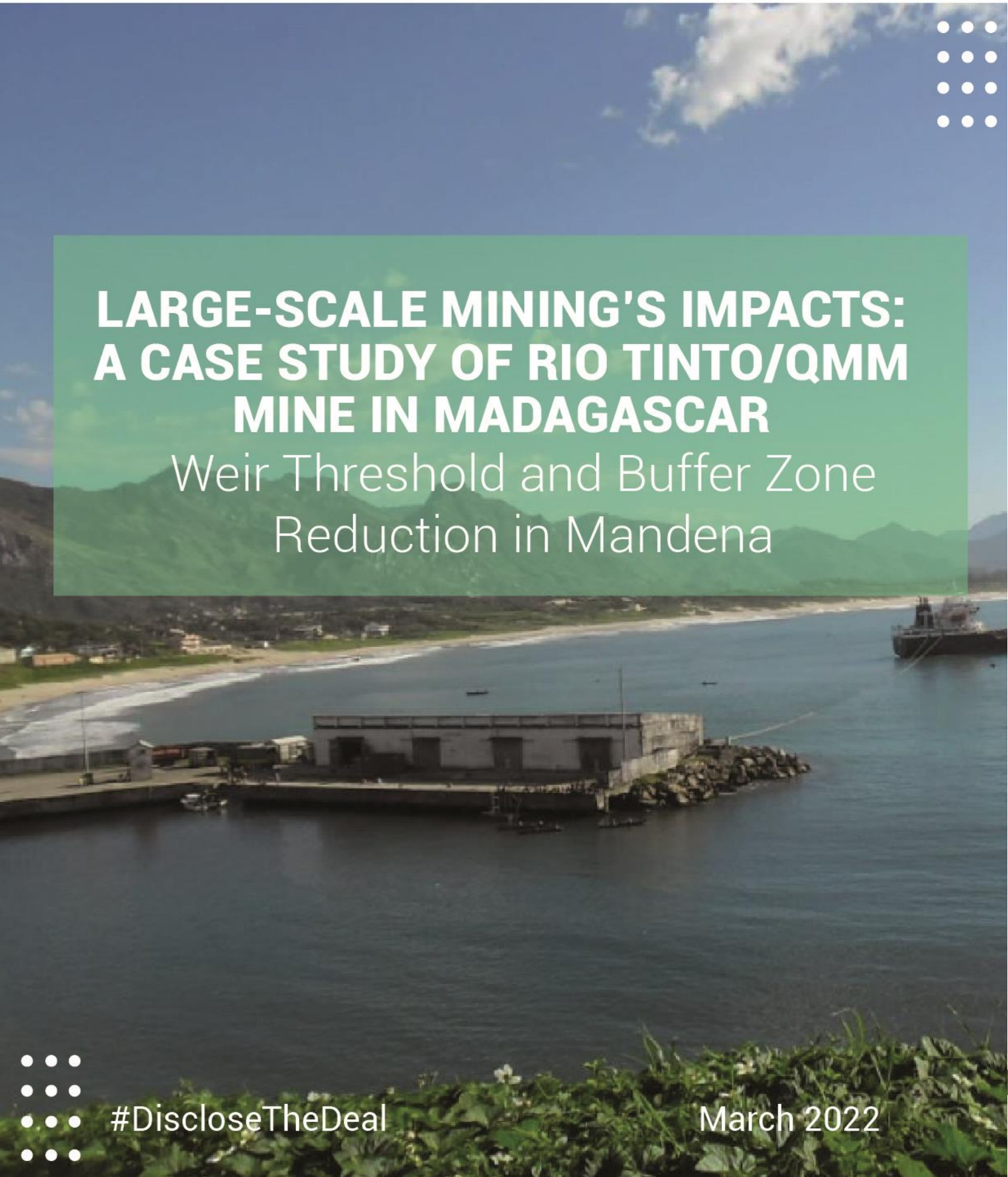
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Madagascar



# LARGE-SCALE MINING'S IMPACTS: A CASE STUDY OF RIO TINTO/QMM MINE IN MADAGASCAR

## Weir Threshold and Buffer Zone Reduction in Mandena

#DiscloseTheDeal

March 2022

Publish What You Pay or PWYP is a global network of civil society organizations united in their call for transparency and accountability in the extractive sector so that oil, gas and mining revenues improve the lives of people in resource-rich countries. Created in 2002 to campaign for Extractive Industries to publish their payments to governments and for governments to disclose their revenues, it has grown into a global coalition of more than 700 member organizations in 45 countries. The Extractive Industries Transparency Initiative (EITI) was born out of this campaign. More than 50 countries now produce EITI reports and Madagascar is one of them. These reports are becoming increasingly detailed and focus on government revenue flows from mining, gas and oil extraction. According to its strategic plan, "PWYP works to promote transparency, accountability and citizen participation at all levels of the extractive industry: from local communities in mining areas to national governments, regional mining governance frameworks".

Publish What You Pay Madagascar (PWYP MG) is the national coalition of PWYP. It has 11 member organisations : Flambeau Madagascar ; Association AGIR ; KMF/CNOE ; Transparency International - Initiative Madagascar (TI-MG); FITAFAM Maintirano ; ONG Faravehivavy ; Action des Chrétiens pour l'Abolition de la Torture (ACAT) Madagascar ; ONG REV ; Alliance Voahary Gasy (AVG); Association TIAKO ; and the Taratra project. Since 2020, TI-MG was elected to coordinate the national Coalition for the next two years.

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# ACRONYMS

| | |
|---|---|
| ALT-MG | Andry – Lalana – Tohana Madagascar |
| ALT UK | Andrew Lees Trust |
| ANDEA | Autorité Nationale de l'Eau et de l'Assainissementzre |
| CCR | Coordinated Community Response |
| CEM | Conférence Episcopale de Madagascar |
| CLL | Comité Local de Liaison |
| CRAAD-OI | Centre de Recherches et d'Appui pour les Alternatives de Développement - Océan Indien |
| CSB | Centre de Santé de Base |
| CSER | Comité de Suivi Environnemental Régional |
| CSO | Civil Society Organisation |
| CSR | Corporate Social Responsibility |
| CTD | Collectivités Territoriales Décentralisées |
| CTE | Comité Technique d'Evaluation |
| DREDD | Direction Régionale de l'Environnement et du Développement Durable |
| DRMRS | Direction Régionale des Mines et des Ressources Stratégiques |
| DRPEB | Direction Régionale de la Pêche et de l'Economie Bleue |
| EITI | Extractive Industries Transparency Initiative |
| ESIA | Environmental and Social Impact Assessment |
| GAHP | Global Alliance on Health and Pollution |
| IEC | Information, Education and Communication |
| IFC | International Finance Corporation |
| IGAs | Income Generating Activities |
| IIAP | Independent International Advisory Panel |
| INSTAT | Institut National de la Statistique |
| M&E | Monitoring and Evaluation |
| MECIE | Mise En Comptabilité des Investissement avec l'Environnement |
| META-M | Mobilizing for Extractives Transparency and Accountability in Madagascar |
| NGO | Non-Governmental Organization |
| ONE | Office National pour l'Environnement |
| PAGS | Plan d'Aménagement et de Gestion Simplifié |
| PGEP | Plan de Gestion Environnemental du Projet |
| PGES | Plan de Gestion Environnemental Sectoriel |
| PIC | Pôle Intégré de Croissance (Integrated Growth Poles) |
| PWYP | Publish What You Pay |
| PWYP MG | Publish What You Pay Madagascar |
| QMM | Qit Madagascar Minerals |
| RT | Rio Tinto |
| SDGs | Sustainable Development Goals |
| SEMP | Social and Environmental Management Plan |
| SRE | Service Régional des Entreprises |
| TI-MG | Transparency International - Initiative Madagascar |
| TOC | Theory of Change |
| UNDP | United Nations Development Programme |
| WHO | World Health Organisation |
| WWF | World Wildlife Fund |

# CONTEXT, AIMS AND OBJECTIVES

Publish What You Pay Madagascar (PWYP MG), the Malagasy PWYP Coalition, coordinated by Transparency International - Initiative Madagascar (TI-MG), is currently running the META-M (Mobilizing for Extractives Transparency and Accountability in Madagascar) project as part of PWYP's global #DiscloseTheDeal Campaign.

One of the META-M project's specific objectives is to expose mining contracts' hidden costs through a case study. PWYP MG chose to focus the case study on the Rio Tinto/QMM mine in Mandena, as a continuation of its previous field research in 2020, and because of the size of the company and its operation.

This study aims to expose the neglected costs or impacts of the "deal" between RT/QMM and the Malagasy Government, on communities. The study brings a specific focus to the impacts of RT/QMM's Weir Threshold and Buffer Zone Reduction on local communities. In doing so, it provides an opportunity for a wider and more in depth debate about transparency around the "deal" that extractives companies make with governments, and an example and approach that can be replicated and expanded both in Madagascar and internationally. It is hoped this will open up more holistic consideration about the real costs and benefits of proposed and existing mining projects. The work can also help to inform Madagascar's mining code/laws that are currently under review and assist in developing new activities and local communities' awareness of them.

QMM, as the first large-scale investor in Madagascar, is governed by its own convention, separate to the existing and current mining laws that were in place or have been developed since the mine began. This convention has the status of a law, and was signed in 1998. It was valid for 25 years and the agreement is coming up for renewal in 2023. In light of this, it is timely to review the mine's impacts and reassess the 'deal'.

Rio Tinto/QMM's fiscal responsibilities and agreements with the Malagasy Government are relatively transparent, even if they are not disaggregated, since they are required to be reported and quantified by state entities, the World Bank as well as by EITI Madagascar. However, transparency about distribution of fiscal benefits from the QMM operation at the local level is less evident.

Additionally, those less tangible aspects of the 'deal', elements defined and determined under QMM's license agreement in the SEIA and PGEP, are shown in this study to be difficult to monitor and account for even by those entities expected to participate in such evaluations; elusive, in terms of transparency, public reporting and documentation for a wide range of actors; and subject to contestation from those very beneficiaries who are targeted to be either protected from the negative impacts of the mine and or compensated for losses or harm caused by the operation under these agreements.

Since the QMM mining project was central to the regional development strategy supported by the World Bank to lift the Anôsy region out of poverty, and the country and the mining company are both committed to Sustainable Development Goals (SDGs) – all of which are represented in the issues reported by villagers, some serious questions arise as to **why the current situation is so lacking in resolution, why commitments have not been met, and why the poorest rural inhabitants and those most immediately impacted by the mine have been so dispossessed of their rights and entitlements, and have been left in such misery**.

PWYP MG is thankful to those who took an active part to this research which is dedicated to all the villagers in Mandena and its surroundings. A promise was made, and it will be kept.

# SETTING THE SCENE : RIO TINTO/QMM'S MINE IN ANÔSY

Qit Minerals Madagascar (QMM) is a subsidiary of the multinational mining giant, Rio Tinto Plc. Costing US$585 million, QMM represents the largest foreign investment in Madagascar's history and is one of the first large scale mining projects on the island (Harbinson, 2007; Gerety, 2009). As a public-private partnership with the Malagasy government, and developed with the international mining sector and the World Bank, QMM enjoys a powerful position nationally and internationally.

The mine is located in the Anôsy region that is situated in the far south-eastern corner of the island, home to approximately 800,000 people (INSTAT 2021). The capital city Taolagnaro (known also as Fort-Dauphin), was an early trading post and the first French colonial settlement on the island. The south is largely isolated and poor, and over 90% of rural people in this region are living in multidimensional poverty, on less than US $1.90 dollar per day. The coastal villages are populated by fisherfolk and their families who harvest lobster and prawns for local and international markets. Many communities living around the inland estuary and lagoon systems also fish in local rivers and lakes. Rainfall has been diminishing for many years with direct impacts on harvest yields and drinking water, and the Anôsy region has been affected by drought which has been deepening across the whole south of the island (Reliefweb 2021).

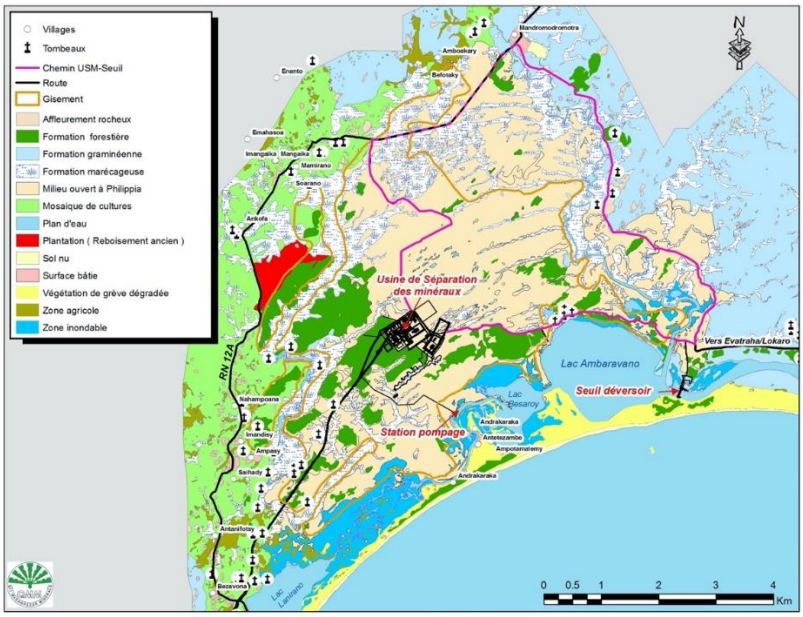



*Photo 1. A view of RT/QMM's mine in Mandena*

The mine extracts ilmenite from mineral sands along the southeastern coastline of the Anôsy region. It also extracts zirsill, which contains zircon used for production of ceramic tiles, television screens and computer monitors (Hoagland 2013). Since 2018, QMM also started to export monazite, a radioactive mineral containing rare earths also present in the sands (Swanson 2019). The mine is currently operating at the Mandena site. Approximately 15,000 people live within a few kilometers of the QMM mine site in Ampasy Nahampoana, Andrakaraka and Mandromondromotra, and villagers are occupied with subsistence farming, animal husbandry and fisheries. They rely on forest

resources during times of hardship, as well as for firewood and construction needs. Forests also house tombs and are considered sacred.

QMM headed the Madagascar Chamber of Mines for a number of years, leading extractive sector policy development in country, and is a key player in negotiations to help secure Madagascar's membership of the Extractives Industry Transparency Initiative (EITI). EITI membership is required to ensure transparency and recognised standards in the oil, gas and mining sectors, which can be applied at the national level. Biodiversity offsetting is required for Madagascar's inclusion in the Extractive Industry Transparency Initiative (EITI) for example, and has been adopted by QMM.

As well as its agreement with the environmental regulator, the National Office for the Environment (ONE), QMM also has formal agreements with the local forces of order and most recently set up an agreement with the National Water and Sanitation Authority (ANDEA) – the Malagasy agency responsible for water quality. Rio Tinto also recently announced that QMM also has a new agreement with the Ministry of Water, which will address demands for access to potable water in communities around the mine site at Mandena[1].

## ➢ A CONTESTED LANDSCAPE

Despite the royalties paid by the mining company alongside with fiscal contributions, the benefits of the Rio Tinto/QMM Mine have been overall unequally shared since the start of the operations in 2008. For example, local communities are now more likely to have access to a road, a CSB and a school within 30 minutes of their house (World Bank standards). However, from an economic standpoint, those who have benefitted the most are those who were able to be employed by the mine or its subcontractors. Procurement contracts with local companies remain rare due to the lower standards of products and services provided, therefore limiting potential "spill-over" effects of the mining activities. In addition, the education and training levels of people around the mine has often not been adequate for them to find employment at the mine, fueling frustrations (Randrianarisoa 2021).

On top of limited benefits to mining operations, costs of mining are rarely quantified and largely left out of contractual analyses around deal disclosures and negotiations. They are nevertheless potentially substantial – especially from a local community's perspective. They can range from the generational losses experienced by communities from land displacement, to corroded governance caused by opacity in local agreements. QMM's operations have disrupted the local ecosystems, giving rise to a series of concerns about water quality and the health of local rivers and lakes. According to locals, fish stocks in the lakes have been significantly reduced, crocodiles have migrated upriver and with ensuing attacks on village children, and the decrease of the water quality caused health impacts for local populations living around the mine (PWYP MG 2020).

The mining company recognizes the risk to the environment posed by the QMM mine and, following international calls in 2017 for greater transparency around QMM's environmental impact, publicly stated: *"QMM operations present a significant risk from a water and broader environmental perspective due to their location, the nature*

[1] Meeting between Rio Tinto, PWYP Secretariat, PWYP MG and ALT UK, January 13th 2022.

*of the surrounding environment and the mining process. So, we have committed to reviewing our current practices and infrastructure to develop and implement an improved site water management approach by 2023."* (Rio Tinto Annual Report, 2019, p.67).

- TRANSPARENCY CHALLENGES IN MADAGASCAR

Transparency in the mining sector is relevant to reducing corruption, a significant challenge in Madagascar, which ranks 147/180 on Transparency International's Corruption Perceptions Index (TI, CPI 2021, 2022). In 2020, three quarters of citizens thought corruption had increased in Madagascar over the previous year (GCB Africa, 2019). The average Malagasy was more than 40 percent poorer in 2020 than in 1961 (World Bank 2020).

Madagascar still does not enjoy a ratified freedom of information act and whistleblowers experience judicial harassment. Rights to freedom of expression are subdued since the authorities deny permits for demonstrations and those that occur are dispersed, often using force. Government crackdowns on activism, social media and other process for open sharing of information such as radio phone in programmes, are all barriers to improving reflexive governance strategies to ensure greater accountability and transparency and the promotion of rights.

The media in Madagascar, which could provide mechanisms for public debate, is largely self-censoring due to fear or reprisals and closure, as well as defamation laws that restrict press freedom (Freedom House, 2021; UNDP, 2008). The Covid pandemic has exacerbated media restrictions with the government harassing and targeting media outlets who allegedly spread "false information" or criticise the government's response to the pandemic.

Madagascar ranks 98/180 on the World Press Freedom Index. Its 2016 Code of Communication makes it possible to try media offences under the criminal code, with the potential to criminalise journalists (RSF, 2022), and a new cybercrimes law has been used to prosecute social media users (Freedom House 2021).

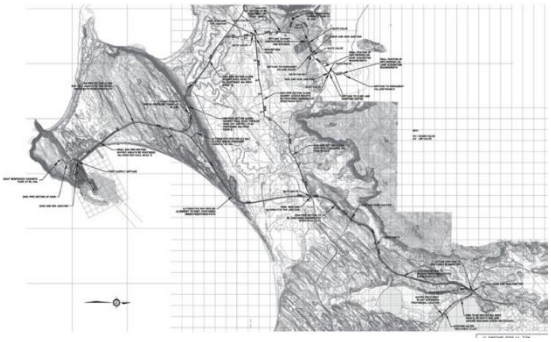
- ACCESS TO POTABLE WATER CHALLENGES IN ANÔSY AND RIO TINTO/QMM

Both the QMM weir and buffer zone activity relate to the mine's impacts on water quality in the local lagoon system, which runs adjacent to the mine and where local communities gather drinking water and fish for food. In this regard it examines a direct relationship between project operational decisions and design which form part of the 'deal' and impacts on the communities' vital natural resources, especially on water quality.

Water is essential for life and safe water management sits within Rio Tinto's policy on water, and is an International Council for Mining and Minerals (ICMM) performance priority to which Rio Tinto is a signatory: (6.2) *"water stewardship practices that provide for strong and transparent water governance, effective and efficient management of water at operations, and collaboration with stakeholders at a catchment level to achieve responsible and sustainable water use."*

In 2011, Rio Tinto had entered into a collaborative partnership with the World Bank and the Malagasy water provider, the JIRAMA[2] in which the Bank would upgrade the local water supply network, and QMM would assist in training and management. A report by WaterAid (2018) confirms that 2 million US dollars were contributed to the rehabilitation of the Ft Dauphin water treatment plant and construction of a new treatment plant (including a new waste water treatment system). Investments were also made for water supply in the commune of Ampasy Nahampoana, together with road repairs, most likely targeted because of its tourism potential (local lemur park).

However, according to inquiries made and data available at the time of the Swanson review (research and analysis during 2018 by Swanson, and in community research in 2020 by PWYP) those communities around Mandena most immediately impacted by the mine had received none of the major investment into water quality treatment or potable water access in the Anôsy region.



The December 2006 Social and Environmental Management Plan (SEMP) of QMM indicates projected works to create provision of potable water from Lanirano at the end of the estuary system to the town of Fort-Dauphin, the port of EHOALA and also the QMM base. Most of the investment appears to have been toward meeting QMM water needs in the town of Fort-Dauphin, at the QMM base, and at the new EHOALA port (see image left).

*Photo 1. Projected works to create provision of potable water (SEMP 2006)*

The Malagasy Government's target to achieve 68 percent drinking water coverage under its commitments to the Millennium Development Goals fell short (achieving 52 percent access to an improved water source), according to a report by WaterAid (2018). Less than half the population in Madagascar has access to safe drinking water and rural inhabitants are likely to have much lower access - only 34 percent in rural areas (WHO/UNICEF JMP report, 2015).

A field study by Publish What You Pay Madagascar (PWYP MG, 2020) confirmed that few villagers interviewed in Mandena had access to a water fountain (18 percent) or a pump/ other water infrastructure (12 percent). Aside from some private access, the majority of villagers around the Mandena mine site are drawing their drinking water (52 percent) and domestic water (68 percent) from rivers, lakes and other natural sources.

Whilst no significant planning or resources appear to have been developed to create domestic/drinking water infrastructure for citizens in Mandena, these communities report that their health and livelihoods have been adversely affected by changes in the water quality since the mine began its operations (2009), including from the construction of the QMM weir and from what villagers say is pollution from the mine (PWYP MG, 2020).

[2] In a powerpoint produced by Dr Elaine Dorward-King (Managing Director at Rio Tinto's Richard Bay Minerals operation in South Africa)

# QMM's WEIR THRESHOLD AND BUFFER ZONE REDUCTION

The following Figure presents key dates related to weir and buffer zone management by QMM:

Box 1. Key dates of RT/QMM water management issues

- **2007** : Construction of the weir threshold, PGES 2006 (by QMM)
- **PGES (2014-2018)** : Request to reduce the buffer zone to 50m instead of 80m (ministerial order*)
- **2015** : Approval by ONE for the reduction of the buffer zone.
- **2017** : Independent research confirms that between 2013-2014, QMM violated the already revised 50m limit
- **2019** : QMM admits a 90m breach with a 40m encroachment on the bed of Lake Besaroy

## ➢ THE QMM WEIR

In its Social and Environmental Management Plan developed by QMM in 2006, the mining operation sought authorisation to construct a weir at the mouth of the local estuary, where tidal influxes of sea water could potentially affect the hydraulic relationship between the local lakes and the mine, regularly impacting the ordinary high-water level (OHWL).

According to QMM the water level in the mining basin is maintained at 1-2 meters below the surface of the natural water bodies and 3 meters below the elevation of the adjacent topography and the water level in the mining basin could not be maintained at a lower level without influx of groundwater into the mining basin (Emerman, 2018a; QMM, 2015). The weir was regarded as an essential component of the mine's water management system for the drag pond operation.

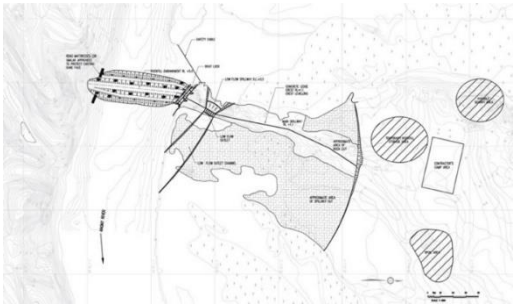


*Photo 2. The site of the QMM weir (QMM 2006)*




*Photo 3. Lake and rivers around Mandena*

The impact of this weir structure was deemed to pose a number of risks, not least since it would convert the occasionally-brackish lagoon system near the mine into a permanent freshwater system. In its 2005 project appraisal of the mine, the World Bank warned that this conversion to a freshwater system, *"Essentially irreversible, the conversion may affect subsistence fishery"*.

QMM's plan identified changes to the salinity (for which it included soft water as a positive impact) but failed to highlight risks to existing fish species and stocks dependent on estuary's brackish water effects. The QMM SEMP focused impact assessment on improvements to boat circulation, tourism potential, and less migration of crustaceans. QMM appeared to anticipate an "Increase in fishery productivity (freshwater species)" and positive impacts from the "Management of fishery resources" as a result of the weir construction (QMM SEMP 2006).

By 2009, fisherfolk from Andrakaraka were publicly reporting diminished fish stocks in the lake (Al Jazeera, 2009). A decade later they were claiming that fish species traditionally caught, the healthy stocks of which sustained their lives, were reduced by 90% with huge impacts on livelihoods. The complaints formed the basis of recommendations made by QMM's external Independent International Advisory Panel (IIAP) who met with the fisherfolk in 2019 and determined: *"It is doubtful that any other community in the area has suffered greater direct damage to its livelihood from the mine's operations. Accordingly, we recommend urgent steps to remedy their situation..."*. However, at the time of this study's field research (November 2021), resolution seemed elusive and fisherfolk from Andrakaraka had taken to setting up road blocks to the QMM mine in protest for their damaged fishing livelihoods and lack of adequate compensation or remedy for their losses.

### ➢ THE QMM BUFFER ZONE

In its Social and Environmental Management Plan (SEMP) 2014-2018 QMM applied to the Malagasy Government to waive restrictions and reduce a prerequisite statutory 80-metre environmental buffer zone[3] protecting local waterways adjacent to the mine to just 50m at five "*pinch points*". The additional land would afford the necessary space for their infrastructure and mine anchorage – notably a 30m wide and 4-metre-high dam (referred to by QMM as a "berm") without which the dredging plant cannot function.

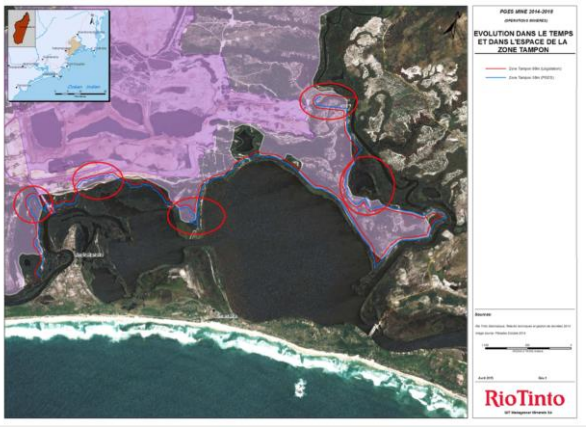



*Photo 4. The space and time evolution of RT/QMM's Buffer Zone*

[3] Arrêté interministériel n°4355 /97

The reduction was approved in 2015 by the Malagasy regulator (ONE) with condition for "*a 50m protective strip erected between the retaining wall and the lake to preserve water quality and the aquatic ecosystem*" (ONE, PGES 2015) and agreement that "*no mining activities are allowed in the 50m closest to the water body*" (Rio Tinto, 2017)[4]. The reduction of the buffer zone afforded an additional 14.4 hectares of land to QMM and enabled the company to access rich mineral deposits at low cost. In an internal Memo, Rio Tinto explained this would be necessary for the QMM project to remain a going concern stating that, without reducing the buffer zone by 30m "*a 9 percent reserve loss would be incurred and the extraction sequence would be non-optimal*" (ibid) i.e., the project would no longer be viable.

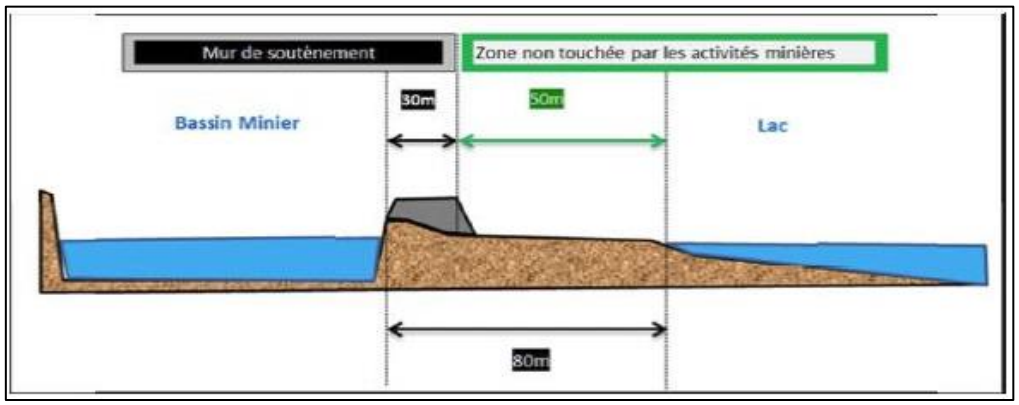



*Photo 5. QMM's "berm" or dam as proposed in the 2014 SEMP*

Following inquiries made in 2017[5], independent studies confirmed that between 2013-2014 QMM had already breached the revised 50m limit of the buffer zone and QMM mine tailings had encroached onto the bed of the adjacent Lake Besaroy. The studies offered a range of calculations of the breach from 10m of breach and 52m of encroachment onto the lake bed (Ozius spatial, 2018) to 167m breach and 117m of encroachment onto the lake bed (Emmerman, 2018). Finally, Rio Tinto (2019) admitted to a 90m breach with 40m of encroachment onto the lake bed [6].

Satellite images from Google Earth dated 1st November 2009 and February 12, 2016.

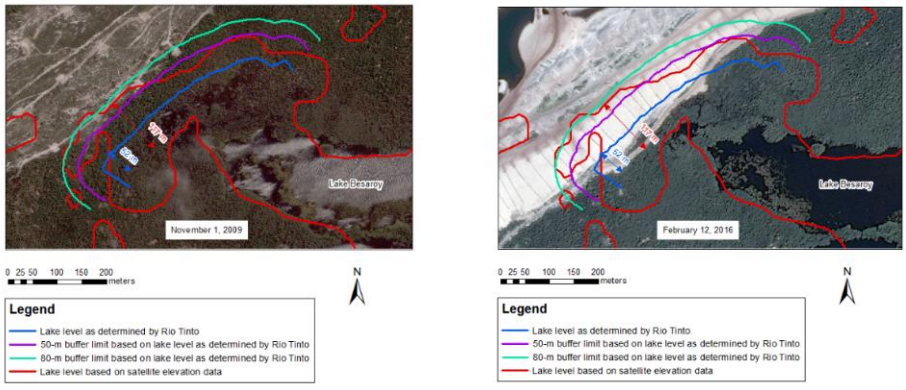



*Photo 6. Before and after images of the QMM breach and encroachment onto the lake bed*

[4] Internal Memo, Rio Tinto 3 October 2017 – Update QMM mining Boundary with Water Bodies
[5] Rio Tinto AGM 2017 questions raised about the QMM buffer breach by The Andrew Lees Trust
[6] Rio Tinto, March 2019. Formal response to the report entitled *Evaluation of a Buffer Zone at an Ilmenite Mine operated by Rio Tinto on the Shores of Lakes Besaroy and Ambavarano*, Madagascar

Using an Ordinary High-Water Level (OHWL) provided by Rio Tinto (0.6 masl), defined by the blue line in both images, the Ozius study measures that mine encroachment has proceeded 52m onto the lake bed (see blue arrow). Emerman, using a more accurate OHWL (4.6 masl) defined by the red outline, demonstrates QMM's encroachment of 117m onto the bed of Lake Besaroy (red arrow). *The key disagreement between the two studies is about where the lake bed begins, not about the extent of mining activities.* Images courtesy of Dr Steven Emerman.

