60 A5 7 A23		60 A5 7 A23
Légume	4 grappes	2B5 2B16	2B5 2B16	2B5 2B16
Grain/Glucides	5 tô	2C2 3C3	2C2 3C3	2C2 3C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	2B5 3B10	2B5 3B10	2B5 3B10
Grain/Glucides	5 gobelets	5G	5G	5G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : SOJA Dalin Antsana

Village : Ampary Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 4

Nombre d'enfants 3

AC57

Ages des adultes: 19, 23, 36, 46

Ages des enfants : 14, 10, 4

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2B/6	2B/6	2B/6
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	147 (nombre)	140 A5 7 A23		140 A5 7 A23
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	4 toko	2C2 2C3	2C2 2C3	2C2 2C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	2B5 3B1	2B5 3B1	2B5 3B1
Grain/Glucides	5 gobelets	5G1	5G1	5G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : BIBOCATHISY

Village : Ampasy Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 4

Nombre d'enfants 2

Ages des adultes: 28, 43, 75, 55

Ages des enfants : 15, 12

AC58

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	7o (nombre)	7o BS		7o AS
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets	2G1	2G1	2G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

2/6

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	1kg (nombre)	1kg Bs		1kg Bs
Légume	5 grappes	2Bs 3B/b	2Bs 3B/b	2Bs 3B/b
Grain/Glucides	2 kabo	2C2	2C2	2C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	5 Bt	5 Bt	5 Bt
Grain/Glucides	6 gobelets	6 G	6 G	6 G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : RANDRIANASOLO

Village : Ampany Centre

Date: 15/04/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 2

Nombre d'enfants 8

Ages des adultes: 43, 55

Ages des enfants : 8, 13, 14, 16, 7, 6, 8, 2

AC5g

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	10 (nombre)	10 Cg	10 Cg	10 Cg
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	210 (nombre)	200 A5 10 A13		200 A5 10 A13
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	8 toko	4C2 4C3	4C2 4C3	4C2 4C3
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	13 gobelets	10 G2 3 G2	10 G2 B G2	10 G2 B G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : MOSA François

Village : Ampasy Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 3

Nombre d'enfants 2

Ages des adultes: 18/45/30

Ages des enfants : 7/9

AC 60

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2B/J	2B/J	2B/J
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	110 (nombre)	100 A5 10 A13		100 A5 10 A13
Légume	3 grappes	3B6	3B6	3B6
Grain/Glucides	2 tokro	2C2	2C2 3C3	2C2
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	6 gobelets	4G1 2G12	4G1 2G12	4G1 2G12
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MIHA Valérie

Village : Anpary Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 3

Nombre d'enfants 2

Ages des adultes: 18, 35, 30

Ages des enfants : 12, 7

AC GL

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	1 gobelet	1 GL	1 GL	1 GL
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	70 (nombre)	60 Bs 10 Bs		60 Bs 10 Bs
Légume	3 gappes	3 Bs	3 Bs	3 Bs
Grain/Glucides	2 gobelets	2 G	2 G	2 G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : KOTO

Village : Ampasy Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 60/40

Ages des enfants : 1

AC62

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	1 gobelet	1G1	1G1	1G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel et riz léger (sosoa)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	3B6	3B6	3B6
Grain/Glucides	1 gobelet 2 tolo	1C1 2C2	1C1 2C2	1C1 2C2
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel et riz léger (sosoa)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 gappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Riz blanc et lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : LALAO Christophie

Village : Ampasy Centre

Date: 15/02/2022

Nombre de repas par jour: 3

Angela

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 37, 21

Ages des enfants : 14, 3 mois

AC63

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2B/o	2B/o	2B/o
Grain/Glucides	1 gobelet	1G	1G	1G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	3 tôcô	3C3	3C3	3C3
Protéine	1 gobelet	1D23	1D23	1D23

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : MARA Edvin

Village : Ampany Centre

Date: 15/02/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 28,48

Ages des enfants : —

ACG4

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	1 grappe	1B/o	1B/o	1B/o
Grain/Glucides	1 gobelet	1G	1G	1G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	4 (nombre)	4 A23		4 A23
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	2 tako	1C2 1C3	1C2 1C3	1C2 1C3
Protéine	1 gobelet	1 D23	1 D23	1 D23

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	1B5 2B1	1B5 2B1	1B5 2B1
Grain/Glucides	2 gobelets	2C1	2C1	2C1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Mingafisoa

Village : Ampany Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: 29, 25

Ages des enfants : 5, 4, 1

AC 65

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	115 (nombre)	100 A5 10 A3 5 A4	5 A4	5 A4 100 A5 10 A3
Légume	2 gapps	2B1	2B1	2B1
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	6 (nombre)	6D	6D	6D

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	115 (nombre)	5 BM 100 BS 10 BZ3	5 BM	5 BM 100 BS 10 BZ3
Légume	4 grappes	2 BS 2 BZ6	2 BS 2 BZ6	2 BS 2 BZ6
Grain/Glucides	5 tako	2 C2 3 C3	2 C2 3 C3	2 C2 3 C3
Protéine	6 (nombre)	GD2	GD2	GD2

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	6 gobelets	4 G1 2 G12	4G1 2G12	4G1 2G12
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : TSIKIVY

Village : Ampany Centre

Date: 15/02/2022

Nombre de repas par jour: 3

Edgut

Nombre d'adultes : 4

Nombre d'enfants 4

Ages des adultes: 30, 22, 20, 19

Ages des enfants : 7, 6, 3, 1

AC 66

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	100 (nombre)	100 Ars		100 Ars
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	1 tobo	1C2	1C2	1C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	10x (nombre)	100 Bs 7 B23		100 Bs 7 B23
Légume	6 grappes	3 Bs 3 B6	3 Bs 3 B6	3 Bs 3 B6
Grain/Glucides	5 tobo	2 C2 3 C3	2 C2 3 C3	2 C2 3 C3
Protéine	3 gobelets	1 D10 2 D23	1 D10 2 D23	1 D10 2 D23

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 5 tomates et 3 oignons -	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Les têtes de tony sont enlevés. Les batrikay sont consommés en entier -	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	4 B/o	4 B/o	4 B/o
Grain/Glucides	6 gobelets	6 G	6 G	6 G
Protéine	2 gobelets	2 D/o	2 D/o	2 D/o

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	les têtes de tony sont enlevées	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : SAMBO Albert

Village : Ampary Centre

Date: 15/02/2022

Nombre de repas par jour: 3

Edeget

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 69/50

Ages des enfants : 17/14

AC67

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2B6	2B6	2B6
Grain/Glucides	3 Kobo	1C2 2C3	1C2 2C3	1C2 2C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	108 (nombre)	100 Bs 8 Bs3		100 Bs 8 Bs3
Légume	4 grappes	2 Bs 2 Bs	2 Bs 2 Bs	2 Bs 2 Bs
Grain/Glucides	4 tô	2 G2 2 G3	2 G2 2 G3	2 G2 2 G3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	5 gobelets	4 G 1 G2	4 G 1 G2	4 G 1 G2
Protéine	2 gobelets	2 D10	2 D10	2 D10

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	les têtes de tary sont enlevées -	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : BABOLO

Village : Ampasy Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 5

Nombre d'enfants 3

Ages des adultes: 65;45;35;33;20

Ages des enfants : 8;4;3

AC 68

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	136 (nombre)	120 B5 16 A1/3		120 B5 16 A1/3
Légume	2 grappes	2B/6	2B/6	2B/6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	136 (nombre)	120 A5 16 A13		120 A5 16 A13
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	6 kilos	3C2 3C3	3C2 3C3	3C2 3C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	5 gobelets	5G	5G	5G
Protéine	2 gobelets	2D20	2D20	2D20

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons —	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Les têtes de tary sont enlevés —	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Perle Hélènette

Village : Ampasy Centre

Date: 15/04/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 27/22

Ages des enfants : 7

ACG

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	76 (nombre)	70 A5 6 A23		70 A5 6 A23
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 gobelet	1C1	1C1	1C1
Protéine	6 (nombre)	GD2	GD2	GD2

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec tomates et Borgnou	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	76 (nombre)	70 B5 6 B13		70 B5 6 B13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 toko	1C2 1C3	1C2 1C3	1C2 1C3
Protéine	2 gobelets	2D10	2D10	2D10

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Les têtes de tory sont enlevées –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

6/6

Nom et prénoms : MAMASOA

Village : Ampasy Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Edzet

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 93/85

Ages des enfants : 7

AC70

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	33 (nombre)	30 B5 3 B23		30 B5 3 B23
Légume	2 grappes	1 B5 1 B6	1 B5 1 B6	1 B5 1 B6
Grain/Glucides	2 koko	1 C2 1 C3	1 C2 1 C3	1 C2 1 C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	33 (nombre)	30 A5 3 A23		30 A5 3 A23
Légume	2 gappes	1B5 1B10	1B5 1B10	1B5 1B10
Grain/Glucides	3 kilo	1C2 2C3	1C2 2C3	1C2 2C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine	1 gobelet	1D10	1D10	1D10

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Les têtes de tony sont enlevées -	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : FANOMEZANTSOA Albertine

Village : Ampary Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Edagt

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 33, 23

Ages des enfants : 1 mois

AC71

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 gobelet	1C1	1C1	1C1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	22 (nombre)	20 A5 2 A13		20 A5 2 A13
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	3 gobelets	2G1 1G12	2G1 1G12	2G1 1G12
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	3B6	3B6	3B6
Grain/Glucides	3 gobelets	2G1 1G2	2G1 1G2	2G1 1G2
Protéine	1 gobelet	1D3	1D3	1D3

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : SIZA Denise

Village : Ampasy Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 6

Nombre d'enfants 2

Ages des adultes: 65ans, 33, 28, 28, 18

Ages des enfants : 10, 4

AC72

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	3B6	3B6	3B6
Grain/Glucides	2 goblets	2G1	2G1	2G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	99 (nombre)	80 A5 10 A6 9 A13	10 A6	80 A5 9 A13
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	5 tako	2C2 3C3	2C2 3C3	2C2 3C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	8 gobelets	6G2 2G2	6G2 2G2	6G2 2G2
Protéine	20 (morbe)	20D2		20D2

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec tomates et oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	–

Nom et prénoms : Céletine

Village : Ampasy Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Langafet

Nombre d'adultes : 4

Nombre d'enfants 3

Ages des adultes: 49, 35, 29, 19

Ages des enfants : 12, 3, 2

AC 73

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	7o(nombre)	7o As		7o As
Légume	3 grappes	3B/o	3B/o	3B/o
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	77 (nombre)	7O A5 7B23		7O A5 7B23
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	4 gobelets	4G	4G	4G
Protéine	2 gobelets	2D10	2D10	2D10

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons -	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Les têtes de tang sont enlevés -	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	-

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	2B5 3B10	2B5 3B10	2B5 3B10
Grain/Glucides	5 gobelets	5G	5G	5G
Protéine	4 gobelets	2D20 2D13	2D20 2D13	2D20 2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 5 tomates et 4 oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Les têtes de tory sont enlevées – les hotriky sont consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	–

Nom et prénoms : NOMEZASOA Justine

Village : Ampasy Centre

Date: 15/02/2022

Nombre de repas par jour: 2

Langfet

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 30,25

Ages des enfants : 12,7

AC74

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides				
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	88 (nombre)	80 Bs 8 Bs3		80 Bs 8 Bs3
Légume	3 grappes	1 Bs 2 Bs	1 Bs 2 Bs	1 Bs 2 Bs
Grain/Glucides	4 toko	2 Cs 2 Cs	2 Cs 2 Cs	2 Cs 2 Cs
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : KAHEDY

Village : Ampany Centre

Date: 15/04/2022

Nombre de repas par jour: 2

langafet

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 33, 30

Ages des enfants : 7, 2

AC75

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides				
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	108 (nombre)	100 B5 8 B23		100 B5 8 B23
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 tuko	2C2 1C3	2C2 1C3	2C2 1C3
Protéine	8(nombre)	8D2	8D2	8D2

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 4 tomates et 3 oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B10	2B5 2B10	2B5 2B10
Grain/Glucides	3 gobelets	3G2	3G2	3G2
Protéine	8(nombre)	8D2	8D2	8D2

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 4 tomates et 3 oignons —	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier —	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Brizy Julianah

Village : Ampasy Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 2

Nombre d'enfants 4

Ages des adultes: 37, 27

Ages des enfants : 12, 9, 5, 3

AC 76

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	92 (nombre)	80 A5 12 A13		80 A5 12 A13
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	2 gobelets	2G1	2G1	2G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	10 (nombre)	12 B4 80 B5 12 B13	12 B4	12 B4 80 B5 12 B13
Légume	5 grappes	2 B5 3 B6	2 B5 3 B6	2 B5 3 B6
Grain/Glucides	5 koko	2 C2 3 C3	2 C2 3 C3	2 C2 3 C3
Protéine				

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 gappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	5 gobelets	5G	5G	5G
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 4 tomates et 3 oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : VOLA

Village : Ampang Centre

Date: 16/02/2022

Nombre de repas par jour: 3

Modèle

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 25/42

Ages des enfants : 2

AC77

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	46 (nombre)	40 A5 6 A23		40 A5 6 A23
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1/5 gobelets	1/5 G2	1/5 G2	1/5 G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	52 (nombre)	6 A4 40 A5 6 A13	6 A4	6 A4 40 A5 6 A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 toko 0,5 gobelet	1C2 2C3 0,5 C1	1C2 2C3 0,5 C1	1C2 2C3 0,5 C1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	9(nombre) 1 gobelet	9D2 1D13	9D2 1D13	9D2 1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec tomates et Borgnons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : SONIA francia

Village : Ampany Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Modetak

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 28/25

Ages des enfants : 12/10

AC78

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B5 1B10	1B5 1B10	1B5 1B10
Grain/Glucides	1 gobelet	1G	1G	1G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	56(nombre)	8B4 40B5 8B23	8B4	8B4 40B5 8B23
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets 2 tasses	2G2 2G2	2G2 2G2	2G2 2G2
Protéine				

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	4 gobelets	4 G	4 G	4 G
Protéine	2 gobelets	2 D 3	2 D 3	2 D 3

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 4 tomates et 3 oignons —	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier —	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Irène

Village : Ampany Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 33, 27

Ages des enfants : 9

AC79

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 gobelet	1G1	1G1	1G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	42 (nombre)	6 A4 30 A5 6 A23	6 A4	6 A4 30 A5 6 A23
Légume	4 grattes	2 B5 2 B6	2 B5 2 B6	2 B5 2 B6
Grain/Glucides	3 galets	2 G1 1 G12	2 G1 1 G12	2 G1 1 G12
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine	9 (nombre)	9A	9A	9A

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 4 tomates et 3 oignons —	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier —	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : ANDRIANARIJAONA Evarie

Village : Ampary Centre

Date: 15/02/2022

Nombre de repas par jour: 3

Modetat

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 69,38

Ages des enfants : —

AC80

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 gapes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 gobelet	1G1	1G1	1G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	28 (nombre)	4 By 20 A5 4 A13	4 By	4 By 20 A5 4 A23
Légume	2 gappes	1 B5 1 B6	1 B5 1 B6	1 B5 1 B6
Grain/Glucides	1,5 gobelets	1,5 G1	1,5 G1	1,5 G1
Protéine	6 (nombre)	6 D2	6 D2	6 D2

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 4 tomates et 3 oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2B/J	2B/J	2B/J
Grain/Glucides	1,5 gobelets	1,5 G	1,5 G	1,5 G
Protéine	1 gobelet	1 D13	1 D13	1 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons —	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier —	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAZANATIANA Faravavy

Village : Ampany Centre

Date: 15/04/2022

Nombre de repas par jour: 3

Modetak

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 39, 32

Ages des enfants : 11, 3

AC81

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 gobelet 1 tolo	1 G2 1 G2	1 G2 1 G2	1 G2 1 G2
Protéine				

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	48(nombre)	4 Ay 40 Ab 4 Ab23	4 Ay	4 Ay 40 Ab 4 Ab23
Légume	4 grappes	2 Bb 2 Bb	2 Bb 2 Bb	2 Bb 2 Bb
Grain/Glucides	2 gobelets 1 toko	2 G 1 G	2 G 1 G	2 G 1 G
Protéine				

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	4 gobelets	3 G1 1 G12	3 G1 1 G12	3 G1 1 G12
Protéine	2 gobelets	2 D13	2 D13	2 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 4 tomates et 3 oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAMATAHINA Victoria

Village : Ampany Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Modatak

Nombre d'adultes : 3

Nombre d'enfants 2

Ages des adultes: 30, 65, 32

Ages des enfants : 14; 4

AC 82

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 galette 1 koko	1C2 1C2	1C2 1C2	1C2 1C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	70 (nombre)	10 Ay 50 Af 10 Az3	10 Ay	10 Ay 50 Af 10 Az3
Légume	4 grappes	2 Bf 2 B6	2 Bf 2 B6	2 Bf 2 B6
Grain/Glucides	2 gobelets 2 toko	2 G2 2 G2	2 G2 2 G2	2 G2 2 G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	5 gobelets	5 G	5 G	5 G
Protéine	2 gobelets	2D23	2D23	2D23

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons —	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier —	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —

Nom et prénoms : Gezeline

Village : Ampany Centre

Date: 15/01/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 44,54

Ages des enfants : 17

AC83

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B 1B	1B 1B	1B 1B
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	42 (nombre)	6A4 30B5 6A23	6A4	6A4 30A5 6A23
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	2,5 gobelets	25G	25G	25G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 4 tomates et 3 oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : ZAHINA Befinette

Village : Ampary Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 5

Nombre d'enfants 8

AC84

Ages des adultes: 50, 42, 23, 4, 21

Ages des enfants : 17, 17, 16, 16, 13, 13, 12, 10

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 gapes	4 B6	4 B6	4 B6
Grain/Glucides	3 gobelets 3 tokotoko	3 G 3 G	3 G 3 G	3 G 3 G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	226 (nombre)	200 A5 13 A6 13 A23	13 A6	200 A5 13 A23
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	5 tako	5 C2	5 C2	5 C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 gappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	13 gobelets	10 G1 3 G2	10 G1 3 G2	10 G1 3 G2
Protéine	24 (nombre)	24 D1	24 D1	24 D1

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 8 tomates et 5 oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –

Nom et prénoms : NZRIMA Arlette

Village : Ampany Centre

Date: 16/01/2022

Nombre de repas par jour: 2

Edget

Nombre d'adultes : 1

Nombre d'enfants 3

Ages des adultes: 40

Ages des enfants : 16, 11, 8

AC85

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides				
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	105 (nombre)	100 A5 5 A13		100 A5 5 A13
Légume	2 grappes	2B6	2B6	2B6
Grain/Glucides	2 tolo	1 C2 1 C3	1 C2 1 C3	1 C2 1 C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	1 grappe	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets	2G1	2G1	2G1
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –

Nom et prénoms : HANTA Fanomezantsoa

Village : Ampary Centre

Date: 15/01/2022

Nombre de repas par jour: 3

edzet

Nombre d'adultes : 4

Nombre d'enfants 1

Ages des adultes: 44, 43, 35, 20

Ages des enfants : 15

AC86

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	2 (nombre)	2 go	2 go	2 go
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	7A (nombre)	1A2 5OA5 1OA6 1OA13	1A2 1OA6	5OA5 1OA13
Légume	3 grappes	3B6	3B6	3B6
Grain/Glucides	3 gobelets 2 tako	3G2 2G2	3G2 2G2	3G2 2G2
Protéine	1O (nombre)	1OP2	1OP2	1OP2

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	3B/J	3B/J	3B/J
Grain/Glucides	4 gobelets	4G	4G	4G
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 4 tomates et 3 oignons —	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier —	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —

6/6

Nom et prénoms : SOANDMENY

Village : Ampany Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 5

Nombre d'enfants 0

Ages des adultes: 45, 22, 20, 19, 18

AC 87

Ages des enfants : —

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	2 gobelets	2G2	2G2	2G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	120 (nombre)	100 B5 10 A6 10 B23	10 A6	100 B5 10 B23
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	4 tabo	2G2 2G3	2G2 2G3	2G2 2G3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	4B/6	4B/6	4B/6
Grain/Glucides	5 gobelets	4G1 1G2	4G1 1G2	4G1 1G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : LASY

Village : Ampary Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: 40/30

Ages des enfants : 17/16/7

AC88

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	120 (nombre)	100 B5 10 A6 10 A13	10 A6	100 B5 10 A13
Légume	2 grappes	1 B5 1 B6	1 B5 1 B6	1 B5 1 B6
Grain/Glucides	1 toko	1 G2	1 G2	1 G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	120 (nombre)	100 A5 10 A6 10 A23	10 A6	100 A5 10 A23
Légume	3 grappes	3B6	3B6	3B6
Grain/Glucides	2 ~~toko~~	2C2	2C2	2C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Philbertine

Village : Ampany Centre

Date: 16/02/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 45/20

Ages des enfants : 1717

AC89

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2B6	2B6	2B6
Grain/Glucides	1 gobelet	1G1	1G1	1G1
Protéine	4(nombre)	4P1	4P1	4P1

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	96(nombre)	80 A5 8 B6 8 A23	8 B6	80 A5 8 B23
Légume	3 grappes	3 B6	3 B6	3 B6
Grain/Glucides	2 tô	1 C2 1 C3	1 C2 1 C3	1 C2 1 C3
Protéine	5(nombre)	5 D2	5 D2	5 D2

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	3B6	3B6	3B6
Grain/Glucides	3 gobelets	3G2	3G2	3G2
Protéine	1 gobelet	1D23	1D23	1D23

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons —	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier —	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : SAMBISOA

Village : Ampary Centre

Date: 16/01/2022

Nombre de repas par jour: 2

Edget

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: 52, 23

Ages des enfants : 5, 3, 9 mois

AC90

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides				
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	62 (nombre)	50 A5 6 A6 6 A23	6 A6	50 A5 6 A23
Légume	4 gaps	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets 1 tolo	2C1 1C2	2C1 1C2	2C1 1C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel et riz leger (bouillie) –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	4 gobelets	3G1 1G2	3G1 1G2	3G1 1G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel et riz léger (ouoa) –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Aldin

Village : Ampany Centre

Date: 16/05/2022

Nombre de repas par jour: 3

Madatok

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 31, 27

Ages des enfants : 4

ACg1

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	35 (nombre)	30 BS 5 BS3		30 BS 5 BS3
Légume	2 grappes	1 BS 1 BS6	1 BS 1 BS6	1 BS 1 BS6
Grain/Glucides	2 toko	1 Cr 1 Cg	1 Cr 1 Cg	1 Cr 1 Cg
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	38 (nombre)	3A4 30A5 5A13	3A4	3A4 30A5 5A13
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	2 gobelets 2 toko	2C2 2C2	2C2 2C2	2C2 2C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	1 gobelet	1D3	1D3	1D3

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons -	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier -	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : ZANAZAFY Maria

Village : Ampany Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 4

Nombre d'enfants 3

Ages des adultes: 44, 50, 54, 18

Ages des enfants : 14, 14, 12

AC92

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PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	84 (nombre)	70 A5 14 A13		70 A5 14 A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets	3G1	3G1	3G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	84 (nombre)	7 A5 14 A13		7 A5 14 A13
Légume	5 grappes	2 B5 3 B6	2 B5 3 B6	2 B5 3 B6
Grain/Glucides	4 tô	4 C2	4 C2	4 C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	4 gobelets	4 G	4 G	4 G
Protéine	2 gobelets	2 D 13	2 D 13	2 D 13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec tomates et 3 oignons —	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier —	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : MAMITIANA Angela

Village : Ampany Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 3

Nombre d'enfants 2

Ages des adultes: 47/44, 25

Ages des enfants : 17/14

AC93

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	90 (manbe)	80 A5 10 A23		80 A5 10 A23
Légume	3 grappes	1 B5 2 B6	1 B5 2 B6	1 B5 2 B6
Grain/Glucides	2 gobelets	2 G	2 G	2 G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	100 (nombre)	10 A4 80 A5 10 A23	10 A4	10 A4 80 A5 10 A23
Légume	4 grappe	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	4 tako	2C2 2C3	2C2 2C3	2C2 2C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Meme repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	5 gobelets	5G	5G	5G
Protéine	10 (nombre) 2 gobelets	10D 2D3	10D 2D3	10D 2D3

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 6 tomates et 5 oignons —	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier —	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —

6/6

Nom et prénoms : Marcellin

Village : Ampasy Centre

Date: 26/01/2022

Nombre de repas par jour: 2

Lazafet

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 25/20

Ages des enfants : —

AC94

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides				
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	54 (nombre)	50 A5 4 A13		50 A5 4 A13
Légume	2 grappes	2B6	2B6	2B6
Grain/Glucides	2 tokos	2C2	2C2	2C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	3B/6	3B/6	3B/6
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons —	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier —	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Claudine

Village : Ampasy Centre

Date: 16/01/2022

Nombre de repas par jour: 2

Lazofet

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 59 24

Ages des enfants : 6

AC95

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides				
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	66 (nombre)	60 A5 6 A13		60 A5 6 A13
Légume	2 grappes	2B1	2B1	2B1
Grain/Glucides	1 tôlo	1C2	1C2	1C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 gappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : DIGNASOA kapiny

Village : Ampary Centre

Date: 16/01/2022

Nombre de repas par jour: 3

langafet

Nombre d'adultes : 5

Nombre d'enfants 4

Ages des adultes: 39,45,20,18,20

Ages des enfants : 17,12,11,3

AC96

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2B/6	2B/6	2B/6
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	130 (nombre)	180 A5 10 A13		180 A5 10 A13
Légume	3 grappes	3B6	3B6	3B6
Grain/Glucides	3 tôdo	3C2	3C2	3C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	2B5 3B10	2B5 3B10	2B5 3B10
Grain/Glucides	6 gobelets	6G1	6G1	6G1
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 4 tomates et 3 oignons —	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier —	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Leonel

Village : Ampary Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Lazafet

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: 36,26

Ages des enfants : 11,6,3

AC97

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 gobelet 2 koko	1G 2G	1G 2G	1G 2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	10S (nombre)	100 A5 5 A13		100 A5 5 A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	4 tokos	2G2 2G3	2G2 2G3	2G2 2G3
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons —	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier —	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	3 B/6	3 B/6	3 B/6
Grain/Glucides	4 gobelets	4 G2	4 G2	4 G2
Protéine	2 gobelets	2 A13	2 A13	2 A13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : KAZY Yolande

Village : Ampasy Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Lazofet

Nombre d'adultes : 3

Nombre d'enfants 2

Ages des adultes: 48, 29, 22

Ages des enfants : 10 7

AC98

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	1 gobelet	1 G	1 G	1 G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	10S (nombre)	100 Af 5 Ay	5 Ay	5 Ay 100 Af
Légume	3 grappes	3 B6	3 B6	3 B6
Grain/Glucides	4 gobelets	4 G1	4 G1	4 G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	5 gobelets	5G	5G	5G
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RATOVOMANANA Fidelice

Village : Ampasy Centre

Date: 26/01/2022

Nombre de repas par jour: 3

Lagofet

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 30, 21

Ages des enfants : 3, 1

AC99

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	3(nombre)	3B4	3B4	3B4
Légume	2 grappes	2B6	2B6	2B6
Grain/Glucides	1 gobelet	1G1	1G1	1G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	63 (nombre)	60 A5 3 A23		60 A5 3 A23
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	2 tobo	2C2	2C2	2C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons —	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier —	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : FANOMEZANTSOA Claudia

Village : Ampary Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Largafet

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 36/20

Ages des enfants : 10, 9mois

AC100

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 gobelet	1G1	1G1	1G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	lait maternel et rizléger (rosoa) -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	108 (nombre)	100 Bs 8 Bs23		100 Bs 8 Bs23
Légume	3 gappes	1Bs 2B6	1Bs 2B6	1Bs 2B6
Grain/Glucides	4 tobo 05 gobelet	2G2 2G3 05G2	2G2 2G3 05G2	2G2 2G3 05G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	lait maternel et rizléger (sosoa) -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	1B5 2B1	1B5 2B1	1B5 2B1
Grain/Glucides	3 gobelets	3G1	3G1	3G1
Protéine	8 (nombre)	8D1	8D1	8D1

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 4 tomates et 3 oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel et rigléger (Sosoa) –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : FARA Mariane

Village : Ampary Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 1

Nombre d'enfants 3

Ages des adultes: 37

Ages des enfants : 16 M 18

AC 101

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2B6	2B6	2B6
Grain/Glucides	1 gobelet	1G1	1G1	1G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	108 (nombre)	100 AS 8 ANS		100 AS 8 ANS
Légume	2 grappes	2B/6	2B/6	2B/6
Grain/Glucides	3 kilo	3G2	3G2	3G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 gappes	2B/6	2B/6	2B/6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec tomates et oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Rahelison

Village : Ampasy Centre

Date: 16/01/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 3

Nombre d'enfants 2

Ages des adultes: 29, 27, 20

Ages des enfants : 4, 1 semaine

AC102

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	1 grappe	1 B6	1 B6	1 B6
Grain/Glucides	1 tdo	1 G	1 G	1 G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	88 (nombre)	80 A5 4 A6 4 A23	4 A6	80 A5 4 A23
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	2 toko	2C2	2C2	2C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	lait maternel –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MAMISOA Fleurette

Village : Ampany Centre

Date: 16/01/2022

Nombre de repas par jour: 2

Edgat

Nombre d'adultes : 1

Nombre d'enfants 4

Ages des adultes: 35

Ages des enfants : 13, 11, 6, 10 mois

AC103

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides				
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	74 (nombre)	70 A5 4 A23		70 A5 4 A23
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	2 tobo 95 gobelet	2G2 0,5 G1	2G2 0,5 G1	2G2 0,5 G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	lait maternel et riz léger (sosoa) -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B10	2B5 2B10	2B5 2B10
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel et riz léger (Sosoa) -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -

Nom et prénoms : RAZAFINDRAVAO Lala Valérien

Village : Andrakaraka

Date: 05/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 28,25

Ages des enfants : 11,3

AK1

Page 1 sur 6

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	1 Gobelet	1G1	1G1	1G1
Protéine	8 (nombre)	8D1	8D1	8D1

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec des tomates et oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	4 (nombre)	4 A13		4 A13
Légume	2 grappes	2B1	2B1	2B1
Grain/Glucides	2 ~~tako~~	2 C2	2C2	2C2
Protéine	10 (nombre)	10 D2	10 D2	10 D2

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec des tomates et oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2B/J	2B/J	2B/J
Grain/Glucides	4 gobelets	4G/J	4G/J	4G/J
Protéine	8 (nombre)	8D/J 2D/O	8D/J 2D/O	8D/O 2D/O

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec des tomates et oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	les têtes de tary sont enlevées – Les autres poissons sont consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : HERINIAINA Donatien Désiré

Village : Andrakaraka

Date: 05/12/2022

Nombre de repas par jour: 2

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: 39, 36

Ages des enfants : 14, 9, 3

AK2

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides				
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	60 (nombre)	50 A5 10 A23		50 A5 10 A23
Légume	2 grappes	2B5	2B5	2B5
Grain/Glucides	2 gobelets	2G2	2G2	2G2
Protéine	10 (nombre)	10 D2	10 D2	10 D2

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec tomates et oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	3Bs	3Bs	3Bs
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	10 (nombre)	10 Dz	10 Dz	10 Dz

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec des tomates et oignons -	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier -	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -

Nom et prénoms : KAJY Galtine

Village : Andrakaraka

Date: 05/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: 42,18

Ages des enfants : 13,9,5

AK3

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	2 Koko	1C2 1C3	1C2 1C3	1C2 1C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	110 (nombre)	100 A5 5 A4 5 A13	5 A4	5 A4 100 A5 5 A13
Légume				
Grain/Glucides	4 to 10	2 C2 2 C3	2 C2 2 C3	2 C2 2 C3
Protéine	10 (nombre)	10 D1	10 D2	10 D2

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	4 gobelets	4G1	4G1	4G1
Protéine	15 (nombre)	15D1	15D1	15D1

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –

Nom et prénoms : SOJA Masaly

Village : Andrakaraka

Date: 05/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: 36/26

Ages des enfants : 10, 5 / 1 mois

AK4

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	2 gobelets 3 tôtô	2G1 3G3	2G1 3G3	2G1 3G3
Protéine	10 (nombre) 1 gobelet	10D1 1D1	10D1 1D1	10D1 1D1

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec des tomates et oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?	Consommés en entier –	
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	2 gobelets	2 G_1	2 G_1	2 G_1
Protéine	10 (nombre) 2 gobelets 2 toro	10 D_1 2 D_2 2 D_3	10 D_1 2 D_2 2 D_3	10 D_1 2 D_2 2 D_3

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec des tomates et oignons -	
Pour les crevettes et patsa, quelles parties sont consommées ?	Consommés en entier -	
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier -	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MAHASOA

Village : Andralavaka

Date: 05/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 20/20

Ages des enfants : 4 mois

AK5

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	1 gobelet	1 G	1 G	1 G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	lait maternel –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2Bs	2Bs	2Bs
Grain/Glucides	1 tolo	1Cs	1Cs	1Cs
Protéine	6 (morbe)	6Ds	6Ds	6Ds

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2B/6	2B/6	2B/6
Grain/Glucides	3 gobelets	2G1 1G12	2G1 1G12	2G1 1G12
Protéine	6(nombre)	GD2	GD2	GD2

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : NETESOA Espérance

Village : Andrakaraka

Date: 05/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 3

Nombre d'enfants 2

Ages des adultes: 75/53/28

Ages des enfants : 10, 1

AK6

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2B/6	2B/6	2B/6
Grain/Glucides	2 gobelets 1 tobo	2G2 1G2	2G2 1G2	2G2 1G2
Protéine	2 (nombre)	2D2	2D2	2D2

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Riz léger (sossa) –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	7 (nombre)	7D	7D	7D

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Riz léger (sosoa) –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	3 gobelets	3G1	3G1	3G1
Protéine	6(nombre)	GD1	GD1	GD1

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Riz léger (sosoa) –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Donné

Village : Andrakaralea

Date: 05/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 4

Nombre d'enfants 2

Ages des adultes: 22, 20, 40, 58

Ages des enfants : 2, 5 mois

AK7

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	1 Kaba	1 Cr	1 Cr	1 Cr
Protéine	5 (nombre)	5 Dr	5 Dr	5 Dr

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	3 toko	3C2	3C2	3C2
Protéine	10(nombre)	10D1	10D1	10D1

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	3 gobelets	3G1	3G1	3G1
Protéine	15(nombre)	15D1	15D1	15D1

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MANJA Jean Alexandre

Village : Andrakaraka

Date: 05/02/2022

Nombre de repas par jour: 3

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: 62, 57, 24

Ages des enfants : 10, 7, 5

AK8

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2Bs	2Bs	2Bs
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine	12 (nombre)	12O	12O	12O

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	12 (nombre)	6 A4 6 A13	6 A4	6 A4 6 A13
Légume	3 grappes	3 B6	3 B6	3 B6
Grain/Glucides	3 gobelets	3 G2	3 G2	3 G2
Protéine	1 gobelet	1 D2	1 D2	1 D2

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec des tomates et oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?	Consommés en entier –	
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	3B/6	3B/6	3B/6
Grain/Glucides	4 gobelets	4G	4G	4G
Protéine	15 (nombre)	15D	15D	15D

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Christophe Daly

Village : Andalaraka

Date: 05/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 5

Nombre d'enfants 4

Ages des adultes: 67, 63, 37, 26, 19

Ages des enfants : 8, 4, 1, 9 mois

AKG

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	lait maternel –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	88 (nombre)	80 A5 8 A13		80 A5 8 A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	7 gobelets	7G1	7G1	7G1
Protéine	12 (nombre) 2 gobelets	12D1 2D2	12D1 2D2	12D1 2D2

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec des tomates et oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?	Consommés en entier –	
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	7 gobelets	7G	7G	7G
Protéine	12 (nombre)	12D	12D	12D

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAHARIMANANA Judith

Village : Andrakaraka

Date: 05/01/2022

Nombre de repas par jour: 2

Nombre d'adultes : 5

Nombre d'enfants 2

Ages des adultes: 45/32/29/26/18

Ages des enfants : 16/3

AK10

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides				
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	10 (nombre)	10 A13		10 A13
Légume	4 groupes	4 B6	4 B6	4 B6
Grain/Glucides	5 gobelets	5 C1	5 C1	5 C1
Protéine	16 (nombre)	16 D1	16 D1	16 D1

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier -	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	4B/6	4B/6	4B/6
Grain/Glucides	6 gobelets	6G	6G	6G
Protéine	20 (nombre)	20 D	20 D	20 D

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis —	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier —	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas —

Nom et prénoms : MAMA Gervais

Village : Andrakaraka

Date: 05/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 6

Nombre d'enfants 1

Ages des adultes: 48, 47, 22, 22, 19, 18

Ages des enfants : 8 mois

AK 11

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	80 (nombre)	60 A5 10 A4 10 A13	10 A4	10 A4 60 A5 10 A13
Légume	3 grappes	3B10	3B10	3B10
Grain/Glucides	3 gobelets	3G1	3G1	3G1
Protéine	10 (nombre)	10D2	10D2	10D2

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Riz léger (sossa) –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	80 (nombre)	60 A5 10 A4 10 A23	10 A4	10 A4 60 A5 10 A23
Légume	4 grappes	4 B6	4 B6	4 B6
Grain/Glucides	5 gobelets	5 G1	5 G1	5 G1
Protéine	12 (nombre)	12 D2	12 D2	12 D2

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Riz léger (sossa) –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	4B/6	4B/6	4B/6
Grain/Glucides	5 gobelets	5G	5G	5G
Protéine	12 (nombre)	12Dz	12Dz	12Dz

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Riz léger (sosoa) –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Nambinina

Village : Andakaraka

Date: 05/02/2022

Nombre de repas par jour: 3

Nombre d'adultes : 4

Nombre d'enfants 3

Ages des adultes: 45/39, 21, 19

Ages des enfants : 17/12/8 mois

AK12

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine	10 (nombre)	10D	10D	10D

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Riz léger (sosa)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	3B/6	3B/6	3B/6
Grain/Glucides	4,5 gobelets	3G1 1,5G2	3G1 1,5G2	3G1 1,5G2
Protéine	12 (nombre) 2 gobelets	12D1 2D2	12D1 2D2	12D1 2D2

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies -	
Pour les crevettes et patsa, quelles parties sont consommées ?	Consommées en entier -	
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier -	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Riz léger (Sosoa) -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	4 gobelets	4 G1	4 G1	4 G1
Protéine	10 (nombre)	10 D1	10 D1 2 D2 3 D3	10 D1

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis –	
Pour les crevettes et patsa, quelles parties sont consommées ?	Consommés en entier –	
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Riz léger (Sosoa) –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Sosthene

Village : Andrakaraka

Date: 05/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 54, 52

Ages des enfants : 13, 9

AK13

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	1 gobelet	1 C1	1 C1	1 C1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas -

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2B6	2B6	2B6
Grain/Glucides	3 tokos	2C2 1C3	2C2 1C3	2C2 1C3
Protéine	4 (nombre) 2 tokos	4D1 2D3	4D2 2D3	4D1 2D3

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis –	
Pour les crevettes et patsa, quelles parties sont consommées ?	Consommés en entier –	
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2B/6	2B/6	2B/6
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine	6 (nombre)	6D	6D	6D

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –

Nom et prénoms : Tsandrainy

Village : Andrakaraka

Date: 05/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 25/22

Ages des enfants : 1

AK14

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine	1 gobelet	1D	1D	1D

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis –	
Pour les crevettes et patsa, quelles parties sont consommées ?	Consommés en entier –	
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	~~Rien~~
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	2 gobelets 1 koko	2 G1 1 G2	2 G1 1 G2	2 G1 1 G2
Protéine	4 (nombre) 2 gobelets	4 D2 2 D2	4 D2 2 D2	4 D1 2 D2

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies –	
Pour les crevettes et patsa, quelles parties sont consommées ?	Consommés en entier –	
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2B/6	2B/6	2B/6
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine	2 gobelets	2D	2D	2D

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies –	
Pour les crevettes et patsa, quelles parties sont consommées ?	Consommées en entier –	
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas –
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

B1

Nom et prénoms : MAMISOA Arphine

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 5

Ages des adultes: (36,26)

Ages des enfants : (~~14~~, 15, 13, 7, 4)

Page _____ sur _____

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2 B5 2 B6	2 B5 2 B6	2 B5 2 B6
Grain/Glucides	2 gobelets	2 G1	2 G1	2 G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même chose que les autres

Nom et prénoms : MAMISOA Anphine

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 5

Ages des adultes: (36,26)

Ages des enfants : (17,15,13,7,4)

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	14 (nombre)	14 A_{13}		70 A_5 14 A_{13}
Légume	9 grappes	4 B_5 5 B_6	4 B_5 5 B_6	4 B_5 5 B_6
Grain/Glucides	4 gobelets 3 koko	4 C_1 3 C_2	3 C_1 3 C_2	4 C_1 3 C_2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même chose que les autres

Nom et prénoms : MAMISOA Anphine

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 5

Ages des adultes: (36, 26)

Ages des enfants : (17, 15, 13, 7, 4)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	11 grappes	6 B5 5 B6	6 B5 5 B6	6 B5 5 B6
Grain/Glucides	7 gobelets	7 G	5 G	7 G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même chose que les autres

B2

Nom et prénoms : NIRINA

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 4

Nombre d'enfants 2

Ages des adultes: (41, 40, 23, 20)

Ages des enfants : (14, 11)

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	10 grappes	4 B5 6 B6	4 B5 6 B6	4 B5 6 B6
Grain/Glucides	4 gobelets	4 C1	4 C1	4 C1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même chose que les autres

Nom et prénoms : NERINA

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 4

Nombre d'enfants 2

Ages des adultes: (41,40,23,20)

Ages des enfants : (14,11)

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	12 (nombre)	12 A_{13}		120 A_5 12 A_{13}
Légume	12 grappes	5 B_5 7 B_6	5 B_5 7 B_6	5 B_5 7 B_6
Grain/Glucides	5 Gobelets 3 toko	5 G_1 3 C_2	5 G_1 3 C_2	5 G_1 3 C_2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même chose que les autres

Nom et prénoms : NIRINA

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 4

Nombre d'enfants 2

Ages des adultes: (41, 40, 23, 20)

Ages des enfants : (14, 11)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	13 grappes	7B5 6B6	7B5 6B6	7B5 6B6
Grain/Glucides	7 gobelets	7G	7G	7G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même choxque les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même choxque les autres

B3

Nom et prénoms : KAZO Paulette

Village : Bdaliguy

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: (40,33)

Ages des enfants : (14,5,3)

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	$3B_5$	$3B_5$	$3B_5$
Grain/Glucides	1 gobelet 2 toko	$1C_1$ $2C_2$	$1C_1$ $2C_2$	$1C_1$ $2C_2$
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même chose que les autres

Nom et prénoms : KAZO Paulette

Village : Bétaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: (40,33)

Ages des enfants : (14,5,3)

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	4 Bs	4 Bs	4 Bs
Grain/Glucides	2 gobelets 3 tobo	2 G1 3 G2	2 G1 3 G2	2 G1 3 G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même chose que les autres

Nom et prénoms : KAZO Paulette

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: (40, 33)

Ages des enfants : (14, 5, 3)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	3Bs	3Bs	3Bs
Grain/Glucides	3,5 gobelets	3,5 G	3 G	3,5 G
Protéine	2 gobelets	2D 13	2D 13	2D 13

Comment est-ce que les protéines sont-elles préparées ?	Elles sont préparés avec un peu d'huile -	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	les petits poissons (kotriky) sont consommés en entier -	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	le même choix que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	le même choix que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	le même choix que les autres

B4

Nom et prénoms : TSILTSO

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 3

Nombre d'enfants —

Ages des adultes: (70, 45, 35)

Ages des enfants : —

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	60 A_5 6 A_{13}		6 A_{13}
Légume	3 grappes	3 B_5	3 B_5	3 B_5
Grain/Glucides	3 gobelets 1,5 tobo	3 C_1 1,5 C_2	3 C_1 1,5 C_2	1,5 C_1 3 C_2
Protéine	1 gobelets	1 D_{13}		1 D_{13}

Comment est-ce que les protéines sont-elles préparées ?	Bouillis ou sautés.	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Les petits poissons (Lotriky) sont consommés en entier.	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : TSILISO

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 3

Nombre d'enfants —

Ages des adultes: (70, 45/35)

Ages des enfants : —

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	12 (nombre)	60 Aj 12 A13		12 A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets	3G1	3G1	3G1
Protéine	2 gobelets	6D1 2D13		2D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillis ou sautés.	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Les poissons et les petits poissons (kotakey) sont consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : TSILISO

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 3

Nombre d'enfants —

Ages des adultes: (20, 45 / 35)

Ages des enfants : —

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets	3G1	3G1	3G1
Protéine	3 gobelets	9D1 3D13		3D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillis ou sautés	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : DSMY Ruffin

Village : Bdaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: (27,25)

Ages des enfants : (6, 3, 8mois)

B5

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	1,5 gobelets	1,5 G1	1,5 G1	1,5 G1
Protéine	1 gobelet	1D13		1D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel et riz léger (sossa)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	La même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	La même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : DAMY Ruffin

Village : Botaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: (27;23)

Ages des enfants : (6;3,8 mois)

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	7 grappes	3B5 2B6 2B7	3B5 2B6 2B7	3B5 2B6 2B7
Grain/Glucides	2 gobelets	2G1	2G1	2G1
Protéine	2 gobelets	2D13		2D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel et riz léger (sosoa)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	La même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	La même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : DAMY Ruffin

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: (27 ; 23)

Ages des enfants : (6 ; 3 ; 8 mois)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	2B5 2B6 2B7	2B5 2B6 2B7	2B5 2B6 2B7
Grain/Glucides	4 gobelets 1/5 tako	4 G1 1/5 G2	4 G1 1/5 G2	4 G1 1/5 G2
Protéine	2/5 gobelets	2/5 D13		2/5 D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	lait maternel et riz léger (sosoa)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : KALIDO

Village : Botaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: (24, 23, 40)

Ages des enfants : (17, 10, 4)

B6

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	G0 A5 6 A13		6 A13
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	2 gobelets	2C1	2C1	2C1
Protéine	2 gobelets	2D13		2D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	La même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	La même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : KAGIZO

Village : Bataligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: (24,23,40)

Ages des enfants : (17,10,4)

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	2 gobelets	2D3		2D3

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	La même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	La même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : KAGIO

Village : Botaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: (24,23,40)

Ages des enfants : (17,10,4)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	8 grappes	4B5 4B6	4B5 4B6	4B5 4B6
Grain/Glucides	5 gobelets	5G1	5G1	5G1
Protéine	2 gobelets	2D13		2D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	La même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	La même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

B7

Nom et prénoms : KATY Philomène

Village : Bataligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 3

Nombre d'enfants 5

Ages des adultes: (21, 50, 35)

Ages des enfants : (15, 14, 12, 5, 2)