## ➢ ISSUES ARISING: WEIR AND BUFFER ZONE BREACH

### - Contamination by heavy metals from mining process wastewater

A number of issues and questions have been identified around the QMM buffer breach, including compliance issues and impacts on environmental governance[7], and how the QMM breach might affect local water quality. Most specifically the concern that mine tailings and mine basin waters enriched with radionuclides from the ilmenite extraction process could enter the local water systems and be contaminating waterways.

A 2020 study undertaken on the breach by hydrology expert, Dr Emerman, explains that *"Extraction of the economic minerals (Ilmenite and Zirsill) results in the concentration of the mineral monazite, which is enriched in the radionuclides uranium and thorium. These radionuclide-enriched minerals accumulate in the mining basin…The intentional or accidental release of the water from the mining basin into either surface water or groundwater could pose a significant threat to human and aquatic life."*

He explains *"An inevitable source of accidental release of contaminants into the environment is the existence of the mining operation, especially the tailings dams, in the bed of Lake Besaroy".*

An independent radioactivity review of QMM in 2019 by Dr Swanson identified high uranium levels downstream of the mine, 50 times higher than WHO drinking water guidelines in some places. Swanson determined that levels of radionuclides in the mining basin were above WHO drinking water guidelines and could enter groundwater via discharge of mine process water, stating *"The QMM mine definitely releases more uranium into water on the site, thus creating an enhanced source of uranium to the Mandromondromotra River and Lac Ambavarano"* (Swanson Memo, 2019b).

Studies and analysis by Emerman in 2019, 2020 and 2021[8] of QMM's and other independently sourced water data also indicated high levels of uranium as well as lead, 50 and 40 times higher than WHO guidelines respectively. Since both uranium and lead can pose serious risks to health if ingested, the recommendation of experts has been for the provision of safe drinking water to affected communities.

### - Dam safety

Emerman also calculated risk of contamination from QMM mine basin waters via seepage and overflow of the QMM dam. He determined the risk level to be *"unacceptably high"*, compared with international safety guidelines (Emerman 2018b).

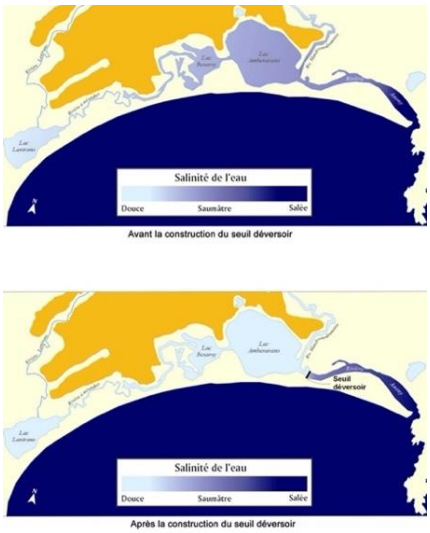
[7] https://news.mongabay.com/2019/11/madagascar-regulator-under-scrutiny-in-breach-at-rio-tinto-controlled-mine/
[8] http://www.andrewleestrust.org/studies_and_reports.html

According to Rio Tinto, QMM has no dam constructed between its mine and local waterways. The company refers to the stacked materials on the QMM site as a "*berm*". Rio Tinto's engineering advisers, SRK Consulting, have defined this "*berm*" as "*a temporary embankment*" (SRK Memo, August 2018). However, when Rio Tinto published its mine tailings storage facilities notice[9] in 2019, in line with the Global Industry Standard on Tailings Management (GISTM), the QMM mine is rated as having "*no embankment.*"

In its Social and Environmental Management Plan (SEMP 2014-2018), which requested the reduction of the legal 80m buffer zone, QMM clearly provides for a "berm". The function of this structure - to stop the flow of mine process wastewater from the mining basins into the estuary - would fall under the definition of a dam and thereby be subject to specific regulations. Since the SEMP was approved by the Malagasy environmental regulatory authorities, the dam is also subject to local compliance requirements.

- Salinity and acidification issues

The QMM weir has had a dramatic impact on the water quality by changing its salinity and permanently affecting fish breeding grounds in the lake. The full impact has yet to be quantified. In 2021, QMM publicly tendered out for contractors to undertake a study about the impact of the weir. No report or results have yet been published or made available.




There are other aspects of the mine's impact that also require further inquiry and research. For example, a study in 2019 requested by local civil society following the discovery of dead fish floating in the local lake, suggested pH levels in adjacent swamps could be responsible. In its conclusions the National Centre for Environmental Research (CNRE), said "*the phenomena of acidification and accumulation of metals in QMM basins requires deeper studies*" *and went on to recommend "rigorous monitoring of heavy metals in mining basins*" (CNRE 2019[10]). The concern about pH levels as a result of mining activity, and especially in terms of affecting aquatic life, for example, has also been raised by Swanson (Swanson Memo 2022).

*Photo 7. Change in salinity projected in QMM SEMP 2006*

[9] https://www.riotinto.com/en/sustainability/environment/tailings

[10] Information from slides presented at a public meeting in Anôsy by the National Centre for Environmental Research (CNRE), the ONE and QMM in April 2019.

# METHODOLOGY

In order to assess RT/QMM's Weir Threshold and Buffer Zone Reduction's impacts on local communities, a mixed method approach was implemented. Following an extensive literature review, the combination of quantitative and qualitative primary data enabled the research team to obtain more statistically valid findings thanks to the size of the survey sample; yet these findings could be further deepened through focus group discussions.

The individual surveys for villagers aimed to understand their perceptions of the impacts of the RT/QMM mine's weir and Buffer Zone Reduction (the latter which resulted in a breach and encroachment beyond permitted limits) on their lives and to identify the strategies adopted to deal with such losses, along with expectations and suggestions for improving the situation. The survey targeting authorities and CSOs aimed to assess their knowledge of RT/QMM's SEMP, of stakeholders' consultation and involvement, of the impacts of the buffer zone reduction and breach, and to identify actions taken and to be taken to mitigate such impacts. The one dedicated to QMM was specifically made for collecting information related to the companies' operations, impacts, and CSR. In total :

- Individual surveys were conducted with **368 villagers** residing in three municipalities: Ampasy Nahampoana (170), Taolagnaro (48) and in Mandromondromotra (150). The calculation of the sample size was done in two stages: calculation of *n* for each municipality, then distribution of *n* among all the fokontany or villages (of the municipality) selected for the survey, using the following formula:

$$n = \frac{Z^2 N}{Z^2 + (2\alpha)^2 (N-1)}$$

**Z**: margin coefficient deduced from the confidence threshold (95%) according to the normal distribution law.
**N**: size of the population (number of fokontany in the municipality or number of inhabitants of the fokontany.
**α**: margin of error (7%)

- 17 **focus groups (FG)** were organised with 131 **people** in the same locations.
- Moreover, 29 **local and regional authorities**, 03 **CSO representatives** and **QMM officials** have been interviewed.
- **The list of surveyed stakeholders (targets) is displayed in the following table:**

| Households/ Villagers (368) | Local Authorities (29) | Regional Authorities (5) | CSOs (3) | Other (1) |
|---|---|---|---|---|
| Land occupants<br>Fishermen<br>Weavers<br>Breeders/Farmers | Dignitaries and Elders (15), Teachers (3), Deputy Mayors (3), Secretary (1), President of Municipality Council (1), Trad. Midwife (1), Health Agent (1), Municipal Treasurer (1), School Principal (1), Chief of Fokontany (1), Chief of Fokontany Assistant (1) | ANDEA<br>DRPEB<br>DRMRS<br>SRE<br>DREED<br>ONE* | ALT-MG<br>President of CSOs Platform #1<br>President of CSOs Platform #2 | QMM |

*Table 1. The list of surveyed stakeholders (PWYP MG 2022)*

- As for the 368 surveyed villagers, **54 percent were women** and **46 percent men**. **More than 82 percent of the respondents are permanent residents (> 10 years) of the municipalities of Ampasy Nahampoana, Fort-Dauphin and Mandromondromotra**. They therefore have a broad temporal perception of the evolution of QMM's mining operations and its effects on the communities.
- Field investigations took place from **November 5 to 12, 2021**, preceded by a two-days training for the investigators on October 28 and 29 in Fort-Dauphin. The questionnaires, combining open and closed questions, underwent a pre-test which enabled them to be adjusted. Data mining and analysis, and report writing lasted until March 2022.

# KEY FINDINGS : HOW THE MINE AFFECTED PEOPLE'S LIVES

Survey findings have been supplemented by focus group discussions conducted in November 2021 in Mandromondromotra, Ampasy Nahampoana and Andrakaraka. The corresponding results yielded significant insight into the impacts of the mine on daily life, food security and livelihoods, and local relationships. The quotes in the following sections all come from recorded Focus Group held in these three locations, which are located next to the Mandena mine site.

## ➢ THE MOST SIGNIFICANT CHANGES BROUGHT BY THE RT/QMM MINE

As shown by the following figure, livelihood activities in the survey area are based on the natural environment.

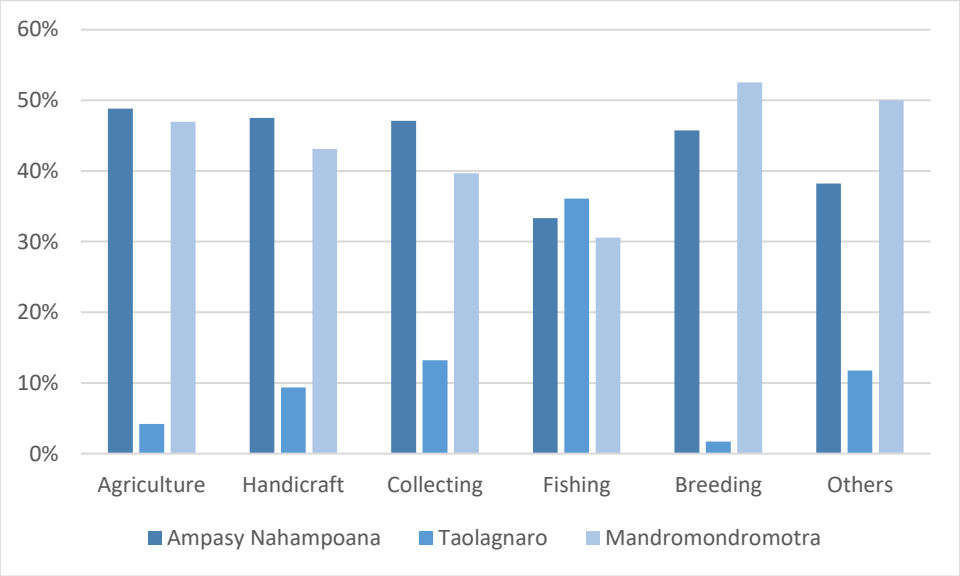



*Figure 1. Income-generating activity of the communities surrounding the QMM mine*

- The three most significant changes that villagers report since the RT/QMM mine began are:
  - the degradation and destruction of the natural environment and access to natural resources in the region, especially forest products and *mahampy*[11] reeds;
  - the degradation of water quality with accompanying health and livelihood issues;
  - and decreased access to land and fertility of the soil, including lack of pasture for cattle, with detrimental impact on food security.

Villagers see the degradation of the natural environment as being the worst of these, since it affects all other areas (income, expenditure, quality of life).

Traditional livelihoods that have depended on the natural environment for generations have been displaced and or adversely affected by the arrival of the mine. *"It is obvious*

[11] Mahampy is a local reed used to make mats and baskets and other products, a traditional livelihood in Anôsy especially for women.

*that the change has only brought bad things to the community, because the local people have lost their traditional sources of income."*

*"Previously, women fished and the income was used to buy food. And the money obtained from logging the trees in the forest was kept at home. Currently, women can hardly find food. We are earning a lot less than what we used to have. If before we had 300,000 Ariary a week, that amount now comes down to only less than 50,000 Ariary. So, we no longer know how to deal with this situation".* In purely financial terms this means that where families could anticipate a living wage and good returns, villagers can no longer make their ends meet. They say they are forced to take up other activity such as making charcoal or selling logs, and they ask how they are to survive if everything they have known and learned to use in order to survive is taken away from them.

The coastal forests have traditionally been an important resource for local survival strategies, especially in times of hardship (ALT /Panos 2009) but access to these forest resources is now prohibited either because the forests sit directly on the mine site or have become enclosed to meet QMM conservation and biodiversity commitments, so they are now largely out of bounds.

Villagers explain that all the places that allowed them to live are now forbidden to them. *"We feel really trapped"*. This exclusion means that the very sources of income and survival are affected: *"Lack of agricultural yield, weaving baskets and mats (tsihy) are no longer viable because it is difficult to find raw materials. The collection place of mahampy is all destroyed by the extraction of QMM", and "…there is no more forest area for the collection of "gaulette"12, construction wood, medicinal plants ... yet the main activities of some people here are based on forest products"*. (FG in Ampasy Nahampoana)

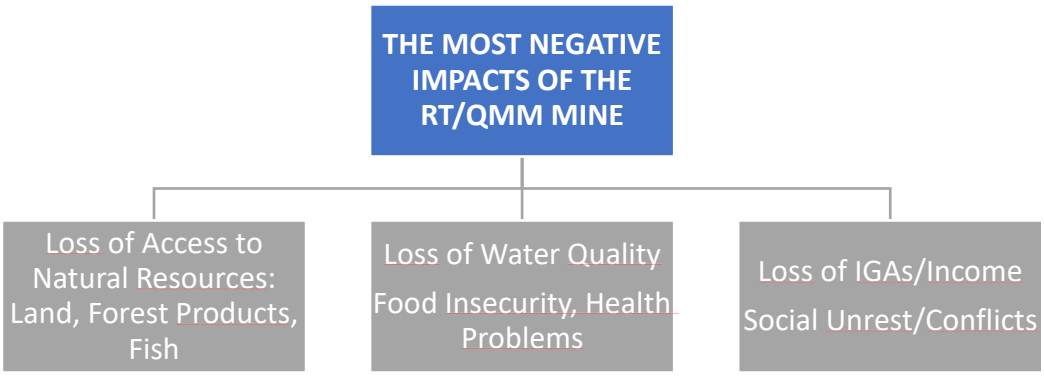
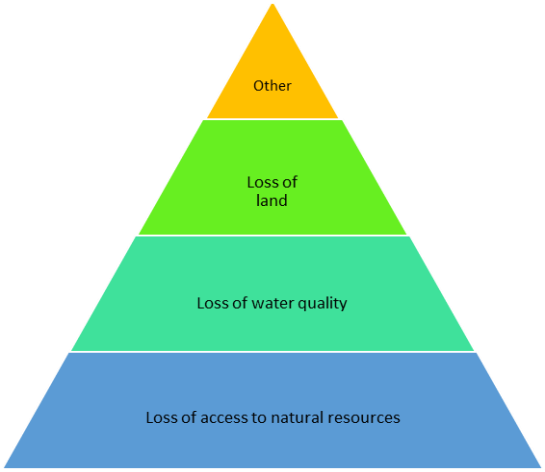


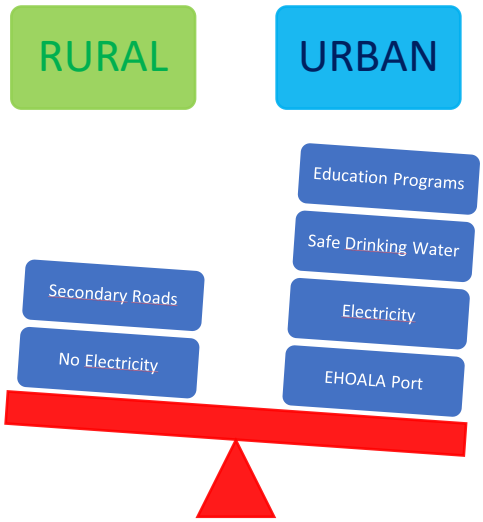

*Figure 2. The most negative impacts of the RT/QMM felt by surveyed villagers*

[12] "Gaulette" is a kind of a small round wood about 2m-2.50m in length for making a fence. Traditionally, harvesting and selling 'gaulette' was a source of income for the community. Currently, forest areas for the collection of these 'gaulette' are either restricted access or destroyed by the extraction of QMM.




69 percent of the authorities interviewed stated that the reduction of the buffer zone has negative effects on the communities, and 86 percent felt the same for the construction of the weir. Their views on the mine's three worst consequences on people's lives are shown in Fig.3.

Figure 3. Impacts of Weir and Buffer Zone Reduction according to Authorities




Inequalities between rural and urban areas are striking in terms of infrastructure.

Figure 4. An illustration of inequalities between urban and rural areas around the mine

## ➢ THE COMMON GROUND: A SYSTEMATIC LACK OF CONSULTATION AND INFORMATION

Large portions of the population directly affected by QMM's mine activities were not consulted before the weir was put in place:

- 86 percent said so in Ampasy Nahampoana,
- 4 percent in Fort-Dauphin, and
- 81 percent in Mandromondromotra.

Those who say they were consulted did not give their approval to the project.

**None of the interviewed villagers knew about the QMM buffer zone breach or of the changes to the project that were related to the buffer zone** – for example the reduction by 30m of the usual statutory limit of 80m meters, which is required to protect the sensitive zone e.g., lakes and waterways from any harmful activity such as mining.

100 percent of the surveyed authorities said they were not consulted either for the reduction of the buffer zone, which is the result of the breach, or for the construction of the weir.

On the same line, 100% of villagers interviewed said they knew nothing of the breach or of the changes to the project that were related to the buffer zone. The fact that the villagers knew nothing is a notable finding since the PGES 2014-2018 specifically required QMM to undertake a series of communications activities including for QMM to *"Develop and implement an information program relating to QMM activities and communicate it to local stakeholders and the communities concerned". Also, to "Periodically update and make an intense communication of the PAGS with the local community",* amongst other community requirements (PGES 2014-18). The report therefore notes the lack of findings on this particular point as a negative impact of the mine since RT/QMM failed to meet citizens' rights to information and comply with its commitments.

Only 34 percent of the authorities questioned stated that they knew of an assessment of the breach impacts. Their involvement in this assessment is minimal or non-existent as only one out of nine authorities report a concrete participation. Two out of eight authorities said they were aware of the results of the assessment and disagreed with them because they did not take into account the communities' expectations, even though the breach caused many negative impacts.

Only 14 percent of the surveyed authorities stated that they knew of the measures taken by QMM and other authorities in relation to the buffer zone breach, including (according to their knowledge): the measures set by QMM's terms of reference/specifications ("cahier des charges"), approved by ONE; aid provision to the community (through associations); the delivery of a partial authorization to exploit the area around the buffer zone; the donation of 2 chickens and 1 pig per household.

- PEOPLE'S PERCEPTIONS ABOUT THE WEIR'S IMPACTS

In average, 96 percent of the people surveyed felt negative impacts from the installation of the weir by the QMM mine.

The eight most important negative consequences attributed by the survey participants to the weir are health problems (25%), reduced harvests (16%), water-related problems (deterioration of quality, loss of access) (16%), reduced fishery resources (14%), loss of access to natural resources (6%), reduced income and loss of IGAs (5%), land grabbing (4%), and frequent flooding due to the dam (3%).

Only 4% of respondents felt positive impacts from the mine, including job creation and the construction of useful infrastructure thanks to the mining rebates obtained from QMM.

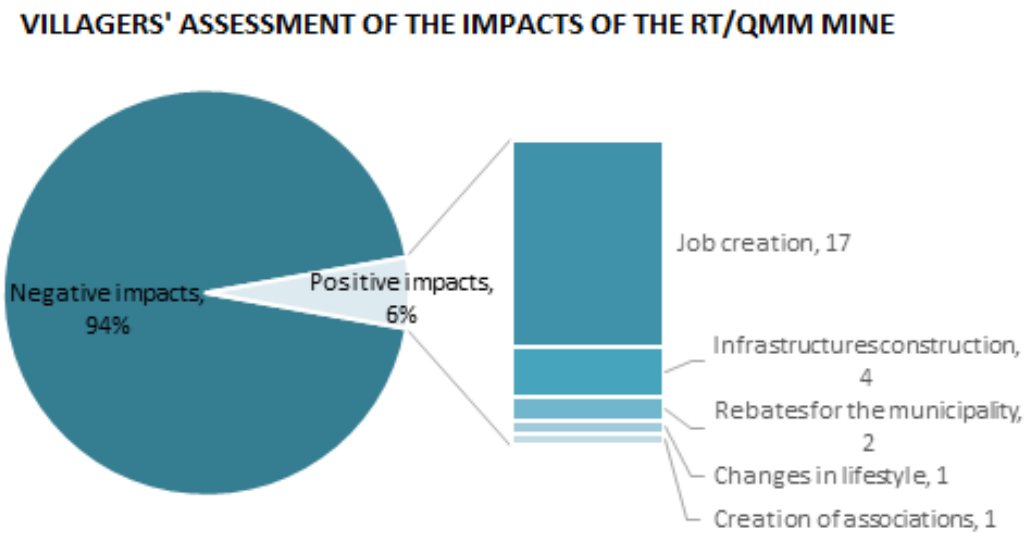



*Figure 5. Villagers' assessment of the impacts of the RT/QMM mine*

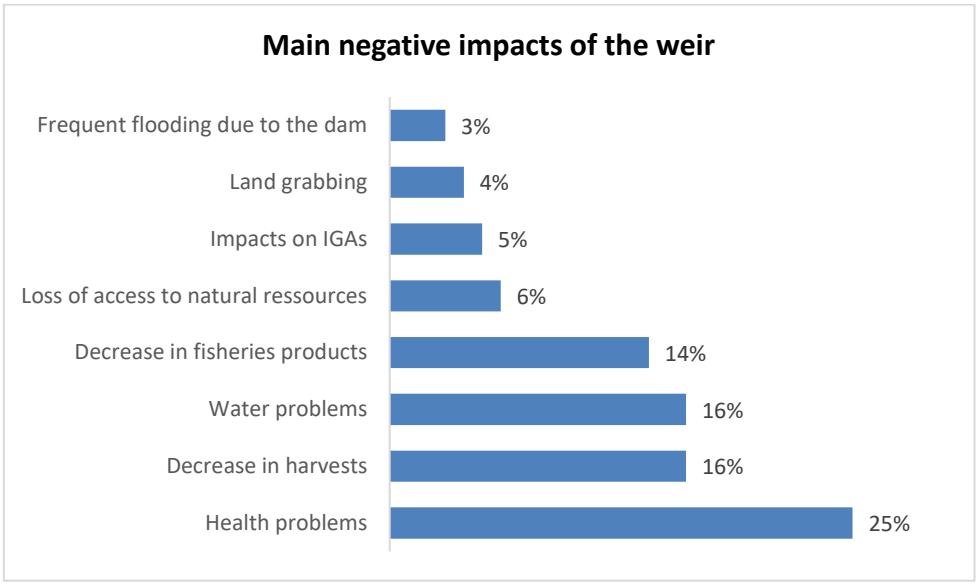
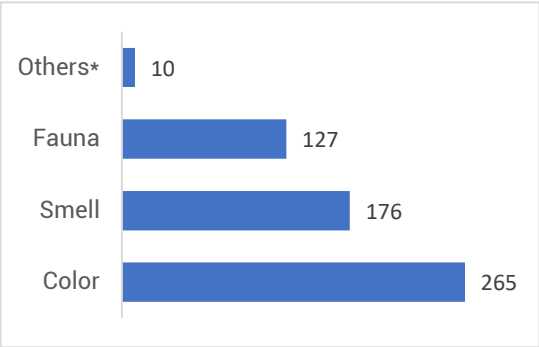



*Figure 6. The main negative impacts of the weir according to surveyed villagers*

➢ IMPACTS ON WATER QUALITY IN MANDENA

More than 75 percent of the people surveyed in the three municipalities stated that the weir's installation had an impact on water quality:

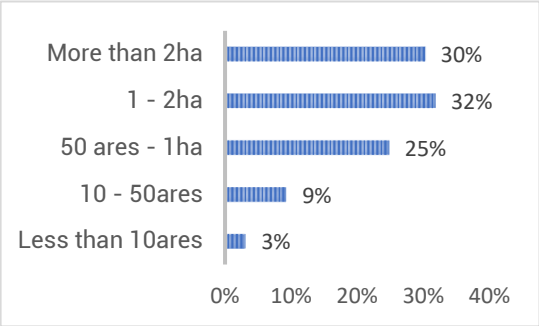
- 76 percent in Ampasy Nahampoana,
- 100 percent in Fort-Dauphin, and
- 89 percent in Mandromondromotra.




The survey revealed that the loss of quality of the water used in the daily life of the communities can be mainly identified by its color, then by its odor, and finally by the decrease of the fauna resources (see Fig.7). Other reasons for this are the decrease in water level, the multiplication of invasive species, the high level of dirtiness of the lake water, the migration of crocodiles, and the rise in water level that fluctuates according to the discharges of the exploitation.

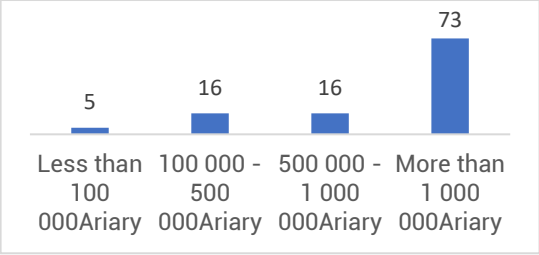
*Figure 7. The signs of water quality loss*

- Mine-related land losses




Over 90 percent of respondents in all three communes reported negative impacts due to the loss of access to natural resources, upon which they depend for survival. **A third of these directly lost their lands to QMM, by as much as 2 hectares per household, with most calculating the monetary value of their loss at over a million Ariary**[13].

*Figure 8. An estimate of the land loss associated with the mine*




**60 percent of the people surveyed said that they had received compensation** from the mining company. However, **65 percent of them reported difficulties in collecting this compensation**.

*Figure 9. Land loss values defined by surveyed people*

**Villagers explain that they can no longer produce enough food as their lands have been taken for the mine**: *"If before we had 10 Hectares of area to get resources, today there are only 2 hectares left". Additionally, they explain that land which remains has become infertile so their fields are not producing the same harvest. "Before with a plot of rice, you could obtain 5 logs*[14]*. Today with the same area, we get barely 2 hazo"* (FG Ampasy Nahampoana). This situation has meant the requirement for fertiliser has increased and this brings costs.

[13] These are land values only, so a conservative estimate since they do not include temporal and other calculations e.g., generational impact/how many years loss of land access/food productivity/income generation – and benefits accrued etc)
[14] 5 logs/hazo = 10 Vaha, large sobika made from liana. 1 vaha contains approximately 50 cups of white rice.

The land loss and degradation of the natural environment directly impacts the population's living conditions, forcing them to engage in alternative activities that generate extra-costs, whilst expenses are higher than income. A non-exhaustive analysis of household expenditures revealed the ten most important increases of household expenditure allocations linked to the mine's impact. By order of priority, they are: food, healtchare, school fees, fertilization, deficit household budget, decrease of incomes, raw materials for handicrafts, agricultural labor, other agricultural expenditures, firewood. Items in bold are corresponding to the greatest increase in budget allocations as reported by the surveyed households.

For instance, during the focus groups, all three municipalities report that there is insufficient or reduced income now to send children to school/meet education costs. Research carried out by CARE and others in 2008 suggests that, at that time, even the most vulnerable households in Mandena found the means to have their children schooled (CARE, 2008). The current situation therefore presents a significant and worrying change with potential impacts for the long term in Anôsy and is counter Sustainable Development Goals (SDGs) and national targets (Wateraid, 2018). Although QMM has supported education opportunities in the capital of Anôsy, Ft Dauphin, e.g., through the RISE programme from PACT (Rio Tinto 2020), these do not appear to be reaching vulnerable and isolated communities at Mandena, who are living many kilometres away from the urban centre. Villagers in Mandromondromotra explain that the local FRAM[15] teachers need help as "their salary is completely insufficient".

One villager explains: *"We are now obliged to buy fertilizer at 5,500Ar/Kg, where a plot of rice field requires 10 to 20 Kg*[16]". So, harvest has decreased, while the cost of fertilisers has risen and so expenditure exceeds income: *"We spend 300,000Ariary for rice cultivation while we only get 100,000Ariary in income"* (FG Mandromondromotra). This means that today's crop is a loss for the population.

The loss of lands and soil fertility not only affects farming of staples such as cassava, but has also the raising of livestock since *"most of the grazing area is taken up by QMM"* (FG Mandromondromotra) and pastoralists report the cattle are sick and die for lack of good grazing land. Also, villagers have reported flooding when it rains causing soils to become more infertile and unproductive and claim that *"Water flow is blocked by QMM's drainage joint, often causing flooding"*. The population is therefore forced to go to altitude to escape the rising water. In the Mandena area, which has been mined for over a decade, the villagers perceive that *"plants do not grow and forest resources are degraded and destroyed by the mine"*. (FG Ampasy Nahampoana).

At the same time, as seeing natural resources dwindle and the quality of their environment erode, the cost of living in Ft Dauphin/Anôsy has risen steadily since the mine arrived (Harbinson, 2007). The cost of food is becoming beyond the reach of these communities. *"Monthly expenses are higher than income. Life becomes expensive"*, and *"we are in trouble because it is hard to find something to eat every day"*. One community member expresses that *"Malnutrition has reigned since the arrival of*

[15] Fikambanan'ny Ray aman-dRenin'ny Mpianatra, an association of parents of pupils.
[16] e.g., 110,000 Ariary, approximately 27 US dollars per field.

*QMM"* (FG Andrakaraka). Villagers have concluded **"***The situation is deplorable, whether in agriculture or fishing."*

- IMPACTS ON ACCESS TO NATURAL RESOURCES

The loss of access to natural resources was highlighted by **93 percent of surveyed people in Ampasy Nahampoana**, **96 percent in Fort-Dauphin, and 91 percent in Mandromondromotra**, as a main negative impact of the mine.

In Andrakaraka, where the main source of income has traditionally been fishing from local lakes, fisherfolk explain that their livelihood has been *"taken by force"*. This is because, they explain, the construction of the QMM weir was advanced without their agreement and this together with *"toxic waste from QMM's operation"* has changed the quality of the water in the local lake. Consequently, fish species have diminished, according to fishers, and if *"before fishermen got 20 'vaha' of fish per day, today they only get 2"* (FG Andrakaraka). Further discussions with fishermen from Andrakaraka in March 2022 led to the establishment of a list of the **27 extinct fish species**, i.e., those who have disappeared since the start of the RT/QMM mining operations (see box below).