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	8 (nombre)	8A13		80 A5 8A13
Légume	5 grappes	3B5 2B6	3B5 2B6	3B5 2B6
Grain/Glucides	2 gobelets 2 tobo	2C1 2C2	2C1 2C2	2C1 2C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Il mange du riz à la place du manioc
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	La même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	La même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	La même chose que les autres

Nom et prénoms : KAJY Philomène

Village : Bétaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 3

Nombre d'enfants 5

Ages des adultes: (21,50,35)

Ages des enfants : (15,14,12,5,2)

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	~~40~~ (nombre) (quarante)	24 A6 16 A13	24 A6	280 A5 16 A13
Légume	7 grappes	3B5 4B6	3B5 4B6	3B5 4B6
Grain/Glucides	8 tobo 1 gobelet	4C2 4C3 1C12	4C2 4C3 1C12	4C2 4C3 1C12
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Il mange du riz à la place du manioc et de la patate douce
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	La même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	La même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	La même chose que les autres

Nom et prénoms : KAJY Philomène

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 3

Nombre d'enfants 5

Ages des adultes: (21,50,35)

Ages des enfants : (15/14,12,5/2)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	7 grappes	3B5 4B6	3B5 4B6	3B5 4B6
Grain/Glucides	6 gobelets	6G	6G	6G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même chose que les autres
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	la même chose que les autres

Nom et prénoms : DAMY Fulgence

Village : Bataligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 3

Nombre d'enfants 2

Ages des adultes: (46,44,50)

Ages des enfants : (12,7)

B8

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2B/j	2B/j	2B/j
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : DAMY Fulgence

Village : Botaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 3

Nombre d'enfants 2

Ages des adultes: (46, 44, 50)

Ages des enfants : (12, 7)

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	10 (nombre)	10 A13		10 A13 100 A5
Légume	7 grappes	3B5 4B6	3B5 4B6	3B5 4B6
Grain/Glucides	5 tobo 25 gobelets	3C2 2C3 25 C12	3C2 2C3 25 C12	3C2 2C3 25 C12
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : DAMY Fulgence

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 3

Nombre d'enfants 2

Ages des adultes: (46,44,50)

Ages des enfants : (12,7)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	9 grappes	4B5 ~~5~~B6	4B5 5B6	4B5 ~~5~~B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MARA

Village : Bataligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 1

Nombre d'enfants —

Ages des adultes: (22)

Ages des enfants : —

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BG

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	1 grappe	1B/6	1B/6	1B/6
Grain/Glucides	1 toko	1 Cr	1 Cr	1 Cr
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MARA

Village : Bataligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 1

Nombre d'enfants —

Ages des adultes: (22)

Ages des enfants : —

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	7(nombre)	2A6 5A13	2A6	2A5 5A13
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	2 gobelets 1 toko	1C1 1C2 1C12	1C1 1C2 1C12	1C1 1C2 1C12
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MARA

Village : Betaliony

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 1

Nombre d'enfants —

Ages des adultes: (22)

Ages des enfants : —

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1 B5 1 B6	1 B5 1 B6	1 B5 1 B6
Grain/Glucides	1 gobelet	1 C1	1 C1	1 C1
Protéine	5 (nombre) 1/4 kilo	5 D1 1/4 D6	5 D1 1/4 D6	5 D1 1/4 D6

Comment est-ce que les protéines sont-elles préparées ?	Elles sont sautés avec des tomates et oignons (3 tomates et 2 oignons).	6/6
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAVAO

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: (58,55, 18)

Ages des enfants : (17,16,3)

B30

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	1 grappe	1B6	1B6	1B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : RAVAO

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: (58, 55, 48)

Ages des enfants : (17, 16, 3)

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	85 (nombre)	70 A5 15 A13		70 A5 15 A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	5 koko	5 Cr	5 Cr	5 Cr
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : RAMBO

Village : Bataligny

Date: 17/02/2022

Nombre de repas par jour: 3

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: (58, 55, 18)

Ages des enfants : (17, 16, 3)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	3B5 2B6	3B5 2B6	3B5 2B6
Grain/Glucides	6 gobelets	6G1	6G1	6G1
Protéine	6 (nombre)	6D1	6D1	6D1

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 4 tomates et 3 oignons —	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

B11

Nom et prénoms : KAZY Claudine

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

RAFANOMEZANTSOA Lazafiet

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: (59 ans)

Ages des enfants : (5, 1, 6mois)

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	3B5 2B6	3B5 2B6	3B5 2B6
Grain/Glucides	1 gobelet	1C1	1C1	1C1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : KABY Claudine

Village : Bétaligny

Date: 27/01/2022

Nombre de repas par jour: 3

R. Lagofret

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: (50,18)

Ages des enfants : (5,1,6mois)

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	3 (nombre)	3A13		100 Af 3A13
Légume	5 grappes	3B5 2B6	3B5 2B6	3B5 2B6
Grain/Glucides	4 tobo	2C2 2C3	2C2 2C3	2C2 2C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : KAZY Claudine

Village : Botaligny

Date: 17/01/2022

Nombre de repas par jour: 3

R. Lazofret

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: (50,18)

Ages des enfants : (5|1, 6mois)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	3B5 2B6	3B5 2B6	3B5 2B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

B12

Nom et prénoms : KAZY Marie Victorine

Village : Bétaligny

Date: 17/01/2022

Nombre de repas par jour: 3

R. Lazaret

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: (53, 27, 23)

Ages des enfants : (14, 11, 6)

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	1 gobelet	1G1	1G1	1G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : KAZY Marie Victorine

Village : Betaligny

Date: 15/01/2022

Nombre de repas par jour: 3

R. Lazofret

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: (53, 27, 23)

Ages des enfants : (14, 11, 6)

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	6 A13		150 A5 6 A13
Légume	7 grappes	4 B5 3 B6	4 B5 3 B6	4 B5 3 B6
Grain/Glucides	3 toko	5 C2	3 C2	3 C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : KABY Marie Victorine

Village : Botaligny

Date: 17/01/2022

Nombre de repas par jour: 3

R. Lazaret

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: (53, 27, 23)

Ages des enfants : (14, 11, 6)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	7 grappes	4 Bs 3 Bb	4 Bs 3 Bb	4 Bs 3 Bb
Grain/Glucides	5 gobelets	5 G	5 G	5 G
Protéine	2 gobelets	2 D	2 D	2 D

Comment est-ce que les protéines sont-elles préparées ?	Préparées avec des feuilles de patate douce	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : MIZA Marcelia

Village : Bdaligny

Date: 17/01/2022

Nombre de repas par jour: 3

R. Lagofet

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: (25/20)

Ages des enfants : (5)

B13

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	3 (nombre)	3 A13		3 A13
Légume	2 grappes	2 B5	2 B5	2 B5
Grain/Glucides	1 gobelet	1 C1	1 C1	1 C1
Protéine		2 D3		3 A1

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 4 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?	Consommées en entier	
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MIZA Marcelia

Village : Botaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: (25/20)

Ages des enfants : (5)

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	6 A13		50 A5 6 A13
Légume	4 grappes	4 B5	4 B5	4 B5
Grain/Glucides	2 koko	2 C2	2 C2	2 C2
Protéine	2 gobelets	2 D13	2 D13	5 D1 2 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 4 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MIZA Marcelia

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Plazafet

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: (25,20)

Ages des enfants : (5)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	3B/J	3B/J	3B/J
Grain/Glucides	4 gobelets	4 C/J	4 C/J	4 C/J
Protéine	3 gobelets	3 D/J	3 D/J	3 D/J

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec de l'huile	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Les têtes de tony (petits poissons) ne sont pas consommées.	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Germain

Village : Betaligney

Date: 17/01/2022

Nombre de repas par jour: 3

RAFANOMEZANTSOA Lazaret

Nombre d'adultes : 3

Nombre d'enfants 1

Ages des adultes: (62, 56, 18)

Ages des enfants : (16)

B14

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	1 grappe	1 B_5	1 B_5	1 B_5
Grain/Glucides	1 tsoko	1 c_2	1 c_1 1 c_2	1 c_2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Germain

Village : Bdaligny

Date: 27/01/2022

Nombre de repas par jour: 3

R. Lazaret

Nombre d'adultes : 3

Nombre d'enfants 1

Ages des adultes: (62, 56, 58)

Ages des enfants : 16

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	5 (nombre)	5 A13		5 A13
Légume	3 grappes	3 Bf	3 Bf	3 Bf
Grain/Glucides	2 toko	2 Cr	3 Cr 2 Cr	2 Cr
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Germain

Village : Bdaligny

Date: 17/01/2022

Nombre de repas par jour: 3

R. Langlet

Nombre d'adultes : 3

Nombre d'enfants 1

Ages des adultes: (62, 56, 18)

Ages des enfants : (16)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	3B5	3B5	3B5
Grain/Glucides	6 gobelets	5G1 1G12	5G1 1G12	5G1 1G12
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec de l'huile	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : RASOANANTENAINA Bin Celine

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Modeste

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: (25, 24)

Ages des enfants : (5, 3)

B 15

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	1 gobelet	1C1	1C1	1C1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RASOAMBINTENIAINA Bien Celine

Village : Betaliguy

Date: 17/01/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: (25,24)

Ages des enfants : (5,3)

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit		4A13		40A5
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets 2 koko	2C1 2C2	2C1 2C2	2C1 2C2
Protéine	2 gobelets	2D13	2D13	4D1

Comment est-ce que les protéines sont-elles préparées ?	Braillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RASOANDRANTENAINA Bien Celine

Village : Betaligny

Date: 27/01/2022

Nombre de repas par jour: 3

Modeste

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: (25 24)

Ages des enfants : (5 3)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	3B5 2B6	3B5 2B6	3B5 2B6
Grain/Glucides	3 gobelets	3G1 2G12	3G1 2G13	3G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAZANANADRO Claudine

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 4

Nombre d'enfants 1

Ages des adultes: (85, 52, 48, 19)

Ages des enfants : (12)

B16

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	1 grappe	1B/6	1B/6	1B/6
Grain/Glucides	2 gobelets 1 toko	2G1 1G2	2G1 1G2	2G1 1G2
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAZANAMAHAVO Claudine

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 4

Nombre d'enfants 1

Ages des adultes: (85, 52, 48, 19)

Ages des enfants : (12)

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	5 (nombre)	100% A2 4 A13	100% A2 8 A6	80 A5 4 A13
Légume	5 grappes	3B5 2B6	3B5 2B6	3B5 2B6
Grain/Glucides	3 gobelets	3G1	3G1	3G1
Protéine	8 (nombre) 2 gobelets	8D1 2D13	2D13	8D1 2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés entiers	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAZANADRAIVO Claudine

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 4

Nombre d'enfants 1

Ages des adultes: (85, 52, 48, 19)

Ages des enfants : (12)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	8 (nombre) 2 gobelets	8D1 2D13	2D13	8D2 2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : VOAHIRY

Village : Betaligny

Date: 27/01/2022

Nombre de repas par jour: 3

Modeste

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: (44, 30)

Ages des enfants : (12, 7)

BA

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	1 gobelet	1C1	1C1	1C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : VOHIZY

Village : Betaligny

Date: 17/02/2022

Nombre de repas par jour: 3

Modestok

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: (44, 30)

Ages des enfants : (12 A)

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	4 (nombre)	4 BJ3		6 BJ5 4 BJ3
Légume	6 grappes	3 B5 3 B6	3 B5 3 B6	3 B5 3 B6
Grain/Glucides	3 gobelets 2 tolo	3 G1 2 G2	3 G1 2 G2	3 G1 2 G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : VOHEZY

Village : Botalingy

Date: 19/01/2022

Nombre de repas par jour: 3

Modetok

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: (46, 30)

Ages des enfants : (12, 7)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	4 gobelets	4G1 2G12	4G1 2G13	4G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : HASOAVINY Papelice

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: (32, 21)

Ages des enfants : (1)

B18

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	~~59~~ (nombre)	5 A4 100% A7 50 A5 3 A13	5 A4 100% A7	5 A4 100% A7 50 A5 3 A13
Légume	1 grappe	1 B6	1 B6	1 B6
Grain/Glucides	1 gobelet 1 nombre	1 C1 1 C10	1 C1 1 C10	1 C1 1 C10
Protéine	3 ~~gobelets~~ (nombre)	3 D1	3 D1	3 D1

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou frites	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : HASOAVINY Poplize

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: (32,31)

Ages des enfants : (1)

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	5 (nombre)	5 A4	5 A4	5 A4
Légume	2 grappes	2 B5	2 B5	2 B5
Grain/Glucides	3 gobelets	2 G1 1 G12	2 G1 1 G12	2 G1 1 G12
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : HASOAVINY Papelice

Village : Bdaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Repas

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: (32, 21)

Ages des enfants : (1)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	5(nombre)	5Ay	5Ay	5Ay
Légume	2 grappes	2By	2By	2By
Grain/Glucides	1 gobelet 1 kilo	1 G1 1 G6	1 G1 1 G6	1 G1 1 G6
Protéine	3 (nombre)	3D1	3D1	3D1

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou frites	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAHARIMANANA Mirany

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: (19, 18)

Ages des enfants : (2 mois)

B19

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	1 grappe	1B6	1B6	1B6
Grain/Glucides	1 gobelet	1G	1G	1G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAHARIMBALA Mirany

Village : Betaliany

Date: 17/01/2022

Nombre de repas par jour: 3

Edgar

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: (19,18)

Ages des enfants : (2mois

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	24 (nombre)	20 A5 4 A13	4 A6	20 A5 4 A13
Légume	2 grappes	2B6	2B6	2B6
Grain/Glucides	2 gobelets	2G1	2G1	2G1
Protéine	5 (nombre)	5D1	5D1	2D10 2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier pour les poissons et les bokiky – les têtes sont enlevées pour les tary –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAHARIMANANA Mirany

Village : Betaligny

Date: 17/04/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: (29,18)

Ages des enfants : (2mois)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	0,5 kilo	0,5 D6	0,5 D6	0,5 D6

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Anarana : MAMY Brelse

Tanana : Betaligny

Daty: 17/01/2022

Isan'ny nahandro isanandro: 3

Edget

Isan'ny olondehibe : 2 Bro

Isan'ny ankizy 1

Taonan'ny olondehibe: (62,30)

Taonan'ireo ankizy : (16)

Pejy 1 hatr@ 6

SAKAFO MARAINA

fahavokatra.

	Habetsahana mahazatra	Fotoanan'ny orana (Des-Apr)	Fotoanan'ny Asotry (Mey-Aog)	Fotoana be rivotra (Sept-Nov)
Voankazo				
Legioma	1 gaffe	1B6	1B6	1B6
Foto-tsakafo	1 gobelet	1G1	1G1	1G1
Proteina				

Ahoana ny fomba fikarakarany ny sakafo be proteine?		
Inona amin'ny tsitsiky (crevette) sy ny patsa no hanina?		
Inona amin'ny fia no hanina? Ary raha trondro madinika?		
	Araka ny mahazatra, inona no sakafon'ny zaza latsaky ny 1 taona?	
	Araka ny mahazatra, inona no sakafon'ny zaza eo anelanelan'ny 1-3 taona? Izay hanin'ny ao antrano ihany ve sa anaovana sakafo manokana?	
	Araka ny mahazatra, inona no sakafon'ny zaza eo anelanelan'ny 4-8 taona? Izay hanin'ny ao antrano ihany ve sa anaovana sakafo manokana?	
	Araka ny mahazatra, inona no sakafon'ny zaza eo anelanelan'ny 9-12 taona? Izay hanin'ny ao antrano ihany ve sa anaovana sakafo manokana?	
	Araka ny mahazatra, inona no sakafon'ny zaza eo anelanelan'ny 13-16 taona? Izay hanin'ny ao antrano ihany ve sa anaovana sakafo manokana?	Même repas

2/6

Anarana : MAMY Belize

Tanana : Betaligny

Daty: 17/01/2022

Edget

Isan'ny olondehibe : 2

Isan'ny ankizy 1

Taonan'ny olondehibe: (62, 30)

Taonan'ireo ankizy : (A6)

Pejy 3 hatr@ 6

SAKAFO ATOANDRO

	Habetsahana mahazatra	Fotoanan'ny orana (Des-Apr)	Fotoanan'ny Asotry (Mey-Aog)	Fotoana be rivotra (Sept-Nov)
Voankazo	~~12~~ (nombre)	30 Bs 6 A6 6 A13	6 A6	30 Bs 6 A13
Legioma	4 gaffes	2Bs 2B6	2Bs 2B6	2Bs 2B6
Foto-tsakafo	2 gobelets	2G	2G	2G
Proteina				

Ahoana ny fomba fikarakarany ny sakafo be proteine?		
Inona amin'ny tsitsiky (crevette) sy ny patsa no hanina?		
Inona amin'ny fia no hanina? Ary raha trondro madinika?		
	Araka ny mahazatra, inona no sakafon'ny zaza latsaky ny 1 taona?	
	Araka ny mahazatra, inona no sakafon'ny zaza eo anelanelan'ny 1-3 taona? Izay hanin'ny ao antrano ihany ve sa anaovana sakafo manokana?	
	Araka ny mahazatra, inona no sakafon'ny zaza eo anelanelan'ny 4-8 taona? Izay hanin'ny ao antrano ihany ve sa anaovana sakafo manokana?	
	Araka ny mahazatra, inona no sakafon'ny zaza eo anelanelan'ny 9-12 taona? Izay hanin'ny ao antrano ihany ve sa anaovana sakafo manokana?	
	Araka ny mahazatra, inona no sakafon'ny zaza eo anelanelan'ny 13-16 taona? Izay hanin'ny ao antrano ihany ve sa anaovana sakafo manokana?	Mêmerapas

Anarana : MAMY Brulise

Tanana : Betaligny

Daty: 17/01/2022

Edget

Isan'ny olondehibe : 2

Isan'ny ankizy 1

Taonan'ny olondehibe: (62,30)

Taonan'ireo ankizy : (16)

Pejy 5 hatr@ 6

SAKAFO HARIVA

	Habetsahana mahazatra	Fotoanan'ny orana (Des-Apr)	Fotoanan'ny Asotry (Mey-Aog)	Fotoana be rivotra (Sept-Nov)
Voankazo				
Legioma	5 grappes	3B5 2B6	3B5 2B6	3B5 2B6
Foto-tsakafo	2 gobelets	2C1	2C1	2C1
Proteina	6 (nombre)	6D11	6D11	6D11

Ahoana ny fomba fikarakarany ny sakafo be proteine?	Sautés ou bouillies	
Inona amin'ny tsitsiky (crevette) sy ny patsa no hanina?		
Inona amin'ny fia no hanina? Ary raha trondro madinika?		
	Araka ny mahazatra, inona no sakafon'ny zaza latsaky ny 1 taona?	
	Araka ny mahazatra, inona no sakafon'ny zaza eo anelanelan'ny 1-3 taona? Izay hanin'ny ao antrano ihany ve sa anaovana sakafo manokana?	
	Araka ny mahazatra, inona no sakafon'ny zaza eo anelanelan'ny 4-8 taona? Izay hanin'ny ao antrano ihany ve sa anaovana sakafo manokana?	
	Araka ny mahazatra, inona no sakafon'ny zaza eo anelanelan'ny 9-12 taona? Izay hanin'ny ao antrano ihany ve sa anaovana sakafo manokana?	
	Araka ny mahazatra, inona no sakafon'ny zaza eo anelanelan'ny 13-16 taona? Izay hanin'ny ao antrano ihany ve sa anaovana sakafo manokana?	Même repas

Nom et prénoms : KAZY Mariette

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: (64, 21)

Ages des enfants : (9, 7, 3)

B21

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : KAZY Mariette

Village : Bdaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: (64, 21)

Ages des enfants : (9, 7, 3)

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	7 grappes	3B5 4B6	3B5 4B6	3B5 4B6
Grain/Glucides	3 gobelets	3G1	3G1	3G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : KABY Mariette

Village : Bdaligny

Date: 27/01/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: (64, 21)

Ages des enfants : (9, 7, 3)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	7 grappes	3B5 4B6	3B5 4B6	3B5 4B6
Grain/Glucides	3 gobelets	3 G	3G	3G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : NOME

Village : Bdaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 4

Nombre d'enfants 5

Ages des adultes: (52,38,28,60)

Ages des enfants : (11,5,2,3,7)

B22

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	18 (nombre)	18 A13		50 A5 18 A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	25 Gobelets	25 G1	25 G1	25 G1
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : NOME

Village : Botaligny

Date: 17/02/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 4

Nombre d'enfants 5

Ages des adultes: (52, 38, 28, 60)

Ages des enfants : (M, 5, 2, 3, 7)

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	27(nombre)	27 A13		27 A13 150 Aj
Légume	9 grappes	4B5 5B6	4B5 5B6	4B5 5B6
Grain/Glucides	8 tako	3C2 5C3	3C2 5C3	3C2 5C3
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : NOME

Village : Botaligny

Date: 27/02/2022

Nombre de repas par jour: 3

Angela

Nombre d'adultes : 4

Nombre d'enfants 5

Ages des adultes: (52, 38, 28, 60)

Ages des enfants : (M 10, 4, 3, 7)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	9 grappes	4B5 5B6	4B5 5B6	4B5 5B6
Grain/Glucides	10 gobelets	8G 2G2	8G 2G2	8G 2G2
Protéine	3 gobelets	3D3	3D3	3D3

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MONJA Célestin

Village : Botaligny

Date: 18/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 2

Nombre d'enfants 6

Ages des adultes: (28, 40)

Ages des enfants : (13, 10, 12, 8, 6, 8 mois)

B23

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	lait maternel et riz léger (sosoa)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : MONJA Célestin

Village : Bdaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 2

Nombre d'enfants 6

Ages des adultes: (28, 40)

Ages des enfants : (13, 15, 12, 8, 6, 8 mois)

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	36 (nombre)	16 A6 20 A13	16 A6	20 A13 200 A5
Légume	7 grappes	3B5 4B6	3B5 4B6	3B5 4B6
Grain/Glucides	3 gobelets 2 toko	3G 2G	3G 2G	3G 2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel et réglégen (soxa)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : MANJA Célestin

Village : Betaligny

Date: 27/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 2

Nombre d'enfants 6

Ages des adultes: (28, 40)

Ages des enfants : (13, 5, 12, 8, 6, 8 mois)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	9 grappes	4B5 5B6	4B5 5B6	4B5 5B6
Grain/Glucides	6 gobelets	4G1 2G12	4G1 2G12	4G1 2G12
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	lait maternel et riz léger (soso)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : MIHA Noel

Village : Bdaligny

Date: 27/01/2022

Nombre de repas par jour: 2

Angelo

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: (63,57)

Ages des enfants : (11)

B24

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides				
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MIHA Noel

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 2

Angelo

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: (G3, G7)

Ages des enfants : (11)

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	6 A13	9 A6	6 A13 60 A5
Légume	2 grappes	2B5	2B5	2B5
Grain/Glucides	2 toko	2C2	2C2	2C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MIHA Noel

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 2

Angelo

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: (53 57)

Ages des enfants : (11)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	3 gobelets	2G1 1G2	2G1 1G2	2G1 1G2
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MARA Gabriel

Village : Betaligay

Date: 17/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 6

Nombre d'enfants 4

Ages des adultes: (64, 65, 40, 32, 33, 34)

Ages des enfants : (4, 10, 6, 7)

B25

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets	2G1	2G1	2G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MARA Gabriel

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 6

Nombre d'enfants 4

Ages des adultes: (64, 65, 40, 32, 33, 34)

Ages des enfants : (4, 10, 6, 7)

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit			20 Ag	300 Aj
Légume	10 grappes	5B5 5B6	5B5 5B6	5B5 5B6
Grain/Glucides	8 gobelets	8 G2	8 G2	8 G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MARA Gabriel

Village : Betaligney

Date: 17/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 6

Nombre d'enfants 4

Ages des adultes: (64, 65, 49, 34, 33, 34)

Ages des enfants : (4, 10, 6, 7)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	10 grappes	4 Bs 4 Bb 2 Bf	4 Bs 4 Bb 2 Bf	4 Bs 4 Bb 2 Bf
Grain/Glucides	13 gobelets	10 G 3 G2	10 G 3 G2	10 G 3 G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : ZANAMINO

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 6

Nombre d'enfants 3

Ages des adultes: (55, 43, 25, 20, 19, 18)

Ages des enfants : (12, 4, 5mois)

B26

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	28 (nombre)	10 B4 18 B13	10 B4	10 B4 18 B13 270 B5
Légume	2 grappes	2B6	2B6	2B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel et riz léger (soso)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : ZANAMENO

Village : Botaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 6

Nombre d'enfants 3

Ages des adultes: (55, 43, 35, 20, 19, 18)

Ages des enfants : (12, 4, 5 mois)

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	34 (nombre)	10 B4 24 A13	10 B4	10 B4 24 A13 300 A5
Légume	8 grappes	4B5 4B6	4B5 4B6	4B5 4B6
Grain/Glucides	7 gobelets 5 tdco	5C1 5C2 2C12	5C1 5C2 2C12	5C1 5C2 2C12
Protéine	28 (nombre)	28 D1	28 D1	28 D1

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 6 tomates et 4 oignons ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel et riz léger (sosoa)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : ZANAMINO

Village : Betaligny

Date: 17/01/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 6

Nombre d'enfants 3

Ages des adultes: (55, 43, 25, 20, 19, 18)

Ages des enfants : (12, 4, 5 mois)

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	9 (nombre)	9 A4	9 A4	9 A4
Légume	9 grappes	4 B5 5 B6	4 B5 5 B6	4 B5 5 B6
Grain/Glucides	7 gobelets	7 C1	7 C1	7 C1
Protéine	30 (nombre) 0,5 Kilo	30 D1 0,5 D6	30 D1 0,5 D6	30 D1 0,5 D6

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 6 tomates et 4 oignons ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel et riz léger (sosoa)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RABIARIHY Fidely

Village : Mandromandramotra

Date: 13/01/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: 55/45/19

Ages des enfants : 17/14/10

M1

~~AK1~~

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	12 (nombre)	6A4 6A23	6A4 6A6	~~6A4~~ 6A23
Légume				
Grain/Glucides	2 gobelets 2 tolo	2C1	2C1 2C2	2C1 2C2
Protéine	6 (nombre)	6D1	6D1	6D1

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : RABIALAHY Fidely

Village : Mandromondromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: 55/45/19

Ages des enfants : 17/14/10

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	12 (nombre)	6A4 A13 100A5	6A4 12A6	6A4 6A13
Légume	3 grappes	3B6	3B6	3B6
Grain/Glucides	4 gobelets 2 toko	4C1 2C2	4C1 2C2	4C1 2C2
Protéine	6 (nombre) 1 gobelet	6D1 1D13	4D1 1D13	6D1 1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : RABEARIVELY Fidely

Village : Mandromondromotra

Date: 19/01/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: 55, 45 / 29

Ages des enfants : 17, 14, 10

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	7 gobelets	5G1 2G2	4G1 2G2	5G1 2G2
Protéine	6 (nombre) 1 gobelet	6D1 1D13	4D1 1D13	6D1 1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : FELICIA

Village : Mandromondromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Modetok

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 27/25

Ages des enfants : 6, 2

M2

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	7 A4 6 A13	6 A6	40 A5 6 A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	1 gobelet 2 koko	1G1 2G2	1G1 2G2	1G1 2G2
Protéine	1 gobelet	1P13	1P13	1P13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : FELICIA

Village : Mandromondromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Modeste

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 27/25

Ages des enfants : 6/2

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets 2 koko	2G1 2G2	2G1 2G2	2G1 2G2
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : FELICITA

Village : Mandramondromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 27/25

Ages des enfants : 6/2

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RASOANOME Nathalie

Village : Mandroamondromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Modetat

Nombre d'adultes : 4

Nombre d'enfants 3

Ages des adultes: 43, 38, 22, 18

Ages des enfants : 12, 7, 6 mois

M3

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	16 (nombre)	14 A4 200% A7 14 A13	14 A4	14 A4 70 A5 200% A7
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets	3G1	3G1	3G1
Protéine	7 (nombre) 2 gobelets	14 D1 2D13	7D1	7D1 2D13

2/6

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	lait maternel et riz léger (soxa)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RASOAHOME Nathalie

Village : Mandromondromotra

Date: 13/02/2022

Nombre de repas par jour: 3

Modetok

Nombre d'adultes : 4

Nombre d'enfants 3

Ages des adultes: 43, 38, 22, 18

Ages des enfants : 12, 7, 6 mois

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	12 (nombre)	12 Ay 14 A13	12 Ay	12 Ay 20 Aj
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	4 gobelets 3 toko	4G2 3G2	4G2 3G2	4G2 3G2
Protéine	3 gobelets	3D23	3D23	3D23

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel et riz léger (soza)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RASOANOME Nathalie

Village : Mandromondronatra

Date: 13/01/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 4

Nombre d'enfants 3

Ages des adultes: 43, 38, 22, 18

Ages des enfants : 12, 7, 6 mois

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	8 grappes	4 B5 4 B6	4 B5 4 B6	4 B5 4 B6
Grain/Glucides	6 gobelets	6 G1	6 G1	6 G1
Protéine	12 (nombre) 3 D13	12 D1 3 D13	12 D1 3 D13	12 D1 3 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel et riz léger (soso)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAVAORISOA Fidélice

Village : Mandromandromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 1

Nombre d'enfants 2

Ages des adultes: 40

Ages des enfants : 8, 3

M 4

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	1 gobelet	1 G	1 G	1 G
Protéine	1 gobelet	1 D13	1 D13	1 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAKOTOARISOA Fidélice

Village : Mandromondromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Modestok

Nombre d'adultes : 1

Nombre d'enfants 2

Ages des adultes: 40

Ages des enfants : 8 | 3

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	12(nombre)	6B4 6B13	6B4	6B4 30B5 6B13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 koko	1C2 1C3	1C2 1C3	1C2 1C3
Protéine	1 goloket	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAVAOARISOA Fidelice

Village : Mandromondromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 1

Nombre d'enfants 2

Ages des adultes: 40

Ages des enfants : 8 13

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets	2G1	2G1	2G1
Protéine	9 (nombre) 2 gobelets	9D1 2D13	6D1 2D13	9D1 2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Sylvia

Village : Mandromondromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Modefait

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: 38, 29, 18

Ages des enfants : 12, 10, 5

M5

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets 2 kaba	3G 2G	3G 2G	3G 2G
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Sylvia

Village : Mandromondromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: 38/20/18

Ages des enfants : 12/10/5

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	12 (nombre)	12A4 12A3	12A4	12A4 60 A5 200g A7
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	4 gobelets 3 koko	4G 3G	4G 3G	4G 3G
Protéine	4 gobelets	4D13	4D13	4D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Sylvia

Village : Mandromandromotra

Date: 23/02/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: 38, 20, 23

Ages des enfants : 12, 10, 5

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	5 gobelets	5G1	5G1	5G1
Protéine	5 gobelets	5D13	5D13	5D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : LAHBO Pascal

Village : Mandromondromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 4

Nombre d'enfants 2

Ages des adultes: 48,44,20,19

Ages des enfants : 15,10

M6

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : LAMBO Pascal

Village : Mandromondromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 4

Nombre d'enfants 2

Ages des adultes: 48, 44, 20, 19

Ages des enfants : 15, 10

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	16 (nombre)	8 B4 8 A13	8 B4	8 B4 8 A13
Légume	4 grappes	4 B7	4 B7	4 B7
Grain/Glucides	2 gobelets 2 tsoko	2 G2 2 G2	2 G2 2 G2	2 G2 2 G2
Protéine	2 gobelets	2 D13	2 D13	2 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : USMBO Raxel

Village : Mandromondromba

Date: 13/02/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 4

Nombre d'enfants 2

Ages des adultes: 48, 44, 20, 19

Ages des enfants : 15, 10

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	10 (nombre)	6B4 4B23	6B4	6B4 4B23
Légume	4 grappes	4B7	4B7	4B7
Grain/Glucides	6 gobelets 2 toko	6G2 2G2	6G2 2G2	6G2 2G2
Protéine	2 gobelets	2D23	2D23	2D23

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : SOANDRASANA Miza Claudette

Village : Mandromandromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Anglo

Nombre d'adultes : 4

Nombre d'enfants 3

Ages des adultes: 45/29/28/29

Ages des enfants : 16/15/10

M7

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2Bt	2Bt	2Bt
Grain/Glucides	1 gobelet	1G	1G	1G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	5 (nombre)	200% A2 3 A13	200% A2	200% A2 3 A13
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	4 gobelets	4C1	4C1	4C1
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	5,5 gobelets	4 G2 1,5 G2	4 G2 1,5 G2	4 G2 1,5 G2
Protéine	10 (nombre) 2 gobelets	10 D2 2 D3	10 D2 2 D3	10 D2 2 D3

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 6 tomates et 4 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Solange

Village : Mandromondromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 4

Nombre d'enfants —

Ages des adultes: 36,46,26,23

Ages des enfants : —

M8

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	8 (nombre)	8 A13		60 Ar 8 A13
Légume				
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets 2 tôles	3G2 2G2	3G2 2G2	3G2 2G2
Protéine	3 gobelets	3D23	3D23	3D23

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	5 gobelets	5G	5G	5G
Protéine	5 gobelets	5D13	5D13	5D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAZAFINDRAMASY Annette

Village : Mandromondromotra

Date: 19/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 1

Nombre d'enfants 2

Ages des adultes: 24

Ages des enfants : 7 / 4

Mg

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	1 gobelet	1G	1G	1G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	3 (nombre)	3 A13		40 A5 3 A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	1,5 gobelets 2 tôles	1,5 G1 1G2 1G3	1,5 G1 1G2 1G3	1,5 G1 1G2 1G3
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2,5 gobelets 1 kodo	1,5G1 1G2 1G12	1,5G1 1G2 1G12	1,5G1 1G2 1G12
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Bonne Fête Eleonore

Village : Mandromondromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 3

Nombre d'enfants 1

Ages des adultes: 89, 38, 18

Ages des enfants : 5

M10

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	1 grappe	1B6	1B6	1B6
Grain/Glucides	1 gobelet 1 koko	1G1 1G1	1G1 1G1	1G1 1G1
Protéine	8 (nombre)	8D1		8D1

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	7 (nombre)	7 A13		6 A4 110 A5 7 A13
Légume	3 grappes	3B6	3B6	3B6
Grain/Glucides	2 gobelets 2 toko	2C2 2C2	2C2 2C2	2C2 2C2
Protéine	10 (nombre)	10D2		10D2

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	5B/6	5B/6	5B/6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

6/6

Nom et prénoms : RAZANAMAHARA Noelie

Village : Mandromondromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 1

Nombre d'enfants — M11

Ages des adultes: 35

Ages des enfants : —

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	4 (nombre)	2A6 2A13	2A6	2A6 2A13
Légume				
Grain/Glucides	1 koko	1G2	1G2	1G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAZANAMALALA Noeline

Village : Mandromondromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 1

Nombre d'enfants —

Ages des adultes: 35

Ages des enfants : —

Page 3 sur 6

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	4 (nombre)	2A6 2A13	2A6	20A5 2A13
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 gobelet 1 toko	1C1 1C2 1C8	1C1 1C2	1C1 1C2
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 gobelet 1 tobo	1G 1G	1G 1G	1G 1G
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Justine

Village : Mandromondromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 6

Nombre d'enfants 4

Ages des adultes: 62, 60, 40, 24, 18, 18

Ages des enfants : 6, 14, 4, 8 mois

M12

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	20 (nombre)	20 A13 100 A12		200 A5 20 A13
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	3 goblets 2 kobo	3G 2G	3G 2G	3G 2G
Protéine	10 (nombre) 3 goblets	10D2 3D13	10D1 3D13	10D1 3D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel et riz léger (zozo)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	395 (nombre)	50% A2 10 A4 20 A13	50% A2 10 A4	50% A2 10 A4 200 A5 20 A13
Légume	8 grappes	4B5 4B6	4B5 4B6	4B5 4B6
Grain/Glucides	6 gobelets 4 tdes	6C2 4C2 3C8	6C2 4C2	6C2 4C2
Protéine	20 (nombre) 3 gobelets	20D2 3D13	20D2 3D13	20D2 3D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel et riz liégé (Sosoa)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	8 grappes	4B5 4B6	4B5 4B6	4B5 4B6
Grain/Glucides	8 gobelets	8G1	8G1	8G1
Protéine	20 (nombre) 3 gobelets	20D1 3D13	20D1 3D13	20D1 3D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel et riz léger (Sosoa)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : HAHA Tomboandro

Village : Mandramondromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 1

Nombre d'enfants 1

Ages des adultes: 18

Ages des enfants : 26

M23

Lazafet

Page 1 sur 6

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	0,5 (nombre)	25% Ar	25% Ar	25% Ar
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 gobelet	1G	1G	1G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	2,25 (nombre)	25b A2 2A13	25b A2	25b A2 40A5 2A13
Légume	4 grappes	2B6 2B7	2B6 2B7	2B6 2B7
Grain/Glucides	1 tas	1C2 2C8	1C2	1C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B6 2B7	2B6 2B7	2B6 2B7
Grain/Glucides	2 gobelets	2G	2G	2,5 G
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Josette

Village : Mandromondromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Lazafet

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 25/29 MM

Ages des enfants : 2

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	1 grappe	1B/6	1B/6	1B/6
Grain/Glucides	1 gobelet 1 toko	1 G 1 G	1 G 1 G	1 G 1 G
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	3,25 (nombre)	0,25 A2 3 A23	0,25 A2	0,25 A2 50 A5 3 A23
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets 2 tôles	2G1 2G2	2G1 2G2	2G1 2G2
Protéine	6 (nombre) 1 gobelet	6D1 1D23	3D1 1D23	6D1 1D23

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets	3G1	3G1	3G1
Protéine	1 boîte 3 gobelets	1D3 3D13	1D3 3D13	1D3 3D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?	Les têtes de crevettes sont enlevées	
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Virginie Nicolette

Village : Mandramondramotra

Date: 13/01/2022

Nombre de repas par jour: 3

Lazafet

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: 45, 36, 20

Ages des enfants : 16, 8, 4

M15

Page 1 sur 6

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	12,5 (nombre)	50% A2 12 A13	50% A2	50% A2 144 A5 12 A13
Légume	2 grappes	2B6	2B6	2B6
Grain/Glucides	1 gobelet 6 nombre	1C1 6C9	1C1 6C9	1C1 6C9
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	12/5 (nombre)	50% A2 12 A13	05% A2	05% A2 150 A5 12 A13
Légume	4 grappes	4 B6	4 B6	4 B6
Grain/Glucides	4 gobelets 2 tô	4 C2 2 C2	4 C2 2 C2 2 C3	4 C2 2 C2
Protéine	10 (nombre) 2 gobelets	10 D2 2 D13	2 D13	10 D2 2 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	4B/6	4B/6	4B/6
Grain/Glucides	4 gobelets	4G	4G	4G
Protéine	6 (nombre) 2 gobelets	6D 2D13	2D13	6D 2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Anjaniaina Doris

Village : Mandromondromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Lazafet

Nombre d'adultes : 5

Nombre d'enfants 3

Ages des adultes: 50, 44, 28, 25, 18 M16

Ages des enfants : 16, 14, 1 mois

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	4B6	4B6	4B6
Grain/Glucides	2 gobelets 2 tokos	2G 2G	2G 2G	2G 2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	17 (nombre)	100% A2 16 A13	100% A2	100% A2 16 A13
Légume	5 grappes	5B6	5B6	5B6
Grain/Glucides	1 gobelet 5 tokos	1G2 5G2	1G2 5G2	1G2 5G2
Protéine	2 tokos 3 gobelets	2D3 3D13	2D3 3D13	2D3 3D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?	Les têtes sont enlevées –	
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	8 grappes	4B5 4B6	4B5 4B6	4B5 4B6
Grain/Glucides	7 gobelets	7G	7G	7G
Protéine	5 koko 4 gobelets	5D3 4D23	5D3 4D23	5D3 4D23

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 4 tomates et 3 oignons —	
Pour les crevettes et patsa, quelles parties sont consommées ?	Les têtes sont enlevées —	
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier —	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Thanilany

Village : Mandromondromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 50/25

Ages des enfants : 5

M17

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	42 (nombre)	40 B5 2 B13		40 B5 2 B13
Légume				
Grain/Glucides	1 gobelet 1 tsoko	1 G2 1 G2	1 G2 1 G2	1 G2 1 G2
Protéine	3 (nombre) 1 gobelet	3 D2 1 D13		3 D2 1 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	63 (nombre)	60 B5 3 A23		60 B5 3 A23
Légume	3 gappes	2 B5 1 B6	2 B5 1 B6	2 B5 1 B6
Grain/Glucides	2 gobelets 1 tobo	2 C2 1 C2 3 C8	2 C2 1 C2	2 C2 1 C2
Protéine	3 (nombre) 1 gobelet	3 D2 1 D23	1 D23	3 D1 1 D23

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine	3 (nombre) 1 gobelet	3D 1D3	1D3	3D 1D3

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Elphine

Village : Mandromondromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 3

Nombre d'enfants 2

Ages des adultes: 45/35/18

Ages des enfants : 13, 12

M 1/8

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	110 (nombre)	100 A5 5 A6 5 A13	5 A6	100 A5 5 A13
Légume	2 grappes	2B6	2B6	2B6
Grain/Glucides	1 gobelet 1 tdo	1C2 1C2	1C2 1C2	1C2 1C2
Protéine	2 gobelets	2D13	2D13	2D13

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	105/25 (nombre)	25% Ar 100 Ar 5 Ar13	25% Ar	25% Ar 100 Ar 5 Ar13
Légume				
Grain/Glucides	2 kokro	2 Cr	2 Cr	2 Cr
Protéine	2 gobelets	2 Dr13	2 Dr13	2 Dr13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

2/6

Nom et prénoms : HOVA Nathalie

Village : Mandravondronotra

Date: 13/01/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 6

Nombre d'enfants 5

Ages des adultes: 55/40/24/22/4/4

Ages des enfants : 17/15/13/9/5

M19

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	122 (nombre)	100% A2 1/10 B5 1/4 A13	100% A2	100% A2 1/10 B5 1/4 B13
Légume	2 grappes	2B6	2B6	2B6
Grain/Glucides	4 gobelets 3 kaba	4G2 3G2	4G2 3G2	4G2 3G2
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	121 (nombre)	110 A5 11 A13		110 A5 11 A13
Légume	3 grappes	3B6	3B6	3B6
Grain/Glucides	6 gobelets 4 Koko	6 C1 4 C2	6 C1 4 C2	6 C1 4 C2
Protéine	3 (nombre) 3 gobelets	3D1 3D13	3D1 3D13	3D1 3D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	12 (nombre)	12 Boy	12 Boy	12 Boy
Légume				
Grain/Glucides	12 gobelets	9 G 3 G2	9 G 3 G2	9 G 3 G2
Protéine	3 gobelets	3 D3	3 D3	3 D3

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : IDY Joachim

Village : Mandromondromatra

Date: 13/04/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 2

Nombre d'enfants 3

Ages des adultes: 30, 26

Ages des enfants : 9, 5, 2

M20

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	44 (nombre)	40 AS 4 AJ3		40 AS 4 AJ3
Légume	3 grappes	3B6	3B6	3B6
Grain/Glucides	1 tôlo	1C2	1C2	1C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	34 (nombre)	30 A5 60 A12 4 A13		~~30~~ A5 4 A13
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	2 kabo	2G2	2G2	2G2
Protéine	5 (nombre)	5D1		5D1

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	3B/6	3B/6	3B/6
Grain/Glucides	6 gobelets	5G1 1G2	5G1 1G2	5G1 1G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MASY Rasoanirina Gertrude

Village : Mandromondromotra

Date: 13/04/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: (20,48)

Ages des enfants : (10,7)

M21

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	56 (nombre)	8A23 8A4 40A5	8A4	8A23 8A4 40A5
Légume	2 grappes	2B6	2B6	2B6
Grain/Glucides	2 galets 1 toko	1C1 1C2	2C1 2C2	2C1 1C2
Protéine	1 galet	1D23	1D23	1D23

Comment est-ce que les protéines sont-elles préparées ?	Elles sont préparées avec de l'huile, de tomate et d'oignon	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	les petits poissons (Chatilay) sont consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	8 A13 8 A4 40 A5	8 A4	8 A13 8 A4 40 A5
Légume	2 grappes	2 B6	2 B6	2 B6
Grain/Glucides	2 gbelets 2 koko	1 G1 1 G1	2 G1 2 G1	2 G1 2 G1
Protéine	1 gbelet	1 A13	1 A13	1 A13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec des tomates et oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2 B/o	2 B/o	2 B/o
Grain/Glucides	2/5 goblets	2/5 G	2/5 G	2/5 G
Protéine	2 goblets	2 D/3	2 D/3	2 D/3

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec de tomate et oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : ZABIHETA

Village : Mandromandromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 4

Ages des adultes: (35,45)

Ages des enfants : (13,11,8,3)

M 22

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	1 gobelet 1 toko	1G1 1G2	1G1 1G2	1G1 1G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	19 (nombre)	13 A13 6 A4	6 A4	13 A13 6 A4 60 A5
Légume	5 grappes	3 B5 2 B6	3 B5 2 B6	3 B5 2 B6
Grain/Glucides	2 gbelets 1 ~~tô~~	2 G 1 G2 5 G8	2 G 1 G2	2 G 1 G2
Protéine	2 gbelets	2 P13	2 P13	2 P13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec de tomate et oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	3B5 2B6	3B5 2B6	3B5 2B6
Grain/Glucides	3 gobelets 2 tokos	2G 1,5G2 5G8	3G 2G2	3G 2G2
Protéine	3 gobelets	3D23	~~1,5~~ D23 (1,5 D23)	3D23

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec des tomates et oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : RAZAFINDRETSILY Crésant

Village : Mandromondromotra

Date: 13/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: (35/34)

Ages des enfants : (11,5)

M23

Page 1 sur 6

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	9 (nombre)	3A13 6A4 50A5	3A6 6A4 50% A2	3A13 6A4
Légume	3 grappes	3B6	3B6	3B6
Grain/Glucides	1 gobelet 1 kokos	1C1 1C2	1C1 1C2	1C1 1C2
Protéine	6 (nombre) 2 gobelets	6D1 2D13	6D1 2D13	6D1 2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou frits	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	12 (nombre)	6A3 6A4 4OA5		6A23 6A4
Légume				
Grain/Glucides	3 gobelets	3G1	2G1	3G1
Protéine	9 (nombre) 2 gobelets	9A2 2A13	7,5 A1 2A13	9A2 2A13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou frits	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	2B/6	3B/6	3B/6
Grain/Glucides	3 gbelets	3G	2G	3G
Protéine	9 (nombre) 2 gbelets	9D2 2A/3	6D2 1D/3	9D2 2A/3

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou frits	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