**The 27 extinct fish species in Andrakaraka**

Sisiky (shrimps), Foza (crab), Masisiky, Vahoho, Tofoky, Angoralo, Farogna, Menaheliky, Mentiandrano, Halalaza, Vay, Fay, Atsantsa, Fatola, Sandrinsandry, Kelivondraky, Himbaky, Tandaly, Zompo, Angers, Tsikilibo, Orambokoky, Zanabenifyn, Varavara, Malade, Ambasy, Ambolo

**The 3 remaining fish species in Andrakaraka :** Saroa, Vily, Fiambazaha, Malemiloha

Source: Fisherfolks and villagers from Andrakaraka, meeting on March 07 2022

*Box 2. The list of extinct and remaining fish species in Andrakaraka*

The loss of fish has immediate impact on income. *"Today, fishing between 4 p.m. and 6 a.m., a fisherman barely makes 50,000Ar in income. Yet before we earned 100,000 Ar", and "our fish were enough for the whole city of Fort-Dauphin. Today there is nothing."*

They connect the loss of fish stocks to the change in water quality: *"the water is no longer drinkable, and is no longer conducive to the development of fish"*. One villager summarises the loss of traditional livelihoods: *"The operation of QMM has caused a lot of suffering to the local community. We no longer have access to natural resources in the forests, fishing activities are no longer profitable and certain species of fish in the lakes are disappearing, the mahampy collection area is all taken over by the QMM, all of this are the main sources of income for the inhabitants of Andrakaraka."*

*Mahampy* is another local resource that has depleted. Villagers testify that before the mine, the quality of *mahampy* (reeds) was good and the quantity harvested was large and the price affordable. That has changed: *"Today, not only is the quality bad and the quantity harvested is also decreasing, but the price is increasing at the same time."* The income that villagers report is low compared to their situation before the mine exploitation. *"Previously we could still take wild 'mahampy' and 'patsa', today not. If for example we earned 20,000 Ariary, today we only get 5,000 Ariary, because we no longer have a source of income."*



*Photo 8. Dried mahampy reeds*

QMM undertook to ensure that *mahampy* production would not be impacted by the mine and its environmental programme included *mahampy* production. However, villagers' testimony from this study suggests that *mahampy* production has been impacted negatively with quality, quantity and prices all going in the wrong direction, and with a deleterious result on villagers' livelihoods. Villagers declare *"the collection place of mahampy is all destroyed by QMM's extraction"*.

Villagers also explain that, previously, they were not restricted in what they could take from the natural environment. However, new restrictions arising since the mine and control of the *mahampy* growing areas means only the members of the Usufructuaries or beneficial owners' association are authorized to carry out the exploitation of the *mahampy*. *"We can sell it to them, if the mahampy (straw) has been harvested around the areas under the responsibility of QMM, but the price is only 100 Ariary/per invoice, and the quantity is very limited"*. Weaving and selling fish are traditionally the occupation of women and the gender specific impacts of the mine have yet to be quantified and researched in more depth.

- IMPACTS ON HEALTH

An increase in health issues has been reported since the mine began its operation. Most of these are attributed by villagers to the change in water quality of the local lakes and waterways where the majority of Mandena villagers draw their drinking and domestic water supplies. (PWYP MG, 2020). The local people claim that local water quality has changed since the arrival of the mine. Approximately 90% report "very perceptible" to "extreme" changes to water quality: the colour and taste of the water especially has changed for the worse and is no longer drinkable.

Locals complain of an increase in illness and largely attribute them to water pollution from the mine, though they also mention other health impacts such as respiratory conditions. The illnesses currently reported by villagers that they see are attributable to the mine include stomach aches, skin problems, diarrhoea, coughs, birth issues and 'handicaps' in new born.

**QMM water quality and potential contamination issues**

Over the last five years, the water quality around the mine has been the subject of inquiry at local and international level. Studies have determined elevated levels of uranium and lead downstream of the mine, 50 and 40 times higher than the WHO safe drinking water guidelines respectively (Swanson, 2019; Emerman, 2019, 2020, 2021). Additionally, recent data has exposed that QMM's "passive" or "natural" water management system, which uses a series of settling ponds and swamps before mine process water is released into the Mandromondromotra river, is not working. QMM have acknowledged this fact, and that concentrations of metals appear to be accumulating over time in the wetland swamps. Consequently, QMM ceased all discharge of its mine process wastewater in August 2020, until compliance levels can be assured[17] (QMM discharge water monitoring data report, 2020/CSO presentations by QMM May/Sept 2021; Rio Tinto meeting Jan, 2022).

See also, independent studies at http://www.andrewleestrust.org/studies_and_reports.html

*Box 3. QMM water quality and potential contamination issues*

### ➢ IMPACTS ON PEOPLE'S RIGHTS AND CULTURAL IDENTITY

**79** percent of the people surveyed said that their rights were not respected. In particular, the right to access natural resources, the right to access water, the right to a safe environment, the right to access land and land ownership, the right to information, the right to freedom of choice, the right to health, the right to education, the right to a peaceful community, and the right of passage.

**30** percent of the respondents report negative consequences of the weir on local culture, among other things: a change in the ancestral way of life (activities, values...), the monopolization of ancestral lands, the non-availability of *mahampy* reeds for funeral rites, the non-respect of cultural rites (*ota fady*, taboo), changes that are not compatible with customs and traditions, the loss of cultural identity as villagers become absorbed in subsistence activities, the loss of community cohesion, and a decline in the practice of traditional medicine due to the inaccessibility of raw materials located in the forest.

### ➢ IMPACTS ON SOCIAL PEACE AND JUSTICE

The mine's impact on local people in Mandena goes beyond the measurable damage to economic and food security through loss of livelihoods, land and forest access, and reaches into the domains of governance and social cohesion. According to what villagers have expressed during the focus group discussions, far from promoting peace and justice (SDG 11), the presence of the mine is causing discord in the affected communities.

Villagers impacted by mine activity report division, conflict and corruption. Conflict caused by inequalities and corruption that has occurred around the distribution of

[17] Rio Tinto meet with CSO group (PWYP MG, PWYP Intl, ALT UK & Bennett), January 13th 2022.

benefits from the mine, and disagreements and division over how to manage the relationship with QMM. They perceive that two category of people have emerged in their communities: those who obtain direct benefits from QMM, and those who are constrained in their subsistence work: *"What has caused the greatest conflict is the fact that some people receive financial support and others do not"* (FG Andrakaraka).

According to those in the communes around Mandena, 90% of the community has no benefit from the mine and only 10% gain. Those who gain are either employed by the mine, or are in positions of power /authority and therefore positioned to benefit from it: *"It is those who obtain employment who benefit most directly from the benefits of QMM. Then these same people are the main customers who sell local products, which are more and more expensive."*

Those in positions of power, such as the local mayors, are expected to seek benefits for all their constituents and to represent them and their wishes in local governance processes. However, what emerges is a landscape in which *"the majority without exception of age and gender are struggling"*, while those in power are perceived to benefit and take advantage of gains that may be made accessible to them from the mine (or its associated programmes) and are failing to distribute these gains to the wider community. They are regarded as **"***turning their backs on their responsibility to the poor***".** (FG Ampasy Nahampoana).

*"Sometimes some people become selfish because they embezzle the external grants provided for the community. These people keep them to themselves, because personal interest always comes first. This is what mainly causes problems between neighbours"*. The division that has ensued has had a corrosive effect on community life… *"There is no more community solidarity because of the corruption made by QMM with certain people here in the commune, especially the mayor and his colleagues"*. (FG Ampasy Nahampoana).

Corruption is seen to have taken hold in the municipalities and villagers express that *"We no longer trust state officials or local authorities like mayors and his deputies because they are all corrupt."* Part of the difficulty is that aid and donations from QMM pass through several intermediaries, so conflicts arise between the inhabitants and those in power and able to determine outcomes. For example, villagers report that *"the mayor does not distribute the electricity that QMM gave to those who did not vote for her"* (FG Ampasy Nahampoana). In other words, those who do not comply with the political status quo are marginalised and excluded.

This reproduces through all local structures. For example, in setting up local associations meant to support local people and their livelihoods, health etc., conflict arises because "*QMM will distribute a grant through a local NGO (e.g., SAHA or NGO ASOS) but not the whole community will benefit from it, but just a dozen of people. These are the people very close to the mayor only***".**

In this regard, the relationship with QMM is perceived to be critical to the outcomes of benefit distribution. Those mayors and community groups who support QMM are seen to benefit and distribute to those who concur with their position, and protect QMM interests, while those who contest the mine are marginalised and suffer.

For example, in Andrakakaraka fisherfolk explain that only one association *"(FIMRA) benefits from the exploitation, because QMM supports them and makes them*

*legitimate and legal in the eyes of the state. Yet all they really do is defend QMM's interests. And we FP (Fikambanan'ny Pêcheurs, FP, fishermen's association) have no legitimacy in everyone's eyes"*.

The fisherfolk go on to explain that when *"We tried to counter the installation of this (QMM) weir, but there are always those who bite on the bait for their personal interest. All these people, QMM brought them together in the FIMRA association (association of water protectors). And they are the ones who have experienced improvement in their living conditions."*

These tensions are creating inter family, intra clan discord as well as destroying the ability of communities to reach consensus through traditional "Kabary" (traditional meeting and negotiation process). For example, the FP association report that *"We held a meeting to discuss compensation from QMM. We did not accept, but the meeting minutes say the opposite. This report they (FIMRA) wrote on the back of the attendance sheet"*. This goes further when assertions are made that undermine their rights: *"QMM and FIMRA even dare to say that we have no rights over these lands and waters, because we are not from the region"*. It transpires that FIMRA was set up and funded by QMM as part of managing the installation of the weir.

Those who are seen to contest the QMM mine are characterised as being the cause of the problems they seek to rectify. This emerges graphically in the tensions between the two community associations in Andrakaraka: the fishing association FP reports that *"When toxic waste from QMM's operation pollutes the water, fish become scarce. We FPs explained this to them. But the FIMRA dare to affirm that if there are no more fish, it is only because of our fishing."*

The discrimination in the handling of grievances and corruption means that hopes villagers carry for local associations to defend their rights and guarantee a "winning collaboration" with the operator, have in fact, according to what they say, delivered the opposite. The ensuing conflict has disrupted social cohesion: *"We can say that we lived in peace before the installation of the (QMM) weir."* (FG Andrakaraka).

It is not only fisherfolk who find themselves in dispute over losses. In Ampasy Nampohana too, a similar complaint emerges where *"The establishment of the association supposed to defend the rights of the population has caused many disputes such as with the Usufructuaries' Association of land occupants, Association of fisherfolk, association of breeders …."* (FG Ampasy Nahampoana).

This division within the community appeared clearly during a workshop organized in Ampasy Nahampoana in early March 2022. The research team convened this meeting to present early findings from the survey done in 2021, and was targeting the whole community, so the same invitation was distributed to all the villagers. However, two cohorts of people attended it. The first cohort were mainly composed of communal employees (as the meeting was held at the municipality's main hall) and people who apparently benefited in diverse ways from QMM's operations. This cohort kept criticizing the findings and after one hour of discussions, left the room. Then came a second cohort of almost 50 people of all ages and looking totally different from the first group: poverty was apparent and people seemed tired, angry and sad. They told the team of researchers that they were there on time but that communal staff asked them to wait outside the room. They were only allowed in once the first cohort had left. Further explanations from the elders from this group helped understanding that they were part

of a second Usufructuaries' Association constituted in 2018, which is not recognized by QMM, and therefore hasn't received any kind of assistance although they are living in striking poverty. Community representatives explained that the mayor only grants seed-funding and compensation to selected people, exacerbating social fragmentation within the commune of Ampasy Nahampoana. Moreover, some women from this impoverished community have been jailed following a demonstration in Fort-Dauphin. They expressed their anger against the mayor and QMM saying that "there is no more justice in here, we are totally deprived from our basic rights and no one cares for us."

One woman from this cohort even said *"We don't need development; we need our rights to be respected."* When asked what she meant by "development", she explained that it describes the income-generating activities[18] promoted by the NGOs funded by QMM to some villagers. *"I am not a poultry farmer but a weaver"*, she explained. *"I will not make a decent living nor school my kids with two or three hens. I want to get back to the forest and harvest mahampy, just as my ancestors did, and as I did my whole life, before QMM. I need to transfer my traditional weaving knowledge to my children but I'm prevented to do so. It's all wasted."* It is alarming to note that for those villagers, the notion of "development" is now totally diverted from its initial meaning and carries negative connotations.

Discrimination and corruption over land compensation is another source of tension: "*The land purchase price set by the QMM is not the same for all owners here. Some plots are bought at 60 to 120 Ariary per square meter, while others are bought at 800ar. Same land/terrain, but the price is not the same."* (FG Mandromondromotra). New arrangements by the company to offer long term tenure to customary landowners in exchange for QMM use of their lands led to protests in 2018 when it became clear that the arrangements disadvantaged local subsistence farmers. *"The fact that the landowners could not derive any benefit from their land which QMM took caused much conflict."*

Problems to access natural resources also leads to direct conflict with QMM employees: *"Some people take mahampy very close to the QMM extraction area which is currently banned. This causes reduction of raw material for tsihy and basket weaving. This activity is one of the main means of subsistence of the population in the Anôsy region. So, there are conflicts between the community and the QMM security guards"*. (FG Ampasy Nahampoana).

The expression of discontent, contestation and protest over rights and resources has also led to direct conflict with regional security and police, leading to arrests, fines and criminalisation of protestors. This has been the case throughout the history of the mine (Kramer, 2012; Seagle, 2013; Huff, 2016; Huff & Orengo, 2020). The most recent of these between the population and the security forces was 1) in November 2021 when fisherfolk from Andrakaraka blocked roads to protest their rights, following more than a decade of losses to their livelihoods after the installation of QMM's weir and changes to water quality in the local lakes destroyed fish stocks[19] and 2) in April 2022 when communities to the streets after almost two months of having their livelihoods curtailed

[18] Most known by "projets de développement" in French.
[19] https://theecologist.org/2021/nov/24/fishfolk-protest-rio-tinto-mine

by a fishing ban following two mine tailings dam failures at QMM and the release of excess mine water, which resulted in hundreds of unexplained fish deaths (see box below ).

In the November protests, two leaders of the FP association were arrested, and reports suggested that QMM was pursuing a criminal action since the protestors' road blocks prevented mine traffic for a number of days. However, following local, national and international condemnation of the arrests, the men were released without charge (Collectif TANY, December 2021). During the focus groups, locals exclaimed that *"It is the people who demand their rights who are oppressed."* Intimidation and fear of reprisals inhibits wider community action to defend citizens' rights (PWYP MG, 2020) hence the pursuit of just outcomes has become challenging.

- A FAILED COMPLAINT MECHANISM

63 percent of respondents said they had filed complaints about the QMM mine's impacts, including with local/regional authorities, QMM, ONE, CSOs, researchers and community leaders. 90 percent of those who filed complaints reportedly received no results. The remaining 10 percent reported among other outcomes: QMM's provision of raw (cultivated) materials for the craft, training in composting, limitation of fishing time on Lake Besaroy, promises of employment for local youth. But such promises have not been kept according to the same respondents. Over 79 percent of those who filed complaints report difficulties including police repression.




*Figure 10. Difficulties encountered in connection with the filing of complaints*

Of the 368 villagers surveyed, only 18 i.e., 5 percent, took other actions besides filing complaints. These actions include strikes, (unsuccessful) dialogue with QMM, organizing blockades to challenge the authorities, and demanding property rights.

29 percent of the respondents said they had adopted other strategies besides filing complaints and going on strike. The top actions cited by them, by order of priority, include: the creation of and/or membership in an association, the creation of a local business, the sale of labor, application for employment and/or aid from QMM, focus on agricultural activities, purchase and resale of scarce resources (wood, fish products, mahampy), the use of fertilizers to improve yields, collection of products that have

become scarce in remote forests (wood, mahampy, medicinal plants), and increased use of family labor.

Those who decided not to take action cited the following reasons:

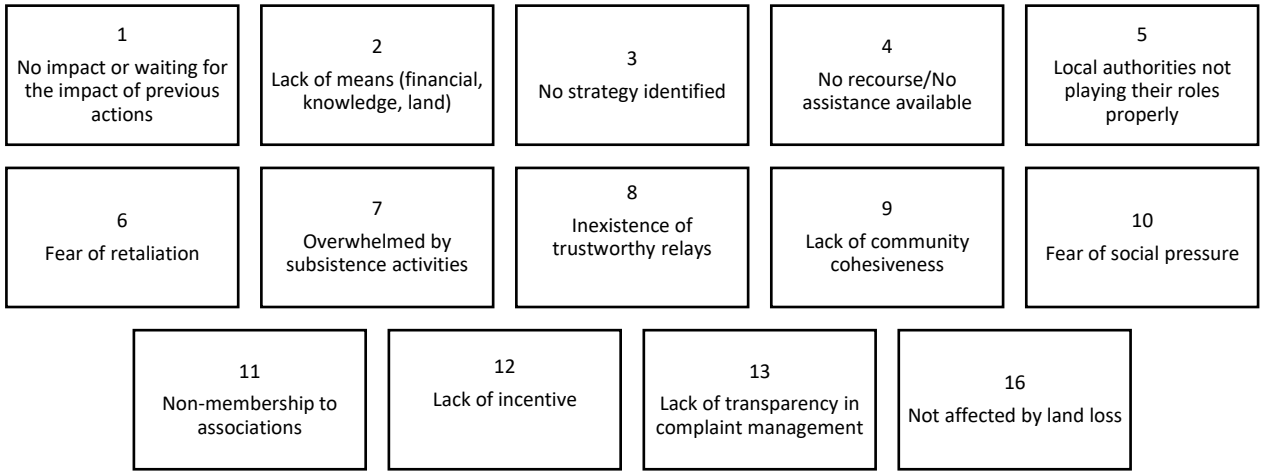



*Figure 10. Reasons for non-action of communities to losses due to the weir*

A mark of total disappointment of the population was expressed as follows: *"The population has no hope in its life"* (an inhabitant of Mandromondromotra).

Observation: Research Fatigue

Most of the communities surveyed complained about ongoing research in their region without any results coming from it. This 'research fatigue' has been well documented around Mandena over many years but the intensity of frustration appears strongly in the FG facilitators' observations. At the time of the research protests broke out in Andrakaraka against QMM and road barriers were set up. Protests are often a sign of an overspill of frustration at broken promises, failed negotiations or unsatisfactory arbitration with QMM.

*Box 4. Research Fatigue in Mandena*

# MONITORING THE DEAL: STANDARDS vs. PRACTICE AND STAKEHOLDERS' ANALYSIS

As well as its fiscal promises to the government of Madagascar, the agreement for the QMM mine has made wider reaching social and environmental promises, and about which the company claims that "From the beginning, our work in Madagascar has centered around environmental conservation, sustainability, and longevity. Using a community first focus, we endeavour to build a mutually beneficial enterprise based on global standards." ("Invested in Madagascar", Rio Tinto 2020)

To deliver this vision it goes on to explain that QMM has created 2000 jobs, 80% of which are recruited locally, and the project has contributed to regional infrastructure development, and improved livelihoods. A Business Centre for the Anôsy Region (CARA) is supported by QMM and, according to the company, delivers entrepreneurial training to over 4,500 people and in 2020 had 145 active permanent members.

QMM claims to work with 15 enterprises/associations in the local communities of Ampasy Nahampoana and Mandromondromotra at Mandena with a view to their estimated 200 employees providing services to the mine. QMM cites its support for Lovasoa Mahavonjy weaver association, a women's collective that produces rugs, placemats, baskets etc, and MPAMIRA Association for cultivators of red pepper and honey to sell their products via national operators/buyers, which QMM claims has increased annual income of its members by 200%. QMM also claims to support sustainable livelihoods through training on improved fishing techniques which they claim have increased fisherfolk's profit from $3 (approx. 10,000 Ariary) to $15 (approx. 60,000 Ariary) per day (RT/QMM 2020).

The company expresses its commitments by saying "We plan our business for the long term by helping to ensure that we play a positive role in the communities where we operate, as well as in wider society. We are proud to create innovative partnerships that help government and communities make the most of opportunities and reach sustainable development goals".

On the environment, the company have internationally promoted their Net Positive Impact (NPI) pledges for the QMM mine, claiming they plan to leave the region with a gain in biodiversity at the end of removing 6000 hectares of littoral forest, largely through a Biodiversity Offsetting programme and designated conservation zones. As well as three offset sites, QMM has created three community protected areas encompassing 2,095 hectares of littoral forest. The protected areas have been set up with dina (traditional agreements which are legally binding) and communities are expected to manage these sites through a local committee (Communautés de base - COBA). QMM has a tree nursery and rehabilitation programme and claims to be "committed to returning the land to the community in rich and fertile condition" (Rio Tinto, 2020).

As exposed in the following sections, many of these claims are contested, not only by QMM workers who have organised strikes and lobbied about insecure employment status and lack of long-term contracts and other rights (Industriall 2018) but also

villagers in rural areas on a range of issues from failure to provide jobs, broken promises on livelihoods and lack of compensation (Seagle 2013; Huff 2016). Contestations also occur from those not living directly adjacent to the mine but who have also been adversely affected by QMM. For example, in Antsotso, 50km north of the mine site, where QMM's Biodiversity Offsetting programme has restricted access to forests with serious consequences on traditional farming practices. Villagers exclaim they have been thrown into famine through loss of access to their customary lands and forest resources, forced into new agricultural practices, which have reduced their harvests and left them struggling to survive20 (Kill & Franchi, 2016; Recommon film, 2017; Mongabay film, 2020).

Since the rural communities in Anôsy are subsistence farmers and fisherfolk wholly dependent on the natural environment for their survival, the loss of access to forests and natural resources, degraded water quality and reduced lands have an immediate effect on their livelihoods, wellbeing and survival.

### ➢ GOVERNANCE OF SOCIAL AND ENVIRONMENTAL IMPACTS: MONITORING THE DEAL

The social and environmental commitments of the mining company are important on a number of levels. First, they are an important element in the 'deal' between Rio Tinto and the Malagasy Government, in order to meet the obligations and commitments outlined in the Social and Environmental Impact Assessment (SEIA, 2001) and Plan de Gestion Environment de Projet (PGEP, 2001), for their license and environmental permits. Additionally, all mine activities and project changes require detailed Social and Environmental Management Plans (SEMP/PGES) to be submitted to the regulatory authorities, the Office National for the Environment (ONE). The delivery of the measures made in their SEIA/PGEP/SEMPs are also important to ensure public engagement and thereby the mine's social licence to operate (SLO).

The SEIA/PGEP and SEMP documents set out a number of risks and environmental impacts to be addressed during the course of the QMM mining project, together with monitoring commitments and measures QMM will undertake to address the issues arising. The National Office for the Environment (ONE) is the regulatory authority responsible for overall monitoring of the mine to ensure that compliance with Malagasy regulations, the agreement with the Government of Madagascar (GoM), and the SEIA/PGEP/SEMP pledges are met.

There is substantial content in the project SEIA and in the Malagasy Government's evaluation of the QMM SEIA/ PGEP (Tecsult, 2005) in which recommendations are made to ensure additional studies are carried out and that impacts from the QMM weir are monitored, managed and mitigated. The weir also required a separate SEMP (2007). The company's SEMP 2014-2018 sets out QMM's buffer zone reduction plans, both technical aspects and how these are to be communicated to local people.

[20] Mongabay 2020 Video, available at https://www.youtube.com/watch?v=7Oym3ilMx3A
Recommon 2017 video available at https://www.recommon.org/en/your-mine/

Given the focus of this research, the following sections explore some of the detail of these commitments and broader expectations of QMM in relation to the weir and buffer zone, to what extent they or may not have been realised, and issues arising. It will go on to review perspectives from local civil society and local decentralised technical services around the monitoring activity and governance challenges for the SEIA and SEMP commitments around the mine. This is important since failures to deliver the social and environmental commitments results in the burden of cumulative losses to local producers and consequent hidden or unseen costs (external costs) falling on the communities affected by the mine.

### ➢ QMM WEIR AND WATER QUALITY

The PGEP 2001 sets out the need for baseline studies in particular with regard to water quality, specifying the need to include variables such as salinity, temperature, dissolved oxygen, Secchi depth, nutrients, and wind and current direction. QMM commits to monitoring "368 entire water column" and they also state that "*Heavy metals and organic compounds will be analyzed the year before construction of the weir and the year after. In order to monitor changes in water quality, monthly sampling of sampling stations should be carried out two years before the construction of the weir.*"

QMM also commits to monitor water quality monthly for the first two years after construction of the weir then once per quarter, and that the "measurement protocols must be provided to be validated by the competent authorities and control analyzes must be carried out in two different laboratories."

Concerns about the weir and its potential environmental impacts were raised by multiple international agencies both before (circa 1992-1997) and at the publication of the SEIA, ahead of the QMM weir construction e.g., by World Wildlife Fund for Nature in 1997 and 2005; Friends of the Earth, 2001; Conservation International and the QMM's own Independent International Advisory Panel (IIAP, 2001), adding to the calls for significant monitoring and mitigation measures.

Additionally, possible increases to pathogens in local water sources and other water borne illnesses were flagged as requiring monitoring pre and post weir construction by the Government of Madagascar's evaluation of the QMM SEIA (Tecsult) in 2005, which posited there could be an increase in health problems, and recommended that QMM:

*"Carry out a study aimed at drawing up an inventory of the main waterborne diseases (other than bilharziasis) among the populations living near Lake Ambavarano (Andrakaraka village), if the existing data does not are not sufficiently reliable. This study will provide the baseline data needed to monitor the impacts of the weir on the health of populations. QMM must also make sure to update the data already collected at the level of bilharziasis and malaria in order to be able to follow the evolution of the incidence of these diseases during the transformation of the brackish waters of Lake Ambavarano into fresh waters during part of the year.*

*It is also recommended that QMM define, in collaboration with the responsible authorities, awareness programs intended to inform the populations concerned of the potential health risks of the transformation of brackish water from Lake Ambavarano into fresh water. These programs should emphasize the behaviours to avoid (e.g., drinking water from the lake) and the preventive measures to adopt (e.g., using*

*impregnated mosquito nets). If required, one or two boreholes or another means of drinking water supply should be provided at strategic locations to avoid this health risk. Finally, it is important to ensure that populations at risk can have access to the preventive means suggested and obtain the health services required in the event of illness."*

Alongside the SEIA and GoM guidance, Rio Tinto's water quality protection standard[21] E-11 details multiple criteria and performance requirements to *"manage impacts associated with our operations to ensure risk is managed in accordance with regulatory commitments"* (Rio Tinto, 2017). It requires the company "develop internal performance criteria when government regulations are absent, or insufficient to ensure protection of the environment and/or community health and livelihoods." The standard covers all Rio Tinto infrastructure and management activities associated with water withdrawal, use, storage, treatment and discharge and "is applicable to any impacts or risks associated with abstraction and discharge, including changes in water level, flow and quality or any other potential loss of use."

The standard includes to *"Identify, characterise and document water resources and* ***baseline conditions*** *within watersheds that could be affected by the operation."* The QMM weir would meet all these criteria. It also requires the company to *"Develop an appropriate mitigation strategy to address known past and current impacts and predict future impacts to the environment, and/or community health and livelihoods."*

Rio Tinto is also signed up to the ICMM (International Council on Mining and Metals) principles, for which water performance expectations include (6.2) to "*implement water stewardship practices that provide for a strong and transparent water governance, effective and efficient management of water at operations, and collaboration with stakeholders at a catchment level to achieve responsible and sustainable water use*".

In Its SEMP 2007, QMM recognises that *"**major impact** is expected (from the weir) in relation to the change in water quality in Lake Ambavarano and the Mandromondromotra River. The weir will have the effect of permanently modifying the salinity of the waters upstream. The Besaroy and Ambavarano lakes, as well as the Mandromondromotra river over a length of three kilometers, upstream of the threshold, will be transformed into a freshwater ecosystem".* The SEMP also recognises that this will have major impacts on the physico-chemical characteristics of the waters of the Lanirano and Mandromondromotra rivers22.

The SEMP 2007, section 4.1.2.3.1 outlines all the water monitoring commitments, including: environmental monitoring of site work; monitoring of levels and flows upstream and downstream of the weir; turbidity monitoring upstream and downstream of the weir; monitoring the physico-chemical quality of water upstream and downstream of the weir; microbiological monitoring of the waters of Lake Lanirano; monitoring the quality of discharge water (wastewater treatment plant, sedimentation ponds, leachate treatment plant); monitoring the quality of groundwater in the sewage treatment plants and sanitary landfill site sector.

[21] https://www.riotinto.com/sustainability/policies

[22] [ "The pH of the water will become basic (7.4 to 7.9), the total solids will be below the detection threshold (5 g/l). However, dissolved oxygen concentrations will be higher than in an estuarine environment"]

The Environmental Impact Assessment for QMM by Lewis Environmental includes the necessity for mitigation measures to *"minimize the negative effects on the aquatic environment of Lake Ambavarano" and "ensure the presence of sufficiently wide buffer zones between the dredging (mine) basin and the lakes and rivers"*. This report was delivered in 1992, thirty years ago. (Lewis Environmental, 1992, section 4.7.2)

## ISSUES ARISING

- In response to both verbal and written requests from multiple actors, Rio Tinto/QMM has been unable to produce *any* baseline data for water quality pre-mining, which would include baseline water studies for the lake/s around the weir. When challenged about this at a meeting with civil society in September 2021[23], a water manager from Rio Tinto Plc explained that lack of a baseline for water was not "uncommon" or unusual for mines. However, the QMM mine has been sold to investors and to the government as a "green" and "sustainable" mining project, so the absence of pre-operational and pre-weir baseline is a significant failing, not least since the undertaking to do a baseline is part of QMM's risk assessment and monitoring commitment in the PGEP submitted to the Malagasy authorities, and is a performance expectation both according to Rio Tinto's global standards, the World Bank IGP2 and ICMM principles.

- Although Rio Tinto/QMM claim there is no baseline data available, the 1992 Lewis Environmental study states that a series of studies including hydrology and the aquatic environment were undertaken between 1989-1990. More latterly the QMM SEMP 2007 suggests water quality studies were undertaken. The SEMP 2007 states: *"The hydrological and physico-chemical* ***studies carried out on this system*** *have shown that apart from the high salt content, the water quality of Lake Ambavarano is generally of good quality characterized by the presence of a low rate of suspended particles."* (SEMP 2007). Why have these and possibly other studies not been provided in the absence of a formally entitled baseline, since they were evidently part of the impact assessment and could provide sufficient data for water quality measurements pre-mining? Given the significant concerns and inquiries made into water quality, and Rio Tinto/QMM's assertions that there are no health or environmental impacts related to the QMM mine water discharge, it is in everyone's interests to put all available data on the table.