MK 1

Nom et prénoms : ~~ZENOMENY~~

Village : Mangaiky

Date: 14/04/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 7

Nombre d'enfants 6

Ages des adultes: 45, 42, 27, 24, 22, 19, 18

Ages des enfants : 17, 15, 14, 13, 7, 5

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	313 (nombre)	300 Ar 13 A13		300 Ar 13 A13
Légume				
Grain/Glucides	3 toko 4 gobelets	4 G1 3 G2	4 G1 3 G2	3 G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : ZENOMENY

Village : Mangaky

Date: 14/02/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 7

Nombre d'enfants 6

Ages des adultes: 45, 42, 27, 24, 22, 19, 18

Ages des enfants : 17, 15, 14, 13, 7, 5

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	240 (nombre)	100% A2 200 A5 26 A6 13 A13	100% A2 26 A6	200 A5 13 A13
Légume	11 grappes	6 B5 5 B6	6 B5 5 B6	6 B5 5 B6
Grain/Glucides	10 gobelets 7 tôtô	10 C1 7 C2	10 C1 7 C2	7 C2
Protéine	3 gobelets	3 D13	3 D13	3 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 4 tomates et 3 oignons –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : ZENOMENY

Village : Mangaiky

Date: 14/04/2022

Nombre de repas par jour: 3

Edgar

Nombre d'adultes : 7

Nombre d'enfants 6

Ages des adultes: 45/42, 27/24, 22/19, 18

Ages des enfants : 17/15/7 14, 13, 7/5

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	11 grappes	GB5 5B6	GB5 5B6	GB5 5B6
Grain/Glucides	12 gobelets 7 toko	10C1 7C2 2C12	10C1 7C2 2C12	7C2 2C12
Protéine	3 gobelets	3D13	3D13	3D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 4 tomates et 3 oignons -	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : MARINATH

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 25/18

Ages des enfants : —

MK2

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	62 (nombre)	60 A5 2 A13		60 A5 2 A13
Légume	2 grappes	2B6	2B6	2B6
Grain/Glucides	1 gobelet	1 C1	1 C1	2 C1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MARENATH

Village : Mangaky

Date: 14/02/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 25, 18

Ages des enfants : —

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	76 (nombre)	72 A5 4 A13		72 A5 4 A13
Légume	3 grappes	3B6	3B6	3B6
Grain/Glucides	2 gobelets 2 koko	2G1 2G3	2G1 2G3	2G1 2G3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MARIANA

Village : Mangaky

Date: 14/02/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 25/18

Ages des enfants : —

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	62 (nombre)	60 Bs 2 A23		60 Bs 2 A23
Légume	3 grappes	3B6	3B6	3B6
Grain/Glucides	2 gobelets	2G1	2G1	2G1
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : SAY Léoline

Village : Mangaiky

Date: 14/01/2022

Nombre de repas par jour: 3

Edgt

Nombre d'adultes : 1

Nombre d'enfants 2

Ages des adultes: 26

Ages des enfants : 12/4

MK3

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	1 gobelet	1 G1	1 G1	1 G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Stay Violine

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Edgar

Nombre d'adultes : 1

Nombre d'enfants 2

Ages des adultes: 26

Ages des enfants : 12/4

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	27 (nombre)	24 B5 3 A13		24 B5 3 A13
Légume	2 grappes	2 B6	2 B6	2 B6
Grain/Glucides	1 koko	1 C2	1 C2	1 C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : SAY Coline

Village : Mangaky

Date: 14/02/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 1

Nombre d'enfants 2

Ages des adultes: 26

Ages des enfants : 12 4

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	27 (nombre)	24 A5 3 A13		24 A5 3 A13
Légume	2 grappes	2 B6	2 B6	2 B6
Grain/Glucides	2 gobelets	2 C1	2 C1	2 C1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MARCELLIANE

Village : Mangaky

Date: 14/02/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 2

Nombre d'enfants 5

Ages des adultes: 40,24

Ages des enfants : 12,14,9,7 3 mois

M/R4

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	127 (nombre)	100% A2 120 B5 6 A13	100% A2	100% A2 120 B5 6 A13
Légume	4 grappes	4 B5	4 B5	4 B5
Grain/Glucides	2 tô	2 G2	2 G2	2 G2 2 G2
Protéine	2 gobelets	2 D13	2 D13	2 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MARCELLIANE

Village : Mangaiky

Date: 14/04/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 2

Nombre d'enfants 5

Ages des adultes: 40, 24

Ages des enfants : 12, 14, 9, 7, 3 mois

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	126 (nombre)	120 A5 6 B13		120 A6 6 B13
Légume	9 grappe	5 B5 4 B6	5 B5 4 B6	5 B5 4 B6
Grain/Glucides	2 gobelets 3 tako	2 C1 3 C2	2 C1 3 C2	3 C2
Protéine	2 gobelets	2 D13	2 D13	2 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MARCELLIANE

Village : Mangaky

Date: 14/02/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 2

Nombre d'enfants 5

Ages des adultes: 40/24

Ages des enfants : 12, 11, 9, 7, 3 mois

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	GB6	GB6	GB6
Grain/Glucides	4 gobelets	4G	4G	4G
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAZAFINDRAZAY

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 4

Nombre d'enfants 1

Ages des adultes: 80, 60, 21, 18

Ages des enfants : 14

MK5

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	10S (nombre)	100 Ar 5 Ar3		100 Ar 5 Ar3
Légume	2 grappes	2B6	2B6	2B6
Grain/Glucides	2 gobelets	2G1	2G1 2G2	2G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : RAZAFINDRAZAY

Village : Mangaïky

Date: 14/01/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 4

Nombre d'enfants 1

Ages des adultes: 80, 60, 21, 18

Ages des enfants : 14

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	105 (nombre)	100 A5 5 A13		100 A5 5 A13
Légume	4 grappes	4 B6	4 B6	4 B6
Grain/Glucides	3 gobelets 2 toko	3 C1	3 C1 2 C2	3 C1 2 C2
Protéine	2 gobelets	2 D13	2 D13	2 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : RAZAFINDRAZAY

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Edget

Nombre d'adultes : 4

Nombre d'enfants 1

Ages des adultes: 80, 60, 21, 18

Ages des enfants : 14

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	4 gobelets	3 G	4 G	4 G
Protéine	2 gobelets	2 D	2 D	2 D

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

MK6

Nom et prénoms : SANA Elmine

Village : Mangaiky

Date: 14/04/2022

Nombre de repas par jour: 3

Lazofet

Nombre d'adultes : 4

Nombre d'enfants 3

Ages des adultes: 54 46 31 21

Ages des enfants : 17 12 8

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	~~100% Ar~~ 15 (nombre)	100% Ar 14 A13	100% Ar	100% Ar 14 A13
Légume	2 grappes	2B/6	2B/6	2B/6
Grain/Glucides	3 gobelets 1 toko	3G 1G2	3G 1G2	1G2
Protéine	14 (nombre)	14 D1	14 D1	

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillis avec 4 tomates et 3 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : SAND Elmire

Village : Mangaiky

Date: 14/01/2022

Nombre de repas par jour: 3

Lazaret

Nombre d'adultes : 4

Nombre d'enfants 3

Ages des adultes: 51, 46, 31, 21

Ages des enfants : 17, 12, 8

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	15 (nombre)	100% A2 14 A13	100% A2	100% A2 140 A5 14 A13
Légume	4 grappes	4 B6 4 B7	4 B6	4 B6
Grain/Glucides	5 gobelets 4 tôtô	5 C2 4 C2	4 C2	5 C2 4 C2
Protéine	21 (nombre)	21 D1	14 D2	21 D1

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies avec 5 tomates et 4 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : SIAKA Elmine

Village : Mangaiky

Date: 14/01/2022

Nombre de repas par jour: 3

Nombre d'adultes : 4

Nombre d'enfants 3

Ages des adultes: (57, 46, 32, 21)

Ages des enfants : (17, 12, 8)

Langoket

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	4 B6 3 B7	4 B6	4 B6
Grain/Glucides	6 gobelets	5 G1	6 G1	6 G1
Protéine	21 (nombre)	21 D1	14 D1	21 D1

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis avec Stomates et Kongnons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAVOLOLO

Village : Mangaiky

Date: 14/01/2022

Nombre de repas par jour: 3

Lazofret

Nombre d'adultes : 5

Nombre d'enfants 5

Ages des adultes: 70,40,23,21,19

Ages des enfants : 13,11,10,8,2

MK7

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappés	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	4 toko	3C2 5C8	4C2	4C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : RAVOLOLO

Village : Mangaiky

Date: 14/01/2022

Nombre de repas par jour: 3

Legofet

Nombre d'adultes : 5

Nombre d'enfants 5

Ages des adultes: 70, 40, 23, 21, 19

Ages des enfants : 13, 11, 10, 8, 2

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	21 (nombre)	100% Ar 20 Af3	100% Ar	100% Ar 200 Af5 20 Af3
Légume	12 grappes	5B5 7B6	5B5 7B6	5B5 7B6
Grain/Glucides	6 koko	6G2 9G8	6G2	6G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : RAVOLOLO

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Lazofet

Nombre d'adultes : 5

Nombre d'enfants 5

Ages des adultes: 79, 40, 23, 24, 29

Ages des enfants : 13, 11, 10, 8, 2

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	13 grappes	6B5 7B6	6B5 7B6	6B5 7B6
Grain/Glucides	9 gobelets	6G	9G	9G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : MIZA Ernestine

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Lazofret

Nombre d'adultes : 1

Nombre d'enfants 3

Ages des adultes: 32

Ages des enfants : 14, 5, 3

MK8

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	4 (nombre)	4A4	4A4	4A4
Légume	2 grappes	2B6	2B6	2B6
Grain/Glucides	1 gobelet	1C1	1C1	1C1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : MIZA Ernestine

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Lazofret

Nombre d'adultes : 1

Nombre d'enfants 3

Ages des adultes: 32

Ages des enfants : 14, 5, 3

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	~~100% Az~~ ~~8 Az3~~ 9 (nombre)	100% Az 8 Az3	100% Az	100% Az 80 Az 8 Az3
Légume	6 grappes	2B5 2B6 2B7	3B5 3B6	3B5 3B6
Grain/Glucides	2 ~~kolo~~	2C2 2C2	2C2	2C2
Protéine	4 (nombre)	~~8~~ D2	4 D2	4 D2

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : MEZA Ernestine

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Langofet

Nombre d'adultes : 1

Nombre d'enfants 3

Ages des adultes: 32

Ages des enfants : 14, 5, 3

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	3B/6 3Bx	3B/6	3B/6
Grain/Glucides	3 gobelets	3G	3G	3G 1G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : VOLATSARA

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Langafet

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 36, 19

Ages des enfants : 6, 1

MK9

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	7 (nombre)	7 A13		120 B5 7 A13
Légume	2 grappes	1B5 1B6 1B7	1B5 1B6	1B5 1B6
Grain/Glucides	1 kilo	1C2	1C2	1C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Lait maternel et thé
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : VOLATSARA

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Lazofret

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 36/19

Ages des enfants : 6/1

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DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	~~100% A2~~ 9 (nombre)	100% A2 8 A13	100% A2	100% A2 120 A5 8 A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	4 toko	3 C2	4 C2	4 C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Lait maternel et thé
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : VOLATSARA

Village : Manzaiky

Date: 14/07/2022

Nombre de repas par jour: 3

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 36, 39

Ages des enfants : 6, 1

Langfet

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Lait maternel et thé
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : SOANOMENY Florence Marie

Village : Mangaky

Date: 14/01/2022

Nombre de repas par jour: 3

Lazofet

Nombre d'adultes : 2

Nombre d'enfants 4

Ages des adultes: 37 / 30

Ages des enfants : 12 / 10,5 / 7 mois

MK 10

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 tôko	2G2	2G2	2G2
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis avec 2 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : SOANOMENY Florence Marie

Village : Mangaiky

Date: 14/01/2022

Nombre de repas par jour: 3

Lazofret

Nombre d'adultes : 2

Nombre d'enfants 4

Ages des adultes: 37, 30

Ages des enfants : 12, 10, 5, 7 mois

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	13 (nombre)	100% A2 12 A13	100% A2	100% A2 100 A5 12 A13
Légume	6 grappes	3B5 3B6 3B7	3B5 3B6	3B5 3B6
Grain/Glucides	4 toko	4C2	4C2	4C2
Protéine	6 (nombre) 2 gobelets	6D1 2D13	2D13	6D1 2D13

Nom et prénoms : SOANOMENY Florence Marie

Village : Mangaiky

Date: 14/01/2022

Nombre de repas par jour: 3

Lapoget

Nombre d'adultes : 2

Nombre d'enfants 4

Ages des adultes: 37/30

Ages des enfants : 12/10,5/7 mois

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	4 gobelets	4G	4G	4G
Protéine	3 gobelets	3D13	2D13	3D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	lait maternel
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MANDANIRINA Odette

Village : Mangaiky

Date: 14/01/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: 38, 26, 18

Ages des enfants : 10, 8, 3

MK 11

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	24 (nombre)	12 A4 12 A13	12 A4	60 A5 12 A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	25 gobelets 2 koko	25 G2 2G2	25 G2 2G2	25 G2 2 G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MANDANIAINA Odette

Village : Mangaiky

Date: 14/01/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: 38, 28, 18

Ages des enfants : 10, 8, 3

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	24 (nombre)	12 A4 12 A13	12 A4 12 A6	60 A5 12 A4
Légume	7 grappes	4 B5 3 B6	4 B5 3 B6	4 B5 3 B6
Grain/Glucides	3 gobelets 2 koko	3 G 2 G	3 G 2 G	3 G 2 G
Protéine	3 gobelets	3 D13	3 D13	3 D13

Nom et prénoms : MANDANIAINA Odette

Village : Mangaïky

Date: 14/02/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: 38, 28, 18

Ages des enfants : 10, 8, 3

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	8 grappes	4B5 4B6	4B5 4B6	4B5 4B6
Grain/Glucides	6 gobelets	6G	6G	6G
Protéine	4 gobelets	4D3	4D3	4D3

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillies avec Stomates et Koignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Rasololo Josephine

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 60,25

Ages des enfants : 10,4

MK 12

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B 1B	1B 1B	1B 1B
Grain/Glucides	1 gobelet 1 koko	1G 1G	1G 1G	1G 1G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAKOTO Josephine

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Modetak

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 60, 25

Ages des enfants : 10, 4

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	8 (nombre)	4A4 4A13	4A4	4A4 10A5 4A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets 2 toko	3G 2G	3G 2G	3G 2G
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAVOLO Josephine

Village : Mangaiky

Date: 14/01/2022

Nombre de repas par jour: 3

Modeste

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 60/25

Ages des enfants : 10, 4

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	2 gobelets	2D3	2D3	2D3

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Estelle Bienvenue

Village : Margaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 27, 25

Ages des enfants : 13

MK 13

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	6 A4 6 A13	6 A4	6 A4 30 B5
Légume	2 grappes	1 B5 1 B6	1 B5 1 B6	1 B5 1 B6
Grain/Glucides	2 gobelets	2 G1	2 G1	2 G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Estelle Bienvenue

Village : Manzaitky

Date: 14/01/2022

Nombre de repas par jour: 3

Modetot

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 27 / 25

Ages des enfants : 13

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	6 Ay 6 A13	6 Ay	6 Ay 30 Ay
Légume				
Grain/Glucides	3 gobelets	3 G1	3 G1	3 G1
Protéine	2 gobelets	2 D13	2 D13	2 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Estelle Bienvenue

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 27/25

Ages des enfants : 13

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	4 gobelets	3G1 1G2	3G1 1G2	3G1 1G2
Protéine	2 gobelets	2013	2013	2013

Comment est-ce que les protéines sont-elles préparées ?	Sautées avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Nirina Edmée

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 2

Nombre d'enfants 4

Ages des adultes: 35, 28

Ages des enfants : 13, 9, 5, 3

MK 14

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	24 (nombre)	12 A4 12 A13	12 A4 12 A6	12 A4 60 A5 12 A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets 2 tokos	2G2 2G2	2G2 2G2	2G2 2G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Nirina Edmée

Village : Mangaiky

Date: 14/01/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 2

Nombre d'enfants 4

Ages des adultes: 35, 18

Ages des enfants : 13, 9, 5, 3

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	24 (nombre)	12 A4 12 A13	12 A4	12 A13 60 A5
Légume	6 grappes	3 B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	5 gobelets 2 toko	5G 2G	5G 2G	5G 2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : Nirina Edmée

Village : Mangaily

Date: 14/02/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 2

Nombre d'enfants 4

Ages des adultes: 35, 18

Ages des enfants : 13, 9, 5, 3

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	6 gobelets	6G	6G	6G
Protéine	4 gobelets	4D13	4D13	4D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : HANTANIRINA Kazy Paulette

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 1

Nombre d'enfants 3

Ages des adultes: 30

Ages des enfants : 17/12/4

MK 15

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	2 gobelets 1 toko	2C1 1C2	2C1 1C2	2C1 1C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : HANTAMIRINA Kezy Perlette

Village : Mangaky

Date: 14/01/2022

Nombre de repas par jour: 3

Modestat

Nombre d'adultes : 1

Nombre d'enfants 3

Ages des adultes: 30

Ages des enfants : 17/12/4

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	12 (nombre)	12 A4 12 A13	12 A4 12 A6	12 A4 40 A5
Légume	4 grappes	2 B5 2 B6	2 B5 2 B6	2 B5 2 B6
Grain/Glucides	2 gobelets 2 tobo	2 G1 2 G2	2 G1 2 G2	2 G1 2 G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : HANTANIRINA Kazy Perlette

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Modestot

Nombre d'adultes : 1

Nombre d'enfants 3

Ages des adultes: 30

Ages des enfants : 17/12/4

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés avec 3 tomates et 2 oignons	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MARIE Victorine

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 2

Nombre d'enfants 6

MK16.

Ages des adultes: 32, 42

Ages des enfants : 16, 16, 15, 10, 12, 6

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	1 gobelet	1G	1G	1G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : MARIE Victorine

Village : Mangaitsy

Date: 14/02/2022

Nombre de repas par jour:

Nombre d'adultes : 2

Nombre d'enfants 6

Ages des adultes: 32, 42

Ages des enfants : 16, 16, 15, 10, 12, 6

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	2B5 4B6	2B5 4B6	2B5 4B6
Grain/Glucides	3 gobelets 2 kabo	3G 2G 5G8	3G 2G	3G 2G
Protéine	1 gobelet	1D3	1D3	1D3

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : MARIE Victorine

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 2

Nombre d'enfants 6

Ages des adultes: 32,42

Ages des enfants : 16,16,15,10,12,6

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	7 grappes	3B5 4B6	3B5 4B6	3B5 4B6
Grain/Glucides	7 goblets	5G1 2G2	5G1 2G2	5G1 2G2
Protéine	4 (nombre)	4D1		4D1

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : MAHO Scarlette Victorine

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 4

Nombre d'enfants —

Ages des adultes: 26, 55, 20, 25

Ages des enfants :

MK-17

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	3 gobelets 1 koko	3 G 1 G	3 G 1 G	3 G 1 G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MAHO Scarlette Victorine

Village : Mangaïky

Date: 14/02/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 4

Nombre d'enfants —

Ages des adultes: 26, 55, 20, 25

Ages des enfants :

Page 3 sur 6

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	1,5 gobelets 4 toko	1,5 C2 4 C2	1,5 C2 4 C2	1,5 C2 4 C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MATHO Scarlette Victorine

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Nombre d'adultes : 4

Nombre d'enfants —

Ages des adultes: 26, 55, 20, 25

Ages des enfants : —

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine	1 gobelet	1 D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : PELAGINE

Village : Mangaïky

Date: 14/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 5

Nombre d'enfants 5

MK18

Ages des adultes: 29, 50, 20, 23, 18

Ages des enfants : 9, 11, 6, 15, 17

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	20 (nombre)	10 A4 10 A13	10 A4	10 A4 10 A13
Légume				
Grain/Glucides	2 toko	2 C2	2 C2	2 C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : PELAGINE

Village : Mangaïky

Date: 14/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 5

Nombre d'enfants 5

Ages des adultes: 20, 50, 20, 23, 18

Ages des enfants : 9, 11, 6, 15, 17

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	~~200% Ar~~ 2 (nombre)	200% Ar	200% Ar 20 Ag	200% Ar
Légume	10 grappes	5B5 5B6	5B5 5B6	5B5 5B6
Grain/Glucides	4 toko	4 Cr 10 Cg	4 Cr	4 Cr
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : PELAGINE

Village : Mang

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	10 grappes	5B5 5B6	5B5 5B6	5B5 5B6
Grain/Glucides	5 gobelets 5 toko	5G2 5G2	5G2 5G2	5G2 5G2
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : RAZAFINDRAKOTO René

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 18, 27

Ages des enfants : —

MK19

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	2,5 (nombre)	50% A1 2 A4	50% A1 2 A4 ~~4~~ A6	50% A1 2 A4
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 tobo	1C2	1C2	1C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAZANADRAZAFINDRAKOTO Koné

Village : Mangaiky

Date: 14/01/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 18, 27

Ages des enfants : —

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	4 (nombre)	4 A13	5 A6	4 A13 60 A5
Légume				
Grain/Glucides	1 tolo	1 G2	1 G2	1 G2
Protéine	2 gobelets	2 D13	2 D13	2 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAZANAZAFINDRAKOTO René

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Angela

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 18, 27

Ages des enfants : —

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	4 gobelets	3G1 1G12	3G1 1G12	3G1 1G12
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MIHA Osvaldin

Village : Mangaiky

Date: 14/04/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 35/36

Ages des enfants : 13, 7

MK 20

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	15 gobelets	175 G	175 G	175 G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : MEHA Osvaldin

Village : Managaïky

Date: 14/02/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 39/36

Ages des enfants : 13/7

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	12 (nombre)	4 A4 8 A13	4 A4	4 A4 8 A13
Légume	2 grappes	2 B6	2 B6	2 B6
Grain/Glucides	3,5 gobelets	3,5 G2	3,5 G2	3,5 G2
Protéine	8 (nombre) 1 toko 2 gobelets	8 D2 1 D3 2 D13	8 D2 1 D3 2 D13	8 D2 1 D3 2 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?	Les têtes de crevettes sont enlevées - (crevettes d'eau douce)	
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : MIHA Osvaldin

Village : Mangaky

Date: 14/07/2022

Nombre de repas par jour: 3

Angelo

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 35/36

Ages des enfants : 13/7

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	2 grappes	2B/o	2B/o	2B/o
Grain/Glucides	3 gobelets	3G	3G	3G
Protéine	12 (nombre) 3 gobelets	12D1 3D13	12D1 3D13	12D1 3D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : MATHO Lydia

Village : Mangaky

Date: 14/02/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 40, 18

Ages des enfants : —

MK21

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	5 (nombre)	5 Ars		5 Ars 40 Ars
Légume				
Grain/Glucides	1 tolo	1 Cr	1 Cr	1 Cr
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MAHO Lydia

Village : Manganky

Date: 14/01/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 40/18

Ages des enfants : —

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	5(nombre)	5A13		5A13 4oA5
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	1 gobelet 1 toko	1G2 1G2	1G2 1G2	1G2 1G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MATTO Lydia

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 40/38

Ages des enfants : —

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	5 (nombre)	5 A13		5 A13 40 A5
Légume	3 grappes	1B5 2B6	1B5 2B6	1B5 2B6
Grain/Glucides	1/5 gobelets 1 tako	1/5 G2 1 G2	1/5 G2 1 G2	1/5 G2 1 G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MAMPANDRY François

Village : Mangaiby

Date: 14/01/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 5

Nombre d'enfants 3

Ages des adultes: ~~39~~ 35, 19, 19, 18

Ages des enfants : 16, 10, 4

MK22

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume				
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : MAMPANDRY François

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 5

Nombre d'enfants 3

Ages des adultes: 39, 35, 19, 19, 18

Ages des enfants : 16, 10, 4

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	8 (nombre)	8 A13 15 A9		8 A13 00 A5
Légume	7 grappes	2B5 5B6	2B5 5B6	2B5 5B6
Grain/Glucides	6 gobelets	4G1 2G12	4G1 2G12	4G1 2G12
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : MAMPANDRY François

Village : Manganky

Date: 14/02/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 5

Nombre d'enfants 3

Ages des adultes: 39, 35, 19, 19, 18

Ages des enfants : 16, 10, 4

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	7 grappes	2B5 5B6	2B5 5B6	2B5 5B6
Grain/Glucides	6 gobelets	4G2 2G12	4G2 2G12	4G2 2G12
Protéine	2 gobelets	2D13	2D13	2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : RASOA

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 2

Nombre d'enfants 4

Ages des adultes: 35/30

Ages des enfants : 8/5/12/13

MK23

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6(nombre)	6A13		6A13 120A5
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	2 gobelets 2 koko	2G 2G	2G 2G	2G 2G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : RASOA

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Herman

Nombre d'adultes : 2

Nombre d'enfants 4

Ages des adultes: 35/30

Ages des enfants : 8,5,12,13

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	12 (nombre)	12A13		12A13 1G0A5
Légume	7 grappes	3B5 4B6	3B5 4B6	3B5 4B6
Grain/Glucides	3 kaba	3G2	3G2	3G2
Protéine	2 gobelets	1D10 1D13	1D10 1D13	1D10 1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées –	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier pour le botriky (D13) mais têtes enlevées pour les tory (D10) –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

4/6

Nom et prénoms : RASOA

Village : Mangaïdy

Date: 14/02/2022

Nombre de repas par jour: 3

Hemam

Nombre d'adultes : 2

Nombre d'enfants 4

Ages des adultes: 35/30

Ages des enfants : 8,5/12,13

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	7 grappes	3B5 4B6	3B5 4B6	3B5 4B6
Grain/Glucides	4 gobelets	4 G2	4 G2	4 G2
Protéine	4 gobelets	2D10 2D13	2D10 2D13	2D10 2D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier pour les bstiky mais tête enlevée pour le tony –	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : KAJY Estelle

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 1

Nombre d'enfants 1

Ages des adultes: 34

Ages des enfants : 17

MK 24

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	4(nombre)	4 A23		4 A23 60 A5
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 gobelet	1G1	1G1	1G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : KAJY Estelle

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 1

Nombre d'enfants 1

Ages des adultes: 34

Ages des enfants : 17

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	4 (nombre)	4A23		4A23 60A5
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	1 gobelet 2 tobo	1C1 1C2 1C3	1C1 1C2 1C3	1C1 1C2 1C3
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : KAJY Estelle

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 1

Nombre d'enfants 1

Ages des adultes: 34

Ages des enfants : 17

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	3 gobelets	2 G1 1 G2	2G1 1G2	2G1 1G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : SANA Blandine

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 3

Nombre d'enfants 9

Ages des adultes: 58/20/42

Ages des enfants : 7,7,12,12,16,14,13,8,9

MK 25

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	25 (nombre)	100% A 2 24 B13	100% A2	100% A2 300 A5 24 B13
Légume	5 grappes	2B5 3B6	2B5 3B6	2B5 3B6
Grain/Glucides	3 gobelets 2 tobo	3G2 2G2	3G2 2G2	3G2 2G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : SANA Blandine

Village : Mangaiky

Date: 14/01/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 3

Nombre d'enfants 9

Ages des adultes: 58, 20, 21

Ages des enfants : 7, 7, 12, 12, 16, 14, 13, 8, 9

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	37 (nombre)	100g A2 12 A4 24 A13	100g A2 12 A4	100g A2 12 A4 360 A5 24 A13
Légume	7 grappes	3B5 4B6	3B5 4B6	3B5 4B6
Grain/Glucides	4 gobelets 5 tôlo	6 C1 5 C2	4 C2 5 C2	4 C2 5 C2
Protéine	6 (nombre) 4 gobelets	6 D1 4 D13	4 D13	6 D1 4 D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : SAVA Blandine

Village : Mangaky

Date: 14/02/2022

Nombre de repas par jour: 3

Hermann

Nombre d'adultes : 3

Nombre d'enfants 9

Ages des adultes: 38/20,21

Ages des enfants : 7,7,12,12,16,14,13,8,9

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	7 grappes	3B5 4B6	3B5 4B6	3B5 4B6
Grain/Glucides	8 gobelets	8G	8G	8G
Protéine	4 gobelets 6 (nombre)	6D 4D13	4D13	6D 4D13

Comment est-ce que les protéines sont-elles préparées ?	Sautés ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : VAHIA Gauline

Village : Mangaïby

Date: 14/02/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 42, 51

Ages des enfants : 18, 10

MK26

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit		80 A5 12 A13	12 A6	
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 tôlo	1G2	1G2	1G2
Protéine	4 (nombre) 1 gobelet	4D2 1D13	1D13	4D2 1D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : VAHA Gauline

Village : Mangaky

Date: 14/02/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 42/51

Ages des enfants : 18/10

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	12 (nombre)	100 A5 12 A13	12 A6	12 A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets 2 kobo	2G2 2G2	2G2	2G2 2G2
Protéine	8 (nombre) 1 gobelet	8D2 1D13	1D13	8D2 1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées, frites ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : VAHA Gauline

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 42, 51

Ages des enfants : 18, 10

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	5 grappes	2B5 2B6 1B7	2B5 2B6 1B7	2B5 2B6 1B7
Grain/Glucides	6 gobelets	4G1 2G12	4G1 2G12	4G1 2G12
Protéine	1 gobelet	1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Vola fifine

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 29, 20

Ages des enfants : 2

MK27

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	9 nombre	20 A5 9 A13	6 A6	9 A13
Légume	2 grappes	1 B5 1 B6	1 B5 1 B6	1 B5 1 B6
Grain/Glucides	1 toko 0,5 gobelet	1 C2 0,5 C1	1 C2 0,5 C1	1 C2 0,5 C1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Il mange du riz léger (xxxx)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Rafifine

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 29, 20

Ages des enfants : 2

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 toko 0,5 gobelet	2G2 0,5G2	2G2 0,5G2	2G2 0,5G2
Protéine	1 gobelet	1D13		1D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés entiers	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Il mange du riz léger (soso a)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Vao Rifine

Village : Mangaky

Date: 14/02/2022

Nombre de repas par jour: 3

Sylvia

Nombre d'adultes : 2

Nombre d'enfants 1

Ages des adultes: 29, 20

Ages des enfants : 2

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine	1 gobelet	1D13		1D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : BERSO FANAMPINANTSOA HARY

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 24, 23

Ages des enfants : 5, 1

MK28

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	40 A5 6 A13	4 A6	6 A13
Légume	2 grappes	1B5 1B6	1B5 1B6	1B5 1B6
Grain/Glucides	1 gobelet	1 G1	1 G1	1 G1
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	lait maternel et riz léger (sosoa)
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : Berso FONAMPINANTSHARY

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Sylvia

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 24, 23

Ages des enfants : 5/1

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	40 A5 6 A13	6 A6	6 A13
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets	2G1	2G1	2G1
Protéine	1 gobelet	8D2 1D13	1D13	1D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel et riz
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms :

Village :

Date:

Nombre de repas par jour:

Nombre d'adultes :

Nombre d'enfants

Ages des adultes:

Ages des enfants :

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	5 gobelets	3G1 2G2	3G1 2G2	3G1 2G2
Protéine	1 gobelet	1D3	1D3	1D3

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	Lait maternel et riz
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : RAZAFINDRAHATY Lucie

Village : Mangatsy

Date: 14/01/2022

Nombre de repas par jour: 3

Sylvia

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: 25/26,42

Ages des enfants : 13/9,2

MK29

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	100 Ar 6 Ar3	6 Ar6	6 Ar3
Légume				
Grain/Glucides	1 gobelet 2 koko	1 Cr 2 Cr	1 Cr 2 Cr	1 Cr 2 Cr
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Il mange du riz
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : RAZAFINDRAMARY Lucie

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Sylvia

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: 25, 26, 42

Ages des enfants : 13, 9, 2

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	2 gobelets 3 ~~tako~~	2C2 3C2	2C2 3C2	2C2 3C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Il mange du riz
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : RAZAFINDRAMAMY Lucie

Village : Margaity

Date: 14/02/2022

Nombre de repas par jour: 3

Sylvia

Nombre d'adultes : 3

Nombre d'enfants 3

Ages des adultes: 25, 26, 42

Ages des enfants : 13, 9, 2

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	6 grappes	3B5 3B6	3B5 3B6	3B5 3B6
Grain/Glucides	4 gobelets	4G	4G	4G
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : MANDIMBISOA Rija Ernest

Village : Mangaiky

Date: 14/01/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 20,25

Ages des enfants : —

MK 30

Page 1 sur 6

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	60 A5 6 A13	4 A4 6 A6	6 A13
Légume				
Grain/Glucides	1 toko	1 C2	1 C2	1 C2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MANDIMBISOA Rija Ernest

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Sylvia

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 29 25

Ages des enfants : —

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	6 (nombre)	~~60~~ A5 6 A13	4 A4 6 A6	6 A13
Légume	2 grappes	~~1~~ B5 1 B6	~~1~~ B5 1 B6	~~1~~ B5 1 B6
Grain/Glucides	2 tobo	2 G2	2 G2	2 G2
Protéine	4 (nombre)	4 D2	4 D2	4 D2

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : MAMOTIMBISOA Rija Ernest

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Sylvia

Nombre d'adultes : 2

Nombre d'enfants —

Ages des adultes: 20/25

Ages des enfants : —

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B5 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets	2G1	2G1	2G1
Protéine	6(nombre) 1 gobelet	6D1 1D13	1D13	6D1 1D13

Comment est-ce que les protéines sont-elles préparées ?	Sautées ou bouillis	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	

Nom et prénoms : FETILINA

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 35, 42

Ages des enfants : 16, 2

MK31

PETIT DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit	12 (nombre)	80 B5 12 B13	12 B6	12 B13
Légume	2 grappes	1 B5 1 B6	1 B5 1 B6	1 B5 1 B6
Grain/Glucides	2 Kilo	2 G2	2 G2	2 G2
Protéine				

Comment est-ce que les protéines sont-elles préparées ?		
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?		
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

2/6

Nom et prénoms : FETILINA

Village : Mangaiky

Date: 14/01/2022

Nombre de repas par jour: 3

Sylvio

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 35/42

Ages des enfants : 16/12

DEJEUNER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	3 grappes	1B5 1B6 1B7	1B5 1B6 1B7	1B5 1B6 1B7
Grain/Glucides	3 toko	3G2	3G2	3G2
Protéine	1 gobelet	1D13		1D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

Nom et prénoms : FETILINA

Village : Mangaiky

Date: 14/02/2022

Nombre de repas par jour: 3

Sylvie

Nombre d'adultes : 2

Nombre d'enfants 2

Ages des adultes: 35/42

Ages des enfants : 16/2

DINER

	Quantité habituelle	Saison des pluies (Dec-Avr)	Saison froide (Mai-Août)	Saison sèche (Sept-Nov)
Fruit				
Légume	4 grappes	2B6 2B6	2B5 2B6	2B5 2B6
Grain/Glucides	2 gobelets	2G	2G	2G
Protéine	1 gobelet	1D13		1D13

Comment est-ce que les protéines sont-elles préparées ?	Bouillies	
Pour les crevettes et patsa, quelles parties sont consommées ?		
Pour les poissons, quelles parties sont consommées ? Les petits poissons sont-ils consommés en entier ?	Consommés en entier	
	HABITUELLEMENT, QUE MANGE UN BÉBÉ DE MOINS DE 1 AN ?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 1 À 3 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 4 À 8 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 9 À 12 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	
	HABITUELLEMENT, QUE MANGE UN ENFANT DE 13 À 16 ANS ? Est-ce une portion du repas de la famille or est-ce différent?	Même repas

A7 Attachment 3 – Tabulated Results

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							Summary consumption pe										
		Average	Number of families reporting foodtype	Median	Max	Min	RABIALAHY Fidely	FELICIA	RASOANON	RAVAOARISOA Fidelice	SYLVIA	LAMBO Pa	SOANANDRA	SOLANGE	Pazafindra	BONNEFE	RAZANAMA
SUMMARY	**Fruits**	**125**	**23**	**116**	**264**	**40**	134	91	242	141	115	116	127	49	40	65	133
	Leaves	**129**	**23**	**127**	**271**	**26**	75	228	173	186	165	72	55	49	201	127	197
	Grain/Glucide	**280**	**23**	**267**	**509**	**151**	295	344	308	227	348	250	168	297	394	251	509
	Proteine	**64**	**23**	**62**	**144**	**12**	52	65	104	114	84	27	42	73	37	62	73
	Fruits + roots	208	23	186	580	40	189	219	295	226	210	182	127	94	178	143	441
	fruits, roots + grains	405	23	383	773	191	430	435	550	368	463	366	295	346	434	317	643
Fruits	Jackfruit	21	9	0	116	0	0	0	0	0	0	0	116	0	0	0	0
	Banana	33	12	11	134	0	59	27	133	74	66	67	0	0	0	11	0
	Lychee	9	20	7	27	0	6	4	8	4	4	0	0	5	6	9	12
	Orange	3	5	0	32	0	18	12	0	0	0	0	0	0	0	0	32
	Pineapple	1	2	0	19	0	0	0	19	0	8	0	0	0	0	0	0
	June plum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Mango	57	23	51	114	11	51	48	82	63	38	49	11	45	34	45	89
Leaves	Cassava leaves	48	17	40	135	0	19	105	87	93	83	0	16	25	100	0	99
	Sweet potato leaves	78	22	88	135	0	56	123	87	93	83	0	39	25	100	127	99
	Black nightshade	3	1	0	72	0	0	0	0	0	0	72	0	0	0	0	0
Grain/Glucide	Rice	190	23	200	260	90	203	216	256	142	254	184	144	252	205	174	201
	Cassava	76	22	70	271	0	54	129	53	42	95	66	0	45	92	78	271
	Sweet potato	6	4	0	46	0	0	0	0	42	0	0	0	0	46	0	37
	Potato	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bread	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bean	8	5	0	51	0	38	0	0	0	0	0	24	0	51	0	0
Proteine	Fish	19	12	4	78	0	38	0	51	45	0	0	19	0	0	41	0
	Patsa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Prawn	2	2	0	32	0	0	0	0	0	0	0	0	0	0	0	0
	Red meat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tovy (small fish)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Crab (marine)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Little fish	43	22	40	84	0	14	65	52	69	84	27	23	73	37	21	73

							r year per adult (kg)								
		Average	Number of families reporting foodtype	Median	Max	Min	JUSTINE	LAHA Toml	JOSETTE	VIRGINIE Nicolette	ANJANIAINA Dorlis	IHANILENY	ELPHINE	HOVA Nathalie	IALY Joachim
SUMMARY	**Fruits**	**125**	**23**	**116**	**264**	**40**	187	131	75	200	112	69	107	133	64
	Leaves	**129**	**23**	**127**	**271**	**26**	139	271	191	100	130	60	66	26	172
	Grain/Glucide	**280**	**23**	**267**	**509**	**151**	289	222	377	232	254	276	151	297	254
	Proteine	**64**	**23**	**62**	**144**	**12**	120	20	101	55	71	68	49	23	12
	Fruits + roots	208	23	186	580	40	256	181	191	248	209	142	167	199	143
	fruits, roots + grains	405	23	383	773	191	476	354	452	432	365	345	258	430	318
Fruits	Jackfruit	21	9	0	116	0	23	100	39	74	56	0	20	38	0
	Banana	33	12	11	134	0	34	0	0	0	0	0	0	30	0
	Lychee	9	20	7	27	0	15	7	6	18	0	25	27	14	12
	Orange	3	5	0	32	0	0	0	0	0	0	0	9	0	0
	Pineapple	1	2	0	19	0	0	0	0	0	0	0	0	0	0
	June plum	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Mango	57	23	51	114	11	114	24	29	108	55	45	50	51	52
Leaves	Cassava leaves	48	17	40	135	0	70	135	85	0	30	40	22	0	43
	Sweet potato leaves	78	22	88	135	0	70	135	106	100	99	20	44	26	129
	Black nightshade	3	1	0	72	0	0	0	0	0	0	0	0	0	0
Grain/Glucide	Rice	190	23	200	260	90	220	173	260	183	156	203	90	200	146
	Cassava	76	22	70	271	0	70	50	117	36	98	73	61	66	79
	Sweet potato	6	4	0	46	0	0	0	0	12	0	0	0	0	0
	Potato	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bread	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bean	8	5	0	51	0	0	0	0	0	0	0	0	31	29
Proteine	Fish	19	12	4	78	0	77	0	26	26	0	29	0	4	12
	Patsa	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Prawn	2	2	0	32	0	0	0	13	0	32	0	0	0	0
	Red meat	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tovy (small fish)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Crab (marine)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Little fish	43	22	40	84	0	42	20	63	30	40	39	49	19	0

		Average	Number of families reporting foodtype	Median	Max	Min	MASY Rasoanirina Gertrude	ZAFIHITA	RAZAFINDRETSILY Créssant
SUMMARY	**Fruits**	**125**	**23**	**116**	**264**	**40**	264	101	182
	Leaves	**129**	**23**	**127**	**271**	**26**	95	107	88
	Grain/Glucide	**280**	**23**	**267**	**509**	**151**	267	197	233
	Proteine	**64**	**23**	**62**	**144**	**12**	47	36	144
	Fruits + roots	208	23	186	580	40	348	176	210
	fruits, roots + grains	405	23	383	773	191	531	298	414
Fruits	Jackfruit	21	9	0	116	0	0	0	20
	Banana	33	12	11	134	0	134	34	84
	Lychee	9	20	7	27	0	16	4	9
	Orange	3	5	0	32	0	0	0	5
	Pineapple	1	2	0	19	0	0	0	0
	June plum	0	0	0	0	0	0	0	0
	Mango	57	23	51	114	11	114	63	64
Leaves	Cassava leaves	48	17	40	135	0	0	64	0
	Sweet potato leaves	78	22	88	135	0	95	43	88
	Black nightshade	3	1	0	72	0	0	0	0
Grain/Glucide	Rice	190	23	200	260	90	183	123	204
	Cassava	76	22	70	271	0	84	75	29
	Sweet potato	6	4	0	46	0	0	0	0
	Potato	0	0	0	0	0	0	0	0
	Bread	0	0	0	0	0	0	0	0
	Bean	8	5	0	51	0	0	0	0
Proteine	Fish	19	12	4	78	0	0	0	78
	Patsa	0	0	0	0	0	0	0	0
	Prawn	2	2	0	32	0	0	0	0
	Red meat	0	0	0	0	0	0	0	0
	Tovy (small fish)	0	0	0	0	0	0	0	0
	Crab (marine)	0	0	0	0	0	0	0	0
	Little fish	43	22	40	84	0	47	36	66

Food Survey Summary Sheet Mangaiky

							Summary consumption per year per adult (kg)												
		Average	Number of families reporting foodtype	Median	Max	Min	ZENOMENY	MARINAH	SAY Léoline	ARCELLIAN	FINDRA	ANA Elmin	RAVOLOLO	IIZA Ernestin	OLATSAR	ENY Florer	MANDANIAINA Olinette	OLOLO Joseph	LLE Bienve
SUMMARY	**Fruits**	**146**	**29**	**148**	**288**	**0**	122	148	77	177	71	229	108	241	275	176	230	66	182
	Leaves	**149**	**31**	**148**	**271**	**35**	96	197	93	212	61	104	189	217	183	225	196	189	35
	Grain/Glucide	**266**	**31**	**255**	**377**	**178**	315	355	185	239	214	258	204	248	255	251	319	312	321
	Proteine	**35**	**26**	**26**	**137**	**0**	19	18	0	50	30	94	0	24	26	64	54	47	26
	Fruits + roots	230	23	234	525	0	258	238	119	279	106	302	215	306	423	319	306	152	182
	fruits, roots + grains	412	23	403	665	178	437	502	261	416	285	486	312	489	530	426	549	378	503
Fruits	Jackfruit	**29**	**10**	**0**	**131**	**0**	24	0	0	83	0	120	45	131	130	97	0	0	0
	Banana	**22**	**11**	**0**	**124**	**0**	0	0	0	0	0	0	0	38	0	0	115	34	111
	Lychee	**13**	**27**	**8**	**59**	**0**	27	59	14	33	25	7	7	9	26	8	8	4	6
	Orange	**7**	**11**	**0**	**38**	**0**	19	0	0	0	0	0	0	0	0	0	14	0	0
	Pineapple	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
	June plum	**1**	**2**	**0**	**23**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
	Mango	**74**	**29**	**64**	**167**	**0**	51	89	63	61	46	102	55	64	119	71	94	29	64
Leaves	Cassava leaves	**60**	**26**	**62**	**135**	**0**	53	0	0	101	0	0	85	46	88	105	103	95	17
	Sweet potato leaves	**85**	**31**	**88**	**197**	**17**	44	197	93	112	61	81	104	134	88	105	93	95	17
	Black nightshade	**4**	**6**	**0**	**37**	**0**	0	0	0	0	0	23	0	37	7	16	0	0	0
Grain/Glucide	Rice	**169**	**31**	**155**	**296**	**60**	161	264	142	137	179	184	97	175	108	107	243	226	286
	Cassava	**80**	**26**	**87**	**148**	**0**	136	0	42	102	35	74	107	65	148	144	76	87	0
	Sweet potato	**5**	**2**	**0**	**90**	**0**	0	90	0	0	0	0	0	0	0	0	0	0	0
	Potato	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bread	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bean	**12**	**9**	**0**	**71**	**0**	18	0	0	0	0	0	0	9	0	0	0	0	35
Proteine	Fish	**10**	**10**	**0**	**94**	**0**	0	0	0	0	0	94	0	24	0	13	0	0	0
	Patsa	**1**	**2**	**0**	**15**	**0**	0	0	0	0	0	0	0	0	0	15	0	0	0
	Prawn	**0**	**1**	**0**	**9**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red meat	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tovy (small fish)	**1**	**1**	**0**	**24**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
	Crab (marine)	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
	Little fish	**23**	**24**	**21**	**73**	**0**	19	18	0	50	30	0	0	0	26	35	54	47	26

		Average	Number of families reporting foodtype	Median	Max	Min	NIRINA Edmé	ANTANIRINA Kazy Perlet	MARIE Victorine	Scarlette V	PELAGINE	ANAZAFINDRAKOTO H	HA Osval	MAHO Lydi	ANDRY F	RASOA	KAJY Estelle	SANA Blandine	VAHA Gauline
SUMMARY	**Fruits**	**146**	**29**	**148**	**288**	**0**	268	194	0	0	165	195	86	185	51	106	118	288	183
	Leaves	**149**	**31**	**148**	**271**	**35**	178	201	103	111	117	49	60	148	99	204	271	117	156
	Grain/Glucide	**266**	**31**	**255**	**377**	**178**	377	331	207	276	178	291	244	261	203	230	375	277	291
	Proteine	**35**	**26**	**26**	**137**	**0**	33	43	11	9	9	73	137	0	21	48	0	48	59
	Fruits + roots	230	23	234	525	0	349	286	29	113	283	286	86	320	51	204	217	366	261
	fruits, roots + grains	412	23	403	665	178	645	525	207	276	343	487	330	446	254	336	493	565	474
Fruits	Jackfruit	**29**	**10**	**0**	**131**	**0**	0	0	0	0	87	91	0	0	0	0	0	91	0
	Banana	**22**	**11**	**0**	**124**	**0**	124	107	0	0	31	26	32	0	0	0	0	39	0
	Lychee	**13**	**27**	**8**	**59**	**0**	8	4	0	0	0	9	0	18	2	18	20	25	16
	Orange	**7**	**11**	**0**	**38**	**0**	15	22	0	0	0	24	0	0	0	0	0	0	38
	Pineapple	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
	June plum	**1**	**2**	**0**	**23**	**0**	0	0	0	0	21	0	0	0	23	0	0	0	0
	Mango	**74**	**29**	**64**	**167**	**0**	121	61	0	0	26	45	54	167	26	87	98	133	129
Leaves	Cassava leaves	**60**	**26**	**62**	**135**	**0**	89	100	40	49	59	25	0	49	28	86	135	49	71
	Sweet potato leaves	**85**	**31**	**88**	**197**	**17**	89	100	63	62	59	25	60	99	71	118	135	67	71
	Black nightshade	**4**	**6**	**0**	**37**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	14
Grain/Glucide	Rice	**169**	**31**	**155**	**296**	**60**	296	239	145	164	60	151	244	126	145	132	221	198	155
	Cassava	**80**	**26**	**87**	**148**	**0**	81	92	29	113	118	90	0	135	0	98	50	79	78
	Sweet potato	**5**	**2**	**0**	**90**	**0**	0	0	0	0	0	0	0	0	0	0	50	0	0
	Potato	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bread	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bean	**12**	**9**	**0**	**71**	**0**	0	0	32	0	0	50	0	0	58	0	55	0	58
Proteine	Fish	**10**	**10**	**0**	**94**	**0**	0	8	5	0	0	0	73	0	0	0	0	12	28
	Patsa	**1**	**2**	**0**	**15**	**0**	0	10	0	0	0	0	0	0	0	0	0	0	0
	Prawn	**0**	**1**	**0**	**9**	**0**	0	0	0	0	0	0	9	0	0	0	0	0	0
	Red meat	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tovy (small fish)	**1**	**1**	**0**	**24**	**0**	0	0	0	0	0	0	0	0	0	24	0	0	0
	Crab (marine)	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
	Little fish	**23**	**24**	**21**	**73**	**0**	33	25	6	9	9	73	55	0	21	24	0	36	32

		Average	Number of families reporting foodtype	Median	Max	Min	VOLA Fifine	/PINANAHAR\=INDRAMAMY\IMBISOA Rija			FETILINA
SUMMARY	**Fruits**	**146**	**29**	**148**	**288**	**0**	103	124	41	209	114
	Leaves	**149**	**31**	**148**	**271**	**35**	212	176	124	148	141
	Grain/Glucide	**266**	**31**	**255**	**377**	**178**	247	287	242	236	208
	Proteine	**35**	**26**	**26**	**137**	**0**	21	40	0	66	15
	Fruits + roots	230	23	234	525	0	220	124	135	345	257
	fruits, roots + grains	412	23	403	665	178	350	410	283	445	321
Fruits	Jackfruit	**29**	**10**	**0**	**131**	**0**	0	0	0	0	0
	Banana	**22**	**11**	**0**	**124**	**0**	0	0	0	35	0
	Lychee	**13**	**27**	**8**	**59**	**0**	3	9	6	19	8
	Orange	**7**	**11**	**0**	**38**	**0**	14	19	7	22	21
	Pineapple	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0
	June plum	**1**	**2**	**0**	**23**	**0**	0	0	0	0	0
	Mango	**74**	**29**	**64**	**167**	**0**	86	95	28	134	85
Leaves	Cassava leaves	**60**	**26**	**62**	**135**	**0**	106	88	62	74	63
	Sweet potato leaves	**85**	**31**	**88**	**197**	**17**	106	88	62	74	63
	Black nightshade	**4**	**6**	**0**	**37**	**0**	0	0	0	0	16
Grain/Glucide	Rice	**169**	**31**	**155**	**296**	**60**	130	216	147	101	64
	Cassava	**80**	**26**	**87**	**148**	**0**	117	0	94	135	144
	Sweet potato	**5**	**2**	**0**	**90**	**0**	0	0	0	0	0
	Potato	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0
	Bread	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0
	Bean	**12**	**9**	**0**	**71**	**0**	0	71	0	0	0
Proteine	Fish	**10**	**10**	**0**	**94**	**0**	0	14	0	48	0
	Patsa	**1**	**2**	**0**	**15**	**0**	0	0	0	0	0
	Prawn	**0**	**1**	**0**	**9**	**0**	0	0	0	0	0
	Red meat	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0
	Tovy (small fish)	**1**	**1**	**0**	**24**	**0**	0	0	0	0	0
	Crab (marine)	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0
	Little fish	**23**	**24**	**21**	**73**	**0**	21	26	0	18	15

Food Survey Summary Sheet Betaligny

							Summary consumption per year per adult (kg)													
		Average	Number of families reporting foodtype	Median	Max	Min	MAMISOA Arphine	NIRINA	KAZO Paulette	TSILISO	DAMY Ruffin	KALIZO	KAJY Philomène	DAMY Fukgence	MARA	RAVAO	KAZY Claudine	KAZY Marie Victorine	MIZA Marcelia	GERMAIN	RASOANANTENAINA Bien Celine
SUMMARY	**Fruits**	**77**	**22**	**61**	**258**	**0**	61	55	0	146	0	31	127	61	128	74	35	36	87	29	25
	Leaves	**178**	**26**	**177**	**316**	**64**	218	316	130	181	255	189	154	215	246	96	264	179	179	90	216
	Grain/Glucide	**277**	**26**	**274**	**572**	**172**	272	345	288	346	271	204	297	292	572	265	272	172	276	264	293
	Proteine	**36**	**17**	**18**	**142**	**0**	0	0	19	73	41	29	0	0	142	14	0	17	93	14	23
	Fruits + roots	142	24	118	614	0	111	105	119	202	41	31	275	171	399	162	163	106	159	100	86
	fruits, roots + grains	354	26	335	830	172	334	400	288	492	271	234	424	353	700	338	307	208	362	293	318
Fruits	Jackfruit	2	1	0	59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Banana	11	2	0	169	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Lychee	7	21	6	20	0	4	7	0	12	0	4	18	7	6	8	11	9	6	0	5
	Orange	4	7	0	21	0	0	0	0	0	0	0	21	0	11	0	0	0	0	0	0
	Pineapple	1	1	0	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	June plum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Mango	52	22	46	156	0	57	49	0	134	0	27	88	54	111	65	24	27	81	29	20
Leaves	Cassava leaves	92	26	90	158	32	109	144	130	115	105	90	73	84	99	48	158	100	119	90	116
	Sweet potato leaves	83	24	84	171	0	109	171	0	66	90	100	81	131	148	48	105	80	60	0	100
	Black nightshade	3	2	0	60	0	0	0	0	0	60	0	0	0	0	0	0	0	0	0	0
Grain/Glucide	Rice	193	26	190	302	76	222	295	168	290	230	204	132	122	201	177	144	102	203	167	204
	Cassava	56	20	57	271	0	50	50	119	56	41	0	89	66	271	88	64	70	73	71	61
	Sweet potato	9	4	0	70	0	0	0	0	0	0	0	59	44	0	0	64	0	0	0	0
	Potato	1	1	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bread	1	1	0	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bean	18	12	0	100	0	0	0	0	0	0	0	16	61	100	0	0	0	0	26	28
Proteine	Fish	11	10	0	98	0	0	0	0	25	0	0	0	0	60	14	0	2	10	0	4
	Patsa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Prawn	0	1	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0
	Red meat	7	3	0	82	0	0	0	0	0	0	0	0	0	82	0	0	0	0	0	0
	Tovy (small fish)	2	2	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0	44	0	0
	Crab (marine)	3	1	0	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Little fish	12	12	0	48	0	0	0	19	48	41	29	0	0	0	0	0	15	29	14	18

		Average	Number of families reporting foodtype	Median	Max	Min	RAZANANAIVO Claudine	VOHIZY	HASOAVINY Popelice	RAHARIMALALA Merany	MAMY Brelise	KAZY Mariette	NOME	MONJA Célestin	MIHA Noel	MARA Gabriel	ZANAMINO
SUMMARY	**Fruits**	**77**	**22**	**61**	**258**	**0**	93	34	243	62	65	0	166	103	76	0	258
	Leaves	**178**	**26**	**177**	**316**	**64**	64	252	106	172	175	191	169	138	149	146	131
	Grain/Glucide	**277**	**26**	**274**	**572**	**172**	177	342	256	302	179	223	309	225	182	286	303
	Proteine	**36**	**17**	**18**	**142**	**0**	75	0	31	123	78	0	34	0	14	0	121
	Fruits + roots	142	24	118	614	0	112	92	258	62	65	0	278	135	144	0	321
	fruits, roots + grains	354	26	335	830	172	270	376	498	364	244	223	474	328	258	286	561
Fruits	Jackfruit	2	1	0	59	0	59	0	0	0	0	0	0	0	0	0	0
	Banana	11	2	0	169	0	0	0	169	0	0	0	0	0	0	0	107
	Lychee	7	21	6	20	0	5	6	13	6	6	0	9	10	7	0	20
	Orange	4	7	0	21	0	9	0	0	11	12	0	0	15	18	0	0
	Pineapple	1	1	0	32	0	0	0	32	0	0	0	0	0	0	0	0
	June plum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Mango	52	22	46	156	0	19	29	29	45	47	0	156	78	51	0	131
Leaves	Cassava leaves	92	26	90	158	32	32	126	85	49	87	82	77	60	93	67	55
	Sweet potato leaves	83	24	84	171	0	32	126	21	123	87	109	92	77	56	67	76
	Black nightshade	3	2	0	60	0	0	0	0	0	0	0	0	0	0	12	0
Grain/Glucide	Rice	193	26	190	302	76	157	258	174	302	179	223	165	158	76	249	212
	Cassava	56	20	57	271	0	19	58	0	0	0	0	42	31	68	0	63
	Sweet potato	9	4	0	70	0	0	0	0	0	0	0	70	0	0	0	0
	Potato	1	1	0	16	0	0	0	16	0	0	0	0	0	0	0	0
	Bread	1	1	0	23	0	0	0	23	0	0	0	0	0	0	0	0
	Bean	18	12	0	100	0	0	26	43	0	0	0	31	35	38	37	28
Proteine	Fish	11	10	0	98	0	28	0	31	23	0	0	0	0	0	0	98
	Patsa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Prawn	0	1	0	10	0	0	0	0	0	0	0	0	0	0	0	0
	Red meat	7	3	0	82	0	0	0	0	82	0	0	0	0	0	0	23
	Tovy (small fish)	2	2	0	44	0	0	0	0	9	0	0	0	0	0	0	0
	Crab (marine)	3	1	0	78	0	0	0	0	0	78	0	0	0	0	0	0
	Little fish	12	12	0	48	0	47	0	0	9	0	0	34	0	14	0	0

Food Survey Summary Sheet Andrakaraka

		Average	Number of families reporting foodtype	Median	Max	Min	RAZAFINDRAVAO Lala Valérien	HERINIAINA Donatien Désiré	KAJY Galtine	SOJA Manoaly	MAHASOA	NETESOA Espérance
SUMMARY	**Fruits**	**34**	**7**	**14**	**174**	**0**	29	64	77	0	0	0
	Leaves	**58**	**12**	**59**	**174**	**0**	63	62	50	0	99	25
	Grain/Glucide	**214**	**14**	**219**	**299**	**128**	219	128	239	280	246	226
	Proteine	**80**	**14**	**75**	**124**	**46**	124	61	120	124	72	46
	Fruits + roots	73	13	45	329	0	86	64	214	87	45	23
	fruits, roots + grains	248	14	233	473	128	247	192	316	280	246	226
Fruits	Jackfruit	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0
	Banana	**11**	**3**	**0**	**87**	**0**	0	0	33	0	0	0
	Lychee	**3**	**4**	**0**	**15**	**0**	0	8	15	0	0	0
	Orange	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0
	Pineapple	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0
	June plum	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0
	Mango	**20**	**7**	**14**	**74**	**0**	29	56	28	0	0	0
Leaves	Cassava leaves	**13**	**5**	**0**	**62**	**0**	0	62	25	0	49	0
	Sweet potato leaves	**44**	**11**	**37**	**174**	**0**	63	0	25	0	49	25
	Black nightshade	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0
Grain/Glucide	Rice	**169**	**14**	**171**	**260**	**70**	161	128	102	193	151	203
	Cassava	**33**	**8**	**31**	**87**	**0**	58	0	69	87	45	23
	Sweet potato	**7**	**2**	**0**	**69**	**0**	0	0	69	0	0	0
	Potato	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0
	Bread	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0
	Bean	**6**	**2**	**0**	**50**	**0**	0	0	0	0	50	0
Proteine	Fish	**62**	**14**	**69**	**100**	**21**	100	61	46	77	72	46
	Patsa	**14**	**6**	**0**	**74**	**0**	0	0	74	28	0	0
	Prawn	**3**	**3**	**0**	**19**	**0**	0	0	0	19	0	0
	Red meat	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0
	Tovy (small fish)	**2**	**1**	**0**	**23**	**0**	23	0	0	0	0	0
	Crab (marine)	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0
	Little fish	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0

							Summary consumption per year per adult (kg)							
		Average	Number of families reporting foodtype	Median	Max	Min	DONNEE	MONJA Jean Alexandre	CHRISTOPHE Ialy	RAHARIMALALA Judith	MAKA Gervais	NAMBININA	SOSTHENE	TIANDRAINY
SUMMARY	**Fruits**	**34**	**7**	**14**	**174**	**0**	0	63	35	35	174	0	0	0
	Leaves	**58**	**12**	**59**	**174**	**0**	0	86	61	63	174	27	57	42
	Grain/Glucide	**214**	**14**	**219**	**299**	**128**	153	197	250	176	218	193	165	299
	Proteine	**80**	**14**	**75**	**124**	**46**	84	77	54	69	68	90	52	84
	Fruits + roots	73	13	45	329	0	83	63	35	35	174	0	78	39
	fruits, roots + grains	248	14	233	473	128	153	260	285	211	392	193	165	299
Fruits	Jackfruit	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0
	Banana	**11**	**3**	**0**	**87**	**0**	0	34	0	0	87	0	0	0
	Lychee	**3**	**4**	**0**	**15**	**0**	0	0	8	0	12	0	0	0
	Orange	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0
	Pineapple	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0
	June plum	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0
	Mango	**20**	**7**	**14**	**74**	**0**	0	29	28	35	74	0	0	0
Leaves	Cassava leaves	**13**	**5**	**0**	**62**	**0**	0	21	31	0	0	0	0	0
	Sweet potato leaves	**44**	**11**	**37**	**174**	**0**	0	64	31	63	174	27	57	42
	Black nightshade	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0
Grain/Glucide	Rice	**169**	**14**	**171**	**260**	**70**	70	197	250	176	218	166	87	260
	Cassava	**33**	**8**	**31**	**87**	**0**	83	0	0	0	0	0	52	39
	Sweet potato	**7**	**2**	**0**	**69**	**0**	0	0	0	0	0	0	26	0
	Potato	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0
	Bread	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0
	Bean	**6**	**2**	**0**	**50**	**0**	0	0	0	0	0	27	0	0
Proteine	Fish	**62**	**14**	**69**	**100**	**21**	84	71	45	69	68	71	35	21
	Patsa	**14**	**6**	**0**	**74**	**0**	0	6	9	0	0	14	0	63
	Prawn	**3**	**3**	**0**	**19**	**0**	0	0	0	0	0	5	17	0
	Red meat	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0
	Tovy (small fish)	**2**	**1**	**0**	**23**	**0**	0	0	0	0	0	0	0	0
	Crab (marine)	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0
	Little fish	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0

Food Survey Summary Sheet - Agnalambendra

							Summary consumption per year per adult (kg)												
		Average	Number of families reporting foodtype	Median	Max	Min	MOSA Armin	BAO Justine	AMBO Marc	DAMY Julien	BONA	LIMBY	ELODIE	ELVINE	FLORETTE	AGNAHOSI	LISY	SOAMIRINY	SOALINY Art
SUMMARY	**Fruits**	**88**	**24**	**83**	**194**	**0**	23	0	0	129	66	32	46	55	118	34	135	172	69
SUMMARY	**Leaves**	**153**	**24**	**144**	**301**	**0**	123	88	83	0	0	220	171	117	199	142	134	102	300
SUMMARY	**Grain/Glucide**	**283**	**26**	**274**	**453**	**154**	392	201	288	453	234	412	204	322	154	176	266	295	436
SUMMARY	**Proteine**	**18**	**12**	**0**	**102**	**0**	24	15	0	102	71	0	0	26	0	0	69	0	0
SUMMARY	Fruits + roots	176	23	145	520	0	113	81	152	129	153	273	46	138	191	141	210	332	321
SUMMARY	fruits, roots + grains	371	23	357	647	154	415	201	288	582	300	444	249	377	272	210	400	466	505
Fruits	Jackfruit	**6**	**3**	**0**	**108**	**0**	0	0	0	0	0	0	0	0	0	0	0	108	0
Fruits	Banana	**19**	**7**	**0**	**92**	**0**	0	0	0	92	32	0	0	0	63	0	0	0	0
Fruits	Lychee	**8**	**21**	**8**	**25**	**0**	12	0	0	15	7	4	7	7	10	4	13	11	15
Fruits	Orange	**3**	**3**	**0**	**32**	**0**	11	0	0	0	0	0	0	0	0	0	28	0	0
Fruits	Pineapple	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
Fruits	June plum	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
Fruits	Mango	**52**	**23**	**47**	**134**	**0**	0	0	0	22	27	28	39	49	45	30	93	53	54
Leaves	Cassava leaves	**63**	**23**	**60**	**125**	**0**	49	44	50	0	0	97	57	54	119	67	72	51	120
Leaves	Sweet potato leaves	**87**	**24**	**75**	**197**	**0**	74	44	33	0	0	123	114	63	79	75	62	51	180
Leaves	Black nightshade	**3**	**2**	**0**	**61**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
Grain/Glucide	Rice	**182**	**26**	**170**	**378**	**68**	201	120	136	378	147	171	204	203	81	68	169	134	184
Grain/Glucide	Cassava	**65**	**21**	**63**	**165**	**0**	90	81	152	0	87	80	0	33	73	31	57	80	165
Grain/Glucide	Sweet potato	**23**	**9**	**0**	**161**	**0**	0	0	0	0	0	161	0	50	0	77	19	80	87
Grain/Glucide	Potato	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
Grain/Glucide	Bread	**1**	**1**	**0**	**20**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
Grain/Glucide	Bean	**12**	**5**	**0**	**100**	**0**	100	0	0	75	0	0	0	37	0	0	21	0	0
Proteine	Fish	**8**	**7**	**0**	**64**	**0**	24	0	0	24	0	0	0	26	0	0	64	0	0
Proteine	Patsa	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
Proteine	Prawn	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
Proteine	Red meat	**2**	**1**	**0**	**41**	**0**	0	0	0	41	0	0	0	0	0	0	0	0	0
Proteine	Tovy (small fish)	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
Proteine	Crab (marine)	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
Proteine	Little fish	**8**	**9**	**0**	**71**	**0**	0	15	0	37	71	0	0	0	0	0	5	0	0

		Average	Number of families reporting foodtype	Median	Max	Min	MALAKISOA	PASCALINE	AZANAZANDRY Niri	AY Maxim	HOVA Hortense	HARIMALALA Claudi	RAKETAK	JUVENCE	ISOA Fr	MAMPISENTC	IALY Jonathan	BAO	ZEHENY
SUMMARY	**Fruits**	**88**	**24**	**83**	**194**	**0**	54	194	125	103	130	142	72	45	93	152	127	115	63
	Leaves	**153**	**24**	**144**	**301**	**0**	123	239	182	209	301	141	162	258	120	148	119	149	145
	Grain/Glucide	**283**	**26**	**274**	**453**	**154**	196	381	325	268	302	224	281	286	254	191	324	241	245
	Proteine	**18**	**12**	**0**	**102**	**0**	0	0	0	0	0	31	12	0	45	24	50	0	4
	Fruits + roots	176	23	145	520	0	99	282	209	158	176	142	72	180	191	242	127	183	226
	fruits, roots + grains	371	23	357	647	154	250	575	451	371	433	367	353	331	347	343	451	356	308
Fruits	Jackfruit	**6**	**3**	**0**	**108**	**0**	0	0	0	0	0	29	0	0	28	0	0	0	0
	Banana	**19**	**7**	**0**	**92**	**0**	0	89	68	63	80	0	0	0	0	0	0	0	0
	Lychee	**8**	**21**	**8**	**25**	**0**	9	9	0	4	5	0	5	0	9	19	25	14	12
	Orange	**3**	**3**	**0**	**32**	**0**	0	32	0	0	0	0	0	0	0	0	0	0	0
	Pineapple	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
	June plum	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
	Mango	**52**	**23**	**47**	**134**	**0**	45	65	58	36	46	113	68	45	55	134	102	101	51
Leaves	Cassava leaves	**63**	**23**	**60**	**125**	**0**	49	119	82	89	125	31	75	0	61	25	60	75	73
	Sweet potato leaves	**87**	**24**	**75**	**197**	**0**	74	119	100	119	176	110	87	197	46	123	60	75	73
	Black nightshade	**3**	**2**	**0**	**61**	**0**	0	0	0	0	0	0	0	61	13	0	0	0	0
Grain/Glucide	Rice	**182**	**26**	**170**	**378**	**68**	151	293	242	213	256	224	281	151	156	101	244	152	82
	Cassava	**65**	**21**	**63**	**165**	**0**	45	87	83	55	46	0	0	135	56	45	0	68	133
	Sweet potato	**23**	**9**	**0**	**161**	**0**	0	0	0	0	0	0	0	0	42	45	0	0	30
	Potato	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bread	**1**	**1**	**0**	**20**	**0**	0	0	0	0	0	0	0	0	0	0	0	20	0
	Bean	**12**	**5**	**0**	**100**	**0**	0	0	0	0	0	0	0	0	0	0	81	0	0
Proteine	Fish	**8**	**7**	**0**	**64**	**0**	0	0	0	0	0	0	0	0	45	12	26	0	0
	Patsa	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
	Prawn	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red meat	**2**	**1**	**0**	**41**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tovy (small fish)	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
	Crab (marine)	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
	Little fish	**8**	**9**	**0**	**71**	**0**	0	0	0	0	0	31	12	0	0	12	24	0	4

Appendix A8 Dose Assessment

Appendix A8 Dose

1. Dose Methodology

1.1 Dose Methodology Summary

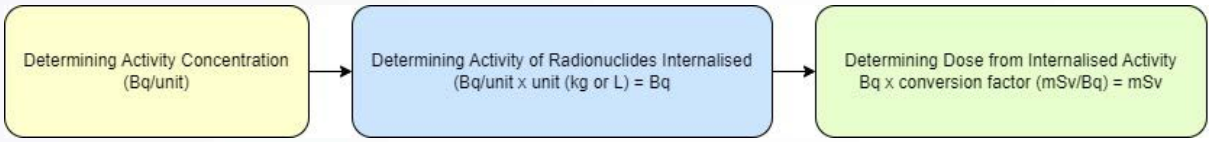
The dose calculations adopted for the Mandena radiation study are derived from recommendations of the international commission on radiological protection (ICRP) with dose conversion factors sourced from publication ICRP 119[1]. ICRP 119 provides the latest dose conversion factors for the public and is used as a standard document for dose conversion internationally. Where there are unknowns with respect to the dose conversion factors (such as solubility or particle size), a conservative approach is taken.

Dose estimate values are highly variable depending on the radionuclide concentrations and consumption profiles for individual people. To reduce the number of variables, dose was calculated for a representative person from a community or region. The consumption profile for the dose assessment of the representative person were taken as the average consumption of food across the community or region as measured by the food survey (**Appendix A7**). To overcome the challenge of unquantifiable uncertainties due to potential bias associated with the food survey, food consumption ranges were adopted for reported consumption profiles. See Section 1.6.
Individual radionuclides for samples across a category were averaged to create a representative sample for that category. See Section 1.5. The process for determining average activity concentration is represented in Figure 2.

Estimated doses from this methodology calculate dose from ingestion of food, water and inhalation of dust. The calculation does not distinguish between operational or natural origin.

Doses were calculated by using the representative radionuclide concentrations, multiplying by the amount ingested or inhaled, by the representative person and then converting to a dose in mSv using international dose conversion factors. The summary of this process and calculation are represented in **Figure 1** and **Equation 1**. Detailed process steps are outlined in **Figures 2, 3** and **4**.

Figure 1 Dose Assessment Process Summary



Equation 1 Dose Assessment Equation

$$D = \sum B \times C \times F$$

$$B = Average\ Activity\ Concentration\ \left(\frac{Bq}{Unit}\right)$$

$$C = Consumption\ (Unit)$$

$$F = ICRP\ Conversion\ Factors\ \left(\frac{mSv}{Bq}\right)$$

$$D = Dose\ (mSv)$$

$$Unit - Food = kilograms\ (kg), Liquid = Litres\ (L), Dust = cubic\ metres\ (m^3)$$

[1] ICRP, 2012. Compendium of Dose Coefficients based on ICRP Publication 60. ICRP Publication 119. Ann. ICRP 41(Suppl.)

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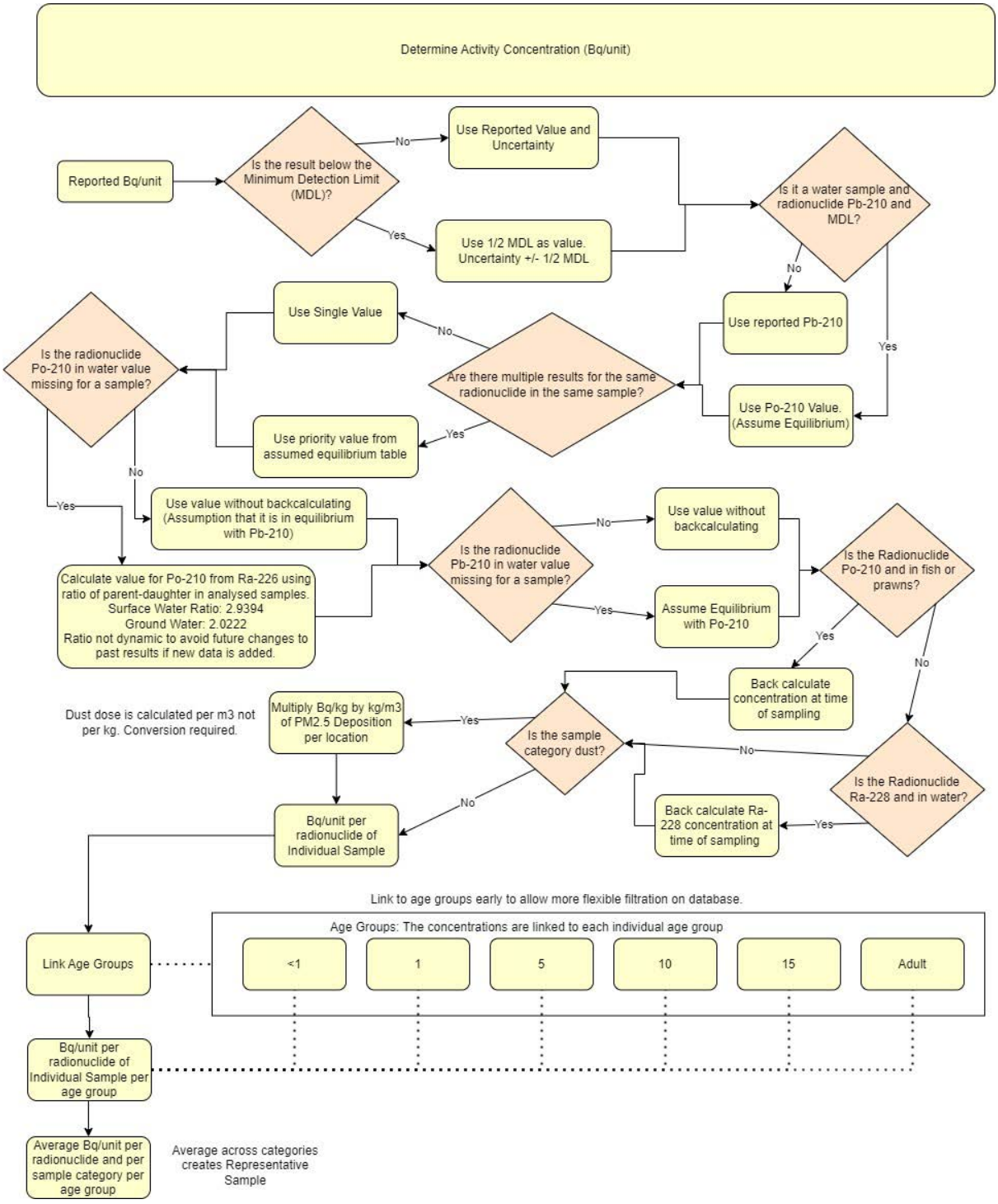
1.2 Determining Activity Concentration

The below flow chart shows the detailed process for determining activity concentration of representative samples. See the technical analysis section for further explanation.

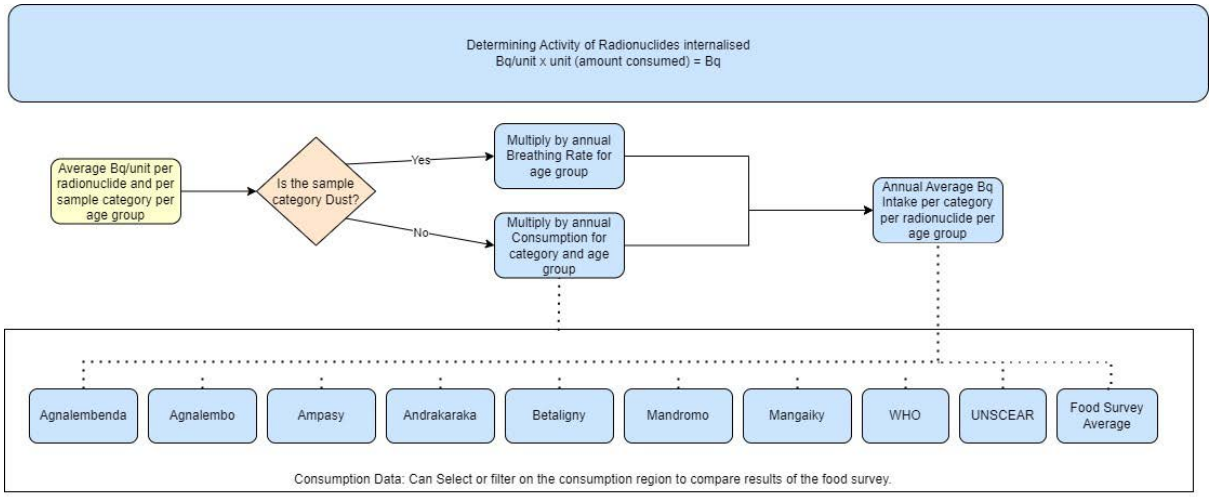
Figure 2 Determination of activity concentration for representative samples including technical decisions.



1.3 Determining Activity of Radionuclides Internalised

The flow chart presented as **Figure 3** presents the process for converting activity concentrations of representative samples to the amount of radionuclides in Becquerels (Bq) consumed or inhaled.

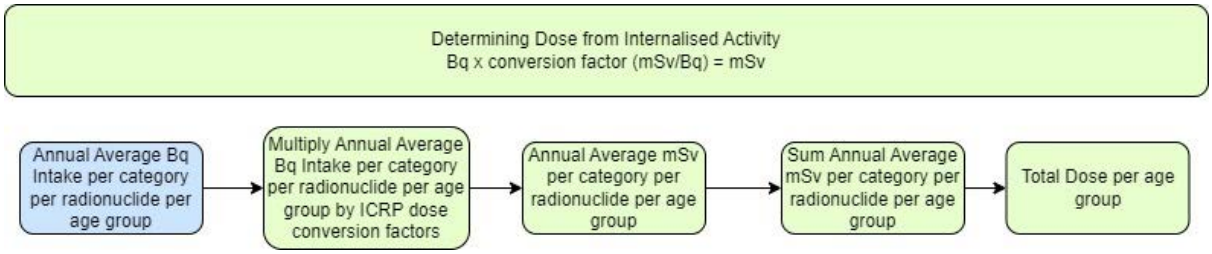
Figure 3 Process to Determine Activity of Radionuclides Internalised



1.4 Determining Dose from Internalised Activity

The below flow chart shows the process for converting activity internalised into dose.

Figure 4 Process to Determine Dose from Activity Internalised



1.5 Representative Categories

Representative samples were taken for each sample type. To make the dose assessment more representative each sample type was defined into a larger category averages radionuclide concentration for each category was used in the dose calculation (**Table 1**).

Table 1 Representative Sample Types and Categories

Pathway Group	Rep. Category	Sample Type
Dust	Dust	Dust
Aquatic Food	Fish	Fresh water fish
	Prawn	Fresh water prawn
Land Food	Fruits	Jackfruit
		Banana
		Lychee
		Soursop

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Pathway Group	Rep. Category	Sample Type
		Papaya
		Pineapple
		Sugar Apple
		Avocado
		Breadfruit
		June Plum
		Orange
		Zucchini
	Grains	Rice
		Grains
	Leaves	Cassava Leaves
	Roots	Cassava
		Sweet Potato
Water	Water	Surface Drinking Water
		Ground Drinking Water

1.6 Representative Consumption

The food consumption data from the food surveys for each community was averaged into the respective representative food categories.

Water intake was conservatively adopted at 2 L per day for adults in all communities, which equates to 730 L per year. UNSCEAR 2000[2] uses an annual water consumption of 500 L, while WHO 1988[3] refers to 700 L per year.

The average adult consumption of each category in each community used in the dose calculations can be seen in **Table 1**. For comparison UNSCEAR 2000 and WHO 1988 values are also displayed. It can be seen that the level of consumption from the food survey is likely overestimated as in most cases, it exceeds the WHO levels.

WHO/UNSCEAR represent Fish and Prawns as a single category. To capture the representative categories the ratio of fish to prawns from Andrakaraka was applied to these values.

Table 2 Representative Adult Food Consumption

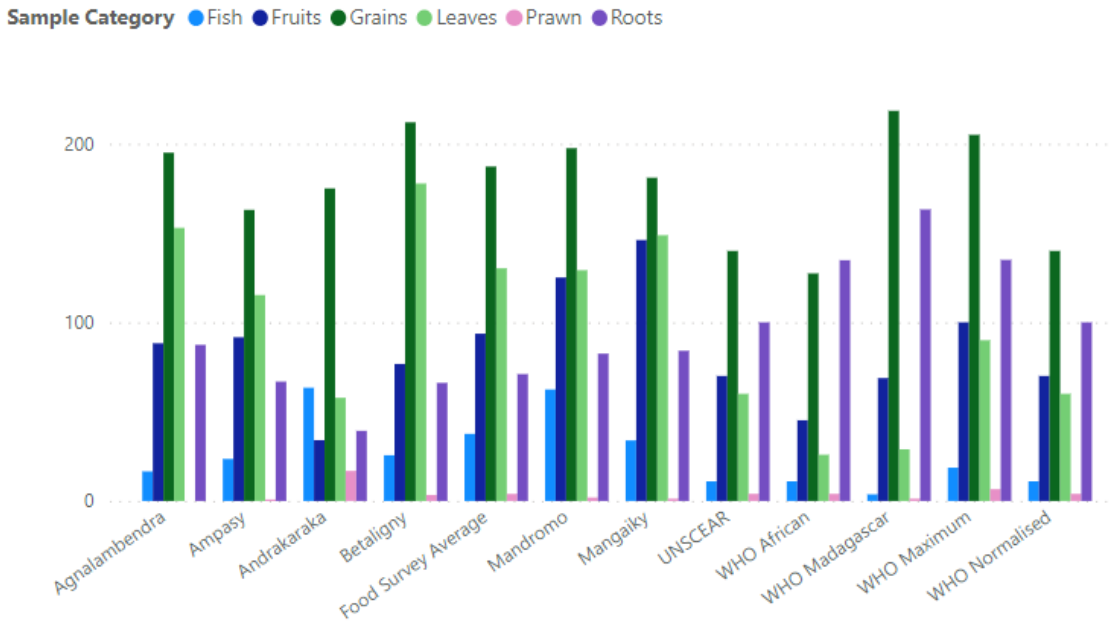
Consumption Profile	Fish (kg)	Fruits (kg)	Grains (kg)	Leaves (kg)	Prawn (kg)	Roots (kg)	Water (L)
Agnalambendra	16.56	88.29	195.00	152.92	0.00	87.42	730
Ampasy	23.54	91.67	163.00	115.30	0.40	66.84	730
Andrakaraka	63.39	34.06	175.00	57.77	16.82	39.27	730
Betaligny	25.61	76.71	212.00	177.75	3.36	66.12	730

[2] Sources and effects of ionizing radiation, United Nations Scientific Committee on the Effects of Atomic Radiation UNSCEAR 2000, Report to the General Assembly, with scientific annexes, United Nations New York, 2000

[3] World Health Organization. Derived intervention levels for radionuclides in food, 1988.

Consumption Profile	Fish (kg)	Fruits (kg)	Grains (kg)	Leaves (kg)	Prawn (kg)	Roots (kg)	Water (L)
Food Survey Average	37.57	93.66	187.25	130.29	3.96	71.04	730
Mandromo	62.41	125.13	197.52	129.20	1.92	82.49	730
Mangaiky	33.93	146.08	181.00	148.78	1.29	84.10	730
UNSCEAR	11.02	70.00	140.00	60.00	3.98	100.00	500
WHO African	11.02	45.20	127.40	25.90	3.98	134.80	700
WHO Madagascar	3.70	68.80	218.45	28.94	1.30	163.23	700
WHO Maximum	18.63	100.00	205.00	90.00	6.63	135.00	700

Figure 5 Adult Consumption Profiles, Food Survey and WHO/UNSCEAR Data, data in kg



1.7 Age Groups Modifying Factors

1.7.1 Consumption

Younger age groups consume less food and water than adults. UNSCEAR 2000 provides consumption data for ages Adult, child (10 year old) & infant (1 year old). Dose conversion factors are given by ICRP 119 for other age groups (less than 1, 5 and 15 year old).

To estimate intake for all age groups the average Age:Adult intake ratio was used as modifying factors to the adult consumption. Modifying factors are shown in **Table 3**. Note that for children under 1 years of age it was assumed that their primary food intake is from breast milk which was not included in the study.

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Table 3 Age Modifying Factors

Age Group	Food Consumption Factor	Water Consumption Factor
adult	1	1
15	0.83	0.875
10	0.66	0.75
5	0.5	0.6
1	0.34	0.5
< 1	0	0.15

1.7.2 Inhalation

Inhalation of dust varies depending on age. ICRP119 Breathing rates are displayed in **Table 4** Inhalation Rates of Age Groups for the different age groups analysed in this study. Yearly inhalation rates were used for the annual dose calculations.

Table 4 Inhalation Rates of Age Groups

Age	m3/day	m3/year
adult	22	8030
15	20	7300
10	15	5475
5	8.7	3175.5
1	5.2	1898
< 1	2.9	1058.5

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2. Dose Assessment

This section describes the dose assessment outcomes for each representative category and pathway groups as well as total overall dose.

For the representative categories, the dose is presented for the consumption profile of WHO Madagascar adult (WHOMad-Adult). Pathway group dose and total dose summarise all consumption profiles and ages. The doses presented do not distinguish between occupational or natural origin, it is an overall assessment.

Full radionuclide analysis results for water are presented in the technical **Appendix A4**. The average radionuclide concentrations reported in this appendix represent the result once the analysis decisions from Section 3 have been applied.

2.1 Pathway Group – Water

The water pathway group was a single representative category, drinking water.

Figure 6 Locations of water sampling points



2.1.1 Representative Category – Drinking Water

Table 5 and **Figures 7** to **10** represent the determined activity concentration by radionuclide and conversion to dose for representative category drinking water. Downgradient and Upgradient samples have also been represented separately to allow comparison.

Table 5 Representative Drinking Water Dose per radionuclide (WHOMad-Adult)

Radionuclide	Representative Bq/L	Annual Bq Ingested	Annual Dose mSv
Ac-228	0.00	2	0.00
Bi-210	0.01	5	0.00
Bi-212	0.00	1	0.00
Pb-210	0.01	5	0.00
Pb-212	0.00	1	0.00
Pb-214	0.00	2	0.00
Po-210	0.01	5	0.01
Ra-224	0.00	1	0.00
Ra-226	0.00	2	0.00
Ra-228	0.00	2	0.00
Th-228	0.00	1	0.00
Th-230	0.00	1	0.00
Th-232	0.00	1	0.00
U-234	0.01	9	0.00
U-238	0.01	9	0.00
Total			**0.01**

Figure 7 Activity concentration per radionuclide of the representative drinking water, Bq/L

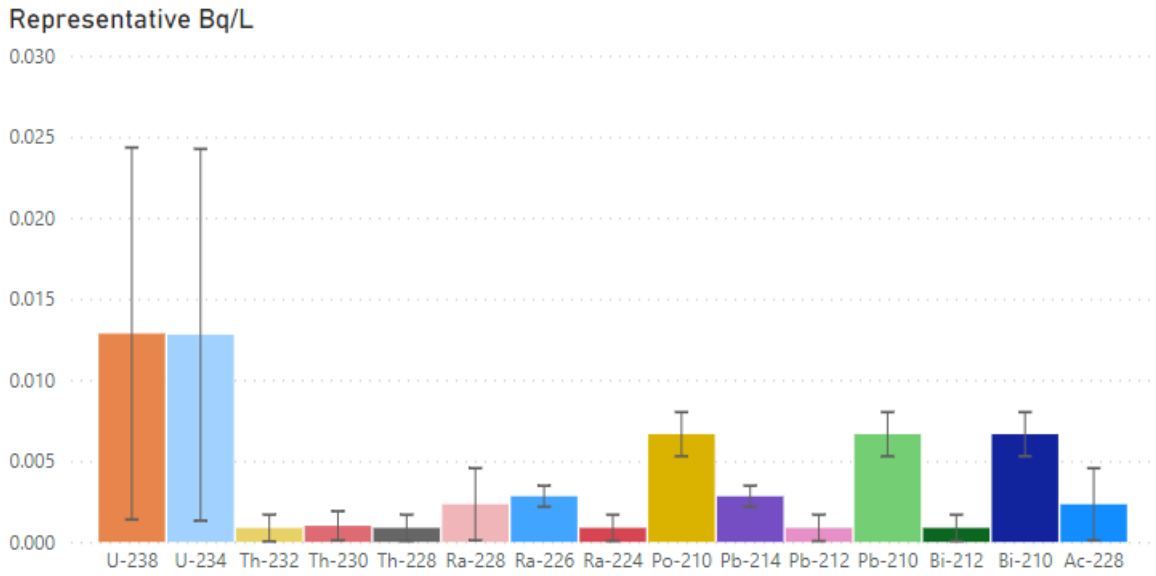

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Figure 8 Annual dose per radionuclide from representative water consumption (WHOMad-A), mSv/year

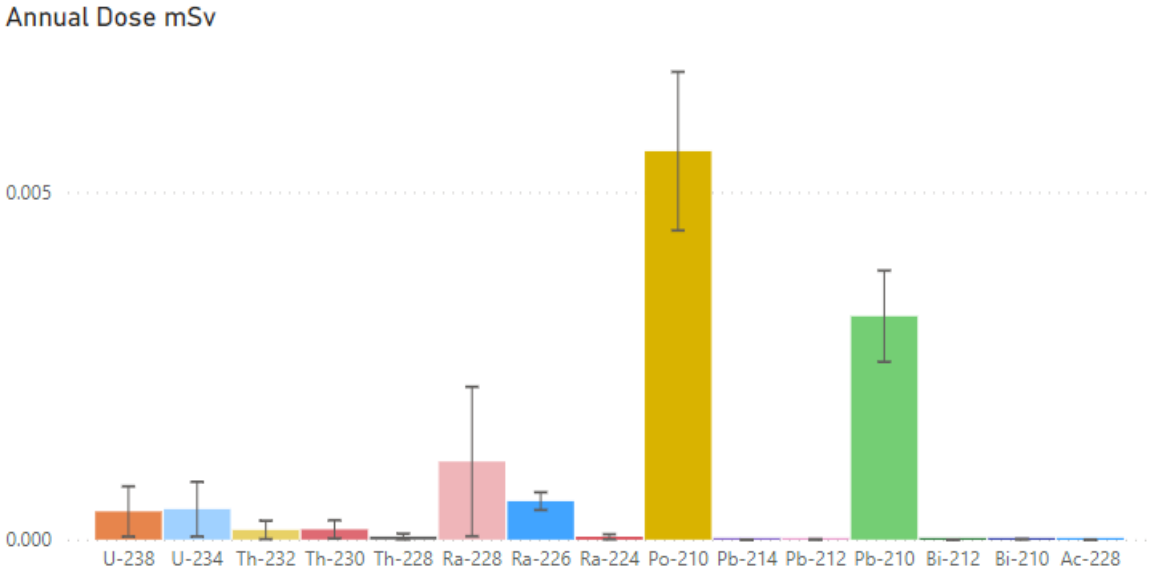


Figure 9 Activity concentration per radionuclide of the representative drinking water Upgradient and Downgradient, Bq/L

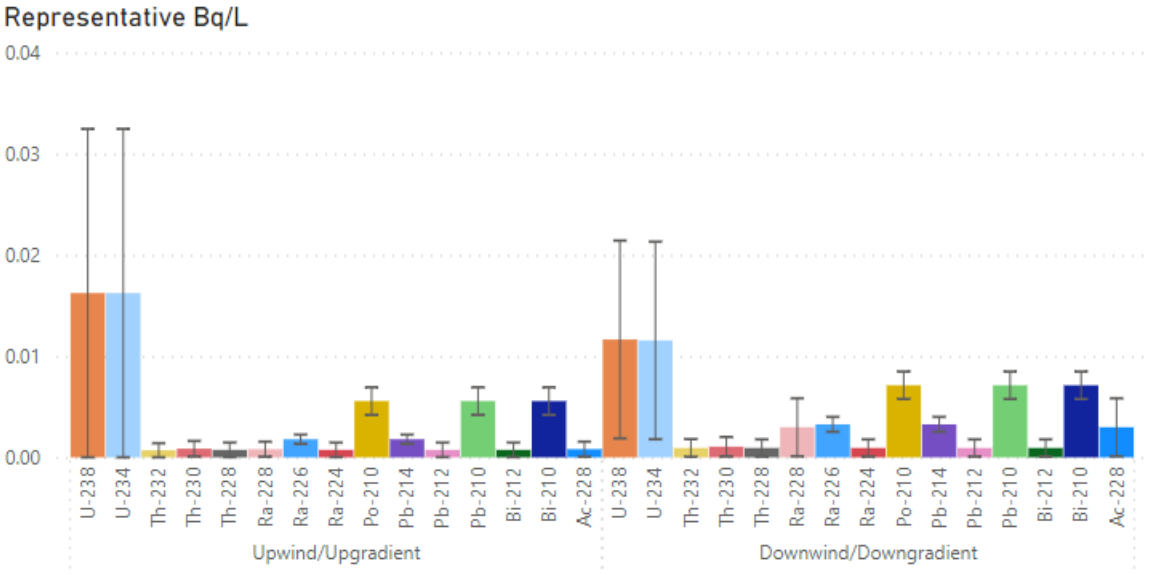
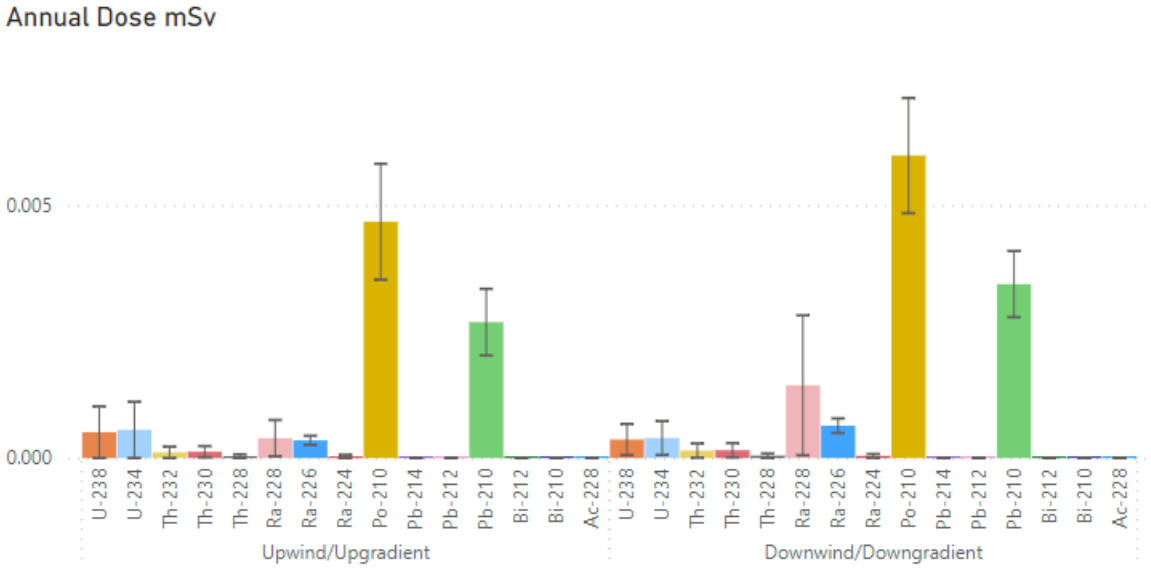


Figure 10 Annual dose per radionuclide from representative drinking water consumption Upgradient and Downgradient (WHOMad-Adult), mSv/year



2.1.2 Dose Profiles – Drinking Water

The doses from direct water consumption are relatively minor, below 0.1 mSv for all age groups and all consumption profiles. As water estimated consumption is the same for all food survey regions there is no difference between the dose profiles. Note that the reference consumption values for drinking water as reported by WHO and UNSCEAR are lower than the water consumption assumed in the study, for all consumption profiles.