- If Rio Tinto/QMM persist in claiming that pre-mining, baseline water data cannot be provided, it is equally difficult to access and establish what approaches and methodologies have been applied to water monitoring since weir construction and after QMM operations began. QMM guidelines for monitoring water quality around the mine have only been shared recently following requests from civil society. The water monitoring guidelines shared were developed by QMM in 2020 (QMM Water Monitoring Guidelines, 2020). Additional questions, demanding clarity on QMM's *pre-2020* water monitoring methodologies, have been sent to QMM but the requested information has not been provided. Since there have been identified issues with water monitoring data – such as inconsistent detection limits (Swanson, 2019) full transparency on QMM water quality monitoring is needed.

[23] QMM September follow up meeting with CSOs (online) on its QMM water discharge monitoring data

- For those Malagasy and international CSOs who received the QMM 2020 water monitoring guidelines from QMM, they were told by the company that the document could not be shared openly without permission from the ONE[24]. Requests to explain this transparency constraint on the private company's own monitoring document had no response.

- A number of issues have been raised over the reliability of QMM water data. CSOs sent a series of questions to QMM following its publication and presentation of the QMM Water Discharge Monitoring Data report (QMM, March 2021). This included questions about why Rio Tinto/QMM's external provider JBS&G had not included *all* previous QMM water data in its analysis of the current water quality situation (JBS&G 2020) e.g., up to and including 2020 data, as would be standard practice. QMM replied saying "*Neither QMM or JBS&G consider automatic reliance on historical data associated with environmental monitoring to be standard practice."* However, when questioned further at a meeting in September 2021 with CSOs, QMM insisted all their water data was "reliable" as it was used to report to the Malagasy Government (that would include 2015-2020 water data).

- "Historical data" usually refers to samples/data collected a long time ago using antiquated technology and may therefore need to be reviewed or not be relevant, and so needs to be thought about carefully. QMM published its discharge water monitoring data in 2021, using data from 2015 through to 2020. Such recent data would not normally be considered 'historical' unless suffering from faulty science, which has been formally acknowledged. Moreover, the QMM water data used by Swanson for her studies included much of the same data. Consequently, there is no sense of a coherent position regarding the use and reliability of QMM water data. The data is considered reliable when shared for the Government of Madagascar, but is "historical" and not to be relied on for independent analysts, such as hydrologist Dr Emerman. In this regard there continues to be lack of clarity and written verification regards QMM water data and its reliability.

- A peer review process that had been promised by Rio Tinto following Swanson's 2019 report identifying elevated uranium levels in waters around QMM (Rio Tinto, 2019b), and a national review of public health and radiation exposure studies (including the Swanson findings) in a working group hosted by the WHO in country, has not yet materialized.

- There is no evidence that villagers have been beneficiaries of information, education and communications (IEC) strategies or social behaviour change communications (SBCC) programmes to promote any behaviour changes needed, such as *"not drinking water from the lake"*, as was also advised (Tecsult 2005). Moreover, such strategies can only work where alternatives are provided. The availability of water fountains and pumps around Mandena is insufficient to meet local community needs for safer sources of water. In 2020 PWYP MG reported just 18% of those interviewed had access to a water infrastructure e.g., pumps, in their village/commune.

[24]QMM to CSOs on follow up on QMM water data report (2021) and share of Rio Tinto/QMM 2020 water monitoring guidelines, email dated 19th May, 2021, states "Please note that the ONE has asked that you should contact their Secretariat prior to referring publicly to or making publication of this document."

- World Bank's Environmental Health and Safety General Guidelines (ESHG) were published in 2007 after the weir construction but before QMM operations began. However, World Bank IGP2 standards would apply for monitoring impacts of the mine under the PIC programme.

### ➢ QMM BUFFER ZONE AND WATER QUALITY

With regard to the perimeters of the QMM mine's impact on shorelines, QMM sets out monitoring of the lake/estuary banks and flooding etc., and in the PGEP commits *"To carry out this monitoring, fixed reference markers will be placed at different locations along the banks"*. For the lakes e.g., Lake Besaroy and Ambavarano, QMM undertakes to ***document the shores*** using aerial photographs before the construction of the weir and after the first year of construction. Subsequently, it commits to aerial photographs to be taken every five years and to produce a map for each of the survey periods.

In an email shared by QMM during inquiries about the buffer zone breach, QMM similarly states that it regularly monitors the perimeters of the mine using multiple tools. QMM has confirmed rigorous monitoring of its mine perimeters.

Additionally, in its 2014-2018 SEMP (p.27), QMM identifies *"One of the potential risks associated with dredging operations is the spillage of water from the operation basin into the surrounding environment. In order to prevent this type of incident, mining will be carried out using a basin located approximately 3m lower than the existing topography"*. In line with the PGEP, it goes on to commit to maintaining the mining basin one metre lower than the lake, when on the edge of the watercourse, and maintaining a ***minimum distance*** of 50m from major watercourses such as the Mandromondromotra and Meandre rivers and Ambavarano and Besaroy lakes" explaining: *"as a buffer zone to protect the banks from erosion and water from abnormal turbidity"*.

Rio Tinto's mine tailing and water storage management guidance (D5) 2017, which sets out company procedure on mandatory requirements for the management of its mine tailings and water storage facilities, requires that those undertaking the monitoring and design verification of the QMM mine (p.18) to be *"trained and familiar with the quantitative performance objectives"* and that these personnel must prepare reports *not less than annually*. They also demand that all significant incidents must be recorded along with actions, accountabilities and schedule for mitigation. An example of a significant incident would include *"Loss of beach i.e., water encroaching towards the embankment"* (Rio Tinto 2017). This guidance also demands independent operational reviews to be completed to identify physical risks (as opposed to chemical/geochemical risks) associated with geotechnical, hydrological, and operational performance of the facility.

#### ISSUES ARISING

- Before the SEMP had even been formally approved by the Malagasy regulator (ONE) in 2015, QMM had already breached the 50m limit of the buffer zone and failed to manage its mine perimeters.

- The absence of any report by QMM detailing the breach of the buffer zone, as would be expected according to all the required protocols, was not /is not in evidence.

Instead, QMM denied the buffer breach for two years claiming its activity was "compliant".

- International NGO inquiries, Satellite imagery and two external technical studies – one by Rio Tinto's external consultant's Ozius, one by an independent study by hydrologist Dr Steven Emerman, and finally an internal review by Rio Tinto determined that QMM mine tailings25 had extended beyond the mine perimeter and encroached onto the bed of Lake Besaroy by at minimum 90m and by as much as 117m, depending on the OHWL (Ordinary High Water Level) used (Ozius 2018; Emerman 2018; Rio Tinto, 2019a).

- The Rio Tinto/QMM breach at Mandena exceeds the permissions granted to the company by the Government of Madagascar to observe an already reduced buffer zone (from the statutory 80m to just 50m wide) as negotiated in 2014; and violates national environmental law that protects sensitive zones, such as the waterways and lakes adjacent to the Rio Tinto/QMM mine, which are also protected under public domain legislature.

- The breach violates international environmental standards and safeguards to which the company was expected to comply under the World Bank PIC1 project including for Integrated Growth Poles 2 programme as well as in the Social and Environmental and Social Impact Assessment (SEIA) required by the Government of Madagascar, and the Environmental Management Plan (PGEP) attached to the permit issued by the Minister of Environment in 2001, and the project revisions SEMP in 2014-2018.

- The company's failure to report the breach compromises standards around transparency and reporting requirements under international guidelines and Rio Tinto Health, Safety and Environment Guidance (HSEG).

- The breach exposes the lakes to mine tailings and increases the risk of toxic mine waste water from the mining basin entering the lakes. Studies have demonstrated that mine basin waters have a high concentration of radionuclides (Swanson 2020).

- According to this research, villagers interviewed know nothing about QMM's reduction of the environmental buffer zone proposed in the SEMP 2014-2018, although the SEMP makes provision for a communications strategy to that purpose. They also knew nothing of QMM's breach of the buffer zone that occurred between 2013-14 (Ozius 2018) since it occurred on QMM's site – essentially what has become private land, where they no longer have legal access. However, they and others report that the mine is much closer to the lake than the legal limit of 50m.

- Multiple technical questions regarding the QMM dam safety criteria have been put to the company since the buffer breach but not been fully answered. Emerman evaluated the safety criterion used by Rio Tinto for the QMM dam and concluded it "is similar to the criterion that would be used for the design of storm drains at a shopping mall parking lot" (Emerman 2018). Given the fragile waterways, the volatile cyclonic weather conditions of southern Madagascar, the proximity to so many homes and

[25] Reject sands used to create mine infrastructure areas.

livelihoods, and at least four reported mine tailings dam failures at QMM (between 2010-2022) it would seem the criteria used are highly questionable.

- World Bank policies regarding mining were in place before the adoption of the EHSG mining guidelines in December 2007, for instance the World Bank Environment, Health and Safety Guidelines for Mining and Milling (Open Pit) from 11 August 1995. These should therefore apply.

### ➢ QMM AND DOMESTIC AND DRINKING WATER - HEALTH

Water challenges should be regarded through the prism of the in-country context. Less than half of the Malagasy population has access to safe drinking water. Poor access to water and sanitation costs the country US$567 million per year or US$25 per person per year (WaterAid, 2018).

Rural inhabitants have much lower access to potable drinking water sources - only 34% in rural areas (WHO/UNICEF JMP report, 2015). The SDGs targets 6.1 and 6.2 for achieving universal access to safely managed water and sanitation present a significant challenge to Madagascar, with associated costs equivalent to US$1.02 billion (approximately 9.07% of GDP) per year through to 2030. The economic benefits of providing safe water supplies to citizens can return US$3.2 for every dollar invested (ibid).

In its code of conduct, Rio Tinto pledges to *"support the United Nations' Universal Declaration of Human Rights and respect those rights wherever we operate. We are committed to operating consistently with the UN Guiding Principles on Business and Human Rights. This means that we need to know what adverse human rights impacts we are causing, contributing to or are directly linked to, and that we manage them."* (Rio Tinto, 2021).

Under the United Nations Charter, Human Rights to access to water, *"entitles everyone to have access to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic use. The water required for each personal or domestic use must be* ***safe,*** *therefore* ***free from micro-organisms, chemical substances and radiological hazards that constitute a threat to a person's health****."*

WWF (World Wildlife Fund) engaged in multiple meetings locally, advising QMM over a number of years in the late 1990s, raised questions and flagged issues about water in the QMM SEIA prior to its publication, asking for clarity on a number of issues including *"Is there any risk of radioactive materials being left in the lake? How will the water be treated after it is used? If 90% of it is to be recycled and used for humans locally, water quality needs to be monitored against certain indicators and some sort of treatment program and facility needs to be put in place. There are no details for how the company will address these issues. Finally, what happens to water issues once the mine is closed? Is it assumed that there will be no residual issues? At the very least this issue should be addressed sufficiently to satisfy any concerns about it that might exist (Ch 5)."* (WWF, 1997)

The IIAP to QMM also drew attention to serious concerns that had been raised in the SEIA about water resources and water resource management. In recognising the importance of water, it had demanded additional safeguards but was unable to comment to what degree the SEIA could fulfil all that would be needed. The committee

therefore observed that *"in addition to close monitoring, possible adaptation of QMM's proposed activities may be required to ensure that QMM fully meets the broad social and environmental commitments it outlines in the SEIA. **It is assumed that the Malagasy authorities will supervise QMM's activities to ensure that those commitments are respected**".*

Importantly, the company's commitment registered under section 4.3.3., of QMM's PGEP that relates to domestic water quality states that in the absence of any government standards with respect to water quality, "*Canadian guidelines and those of the World Health Organization (WHO) for the quality of drinking water will be used*."

## ISSUES ARISING

- Respondents in this study reported health issues related to water and most correlate the arrival of these illnesses with the start of the QMM mine activity. The local lakes and waterways are primary sources for local people's drinking and domestic water. QMM's weir, and mine process water discharges, are believed by the local populations to be responsible for polluting their local water sources.

- Elevated levels of uranium and lead, 50 and 40 times higher respectively above WHO guidelines for safe drinking water, have been detected in waters downstream of the mine (Swanson, 2019; Emerman 2019, 2020, 2021). Both these and other heavy metals in the mine process waters are of concern because of their potential impact on human health and aquatic life.

- QMM admits to exceedances of cadmium and aluminium above legal compliance limits (QMM 2021). However, the Malagasy Government has set no limits or standards with respect to discharge of uranium into the environment. Hence in its 2020 water discharge monitoring data report, QMM make no acknowledgement that uranium levels in their mine process wastewaters are above any compliance limits – since ostensibly there are none (in Madagascar). When asked at a meeting with civil society members (online in March 2021) to explain what limit QMM *will* use for uranium levels in its process waters, the company has said it would reflect on this matter.

- The QMM 2011 PGEP sets out QMM's commitment to adhere to Canadian and WHO guidelines in the absence of government guidelines.

- When asked if ANDEA will set uranium level limits for water discharges into the environment and when and how will they be applied, for example to QMM, the representative at ANDEA replied that "When the legal limits are not included in the regulatory texts, ANDEA will take the international parameters as a reference (Example of those of the WHO)" (PWYP MG, Interview with ANDEA December 2021).

- QMM asserts that the operation *"is not releasing potable water through its mining effluents and never intended to do so. Therefore, drinking water guidelines are not appropriate limits for an effluent release and we disagree to use those guidelines in that context"* (QMM 2021)[26]. In this regard, QMM appears to distance itself from any impact that mine process discharge waters have on the local natural sources for domestic and drinking water access in the communities around the mine e.g., lakes and

[26] QMM written answers to CSO questions, August 2021

rivers. In other words, they do not acknowledge that their mine has potential impacts on local drinking and domestic water.

- The Water Study by Hatch & Associates for QMM 2001, clearly indicates inquiry into domestic and drinking water collection in villages around the proposed mine site being mostly from *"closest available surface water or spring"*. Samples were evaluated against Canadian and WHO guidelines for drinking water quality.

- In the absence of standpipes and other water infrastructure, the majority of villagers rely on natural sources e.g., lakes/rivers for all their water needs (PWYP, 2020).

- It is not clear to what extent villagers have been party to information about the QMM discharge water monitoring data (QMM 2021), which explains cadmium and aluminium exceedances in QMM mine discharge water. Most of those met during PWYP MG's fieldtrips in Fort-Dauphin and surroundings in November 2021 and March 2022 said they have never heard about this study.

- Communities have complained about water quality to the authorities and QMM but there does not appear to be any mechanism that systematically addresses their complaints and issues, especially regarding health outcomes, and there is a lack of informed engagement process with stakeholders.

- In 2021, QMM told CSOs that they had set up an integrated water committee. However, further inquiry revealed that this committee was not constituted to include local communities/stakeholders as might have been expected, but is in fact a Rio Tinto *internal* committee made up of technical experts. The committee members names and qualifications have not been made available, despite requests for this information[27]. There is no direct access to this committee.

- There are no publicly available studies or sources of information that can evidence that monitoring of health impacts around the mine has taken place over the last decade. There is no transparency on health monitoring from changes to the water quality following the weir installation, as was recommended by the GoM's evaluation of the QMM SEIA (Tecsult, 2005).

- Equally, on incremental public exposure to radioactivity from mine related activity, RT/QMM has shared no health studies to evidence their claims that the QMM mine *"poses no health risks*."[28] The ONE tabled the need to train local doctors in radioactivity sicknesses and treatment (ONE, 2018) but no studies are publicly available that could demonstrate medical capacity building specifically to address mining impacts on the health of local citizens.

- The demand for access to potable water by all three communities in Mandena is notable and establishes drinking water as a clear priority for all the communities interviewed.

- The Malagasy national water strategy requires private enterprises working in Madagascar to contribute to the national effort in achieving national potable water targets. The issue has been raised multiple times with RT/QMM both verbally and in

[27] Verbal and written requests from national and international CSO actors to QMM between March-September 2021.
[28] Email from Rio Tinto DC Office (USA) to PWYP UK, Date: Tue, 22 Oct 2019 at 14:14; Rio Tinto AGMs 2019, 2020

writing by national and international CSOs and NGOs who are concerned about community exposure to contaminated water and citizens' health.

- Given the proximity of communities to the QMM mine, and their use of natural waters impacted by the mine for their domestic use and for drinking, community demands to QMM for access to safe drinking water are within their rights and Rio Tinto's global commitments.

**Action on water provision following national and international advocacy efforts**

Local, National and international CSOs have been lobbying the mining company to address safe water provision at the community level for over three years. QMM announced a new monitoring accord with ANDEA in December 2021. This arrangement includes QMM paying for monitoring activity. In a meeting with national and international CSOs on 13th January 2022, Rio Tinto explained that community level committees will be set up by ANDEA in parallel with a new Ministry of Water initiative to bring new water fountains to communes in Mandena. As yet there is no further information on how these committees are to be constituted or managed, or their overall purpose and aims.

QMM has also developed an agreement with the Ministry of water and committed $500,000 to ensure an increase in access to water fountains in the Mandena communes (Rio Tinto 2022). It was noted that the ministry appears to base the installation plan on a current accessibility rate to pumps/fountains as 45% (which is more than double what the PWYP MG study reported at just 18% in 2020) with the aim to increase to 85% access by provision of just 3-4 pumps in each commune. It is unclear what preparatory studies have been done in participation with the local population or CSOs in the WASH sector to orient this initiative, in order to ensure targets are appropriate and can be realistically met, and whether they will take into account existing issues (broken pumps) and long-term maintenance requirements.

In response to questions on the water quality issues, ANDEA say they have committed to undertake their own study of the mine in the first quarter of 2022. The INSTN (Institut National des Sciences et Techniques Nucléaires) has been mandated to carry out this mission and "therefore has a reporting obligation towards ANDEA and not QMM. Only the related costs are borne by QMM. A results communication workshop will be carried out around March 2022." (ANDEA interview with PWYP MG, Dec 2021)

ANDEA also commented that "Until further notice, QMM does not have the authorization to discharge wastewater outside the operating site." (ibid)

However, in February and March 2022, following heavy rains from two cyclones, QMM was unable to contain and manage its mine basin waters. Two mine tailings dam failures were reported with overspill of mine process waters from paddocks into the environment. QMM sought and gained an "exceptional" permission from the ANDEA authorities to release a million cubic metres of mine process wastewaters in order to avoid a total collapse of the mine tailings dam. This accord does not exempt Rio Tinto/QMM from its responsibilities for any damage that is caused by the release and sets out a series of conditions including: creating water storage sites to treat water before its release; reinforcing the mine tailings dam ("berm") to be solid and waterproof; and compensation and decontamination for any impacts detected. The controlled release of a million cubic metres of mine wastewater will take place over seven weeks and the Government expects the local monitoring committee to be informed at each stage of the release. Following the tailings dam failure, dead fish were found floating in the Lake Ambavarano. Villagers raised the alarm and brought the authorities to inspect the problem. ANDEA and the INSTN conducted tests and meanwhile villagers were instructed not to eat or catch fish from the lake, thereby removing their main source of food and income. The events have escalated to national level inquiries which were ongoing at the time of this report.

*Box 5. Action on water provision following national and international advocacy efforts*

- RADIOACTIVITY AND WATER QUALITY

The PGEP of QMM recognises that radioactivity around the mine requires monitoring. Mineral sands contain zircon and monazite both of which contain the radionuclides uranium and thorium.

In its monitoring commitments in the PGEP, QMM engaged to undertake *"Regular recording of radiation levels at the various sites (e.g., port, road linking the factory to the port, in the villages on the outskirts of the mining sector) and keeping the data in a register. Measurements of the radiation, according to a grid to be determined during the development of the detailed mining plan, will be carried out before and after extraction of the sands throughout the duration of the exploitation in order to check the evolution of the radiation rate; also: independent audits of radioactive sands management".*

An initial study conducted by SENES (2001) shows that construction activities can be potential sources of exposure to ionizing radiation, since the mineral source has fairly high levels of uranium and thorium. QMM acknowledged that *"The accidental spillage of heavy minerals will constitute a source of soil contamination at the sites of the various infrastructures (mines, port, roads) during the operating phase."* The SENES study concluded that the general population would not be at risk from any elevations in radioactivity, higher than those already existent in the natural background.

Despite these assurances, the Independent International Advisory Panel to QMM also drew attention to the need for radioactivity monitoring and public communications in its 2001 report, advising that: *"Although all evidence that we were able to gather indicated a very low level of actual risk, we underscored that the perception of danger to worker and general public health appeared to be widespread. Thus, we strongly urged that the SEIA include commitment to 'full support to programs of public information and to fully independent scientific verification and validation of human safety both in the workplace and beyond".* They then report that the SEIA has responded to this and states that QMM will ensure that regular independent reviews are conducted or QMM's management of sand containing radioactivity, while respecting the appropriate Malagasy rules and procedures. They go on to ask for *"A further commitment to support programs of public information, including widespread dissemination of the results of the independent reviews that are promised, is required in order to provide regular reassurance to workers and the local population and to sustain constituency for the project."* IIAP, 2001.

Swanson also recommended improved monitoring with detailed guidance in her 2019 review, as well as *"Equitable inclusion of local stakeholders and affected communities by developing local staff and community capabilities in communications, social engagement and environmental monitoring skills in order to increase understanding among community members, contribute to informed and inclusive decision making, and provide independent monitoring of the mine's radiation levels over the project lifetime, and beyond".*

In its SEMP commitments, QMM is required to deliver "*An information program relating to the actual ranges of the level of radioactivity in the mining sector will be developed by Rio Tinto QMM and communicated to community stakeholders and the villagers concerned*" (ONE/CSER, 2012). The ONE/CSER's expectations and Swanson recommendations (2019a) are more in line with the WHO guidelines that advise

*"communicating radiation risks clearly and effectively includes identifying target audiences (e.g., public, policy makers and decision makers) and tailoring the messages to them"* (WHO, 2002). In particular, "*risk communication requires the description of the likelihood of harm and its severity."*

According to Rio Tinto tailings and storage management guidance, E13, which governs the management of mineral wastes, including mine tailings which are chemically reactive due radioactivity, for example, the company standard seeks to *"control geochemical risks through characterization, prediction, design and monitoring"*. It states that *"If significant geochemical hazards exist, a four-yearly external review of the mineral waste management program is required*." The stockage of highly radioactive monazite would likely warrant such a program.

QMM had not planned for the transport of monazite outside the project site in its SEIA/PGEP because it was planned to treat the potentially radioactive monazite on site (through burying at depth, etc) and had concluded that *"Trucks will therefore not have to travel on public roads in the area and, therefore, will not come into contact with local pedestrian or motorized traffic*." When it commenced exploitation by exporting the monazite in 2018, the product started to be transported through the centre of Fort-Dauphin via the local market place. According to the obligatory requirements of the MECIE[29] Decree for the mining sector, and with regard to the highly radioactive nature of the mineral, the exploitation of Monazite by QMM triggers a separate, dedicated EIA and full public consultation.

## ISSUES ARISING

- According to Swanson in her 2019 review, Rio Tinto could not demonstrate through any documentation they had shared, that QMM had a robust monitoring plan for radioactivity in the environment surrounding the mine. In particular there was no monitoring of ingestion pathways such as water, food, soil all of which are crucial for determining any incremental increase in exposure for the general public, and especially for mine affected communities living directly around the mine site. Most of QMM's monitoring was focused on worker exposure. Only in 2019, following international pressure[30], did the company commit to new radioactivity monitoring studies in the wider environment by an external expert.

- In reviewing available data, including study provided by the SENES, Swanson (2019) concluded *"there can be no general conclusions drawn regarding total QMM-related incremental radiation dose to the general public because it is unknown whether current dose estimates are, indeed, very conservative or whether in some cases they are not".*

- The data provided by Rio Tinto to Swanson in 2018 for her review of the radioactivity around the QMM mine did not include any data for ingestion pathways e.g.,

[29] MECIE stands for "Mise en compatibilité des investissements avec l'environnement) and requires investments to be made in compliance with environmental standards. This decree n°2004-167, adopted on February 03rd, 2004, is currently under revision. See http://eitimadagascar.org/wp- content/uploads/2014/06/decret_2004_167_guichet_unique_ONE1.pdf

[30] At meeting with PWYP UK/PWYP MG and ALT UK following up on the Swanson 2019 independent radioactivity review, Rio Tinto announced it was commissioning JBS&G to carry out a one-year study.

soil, water, food. Without such data it is impossible to determine the incremental dose of radioactivity to which the public may be exposed to as a result of the mine activity.

- Lack of radiation ingestion pathways data made it impossible to determine the impact of the mine. Swanson turned to chemical measurements of uranium in water. Lack of downstream water data was an additional barrier to determining impacts downstream. As a result, additional studies were undertaken (residents provided samples from upstream to assist an independent water study, by Emerman 2019).

- Using chemical water data from water samples (data provided by QMM), Swanson determined the presence of elevated uranium in waters around the mine, 50 times higher than WHO safe drinking water guidelines. As a result, Swanson made multiple recommendations to improve mine monitoring, and also that ***safe drinking water*** sources to be provided to communities most likely to be directly affected by elevated uranium concentrations. Only in 2022 will some advance be made on safe drinking water (cf. the agreement between QMM and the Ministry of Water) but its reach may be limited.

- Local communications about radioactivity around the QMM mine has been limited to occasional press coverage and company statements. To date there is no apparent communications strategy for communicating radioactivity issues with communities around the mine. This has been confirmed during meetings with communities held around Fort-Dauphin by PWYP MG in March 2022. Local education about radioactivity is insufficient. The local QMM information centre is reportedly educating people who call in to ask about the subject to accept that *"radiation is everywhere; it's in bananas"*[31].

- Promises made by Rio Tinto in 2018[32] to communicate the findings of the Swanson study to communities have yet to materialise[33]. There is a total lack of educational material about radioactivity appropriate for non-literate villagers, such as would allow them to engage in debate and understanding risks to their environment from any incremental exposure from radioactivity as a result of QMM mining activity.

- Citizens have expressed concern about the change in management of the mine by-product, monazite. When QMM commenced exploitation by exporting the monazite in 2018, the product started to be transported through the centre of Fort-Dauphin via the local market place. This represented a change to the original project so arguably required a new SEMP, which would have demanded a full public consultation. However, there is no publicly available document to demonstrate either an EIA was carried out or a SEMP developed for the change in project to allow QMM to move monazite off the mine site and through town to the port.

- Lack of transparent and inclusive consultation for the movement of monazite through the town was a source of public complaint by a local Deputy to the Minister of the Environment and also recorded amongst local CSOs, who said the consultation was only a validation of a pre-existing decision, a sort of "fait accompli"[34]. There appears to

[31] Explanations offered at the Fasimainty Centre Fort-Dauphin to a local researcher
[32] Framework Agreement for the Swanson study set up by ALT UK and agreed by Rio Tinto
[33] In a framework agreement prepared by ALT UK 2018 to ensure core principles of transparency and human rights be attached to the Swanson independent study and dissemination of her findings, Rio Tinto agreed to conduct a phase of communications for stakeholders to follow the publication of the Swanson report.
[34] PWYP MG local exchanges with CSOs, September 2019

have been no public risk assessment carried out or EIA in full consultation with local people.

- In 2019, the IIAP to QMM stated that, *"In a report ((16), p.6) summarizing its inspection visit of September 16-20, 2019, the Environmental Monitoring Committee (Comité de suivi environnementale, CSE) reported that the company had "stocked monazite in bags rather than specially-adapted containers and called for "drastic" measures to be taken "immediately"*. (IIAP, 2019). It is not yet publicly reported whether these measures have been taken. Such measures are required to meet minimum risk for the handling of hazardous waste, to which Rio Tinto is expected to comply[35].

## ➢ WATER QUALITY AND LIVELIHOODS

### • Fishing

The PGEP 2001 recognises that the QMM weir will change the salinity of the lake and the fish populations. It predicted *"The new populations of benthos colonizing the lake and the river upstream of the weir will likely form a community similar to that of current freshwater environments". At the same time, it assumes that the changes will have no impact on other species such as crocodiles, and go on to expect that "expanding the freshwater zone might even be good for it."*

In the PGEP, a program for the conservation and restoration of aquatic environments is proposed by QMM, in which they will identify priority species and characteristic species of the environment and monitoring indicators, such *as physico-chemical parameters (temperature, dissolved oxygen, pH, etc.*) and be focusing on aquatic wildlife populations and their exploitation; the restoration of aquatic environments (aquaculture, development of spawning grounds); conservation and sustainable management of freshwater species (evaluation of the Andrakaraka fishery, grouping together of freshwater fishermen and brackish water).

At the time of introducing the weir, Rio Tinto/QMM was beneficiary of World Bank IFC funding under the Integrated Growth Poles (PIC) programme, which supported construction of the port and other infrastructure to the mine. The World Bank project appraisal in 2005 warned that the QMM weir and its consequent conversion of the lagoon system from its occasional brackish quality (due to sea water influx via the estuary) to a permanent freshwater system, would be "essentially irreversible", and *"the conversion may affect subsistence fishery"*.

The Government's evaluation of QMM's SEIA (Tecsult 2005[36]) made clear recommendations that QMM should continue its activities aimed at identifying *"the most effective mitigation measures to minimize the negative impacts that the construction and presence of the weir will have on fishing communities"* (Tecsult, 2005, 4-23). In particular, the evaluation by Tecsult recommended that QMM draw up a plan for monitoring fishing income *"to cover the period of establishment of the weir and the period of restoration of the new ecosystem" in order to "detect any variations in*

[35] Minimum requirements for the Handling, Classification and Disposal of Hazardous Waste, Department of Forest and Water Affairs, 2018, Second edition

[36] Measures proposed PGEP (p.59), Conservation and sustainable management of freshwater species (evaluation of the Andrakaraka fishery, grouping of freshwater and brackish water fishermen); and modality to monitor Control of the monitoring program relating to the exploitation of aquatic resources upstream and downstream of the weir; Tecsult 2005.

*income compared to the basic situation before the project and be paired with the intervention plan proposed in the PGEP".*

WWF both in its early assessment of the SEIA (circa 1997) and in its subsequent evaluations of SEIA commitments (2001, 2004) discuss the weir and its potential environmental impacts and raise numerous questions and concerns with regard to the health of the aquatic system, its flora and fauna. In 2001 review of the SEIA, WWF comments that *"Very little attention has been given to the potential impacts of changing subsoil and soil and water salinity (Lake Ambavarano). All estimates of the potential impacts of mining on water and the local hydrological system are based on models developed by consultants which do not take into account long-term adverse effects and in particular the impact that may have climate change"* and *"The project does not propose any water treatment or quality control measures during and especially after the mining phase."* (WWF 2001).

On the control and monitoring of the project, WWF asks *"who will monitor the application of the specifications and how will this monitoring be financed?"*. In addition, the procedures for this monitoring are not clearly explained (which indicators, who will collect the data and how, when and how often, how this data will be made available to the local population, the regional and national government, NGOs and other stakeholders).