Table 6 Annual Dose of all regions, mSv/year

Age	< 1		1		10		15		5		adult	
Consumption Region	mSv	+/-	mSv	+/-	mSv	+/-	mSv	+/-	mSv	+/-	mSv	+/-
Agnalambendra	0.05	0.02	0.04	0.01	0.02	0.01	0.03	0.01	0.02	0.01	0.01	0.00
Ampasy	0.05	0.02	0.04	0.01	0.02	0.01	0.03	0.01	0.02	0.01	0.01	0.00
Andrakaraka	0.05	0.02	0.04	0.01	0.02	0.01	0.03	0.01	0.02	0.01	0.01	0.00
Betaligny	0.05	0.02	0.04	0.01	0.02	0.01	0.03	0.01	0.02	0.01	0.01	0.00
Food Survey Average	0.05	0.02	0.04	0.01	0.02	0.01	0.03	0.01	0.02	0.01	0.01	0.00
Mandromo	0.05	0.02	0.04	0.01	0.02	0.01	0.03	0.01	0.02	0.01	0.01	0.00
Mangaiky	0.05	0.02	0.04	0.01	0.02	0.01	0.03	0.01	0.02	0.01	0.01	0.00
UNSCEAR	0.04	0.01	0.03	0.01	0.02	0.01	0.02	0.01	0.02	0.01	0.01	0.00
WHO African	0.05	0.02	0.04	0.01	0.02	0.01	0.03	0.01	0.02	0.01	0.01	0.00
WHO Madagascar	0.05	0.02	0.04	0.01	0.02	0.01	0.03	0.01	0.02	0.01	0.01	0.00
WHO Maximum	0.05	0.02	0.04	0.01	0.02	0.01	0.03	0.01	0.02	0.01	0.01	0.00
WHO Normalised	0.05	0.02	0.04	0.01	0.02	0.01	0.03	0.01	0.02	0.01	0.01	0.00

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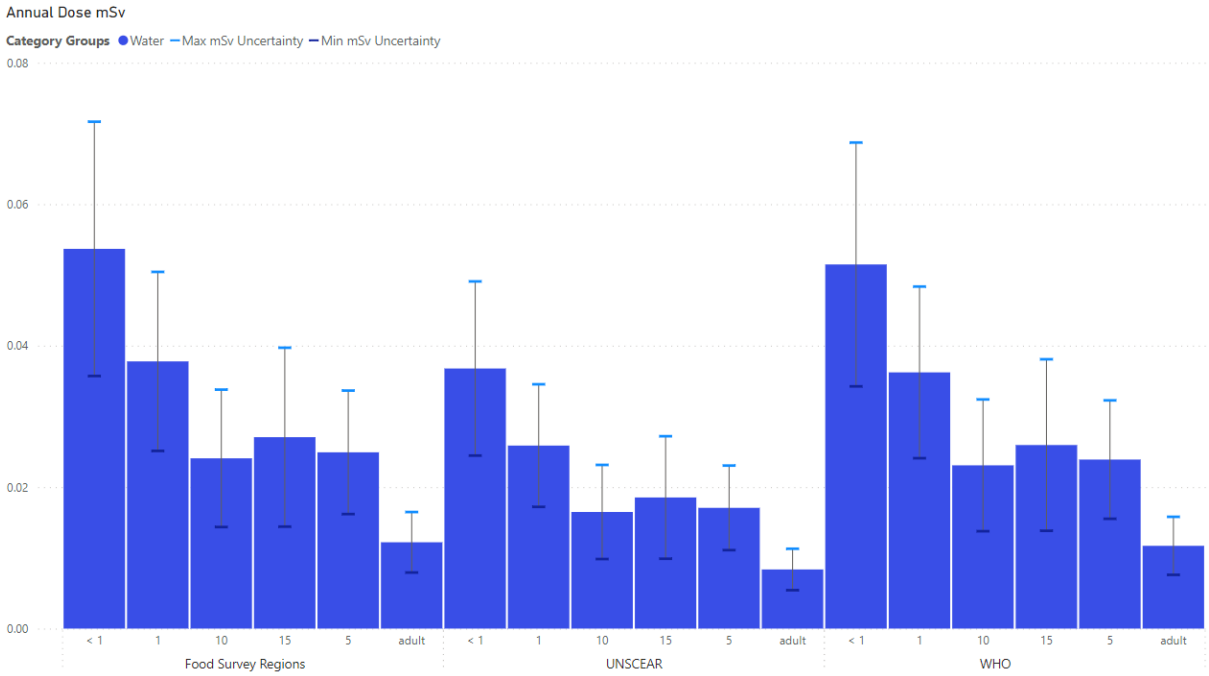
Figure 11 Annual dose comparison between age groups and consumption profiles, mSv/year



2.2 Pathway Group – Dust

The dust pathway group was considered as a single representative category, dust.

Figure 12 Locations of dust sampling points



2.2.1 Representative Category – Dust

Table 7 and **Figures 13** to **16** represent the determined activity concentration by radionuclide and conversion to dose for representative category dust. Downwind and Upwind samples have also been represented separately to allow comparison.

Table 7 Representative Dust Inhalation Dose per radionuclide (WHOMad-Adult)

Radionuclide	Representative mBq/m3	Annual Bq Ingested	Annual Dose mSv
Ac-228	0.08	0.64	0.00
Bi-210	0.56	4.50	0.00
Bi-212	0.08	0.64	0.00
Pb-210	0.56	4.50	0.00
Pb-212	0.08	0.64	0.00
Pb-214	0.01	0.09	0.00
Po-210	0.56	4.50	0.02
Ra-224	0.08	0.64	0.00
Ra-226	0.01	0.09	0.00
Ra-228	0.08	0.64	0.00
Th-228	0.08	0.64	0.03
Th-230	0.03	0.23	0.00
Th-232	0.06	0.45	0.01
U-234	0.01	0.07	0.00
U-238	0.01	0.07	0.00
Total			**0.06**

Figure 13 Activity concentration per radionuclide of the representative dust, Bq/L

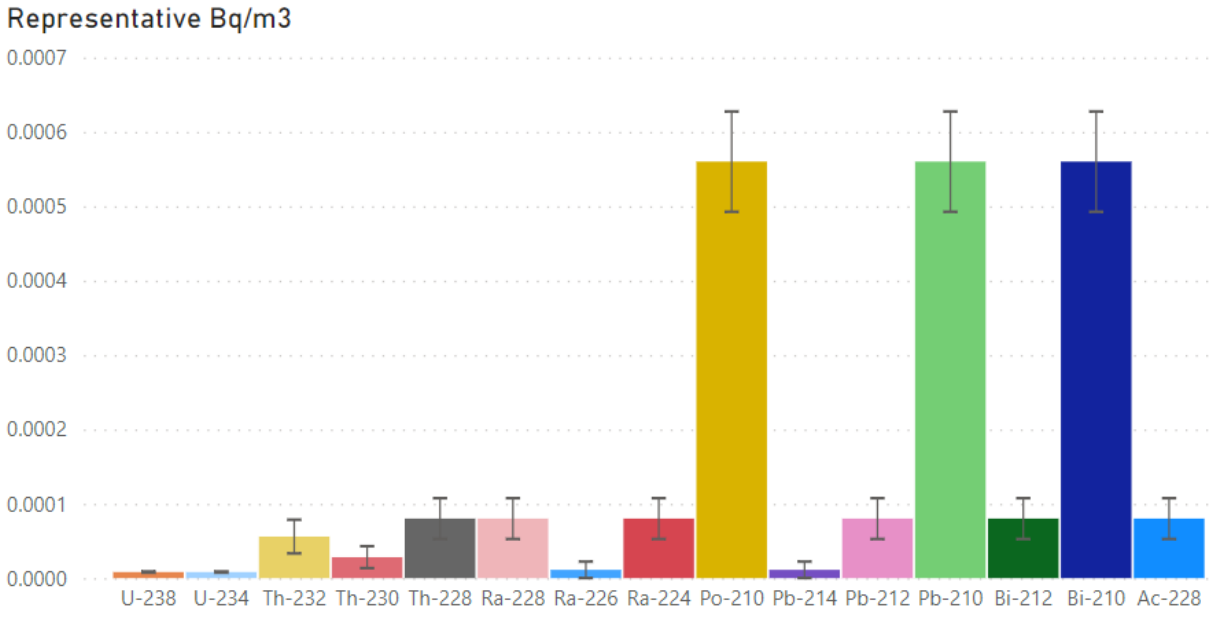


Figure 14 Annual dose per radionuclide from representative dust consumption (WHOMad-A), mSv/year

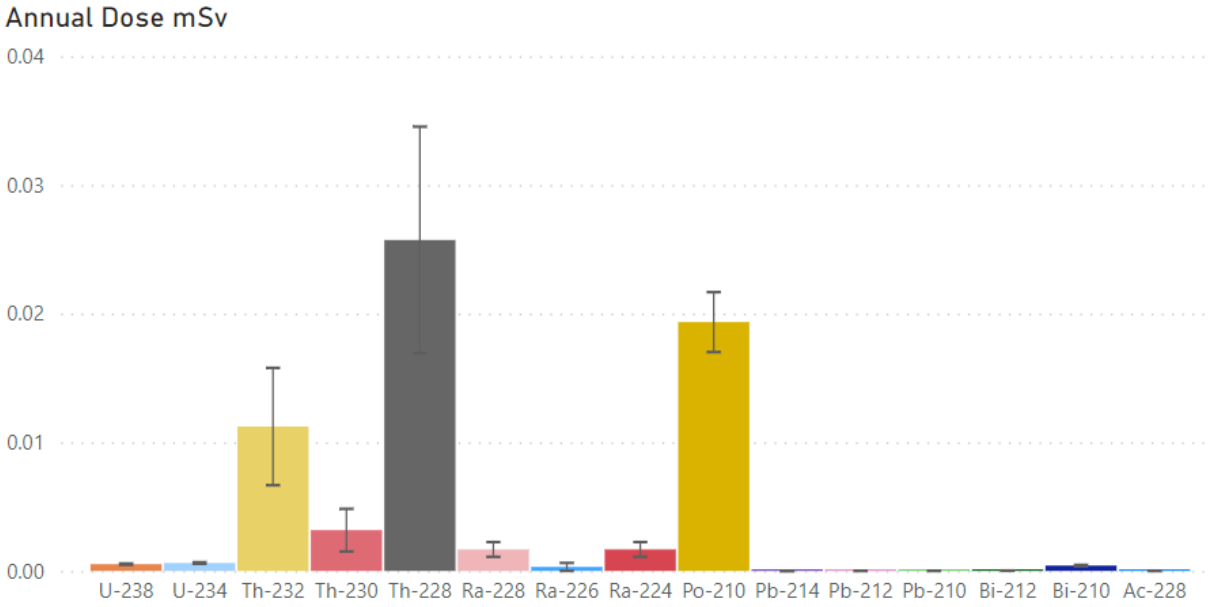


Figure 15 Activity concentration per radionuclide of the representative dust Downwind and Upwind, Bq/kg

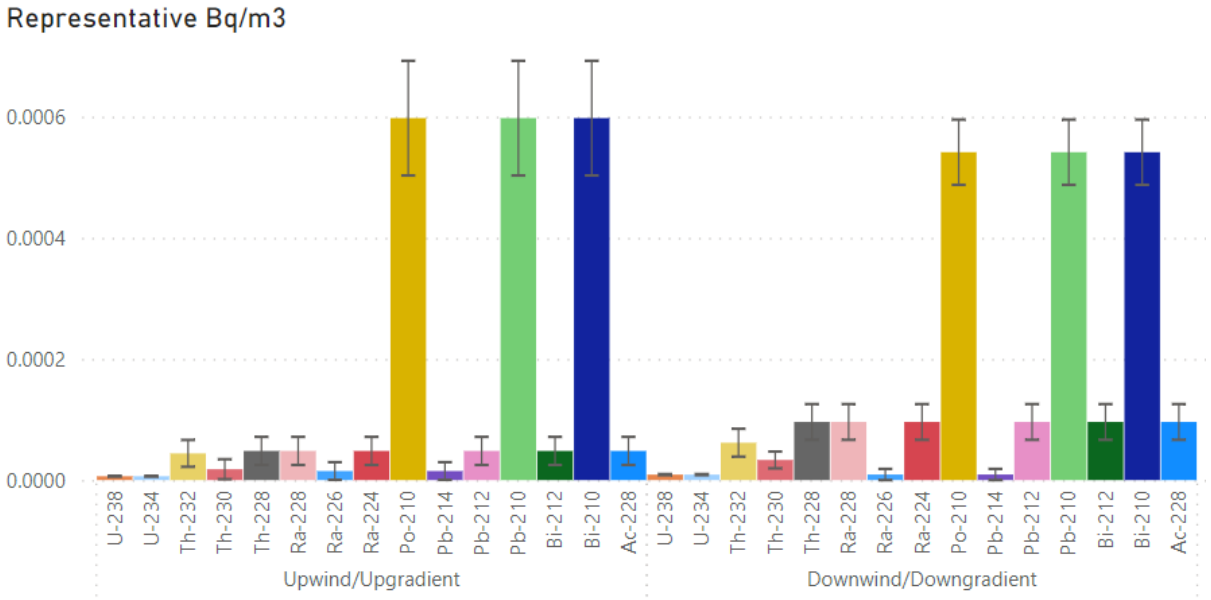
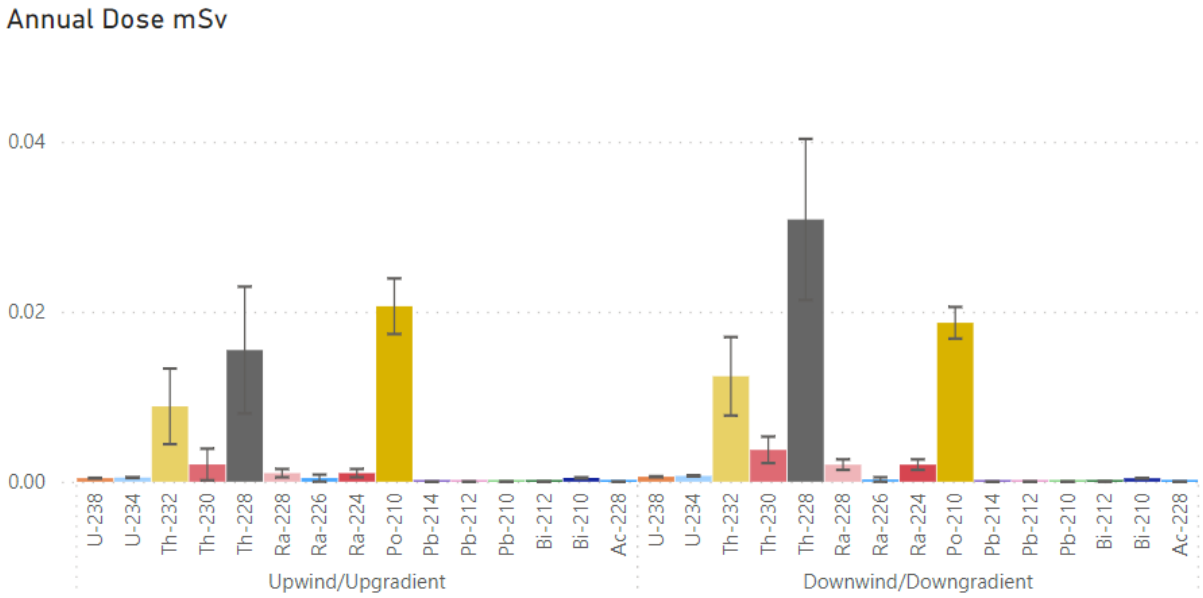


Figure 16 Annual dose per radionuclide from representative dust inhalation Downwind and Upwind (WHOMad-Adult), mSv/year



2.2.2 Dose Profiles – Dust

The doses from direct dust inhalation are not significant, they are below 0.1 mSv for all age groups and all consumption profiles. As estimated inhalation rates are the same for all food survey regions there is no difference between the dose profiles.

Figure 17 Annual Dose of all regions, mSv/year

Age	< 1		1		10		15		5		adult	
Consumption Region	mSv	+/-	mSv	+/-	mSv	+/-	mSv	+/-	mSv	+/-	mSv	+/-
Agnalambendra	0.03	0.01	0.05	0.01	0.06	0.02	0.07	0.02	0.05	0.01	0.06	0.02
Ampasy	0.03	0.01	0.05	0.01	0.06	0.02	0.07	0.02	0.05	0.01	0.06	0.02
Andrakaraka	0.03	0.01	0.05	0.01	0.06	0.02	0.07	0.02	0.05	0.01	0.06	0.02
Betaligny	0.03	0.01	0.05	0.01	0.06	0.02	0.07	0.02	0.05	0.01	0.06	0.02
Food Survey Average	0.03	0.01	0.05	0.01	0.06	0.02	0.07	0.02	0.05	0.01	0.06	0.02
Mandromo	0.03	0.01	0.05	0.01	0.06	0.02	0.07	0.02	0.05	0.01	0.06	0.02
Mangaiky	0.03	0.01	0.05	0.01	0.06	0.02	0.07	0.02	0.05	0.01	0.06	0.02
UNSCEAR	0.03	0.01	0.05	0.01	0.06	0.02	0.07	0.02	0.05	0.01	0.06	0.02
WHO African	0.03	0.01	0.05	0.01	0.06	0.02	0.07	0.02	0.05	0.01	0.06	0.02
WHO Madagascar	0.03	0.01	0.05	0.01	0.06	0.02	0.07	0.02	0.05	0.01	0.06	0.02
WHO Maximum	0.03	0.01	0.05	0.01	0.06	0.02	0.07	0.02	0.05	0.01	0.06	0.02
WHO Normalised	0.03	0.01	0.05	0.01	0.06	0.02	0.07	0.02	0.05	0.01	0.06	0.02

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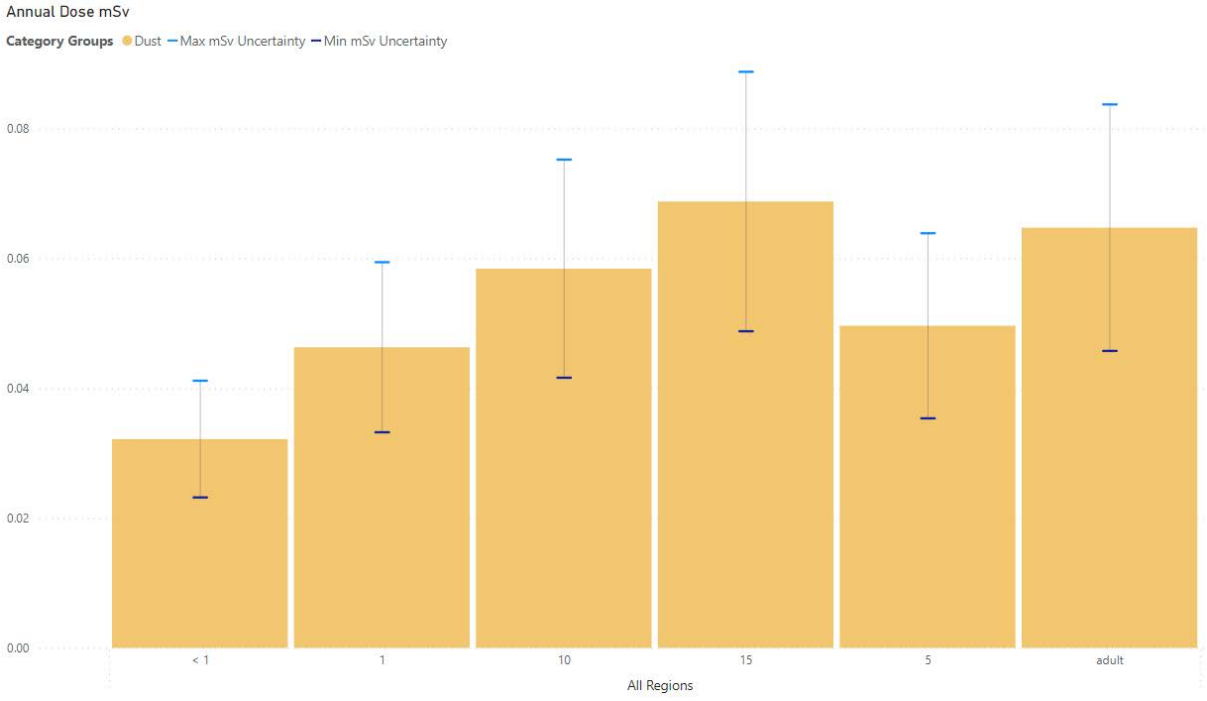
Figure 18 Annual dose from dust inhalation, mSv



2.3 Pathway Group – Land Crops

The land crops group had four representative categories: fruit, grains, roots, leaves.

The radionuclide analysis on land crops was done on edible portions only. For example, rind was removed prior to analysis. However, leaves were considered to be fully consumed (including leafstalks).

The radionuclide analysis returned concentrations measured in Bq/kg of edible crop.

Various types of crops were sampled in communities around the mine site. Due to limited number of samples, varieties of crop categories were averaged together to make representative categories. As such, all varieties of fruit were averaged to establish a representative fruit. The same process was applied to determine a representative grain, a representative root, and a representative leaf.

The main drivers of dose in crops are Po210, Pb210, Ra228 and Ra226. The radiums are significant due to their solubility and uptake characteristics and Po-210 and Pb-210 are significant as they are the long lived decay products of atmospheric radon. Other radionuclides do not significantly contribute to the overall dose.

2.3.1 Representative Category – Fruit

Table 8 and **Figures 20** to **23** represent the determined activity concentration by radionuclide and conversion to dose for representative category fruit. Downwind and Upwind samples have also been represented separately to allow comparison.

Figure 19 Sampling locations of land crops

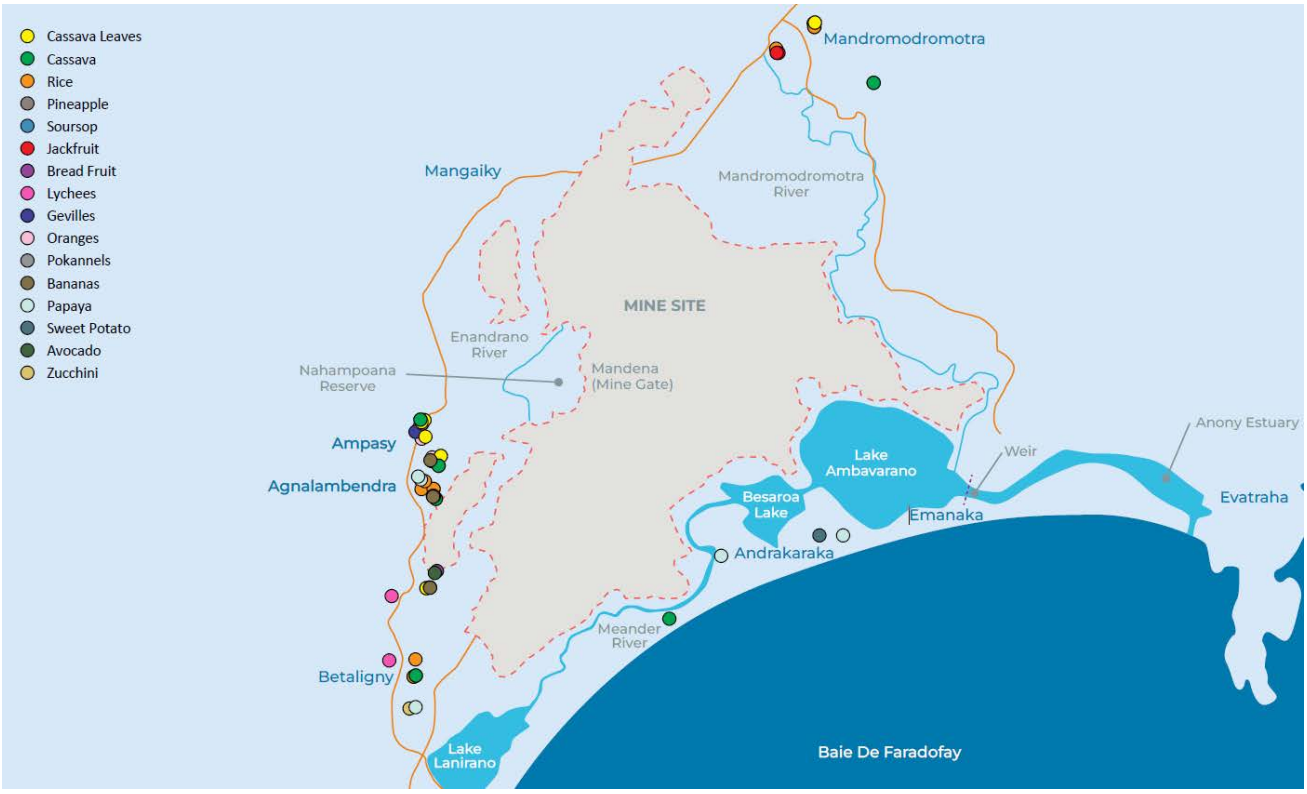


Table 8 Representative Fruit Dose by radionuclide (WHOMad-Adult)

Radionuclide	Representative Bq/Kg	Annual Bq Ingested	Annual Dose mSv
Ac-228	0.42	29	0.00
Bi-210	0.18	13	0.00
Bi-212	0.46	32	0.00
Pb-210	0.18	13	0.01
Pb-212	0.46	32	0.00
Pb-214	0.40	28	0.00
Po-210	0.51	35	0.04
Ra-224	0.46	32	0.00
Ra-226	0.40	28	0.01
Ra-228	0.42	29	0.02
Th-228	0.46	32	0.00
Th-230	0.20	13	0.00
Th-232	0.34	24	0.01
U-234	0.34	24	0.00
U-238	0.34	24	0.00
Total			**0.09**

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Figure 20 Activity concentration per radionuclide of the representative fruit, Bq/kg

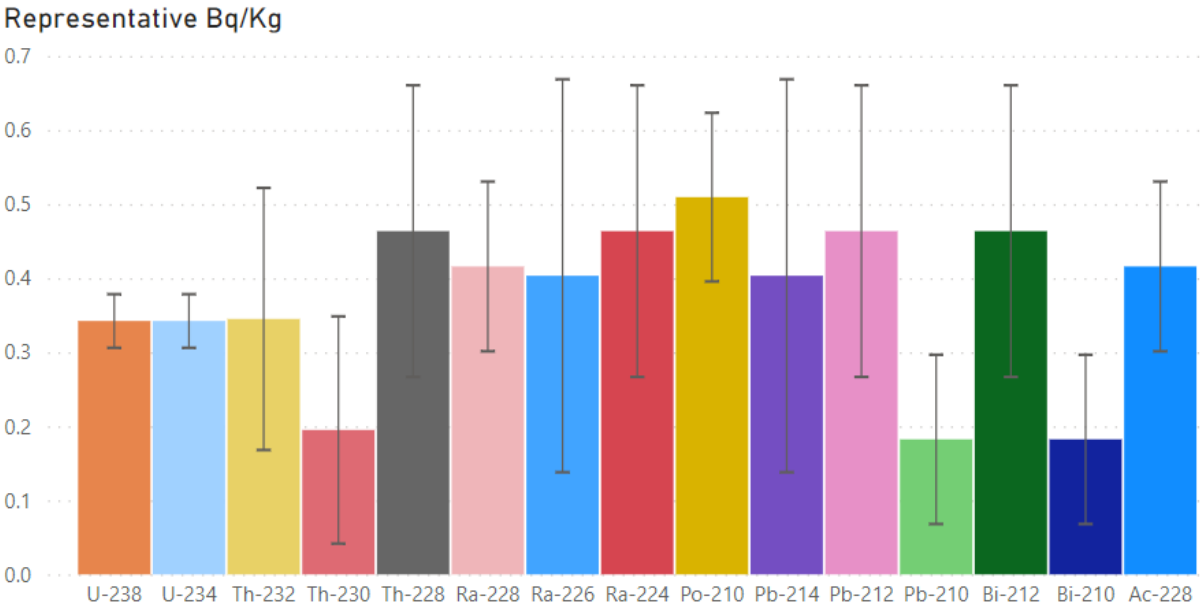


Figure 21 Annual dose per radionuclide from representative fruit consumption (WHOMad-A), mSv/year

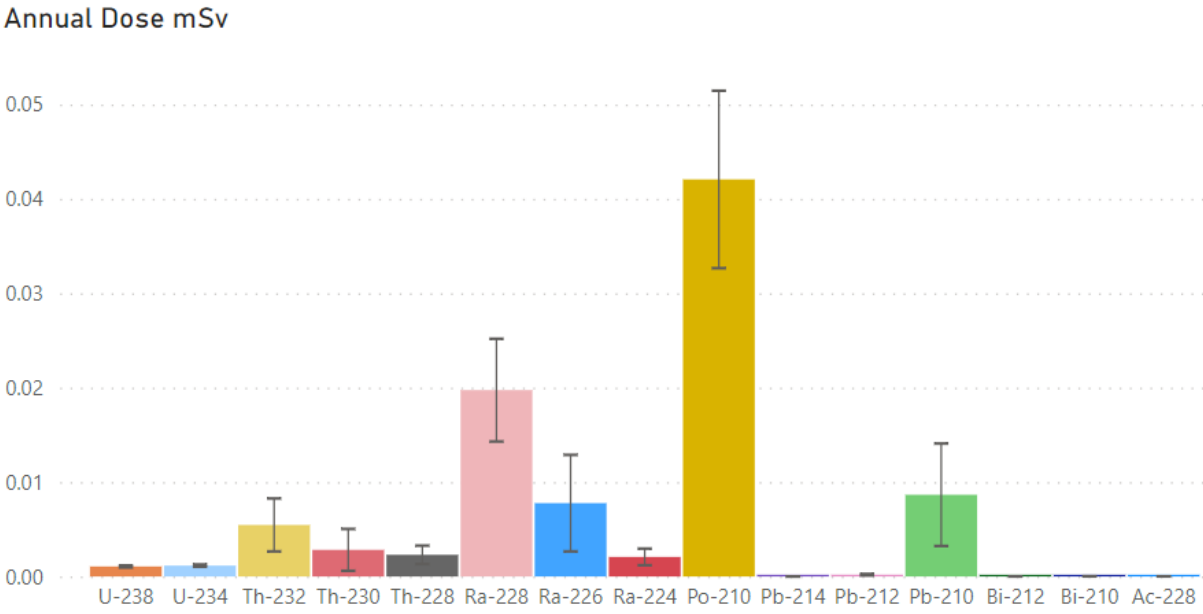


Figure 22 Activity concentration per radionuclide of the representative fruit Downwind and Upwind, Bq/kg

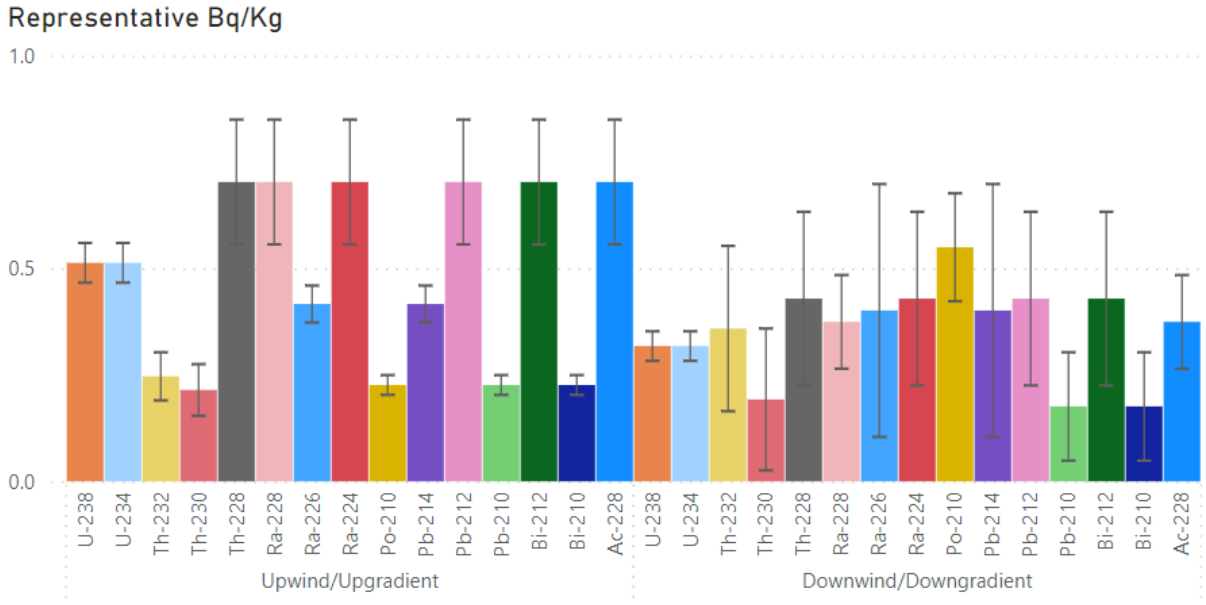
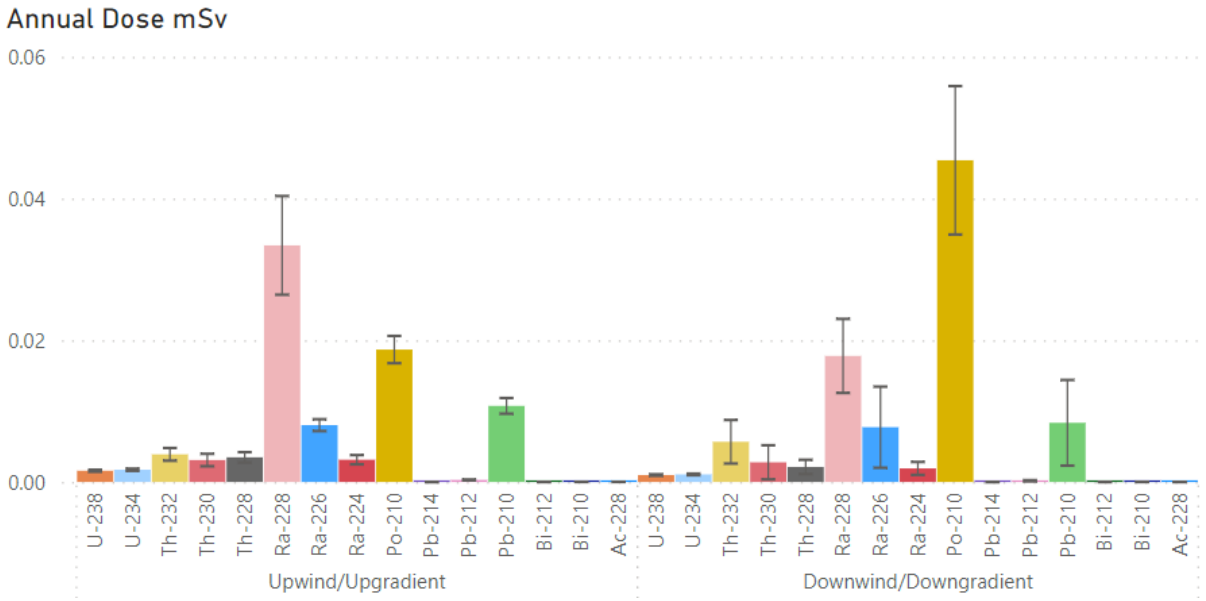


Figure 23 Annual dose per radionuclide from representative fruit consumption Downwind and Upwind (WHOMad-Adult), mSv/year



2.4 Representative Category – Grains

Table 9 and **Figures 24** to **27** represent the determined activity concentration by radionuclide and conversion to dose for representative category grains. Downwind and Upwind samples have also been represented separately to allow comparison.

Table 9 Representative Grain Dose per radionuclide (WHOMad-Adult)

Radionuclide	Representative Bq/kg	Annual Bq Ingested	Annual Dose mSv
Ac-228	2.12	463	0.00
Bi-210	0.85	186	0.00
Bi-212	1.19	259	0.00
Pb-210	0.85	186	0.13
Pb-212	1.19	259	0.00
Pb-214	0.69	150	0.00
Po-210	0.67	146	0.18
Ra-224	1.19	259	0.02
Ra-226	0.88	193	0.05
Ra-228	2.12	463	0.32
Th-228	1.19	259	0.02
Th-230	0.76	166	0.03
Th-232	0.77	169	0.04
U-234	0.18	39	0.00
U-238	0.18	39	0.00
Total			**0.79**

Figure 24 Activity concentration per radionuclide of the representative grain, Bq/kg

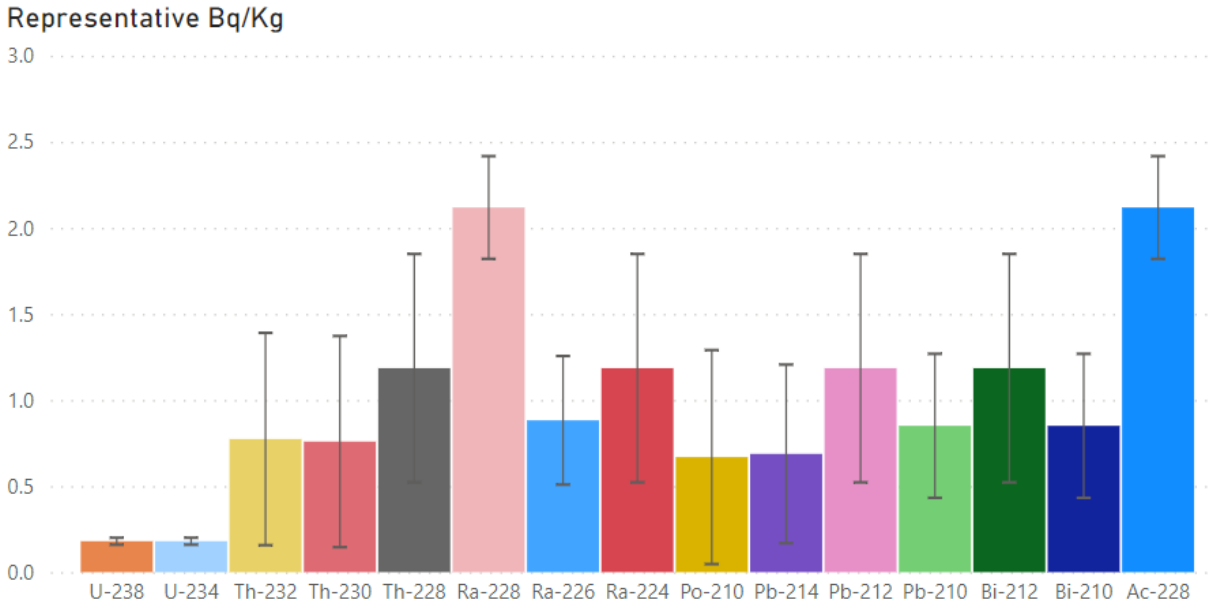


Figure 25 Annual dose per radionuclide from representative grain consumption (WHOMad-A), mSv/year

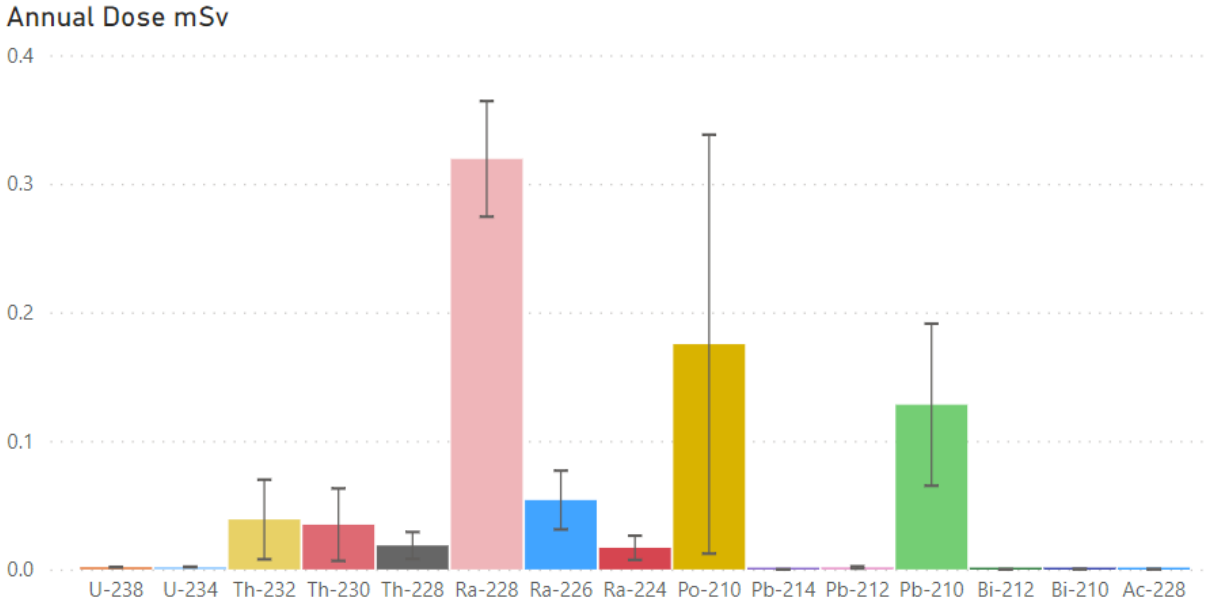


Figure 26 Activity concentration per radionuclide comparison between upwind and downwind representative grain samples, Bq/kg

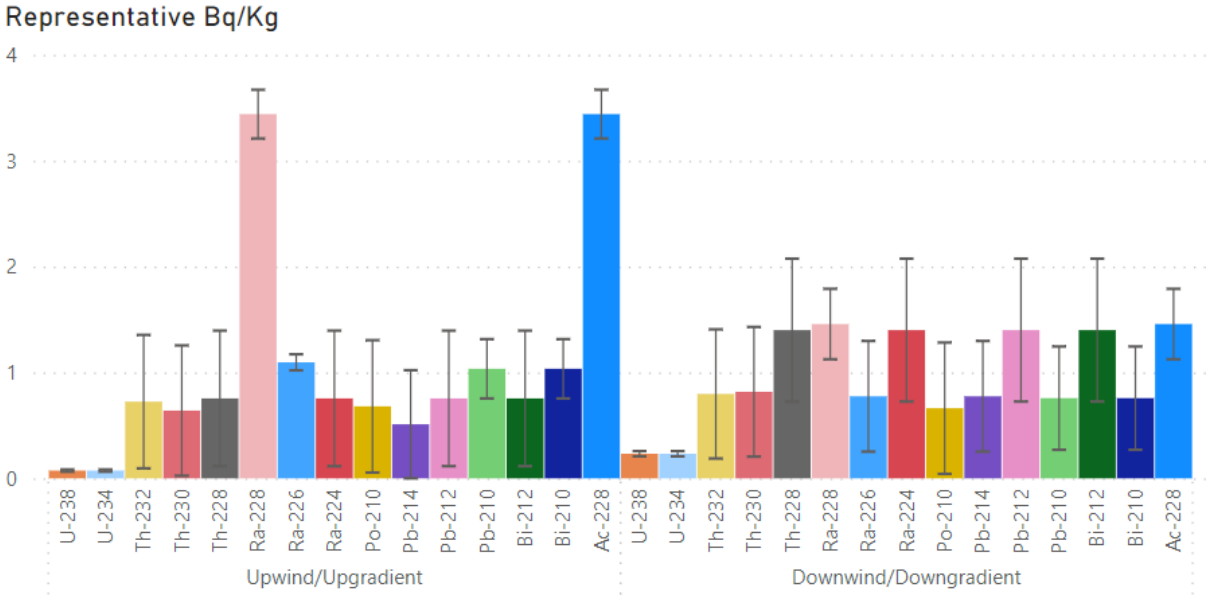


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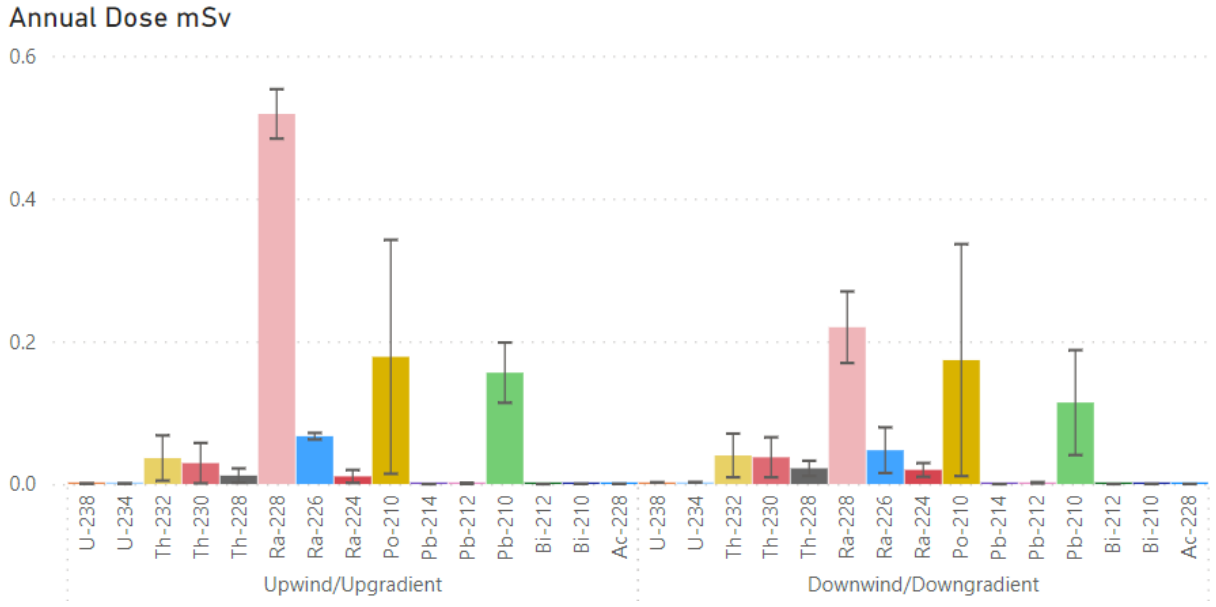
Figure 27 Annual dose per radionuclide comparison between downwind and upwind grain consumption (WHOMad-Adult), mSv/year



2.4.1 Representative Category - Roots

Table 10 and **Figures 28** to **31** represent the determined activity concentration by radionuclide and conversion to dose for representative category roots. Downwind and Upwind samples have also been represented separately to allow comparison.

Table 10 Representative Root Dose per radionuclide (WHOMad-Adult)

Radionuclide	Representative Bq/kg	Annual Bq Ingested	Annual Dose mSv
Ac-228	0.40	65	0.00
Bi-210	0.63	103	0.00
Bi-212	0.43	70	0.00
Pb-210	0.63	103	0.07
Pb-212	0.43	70	0.00
Pb-214	0.50	81	0.00
Po-210	0.64	104	0.12
Ra-224	0.43	70	0.00
Ra-226	0.50	81	0.02
Ra-228	0.40	65	0.04
Th-228	0.43	70	0.01
Th-230	0.38	61	0.01
Th-232	0.35	58	0.01
U-234	0.98	160	0.01
U-238	0.98	160	0.01
Total			**0.32**

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Figure 28 Activity concentration per radionuclide of the representative root, Bq/kg

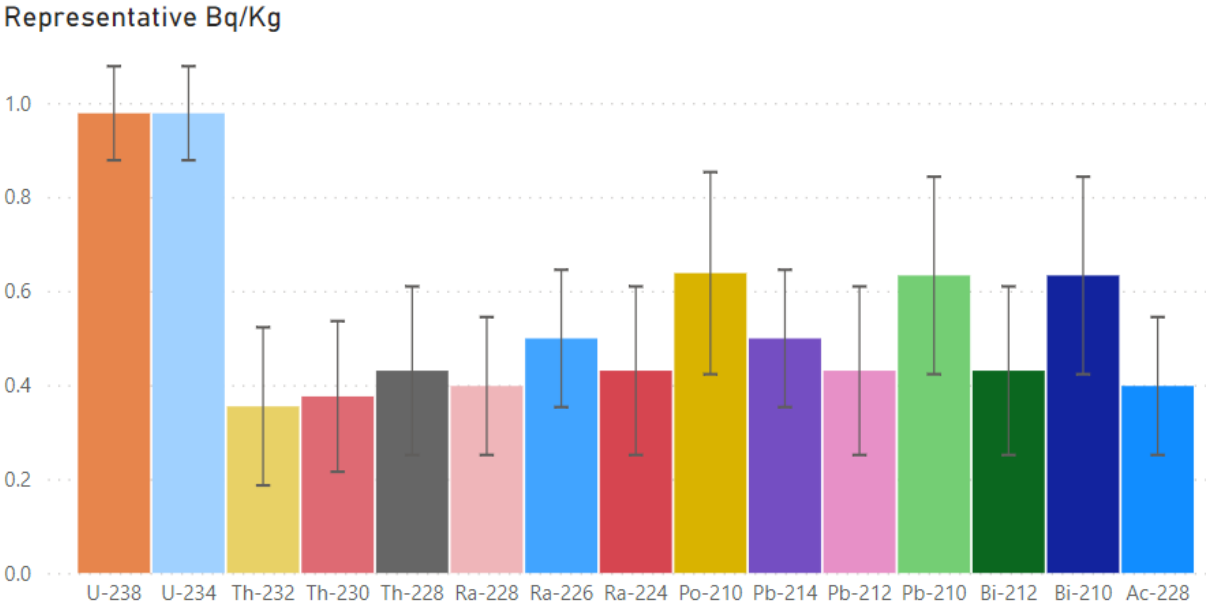


Figure 29 Annual dose per radionuclide from representative root consumption (WHOMad-Adult), mSv/year

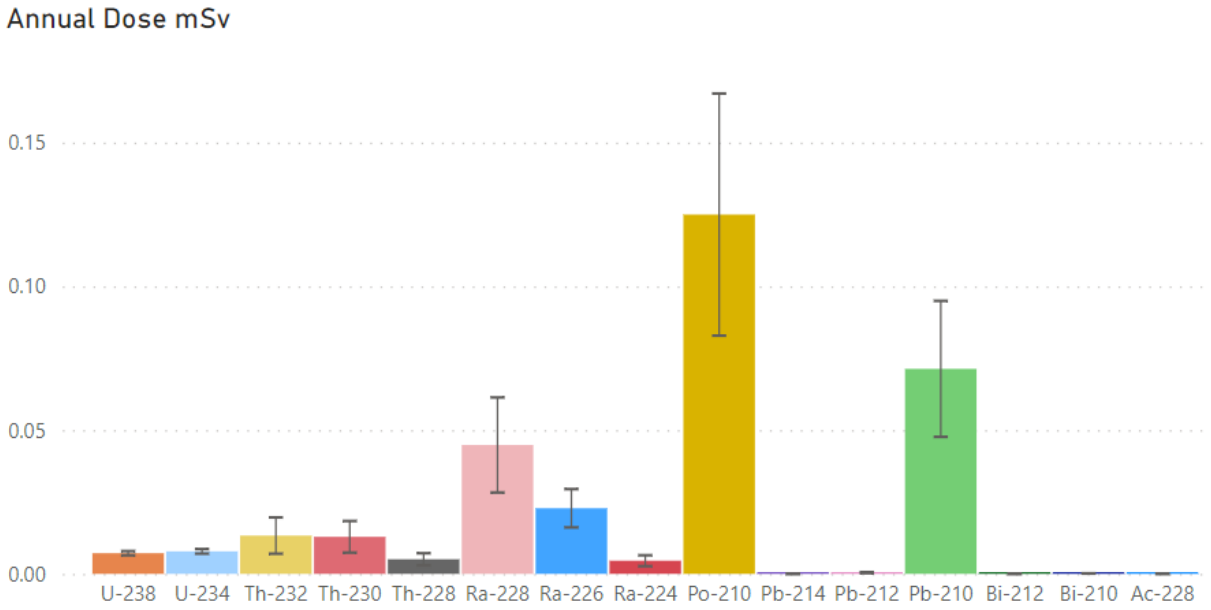


Figure 30 Activity concentration per radionuclide of the representative root Downwind and Upwind, Bq/kg

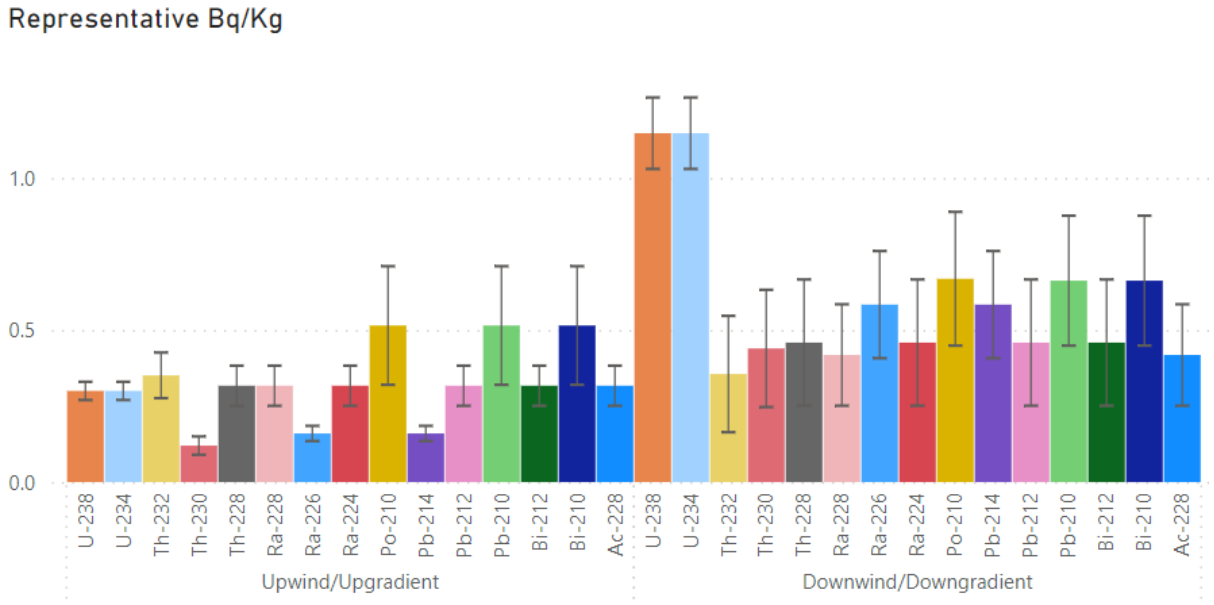
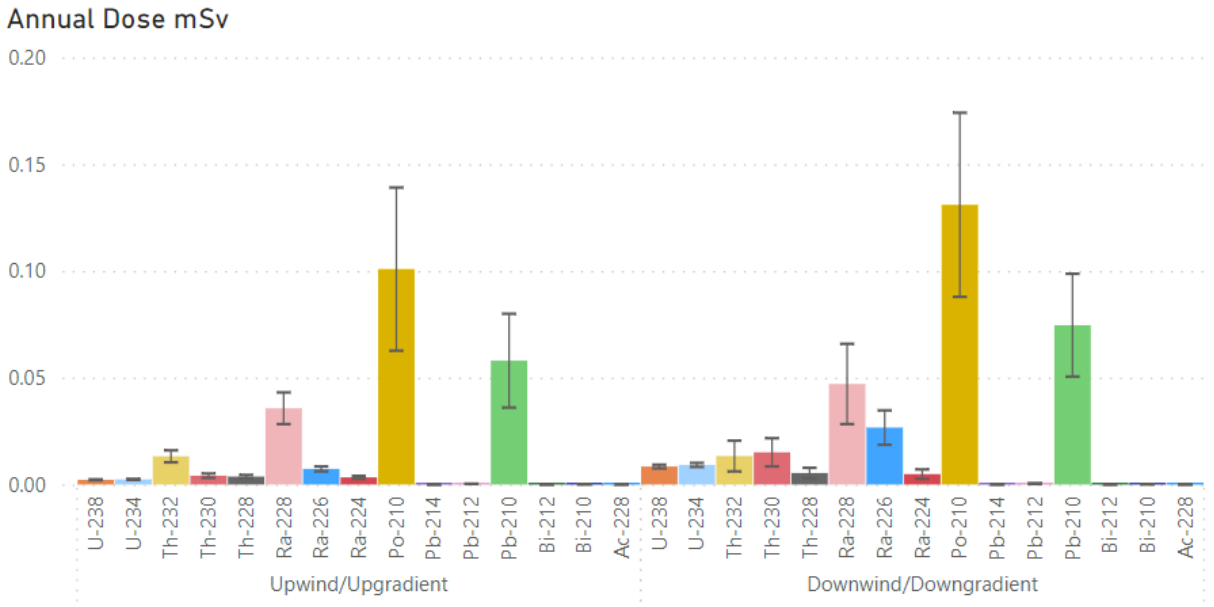


Figure 31 Annual dose per radionuclide from representative root consumption Downwind and Upwind (WHOMad-Adult), mSv/year



2.4.2 Representative Category – Leaves

Table 11 and **Figures 32** to **35** represent the determined activity concentration by radionuclide and conversion to dose for representative category leaves. Downwind and Upwind samples have also been represented separately to allow comparison.

Table 11 Representative Leaves Dose per radionuclide (WHOMad-Adult)

Radionuclide	Representative Bq/kg	Annual Bq Ingested	Annual Dose mSv
Ac-228	1.02	29	0.00
Bi-210	3.63	105	0.00
Bi-212	0.78	23	0.00
Pb-210	3.63	105	0.07
Pb-212	0.78	23	0.00
Pb-214	0.81	23	0.00
Po-210	4.28	124	0.15
Ra-224	0.78	23	0.00
Ra-226	0.81	23	0.01
Ra-228	1.02	29	0.02
Th-228	0.78	23	0.00
Th-230	0.53	15	0.00
Th-232	0.55	16	0.00
U-234	0.89	26	0.00
U-238	0.89	26	0.00
Total			**0.26**

Figure 32 Activity concentration per radionuclide of the representative leaves, Bq/kg

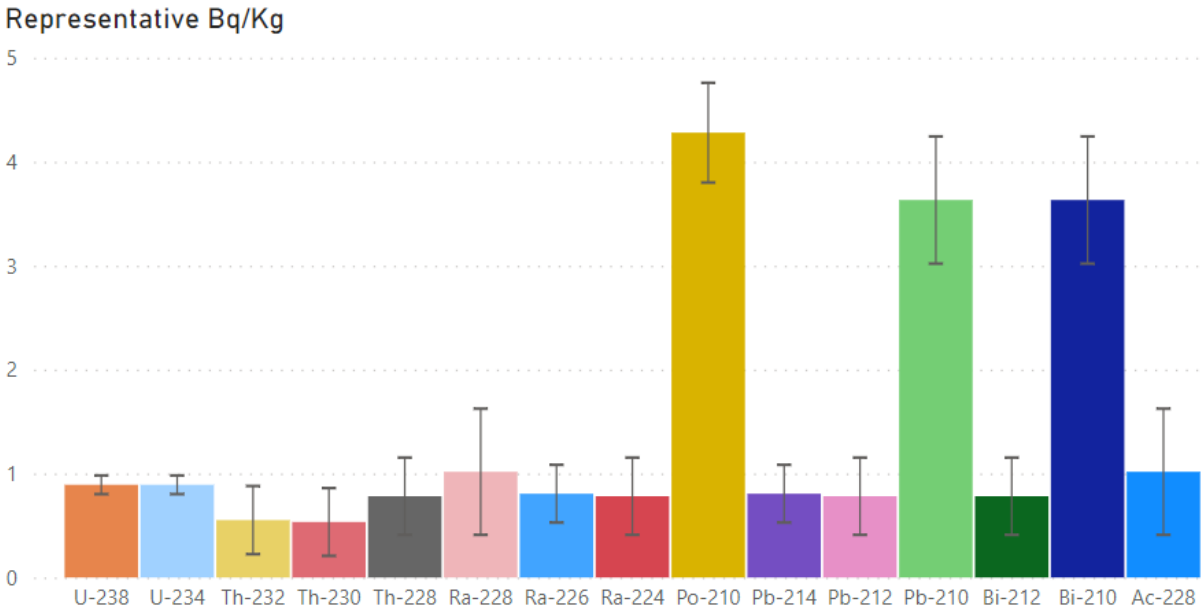


Figure 33 Annual dose per radionuclide from representative leaves consumption (WHOMad-Adult), mSv/year

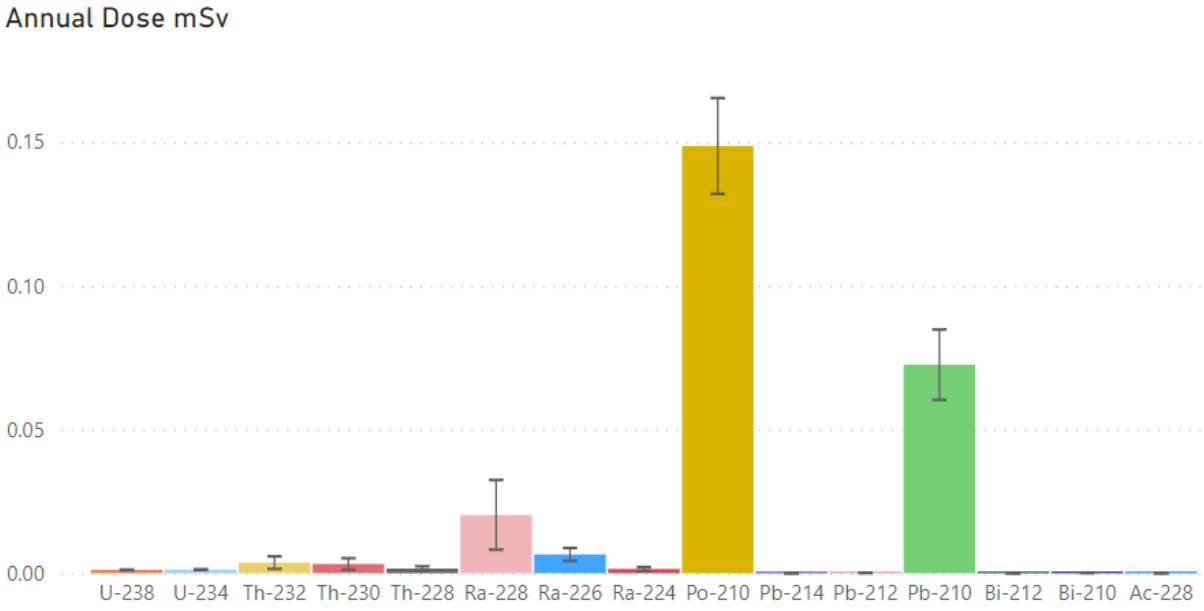


Figure 34 Activity concentration per radionuclide of the representative leaves Downwind and Upwind, Bq/kg

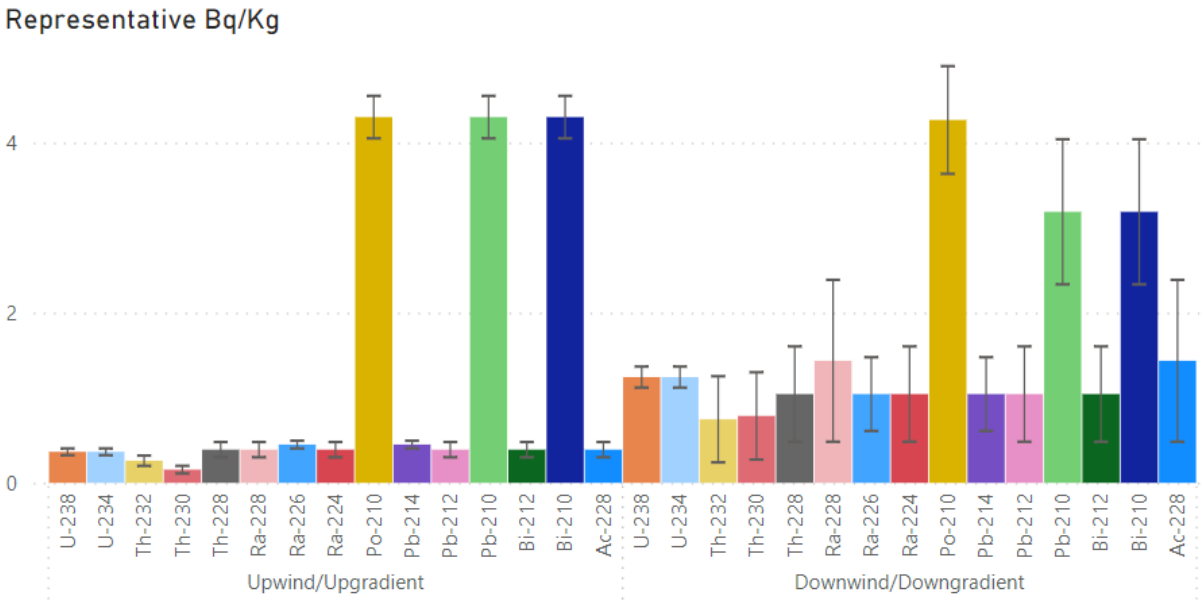


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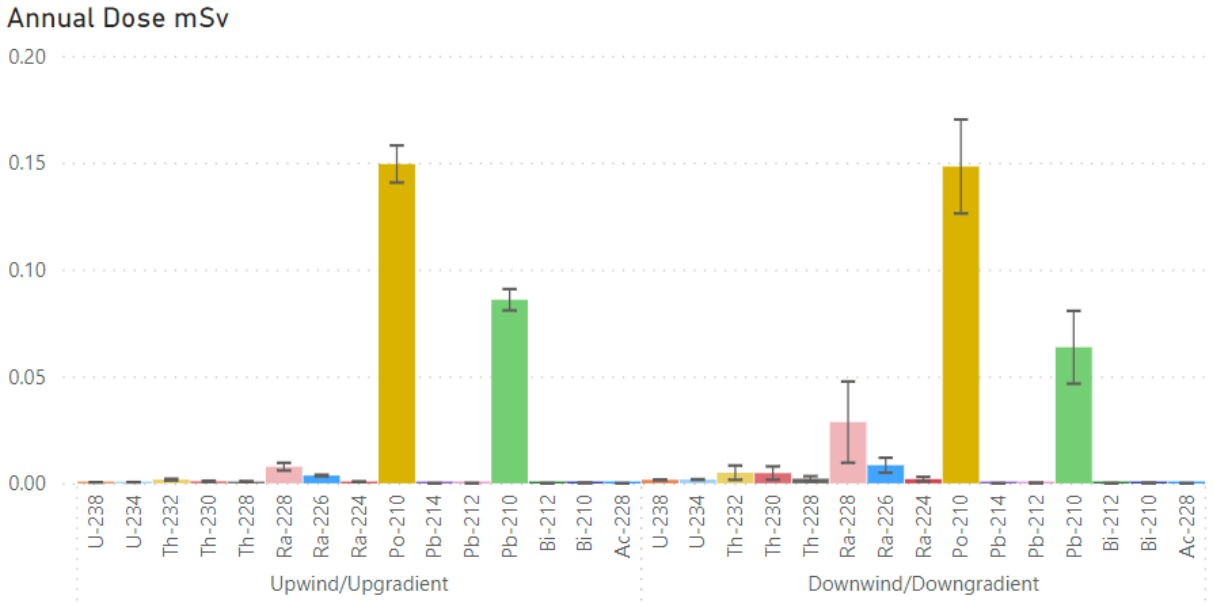
Figure 35 Annual dose per radionuclide from representative leaves consumption Downwind and Upwind (WHOMad-Adult), mSv/year



2.4.3 Dose Profiles – Land Crops

The doses from ingestion of land crops are a significant contributor to overall dose, with a dose range of 1.02 – 2.60 mSv per year for an adult, depending on consumption profile.

The most critical age group for land crops is 15 year olds, with an annual dose range of 2.92 – 6.48 mSv per year, depending on consumption profile.

Table 12 Annual Dose of land crops of all regions, mSv/year

Age	< 1		1		10		15		5		adult	
Consumption Region	mSv	+/-	mSv	+/-	mSv	+/-	mSv	+/-	mSv	+/-	mSv	+/-
Agnalambendra	0.00	0.00	5.25	1.45	4.61	1.30	5.97	1.71	4.28	1.19	2.37	0.69
Ampasy	0.00	0.00	4.17	1.17	3.68	1.05	4.80	1.38	3.40	0.97	1.88	0.56
Andrakaraka	0.00	0.00	2.83	0.91	2.65	0.80	3.63	1.03	2.34	0.75	1.28	0.44
Betaligny	0.00	0.00	5.77	1.56	5.03	1.40	6.48	1.84	4.69	1.29	2.60	0.75
Food Survey Average	0.00	0.00	4.69	1.32	4.15	1.18	5.41	1.55	3.82	1.09	2.12	0.63
Mandromo	0.00	0.00	4.89	1.40	4.34	1.25	5.69	1.64	3.99	1.15	2.21	0.67
Mangaiky	0.00	0.00	5.22	1.43	4.56	1.29	5.90	1.71	4.24	1.18	2.36	0.69
UNSCEAR	0.00	0.00	2.94	0.91	2.69	0.81	3.61	1.05	2.42	0.75	1.34	0.44
WHO African	0.00	0.00	2.22	0.77	2.11	0.67	2.92	0.86	1.84	0.63	1.02	0.37
WHO Madagascar	0.00	0.00	3.21	1.16	3.11	1.01	4.40	1.29	2.67	0.95	1.46	0.56
WHO Maximum	0.00	0.00	4.30	1.33	3.92	1.18	5.26	1.53	3.53	1.09	1.95	0.64
WHO Normalised	0.00	0.00	2.94	0.91	2.69	0.81	3.61	1.05	2.42	0.75	1.34	0.44

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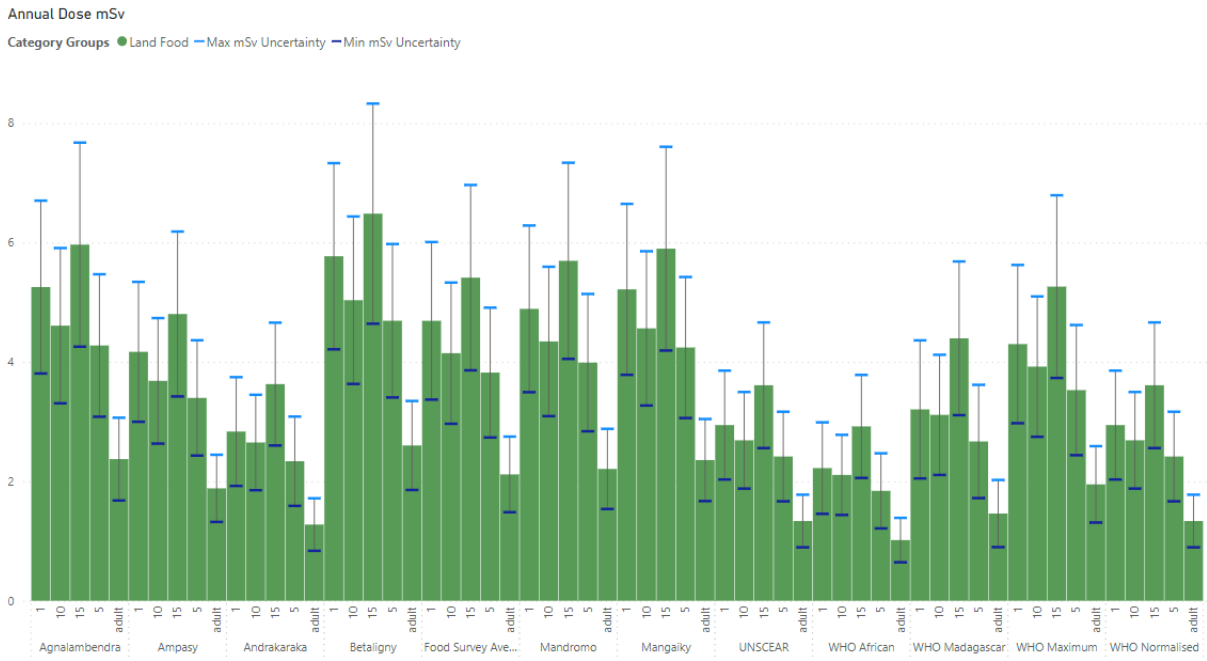
Figure 36 Dose comparison by age group between consumption profiles from land crop consumption mSv/year



2.5 Pathway Group - Aquatic Foods

The aquatic food group has two representative categories, fish and prawns.

Figure 37 Sampling locations of Aquatic Foods



2.5.1 Representative Category – Fish

Table 13 and **Figures 38** to **41** represent the determined activity concentration per radionuclide and conversion to dose for representative category fish. Downgradient and Upgradient samples have also been represented separately to allow comparison.

Table 13 Representative Fish Dose per radionuclide (WHOMad-Adult)

Radionuclide	Representative Bq/kg	Annual Bq Ingested	Annual Dose mSv
Ac-228	10.98	41	0.00
Bi-210	2.33	9	0.00
Bi-212	3.23	12	0.00
Pb-210	2.33	9	0.01
Pb-212	3.23	12	0.00
Pb-214	1.49	6	0.00
Po-210	12.62	47	0.06
Ra-224	3.23	12	0.00
Ra-226	2.71	10	0.00
Ra-228	10.98	41	0.03
Th-228	3.23	12	0.00
Th-230	0.81	3	0.00
Th-232	1.47	5	0.00
U-234	0.92	3	0.00
U-238	0.92	3	0.00
Total			**0.10**

Figure 38 Activity concentration per radionuclide of the representative fish, Bq/kg

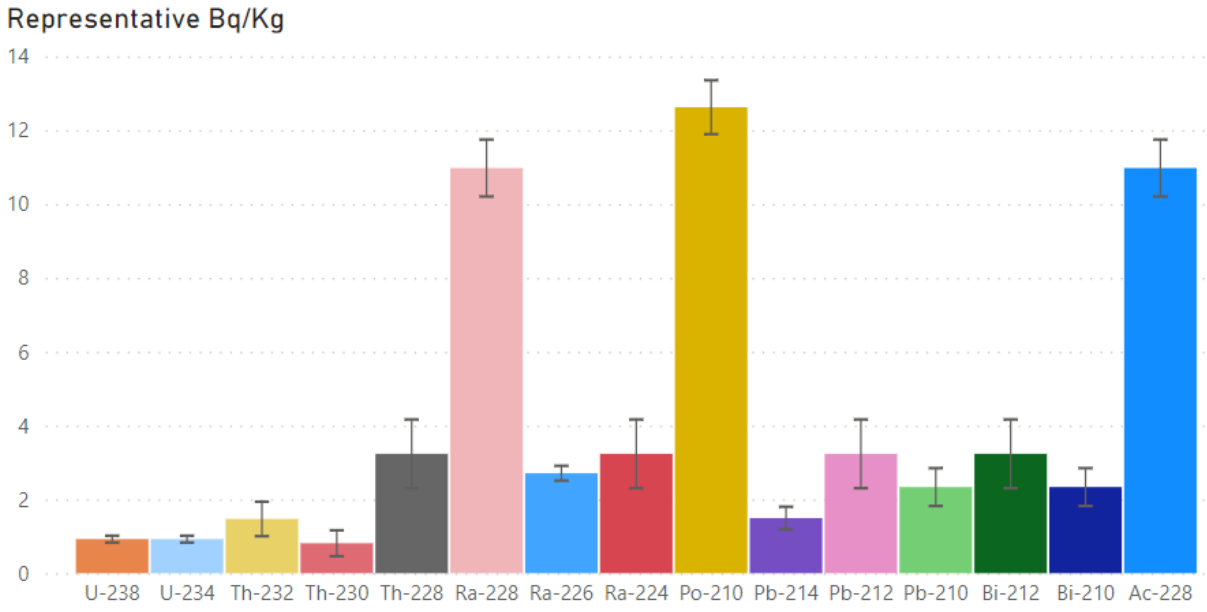


Figure 39 Annual dose per radionuclide from representative fish consumption (WHOMad-Adult), mSv/year

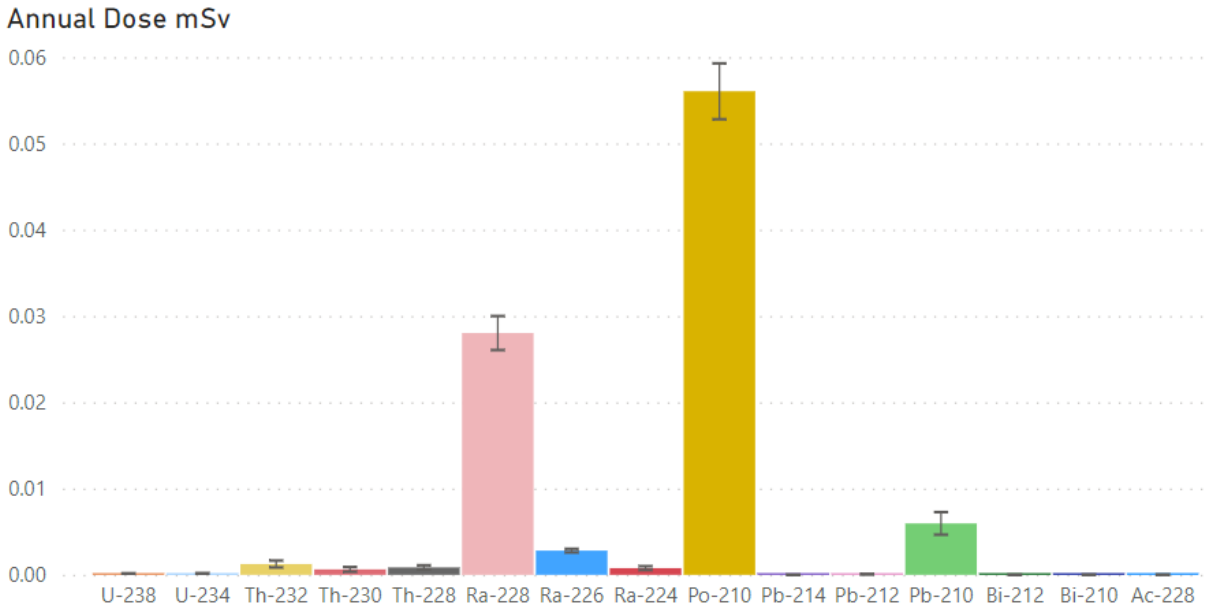


Figure 40 Activity concentration per radionuclide of the representative fish Upgradient and Downgradient, Bq/kg

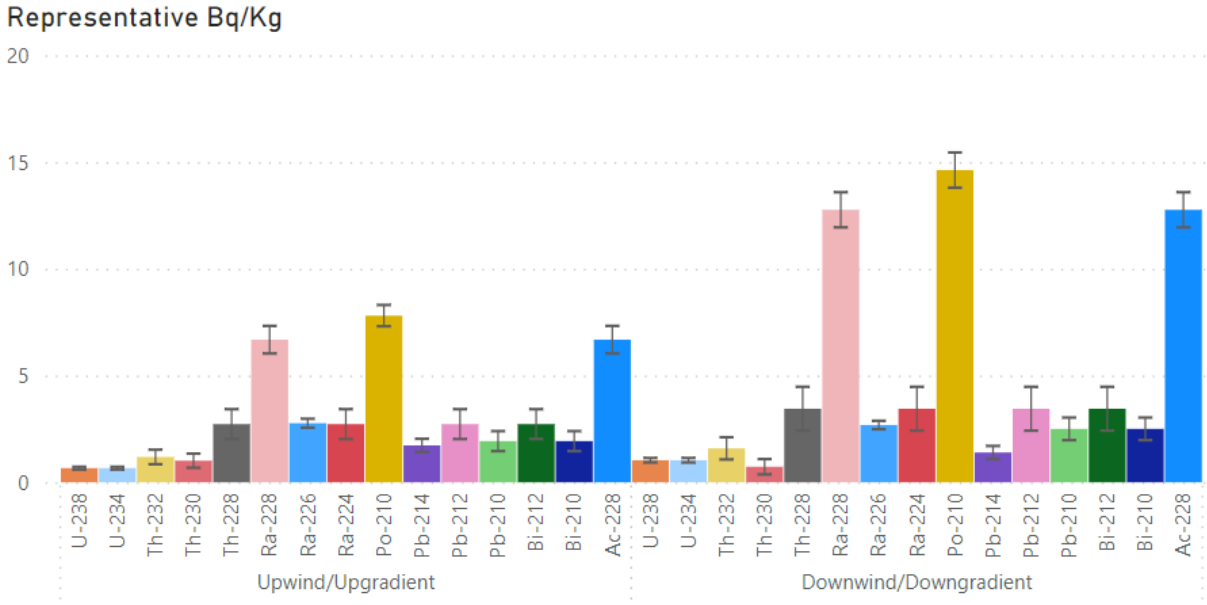
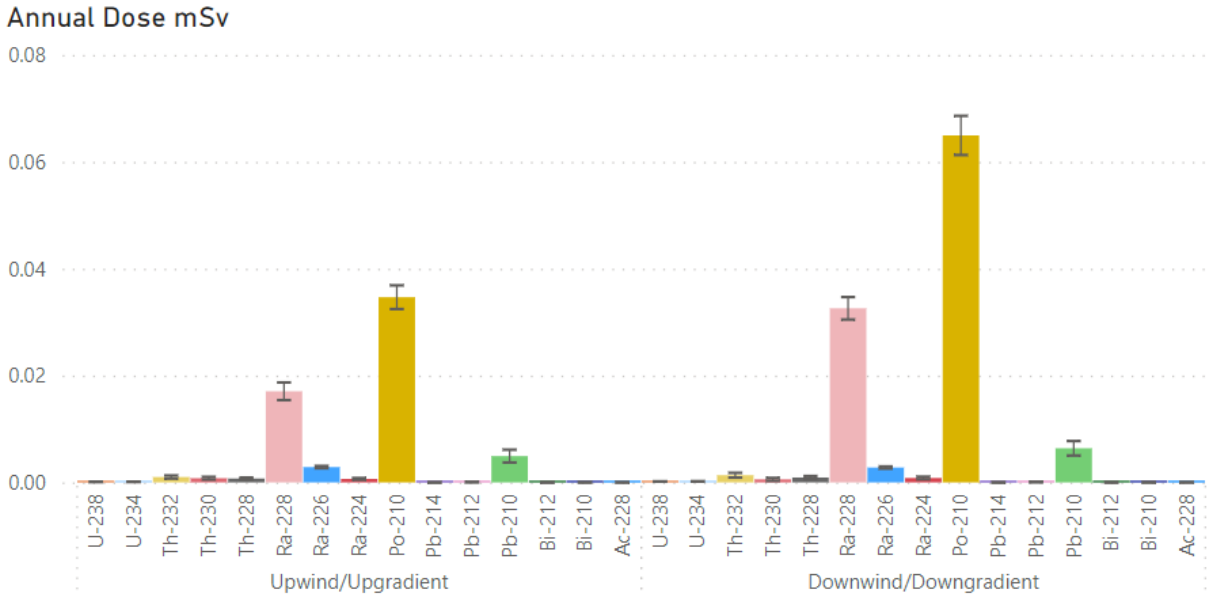


Figure 41 Annual dose per radionuclide from representative fish consumption Upgradient and Downgradient (WHOMad-Adult), mSv/year



2.5.2 Representative Category – Prawns

Table 14 and **Figures 42** to **45** represent the determined activity concentration and conversion to dose for representative category prawns. Downgradient and Upgradient samples have also been represented separately to allow comparison.

Table 14 Representative Prawn Dose per radionuclide (WHOMad-Adult)

Radionuclide	Representative Bq/kg	Annual Bq Ingested	Annual Dose mSv
Ac-228	45.97	60	0.00
Bi-210	1.94	3	0.00
Bi-212	5.01	7	0.00
Pb-210	1.94	3	0.00
Pb-212	5.01	7	0.00
Pb-214	3.32	4	0.00
Po-210	7.97	10	0.01
Ra-224	5.01	7	0.00
Ra-226	7.29	9	0.00
Ra-228	45.97	60	0.04
Th-228	5.01	7	0.00
Th-230	0.28	0	0.00
Th-232	0.81	1	0.00
U-234	0.44	1	0.00
U-238	0.44	1	0.00
Total			**0.06**

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Figure 42 Activity concentration per radionuclide of the representative prawn, Bq/kg

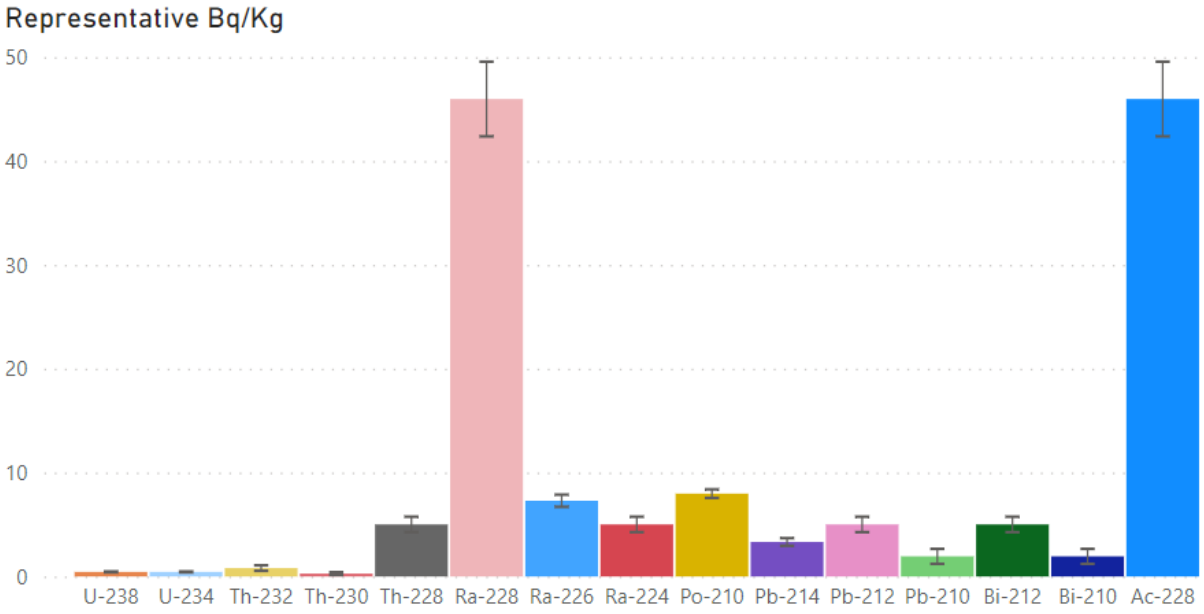


Figure 43 Annual dose per radionuclide from representative prawn consumption (WHOMad-Adult) ,mSv/year

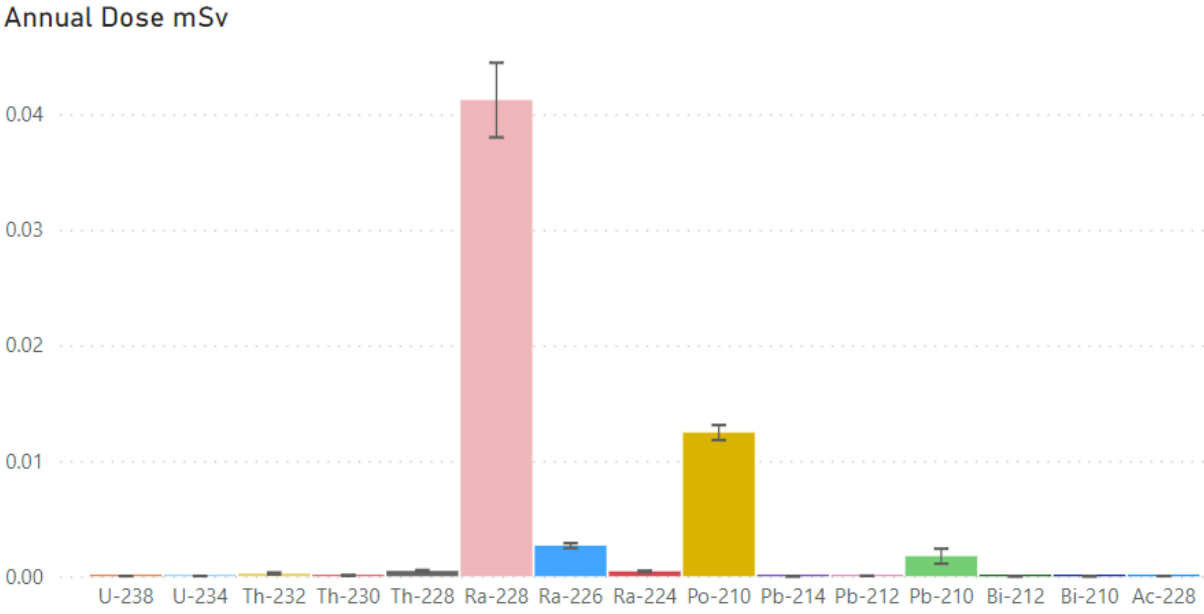


Figure 44 Activity concentration per radionuclide of the representative prawn Upgradient and Downgradient, Bq/kg

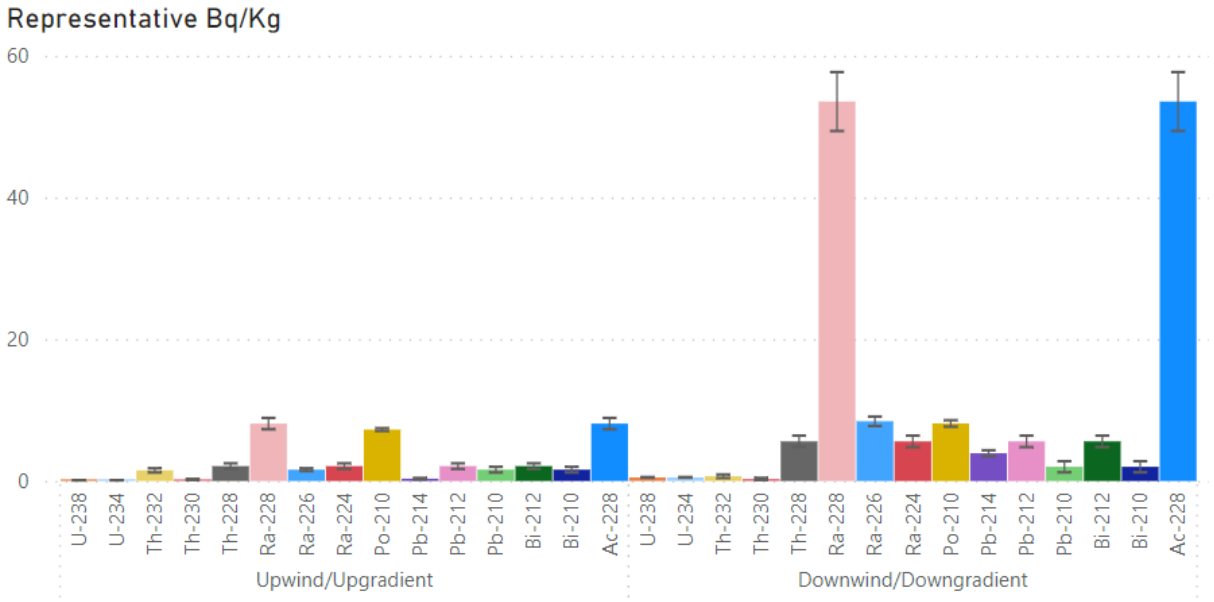
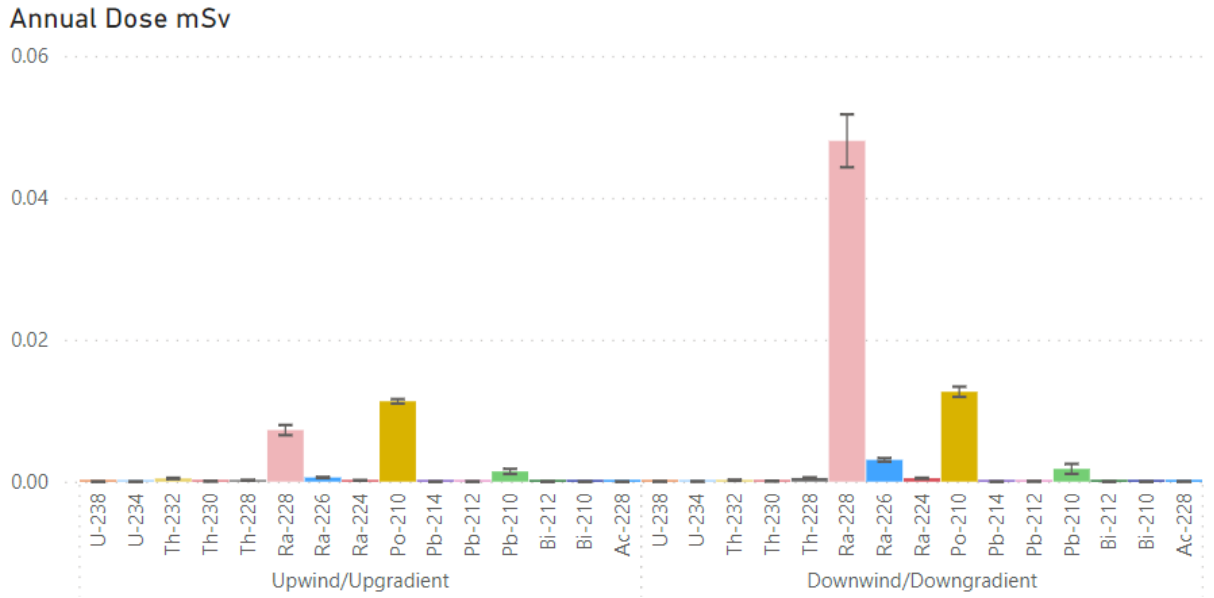


Figure 45 Annual dose per radionuclide from representative prawn consumption Upgradient and Downgradient (WHOMad-Adult), mSv/year



2.5.3 Dose Profiles – Aquatic Foods

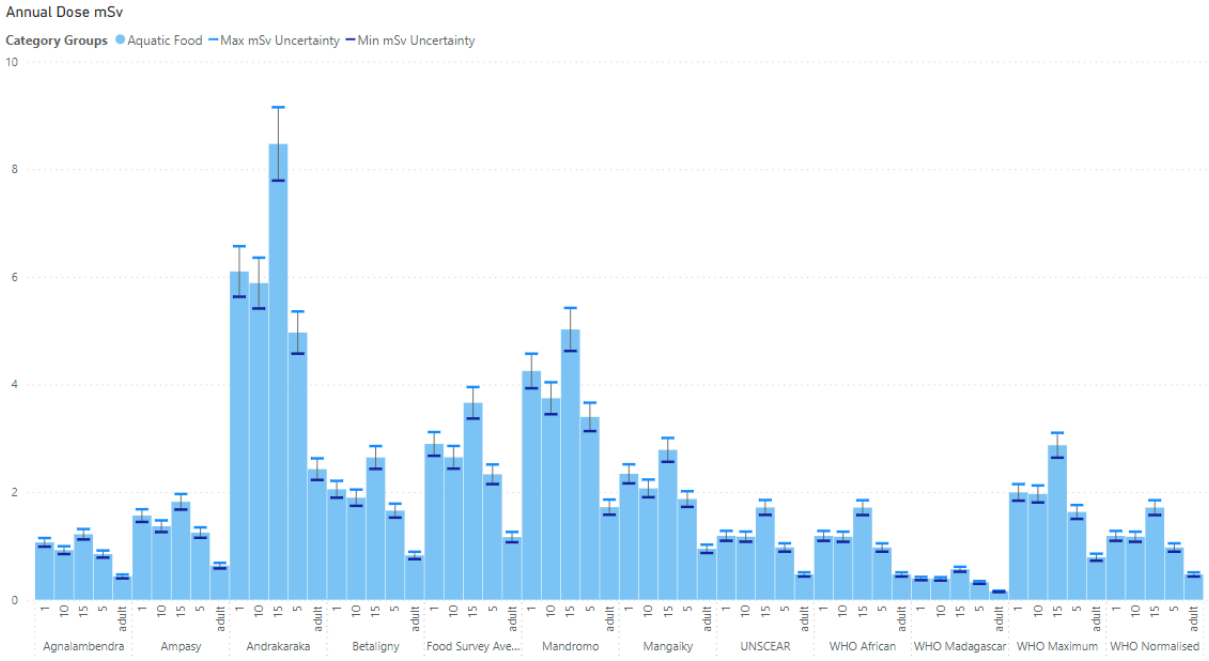
The doses from ingestion of aquatic foods are a significant contributor to overall dose, with a dose range of 0.16 – 2.43 mSv per year for an adult, depending on consumption profile.