WWF goes on to highlight that *"One of the main shortcomings in the SEIA methodology is based on the fact that, in the categorization of impacts, it did not consider it useful to categorize irreversible impacts separately, whereas there are such impacts and they should have been the subject of public consultations (e.g., loss of certain species, disappearance of brackish water in Lake Ambavarano)."* As a result, WWF recommended that *"(7) The impacts of the transformation of Lake Ambavarano into fresh water on biodiversity as well as the reasons or criteria which dictate this choice should be analyzed and explained more clearly, as well as the potential impacts on human economic activities and how these would be compensated in case of loss". It also asked QMM to "(8) Address concerns about the hydrological system including water treatment and quality control during and after the project."*

The IIAP drew special attention to the adoption of a human security framework for the SEIA of QMM in 2001 (Page 3, 1), placing importance on *"The explicit commitments to prevent the loss of sustainable livelihoods as a result of the construction of a weir on Lake Ambavarano…"*.

In its PGEP, QMM undertakes to *"compensate the villagers on the basis of an inventory of the occupation of the territory and the subsistence or income activities that are practiced there at the time of the exploitation. This inventory will be carried out as the operation progresses and will cover the area covered by each of the years of operation. It will be constantly updated and validated by the competent authorities."*

In its 2007 SEMP for the weir construction, QMM recognises that the change in the lagoon system from occasionally brackish to a freshwater system constitutes a *"major"* impact on water quality. It also recognises that it will result in a major residual impact on the physico-chemistry of the lakes, including on pH and dissolved oxygen levels.

QMM suggests the physico-chemical parameters will be "*much more stable*" and the conversion *"from an estuarine environment to a freshwater environment could allow an*

*increase in fish production."* *(Emphasis added).* The SEMP goes on to suggest the weir *"could represent a potential habitat for various aquatic species"*. They suggested that its layered rocks could *"promoting the creation of microhabitats and, consequently, biological diversity"* and *"cavities and crevices … can become so many shelters, where fish and crustaceans can not only hide from predators, but also lay their eggs and feed on other organisms that will colonize the structure"*.

## ISSUES ARISING :

- There is little evidence to suggest that regular monitoring of the aquatic environment has taken place or to show monitoring or fisherfolk's income over the last ten years. If this has taken place, the results have not been released publicly or communicated in appropriate formats to local people and affected communities. Moreover, it is not clear to what extent the fisherfolk have access to all the research documents and evaluations that might inform the discussion, or what technical support they can muster to decipher such reports. They have no resources with which to undertake their own studies. Appropriate community information and open discussion on the topic would have increased QMM's transparency towards communities and would have triggered an inclusive concertation on identifying mitigation processes to the eventual damages and losses suffered by local people.

- Crocodiles are migrating upstream, and attacking children, suggesting the new so called freshwater environment is far from conducive to their remaining in their previous habitat and creating risks for local inhabitants.

- In a Powerpoint presentation for its SEMP in 2006, QMM presents the main positive impacts of the weir as "Water quality (always soft); *Increased fish productivity (freshwater species); Fishery resource management."* That the QMM SEMP regards the weir to bring increased fish and fisheries management suggests a contradictory view point to the SEIA and all other related studies and advice, as well as what has become the lived experience.

- There are no listed mitigation measures in the QMM 2007 SEMP for the weir construction regarding possible impacts on subsistence fisheries. Therefore, despite the signaling in the SEMP of "major" impact from the conversion of the lagoon to a freshwater system, no attention has been given to warnings and concerns raised in the SEIA evaluation by the Malagasy government, the World Bank evaluation, and multiple external commentaries on the SEIA about the negative impact of the weir on local subsistence fisheries. The lack of detailed mitigation measures to address the risks to fisherfolk livelihoods in the SEMP 2007 raises significant questions.

- For the fisherfolk, the arrival of the QMM weir (2005-06) is undoubtedly a clear mark in time from whence they observed obvious changes to water quality and to their fishing livelihoods and indeed have reported these for well over a decade, both to external journalists (Al Jazeera, 2009) and also to the local authorities, QMM, and ONE as this study shows.

- Fisherfolk perceive the waters of the lake to have become polluted since the mine began (PWYP MG 2020) and have raised concerns with the local authorities. In 2018, the local fishing association in Andrakaraka complained to the authorities after dead fish were found floating in the lake shortly after a QMM 'overflow' incident in 2018 (water

breached mine water containment structures). This catalysed research by the Centre for Environmental Research (CNRE), with collaboration from the ONE and the regional environmental monitoring committee, the Commité de Suivi Environnemental Régional (CSER). The outcome of that study was not shared in a formal report [37]. However, in PowerPoint slides presented by the CNRE at a public meeting in Anôsy with the ONE and QMM in April 2019, the CNRE posited that acidification in natural swamps was most likely to blame for the fish deaths[38] but the report was inconclusive. The CNRE explained that *"the phenomena of acidification and accumulation of metals in QMM basins requires deeper studies"* and called for *"Rigorous monitoring of heavy metal concentration levels in mining basins that may impact the natural environment."*

- Calls for further understanding about acidification and pH levels have been made by Swanson (Swanson Memo, 2022). QMM also state they will be looking further into this phenomenon (Rio Tinto/QMM, 2022[39]), since pH/acidity can affect the ways that heavy metals behave in water.

- Following mine water overflow events in 2022 that also resulted in fish deaths in the local lake, radioactivity and mining expert Dr Swanson suggested the most plausible explanation for the fish kills was the combination of high aluminium in combination with low pH (acidity), which is present in the QMM mining basin waters, and which could have entered the lakes in a plume as result of the release of volumes of mine basin water (Swanson Memo 2022a). She noted that analysis of the dead fish/water quality undertaken by a national laboratory did not measure various metals and other perimeters of concern (Swanson Memo 2022b). A fishing ban followed the 2022 events with deleterious impacts on local fisherfolk livelihoods and community food security. No compensation has been paid.

- QMM paid fisherfolk compensation not to fish while the weir was being constructed. At another time, in a bid to improve fish stocks, QMM paid fisherfolk 130,000 Ariary (approx. 62 dollars at 2011 exchange rates[40]) per month for just 6-8 months not to fish in a bid to allow numbers to increase (CARE 2008/ FG Ampasy Nahampoana/Seagle, 2011). This clearly had no long-term impact on the situation. Fish farming projects to farm eels in Andrakaraka also failed, with reports that the fish all died. New project/s were set up subsequently, upstream at Ampasy Nahampoana around 2020 but no detailed reports are available in the public domain to demonstrate whether it is working successfully yet or its impacts on livelihoods for fishers in the other communes. Less fine nets were also distributed to fisherfolk to encourage release of smaller underdeveloped fish from nets and offer a better chance to reach adult size (Seagle, 2011). However, given the substantive loss of fish stocks that are being reported, none of these interventions appear to have improved the fisherfolk's situation over the last ten years.

- In 2019, the Independent International Advisory Panel (IIAP) to QMM visited and reviewed the situation of Fishers in Andrakaraka and concluded, "It is doubtful that any other community in the area has suffered greater direct damage to its livelihood from the mine's operations." The IIAP made a series of strong recommendation including

[37] After pressure was exerted on QMM during more recent overflow events in February/March 2022, the CNRE report was finally released to PWYP MG/ALT UK and provided to experts for independent review
[38] PowerPoint presentation, Centre for Environmental Research (CNRE), principal results, slide 3
[39] Meeting with PWYP/PWYP MG and ALT UK in January 2022
[40] https://www.oanda.com/currency-converter/en/?from=MGA&to=USD&amount=130000

cash transfers in the immediate term to lessen the burden on the community. There is no follow up report to suggest monitoring of these recommendations has taken place or any such payments and remedy have been made.

- Given the concerns raised by multiple agencies before the QMM weir was installed, including QMM's own advisory panel (IIAP), WWF, the Malagasy Government, and World Bank, it is no surprise to learn of the fisherfolk problems. However, taking into account the advice, alerts and recommendations provided by so many entities on the subject of the weir ahead of its construction, and the possible impacts on both fishing and health, it is surprising that two decades later no viable solutions have been found, and water quality has become a major local issue on this important source of income generation and traditional livelihoods at Mandena.

- Mahampy

*Mahampy* reeds play a significant role in Antanôsy customs (it is used to wrap the dead) and are also an important economic resource in times of hardship and low harvest. Women traditionally harvest *mahampy* and it's an important income generating activity (Seagle, 2011).

QMMs SEMP 2014-2018 recognises this important reed and states that "*the resources to be valued in the swamps, before the passage of the dredge, include the mahampy (Lepironia mucronata), the ravinala (Ravinala madagascariensis) and the niaouli (Melaleuca quinquenervia). These species will be harvested according to a pre-determined exploitation plan. The company is committed to ensuring the availability in quantity and quality of resources such as mahampy through the gradual restoration of wetlands, as extraction progresses*".

QMM also commits to a monitoring program covering the natural resource management process and the elements of the resource development program, which it requires to be "instituted jointly by QMM, the State, local stakeholders and the villagers concerned".

In 2009, Rio Tinto/QMM developed *mahampy* plantations. However, these plantations have reportedly failed to produce sufficient *mahampy* for all users, and women are then forced to buy *mahampy* from collectors from outside the region (Kraemer in Seagle, 2011). Rio Tinto claims that QMM "work with communities to ensure that restored reed beds are harvested sustainably so that the new wetlands remain intact...[41]".

QMM acknowledges that the project will affect land and access to pasture and in its SEMP undertakes to lead a consultation with the communities and the public services concerned for the use of the land, especially where people are likely to be displaced. It also commits to *"Similar consultations … to indemnify or compensate the owners or operators or to support them in the exercise of other income-generating activities."* As part of their compensation package, Rio Tinto/QMM (2007a:2) committed to training women how to fashion *'baskets and mats produced by weaving mahampy'*.

[41] https://www.riotinto.com/operations/madagascar/qit-madagascar-minerals

ISSUES ARISING :

- Antanôsy women traditionally weave with *mahampy* and therefore were ***already experts*** in this craft (basket and mat weaving) before the arrival of the mine. Women did not ask for or require training as 'compensation' for loss of access to *mahampy*. They feel that they are not compensated for the loss of their livelihoods in real, economic terms.

- Loss of *mahampy* reeds represents a significant loss of income for many households, most especially impacting women and women-led households. Women can no longer access sufficient *mahampy* supplies. According to this study, access to *mahampy* has been impacted negatively by the QMM mine and created a downturn in what was previously a sustainable livelihood.

- Remaining *mahampy* in Mandena is accessible only by paying fees ("*congé*") to the forest guards. This creates tension and conflict and is obviously open to corruption, which goes unpunished. Women are afraid of entering Mandena to collect *mahampy* (Seagle, 2011), adding a safety problem to an already scarce situation.

- It is not clear from QMM positive publicity materials that there is any acknowledgement of the current challenges regarding *mahampy* collection, as they have been expressed to researchers in this study, or in previous research e.g., Seagle 2011.

## ➢ WORLD BANK STANDARDS FOR MONITORING QMM OPERATIONS

The RT/QMM mine is the centrepiece of Component D of the Growth Pole Project (PIC1) for the Taolagnaro (Fort-Dauphin) region funded by the World Bank (2005-2014). This mining project was categorized by the World Bank in 2005 as "Category A – high environmental risk".

The World Bank is therefore implicated in the safe operation of the Rio Tinto/QMM mine. The Bank's Project Appraisal document for the PIC programme (14 June 2005 –ref. 31760-MG) states: *'There are really only two groups of direct, potentially significant, negative impacts on the environment. These are the impacts of the proposed new port at EHOALA, co-financed by the World Bank and Rio Tinto/QMM, and those of the ilmenite mine, not financed by the World Bank under this project but considered as an associated project and thus covered in the safeguards work for IG2P as well as in the ESIA required by the GOM and the EMP attached to the permit issued by the Minister of Environment in 2001.'* (WB, 2005, p.26)

Since the project is classified in Category A for environmental assessment purposes, the approach to the safeguards triggers a number of policies including:

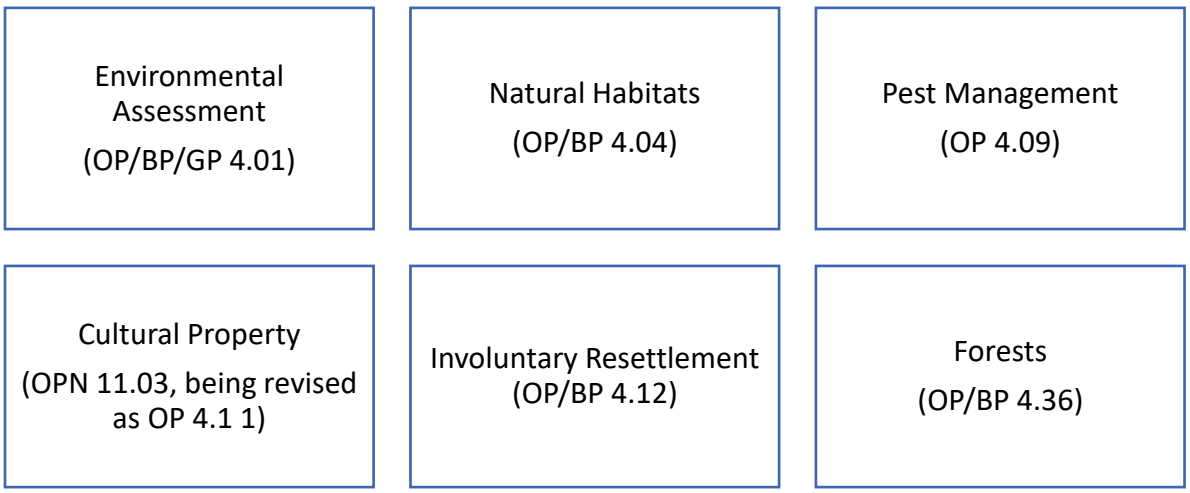



*Figure 11. Sample of World Bank policies applying to RT/QMM*

The Bank confirms that *"the application of these operational polices was extended to the Mandena Mine and the World Bank's standards and guidelines on mining operations were applied*." (World Bank, 2018).[42]

The World Bank recognised that the weir would *have "Impacts on groundwater, soils, and vegetation at the mine site and on a system of periodically brackish lagoons system that will become permanently fresh water are the most significant."* The Bank highlighted that *"Avoidance of indirect impacts such as those that could result from poorly-sited or implemented tourism or industrial development, depends on following sound planning principles and enforcing standards and guidelines, both of which IG2P seeks to strengthen."* It was also already aware of potentially adverse impacts of the weir on the lagoon systems in the vicinity of the mine even before the project had started and flagged its concerns for subsistence fisheries in its 2005 project appraisal.

Monitoring of the World Bank standards, much of which would require highly technical studies, regular monitoring and rigorous analysis, has relied on local stakeholders. According to the World Bank: '*In relation to Rio Tinto/QMM, there was indeed a system put in place to monitor and manage Rio Tinto/QMM's environmental and social risks. The system in place effectively allowed stakeholders to monitor Rio Tinto/QMM's environmental and social risks*[43]".

## ISSUES ARISING :

- There is no evidence to suggest World Bank standards have been satisfactorily applied in relation the fisherfolk losses, or other compensation claims.
- Given the resources and capacity of local stakeholders in the Anôsy region, ill prepared for a major development project of this kind, the monitoring system has been inadequate on multiple levels.
- In the World Bank's IEG ICR Review, the Independent Evaluation Group's Report Number ICRR 14941, dated 30 June 2016, observed: *"M&E arrangements were*

[42] Correspondence between the World Bank and the Andrew Lees Trust, a letter of 23 August 2018 from the World Bank
[43] The World Bank Country Director, 24 September 2019 email correspondence to ALT UK.

*poor. Institutions responsible were not specified. Results indicators were not precisely formulated, and baseline values and arrangements for future data collection were missing. Mechanisms to capture private sector feedback about the impact of the project's interventions were not properly set up and utilized."*

- Most of communities and CSOs are not sufficiently equipped or trained to be able to understand the regulatory frameworks and safeguards attached to the IGP2 project relating to QMM activity, and thereby actively participate in monitoring or engage in accountability processes.

- Local stakeholders, CSOs, the CSER, decentralised services and communities do not have the means, capacity and wherewithal to undertake independent technical monitoring exercises of QMM operations (e.g., hydrology, radioactivity levels, water quality, etc.).

- To date, there has been no World Bank funded assessment of the QMM impacts on water quality at regional level and directly related health and livelihood impacts.

- World Bank complaints mechanisms and procedural constraints do not allow time for studies and review of complex technical issues that occur late in the project timelines and which have or are subject to temporal effects.

- The EHS guidelines on the World Bank's website are dated April 30, 2007 and include a section on 'Community Health and Safety.' (p.77). The World Bank must clarify if these guidelines regarding water quality apply to the Mandena mine site and the surrounding communities and, if they do not, explain why not. It must also explain what would have prevented these water standards from being applied subsequently to the communities around the Mandena mine site in the first project restructuring occurring in 2007-8 or the second project restructuring in 2012.

### Local monitoring of QMM and monitoring structures

The monitoring system for QMM has two levels:

- the CTE (Comité technique d'Evaluation), a national committee led by ONE, with relevant Ministry representative to validate and follow-up the project Social and Environmental Management Plan (SEMP); and
- the CSER (Comité de Suivi et d'Evaluation Régional), the Regional committee led by ONE to validate SEMP and follow-up indicators for each approved SEMP at local level.

The CSER was set up by the ONE in 2007 and is constituted largely by technical personnel from the regional decentralized services of the state Ministries in Anôsy (Seagle, 2011).

### National Office for the Environment (ONE) – The Malagasy State Environmental Regulator

The leading agency for monitoring the QMM mine is the ONE. Under the MECIE Decree, QMM is permitted to make financial contributions to the ONE to support the regulator's monitoring and evaluation activity around the QMM mine. ONE is expected to review the

project SEMPs and monitor activity against commitments and compliance requirements according to the SEIA and engagements in the PGEP. The agreement between QMM and the ONE was renewed in 2017 and states that QMM will conform with the specifications (PGEP 2001) associated with its mining permit, and will realise its environmental monitoring commitments as well as measures outlined in its SEMPs.

The ONE was invited to participate in an interview for this study and answer a series of questions about the QMM weir and the QMM buffer zone reduction and breach. The ONE regional office explained that permission had to be sought first from the national office in Antananarivo; the research questionnaire was requested and a copy was provided by the PWYP MG research team. However, since December 2021 and at the time of the writing, there has been no response from the ONE, therefore no interview and no answers from them.

*Box 6. Note on ONE's lack of response to the survey*

In March 2019, ALT UK and Publish What You Pay (PWYP) coalitions in Madagascar and the UK requested details of Rio Tinto/QMM payments to ONE for its monitoring services to QMM. Rio Tinto provided this information, together with budgets and schedules of work from ONE. This showed that QMM is paying fees between US $35,000-$40,000 per year to ONE for monitoring services, varying according to the activities planned and delivered[44].

The ONE produces reports annually to present progress and raise issues on the activity undertaken against the current SEIA and the commitments of the PGEP. One such area of monitoring would therefore be the buffer zone reduction and the QMM breach. The buffer zone and the commons of water e.g., the lagoon system, are protected under Malagasy law (pas géometrique[45] and the MECIE decree). Additionally, the QMM PGEP and SEMP require the 50m buffer between the mine and waterways in order for QMM to be compliant.

When QMM breached the buffer zone and encroached onto the bed of Lake Besaroy by at least 90m, it violated its agreements with the government to respect a 50m distance from the lake, and in doing so also broke Malagasy laws. There were no sanctions or penalties for the breach from ONE. The company claimed ONE had deemed the impact of the breach to be "*negligible*". However, despite more than two years of verbal and written requests from civil society actors to Rio Tinto/QMM, the ONE and an open letter to the Minister of the Environment signed by multiple national and international agencies (ref: PWYP open letter/briefing paper, 2019), no technical study or assessment that could explain ONE's conclusion has yet been made available.

Moreover, budgetary allocations from QMM to ONE in the 2017-2018 period, when the breach issues were raised, showed no signs of any increase. This suggests that no additional studies were undertaken by ONE and no expert inputs were requested or contracted for an inspection of the buffer zone. Consequently, there is no evidence that

[44] Rio Tinto response to PWYP/ALT UK requests for payment details between QMM and the ONE, 23 March 2019; and attached the ONE contracts, schedules and budgets.

[45] Water is a public good in the public domain. There are state restrictions to private ownership within natural public areas (*domaines publics naturels)* in Madagascar of which reserved lands (*pas géométriques)*, such as river beds, are included These can only be subject to private appropriation under the conditions set by the provisions of civil law dealing with the matter, as well as the easements attached thereto in force on the territory of Madagascar (Titre 1, Law 98-029, 1999 Water Code). For example, if it were legal under the Decret MECIE (which it is not) for QMM to appropriate part of the lake bed and enter lake Besaroy with its mine tailings, it would also require the permission of the Chef du Fokontany.

ONE undertook any in depth technical evaluation before concluding that the QMM's buffer zone works presented "no significant concerns".

Instead, Rio Tinto/QMM claim they have received a *"temporary exemption*" for the buffer breach. No explanation is provided in formal reports. However, the IIAP report 2019 included this observation: *"The exception was allowed on the grounds that the risks of damage were slight and that the body of water potentially affected was already formally classified as low-priority from a public safety point of view."* It is unclear how this water body downstream of the mine that provides drinking water to thousands of villagers has been determined to be of "low priority from a *public safety* point of view", and especially given the undertakings in the SEIA and PGEP.

The lack of public documentation on the buffer breach and related issues was a key area of concern raised with the ONE and Malagasy Government by CSOs in their signatures to an open letter from PWYP (2019). The Independent International Advisory Panel (IIAP), which is populated with ex-officials from Malagasy Ministries and the World Bank, endorsed the call from civil society for public access to ONE report/s and a change in the current formula for funding the ONE monitoring and evaluation processes (IIAP, 2019).

In terms of the weir impact, the ONE representative is on public record recognising that the weir was always considered to be one of the biggest environmental impacts of the mining project, but went on to dismiss fisherfolk's concerns, stating that local people had *"six other lakes they can fish in*" i.e., in the lagoon system (Lambolez/Pernelle, *Je veux ma part de Terre*, 2012).

Without ONE's participation, it is impossible to understand better or offer the current viewpoint with regard to the matters raised in this study. **The lack of engagement of the ONE in this study is nevertheless important to note as an outcome of this research.**

Difficulties relating to access ONE and its reports and documents has been raised over a number of years in Anôsy, by local and international researchers and over a number of matters – from forest 'offset' demarcation limits through to compensation issues. Villagers have reported being publicly reprimanded by the ONE e.g., at Antsotso[46] for engaging with internationals regarding Biodiversity Offsetting issues/impacts.

At a public meeting in Anôsy in December 2019, when villagers raised multiple questions regarding their health issues and water quality, they were told not to worry, that *"everything is OK*". They were also told drinking water is safe and is the responsibility of the commune, not the mining company. Villagers had also come to raise questions about land compensation issues. They reported they had complained to the Prime Minister three months previously but had been told he would discuss with the relevant minister. They wanted to know the follow up and what solutions were being advanced.

Villagers said afterwards *"Many came from Mandena area – instead of answers to their problems about land they had nothing but scientific data*", and *"they just talk about flora and fauna*". At this meeting they raised many issues they have reported in this study: poor quality of *mahampy* reeds; not enough pasture for cattle; health issues; loss of lands; compensation complaints. They asked and wanted to know ONE's position but

[46] Reports and audio recording of meetings with ONE and Antsotso community, TAZ 2017-2018.

said instead *"the slides just talked about the QMM site*". When they explained all their health issues to the ONE (and QMM staff present), they were told *"How can we know if you are healthy if you don't come to the hospital?*". [47] Hospital visits cost money, which most rural producers do not have.

As well as the lack of response at public meetings, local residents report being made to wait for permission to access ONE's documents, and only allowed to do so physically in person at the ONE office where a representative then does not allow them to touch or photocopy any documents. Some report that documents are not to be found at all. In this regard, claims made by RT/QMM that ONE's reports related to the mine operations are all "in the public domain" are not borne out by lived experience.

QMM frequently responds to questions about its technical and operational activity by referring the interviewer/researcher to ONE[48], where, as is mentioned above, they are likely to meet with any number of barriers to access what they want or need to know. ONE also appears to exercise some control over QMM's own material and the release of it into the public sphere, e.g., QMM's water monitoring guidance document 2020. Questions raised about this practice in a written letter to Rio Tinto have not yet received a response (PWYP MG/PWYP UK/ALT UK, 2021).

Lack of accessibility and transparency has been the subject of complaint by local CSOs as well as a local member of parliament who made public complaints to the Minister for the Environment in 2018 when the approval was given to transport monazite through Fort-Dauphin town, and he complained he had not been informed or consulted and that the relationship with ONE was "*compromised*"[49].

Local CSOs have also complained to PWYP MG in 2019[50] about the lack of transparency, including of the CSER who authorized permissions without open consultations, and in particular about the lack of criteria for how the CSER membership has been created. The then PWYP MG coordinator, Eryck Randrianandrasana, explains: *"Our national regulatory bodies do not have the capacity to monitor and measure QMM's performance against realistic indicators and I have seen that local QMM consultation processes are not transparent. Local people and Malagasy civil society have no means to hold the company to account when they do not adhere to approved commitments."*

As noted above, the World Bank places significant reliance on local stakeholders to monitor the QMM mine but testimony suggests that both the processes and local capacity are not conducive to a rigorous and reliable monitoring through local structures – especially around technical issues.

### ➢ LOCAL MONITORING – DECENTRALIZED SERVICES IN ANÔSY

A number of local decentralised technical Services in Anôsy, who also help constitute the CSER, were interviewed for this study to understand their role and capacity in the

[47] Feedback / quotes shared from local/international researchers who attended the meeting, Dec 2019 in Fort-Dauphin
[48] Multiple exchanges with NGOs/civil society actors between 2018-present including in the interview with this research study
[49] Hatrefindrazana Jerry, criticised QMM and ONE in a public speech in August 2018 to the Minister of the Environment saying that there was a compromise between QMM and ONE because the majority of the public is not aware of any consultation and *reported* that he himself had not been consulted (on the changes to monazite transport through town).
[50] Exchanges between the country coordinator for PWYP MG and local CSOs in Anôsy, September-October 2019

monitoring process. They were asked specifically about the weir and the buffer zone in relation to the SEMP of QMM.

All those interviewed understand the process, namely that if QMM makes operational changes, then they have to produce a SEMP and must consult all the relevant entities including the government, commune, municipality, local members of parliament and so on. However, some could not say for sure if consultations had occurred for everything (often because they were not in place at the time) and one explained they have no control over this process. Other services explained they were consulted.

First to note that, if the CSER was put in place in 2008, then it was not in existence when the QMM SEIA and weir proposal were submitted. Indeed, the water service mentions there was no Regional Direction for Water until 2011. Overall, there is little evidence available to this research to confirm that local technical services were involved in consultations for the QMM weir. The Regional Direction for Water explains: *"…at the beginning of the operation, we installed this weir. And at that time, there was not yet a Regional Direction (office) for Water management in Anôsy - it was in 2011 that it existed. But I believe there were documents concerning this with the ministry. Since 2011, we have been following up with the committee and we have also checked whether the weir is reducing the fish or not. It is the same for the reduction of buffer zone."*

This suggests that initially QMM weir questions and issues were most likely reviewed in the capital, Antananarivo, at the Ministry level and with ONE, rather than by consultations with local technical services such as the water direction in Anôsy, *"It's why there is no end to this"* said one civil servant.

When QMM makes changes to its project, such as the reduction of the buffer zone, it has to submit a SEMP for consultation. However, one civil servant admitted: *"We do not read everything. For example: the operating technique, the environment"*. The multiple hydrogeology, physico-chemistry, radioactivity, engineering and other technical aspects of the mining operation may be challenging for time and resource stretched local agencies.

All respondents interviewed understood the law regarding the 80m buffer zone. One mentioned that QMM has tools for measuring this. The local water service claimed that QMM had not touched the 80 m limit and the distance was nearer to 100m and so argued *"This means it (QMM) respects the 80m distance"*. In fact, ONE approved a reduced limit for QMM from 80m to 50m in some places in the SEMP 2014-2018. Additionally, the mining company has already admitted (in 2019) that it breached the buffer zone limit by more than 90m. It is therefore not clear if the decentralised services receive all the information available, or simply whether in this instance they chose to communicate otherwise for unexplained reasons.

### ➢ VIEWS ON PUBLIC CONSULTATION

When asked if there was a public consultation about the weir, one service explained the "*mandatory procedure*" is that QMM first carries out the public consultation and then consults the decentralized technical services. After that, it releases the final version of the SEMP. *"They have to do it if it affects the population*". However, it is not clear to what extent the SEMP/s have been shared with the local population and, if they are, whether

they are presented and explained in a format that can be readily understood, especially when some elements are highly technical.

As this study has shown, the community members interviewed had no understanding of the QMM SEMP 2014-2018 for the project changes to reduce the buffer zone from 80m to 50m. ***Community respondents could not answer <u>any</u> question in relation to the buffer zone.*** This result is surprising since in its 2014-2018 SEMP QMM commits to *"Develop and implement a communication strategy to manage issues around operations near the lake"*, to increase dialogue with the communities, fisherfolk, and other stakeholders and *"carry out an awareness campaign about the operations* "(SEMP 2014-2018).

Although there is no evidence from this research to confirm such a strategy or dialogue has taken place by QMM with the communities, previous field soundings in the area indicate that villagers were already aware that QMM operations are too close to the lake, for example: *"As with the case of the Lake Besaroy the distance between the lake and the sand from the operation /deposit is about 20 to 30m"* (Villager in Andrakaraka, field sondages, ALT UK, 2018[51])

It is also clear that consultation processes with ONE and QMM are not conforming to expectations for those who understand what should happen. For example, one elder in that community reported in 2019 that *"The report on the environmental impact study done by ONE last week in the big room of the urban commune of Fort-Dauphin was a 'blah' - reading a large document without corresponding to the reality on the ground. In addition, the guests during this presentation on the environmental impact study of 2018 could not ask questions and propose recommendations. In principle, ONE makes this presentation in the form of consultation in order to have different ideas and recommendations. Thus, after the restitution of all that, there should be a large validation meeting and the SEMP 2018 will be released. But this is not happening - just simply the realisation of a formality*." (ibid)

Similarly, in Ampasy Nahampoana, villagers reflect that the consultation process is not in order. For example, they explain "*If there is a dina established by QMM and the community at the beginning of the operation in 2001, each time the floating plant and the dredge move to a new area to be exploited, QMM must request the consent of the community concerned in that area. Yet QMM does what it wants to exploit everywhere."* (ibid)

Technical services confirmed they were aware of, and some were directly implicated when local studies were carried out following complaints from citizens. For example, when there was a mine tailings dam failure and overflow incident. At least three were called out to examine the dead fish in the lake and follow up on the reporting on this issue from the CNRE. One could readily recall and explain the outcome of the CNRE's presentation: "*The rate of phenol increased more and more and accompanied by the sludge coming from mine breaches it suffocates the fish because of the lack of oxygen, in addition the taste of the water has changed*".

The civil servants are nevertheless conscious that citizens may not be having their voice heard. One service provider was clear that villagers in Andrakaraka did not want the weir but their votes/ position were ignored. He confirms: "*What the population wanted was*

[51] Informal exchanges and field research conducted by a local researcher in Mandena area, contracted by ALT UK 2019

*there to be no weir. Because this threshold prohibits fish from entering it from salt water (the sea) …It is for this reason that the population has asked for compensation through the loss of fish from the sea*."