The most critical age group for aquatic foods is 15 year olds, with an annual dose range of 0.57 – 8.47 mSv per year, depending on consumption profile.

Table 15 Annual Dose from aquatic foods of all regions, mSv/year

Age	< 1		1		10		15		5		adult	
Consumption Region	mSv	+/-	mSv	+/-	mSv	+/-	mSv	+/-	mSv	+/-	mSv	+/-
Agnalambendra	0.00	0.00	1.07	0.08	0.92	0.07	1.22	0.10	0.85	0.07	0.43	0.04
Ampasy	0.00	0.00	1.56	0.12	1.37	0.11	1.82	0.14	1.25	0.10	0.63	0.05
Andrakaraka	0.00	0.00	6.10	0.47	5.88	0.47	8.47	0.68	4.96	0.39	2.43	0.20
Betaligny	0.00	0.00	2.05	0.16	1.90	0.15	2.64	0.21	1.66	0.13	0.82	0.07
Food Survey Average	0.00	0.00	2.90	0.22	2.65	0.21	3.66	0.29	2.33	0.18	1.16	0.10
Mandromo	0.00	0.00	4.25	0.32	3.74	0.30	5.02	0.40	3.40	0.26	1.72	0.14
Mangaiky	0.00	0.00	2.34	0.18	2.07	0.16	2.78	0.22	1.87	0.15	0.95	0.08
UNSCEAR	0.00	0.00	1.19	0.09	1.17	0.09	1.71	0.14	0.97	0.08	0.47	0.04
WHO African	0.00	0.00	1.19	0.09	1.17	0.09	1.71	0.14	0.97	0.08	0.47	0.04
WHO Madagascar	0.00	0.00	0.39	0.03	0.39	0.03	0.57	0.05	0.32	0.03	0.16	0.01
WHO Maximum	0.00	0.00	1.99	0.15	1.97	0.16	2.87	0.23	1.63	0.13	0.79	0.07
WHO Normalised	0.00	0.00	1.19	0.09	1.17	0.09	1.71	0.14	0.97	0.08	0.47	0.04

Figure 46 Dose comparison by age group between consumption profiles from aquatic food consumption mSv/year



2.6 Total Dose from ingestion (water and food) and dust inhalation

The overall doses calculated from this dose assessment are represented in **Table 16**. The doses range from 1.56 – 4.01 mSv/year for an adult depending on the consumption profile.

The most critical age group is 15-year-olds, with an annual dose range of 4.73 – 12.19 mSv/year depending on the consumption profile.

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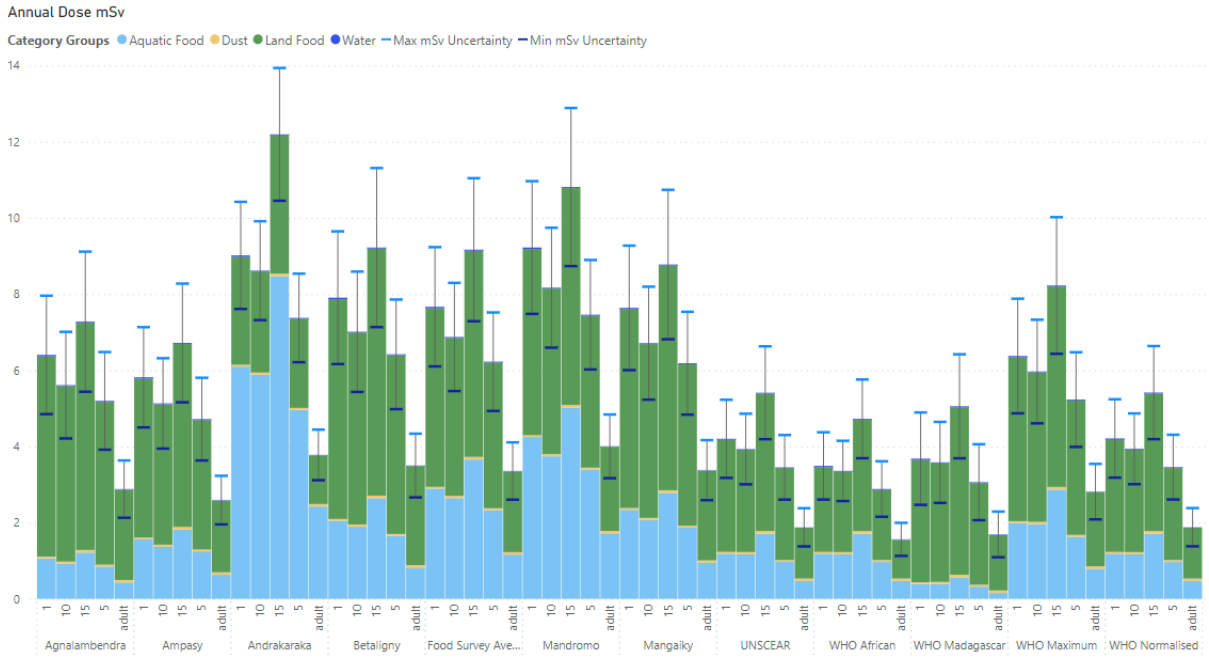
Table 16 Annual dose per age and consumption profile (mSv/year)

Consumption Profile	Age Group Annual Dose (mSv)					
	<1	1	5	10	15	adult
Agnalambendra	0.09 ± 0.03	6.40 ± 1.55	5.20 ± 1.28	5.61 ± 1.40	7.28 ± 1.84	2.88 ± 0.75
Ampasy	0.09 ± 0.03	5.82 ± 1.32	4.72 ± 1.09	5.13 ± 1.19	6.72 ± 1.56	2.59 ± 0.64
Andrakaraka	0.09 ± 0.03	9.02 ± 1.41	7.38 ± 1.16	8.62 ± 1.30	12.19 ± 1.74	3.78 ± 0.66
Betaligny	0.09 ± 0.03	7.91 ± 1.74	6.42 ± 1.44	7.01 ± 1.58	9.22 ± 2.09	3.50 ± 0.84
Food Survey Average	0.09 ± 0.03	7.67 ± 1.57	6.23 ± 1.29	6.88 ± 1.42	9.17 ± 1.88	3.36 ± 0.75
Mandromo	0.09 ± 0.03	9.22 ± 1.74	7.46 ± 1.44	8.17 ± 1.57	10.81 ± 2.08	4.01 ± 0.84
Mangaiky	0.09 ± 0.03	7.64 ± 1.63	6.19 ± 1.35	6.71 ± 1.48	8.78 ± 1.96	3.38 ± 0.79
UNSCEAR	0.07 ± 0.02	4.20 ± 1.03	3.45 ± 0.85	3.93 ± 0.93	5.41 ± 1.22	1.88 ± 0.50
WHO African	0.08 ± 0.03	3.49 ± 0.88	2.89 ± 0.73	3.36 ± 0.79	4.73 ± 1.03	1.56 ± 0.43
WHO Madagascar	0.08 ± 0.03	3.68 ± 1.21	3.06 ± 1.00	3.58 ± 1.06	5.06 ± 1.37	1.69 ± 0.60
WHO Maximum Region Average	0.08 ± 0.03	6.38 ± 1.50	5.23 ± 1.24	5.97 ± 1.36	8.23 ± 1.79	2.82 ± 0.73
WHO Normalised	0.08 ± 0.03	4.21 ± 1.03	3.46 ± 0.85	3.94 ± 0.93	5.42 ± 1.22	1.88 ± 0.50

Figure 47 Annual dose comparison by age group between consumption profiles from food and water ingestion, and dust inhalation, mSv/year



Doses associated to external gamma and radon/thoron are not considered in the above assessment. The natural regional ambient dose will include these exposure pathways.

The SENES Baseline Survey4 carried out an extensive characterisation of the pre-mining gamma levels in the region. The mean annual dose to external gamma was calculated to be 1.6 mSv per year. However, the natural gamma dose ranges from 0.1 to 44 mSv per year in the region.

[4] SENES, Baseline Environmental Survey QMM's Heavy Mineral Sands Project, Madagascar, SENES Consultants, Richmond Hill, 2001.

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Radon and thoron concentrations have been assessed and are low in the region (**Refer Appendix A2**).

3. Technical analysis decisions

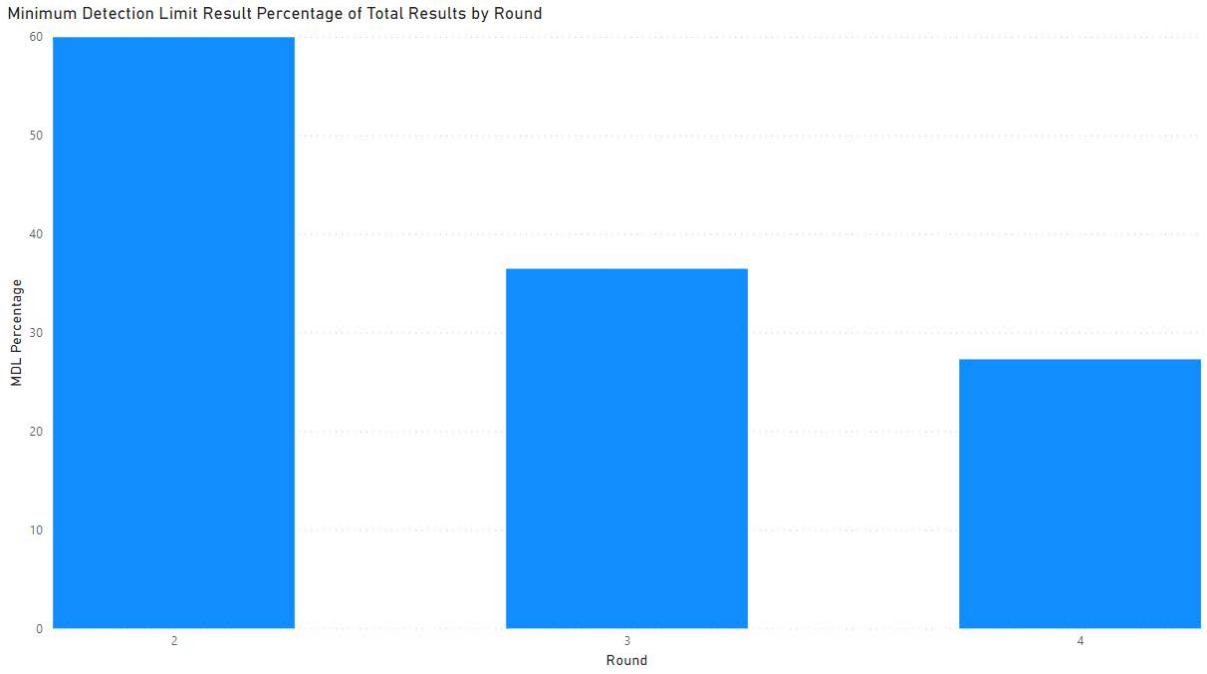
3.1 Radiological

3.2 Dose Assessment decisions and assumptions

3.2.1 Minimum detection limits

Many analysis results were below the minimum detection limit (MDL). A methodology regarding the integration of MDL data in the dose assessment was adopted. As there was only a small number of samples for each sample type, a log normal distribution was not suitable. The dose calculations in the study assume that radionuclide levels are half the MDL. This is an approach that is commonly used in environmental radiation science and is an approximation only as the actual radionuclide level could be anywhere in this range[5]. Values over the MDL were directly used in the dose assessment. Learnings were incorporated throughout the study by the project team and the laboratory to reduce the MDL. The MDL dropped from 60% to 27% from rounds 2-4.

Figure 48 MDL results percentage of total results per round



3.2.2 Uncertainty

The reported values from the laboratory only contained uncertainty on the radionuclide count analysis. There is no uncertainty provided for areas such as sample preparation, dose conversion values and consumption data which are areas in which there would certainly be margins of error and uncertainty. Only uncertainty values that could be quantified were included in the study report. The uncertainties in quantifying radionuclide activity concentrations for this project across multiple media, over a broad geographical area and over a significant timeframe are in reality much greater, but are not considered to materially impact the overall data set in achieving the overall project objective.

[5] Wood, M.D., Beresford, N. A. and Copplestone, D, Limit of Detection Values in data analysis: Do they matter? Radioprotection vol. 46, 2011

3.2.3 Radionuclide Assumptions

Where radionuclides with potential contribution to overall dose were not reported in the analysis, the below assumptions were made to determine an estimated level of that radionuclide.

Analysis Techniques

Where different analysis techniques were used on the same sample the results used in the dose assessment were prioritised based on **Table 17**, 1 being the highest priority to 3 being the lowest priority.

Table 17 Analysis type priority ranking

Radionuclide	Analysis type priority ranking							
	Alpha	ICPMS	Gamma	assume equilibrium	with	assume equilibrium	with	Alpha
U238	1	2		3	U234			U238
U-234	1		2	3	U238			U-234
Th-230	1			2	U234			Th-230
Ra-226	2		1					Ra-226
Pb-214				1	Ra226			Pb-214
Bi-214				1	Ra226			Bi-214
Pb-210	2		1	3	Po210			Pb-210
Bi-210				1	Pb210			Bi-210
Po-210	1							Po-210
Th-232	1	2						Th-232
Ra-228				1	Ac228	3	Th228	Ra-228
Ac-228			1			3	Th228	Ac-228
Th-228	1							Th-228
Ra-224				1	Th228			Ra-224
Pb-212				1	Th228			Pb-212
Bi-212				1	Th228			Bi-212

Po210 in Water

Where the Po210 value in water was not analysed, the level of Po210 was estimated to be in the same ratio with Ra226, a parent radionuclide, as established in samples with Po210 and Ra226 analysis. This technique is a more conservative approach than not using Po210 for some samples, which would result in a lower average dose from water.

Pb210 in Water

Where the Pb210 value in water was not analysed, the level of Pb210 was assumed to be in equilibrium with its daughter radionuclide Po210.

Where the Pb210 value in water was reported as under the MDL, Pb210 was assumed to be in equilibrium with its daughter radionuclide Po210. Due to the lower MDL of Po210, this is a more accurate determination than using half the Pb210 MDL.

Po210 back calculation

Samples sent for analysis underwent great delays due to Covid-19 and customs processes, prior to being analysed. Po210 has a half-life of 138 days which, on the time scales of the delays, could lead to a measurable

decay or in-growth prior to analysis in samples with significant Po210 disequilibrium. If the Po210 level in the sample was in equilibrium with its parent radionuclide, Pb210, no loss of Po210 would have occurred. Based on a limited amount of reported Pb210 values in plants, it was assumed that Po210 in all plants is in equilibrium with Pb210, therefore no back calculation was required. This provides a consistent method for Po210 values across the rounds and regions.

The majority of fish and prawn samples had reported values of Pb210. Where Pb210 values were above the minimum detection limit (MDL) a Po210 back calculation was performed. If the Pb210 values were below the MDL a Po210 back calculation was only performed if the Pb210 MDL was higher than the reported Po210 level.

To estimate the levels at time of sampling a back calculation was used based on Bateman equations.

$$^{210}_{S}Po = {}^{210}Pb + ({}^{210}_{A}Po - {}^{210}Pb)e^{-\lambda^{210}_{Po}(t_A - t_S)}$$

$$S = Sampled, A = Anlaysed, \lambda = Decay\ Constant, t = time$$

Ra228 in Water back calculation

Due to the relative short half-life of Th228 (1.9 years), and the major delays between sampling and analysis in water samples, back calculation techniques can be used to estimate the levels of Ra228, when Ra228 is reported as below MDL.

Th228 at the time of sampling is unknown but would have been greater than zero. If a Th228 value of zero is used in the back calculation, the results will be an overestimation of actual Ra228 levels. While it is an overestimation, the levels are closer to the real values than a high MDL. Being an overestimation, this provides a conservative approach.

$$^{228}_{S}Ra = {}^{228}_{A}Th\ \frac{\lambda_{228Th} - \lambda_{228Ra}}{\lambda_{228Th}(1 - e^{-t(\lambda_{228Th} - \lambda_{228Ra})})e^{-t\lambda_{228Ra}}}$$

$$S = Sampled, A = Anlaysed, \lambda = Decay\ Constant, t = time$$

3.3 Sample Quality Consideration

3.3.1 Round 1 Samples

Round 1 food analysis results were excluded from the dose assessment for the reasons developed below.

The laboratory could not supply enough confidence in initial results as sample preparation encountered homogeneity issues. Analytical techniques were limited to gamma spectrometry in plants and this provided high MDLs for most radionuclides. It also prevented the analysis of Po210, as the samples were ashed. Initial recommended sample sizes were limited and did not allow MDL optimisation through sample preparation.

Some food samples for round 1 were also sourced from local markets, and primary location of the samples was recorded from word of mouth and could not be verified which incorporates a certain bias into the dataset. Samples of rice and prawns were collected from drying mats on the ground, leading to potential contamination of the samples by soil. Learnings from round 1 were fed into round 2 to increase reliability of results.

There were no laboratory issues with water samples and sampling was done by study participants. Water from round 1 was therefore included in the analysis.

3.3.2 Delayed Ingrowth Recounts

Some samples were stored, after initial analysis, for periods of time to allow ingrowth of decay product radionuclides. After this time the samples were reanalysed. The data from the recounts were inconclusive, as they contained anomalies that were physically impossible. For instance, Ra228 analysis by Th228 recount gave levels that, if matched with the initial Alpha Spectrometry results of Th228, would have meant there was negative amounts of Th228 in the initial sample.

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Due to the unreliability of the recount data, this analysis was excluded from the dose assessment, radionuclides were assumed to be in equilibrium or were back-calculated instead.

3.3.3 Preparation Issues

Plant samples were prepared for consumption on site, edible portions were weighed and their mass recorded. These portions were then dried in the mine laboratory and sent for analysis in Australia. Fish and prawn were dried without any preparation, conservatively assuming they would be consumed as whole specimen.

After transit and going through customs protocols, samples were grinded or pulverised and homogenised at ANSTO. Portions were retained for Po210 by alpha spectrometry and the rest of the sample was ashed to minimise MDLs for all other analytes.

JBS&G procedures were followed for all sample preparation aspects prior to shipment. ANSTO followed their internal procedures for all processes in Australia. Improvements in the sample preparation processes were implemented throughout the rounds in order to improve MDLs and results representativeness.

Homogeneity in water, soil and dust samples was readily achieved, with very limited uncertainty from the sample preparation processes. However, within food samples, discrepancies were commonly observed between analytical techniques of the same radionuclides within food samples. The analysis type priority ranking table (**Table 17**) was designed to assist in the selection of the optimal analysis technique for specific radionuclides. For instance, gamma spectrometry, where measurable values were available, was selected over alpha spectrometry, as it represents a bulk measurement of a larger mass and volume of material.

In the case of fish, the nature of the tissues or bone analysed has a major impact on the radionuclide concentrations. The project adopted a conservative approach and considered a full consumption of the fish, therefore analysing whole specimens. Similarly in plants, certain parts or portions would return varying results. Homogenisation techniques and the ashing process were therefore revised and improved following Round 1 and 2.

Relatively elevated Po210 values were observed in some fruits, when compared to global averages during Round 2. Such concentrations were not replicated in later rounds. Investigations on potential Po210 contamination within ovens were inconclusive. Anomalies were observed on both upwind and downwind locations. As part of the conservative approach, they were not removed from the database. Masses and volumes of subsamples dedicated to Po210 radiochemistry were increased throughout the rounds to address potential homogeneity issues within samples.

4. International Consumption Data

4.1.1 WHO 1988 Data

World Health Organization. Derived intervention levels for radionuclides in food (1988).

https://apps.who.int/iris/bitstream/handle/10665/40421/9241542330_eng.pdf?sequence=1&isAllowed=y

Table 1. Food consumption patterns for different diet types (per caput in kilograms per year)

Diet type	Cereals	Roots and tubers	Vegetables	Fruit	Meat	Fish	Milk
African	127.4	134.8	25.9	45.2	16.8	15.0	28.9
Central American	113.2	46.0	38.8	98.6	42.3	18.7	82.2
Chinese	171.7	85.8	85.2	5.5	15.0	8.9	1.9
Eastern Mediterranean	188.2	19.3	91.6	101.5	30.4	8.4	74.3
European	121.1	72.7	86.7	81.4	75.3	20.2	154.9
Far Eastern	206.6	28.4	54.3	48.3	21.5	24.4	33.6
North African	161.9	20.0	63.4	63.9	24.0	7.3	77.2
South American	129.5	67.6	34.2	83.2	48.4	14.4	70.7

Table 2. Regional maximum food consumption and normalized rates (per caput in kilograms per year)

	Cereals	Roots and tubers	Vegetables	Fruit	Meat	Fish	Milk
Regional maximum[a]	205	135	90	100	75	25	155
Normalized	140	100	60	70	50	15	105

[a] Figures have been rounded off for convenience.

Table 7a. African-type cereal-based diet (per caput in g/day)

Country or area	Type of data	Cereal	Roots and tubers	Vegetables	Fruit	Meat	Fish	Milk	Reference
Botswana	FBS	404.8	27.7	76.7	48.6	90.0	4.2	309.1	1
Burkina Faso	FBS	441.3	41.2	24.9	20.5	26.9	4.2	59.6	1
Cape Verde	FBS	528.9	146.6	43.9	105.8	19.3	65.8	162.4	1
Gambia	FBS	529.5	27.3	33.8	14.3	39.3	65.2	62.3	1
Kenya	FBS	374.5	185.7	60.2	72.7	55.6	8.7	161.8	1
Kenya	HE	422.0	219.0	60.0	81.0	37.0	7.0	131.0	2
Lesotho	FBS	611.6	16.6	63.3	44.5	54.0	8.2	105.2	1
Madagascar	FBS	598.5	447.2	79.3	188.5	70.6	14.7	17.7	1
Malawi	FBS	505.9	64.5	80.2	86.3	14.9	24.4	21.3	1
Mali	FBS	461.6	45.4	45.7	4.1	53.0	26.6	59.8	1
Mauritius	FBS	545.9	41.8	74.9	31.8	39.1	44.6	267.8	1
Niger	FBS	682.5	93.1	63.4	20.0	56.8	2.8	102.8	1
Niger	INT	635.0	4.2	20.1	0.4	14.1	—	70.9	3
Réunion	FBS	519.1	54.9	71.3	158.5	116.4	63.8	159.0	1
Senegal	FBS	611.9	17.1	42.6	33.8	40.5	69.5	97.5	1
Senegal	WS	420.6	4.8	—	—	25.7	47.4	46.2	4
Senegal	HE	329.4	36.4	116.0	10.5	29.3	147.2	14.6	5
Sierra Leone	FBS	471.0	79.5	114.6	90.6	16.4	50.7	38.9	1
Somalia	FBS	333.2	19.6	15.9	113.3	126.6	5.1	470.9	1
Swaziland	FBS	431.9	63.5	53.1	108.6	106.8	0.0	180.5	1
Zambia	FBS	511.6	92.3	89.2	32.5	40.6	24.5	28.1	1
Zimbabwe	FBS	469.4	26.1	45.2	32.5	40.2	4.9	49.1	1
Average (g/day)		492.7	79.8	60.7	61.9	50.6	32.8	118.9	
Average (kg/year)		179.9	29.1	22.2	22.6	18.5	12.0	43.4	

4.2 UNSCEAR

UNSCEAR 2000 REPORT VOLUME I Sources and effects of ionizing radiation

https://www.unscear.org/unscear/uploads/documents/unscear-reports/UNSCEAR_2000_Report_Vol.I.pdf

Intake	*Food consumption rate (kg a^{-1})*		
	Infants	*Children*	*Adults*
Milk products	120	110	105
Meat products	15	35	50
Grain products	45	90	140
Leafy vegetables	20	40	60
Roots and fruits	60	110	170
Fish products	5	10	15
Water and beverages	150	350	500

Appendix A9 Laboratory Quality Assurance

A9 Laboratory Quality Controls

This appendix presents details of the quality control processes applied by the primary laboratory engaged for the study and the results of the precision duplicate comparisons undertaken for the primary media groups assessed during the study.

The Australian Nuclear Science and Technology Organisation (ANSTO) was selected as the primary laboratory for the radionuclide analysis for the study. ANSTO has a 40 year track record in providing radionuclide analytical services across a broad range of industries including environmental level monitoring. ANSTO maintains the Australian standard for the activity of radionuclides by authorisation of the chief Metrologist of the National Measurement Institute. As the standards body, ANSTO provides certificates demonstrating traceability to the Australian standard for the activity of radionuclides.

Landauer dosimeters were used for passive external gamma and beta exposure. Landauer is a global leader in radiation science and services. The company holds NVLAP accreditation and provides integrated radiation safety products and services, including radiation dosimetry technology to measure and monitor radiation exposure.

1. Precision Duplicates

In order to measure the precision and representativeness/repeatability of the laboratory analysis, representative samples for each media were targeted for duplicate analysis. The number of duplicate samples submitted for analysis by media for each sampling round is presented in **Table 1**.

Table 1 Duplicate Analysis Summary Table

Media	Round 1	Round 2	Round 3	Round 4	Round 5
Water	2	2	N/A	4	1
Sediment/Soil	1	N/A	N/A	N/A	2
Foodstuff	1	2	1	2	N/A
Dosimeter	-	N/A	-	1	-

1.1 Water Analysis

1.1.1 Round 1 Groundwater

Table 2 Round 1 Groundwater Duplicate Pair Analytical Results

Sample ID	GW 07 Bq/L	GW07 Duplicate (Dup01)) Bq/L
U238 (a)	< 0.12	0.145
Th230 (b)	0.06 ± 0.04	0.004 ± 0.002
Ra226 (b)	0.33 ± 0.03	0.34 ± 0.03
Th232 (b)	0.28 ± 0.16	0.049 ± 0.019
Th228 (b)	0.23 ± 0.13	0.021 ± 0.009

(a) calculated from ICPMS
(b) Alpha spectrometry

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Result

Good comparability was reported between the duplicate pair for U238 and Ra226, Thorium isotopes are an order of magnitude higher in the primary than the duplicate.

The primary and duplicate sample were collected from a mine piezometer with highly turbid water that was analysed without filtration. It is considered likely that some heterogeneity within the solids fraction of the water sample has impacted the comparability of the results.

1.1.2 Round 1 Surface Water

Table 3 Round 1 Surface Water Duplicate Pair Analytical Results

Sample ID	SW 07 Bq/L	SW 07 Duplicate (DUP02) Bq/L
U238 (a)	< 0.12	< 0.12
Th230 (b)	< 0.002	< 0.002
Ra226 (b)	0.0053 ± 0.0008	0.0077 ± 0.0008
Th232 (b)	< 0.002	< 0.002
Th228 (b)	< 0.002	< 0.002

(a) calculated from ICPMS
(b) Alpha spectrometry

Result

Excellent comparability recorded between the primary and duplicate sample for all radionuclides analysed.

1.1.3 Round 2 Groundwater

Table 4 Round 2 Groundwater Duplicate Pair Analytical Results

Sample ID	GW02 (1) Bq/L	GW02 Duplicate (2) Bq/L
U238 (a)	< 0.001	< 0.001
Th230 (b)	< 0.001	< 0.001
Ra226 (b)	< 0.001	0.0005 ± 0.0002
Th227 (b)	< 0.001	< 0.001
Th232 (a)	< 0.002	< 0.002
Th232 (b)	< 0.001	< 0.001
Th228 (b)	< 0.001	< 0.001

(a) ICPMS.
(b) Alpha spectrometry.

Result

Excellent comparability between the primary and duplicate sample for all radionuclides analysed. All radionuclides analysed have a low concentration, commonly below detection limits.

1.1.4 Round 2 Surface Water

Table 5 Round 2 Surface Water Duplicate Pair Analytical Results

Sample ID	SW07 (1) Bq/L	SW07 Duplicate (2) Bq/L
U238 (a)	< 0.001	< 0.001
Th230 (b)	< 0.001	< 0.001
Ra226 (b)	0.0005 ± 0.0002	0.0010 ± 0.0003
Th227 (b)	< 0.001	< 0.001

Sample ID	SW07 (1) Bq/L	SW07 Duplicate (2) Bq/L
Th232 (a)	< 0.002	< 0.002
Th232 (b)	< 0.001	< 0.001
Th228 (b)	< 0.001	< 0.001

(a) ICPMS.
(b) Alpha spectrometry.

Result

Excellent comparability between the primary and duplicate sample for all radionuclides analysed.

1.1.5 Round 4 Groundwater

Table 6 Round 2 Ground Water Duplicate Pair Analytical Results

Sample ID	GW04 (1) Bq/L	GW04 Duplicate (2) Bq/L	GW05 (1) Bq/L	GW05 Duplicate (2) Bq/L
U238 (a)	0.022 ± 0.004	0.069 ± 0.007	0.041 ± 0.006	0.043 ± 0.006
U234 (a)	0.027 ± 0.004	0.085 ± 0.008	0.037 ± 0.005	0.046 ± 0.006
Th230 (a)	0.014 ± 0.003	0.057 ± 0.008	0.042 ± 0.007	0.020 ± 0.004
Ra226 (a)	0.039 ± 0.005	0.14 ± 0.01	0.034 ± 0.004	0.071 ± 0.008
Po210 (a)	0.039 ± 0.005	0.083 ± 0.009	0.11 ± 0.01	0.095 ± 0.009
U235 (a)	0.0010 ± 0.0002	0.0032 ± 0.0003	0.0019 ± 0.0003	0.0020 ± 0.0003
Th227 (a)	0.0023 ± 0.0012	0.0010 ± 0.0007	0.0041 ± 0.0016	0.0011 ± 0.0007
Th232 (a)	0.053 ± 0.008	0.13 ± 0.02	0.098 ± 0.013	0.064 ± 0.008
Th228 (a)	0.026 ± 0.005	0.055 ± 0.008	0.14 ± 0.02	0.069 ± 0.009

(a) Alpha spectrometry.

Result

The sample pairs collected from GW04 and GW05 reported concentrations at the same order of magnitude for the majority of radionuclides analysed. While a calculated percentage difference between pairs is inflated due to the low minimum detection limit achieved.

Consistent with reported comparability in Round 1 groundwater samples, the primary and duplicate samples were collected from mine piezometers with highly turbid water that was analysed without filtration. It is considered likely that some heterogeneity within the solids fraction of the water sample has impacted the comparability of the results.

1.1.6 Round 4 Surface Water

Table 7 Round 4 Surface Water Duplicate Pair Analytical Results

Sample ID	SW15 Bq/L	SW15 Duplicate Bq/L	SW07 1 Bq/L	SW07 Duplicate (SW7-2) Bq/L
U238 (a)	0.0013 ± 0.0006	0.0008 ± 0.0005	-	-
U234 (a)	0.0018 ± 0.0008	0.0011 ± 0.0007	-	-
Th230 (a)	< 0.002	< 0.002	< 0.002	< 0.002
Ra226 (a)	< 0.003	< 0.005	0.0015 ± 0.0004	0.0004 ± 0.0001
Pb210 (b)	< 0.16	< 0.31	-	-
Po210 (a)	0.0007 ± 0.0004	0.0009 ± 0.0006	0.0003 ± 0.0002	0.0004 ± 0.0002
U235 (c)	0.00006 ± 0.00003	0.00004 ± 0.00002	-	-

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Sample ID	SW15 Bq/L	SW15 Duplicate Bq/L	SW07 1 Bq/L	SW07 Duplicate (SW7-2) Bq/L
Pa231 (b)	< 0.15	< 0.29	-	-
Ac227 (d)	< 0.002	< 0.002	-	-
Th227 (a)	< 0.002	< 0.002	< 0.002	< 0.002
Th232 (a)	< 0.002	< 0.002	< 0.002	< 0.002
Ra228 (e)	< 0.03	< 0.05	-	-
Th228 (a)	< 0.002	< 0.002	< 0.002	0.0009 ± 0.0005

(a) Alpha spectrometry.
(b) Gamma spectrometry.
(c) Below alpha spectrometry detection limit of 0.002 Bq/L. Calculated from the measured U238 concentration.
(d) Based on the measured concentration of Th227, assuming secular equilibrium.
(e) Gamma spectrometry. Based on the measured concentration of Ac228, assuming secular equilibrium.

Result

Excellent comparability was reported between the primary and duplicate sample for all radionuclides analysed from SW15, some variability was reported for Ra226 and Th228 reported for the duplicate pair collected from SW07 due in part to the very low minimum detection limit achieved.

1.1.7 Round 5 Minesite Waste Water – Surface Water

Table 8 Round 5 Surface Water Duplicate Pair Analytical Results

Sample ID	MSW3 Bq/L	MSW3 Duplicate (QC5&6) Bq/L
U238	0.030 ± 0.004	0.029 ± 0.004
U234	0.027 ± 0.004	0.026 ± 0.004
Th230	0.013 ± 0.004	0.018 ± 0.014
Ra226	0.11 ± 0.01	0.075 ± 0.0080
Po210	0.018 ± 0.0020	0.017 ± 0.002
U235	0.0014 ± 0.0002	0.0014 ± 0.0002
Th227	0.020 ± 0.0060	0.042 ± 0.008
Th232	0.084± 0.018	0.10 ± 0.02
Th228	0.17 ± 0.04	0.21 ± 0.03

Result

Excellent comparability between the primary and duplicate sample for all radionuclides analysed.

1.2 Sediment Analysis

1.2.1 Round 1 Sediment

Table 9 Round 1 Sediment Duplicate Pair Analytical Results

Element	S08 Bq/kg	S08 Duplicate (S10) Bq/kg
U238	48	70
Th230	< 75	< 130
Ra226	39	66
Pb210	44	62
Ra228	150	230
Th228	160	250

Element	S08 Bq/kg	S08 Duplicate (S10) Bq/kg
K40	< 20	< 27

Result

Generally good comparability was reported between the primary and duplicate samples for all radionuclides analysed. When an allowance of +/ 10% error margin in considered, all results within circa 30%.

1.2.2 Round 5 Sediment

Elemental analysis by ICPMS

Table 10 Round 5 Sediment ICPMS Duplicate Pairs Analytical Results

Element	SD31 ppm	SD31 Duplicate (QC1) ppm	MSW03 ppm	MSW03 Duplicate (QC4) ppm
Pb	21.9	21.3	35.9	30.6
Th	123	166	214	192
U	8.2	9.6	10.4	9.3
Zn	66	60	48	42

Result

Excellent comparability reported for both sets of duplicate samples for all radionuclides analysed, with consideration for error margins of +/ 10%.

Radionuclide Analysis Gamma Spectrometry and Digest/ICPMS

Table 11 Round 5 Sediment Radionuclide Duplicate Pairs Analytical Results

Radionuclide	MSW03 Bq/kg	MSW03 Duplicate (QC4) Bq/kg
U238(a)	130 ±10	120 ±10
Th230	<290	<330
Ra226(b)	120±10	110±10
Pb210	120±10	140±10
U235	6.1±.6	5.6±.6
Th232 (a)	860±90	770±80
Ra228 (c)	770±80	590±60
Th228 (d)	730±70	610±60
K40	<39	88±8

(a) Digest/ICPMS.

(b) Based on the measured concentrations of Pb214 and Bi214, assuming secular equilibrium.

(c) Based on the measured concentration of Ac228, assuming secular equilibrium.

(d) Based on the measured concentration of Pb212, assuming secular equilibrium.

(e) Interference from high concentrations of Th232 decay chain radionuclides. Average of measured U238, Ra226 and Pb210 concentrations.

Result

Excellent comparability reported for the majority of radionuclides analysed with the exception of the activity reported for K40, which reported a duplicate activity of approximately 50%.

1.3 Foodstuff Analysis

1.3.1 Round 1 Rice

Table 12 Round 1 Rice Duplicate Pairs Analytical Results

Sample ID	Rice F015 Bq/kg	Rice F015 Duplicate (F016) Bq/kg
U238 (a)	< 1.2	< 1.0
Th230 (b)	< 0.048	< 0.052
Th230 (a)	< 6.6	< 6.7
Ra226 (b)	0.26 ± 0.04	0.40 ± 0.05
Ra226 (a)	0.5 ± 0.1	0.5 ± 0.1
Pb210 (a)	< 0.89	< 0.70
U235 (a)	< 0.68	< 0.50
Pa231 (a)	< 1.5	< 1.8
Ac227 (a)	< 0.41	< 0.26
Th232 (b)	< 0.048	< 0.052
Ra228 (a)	1.2 ± 0.3	0.9 ± 0.2
Th228 (b)	0.069 ± 0.022	< 0.052
Th228 (a)	0.23 ± 0.06	0.29 ± 0.05
K40 (a)	56 ± 6	61 ± 6

(a) Gamma spectrometry
(b) Alpha spectrometry

Result

Good comparability reported between the primary and duplicate rice sample pairs for all radionuclides analysed.

1.3.2 Round 2 Cassava (Manioc) and Jackfruit

Table 13 Round 2 Casava Duplicate Pairs Analytical Results

Radionuclide	Manioc01 Bq/kg	Manioc01 (Duplicate) Bq/kg	Jackfruit 1 Bq/kg	Jackfruit 1-(Duplicate) Bq/kg
U238 (a)	0.78 ± 0.08	0.65 ± 0.07	< 0.023	< 0.025
U238 (b)	1.30 ± 0.47	-	0.23 ± 0.35	1.22 ± 0.24
Th234 (b)	< 1.00	-	<0.77	0.81 ± 0.14
Th230 (b)	<7.94	-	< 6.32	<3.96
Th230 (c)	< 1.2	< 1.2	< 0.92	< 1.1
Ra226 (b)	<0.22	-	<0.17	< 0.18
Ra226 (c)	< 1.0	< 1.0	< 1.3	< 1.9
Pb210 (b)	<1.10	-	< 1.03	<0.69
Po210 (c)	< 1.2	< 1.2	0.81 ± 0.31	0.62 ± 0.22
Th232 (a)	0.11 ± 0.01	0.076 ± 0.008	0.037 ± 0.004	0.031 ± 0.003
Th232 (c)	< 1.2	< 1.2	< 0.92	< 1.1
Ra228 (b)	<0.55	-	< 0.42	<0.54
Th228 (b)	<0.25	-	<0.19	< 0.24

Radionuclide	Manioc01 Bq/kg	Manioc01 (Duplicate) Bq/kg	Jackfruit 1 Bq/kg	Jackfruit 1-(Duplicate) Bq/kg
Th228 (c)	< 1.2	< 1.2	< 0.92	< 1.1

(a) Digest / ICPMS

(b) Gamma spectrometry

(c) Alpha spectrometry

Result

Good comparability with primary and duplicate analysis for all radionuclides analysed. Gamma spectrometry was carried out by the University of Adelaide, after samples preparation by ANSTO. The absence of gamma analysis for the duplicate cassava was due to the sample being kept by ANSTO. Data show a good agreement between duplicate values in alpha spectrometry and ICPMS. Gamma spectrometry typically returned values below limits of detection. U238 in jackfruit shows discrepancies between duplicates, however, direct measurement of U238 by gamma spectrometry is associated with high uncertainties.

1.3.3 Round 3 Rice

Table 14 Round 3 Rice Duplicate Pairs Analytical Results

Radionuclide	Riz 03 Bq/kg	Riz 03 Duplicate (04) Bq/kg
U238 (a)	0.10 ± 0.01	0.17 ± 0.02
Th230 (b)	0.81 ± 0.11	0.16 ± 0.04
Ra226 (b)	0.90 ± 0.09	0.25 ± 0.05
Po210 (b)	0.16 ± 0.05	0.19 ± 0.13
Th232 (a)	0.45 ± 0.05	0.42 ± 0.04
Th232 (b)	0.47 ± 0.07	0.42 ± 0.07
Th228 (b)	1.6 ± 0.2	1.7 ± 0.2

(a) Digest/ICPMS.
(b) Alpha spectrometry.
(c) Analysis on processed material

Result

Duplicate rice samples had been collected from locations in both Ampasy and Betaligny. Two composites were formed, each comprising one sample from each location and resulting in a pair of duplicate samples for analysis: Riz 03 and Riz 04. Results of duplicate analysis shows reasonable agreement for most radionuclide concentrations, although there is some incongruence between reported concentrations of Th230 and Ra226. The duplicate samples were collected as two distinct batches in the field, then re-composed and as such, the differences in reported radionuclide concentrations may be indicative of natural variability in concentrations of radionuclides influenced by the heterogenous geoenvironmental setting and not due to laboratory processes and challenges with sample repeatability.

Duplicate rice samples were also collected in MMM. It was however decided that those samples would be combined to lower limits of detections.

1.3.4 Round 4 Jackfruit

Table 15 Round 4 Jackfruit Duplicate Pairs Analytical Results

Radionuclide	Jackfruit MMM1 Bq/kg	Jackfruit MMM1 Duplicate (MMM2) Bq/kg
U238 (a)	0.31 ± 0.03	1.1 ± 0.1
Th230 (b)	0.16 ± 0.03	0.42 ± 0.14

Radionuclide	Jackfruit MMM1 Bq/kg	Jackfruit MMM1 Duplicate (MMM2) Bq/kg
Ra226 (b)	0.25 ± 0.03	0.88 ± 0.08
Po210 (b)	0.16 ± 0.02	0.44 ± 0.04
Th232 (a)	0.90 ± 0.09	0.49 ± 0.05
Th232 (b)	0.28 ± 0.05	0.22 ± 0.09
Th228 (b)	0.88 ± 0.13	0.92 ± 0.27

(a) Digest/ICPMS.
(b) Alpha spectrometry.

Result

The jackfruit MMM 1 and MMM2 are duplicate samples from the same fruit. The fruit was peeled and later split in two portions. Analysis results reported relatively high variability within the same fruit, albeit reported concentrations are of the same order of magnitude.

Given the unique mass and structure of the large jackfruit, there are a number of factors that could have contributed to the differences in reported concentrations. The variation may be indicative of the heterogeneity of concentrations of radionuclides within the flesh of a unique fruit. It may also reflect the challenges associated with sample processing and effort to achieve heterogeneity during sample preparation.

1.3.5 Round 4 Patsa

Table 16 Round 4 Patsa (Prawns) Duplicate Pairs Analytical Results

Radionuclide	Patsa 1 Bq/kg	Patsa 1 Duplicate (2) Bq/kg
U238 (a)	0.45 ± 0.05	0.61 ± 0.06
Th230 (b)	0.12 ± 0.06	0.37 ± 0.09
Th230 (c)	< 9.0	< 12
Ra226 (b)	1.6 ± 0.2	1.6 ± 0.2
Ra226 (d)	6.1 ± 0.6	11 ± 1
Pb210 (c)	2.5 ± 0.4	3.2 ± 0.4
Po210 (b)	3.9 ± 0.3	3.8 ± 0.2
Th232 (a)	0.62 ± 0.06	0.86 ± 0.09
Th232 (b)	0.57 ± 0.16	0.80 ± 0.15
Ra228 (e)	42 ± 4	81 ± 8
Th228 (b)	3.1 ± 0.6	5.6 ± 0.8
Th228 (f)	13 ± 1	22 ± 2

a) Digest/ICPMS.
(b) Alpha spectrometry.
(c) Gamma spectrometry.
(d) Gamma spectrometry. Based on the measured concentration of Pb-214 and Bi-214, assuming secular equilibrium.
(e) Gamma spectrometry. Based on the measured concentration of Ac-228, assuming secular equilibrium.
(f) Gamma spectrometry. Based on the measured concentration of Pb-212, assuming secular equilibrium.

There is generally a good agreement between isotopes concentrations between duplicate samples, with results in the same order of magnitude. The differences observed in Ra226, Ra228 and Th228 between duplicate patsa samples are indicative of large natural variations in food samples, as those samples were collected separately on the field (i.e. not split in the laboratory). It may also be indicative of a larger presence of shell in Patsa 2 compared to Patsa 1.

1.4 Sample Quality Consideration

1.4.1 Round 1 Samples

Round 1 food analysis results were excluded from the dose assessment for the reasons developed below.

The laboratory could not supply enough confidence in initial results as sample preparation encountered homogeneity issues. Analytical techniques were limited to gamma spectrometry in plants and this provided high MDLs for most radionuclides. It also prevented the analysis of Po210, as the samples were ashed. Initial recommended sample sizes were limited and did not allow MDL optimisation through sample preparation. Major uncertainties were also associated with the location of fish and prawn samples.

There were no laboratory issues with water samples and sampling was done by study participants. Water from round 1 was therefore included in the analysis.

1.4.2 Delayed Ingrowth Recounts

Some samples were stored, after initial analysis, for periods of time to allow ingrowth of decay product radionuclides. After this time the samples were reanalysed. The data from the recounts were inconclusive, as they contained anomalies that were physically impossible. For instance, Ra228 analysis by Th228 recount gave levels that, if matched with the initial Alpha Spectrometry results of Th228, would have meant there was negative amounts of Th228 in the initial sample.

Due to the unreliability of the recount data, this analysis was excluded from the dose assessment, radionuclides were assumed to be in equilibrium or were back calculated instead.

1.4.3 Preparation Issues

Homogeneity in water, soil and dust samples was readily achieved, with very limited uncertainty from the sample preparation processes. However, within food samples, discrepancies were commonly observed between analytical techniques of the same radionuclides within food samples. To address this issue an analysis type priority ranking was designed to assist in the selection of the optimal analysis technique for specific radionuclides. For instance, gamma spectrometry, where measurable values were available, was selected over alpha spectrometry, as it represents a bulk measurement of a larger mass and volume of material (Refer Table 17 in Appendix 8).

In the case of fish, the nature of the tissues or bone analysed has a major impact on the radionuclide concentrations. The project adopted a conservative approach and considered a full consumption of the fish, therefore analysing whole specimens. Similarly in plants, certain parts or portions would return varying results. Homogenisation techniques and the ashing process were therefore revised and improved following Round 1 and 2.

Relatively elevated Po210 values were observed in some fruits, when compared to global averages during Round 2. Such concentrations were not replicated in later rounds. Investigations on potential Po210 contamination within ovens were inconclusive. Anomalies were observed on both upwind and downwind locations. As part of the conservative approach, they were not removed from the database. Masses and volumes of subsamples dedicated to Po210 radiochemistry were increased throughout the rounds to address potential homogeneity issues within samples.

1.4.4 Round 4 Dosimeters (Landauer)

Table 17 Dosimeter Duplicate Pairs Analytical Results

Badge ID	Measured dose (Hp 10) (mSv)
JBS-G1	0.58 ± 0.09

Badge ID	Measured dose (Hp 10) (mSv)
JBS-G2 (JBS-G1 duplicate)	0.67 ± 0.10
JBS-G3	0.61 ± 0.09
JBS-G4 (JBS-G3 duplicate)	0.46 ± 0.07

Result

Excellent comparability recorded between the primary and duplicate sample for all dosimeters analysed.

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Australian Government

ANSTO

JBS&G - Madagascar
Quality Assurance Plan

Purpose

ANSTO's Minerals business unit has been requested by JBS&G to provide elemental and radionuclide characterisation for fish, vegetation, water and soil samples from Madagascar, as part of an on-going community radiation study.

Scope

The document details Minerals' Quality Assurance Plan including Quality and Environmental Policy & Process as well as Work Health and Safety Management as it applies to Minerals' operations for Rounds 1 – 5 of the Madagascar study.

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1. Minerals

ANSTO's Minerals group is a business unit within ANSTO. Minerals is an international mining consultancy group which provides process development, technical review and consulting services as well as collaborative and contract research in uranium ore, rare earth, base and speciality metals processing; radioactivity control and management; as well as novel flowsheet design, modelling and concept level engineering.

2. Minerals' Capabilities

Minerals have an experienced team of more than 60 scientists, chemists, metallurgists, and engineers, providing commercial and consulting services in chemical engineering, metallurgy, mineralogy, chemistry, geology, and radiation safety.

Minerals' radioanalytical facilities are recognised internationally and provide advice to industry on a range of issues relating to NORM management including radionuclide analyses, site surveys, radionuclide deportment in chemical processes, NORM in waste leachates and process development for ores containing radioactivity.

Minerals' team has extensive experience in the measurement of radioactivity in many different matrices, including uranium mill samples, copper concentrates, smelter by-products (dust, slag), mineral sands (monazite, zircon, ilmenite and rutile), rare earth process streams and concentrates, aluminium and phosphate processing and products, and process scales (oil/gas, water treatment). Minerals' radioanalytical facilities include: alpha, beta and gamma spectrometry for measuring various radionuclides from the ^{238}U, ^{235}U and ^{232}Th decay chains, and delayed neutron activation analysis (DNAA) and neutron activation analysis (NAA) for parent ^{238}U and ^{232}Th, respectively.

3. Definitions

ICPMS – Inductively Coupled Plasma-Mass Spectrometry.

XRF – X-ray Fluorescence Spectrometry.

4. Analytical Requirements

Analytical requirements for water, soil, fish, vegetation, dust samples and wipe test in Rounds 1 – 5[1] of the Madagascar study are detailed in **Table 1**.

Table 1: Analytical Requirements

Sample	Requirements
Water	*All samples*: ICPMS for As, Ba, Cu, Hg, Mn, Pb, Th, Ti and U (**R1** only) *or* ICPMS for U and Th only (**R2 – R4**); alpha spectrometry for ^{226}Ra and Th isotopes (**R1** – **R4**); and alpha spectrometry for U and Th isotopes, ^{226}Ra and Po-210 (**R5)**. *Select samples*: Gamma spectrometry (liquor) for natural radioactivity; and alpha spectrometry for ^{210}Po and U isotopes (**R1** – **R4**, both analyses).

[1] Hereafter referred to as 'R1 – R5'.

Soil	**R1 only:** Gamma spectrometry (solid) for natural radioactivity; and Digest / ICPMS for U and Th.
Fish	**R1:** Gamma spectrometry (solid) for natural radioactivity; and Digest / alpha spectrometry for ^{226}Ra, ^{210}Po and Th isotopes. **R2 – R4:** *All samples:* Digest / alpha spectrometry for ^{226}Ra, ^{210}Po and Th isotopes; and Digest / ICPMS for U and Th. *Select samples:* Gamma spectrometry (solid) for natural radioactivity.
Vegetation	**R1:** Gamma spectrometry (solid) for natural radioactivity; and Digest / alpha spectrometry for ^{226}Ra and Th isotopes. **R2 – R4:** *All samples:* Digest / alpha spectrometry for ^{226}Ra, ^{210}Po and Th isotopes; and Digest / ICPMS for U and Th. *Select samples*: Gamma spectrometry (solid) for natural radioactivity.
Dust	**R2 – R3:** Gravimetric dust analysis; Digest / alpha spectrometry for ^{226}Ra, ^{210}Po and Th isotopes; and Digest / ICPMS for U and Th.
Wipe Test	**R4 only:** Digest / alpha spectrometry for ^{210}Po.
Sediment	**R5 only:** Gamma spectrometry (solid) for natural radioactivity; Digest / ICPMS for U, Th, Pb and Zn; and XRF selected samples (high Th-232 decay chain activity concentrations).

5. Sample Preparation

5.1 General

Samples were irradiated at ANSTO's Gamma Technology Research Irradiator (GATRI) to comply with Australian Government Biosecurity requirements outlined in the Plant and Plant Products (Non-standard goods) [1] and Biological Products (Non-standard goods) import permits [2].

Upon completion of irradiation samples were delivered to Minerals where they were unpacked and checked against the Chain of Custody. Fish and vegetation samples were weighed in the laboratory using a calibrated top-pan balance and these weights recorded.

All samples were labelled according to Minerals' sample labelling system and entered into the Minerals Analytical Database in which analytical techniques were assigned.

Water, soil, fish, vegetation, dust, wipe test and sediment samples were prepared as shown in **Table** *2*.

Table 2: Sample Preparation

Sample	Requirements
Water	**R1 – R4:** Acidify the sample with concentrated nitric acid (3 mL per litre of sample) and leave for a minimum of 3 days. Liquors containing solid residue were filtered, the residue and filter paper ashed at 500 °C for one hour and the residue dissolved using hydrofluoric acid and aqua regia. The digest liquor was re-combined with the filtrate. Liquor samples (1 – 5 L) were evaporated to 500 mL at 100 °C for gamma spectrometry. Initial and final volumes were recorded. **R5:** Acidify the sample with concentrated nitric acid (3 mL per litre of sample) and leave for a minimum of 3 days. Liquors containing solid residue were filtered, the residue and filter paper was dried and weighed. Residues and filter papers were digested using hydrofluoric acid and aqua regia. The digest liquor was re-combined with the filtrate. Recombined liquors were filtered through a 0.45 µm filter/syringe assembly (alpha spectrometry).
Soil	**R1 (only):** Dry samples (105 °C) to constant weight and pulverise prior to assay to ensure sample homogeneity.
Fish	**R1:** Dry in oven at 110 °C (client), composite samples (ANSTO, as per client instructions) and grind composites with mortar and pestle. **R2 – R4:** Dry in oven at 110 °C (client), composite samples (ANSTO, as per client instructions). Freeze dry and pulverise samples using a tungsten mill. *R2:* analyses was carried out on freeze dried (pulverised) material only (no ashing). *R3:* a sub-sample of freeze dried and pulverised material was retained for ^{210}Po. The remaining sample was ashed at 450 °C for approximately 12 – 24 hours. *R4:* a sub-sample of freeze dried and pulverised material was retained for ^{210}Po, ^{226}Ra and Th isotopes. The remaining sample was ashed at 450 °C for approximately 12 – 24 hours.
Vegetation	**R1:** Ash samples at 450 °C for approximately 23 hours and grind in a mortar and pestle. **R2 – R4:** Dry in oven at 110 °C (client), composite samples where required (ANSTO, as per client instructions). Freeze dry samples and pulverise (tungsten mill) or blend (commercial blender).

	R2: a sub-sample of freeze dried and pulverised / blended material was retained for ^{210}Po. The remaining sample was ashed at 450 °C for 3 – 24 hours (depending on sample availability) and then pulverised. *R3*: a sub-sample of freeze dried and pulverised material was retained for ^{210}Po. The remaining sample was ashed at 450 °C for 3 – 24 hours (depending on sample availability) and then pulverised. *R4*: a sub-sample of freeze dried and pulverised material was retained for ^{210}Po, ^{226}Ra and Th isotopes. The remaining sample was ashed at 450 °C for 3 – 24 hours (depending on sample availability) and then pulverised.
Dust	**R2 – R3:** Add 100 mL Milli-Q water to each dust bottle then place in ultrasonic bath to agitate the settled solids. Leave solution for 24 hours before proceeding with dust gravimetry analysis.
Wipe Test	**R4 (only):** Analyse as received.
Sediment	**R5 (only):** Dry samples (105 °C) to constant weight and pulverise prior to assay to ensure sample homogeneity.

5.2 Equipment

Freeze drying was carried out at -85 °C for 24 to 72 hours. Samples were contained in individual trays to prevent contamination of the freeze dryer and avoid sample cross-contamination (see **Figure 1**).

Blending of samples was carried out where necessary in a commercial blender purchased new and dedicated to the Madagascar project (see **Figure 1**). The blender was decontaminated between samples according to established cleaning procedures.

Pulverising of samples was carried out using a tungsten mill dedicated to the Madagascar project, which was thoroughly cleaned between samples with silica sand.

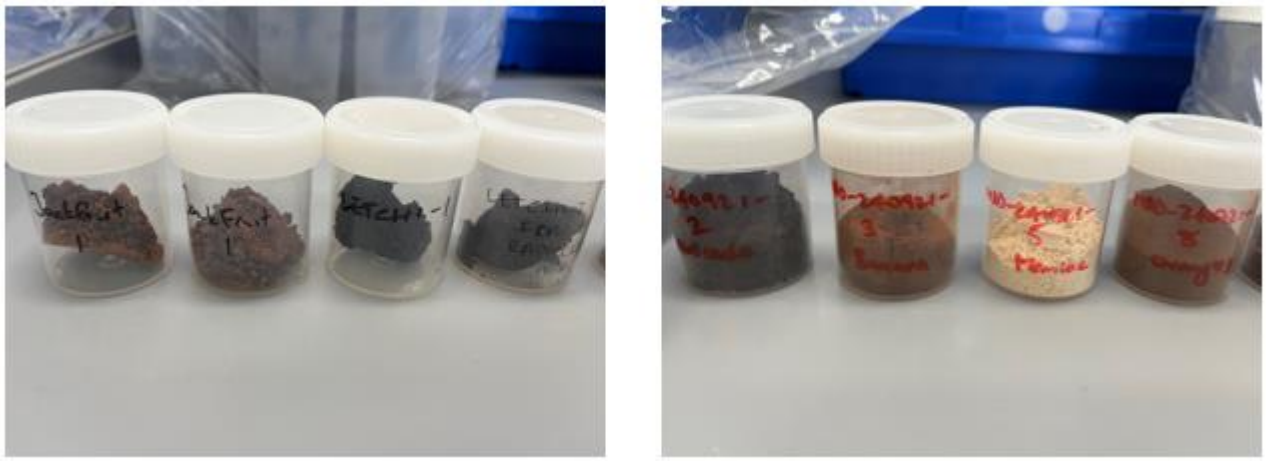


Figure 1: Freeze drying of R4 vegetation sample (left) and blending for homogenisation (right)

5.3 Assay Samples

Typical samples for assay generated from sample preparation are shown below. **Figure 2** compares vegetation samples between R2 blended samples (a), which tend to agglomerate and R3 pulverised samples (b), which are powdery and hence more homogeneous.

Figure 3 shows freeze dried and pulverised fish (first four) and prawn (last two) samples. Note that pulverising of fish samples results in a more 'chunky' appearance due to the higher fat content of fish whereas pulverising of prawn samples results in more granular, sand-like samples.



(a) ***R2 blended*** ***(b) R3 pulverised***

Figure 2: Comparison of prepared vegetation samples



Figure 3: Freeze dried and pulverised fish and prawn samples

Figure 4 shows a water sample being evaporated prior to gamma spectrometry assay.

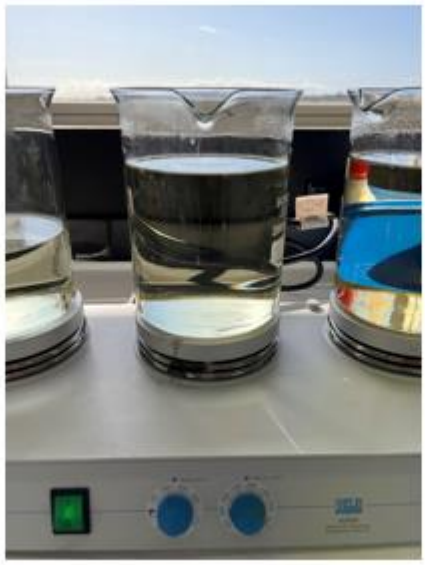


Figure 4: Evaporation of a liquor sample for in preparation for gamma analysis

6. Gamma Spectrometry

Gamma spectrometry was carried out using EG&G Ortec® HPGe n-type detectors/MCA systems according to established procedures [3 – 7]. The detectors have relative efficiencies of 20–60% and resolution (full width half maximum, FWHM) of 1.8 to 2.0 keV at 1332 keV ^{60}Co. A Maestro®-32 MCA Emulator is used to acquire sample spectra. **Figure 5** shows a typical gamma spectrometry setup.

Energy calibration was carried out using a standard ^{226}Ra point source. Counting geometries were sealed 55 or 37 mm Petri dishes for solids and sealed 500 mL Marinelli beakers for liquors with a sample volume of 450 mL. CANMET certified reference materials, BL-3 and OKA-2, were used to determine solid efficiency calibrations and BL-5 and OKA-2 were used to determine liquor efficiency calibrations. All samples were left for three weeks to allow for ingrowth of ^{214}Pb and ^{214}Bi (used to determine the ^{226}Ra concentration) and then gamma counted for two days.

Density corrections in gamma spectrometry for radionuclides with energies below 100 keV (^{210}Pb, ^{234}Th and ^{230}Th) were carried out using either a standard ^{226}Ra point source or a self-absorption correction program, using measured elemental concentration data.

Solid samples were weighed on a calibrated top-pan balance and the mass recorded to 0.01 g accuracy. Liquor samples were measured using a graduated measuring cylinder and the volume recorded to 10 mL accuracy. Spectra were analysed using Ortec® GammaVision® and results reported based on radionuclides known to provide accurate results.

The gamma peaks used in the natural radioactivity analyses are given in Table 3 and a typical gamma spectrum shown in Figure 6. A peak search sensitivity of 3 was used (moderate) and peaks with uncertainty of greater than 25% were discounted. Minimum detectable activities were calculated according to the Currie Method of Uncertainty [8].



Figure 5: Gamma Spectrometry Instrumentation

Table 3: Gamma Peaks Used for the Analysis of Solid and Liquor Samples at Minerals

Radionuclide	Energy (keV)	Abundance (%)
^{234}Th (^{238}U)	63.28	3.9
^{230}Th	67.8	0.38
^{214}Pb (^{226}Ra)	351.90	37.1
^{214}Bi (^{226}Ra)	609.32	46.1
^{210}Pb	46.50	4.05
^{228}Ac (^{228}Ra)	911.07	27.8
^{212}Pb (^{228}Th)	238.63	44.6
^{235}U	205.31	4.7
^{231}Pa	302.67	2.30
^{227}Th (^{227}Ac)	236.00	11.2
^{40}K	1460.75	10.67

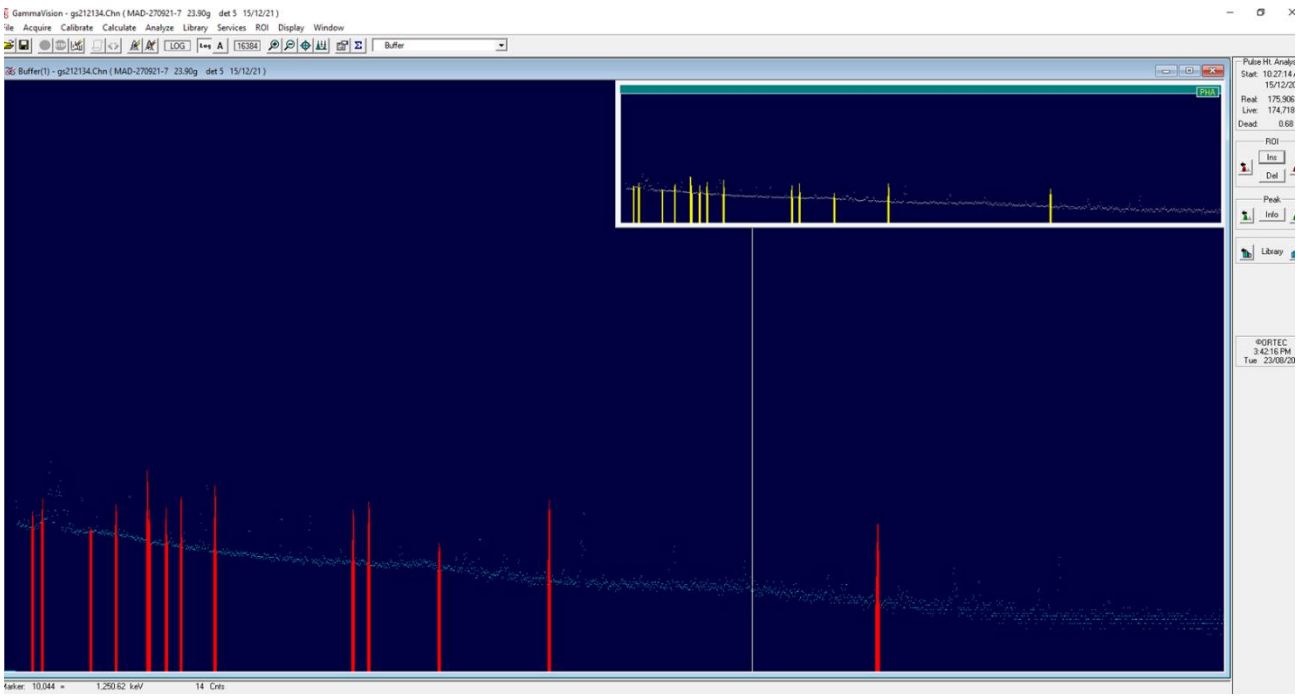


Figure 6: Typical Gamma Spectrum (Fish Sample) showing peaks listed in Table 2

7. Solid Digests

Soil, fish, vegetation, dust samples and wipe test requiring alpha spectrometry analysis were digested as per the methods described in **Table 4**.

Table 4: Digestion Methods for Soil, Fish, Vegetation and Dust Samples

Sample	Digestion Method	Reference
Soil	0.1 g of soil was weighed and the mass recorded to 0.0001 g accuracy on a calibrated analytical balance. The sample was digested with ammonium bifluoride, sulfuric acid and aqua regia and made to 50 mL (volumetrically) with MilliQ water.	Method 6.3, Ref. [9]
Fish	**R1:** 0.5 g of oven-dried and ground sample was weighed and the mass recorded to 0.0001 g accuracy on a calibrated analytical balance. The sample was digested using three acid digestion (aqua regia (HCl/HNO_3), perchloric acids). The residue was dissolved in concentrated hydrochloric acid and made to 50 mL (volumetrically) with MilliQ water. **R2:** 0.5 g of freeze-dried and pulverised sample was weighed and the mass recorded to 0.0001 g accuracy on a calibrated analytical balance. The sample was digested using nitric acid and hydrogen peroxide. The residue was dissolved in aqua regia (HCl/HNO_3) and made to 50 mL (volumetrically) with Milli-Q water.	Adaptation of Method D2, Ref. [10] Method 4.1 – 4.5, Ref. [11]

	R3: 5 g of freeze-dried and pulverised sample (^{210}Po) and 5 g of ashed and pulverised sample (Th isotopes and ^{226}Ra) was weighed and the mass recorded to 0.0001 g accuracy on a calibrated analytical balance. The sample was digested using nitric acid and hydrogen peroxide. The residue was dissolved in aqua regia (HCl/HNO_3) and made to 50 or 100 mL (volumetrically) with Milli-Q water.	Method 4.1 – 4.5, Ref. [11]
	R4: 8 g of freeze-dried and pulverised sample was weighed and the mass recorded to 0.0001 g accuracy on a calibrated analytical balance. The sample was digested using nitric acid and hydrogen peroxide. The residue was dissolved in aqua regia (HCl/HNO_3) and made to 100 mL (volumetrically) with Milli-Q water.	Method 4.1 – 4.5, Ref. [11]
Vegetation	**R1**: 0.5 g of oven-dried and ground sample was weighed and the mass recorded to 0.0001 g accuracy on a calibrated analytical balance. The sample was digested using three acid digestion (aqua regia (HCl/HNO_3), perchloric acids). The residue was dissolved in concentrated hydrochloric acid and made to 50 mL (volumetrically) with MilliQ water.	Adaptation of Method D2, Ref. [10]
	R2: 0.5 g of freeze-dried and pulverised or blended sample (Po-210) and 5 g of ashed and pulverised sample (Th isotopes and ^{226}Ra) was weighed and the mass recorded to 0.0001 g accuracy on a calibrated analytical balance. The sample was wet ashed using concentrated nitric acid / 30% hydrogen peroxide. The residue was dissolved in aqua regia (HCl/HNO_3). The digestion liquor was filtered through a 0.45 µm filter and made to 50 or 100 mL (volumetrically) with MilliQ water.	Method 4.1 – 4.5, Ref. [11]
	R3: 5 g of freeze-dried and pulverised sample (Po-210) and 5 g of ashed and pulverised sample (Th isotopes and ^{226}Ra) was weighed and the mass recorded to 0.0001 g accuracy on a calibrated analytical balance. The sample was wet ashed using concentrated nitric acid / 30% hydrogen peroxide. The residue was dissolved in aqua regia (HCl/HNO_3). The digestion liquor was filtered through a 0.45 µm filter and made to 50 or 100 mL (volumetrically) with MilliQ water.	Method 4.1 – 4.5, Ref. [11]
	R4: 8 g of freeze-dried and pulverised sample was weighed and the mass recorded to 0.0001 g accuracy on a calibrated analytical balance. The sample was digested using nitric acid and hydrogen peroxide. The residue was dissolved in aqua regia (HCl/HNO_3) and made to 100 mL (volumetrically) with Milli-Q water.	Method 4.1 – 4.5, Ref. [11]

Dust	**R2 – R4:** Dust-bearing MCE filter paper was weighed and the mass recorded to 0.0001 g accuracy on a calibrated analytical balance. The filter paper was dissolved in concentrated nitric acid and evaporated to dryness. The sample was wet ashed using concentrated nitric acid / 30% hydrogen peroxide. The residue was dissolved in aqua regia (HCl/HNO_3). The digestion liquor was filtered through a 0.45 µm filter and made to 50 mL (volumetrically) with MilliQ water.	Method 4.1 – 4.5, Ref. [11]
Wipe Test	**R4:** The sample was weighed and the mass recorded to 0.0001 g accuracy on a calibrated analytical balance. The sample was digested in concentrated nitric acid. The residue was dissolved in aqua regia (HCl/HNO_3) and made to 35 mL (volumetrically) with Milli-Q water	Method 4.1 – 4.5, Ref. [11]

Samples were digested using vessels dedicated to the analysis of low-level radioactivity samples to minimise the likelihood of contamination in the digest liquors. **Figure 7** shows a typical digest liquor resulting for a R4 freeze dried vegetation sample.

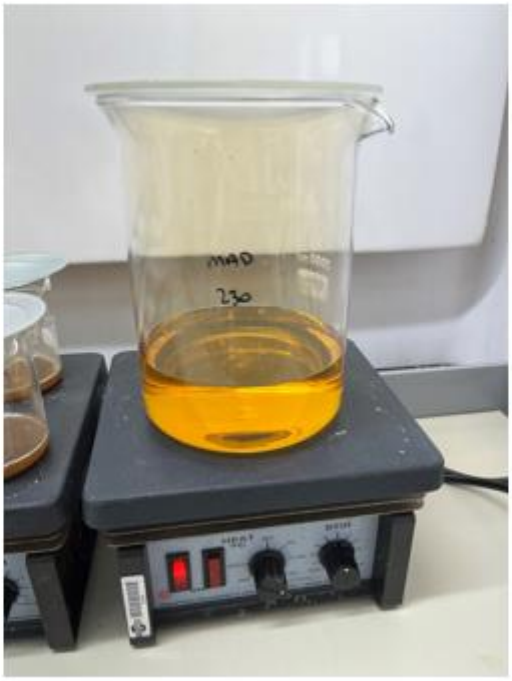


Figure 7: Digestion of R4 freeze dried vegetation for radiochemical analysis of ^{210}Po

8. Alpha Spectrometry

Alpha spectrometry was used to determine the concentrations of ^{210}Po, ^{226}Ra, uranium (^{238}U, ^{234}U, ^{235}U) and thorium (^{230}Th, ^{232}Th, ^{228}Th) isotopes.

Radiochemical separation of ^{210}Po was carried out according to [13]. Radiochemical separation of radium was carried out using a lead/barium sulfate co-precipitation according to [14]. Radiochemical separation of thorium isotopes for R1 to R4 was carried out according to [13]. Radiochemical separation of uranium and thorium isotopes for R5 was carried out according to [26]

The following certified materials were used as yield tracers in alpha spectrometry: ^{209}Po [37.4 ± 0.4 Bq/g], ^{236}U [2.10± 0.11 Bq/g] and ^{229}Th [13.8 ± 1.4 Bq/g]. Certified ^{133}Ba tracer [843 ± 20 Bq/g], a gamma emitter, was used as a yield tracer for ^{226}Ra.

Soil, fish, vegetation, dust and wipe test samples were digested using the methods described in **Section 7**. The digest liquors were analysed by taking an appropriate sample aliquot. Reagent blanks were analysed for each technique, and duplicates analysed upon request from the client.

Samples were counted using silicon surface barrier detectors and the spectra collected using Maestro®-32 MCA Emulator software. **Figure 8** shows the alpha spectrometry setup. Samples were counted for a sufficiently long period to obtain substantial counts above background (up to 200000 s). Minerals ensured that:

- Spectra were collected in low background detectors;
- Spectral peaks fit with expectations and spectra were free of contamination;
- Recovery of the relevant tracer was acceptable; and
- Background activity was subtracted from the results.



Figure 8: Alpha Spectrometry Instrumentation

Typical alpha spectra are shown in Figure 9 (thorium isotopes), Figure 10 (^{226}Ra) and Figure 11 (^{210}Po).

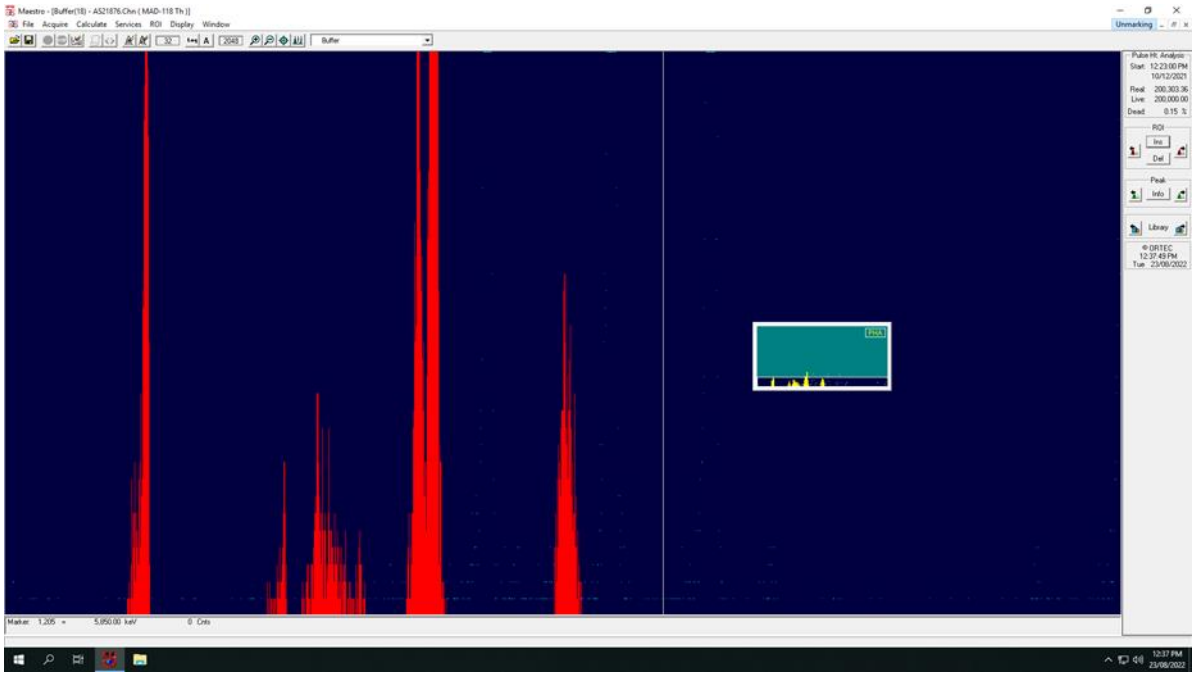


Figure 9: Typical alpha spectrum showing Th isotopes (prawn sample)

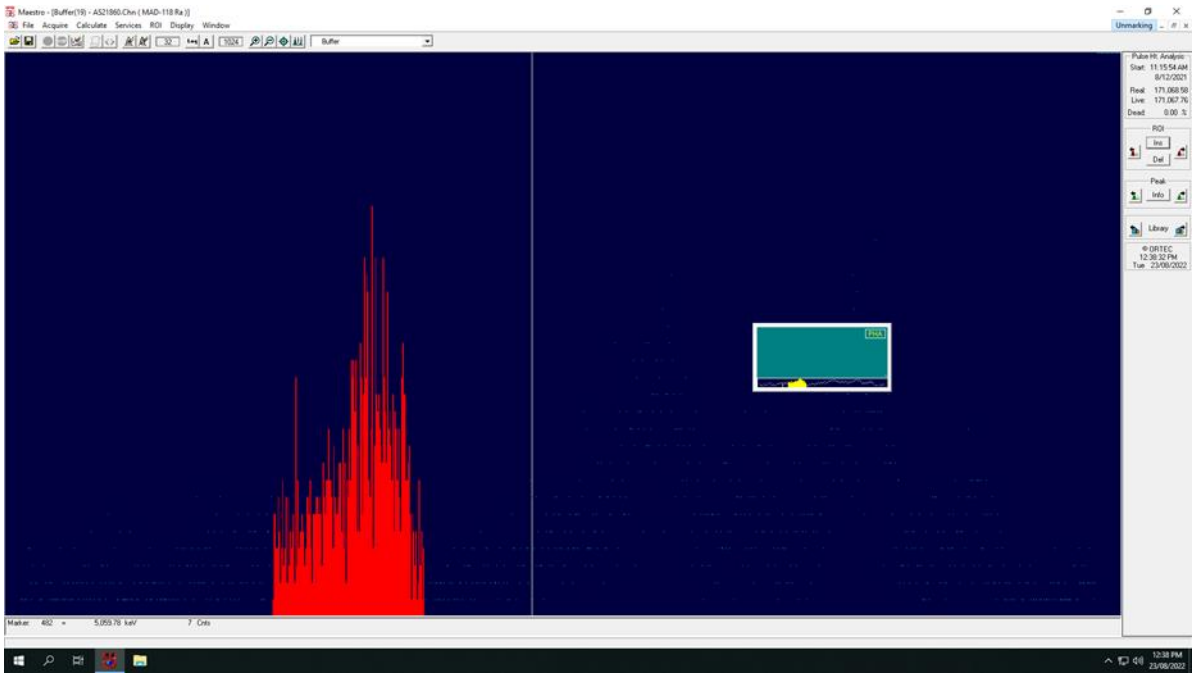


Figure 10: Typical alpha spectrum showing ^{226}Ra (prawn sample)

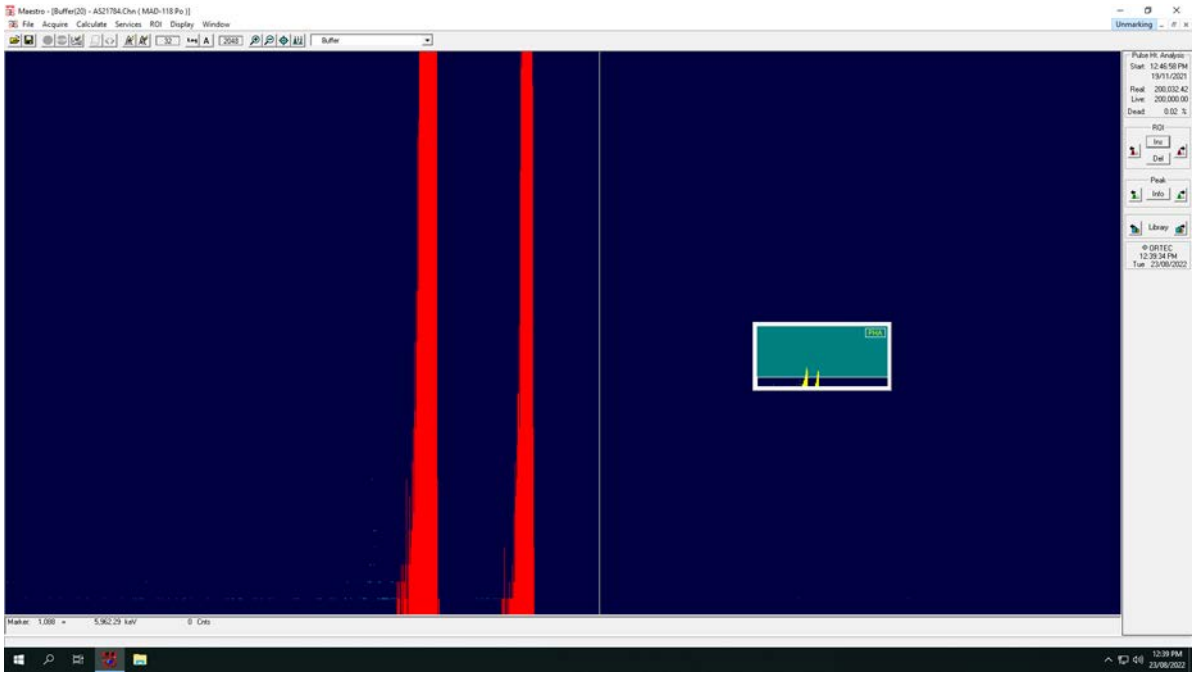


Figure 11: Typical alpha spectrum showing ^{210}Po (prawn sample)

9. ICPMS

The concentrations of As, Ba, Cu, Hg, Mn, Pb, Th, Ti and U in liquor and digested solid samples (R1) were measured using Minerals ICPMS. The instrument was calibrated using ICP standard solutions containing the elements of interest. Internal standards (germanium, rhodium, and lutetium) were added to each sample to determine recoveries. Certified reference liquors (CMS-1, CMS-3, CMS-4, CMS-5 and MSHG-10 ppm) were used to verify the calibration.

The expected instrument detection limit for each element is given in **Table 5**.

Table 5: Minerals ICPMS Detection Limits for Liquor and Digested Solid Samples

Element	mg L^{-1}	Bq L^{-1}	µg g^{-1}	Bq kg^{-1}
As	0.1	-	-	-
Ba	0.01	-	-	-
Cu	0.01	-	-	-
Hg	0.01	-	-	-
Mn	0.01	-	-	-
Pb	0.01	-	-	-
Th	0.01	0.04	1	4
Ti	0.1	-	-	-
U	0.01	0.12	-	-
Zn	0.01	-	-	-

U and Th analysis in digested soil, fish, dust and vegetation samples (R2 and R3) and digested fish and vegetation samples (R4), together with U, Th, Pb and Zn in digested sediment samples (R5), were analysed by ANSTO's Isotope Tracing in Natural Systems (ITNS) group using a low-level ICPMS. Bismuth internal standard was added to each sample to account for matrix and instrument drift. A certified reference liquor (IV-ICPMS-71A, 10 µg/mL Th and U) was used to verify the calibration. Standard checks were run after every 15th sample to check for instrument drift. The expected instrument detection limit for each element (based on 0.1 g of sample in 100 mL of digest liquor) is given in **Table** *6*.

Table 6: ITNS ICPMS Detection Limits for Digested Solid Samples

Element	µg g^{-1}	Bq kg^{-1}
Pb	0.5	-
Th	0.5	2
U	0.1	1.2
Zn	10	-

For each ICPMS run, Minerals and ITNS:

- Verified that each calibration curve had a correlation coefficient of 0.995 or better for quantitative results;
- Verified that internal standard recoveries were 100 ± 30%;
- Analysed the method blank and/or a calibration blank solution at the beginning of the sample sequence and ensured that the blank values were below reporting limits. High blank values were investigated and any appropriate action taken before proceeding with the analysis; and
- Checked for the possibility of carry-over or cross-contamination if a low-level analyte was analysed immediately after a sample with a large concentration of the analyte.

10. XRF

XRF was used to determine the elemental concentrations in sediment samples (R5) containing high concentrations of ^{232}Th decay chain radionuclides according to [27]. The elemental concentrations were used for self-absorption corrections in gamma spectrometry.

11. Method Validation

IAEA certified reference materials (CRMs) were used to validate methods used for digesting and analysing the natural radioactivity content in received soil, fish and vegetation samples by alpha spectrometry and ICPMS. There was insufficient material to carry out gamma spectrometry.

Certified and information values for CRMs, together with the measured activity concentrations, are given in **Table 7**.

Table 7: Certified Reference Materials and Measured Activity Concentrations for Method Validation

CRM	IAEA-384 - Reference Date: 1-Jan-19				IAEA-447 - Reference Date: 01-Mar-21			
	Conc. (Bq/kg)	Corr. Conc. (Bq/kg)	Meas. Conc. (Bq/kg)	Count Date	Conc. (Bq/kg)	Corr. Conc. (Bq/kg)	Meas. Conc. (Bq/kg)	Count Date
U-238 decay series								
U-238 (ICPMS)	36.4 ± 1.2		38.5 ± 3.9	21-Feb-22	22.2 ± 0.8		-	
U-238 (alpha)	36.4 ± 1.2		35.3 ± 3.6	06-Dec-21	22.2 ± 0.8		-	
U-234	40.3 ± 2.2		42.9 ± 4.2	06-Dec-21	21.8 ± 0.8		-	
Th-230	2.50 ± 0.10		2.3 ± 0.7	08-Dec-21	-		-	
Ra-226	2.40 ± 0.24				25.1 ± 2.0		22.6 ± 3.0	13-May-22
Pb-210	11.6 ± 0.8	10.8 ± 0.7	-		306 ± 15	296 ± 15	-	
Po-210	11.8 ± 0.8	10.9 ± 0.7	12.0 ± 1.4	08-Dec-21	311 ± 16	300 ± 15	289 ± 48	13-May-22
Th-232 decay series								
Th-232	0.023 ± 0.007		< 0.7		37.3 ± 2.0		-	
Ra-228	0.117 ± 0.039	0.095 ± 0.032	-		-		-	
Th-228	0.166 ± 0.079	0.132 ± 0.063	< 0.7		-		-	

Key:

Certified values

Information only

Concentration on the Po-210 count date

12. Quality Policy

Minerals conducts its activities in accordance with AB-0101 ANSTO Quality Policy [15], following the guidelines of ISO 9001 requirements for Quality Management Systems [16]. The Quality Management system that is implemented in Minerals has been tailored to suit our needs as an ANSTO business.

13. Environmental Management Policy

Minerals conducts its activities in accordance with AB-7100 ANSTO Environmental Policy [17] and compliance with the AE-5362 ANSTO Environmental Management Strategy [18]. Minerals aims to meet the elements of ISO 14001 Environmental Management System [19]. Environmental aspects of its activities and products are identified, documented and managed via implementing control systems that prevent these from having a significant impact on the environment.

14. Environmental Management Process

Minerals' environmental responsibilities are managed in accordance with AB-0102 ANSTO Work Health Safety and Environment Policy [20]. We:

- Identify and manage environmental aspects associated with Minerals operations and activities in accordance with guidelines in AR-2067 ANSTO Environmental Management Process [21], utilising both AP-2068 Environmental Aspects Identification and Evaluation [22] and AP-2069 Environmental Compliance Obligations [23].
- Determine the level of risk associated with the environmental aspect by conducting risk assessments in accordance with the AG-2395 Risk Assessment Matrix [24].
- Implement control systems to mitigate risk to as low as reasonably achievable (ALARA) when the potential risk exceeds a rating of 'low'.
- Review Minerals operations to determine if new environmental aspects exist, particularly with new infrastructure and scale of operations.
- Participate in ANSTO's Local Environment Committee (LEC).
- Follow ANSTO Waste Operations guidelines, AG-2071 Environmental Aspects Entry Exemption Limits (EEL) [25].

15. Work Health, Safety Management

Minerals undertake work in accordance with the AB-0102 ANSTO Work Health Safety and Environment Policy [20]. This policy is implemented at a local level through the ANSTO Safety Management System. Minerals will ensure that:

- Risk assessments are conducted for all work undertaken by Minerals personnel and in accordance with Risk Management guidelines in ANSTO's Safety Standards and Practices.
- New personnel and contractors attend an appropriate Safety Induction course before they commence work on site.
- Contractors have been issued with a Safe Working Permit before commencing any work within Minerals.
- The ANSTO Safety Assessment Committee (SAC) approves all laboratory operations which carry significant risk to Minerals personnel and/or contractors.
- Any event is reported promptly.
- Minerals has adequate protection for managing:

- exposure to ionising radiation;
- manual tasks;
- chemical handling and storage; and
- hazard identification and housekeeping

by following guidance provided in the ANSTO Safety Standards and Practices.

Minerals maintain an elected standing committee on Work, Health and Safety (WHS). The role of this committee is to monitor and review WHS within the workplace and to recommend changes and implement programs to improve safe working conditions. The committee reports to the General Manager, Minerals.

16. References

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13. I-4303 Radiochemical Analysis for U, Th, Pb and Po.
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15. AB-0101 ANSTO Quality Policy.
16. ISO 9001 Quality Management Systems.
17. AB-7100 ANSTO Environmental Policy.
18. AE-5362 ANSTO Environmental Management Strategy.
19. ISO 14001 Environmental Management System.
20. AB-0102 ANSTO Work Health Safety and Environment Policy.
21. AR-2067 ANSTO Environmental Management Process.
22. AP-2068 Environmental Aspects Identification and Evaluation.
23. AP-2069 Environmental Compliance Obligations.
24. AG-2395 Risk Assessment Matrix.
25. AG-2071 Environmental Aspects Entry Exemption Limits.
26. U and Th isotopes in accordance with ANSTO Minerals controlled document I-8229 Uranium and Thorium Separation using UTEVA Resin.

27. G-5915 XRF Procedures Manual.

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