Most services interviewed were aware of the impact on the weir on the sea water-to-lagoon water cycle, the fisherfolks' losses and their demand for compensation. *"They want to return to life before, but it is impossible because the environment is destroyed, there is no more land to cultivate and the fish in the water are decreasing"*. The water service alone appears to deny any impact from the weir and downplays consequences for the fisherfolk saying *"It doesn't have a big impact that will change people's lives, or destroy or kill them."* Another questioned the compensation demands, but remarked *"Perhaps QMM is not respecting the agreements that were made at the start of the construction of this weir"*.

To what extent the services are able to monitor QMM's adherence to its agreements and ensure accountability for them is a moot point. One civil servant reflected they were all in some kind of "moral debt" because *"QMM delivers many services, like electricity[52]. So, then it is hard for us to be credible in front of QMM"*. Trying to do development with insufficient funding is challenging, they say, and even national agencies, like ONE, are reliant on QMM so *"don't want to upset them"*.

In general, they are aware there are negative impacts of the mine on land, forest, water and diminution of resources with negative impacts on livelihoods. They acknowledge that QMM funds projects and this can be positive, but some also question the long-term outcome: *"If the population of the Municipality of Ampasy Nahampoana has a good project, the mining rebates in billions of this municipality never dry up. But the question arises: How can you make a person who lives near an extraction zone not poor? Can these people become rich or is their life in ruin?"* Some are aware that the rural population are not well placed or prepared for the kind of opportunities offered by QMM: *"The community is not ready for this. It is only very few of the population who had work at QMM"*.

Some respondents reflected that livelihood projects set up by QMM do not work because they are not traditional livelihood activities so they are not popular. Another technician remarked that there is no improvement in entrepreneurial capacity and villagers cannot manage alternative projects without training, so they bring no benefit. One observed that the arrival of foreigners means young girls are tempted to make "easy money". The creation of the FIMRA association is also mentioned both as a positive and negative impact, since it was put in place to help control the weir – *"so the association received funding and work from QMM to maintain the weir, but this has also caused divisions and conflict in the community*."

In this regard, civil servants can see both the positives and negatives from the powerful presence of the mine. They want to see young people take advantage of the opportunities through education for example, *"We train the population to know how to manage not to wait all the time for compensation but to be autonomous."* There is perception that the fishermen received some compensation from QMM (which is

[52] Electricity is supplied to the region by the state-owned utility, the JIRAMA (Jiro sy Rano Malagasy). QMM ensures support to JIRAMA because it requires a stable energy supply to maintain its operations (road lighting, plant operations, etc). Most important to understand is that positive benefits accruing in one part of the region (in Fort-Dauphin in particular) as a result of QMM's presence do not erase, counterbalance or 'offset' human rights abuses occurring in other areas.

confirmed but only for a small limited time, e.g., when the weir was built (Andrakaraka) and when asked not to fish (Ampasy Nahampoana/Madromondromotra). The issue of compensation brings out critical perceptions about villagers. One civil servant accused villagers of being 'thirsty" for money and explained that QMM "spoils" the population.

Service technicians recognise that QMM has done much to try and assist the region. However, for some, it was also recognised that those communities hardest hit need their income losses covered. A number felt that communication should be improved and be more transparent and the services also saw that they have a role to play in assuring the distribution of funds: *"The municipality obtains royalties for this exploitation, what we will have to do is to let the population know that these funds exist. It is the duty of the authorities …because we cannot say that QMM did not give anything*."

- CIVIL SOCIETY/NGOS MONITORING AND ENGAGEMENT

Civil society organisations (CSOs) in Madagascar, who arguably have a role to help protect and promote the interests of their constituents, including their human rights, are largely under-resourced and civil society is often perceived as weak. Wider transparency and governance issues prevailing in the country are not conducive to a strong civil society or to an active participation in monitoring around large development projects, such as the QMM mine. Although Madagascar guarantees freedom of information, there are no ratified freedom of information laws to ensure citizens can enjoy these rights. Additionally, media crackdowns and criminalisation of journalists and activists risk to undermine public and democratic discourse, especially around topics of dissent and contestation. (Amnesty, 2011, 2020; Freedom House, 2021).

In this study, just a few CSOs were surveyed about their interactions with or about the mine and its impacts. A number of key issues emerge for CSOs in Anôsy in their role to represent their constituents' views and promote transparency and accountability at local level: 1) insufficient transparency from the company and public authorities, leading to a poor access to data and information; 2) the impact of QMM on independence of state actors/decision makers; 3) lack of trust; 4) lack of means to address specific technical issues when they arise.

Two of those interviewed in this research are leaders of local civil society platforms in Anôsy. Of these, both had seen or had access to the QMM SEMPs. However, one explains that at least three changes to the mine project have been made without the documents being shared or having been informed. Instead, the leader explained they had gained access to the documents through ex members of the civil society platform who now work for/with QMM. According to his explanations, a QMM consultant produces the SEMP and ONE must follow up on the progress three times per year, checks work against the SEMP and specify what needs to be improved or avoided.

One respondent explains that CSOs are not being asked their opinion and QMM is only consulting those who will give their agreement. This is reinforced by another leader who knew of the SEMP but was not consulted because it was "*only the president and the leaders QMM wants to consult*", and only heard about the negotiations afterwards. The other CSO leader had access to SEMPs while sitting on a local committee (not specified) and also received training, so he knows the process well. However, he

explains that "*during the monitoring of the SEMP by the ONE, I saw that there was no transparency in the way of working, so I left this committee*".

When asked about the weir, one of the local CSO leaders was not willing to discuss whether he had been consulted about the weir (he was not leader of the CSO at the time of the weir construction) or not. According to the other CSO respondent, the population never accepted this weir but it was imposed. He explains that there was an agreement with the FP (Fikambanan'ny mPanjono Association of Fishermen) that for its 328 members, fishermen would be compensated with 60,000Ariary every 25 days and that women will receive 40,000Ariary every 25 days as well. This agreement was concluded in 2007, but he explains that "*Until today, no one has really received this compensation. Before the establishment of the weir, there were compensations, but afterwards the compensation ceased*". He goes on to explain that he requested the details about the specifications from ONE but still has not received the information. This problem, he claims, is the basis of the conflict and strikes that are coming from this population: the claim for indemnities.

One CSO respondent explains that the weir raised the water level, and the office that conducted the study and concluded this effect had told QMM to compensate the populations who had been impacted (flooding). However, QMM have decided to re-do the study as *"they don't believe the result of the study already done*". No mention is made as to why QMM rejected this study.

Both CSO leaders had been consulted or involved in some technical matters. One was able to bring personal expertise on the weir flooding issue as he was part of the study, and explains: "*During the rainy season, the water from Lake Ambavarano overflows to Lanirano and also flooded the crop fields and the villagers could not cultivate there. This becomes a big problem for the part of Andrakaraka and Andranokana*." This observation is echoed by a respondent who understands from local farmers that their fields have flooded, and who claim *"the evacuation of polluted water from the mine exploitation makes the land uncultivable.*" The other CSO respondent had been requested to provide advice in 2018 concerning the overflow incident "discharge into Lake Besaroy of chemicals from the QMM mine basin" and also concerning the weir.

All those CSOs interviewed were aware of problems for local people since QMM arrived: water and health issues; loss of fishing subsistence; conflicts; lack of compensation over land losses; noise from trucks; cost of living; cost of rent and electricity (in town). However, one respondent explains how difficult it is to question or address the problems that arise due to a lack of means: *"We listen to the grievances of the population but we don't have the means so we just watch. More transparency could improve this situation"*.

One respondent explains that *"The real problem is: if we are going to do water monitoring, where is the material? Nothing. How do you know the veracity of QMM activity? The answer is zero. ONE or the monitoring committee has no equipment. On radioactivity for example: what can we say about what QMM suggests, if it is true or false? You don't have any equipment! It is normal if ONE does not see any anomaly on the activity of the QMM because QMM pays their monitoring costs*."

One example provided concerns the event of the dead fish found in Lake Ambavarano. He explains that civil society has no access to the data, that it is not shared with them because they are regarded as being "*close to the population*". You have to be a "*QMM-*

*friendly person*" to have access to the data. In QMM's report, he claims the data is not reliable. So, in order to intervene when the population complains about polluted water and dead fish, *"We call QMM and ask them why, according to the population, the water is polluted? Where did you discharge the polluted water coming from your extraction? QMM gives a presentation and explains that when they wash their equipment, the wastewater is evacuated into Lake Ambavarano via the river"*.

There are no public records of such reports or answers. Technical issues are often poorly communicated to CSOs. For example, at a QMM meeting for CSOs in 2021, a Rio Tinto representative replied to a question about chemical measurements of water data that were in discussion by talking about radioactivity monitoring data[53]. One CSO respondent suggested that they are victims of propaganda *"priests and pastors are less good at evangelising compared to the explanations of QMM*".

The buffer zone also exemplifies problems with the lack of transparency. One CSO respondent claims that QMM is only observing a 25m distance from the lake in some places. The encroachment of the mine beyond its boundaries has been observed by villagers too (see above). One NGO respondent states to have been shocked to see how close the mine was operating to the village during a local walk, and exclaims "*It is illegal*".

Observations, complaints, calls to QMM can be made but it is almost impossible to take action or see action taken, according to the CSOs interviewed. One CSO respondent explains that he has attempted to seek assistance. He went in the field to see the problems and then requested assistance from various decentralised technical services, the Direction of water, forests, fishing and population. They did not act but all know the situation well, he exclaims. Another confirms that all the services are aware of the problems and are "unhappy" but are unable to do anything as they want to retain their state salaried posts. This reflects the observation of one of the local technical service providers above, about being in some sort of "moral debt" to QMM.

One respondent expressed that "*In truth, the population is against the existence of the QMM but we cannot counter the public power*." Another emphasises the problem of neutralising dissent through incentives, for example to those who protest or want to contest QMM, the company gives money to the leader or decision maker "*and the problem disappears*."

All the CSO respondents are concerned for the future and worry about the Anôsy region in 30 years' time when all the forest and lands will have been diminished and "it will be worse than today". Given the other pressures facing the population e.g., climate change, one local leader is doubtful that anyone will escape from being disadvantaged. All those interviewed had visions to improve the situation, from increasing capacity to strengthening governance e.g., by ensuring QMM's specifications ("cahier des charges") to be respected; also, the opening up of the weir and well-developed regional plans for education and health.

[53] QMM meeting with CSOs, September 2021: follow up on QMM discharge water data presentation

A note on QMM's impact on civil society

One element of civil society not interviewed during the research but important to note, is the extent to which QMM has affected the local CSO landscape. Its early intervention in the existing, well-established regional development platform for Anôsy, the Association des Intervenants du Sud (AIS), occurred in the late nineteen nineties. During this time, QMM occupied much of the AIS energy by demanding to be elected a member of the association, which was in fact a not-for-profit assembly of local NGOs and service providers. By 2000, the AIS was dissolved and many of its members and key local CSO figures co-opted into the Comité Régional du Développement (CRD), a non-state body of non-elected individuals that was tasked to determine the regional plan for Anôsy. The CRD was facilitated and led by a Canadian consultant remunerated by QMM. What has been created since then by way of regional stakeholder platforms in Anôsy, and there have been multiple iterations, have almost without exception been driven by QMM. There is a perception that local stakeholder platforms and committees, e.g., the CSER, are biased in favour of QMM (Smith, 2011).

A committee established in 2007, the Comité de Liaison Locale (CLL), which was partly funded by USAID and chaired by ONE to facilitate communication and resolve complaints between communities and regional government was acknowledged by its own members to be weak, dysfunctional, lacking in momentum and with almost no presence or profile. As a result, few communities were aware of it or could understanding its role (Smith, 2011).

Some civil society leaders are taken into QMM service directly. At least two high profile figures from the regional development landscape have been employed by QMM to run the mine's social programme in the last decade, thereby denuding the local civil society landscape of highly trained, professional leadership. Other QMM staff and some consultants in key roles have been pulled in from NGOs and local CSO platforms, and some key state actors, such as ONE's Anôsy regional office representative, have family members employed directly by QMM, potentially influencing their objectivity, views on the company and possible scope of action. The "moral debt" mentioned beforehand also prevails in such a situation.

There are also examples of ex-QMM employees who came from local CSOs and went on to have key roles in the mining company – especially in the workers union. They were forced out of their employment with QMM once they started to raise issues or work with the community; or, they were given ultimatums and asked to leave their employ with large organisations whose interests align with QMM e.g., USAID, when they expressed criticism or were seen to be in contestation of QMM activity 54. Essentially, they were made to choose between their job and their principles.

One journalist in 2009 reported that she was unable to solicit any comments from NGOs in Anôsy about QMM due to their fear of losing their licence to operate (Al Jazeera, 2009). All of which has a dampening effect on civil society and its capacity to represent the issues, interests and rights of the population, as would normally be expected.

*Box 7. RT/QMM's impact on local civil society*

## ➢ QMM MONITORING AND ENGAGEMENT

An interview with QMM was undertaken as part of this research but QMM managerial staff were not made available to answer questions. Two members of the QMM social team attended the interview. One from the QMM social programme and one NGO contractor who is commissioned by QMM to work on QMM community relations. As a result, many questions were not addressed. However, other exchanges with QMM in the last year have been included to illustrate and define positions or provide additional information.

Opening questions focused on the weir and buffer zone changes of the QMM project. The QMM staff confirmed there was an EIA for these activities and that if the researcher wanted information about the EIA, to ask ONE. They confirmed too that the EIA was shared with the decentralised services and local authorities who, as decision makers, are then expected to share them with the communities (their "homework"). For consultation, the company explains there is a meeting /presentation for the EIA, as well as meetings with villagers.

When asked how the public was implicated in the decision-making process for the weir and buffer zone reduction, the respondent said that the company had carried out 3000 consultations since the mine process began. They explain that the SEMP has to be renewed each 5 years and official reports concerning this are all with ONE. If there are changes there must be public consultation in compliance with applicable laws. They went on to explain about QMM meetings concerning the new solar panels they will be installing.

[54] Testimony of ex-QMM employees, shared with ALT UK, 1999-2022

When asked if the public consultations have been recorded in reports etc, the interviewee says they are sure they are (in the archives) and directs the interviewer to request recordings of the validation meetings from ONE.

They do not remember but are sure that the authorisation for the weir was granted by ONE before construction. For the buffer, they direct the interviewer to the QMM operations department to furnish the detail, adding that **"***if there is any change during the implementation of some projects, QMM always follows the legal procedures according to the law.***"**

Asked about the impacts of the weir, especially on local fish stocks and the fisherfolks livelihoods, QMM explain that as a result of the SEIA, compensation was set up for villagers: *"For the villagers of Andrakaraka, we gave them compensation of 150,000 ariary per fisherman and 80,000 ariary for women per month for 12 months. That doesn't mean they can't fish in the lakes anymore, but they asked for that during the public consultation*[55]**."**

QMM go on to say that the current problems regarding the compensation for fisherfolk is due to the fact that **"***Some people from Fort-Dauphin instigated the community to always ask QMM for money. Likewise with the compensation for land*"**.** They explain that the assessment for the payment of compensation for each plot of land is not the same: because there is the land which is already developed and there is the titled and bounded land, and *"it is normal that the price of these lands is not the same*". QMM staff assert that QMM respects the law regarding the value of the land. They add that the explanation and the discussion about compensation was made directly to each owner of the land with the support and collaboration with the mayor[56].

In relation to land, when asked if QMM is aware that its breach of the buffer zone gained the company an additional (approx.) 14 hectares of land, the equivalent of a new mining basin, the representative says they are unaware of this, adding **"***QMM only follows the things mentioned in the SEMP validated by the ONE. This means that the QMM respects the contract with the Government***."** They seemed unaware that the company has already admitted to breaching the buffer zone my more than 90 metres, in direct contravention of the SEMP authorised limits and agreements with the Malagasy Government.

When asked if QMM held meetings with the local authorities, and with the committee in charge of the "Plan d'Aménagement de la gestion (PAG)" at Mandena, as promised in the SEMP 2014-2018, to discuss the reduction of the buffer zone from 80m to 50m, the respondent replies that of course it held *"quite a few meetings with all stakeholders, authorities and CSOs. But there are no sound recordings, yet there are the meeting minutes***".**

Asked also if they offered compensation after the breach of the buffer zone for any negative impacts on the local population, QMM replies **"***As mentioned above, we gave what they must have had as compensation for fisherfolk and land occupiers***."**

Important to note that what was mentioned 'above' was compensation for the weir, which was installed in 2005. The breach occurred almost a decade later and no

[55] Note that these compensation figures differ, almost twice as high as those stated by the CSO leadser above.
[56] This verifies what villagers say, above: that negotiations with QMM involves third parties, something the villagers decry as causing problems.

compensation has been offered for the impacts of the breach, or is unlikely to happen since QMM have adopted ONE's designation of the impact of the breach as "negligible". Since ONE has given QMM a "temporary exemption" for the breach, there would no longer be an obvious basis on which the community could demand compensation for having their public goods, the lake, encroached by the mine.

QMM say they are restoring all zones after extraction and reports are done by each department concerned. When asked if QMM can make these reports available, the interviewer is told: "*It's difficult for us to offer you that because there was a lot of reports from the beginning.*"

Asked about the heavy metal exceedances of cadmium and aluminium above the legal limits for discharge into the environment, as reported in QMM's 2021 water discharge monitoring data report, the representative replies "*I do not know if the concentration of cadmium and aluminium were exceeded following the waste water discharges by QMM. And I have not seen the document that shows this case. But all the members of the community directly affected by the impacts of the extraction have already had their compensation*."

It is interesting to learn that a member of the QMM social team is not aware of this QMM report that was published in 2021, and which shows the cadmium and aluminium exceedances. It was publicly presented to CSOs in Antananarivo and in Fort-Dauphin and the subject of multiple meetings locally and online throughout 2021. It is pertinent to the question of water quality which is a key area of contestation of the mine and a significant social issue because of the impacts on health.

Asked if QMM is providing alternative water sources to the population, QMM staff rely that it has set up standpipes for drinking water in all the villages around the mine. The QMM representative claims that "*In Andrakaraka, the standpipes are all destroyed by people against QMM*." There are very limited number of standpipes in the Mandena area, with only 18% reporting access to such sources for drinking water (PWYP MG 2020).

Asked if QMM will revise its water management system to avoid the contamination of local waterways with heavy metals in the future, the representative replies that "*From the start of the extraction, we have already established the waste water management plan. So, there is no contamination of the streams and the lake. Wastewater is poured into a well-secured basin*."

As explained beforehand, RT/QMM no longer defend their "natural" water management system as being effective, especially given the exceedances in cadmium and aluminium already detected above legal limits in QMM discharge water (QMM, 2021). QMM ceased discharging all its mine process wastewater since August 2020, due to uncertainty as to whether it can meet legal compliance limits, and has set up an internal expert steering committee to look into the problem, and is working on a long-term solution [57]. QMM is currently releasing 1 million $m^3$ of mine process water under an "exceptional" permit from ANDEA following two mine tailings dam failures. At the start of April 2022, following

57 Rio Tinto sustainability Roundtable 2021; Rio Tinto meeting with advocacy group of CSOs, January 2022.

public questions and outcry about the release, QMM announced it would be spending US$ 2 million to build a treatment plant for its process wastewater[58].

Asked if monitoring reports are publicly available, QMM staff say they are and can be requested from the ONE. The interviewees, when asked about the relationship between QMM and the ONE, said that they are not aware of the exact fiscal arrangements with the ONE and state only that the relationship is "legal". The QMM staff also mention the new arrangement with ANDEA to "monitor the contamination of the water".

Asked if the communities lodge complaints against QMM, the interviewer was told that the **"***communities have not filed complaints with QMM about the weir, but they are still demanding compensation, especially the people of Andrakaraka.***"** The QMM staff are not aware of any complaints about the buffer zone reduction or the buffer breach.

This research has found that 63% of those villagers interviewed in the community had made a complaint about QMM, a large proportion had submitted these to the authorities and to QMM directly. Their complaints are focused on the degradation of the natural environment, water quality, which is related to the weir as well as pollution from mine process water discharge, and loss of land.

Asked about its lack of investment in the communities on the frontline of the mining zone and those most impacted by it, QMM staff responded that QMM had put water fountains in all three communes in Mandena. Offering their personal perspectives, the respondents added that lack of transparency regarding the management of rebates with the municipality needed more transparency. For example, at Ampasy Nahampoana, the municipality received around 1 billion Ariary per year, *"but the community does not know the existence and use of this sum*." They also mentioned that QMM has given 3000 scholarships per year for the young people of Fort-Dauphin and invested directly in the city with a sum of 500,000 dollars per year. *"But there is always criticism and protest." They recognise the need for better communications and the need for the authorities to help convince the population that "Development is everyone's business. But not a matter of QMM only*".

**Observation**: The QMM staff cut short the interview to attend another meeting. They were asked three specific questions about the breach, which they did not wish to answer and referred the interviewer to the QMM operations department:

The revised 50m buffer zone was not fully maintained and the mine advanced at least 90m beyond the agreed limit, depositing mine tailings on the bed of Lake Besaroy.

11.4. To what extent can ONE's "temporary exemption" for this breach be considered temporary, when the breach is there forever, i.e., the operation of the mine rests on the bed of the lake (Lake Besaroy)?

11.5. How has QMM monitored and assessed the impact of the breach over the past 6-7 years since it first occurred?

11.6. According to QMM, the management of its mining perimeters is done using several tools, for example with flags, radar readings, weekly inspections, etc. How could the encroachment of the mine on Lake Besaroy for at least 90m beyond the limit go unnoticed ?

*Box 8. Unanswered questions from QMM interview*

58 https://www.midi-madagasikara.mg/2022/03/31/rio-tinto-qmm-le-relachement-deau-se-poursuit

# DISCUSSION POINTS

The findings from this research trigger several discussion points related to the RT/QMM mine's impacts on the lives and livelihoods of surrounding communities, on inequity, on communications and rights, on governance and transparency, and on conflicts and complaints management.

## ➢ MINE AFFECTED COMMUNITIES - LIVES AND LIVELIHOODS

Almost all villagers interviewed (90 percent) across all three municipalities in Mandena, adjacent to the mine, report losses related to the degradation of their environment and reduced access to and quality of natural resources, which they depend upon for survival. Traditional livelihoods have been displaced and disrupted by mine activity and environmental restrictions. Although not always able to accurately quantify the fiscal /revenue losses in detail for the real impact of these changes (and over time), surveyed communities provide clear examples of the costs to their daily lives. These include being unable to feed themselves, pay for their children's education, enjoy security from their livelihoods, or good health.

Importantly, they measure their situation to be worse than before the mine began operations, and therefore see almost no benefit from its activity. Indeed, only 4% of people surveyed were able to express benefits from the mine. Calculations made based on villagers' testimonies and international research, indicate that villagers in the communes around Mandena adjacent to the mine have lost approximately 45 percent of the value of their previous earnings/economic revenues since the mine began its operation (Randrianarisoa 2021).

The mine's negative impacts have additional consequences, beyond the purely economic ones, that are more difficult to quantify. These include **decline of societal cohesion, loss of identity, loss of dignity, erosion of culture and traditional lifestyles, generational issues, such as land access for long term family food security, and the health of children** in terms of their physical and mental development, all of which impact long term development of the region. Also of concern is that citizens' efforts to have their issues addressed by the mining company and/or through the authorities concerned, as would be their right, appear to have had no meaningful result over a number of years.

The inequalities induced or favored by the mine are at the origin of the worrying level of conflicts, both intra-community and external, of the deterioration of societal cohesion and that of an already fragile governance system.

## ➢ INEQUITY AND INEQUALITIES

Citizens in all three communities adjacent to the mine expressed their desire for basic services such as potable water and electricity. Most of the rural areas of Anôsy, and mine affected communities in particular, have no electricity or other forms of modernization. This is in stark contrast to the town of Fort-Dauphin where QMM offices, the workers' base and new port are situated, all of which enjoy a dedicated water supply and other infrastructure, for example. Here, **it is important to remember that the government is the first guarantor of citizens' well-being and must therefore take all**

the necessary measures to ensure its role. It is illusory and misplaced to hope that the development of the entire region rests on the sole shoulders of RT/QMM. The development of basic public services (water, electricity, health, etc.) and the guarantee of their enjoyment by citizens are the government's responsibility, which has also clearly failed in its duties.

Disparities between the urban and rural setting, in terms of spreading benefits to the local populations from the mine's presence, have been noted by NGOs as well as citizens. These, and *"the effects of numerous negative factors that have constrained expected growth in the region and led to social tensions"* have been observed by the World Bank's advisory panel (World Bank, 2011).

In reality, only two communes are legally entitled to receive royalty payments from the mine, according to current Malagasy laws. Because the 1999 Mining Code royalty redistribution rules were not designed for the type of large-scale industrial mining, such as the QMM mine, but were largely concerned with small scale artisanal mining at the time, the current Code's provisions (Law Nr. 2005-021 of October 17, 2005) mean that royalty payments are exclusively directed to communes directly adjacent to mining squares. For the QMM project, only two[59] out of about 64 communes in the Anôsy region would be therefore "*de jure* entitled to receive royalty transfers" (World Bank, 2010). As a result, the speed of development of the municipalities in the region is not uniform. This is obviously not the responsibility of RT/QMM but rather of the configuration of Malagasy legislation, but it is nevertheless useful to correct this bias to attenuate the social divide.

This effect can be seen in Ampasy Nahampoana which appears to be receiving significant fiscal benefits from the mine, whereas Andrakaraka (listed under the commune of Fort-Dauphin) reports almost no benefits, although they have reported their subsistence fisheries losses repeatedly over more than 10 years. Even as the extraction inevitably moves location over time, and beneficiary communes might change, discrepancies at an inter-municipality level are likely to persist and become exacerbated by future royalty payments (ibid).

Compounding this inequity is that even in those communes like Ampasy Nahampoana, where the royalty payments are being attributed, it is clear that citizens are either aware of the sums involved, not clear about what they can expect or how to access benefits. Indeed, some villagers report they are excluded from benefits if not on the right terms with the local decision makers e.g., the mayor. QMM staff also expressed this issue: *"The municipality received around 1 billion ariary per year but the community does not know the existence and use of this sum."* Villagers from the three surveyed localities also say that various communal officials extort them by claiming half of the benefits (e.g. compensation) they receive from the company or its intermediaries.

Although fiscal measures and mechanisms of wealth distribution from the mine may be regarded as the remit of government, it is nevertheless important that QMM adheres to the SEIA to **"***work with the relevant authorities and other stakeholders to promote and achieve the equitable distribution of project tax and royalty revenues to alleviate poverty in the region"*. The current situation does not reflect the IIAP's

59 In the 2001 ILO survey the population of Ampasy Nahampoana was 5600 and the population of Mandromondromotra was 3590. The population for the 24 communes of the (ancien) fivondronana was 303,691 (World Bank 2010) – Note: population numbers will have increased by approx. 2-3% per year since 2010.

recommendations to QMM *"for detailed discussions between different levels of government (national, regional and local), with other stakeholders and with QMM with a view to drafting the kind of financial covenant that would ensure adequate and equitable financial returns for reinvestment in the Fort-Dauphin community."*

➢ COMMUNICATIONS AND RIGHTS

- Communications play an important role in governance and in enabling accountability. However, communications generally around the mine has been a theme of extensive critique by multiple agencies, including the World Bank, the external advisory panels to QMM, as well as local CSOs and international NGOs working in the region. The recent publication of a review of Rio Tinto's internal 'hyper-masculine' culture, which reported bullying and a "culture of silence"[60], suggests that if the corporate culture suffers these issues internally, then it follows that external relations may follow similar expressions.

  This study reveals that villagers are clearly unaware of important issues that they are legally expected to be consulted about and that concern decisions that affect them – such as the reduction of the buffer zone. They complain that they feel intimidated and "oppressed" when they seek to assert their rights. They are also unheard and ignored when they do provide their position to consultations – for example, when they expressly voted against the construction of the QMM weir (in Andrakaraka). This situation is indicative of the problematic state of access to information and respect for fundamental rights in Madagascar. Nevertheless, Rio Tinto has its own international standards for adhering to human Rights including the right to information.

- Freedom of expression and the right to demonstrate are also neglected. Although QMM states *"QMM does not nor will ever suppress community voices in any ways. This is simply not who we are"* (Answers QMM 2021), protestors and activists are regularly arrested for expressing their grievances. Human rights are undermined when villagers are not consulted or informed. When they have difficulty soliciting responses from powerful actors such as ONE and QMM, whilst also trying to negotiate intra-community conflicts in order to reach consensus and enjoy equitable relationships. Rights are especially undermined when local governance processes are inadequate and fail citizens in their search for justice and a fair hearing.

- A lack of transparent and open communication about benefits can exacerbate inequities and corruption.

For example, there has been no mass communications campaign that would enable citizens in Anôsy generally, or within the target communities, to explain and help them understand the mine's fiscal or other benefits of, nor how disbursements are made in order to allow them to monitor and ensure real accountability. Research has

[60] https://www.theguardian.com/business/2022/feb/01/bullying-sexual-harassment-and-racism-rife-at-rio-tinto-workplace-review-finds

shown that in Madagascar, this kind of public media IEC (Information, Education and Communication) process is necessary if capture of funds is to be avoided (Francken et al, 2009).

According to local feedback, QMM did conduct IEC campaigns, but in a selective way, using in particular individual radio cards to target only certain groups with certain information, and only at certain times. There is no reporting available and little transparency to explain the approach, methodology or outcomes of these interventions. The lack of credible IEC strategies was also evident in the start-up phase in relation to compensation packages, when there were widespread reports of a failed process due to poor communications, and villagers were underpaid for the value of their lands when they were displaced to make way for the mine's infrastructure and the new port (Huff 2016/ Seagle, 2013 / Panos/ALT UK 2009; NGO Liaison Committee to Rio Tinto, 2013).

Poverty is a significant barrier to communications as education and literacy levels prevent ready access to written information and rural populations, in particular, remain isolated by lack of infrastructure. In Anôsy region, stakeholders have complained about the lack of communication around the QMM project, which they claim lack transparency. Differences in understandings about the project have led to conflict, mistrust and fear. Information has frequently been inadequate and inappropriate, leading to misunderstanding and rumour (Harbinson, 2007).

This approach appears to be a failure of QMM to respect its SEMP 2014-2018 commitments that requires QMM to develop an *information program relating to the actual ranges of the level of radioactivity be communicated to community stakeholders and the villagers concerned* (ONE/CSER, 2012). The ONE asserts that QMM should "*clearly establish the difference between prudent communication and transparency.*" (ONE, Sept 2019) reflecting the WHO guidelines for communicating radioactivity that advises "*risk communication requires the description of the likelihood of harm and its severity.*" (WHO, 2002).

- GOVERNANCE AND TRANSPARENCY

As explained previously, the SEIA, PGEP, and SEMPs for the QMM project set out the company's engagements to the Malagasy Government in respect of the project, especially in relation to the mine's negative impacts. They are the documents by which the company must be held to account. They contain extensive detailed requirements including for consultation, monitoring and mitigation, all of which are applicable to the two main issues studied in this research, namely: the QMM weir and the Buffer Zone Reduction. They also apply to the related issues of land and natural resources, water quality, and consequent impacts on livelihoods and health. Significant questions and issues arose as to the extent that the pledges made in the SEIA/PGEP and SEMPS, have been adhered to and delivered.

Soundings[61] from the communities around QMM in 2019 indicated citizens perceive that QMM "does what it wants" and that accountability mechanisms and governance around the mine is poor or non-existent. In particular, the relationship between QMM

[61] Community soundings collected in Mandena, for ALT UK in 2019 by local researcher/s.

and the Malagasy regulator, the National Office for the Environment (ONE), is regarded as "*compromised*". For example, in 2018 a local deputy complained publicly to the Minister of the Environment following the authorisation to allow QMM to transport its monazite product through the town of Fort-Dauphin[62] after he and members of civil society reported they had not been consulted and only a closed "validation" process had occurred with those individuals selected by QMM to attend. In addition, most communities believe that local authorities and decision-makers have been co-opted by QMM, and that the mining company itself breaks promises and is not seen to act in good faith.

Questions have also arisen following the QMM breach of the buffer zone. The breach violated authorised permissions granted by the Malagasy Government under the approved SEMP 2014-2018, and would be subject to the national mining code (Décret MECIE Article 34) as well as laws on the public natural domain that place water resources within reserved lands (pas géométrique) requiring permissions from the local fokontany. However, there were no sanctions following the QMM breach. According to Rio Tinto[63], the ONE determined that the QMM breach was not of any significance and the impacts were "negligible". However, when challenged to produce how they arrived at this analysis, the ONE failed to produce any technical studies or assessments. An open letter from CSOs was sent to the Minister for the Environment and the ONE[64] requesting transparency on the issues, but no studies or report were ever forthcoming.

Inquiries[65] revealed that the ONE is in receipt of approximately $30-40,000 dollars per annum to deliver environmental monitoring services to QMM. These financial arrangements were established against the advice provided to RT/QMM by its own Independent International Advisory Panel in 2007, which was convinced the certificate and compliance functions of the ONE, as recognised public goods, should be funded by the international development organisations in order to retain their independence – and the perception of independence (IIAP 2007). Such independence could be argued to be essential when Institutional checks on accountability at the central level In Madagascar are minimal (Marcus 2016; Morisset 2010) and centralization of power towards state institutions tend to serve the interests of elites, in particular powerful political and business interests, rather than the broader economy. (IEG/World Bank, 2021).

It was noted at the time of the QMM breach that no additional fees were paid to the ONE by QMM e.g., to cover the expense of technical assessments (PWYP MG/ALT UK, 2019). When challenged with questions about how it was possible for QMM to breach the environmental buffer zone, given the company's claims about how rigorously it monitors its site perimeters using satellite data, flags, markers and regular checks, no answer was provided.

It is equally concerning that those decentralized services who are expected to assist in external monitoring of the mine's commitments, as well as in arbitration and dispute resolution – including the technical issues set out in the SEMPs, seem to lack the

[62] Local Deputy for Fort-Dauphin, Hatrefindrazana Jerry, made a radio broadcast in which he criticised QMM and ONE in a public speech in August 2018 to the Minister of the Environment saying that there was a compromise between QMM and ONE because the majority of the public is not aware of any consultation and *reported* that he himself had not been consulted on the monazite transportation question.
[63] Rio Tinto AGM 2019
[64] http://www.andrewleestrust.org/blog/wp-content/uploads/2019/10/Letter-from-civil-society-to-Malagasy-Government-Ministers-August2019.pdf
[65] http://www.andrewleestrust.org/blog/wp-content/uploads/2019/10/Risques-Minieres-Lies-au-Regulateur-de-lEnvironnement-a-Madagasar.pdf

capacity to undertake such challenges. The perception a "moral debt" to QMM due to the company's provision of other services to them or the town of Fort-Dauphin, such as electricity, came across strongly in interviews and acts as a Damocles' sword above the head of the local government, decentralized services, some local CSOs, and most of QMM's employees. **Authorities and administrative services are acutely aware of the mine's negative impacts on adjacent communities, but appear powerless to act or intervene in meaningful ways to help defend or promote citizens' rights.**

The dearth of transparent communication, lack of baseline data for social and environmental indicators, lack of public access to reports and relevant documentation, the lack of methodology included in QMM studies e.g., the QMM water discharge monitoring data report (2021): all these shortcomings contribute to a scenario in which local actors, and any internationals they call on to assist, are disabled from engaging in meaningful ways on the environmental and social monitoring of the mine.

The following box highlights a live example related to a lack of transparency, while the requested information could be easily delivered.

**QMM: GOVERNANCE & TRANSPARENCY CHALLENGES - LIVE EXAMPLES, APRIL 2022**

For the Regional Environmental Management Committee, the CSER and local stakeholders to monitor the QMM mine, and its adherence to the project SEIA, PGEP and SEMPs, information must be readily available and consultation built into the process as per legal requirements. Examples of current issues arising:

1) QMM is being asked to unearth baseline water data after denying for more than three years that such data exists. This PWYP MG study has uncovered QMM references to water studies from as early as 1992 and up to 2007. Such studies can provide pre-mining water data – i.e., baseline. These data should be available for water monitoring exercises required under the GoM lease from the start of the project and used regularly in order to accurately measure changes and monitor impacts to local water quality from all QMM operational activities, including pre, during and post construction of the QMM weir.

2) The new proposed plan for a QMM "treatment plant, designed to address the exceedance of the regulatory limit for aluminium in QMM's mine basin water together with low pH (low pH and high aluminium in combination can asphyxiate fish if released into waterways), has not yet been subject to an EIA or risk assessments, a new SEMP or consultation process, although required to do so since it represents a change to the existing, approved project design.

**What mechanisms are missing or being circumvented by QMM for such failures in transparency processes to occur? What GoM policies can be strengthened to ensure any loopholes, or relationships, do not undermine monitoring processes, Malagasy regulatory and legal requirements?**

*Box 9. Live examples of QMM governance and transparency challenges*

### ➢ CONFLICTS AND COMPLAINTS MANAGEMENT, ARBITRATION AND COMPENSATION

Within the local context in Anôsy, low literacy rates and poor access to education together with pressures of multidimensional poverty means that rural communities affected by the QMM mine do not have the time, resources or capacity to exact accountability from the company should their rights be threatened or when the company fails to meet regulatory requirements, local laws, Malagasy compliance mechanisms, or its wider obligations.

*"Human rights abuses by businesses often involve environmental harm (A/HRC/8/5/Add.2, para. 67). "Mining can cause especially massive damage, and its harms are often felt predominantly by indigenous peoples and other local communities who depend on the forests, rivers, wildlife and other natural resources that are destroyed or damaged by the extraction of mineral resources. Even relatively careful mining operations cause environmental harm."*

*"Under the Guiding Principles on Business and Human Rights, those obligations include duties to protect against human rights abuses by businesses, and businesses themselves have a responsibility to respect human rights (A/HRC/17/31)."*

*Box 10. Business and Human Rights Principles*

In the absence of effective processes for arbitration, there have been protests against QMM since the operation began in 2009. Hundreds of Malagasy people have erected barrages/road blocks and taken to the streets to strike against displacement and involuntary relocation, loss of lands and access to their local forests, destruction of sacred forest areas, inadequate compensation for lands and livelihoods, removal of ancestral tombs, and perceived inequity over QMM employment practices which have favoured workers from other countries or regions rather than training and hiring local AntAnôsy people, as anticipated (Huff, 2016). Conflicts are also reported at village level where there can be differences in opinion about how to engage with QMM[66] and disagreement or resentments over preferential treatment of certain groups or individuals above others in their relationship with QMM and benefits they may disperse (Kraemer, 2012).

Arbitration mechanisms and civil society engagement processes have yet to yield a coherent and transparent process for resolving conflicts. In 2012, QMM set up a conflict resolution strategy and sought to create a tripartite structure for conflict prevention and resolution (IIAP 2012), but further community protests in 2013, 2016, 2018, 2021 and 2022 suggest that many issues remain unresolved, especially with regard to communities' loss of lands and livelihoods as a result of the mine. Governance around the mine has been reported by local civil society to have weakened due to the company's powerful position with the government and its international relationships. Villagers have reported they see "no difference between the mine and the state" (ALT/Panos 2009). Villagers also report they face intimidation, threat of reprisals and criminalisation if they contest the mining company (Huff & Orengo 2020; PWYP MG 2020).

Complaints management and disputes handling are problematic at the local level. There seems to be hostility towards communities or citizens seeking compensation or challenging QMM. Kraemer (2012) has demonstrated how *"complex histories of conflicting resource management regimes are layered into the local landscape near the mining site, and that current resource struggles must be understood in this context"*.

[66] ALT UK and NGO Trano Aro Zo recorded conflicts in Antsoto in 2018 regarding agreements with QMM. The PACCS project also recorded dissonance in villagers approach to the QMM relationship: https://seeingconflict.org/publications-media/2020/7/15/seeing-conflict-at-the-margins-an-integrated-research-process

The resolution of conflicts around the mine requires a good knowledge of the local context and history, and cannot be satisfied with convenient simplifications. Some mine officials believe, for example, that villagers are asking for compensation out of jealousy, greed or whim[67], even though the realities – and successive research – show that their claims are often well founded.

The local dispute mechanism, facilitated through a protocol drawn up between QMM and the regional environmental monitoring committee (CSER), is first and foremost meant to ensure that complaints that relate to the SEIA/PGEP and SEMP are fully investigated (QMM/CSER 2007). The CSER is meant to be involved in all stages of problem solving from *"Collection of complaints from the community; joint observation of the veracity and the merits of the facts related in the complaints received; validation of the proposals/measures put forward by QMM S.A.; communication of the results of complaint handling (6.3.2.)."* Given this structure has been in place for over a decade, it is not clear why there appear to be no public records or accounts available of the dispute mechanisms processes, and hundreds of villagers are still waiting to have responses to their complaints.

It is also worrying to note that, during interviews for this study, some local officials who participate in the CSER,– i.e., those monitoring QMM performance and meant to assist in arbitration processes, perceive that the villagers who make claims or complaints are "spoilt" or simply "thirsty" for money. It is unclear on what basis these service providers have concluded such a judgement. No formal reports from the arbitration process are readily available to verify all plausible claims have been met or dealt with satisfactorily.

QMM claims to **"***acknowledge that the presence of the weir has impacted the fish population as it was anticipated in the SEIA and for which communities has been compensated"* (QMM Answers, August 2021). However, asked by CSOs to then provide details of what compensation had been paid and when, no further information was provided. The lack of documentation and open and transparent reports sows doubt about the sincerity of the steps taken, fuels rumours, misinformation and misunderstandings.

Additionally, compensation that has been paid out appears to have been piecemeal, only at certain moments and brief periods, and does not reflect the annual losses that producers, weavers, breeders, farmers and fisherfolk are experiencing. Where are the relevant reports to evidence what has been paid, to whom, when and for what, and what basis was used for the calculations?

In addition, the very operation of the CSER raises questions. The research team uncovered only one case when CSER members had been involved in looking into complaints – this was regarding the dead fish in the lake in 2018. Given there are hundreds of other complaints, why have the technical services who are supposed to participate in the dispute mechanism failed to discuss others when the subject is raised in interview?

Moreover, the expectation in this protocol that the local CSOs platform (Comité Local de Liaison - CLL) meet between 1-4 times per year and be the conduit for information and communications, should raise alarm. According to this research findings, CSOs do not appear to be engaged in this process and indeed report feeling disempowered and

[67] Visiting Rio Tinto manager during a meeting with the PWYP MG's team of researchers in Fort-Dauphin, on March 05, 2022.

unable to respond to the concerns of citizens affected by the mine. When they have contacted the CSER members to assist with citizens' concerns, they get no response. CSOs, as watchdogs, have to report injustices, ask questions accordingly and advocate for reforms and corrective actions, for the sake and on behalf of the communities where they work. Whilst CSOs can be members of committees such as the CLL, they cannot communicate on behalf of the company or the CSER because this will compromise their status. By crossing such an invisible but important line, they risk losing their constituents' trust.

The emerging picture is one of uncoordinated and incoherent management of issues and complaints. Some very unhelpful and derogatory attitudes (othering) towards those who do complain. A disjoint between expectations, promises and delivery. Civil society's and local services' obvious lack of resources. And so on. Citizens' complaints continue to exist, with notably 63 percent of the respondents in this study reporting they have made complaints, the majority with no result.

QMM seems unaware of the problems and states that the company: *"Maintains a continuous engagement process with this same community and a grievance process is in place. Surrounding communities is at the heart of the development of the project since day one through the ESIA and SEMP. A stakeholder engagement plan and a grievance program has been in place and is working efficiently to address concerns and issues regarding our operations. There are currently 2 grievances opened that we are managing to resolve in a timely manner"*.

How can the disjoint between the company perceptions of its own external processes and the reality experienced by local actors and CSOs be explained? More importantly, how can it be addressed and repaired?

The IIAP in 2001 rightly understood that the SEIA, to have meaning beyond a series of pledges, presented the *"urgent challenge to all parties will be to convert that document from a broad strategic framework into detailed implementation strategies that include monitoring, evaluation of progress and impact, and the agility to make constant and ongoing adjustments based on feedback."* It is not clear if this challenge has been met satisfactorily. Those entities who have been expected to play a role in actively monitoring the mine and its strategies, or arbitrating complaints, appear to have their own interests in not challenging the status quo, thereby reinforcing a disabling power asymmetry whereby QMM enjoys a quasi-state status.

The company acknowledges this power asymmetry between QMM and the surrounding communities and explains: *"This is the reason why we maintain continuous engagement with the local community to build trust and understanding between us. For example, in pre-COVID time like 2019, there were 164 direct face-to-face engagements with the communities. There is also a process in place for complaints to be expressed and for QMM to resolve them: internal with CCR team and external with the National and Regional Committee (CTE/CSER), led by ONE."* (QMM Answers to CSOs, Aug. 2021)

Despite QMM's assurances, the ONE/CSER arbitration process does not appear to be working as expected. Moreover, how does multiple meetings resolve compensation complaints in real terms - in actual payments for example? How are the challenges recognized and resources and capacity building achieved in order to address the gaps and ensure remedy?

Respondents in this study, from communities through to QMM's own staff, seem unaware of at least one or other element of key QMM operational activities – either in relation to the weir construction or the buffer zone reduction. All of which, according to the SEIA/PGEP and/or SEMP, require QMM to be transparently ensuring risk assessments, public consultation, robust monitoring and reporting. Failures in transparency and governance means that social and environmental *risks* that can affect local people's interests, rights, safety and livelihoods, including all those identified and outlined in the SEIA, PGEP and SEMPs, many of which are explored in this study, are not being transparently addressed and/or are ostensibly being passed on to citizens to manage.

Given the importance of the RT/QMM mine in the country's extractive sector, the resolution of the problems surrounding its exploitation will serve as a beacon and reference for other mines. It is essential to correctly assess the losses suffered by citizens and to compensate them fairly; while ensuring a fair distribution of income and benefits. How should the legal framework evolve to promote greater fairness, protect citizens' rights and improve standards for foreign companies and their activities? These questions go beyond the case study and deserve a more global reflection.

## Beyond Anôsy

Malagasy civil society platforms have taken up the governance and water issues and lobbied the government, including demanding a social and environmental audit of the mine. These have included a demand for transparency on the buffer breach (CEM Taratra & PWYP MG, with multiple signatories, 2019[68]); an investigation (Plateforme OSC Taolagnaro, 2020[69]) and an audit (Collectif TANY, CRAAD-OI, 2020[70]). The proposed study by ANDEA in the first quarter of 2022 is the first manifestation of a state level investigation into the questions raised by local citizens, CSOs and international NGOs concerning water quality and related issues around the QMM mine.

As ONE did not reply to the invitation to participate in this study or to the questions sent about these issues, it is impossible to know how it intends to respond to and resolve outstanding questions related to the QMM weir and buffer zone and related water quality concerns. Nor is it yet clear how the Malagasy Government, as a 20 percent shareholder in the QMM mine, intends to hold itself legally and fiscally accountable when agreements with the mine are not met to local citizens.

The Minister for the Environment visited Anôsy in September 2020 and on her social media postings communicated that she was keen to impress on QMM the need for compliance, saying *"a great deal of effort expected of the company to prosecute all the contents of the social security code directly to the residents directly, whether in Mandena or those close to the weir. The same goes for water pollution and the*

[68] http://www.andrewleestrust.org/blog/wp-content/uploads/2019/10/Letter-from-civil-society-to-Malagasy-Government-Ministers-August2019.pdf
[69] http://www.andrewleestrust.org/blog/wp-content/uploads/2020/04/03-02-20-communique-pfnoscm-1-copy.pdf
[70] http://terresmalgaches.info/newsletter/article/newsletter-no-137

*provision of long-term solutions to people who use forests and materials for handicrafts and buildings in the QMM assigned area."*

The Minister for Fisheries and the Blue Economy visited Ampasy Nahampoana in January 2022 to see a fisheries project funded by Rio Tinto/QMM to *"train the people of Andrakaraka with technical support from the NGO Aquatic Service"*. The Minister posted that the project consists of two 150 -meter concrete ponds and a total of more than 2,000 fish are farmed. What is not explained is why the initial project attempt in Andrakaraka failed and then a new project for the villagers from Andrakaraka is taking place in another commune, and moved further *upstream*, some distance away.

Importantly, detailed public reporting about these projects against clear "Theory of Change" (TOC) and verifiable indicators for outcomes are not readily available, as has been largely the case since the mine's social programme began. Where NGOs have to report against international donor standards for monitoring and evaluation purposes, it is not clear what basis or standards are applied for QMM social projects. QMM should be keener to publish, in full, the social projects M&E reports.

External monitoring of the mine by independent bodies, especially from international level agencies, has also suffered from systemic weaknesses and constraints. For example, the World Bank has so far been unable to provide an investigation into the water issues raised. A complaint forwarded to the World Bank by PWYP MG in 2020 about the QMM water contamination was rejected because such complaints are expected to be delivered within 15 months of the IFC funded project closure. The PIC Programme Phase 1 for Anôsy was completed in 2014. The QMM buffer breach only happened towards the end of the project (circa 2013-2014). Therefore, any complaint would have to be submitted latest mid-2016. Since it took two years of inquiry and three studies before RT/QMM admitted the breach (in 2019), it can be assumed the World Bank deadline would have been missed, even if inquiries had begun immediately after the breach occurred.

Beyond those state and international agencies directly related to the mine, it is unclear why there are so few international bodies or NGOs taking an interest in the water and related health and livelihoods issues. Multiple agencies have a mandate from conservation organisations on the environmental impacts through to water and health agencies for water quality issues. Although a number of international NGOs have participated in meetings with QMM about the water issues (e.g., in March and September 2021) there is nothing available to suggest these organisations are currently undertaking studies or engaged in inquiry to understand the impacts of the QMM mine although some, like WWF, were actively questioning the mining proposal before the project began.

Claimed by Rio Tinto to be a "green" and "model" mine, QMM enjoys powerful partnerships across the national and international spectrum with universities, research institutes, civil society groups, and high-profile international conservation organisations, globally, such as the International Union for the Conservation of Nature (IUCN), Bird Life International, the Wildlife Conservation Society (WCS), Conservation International (CI), Flora and Fauna International, Kew Botanical Gardens, Missouri Botanical Gardens and USAID (Kill & Franchi, 2016; Rio Tinto, 2016). The QMM local social programme works directly with international, national and local actors including PACT Madagascar on local education, the local health provider (SDD) and ASOS,

WaterAid Madagascar, and UN agencies including UNICEF, UNFPA, WHO on health and sanitation (Mining Health Initiative, 2013). The nexus of public private partnership and international NGOs has arguably closed the political space in Anôsy, where it has been perceived that QMM is in danger of being *"the only game in town"* (IAP, 2011).

Given the attention citizens have drawn to ill health due to pollution in their drinking water, it is hard to understand why none of the main agencies have stepped in to explore what is occurring. A National Pollution Action Plan has been developed for Madagascar and brings international support from the Global Alliance on Health and Pollution (GAHP). The relevant parties have been contacted and alerted about the issues in Anôsy (both nationally and internationally, since 2020), but as yet there has been no exploration of the water pollution and related health threats in the communities around the QMM mine.

The mine went ahead with a view to attract similar large-scale investment into Madagascar as the country moved towards greater liberalization and free market economics. However, as Parker (2004) pointed out in her analysis of the Rio Tinto/QMM deal before the mining project began, *"QMM treats the social costs as external costs which are left for the local community to pick up. As a result, the local community absorbs the price differences that should have been passed on to the market, hence the decline in economic welfare. Consequently, the long-term economic viability is not improved, and this destroys the proposition of sustainable development."*

# CONCLUSION AND WAY FORWARD

When Rio Tinto first negotiated to bring its QMM operation to Madagascar, it emerged that the agreement with the Malagasy Government was far from adequate to ensure the sort of revenues expected. Perhaps more importantly, no one had the opportunity to understand or analyse the unseen, hidden costs of the mine to local people which may undermine any advantageous gains from the revenues of the mine. After more than ten years of operation and significant research and testimony from local people, this research aimed to evaluate and understand the ways that the operational costs of the QMM mine are passed on and carried by the poorest in the region who are impacted through loss of lands, livelihoods, food security, water quality and governance.

Over more than ten years, hundreds of villagers have been displaced from their lands and disrupted from their traditional livelihoods and practices. The losses associated with these disconnections have included:

1. lost lands for hundreds of villagers who received inadequate compensation as well as losing longer term security (generational impacts of land displacement);
2. lost livelihoods due to the degradation of natural resources impacted by the mine (many of which go unreported due to a lack of baseline social study at the start of the mining project and weak monitoring mechanisms);
3. loss of food security, for example where the mine's biodiversity offsetting programme has disrupted traditional farming practices and caused serious food shortages (e.g., at Antsotso); loss of pasturage for cattle, fertile agricultural fields, and loss of fish stocks due to the construction of the QMM weir on the local estuary (e.g., for fishing community Andrakaraka);
4. loss of environmental protection (e.g., breach of the environmental buffer zone with mine tailings now positioned on the lake bed at Mandena);
5. loss of local water quality due to mining impacts (contamination of local lakes and waterways with uranium, lead and other heavy metals), which brings additional unseen costs such as poor health, potential physical development problems for a generation through toxic impacts, and reduced nutrition (e.g., loss of fish and water products);
6. losses associated with social conflict, the degradation of social cohesion, and eroded trust in what was an already fragile local governance system, must also be taken into account.

Revenues from mining operations have created deepening inequality in the Anôsy region, which in itself brings a cost to development and the erosion of the social fabric. Governance processes too have been weakened and eroded as a result of the power asymmetry that has been created by the presence of the mine.

PWYP MG working with international partnership (PWYP UK and Andrew Lees Trust – ALT UK) has been researching and advocating for transparency around specific QMM mine related impacts and associated governance issues since 2018. For example, regarding QMM's breach of an environmental buffer zone and related water quality issues. On these and other matters, consultation processes in Anôsy have been reportedly compromised for a number of reasons, including lack of transparency about

the relationship between the ONE and QMM. Similarly, this research's findings highlighted how local leaders and CSOs co-opted through funding benefits show a tendency to concede to QMM demands and /or to remain silent in the face of abuse of human rights; most worryingly, they exposes the exclusion of those local people/stakeholders who do not always agree or who contest the mine from debates and consultation about the mine activity. In this aspect, local civil society report that only those likely to agree to what QMM says and wants are invited to important meetings when arrangements or decisions are made[71]. This lack of consultation goes hand in hand with failure by QMM to deliver transparent sharing and access to information, not only for local communities but for those organizations who seek information from the company.

This and other examples of barriers to access information highlight the difficulties faced by civil society and local stakeholders on the ground to exercise rights to information. They are similarly challenged when it comes to right to freedom of expression. Despite assertions to the contrary by QMM, this report exposes that those citizens who have contested the mine find themselves ignored, criminalised, fined, intimidated and thereby systematically silenced and discouraged from expressing any grievances against QMM.

Given this study is limited by time and resources, and given the lack of publicly available documentation and reporting, the conclusions here can only reflect what it has been possible to find and study, together with what local people, service providers, decision-makers and CSOs have told the research team. Any failure to capture realities beyond this must raise the same questions that this report asks:

1. How is it possible that mine affected communities are still suffering in Anôsy, their standard of living continually declining in the face of the mine's presence?
2. Why is there no baseline study for water quality and extensive, regular follow up monitoring of water quality with regard to health and livelihood impacts as required against the SEIA/PGEP?
3. Why is it so difficult to access the necessary documentation in order to evaluate, or assess if the mine is honoring its SEIA/PGEP and SEMP commitments?
4. Why do repeated attempts to create transparency and accountability mechanisms at local level continue to fail? Why do dialogue processes falter and collapse?
5. What is standing in the way of resolving the conflicts, complaints and contestations – many of which, according to the communities, remain unaddressed?
6. What dispute mechanisms are required to ensure remedy when rights and entitlements are harmed?
7. How can the political space be maintained to allow for healthy democratic debate, dynamic civic engagement and robust governance around QMM mine and other mining concessions?

[71] A key example is when the export of monazite began. According to a local researcher, and to CSO representatives (who met with PWYP in Anôsy in 2019) public consultation has been extremely poor. Information broadcast about monazite was not understood (people could not understand the difference between ilmenite and monazite). Also, when the local agreements were advanced it was reported that QMM held a "consultation" meeting in Anôsy that could only be described as a verification /validation process for what they had already determined they wanted to do, and with those present who would raise no objections i.e., a fait accompli (feedback from local soundings by ALT UK and PWYP MG, 2019).

## Community Demands

Through the survey and focus groups held in various locations, community members living around the mine have expressed particular demands towards RT/QMM and various Malagasy authorities. They are transcripted in the following pages.

### To Rio Tinto/QMM

- Consideration of all complaints, not just those of associations
- Information on complaints to be given directly to the community without the intermediary of the municipality
- Compensation and support by QMM for losses incurred
- Recruitment of premises by QMM
- Meeting between the community and QMM with written minutes to improve relations and to collect expectations without intermediaries
- Cessation of mining extraction if no impact on the community
- Supression of the weir
- Compensate fairly for damages to the community
- Ensure fairness in the granting of aid (without intermediaries)
- Take into account the demands of the community and respect the specifications
- Supply of drinking water
- Community aid (monthly, quarterly) from QMM and/or the government for the elderly and women
- New written contract between QMM, the community and the authorities

### To the Ministry of Land Management and Land Service

- Possibility of choosing whether or not to transfer the land
- Return back of requisitioned land if compensation is not paid
- Compensation for land losses up to the true value of the land
- Aid to landowners
- Buyback requisitioned land at low prices
- No intermediary between QMM and landowners
- Compensation for land losses paid directly to the beneficiary
- Avoid destruction of infrastructure
- Respect agreements with QMM
- Application for aid to QMM with the approval of the municipality

### To the National Office for Environment (ONE)

- Frequent field visits by experts needed, taking into account the needs expressed by the community
- Ensure impartiality and communicate results of monitoring studies to the public
- Ensure compliance with environmental standards
- Ensure compliance with agreements between the parties
- Educate community members
- Conduct independent and corruption-free monitoring
- Include community representatives in the process for greater transparency
- Effectively follow up on complaints
- Report regularly to the central authorities and take strict measures in case of infractions
- Follow up on the fulfillment of promises made by QMM
- Community consultation prior to the establishment of an operation
- Regular sharing of information with the community
- No discrimination but consensus building within the community

### To the Decentralized Territorial Collectivities (CTD)

- Cessation of all forms of corruption (from municipalities to the Fokontany)
- Transparency in the management of mining royalties collected by municipalities
- Transparency in the granting of aid to the community

- Sharing of information with the community regarding activities undertaken by the municipalities
- Transparency in the management of complaints
- Accountability and impartiality of local authorities
- Community consultation by authorities to gather expectations

### To the Ministry of Environment and Sustainable Development (MEDD)

- Delimitation of forests to be exploited by the community
- Access to forest resources for the collection of mahampy, wood, etc.
- Government assistance to compensate for loss of access to natural resources
- Respect and control of environmental standards for the mining exploitation

### To Donors, Ministry of Agriculture & Ministry of Fisheries and Blue Economy

- Donations: fertilizers, seeds, farm equipment
- Compensation for yield losses
- Access to fisheries resources
- Access to land for agriculture
- Training on rice growing techniques and crop diversification
- Setting up agricultural development policy
- Aid to fishermen, breeders and farmers
- Prioritize agriculture

### To the Ministry of Public Health

- Creation of hospitals and free care and medicines for common pathologies in the region
- Preventive measures against common local diseases
- Monitoring the health of the local population

### To the Ministry of National Education

- Support for children's schooling
- Use of royalties for the construction of infrastructure and schools

### To the Ministry of Water and Sanitation/ ANDEA

- Provide drinking water supply
- Repair of defective hydrants or installation of new hydrants
- Compensation for loss of water quality

### To Donors and Government

- Creation of sustainable jobs for youth, men, women, and local residents
- Financial aid to the community from the government
- Promotion of projects involving local associations
- Financial aid to artisans and household aids after a case-by-case study
- Food aid for children and the elderly
- Electrification
- Aid granted directly to the community, to households without going through the municipality and without intermediaries
- Put pressure on QMM for the protection of the environment and the economy

# OUR RECOMMENDATIONS

In order to improve the situation and ensure that the RT/QMM mine really benefits to a wider range of citizens, PWYP MG recommends the following:

It is crucial that all stakeholders become aware of the importance of playing their respective roles in accordance with the legislation in force and international standards, while prioritizing the safeguarding of citizen interests. The wrongs are shared between public authorities' inertia, civil society's weaknesses and RT/QMM's lack of diligence and communications failure. Only the communities, which had asked nothing of anyone, can be exempted from all responsibility in this "Anôsy disaster". Nonetheless, fatalism is not in order because the situation can easily be improved if each stakeholder agree to change and if a new working method is determined jointly by all actors. PWYP MG and its allies hope that this study will have contributed to this new momentum expected by local communities.

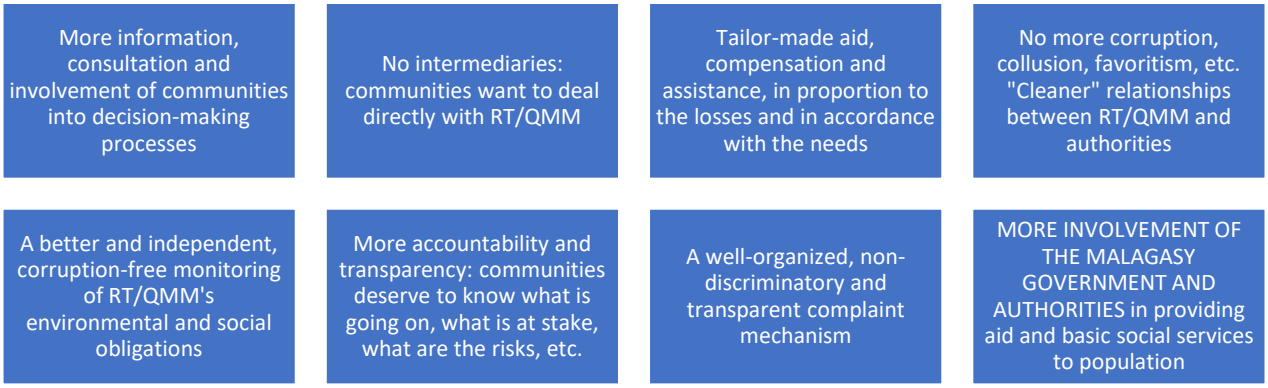



*Figure 12: PWYP MG's main recommendations for improving the situation in Mandena*

# APPENDICES

## ➢ Appendix 1. The economic and fiscal contributions of RT/QMM

Under the current framework agreement RT/QMM enjoys considerable concessionary breaks on taxes, duties and royalties. Once these are deducted QMM expects the Malagasy Government to earn US$7- US$9 million in the first five years, rising to a maximum US$15-US$26 million per year from local expenditures, royalties, taxes and optional dividends thereafter. taxes, duties and royalties. Once these are deducted QMM expects the Malagasy Government to earn US$7- US$9 million in the first five years, rising to a maximum US$15-US$26 million per year from local expenditures, royalties, taxes and optional dividends thereafter.

In the SEIA QMM's estimates of the annual income that will be accrued to the Malagasy Government also include dividends from the 20 per cent capital share. However, this assumes that the Government enters into the shareholding and if not, the annual amount of revenue earned by the government would need to be reduced by the dividend amount. QMM also includes local expenditures in its calculation of income. Although such expenditures may benefit the local economy and Government revenue indirectly through value added tax and import duties, it has a fluctuating value the size and flow of which is hard to assess. In 2007 Harbinson calculated that the best-case scenario for total mine revenue allocation from the RT QMM mine was 18 percent for the government of Madagascar (82 percent for Rio Tinto) and the worst-case scenario was just 3 percent for the Madagascar government (Development Recase, Harbinson 2007).

The agreement is due to be reviewed and in February 2020 the Malagasy government requested an audit of the finances of QMM-Rio Tinto, through the Council of Ministers on November 20, 2019. This related to reports that the Malagasy government was in debt to QMM, since a contribution of $ 77 million should have been paid for the company's capital recovery or recapitalization in 2012 and 2015 while US$ 16 million should have been paid by 2019. Additionally, civil society have raised questions and made public calls for the mine to be audits against its social and environmental performance, not least following reports of the contamination of local waterways by the mine around its Mandena site and where some 15,000 villagers draw their drinking water (CRAAD-OI, OSC Plateforme Taolagnaro).

Under the concession agreement with the Government of Madagascar (GoM), QMM is required to pay annual royalties equivalent to 2 percent of its revenue from ilmenite exports. 30 percent of these royalties accrue to the central government, while the other 70 percent are distributed among the Fort Dauphin municipality, the Anôsy regional government, and the 4 communes around QMM's mining site. Since the start of ilmenite production in 2009, QMM has paid a total of $8.2 million in such royalties (2015). At Peak Production, according to QMM mine managers, the mine could produce as much as two million tonnes of unrefined ilmenite ore, worth about USD 200 million per year, for export to Canada for processing (Seagle, 2013).

Municipalities, regions, provinces and the general state budget benefit from specific taxes paid by the extractive industries, which are mining royalties/rebates, as well as mining administration fees (MAF). Royalties and rebates are assessed at 0.6 percent and 1.4 percent respectively. The Establishment Agreement establishes the basis for calculating the royalty at the FOB value of QMM's production throughout the duration of the agreement.

Mining administration costs are common law taxes, i.e., the mining company must pay the administration costs relating to the holding of mining squares (art.85 of decree no. 2006-910 of December 19, 2006).

According to Ernst & Young (2011), QMM rebates and MAFs are distributed as follows:

| Rebates Distribution Rates | MAF Distribution Rates |
|---|---|
| ► 60% for the municipality<br>► 30% for the region<br>►10% for the autonomous province (in suspense account with the Public Treasury) | ► 60% for BCMM<br>► 8% for the Mining and Environmental Police<br>► 12% for municipalities<br>► 7% for the Region<br>►5% for the autonomous province (in suspense account with the Public Treasury)<br>► 5% for the National Mines Committee<br>► 2% for the Gold Agency<br>► 1% for the general budget |

*Table 2. QMM rebates and MAF (Source : EY, 2011)*

**According to Malagasy legislation, only a few of the communes in mining projects areas are entitled to receive royalty payments.** The 1999 Mining Code royalty redistribution rules are not designed for high revenues generated at a single point resource, as in industrial mining projects. The code was primarily drafted in view of dispersed small-scale mining that was happening at the time. According to a literal interpretation of the current Mining Code's provisions (Law Nr. 2005-021 of October 17, 2005), royalty payments are exclusively directed to communes directly adjacent to mining squares.For the QMM project, this implies that only two[72] out of about 64 communes in the Anôsy region would be de jure entitled to receive royalty transfers. Consequently, these two communes would become very rich very quickly whereas other adjacent communes would not. Even if the beneficiary communes might change as the extraction moves from one commune to the other, inter-communal discrepancies will likely further be exacerbated by future royalty payments" (World Bank, 2010).

The following table shows the status of mining royalties and administration fees paid to municipalities each year from 2007 to 2018 in Fort-Dauphin, Ampasy Nahampoana and Mandromondromotra.

[72] In a 2001 ILO survey, the population of Ampasy Nahampoana was 5600 and the population of Mandromondromotra was 3590. The population for the 24 communes of the (ancien) fivondronana was 303,691.

| Mining royalties and rebates paid by QMM | | | | Mining Administration Fees | | |
|---|---|---|---|---|---|---|
| Year | Fort-Dauphin | Ampasy Nahampoana | Mandromondromotra | Fort-Dauphin | Ampasy Nahampoana | Mandromodromotra |
| 2007-2010a | 1 675 000 000,00 | | | 2 279 570 000 000,00 | | |
| 2010 | 164 094 882,99 | 328 189 765,98 | 164 094 882,99 | n/a | 1 965 600,00 | 3 572 400,00 |
| 2011 | 311 565 733,20 | 623 131 466,40 | 311 565 733,20 | 1 672 440,00 | 2 736 720,00 | 4 713 240,00 |
| 2012 | n/a | 936 455 146,00 | 469 879 278,00 | n/a | n/a | n/a |
| 2013 | 502 848 636,00 | 918 225 555,00 | 502 848 636,00 | 73 923 840,00 | | |
| 2014 | 345 725 894,94 | 691 451 814,63 | 345 725 894,94 | n/a | 3 556 544,67 | 6 088 278,60 |
| 2015 | n/a | n/a | 279 474 643,00 | n/a | n/a | n/a |
| 2016 | n/a | 214 227 235,00 | n/a | n/a | n/a | n/a |
| 2017 | 505 595 146,70 | 1 011 190 299,40 | 505 595 146,70 | 23 141 368,80 | | |
| 2018 | n/a | 1 555 000 000,00 | 758 670 000,00 | n/a | 6 962 760,00 | 12 709 800,00 |

*Table 3. Situation of royalties/rebates, MAFs and donations cereived by the municipalities impacted by QMM's activities, in MGA (EITI Reports 2017-2018)*

Given that these figures have been officially published, and subject to verification of the discrepancies between the municipalities and the extractive companies, it is difficult to detect the hidden transactions relating thereto. However, comments may be made in the use of these mining resources by the beneficiary municipalities. The shares of rebates and mining administration costs at the level of the decentralized local authorities are included in the budget of these entities. The principle of unity of cash also prevails, i.e., all the resources combined – including revenue not linked to extractive companies – must be used to finance all uses, therefore expenses, 'entity. In small municipalities strongly impacted by extractive projects, revenues from extractive companies can represent such considerable amounts that it becomes possible to affirm that the expenditure of these municipalities is entirely financed by extractive parafiscal taxes.

Before the EITI 2016 standard, the use of mining revenues at the level of municipalities and regions that have practiced participatory budgeting was highlighted in the context of reconciliation. The EITI reports after 2016 no longer present in detail the allocations of mining resources paid at the municipal level. In theory, in order to ensure a long-term impact of mining revenues in a given locality, resources from royalties must be invested in the construction of long-term infrastructure.

The study of the participatory budget of the rural municipality of Ampasy Nahampoana (2013) shows that more than 70 percent of the rebates paid to the municipality were allocated to infrastructure expenditure. The PWYP MG team was able to see firsthand the remains of these investments, including the communal halls of Mandromondromotra and Ampasy Nahampoana. Despite everything, some members of the community reveal embezzlement that tarnishes this smooth appearance: some mayors, as well as their deputies, would take percentages on all payments made by QMM or the central administration. Members of associations of usufructuaries and land occupants from the three communes studied around Mandena report for instance that these mayors and deputy mayors would take 50 percent of any payment (intended for grassroots communities) received from QMM or CSOs/NGOs the company works with.

➢ Appendix 2. Economic and social changes since the arrival of the QMM/Rio Tinto mine in

# ECONOMIC AND SOCIAL CHANGES SINCE THE ARRIVAL OF THE QMM/RIO TINTO MINE IN MANDENA (2005-2019)

Many changes have taken place since QMM/Rio Tinto began construction at Mandena in 2005. Some of these changes can be attributed to the mine but many others are the result of more complex factors. This note summarizes some of the changes and highlights what still needs to be improved in order for the mining industry to benefit everyone in a sustainable way. 362 households living within 20km of the mine participated in the survey in June 2019

## ECONOMIC CHANGES

### Job creation

**19%**

Only 2 in 10 people think that the arrival of the mine has created jobs locally .



**82%**

Most (8 out of 10) felt that these jobs benefited primarily men.



### Income

**66%**

Almost 7 out of 10 households earned less than 150,000 Ariary per month .



**38%**

Almost 4 out of 10 people say that their income has decreased since 2005 (38%) and are mainly farmers, fishermen and basket makers.



### Expenses

**79%**

Eight out of 10 people said their expenses had increased since 2005 (79%) because of rising commodity prices ahead of health or education costs.



## CHANGES ON HEALTH AND FOOD SAFETY

### Health

**62%**

More than 6 in 10 people are relatively satisfied with their level of health (62%),



**89%**

Almost 9 in 10 agree that their level of health has declined since 2005.



### Access to medicinal plants

More than **9 out of 10** people regret that access to medicinal plants is more difficult .



### Sanitation

More than **5 out of 10** households have access to an "improved" toilet that is not shared with other households, meaning one type of flush or latrine, or an improved ventilated pit or composting toilet, provided it is not shared since 2005 (54%), a 40% improvement since 2005.



### Access to drinking water

Households have gained **5 minutes** in access to drinking water since the mine's arrival.

Almost **5 out of 10** households now have access to a standpipe (+161%).



### Food security

**4 out of 10** people skip meals due to lack of food.



On average,individuals consume less animal protein per month (fish, meat, poultry) than before 2005 (**6 days less per month**).

**97%** respondents regret that access to halieutic and forest resources is more difficult .

**(40%)** of the mining communities deplore the fact that a large part of the forest has disappeared as well as sacred tombs **(30%).**

## SOCIAL AND CULTURAL CHANGES

### Changes in traditional customs

**87%**

Almost 9 out of 10 people said that local customs had changed as a result of the disappearance of certain sacred places and parts of the forest, as well as water pollution.



### Community trust

**78%**

Almost 8 in 10 say they trust people in their community .



### Level of tension or violence

**5 in10** people find the level of tension or violence in the community relatively low. But most people think that tensions arise from decisions about how to spend mining revenues (82%).



## CHANGES IN ACCESS TO BASIC INFRASTRUCTURE

### Access to a health centre (CSB) and school

**6 /10** households have access to a CSB (+12% since 2005) and more than 9 out of 10 to a public elementary school (+8% since 2005) within 30 minutes of their home.

### Access to a road

**99%** of participants having access to a road now within 2km of their home (World Bank standard) with 1 in 10 more people having access to a road since 2005.

### Access to electricity

Less than **2 out of 10** households have access to electricity even though the number has increased **1.8 times**.

### Access to a mobile phone network and banking services

The number of people with access to a mobile phone network was multiplied by **3.5** (62% in total) and **4.3** (30% in total) for access to banking services since 2005.

## RECOMMANDATIONS

### JOB OPPORTUNITIES

- Provide access to vocational training for locals to be in a position of benefitting from the jobs created by the arrival of the mine (direct, e.g., employees/indirect, e.g., maintenance, catering/induced, e.g., through direct and indirect employee spending).
- Establish specific programs to support women so they can benefit from these jobs.

### DIRECT TRANSFERS

- Beyond work opportunities, develop mechanisms for direct transfers of mining revenues to mining communities (e.g. cash for resources with or without conditions).

### HEALTH, SANITATION/HYGIENE AND FOOD SAFETY

- Improve access to traditional medicinal plants, halieutic resources and forests.
- Improve food security in mining communities by increasing the number of beneficiaries of current programs and by developing other programs.

### SOCIAL AND CULTURE

- Eliminate the risk of water pollution in a sustainable manner.
- Restore access to important places for the local population.
- Manage tensions over the spending of mining revenues by organizing representative consultations, participatory budgeting and updating the local development plans ( “PCDs”).
- Ensure access to information on mining activities, including information on operations, revenues, their distribution and use, and water pollution for all industry stakeholders (mining communities, civil society, government, other private and public enterprises).

### ACCESS TO BASIC INFRASTRUCTURE

- Continue efforts to ensure that mining communities have access to secondary education, well-equipped health centers and modern means of communication and payment.
- Tax the consumption of non-renewable resources such as water used by the mine to fund basic local infrastructure.

Proportions are calculated using the balance of opinion method. For more information, please contact the research team at info@anjararesearch.com.
Citation : Anjara Research and Consulting 2022, Changements économiques et sociaux depuis l'arrivée de la mine QMM/Rio Tinto à Mandena (2005-2019), France

## ➢ Appendix 3. QMM's Extraction Process and Water Management Procedure

### QMM Extraction process (2019)

The mine uses a floating dredge on a constructed mining pond to separate the minerals. The separation process uses water, a series of spirals and electrostatic processing (Rio Tinto, 2017) to extract the minerals of interest. Reject sands (mine tailings) are returned to the dredging pond or used for construction of discharge canals and other structures (Hoagland 2013).

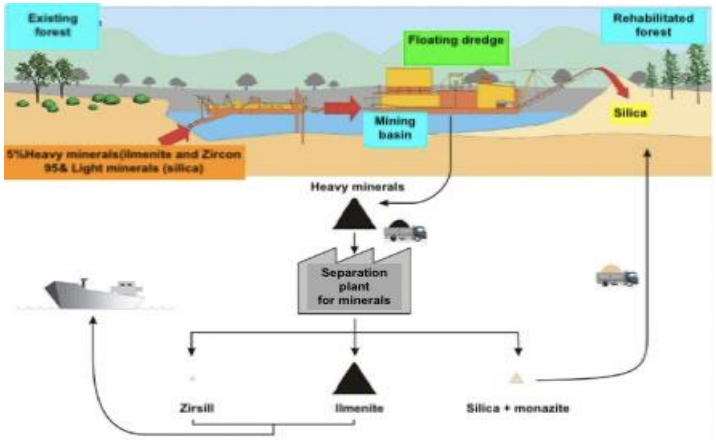



Photo 9. QMM's extraction process

### Operational steps are:

1)Remove vegetation /store top soil layer where applicable

2) Extract sand (up to 20m deep) using floating dredge

3) Mechanically separate heavy minerals (5 percent) using spirals

4) Return silica/ other minerals back into the mining pond for use in subsequent rehabilitation of the site.

Approximately 5 percent of the mineral sands mined is sent to QMM's dry plant and, after the removal of target commodities Ilmenite and zircon, 1% of the material mined is then returned to the wet plant. Mineral sands contain Monazite, rutile and zircon, which are enriched with the radioactive elements, uranium and thorium. Lead is also present because it is a decay product of radioactive elements.




*Photo 10. Transportation routes for QMM products (QMM, PGES 2006)*

According to Rio Tinto silica and other minerals are buried at a depth of 5-15m below sea level with reject sand placed above it. Reject sands would include monazite, a highly radioactive mineral. However, in 2018 QMM began commercial exploitation of monazite and is now exporting rare earth oxides found in the monazite 'magnetic rejects. Consequently, there is now surface storage of monazite magnetic rejects on the mine site, adjacent to the dry plant, in a stockpile area. According to Rio Tinto, access to this area is restricted with no public access (Swanson 2019).

All the minerals of interest are transported through the town of Fort-Dauphin to the EHOALA Port approximately 15Km away from the mine site. Specialised containment of the monazite product is required for transportation, due to its highly radioactive properties.

## Water Management Procedures

The mine extraction process requires 300,000 L/yr of fresh water. It is assumed that fresh water for the QMM operation is sourced and piped from the Méandre River (Hoagland 2013). Fresh water use is reduced through recycling and the total recycled volume of water per year is 13,621,000 L (QMM 2018).

The mine produces approximately 9,400,000 Litres of mine process wastewater per year (Swanson 2019). The mine's process wastewater management system involves releasing mine basin process wastewater through a series of settling ponds prior to discharge into a wetland/swamp area on the mine site. These wetlands drain to the Mandromondromotra River, see the diagram in the figure below.

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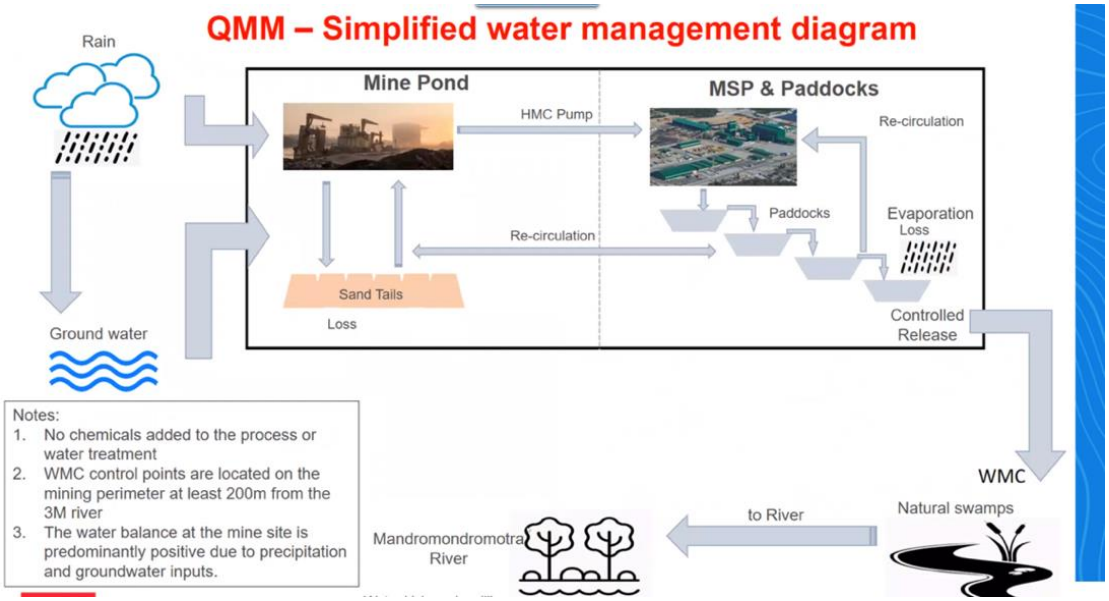



*Figure 13:Figure 13. RT/QMM simplified water management diagram*

QMM's "natural" or "passive" water management system's efficacy has fallen into question following the recent publication of QMM wastewater discharge monitoring data report (QMM 2021). The report shows that cadmium and aluminium levels in the mine's process wastewater exceed Malagasy regulatory discharge limits for environmental safety. Additionally, heavy metals such as uranium and lead have also been detected in water downstream of the mine, and reported in independent studies carried out by international experts. Levels of uranium and lead were identified in some

places to be 50 and 40 times respectively higher than World Health Organisation safe drinking water guidelines (Swanson 2019; Emerman 2019; 2020, 2021) and have therefore raised alarm for those villagers' dependent on natural sources of water around the mine for their drinking and domestic water needs. The mine operates in a sensitive environment adjacent to an estuary system which runs parallel to the Indian Ocean. Ecosystems in water and wetland areas around the mine provide habitat for plants that support living and livelihoods e.g., seeds for emergency food, reeds for weaving, and are home to local fauna e.g., crocodiles. The lakes in the estuary have traditionally spawned endemic species of fish, which have provided traditional subsistence fishery over many generations.

Rio Tinto conceded that the water management system is not working as hoped and they have yet to determine a viable long-term solution[73]. The Malagasy water regulatory authority, ANDEA, states that QMM is no longer authorised to discharge mine process wastewater until further studies have been carried out [74] (projected for first quarter of 2022). QMM had ceased all discharge of its mine process wastewater since August 2020. However, in March 2022, due to excess water in the mine basin following weeks of cyclonic weather and storms, QMM was obliged to seek "exceptional permission" to release 1 million cubic metres of its process waters to avoid a total collapse of the tailings dam (berm). The ensuing issue of hundreds of dead fish found floating in the lake downstream of the release has been the subject of ongoing contestation and conflict in the region, which was still unresolved as at 10th May 2022 (this report conclusion). In 2019 Rio Tinto commissioned a new radioactivity study from external provider JBS&G, the results of which are pending and will require a fully independent review process.

[73] Meeting with Rio Tinto and PWYP MG/PWYP Intl and ALT UK, 13th January 2022
[74] Interview with ANDEA by PWYP MG in Antananarivo, 15th December 2021

## ➢ Appendix 4. Survey Questions

### QUESTIONNAIRE FOR VILLAGERS (IN ADDITION TO DEMOGRAPHICS)

#### 1. General

1.1. *How long have you lived in the Mandena area?*

☐ Less than 1 year ☐ 1 to 2 years ☐ 2 to 5 years ☐ 5 to 10 years ☐ More than 10 years

1.2. *Were you affected by the construction of a weir by the QMM mine?*

☐ Yes ☐ No ☐ Don't want to answer

1.3. *If yes, were these changes? Positive or negative or both?*

☐ Positive ☐ Negative ☐ Both ☐ Don't want to answer

1.3.1. Please explain

1.4. *Were you consulted about the construction of this weir by QMM?*

☐ Yes ☐ No ☐ Do not wish to answer

1.4.1. *If yes, did you give your approval for this weir to be built by QMM?*

☐ Yes ☐ No ☐ Do not want to answer

#### 2. Loss in water quality

2.1. *In your opinion, does the QMM weir affect water quality?*

☐ Yes ☐ No ☐ Don't want to answer

2.1.1. *If yes, how would you rate the change in water quality?*

☐ Extreme ☐ Very noticeable ☐ Sometimes noticeable ☐ Insignificant

2.1.2. *If yes, which parameters are affected by the loss in water quality?*

☐ Odor ☐ Color ☐ Loss of fisheries resources ☐ Other

2.1.2.1. If other, specify

2.1.3. *What impact does this have on your health?*

☐ Diarrhea ☐ Urinary/kidney problems ☐ Unexplained fever ☐ Muscle pain ☐ Fatigue ☐ Skin diseases ☐ Other ailments not described

2.1.3.1. If other, specify

#### 3. Loss of land

3.1. *Have you experienced any loss of land as a result of the construction of the spillway?*

☐ Yes ☐ No ☐ Don't want to answer

3.1.1. *If yes, can you say how much land you lost?*

☐ Less than 10ares ☐ Between 10 and 50ares ☐ Between 50 ares and 1ha ☐ Between 1 and 2ha ☐ More than 2ha

☐ Don't want to answer

3.1.2. *What was the value in monetary terms of this land to you/your family? (in Ariary)*

3.1.3. *Did you receive any compensation from QMM and/or the state?*

☐ Yes ☐ No ☐ Don't want to answer

3.1.3.2. *If yes, how much did you receive? (in Ariary)*

3.1.3.1. *Did you face any difficulties in obtaining this compensation?*

☐ Yes ☐ No ☐ Don't want to answer

## 4. Loss of access to natural resources and natural capital

4.1. *Has the change restricted or affected your access to resources you used to use?*

☐ Yes ☐ No ☐ Don't want to answer

4.2. *Which resources specifically are affected?*

☐ Forest wildlife ☐ Flora (medicinal plants....) ☐ Other forest resources (wood, honey...)
☐ Grazing ☐ Irrigation water
☐ Water for current use ☐ Fishery resources

## 5. Loss of livelihoods and income

5.1. *What are your main livelihood activities?*

☐ Fishing ☐ Handicrafts ☐ Gathering (wood or other natural resources) ☐ Agriculture ☐ Animal husbandry ☐ Other

5.1.1. If other, specify

5.2. *In order of importance, what has most impacted your livelihood activities?*

☐ The loss in water quality ☐ The loss of land ☐ Loss of access to natural resources and natural capital ☐ Other

5.2.1. If other, specify

5.3. *In order of importance, what has most impacted your household income?*

☐ The loss in water quality ☐ The loss of land ☐ Loss of access to natural resources and natural capital ☐ Other

5.3.1. If other, specify

5.4. *In order of importance, what has most impacted your household's expenditures?*

☐ The loss in water quality ☐ The loss of land ☐ Loss of access to natural resources and natural capital ☐ Other

5.4.1. If other, specify

5.4.2. *Which expenditure items were most impacted?*

5.5. *In order of importance, what has most impacted your household's quality of life?*

☐ The loss in water quality ☐ The loss of land ☐ Loss of access to natural resources and natural capital ☐ Other

5.5.1. If other, specify

## 6. Strategies adopted to deal with losses

6.1. *Have you filed a complaint about these losses?*

☐ Yes ☐ No ☐ Don't want to answer

6.1.1. *If yes, with whom?*

☐ QMM ☐ ONE ☐ regional mayor-authority ☐ Other

6.1.1.1. *If other, specify?*

6.1.2. *What was the subject of your complaint?*

☐ The loss in water quality ☐ The loss of land ☐ Loss of access to natural resources and natural capital ☐ Other

6.1.2.1. If other, specify

6.1.3. *Did your complaint have an outcome(s)?*

☐ Yes ☐ No ☐ Do not wish to answer

6.1.3.1. If yes, please specify

6.1.4. *Did the filing of this complaint cause you any problems?*

☐ Yes ☐ No ☐ Don't want to answer

6.1.4.1 If yes, please specify

6.2. *Have you taken any other action to report these losses?*

☐ Yes ☐ No ☐ Don't want to answer

6.2.1. If yes, please specify

6.3. *Have you been able to find other strategies to mitigate the impacts experienced?*

☐ Yes ☐ No ☐ Don't want to answer

6.3.1. If yes, please specify

6.3.2. If no, why not?

## 7. Socio-cultural losses

7.1. *Has the mine affected your ability to assert your rights?*

☐ Yes ☐ No ☐ Don't want to answer

7.1.1. *What rights?*

☐ Right to information ☐ Right to a safe environment ☐ Right to water ☐ Right to land ☐ Right to resources

☐ Other

7.1.1.1. If yes, specify

7.2. *Do you feel that you have suffered any cultural losses?*

☐ Yes ☐ No ☐ Don't want to answer

7.2.1. If yes, which ones

7.3. *Rank the impacts on governance from worst to most insignificant*

☐ Increased corruption ☐ Lack of mechanisms for complaining ☐ Lack of justice ☐ Closed or compromised relationships ☐ Loss of cohesion in the community ☐ Government indifference ☐ Conflict at local level (family/community/with authorities) ☐ Other

7.3.1. If other, specify

8. Recommendations: *What changes or measures or actions would you like to see to correct this situation?* (02 max)

QUESTIONNAIRE FOR CSOS

## 1. ESMP/the deal

1.1. *Have you ever seen an ESMP and/or any other document describing the QMM project - project on the Lake Ambavarano dam?*

☐ Yes ☐ No ☐ Don't want to answer

On reducing the buffer zone at Mandena: ☐ Yes ☐ No ☐ Do not want to answer

1.2. *Were you consulted when QMM decided to:*

- Build the spillway? ☐ Yes ☐ No ☐ Don't want to answer
- Reduce the buffer zone? ☐ Yes ☐ No ☐ Don't want to answer

1.2.1. *If yes - How were you consulted?*

☐ Public consultation ☐ Individual consultation ☐ Media announcement ☐ Other

1.2.1.1. If other, specify

1.2.1.2. *Who led this process?*

☐ ONE ☐ QMM ☐ Department ☐ Mayor ☐ Chief fokontany ☐ Loholona ☐ Others

1.2.1.2.1. If other, specify

1.3. *What technical information was provided to you to help you assess how these project changes would affect the environment and local communities?*

☐ Presentation of QMM's business ☐ Presentation of QMM's environmental and social impact assessment

☐ Presentation of QMM's economic opportunities ☐ QMM wastewater management plan ☐ SEIA ☐ Other

1.3.1. If other, specify

1.4. *Have you involved the community in any consultation on these project changes*?

☐ Yes ☐ No ☐ Don't want to answer

1.4.1. *If yes when? (Date)*

1.4.2. *If yes how?*

☐ Survey ☐ Meeting ☐ Media announcement ☐ Other

1.4.3. *If no - why?*

1.5. *Has the community given its approval for the*

*- construction of the weir by QMM?*

☐ Yes ☐ No ☐ Don't want to answer

*- QMM's buffer zone reduction*

☐ Yes ☐ No ☐ Don't want to answer

1.6. *Do you understand why the construction of a weir was important?*

☐ Yes ☐ No ☐ Don't want to answer

1.6.1. If yes, explain

1.7 *Do you understand why the reduction of the buffer zone in the QMM mine operation was necessary?*

☐ Yes ☐ No ☐ Don't want to answer

1.7.1. If yes, explain

## 2. Impacts

2.1. *Are you aware of any social or environmental impacts caused by the Lake Ambavarano dam?*

☐ Yes ☐ No ☐ Don't want to answer

2.1.1. If yes give specific examples

2.2. *Are you aware of any social or environmental impacts created by the reduction of the buffer zone in Mandena?*

☐ Yes ☐ No ☐ Don't want to answer

2.2.1. If yes give specific examples

2.3 *Were you aware of the breach in the buffer zone (encroachment into Lake Besaroy)?*

☐ Yes ☐ No ☐ Don't want to answer

2.3.1. *If yes, how did the information come to you? What specifically?*

☐ By the local authority ☐ By private institutions (Newspaper, Investigations, NGOs) ☐ By QMM

☐ By the local population ☐ Other

2.3.1.1. If other, specify

2.4. *Which of the impacts listed below have you heard directly from communities as a result of QMM's mining operations related to these project changes*:

☐ Loss of fish stocks ☐ Deterioration of water quality ☐ Loss of revenue ☐ Loss of livelihoods ☐ Loss of land

☐ Food insecurity ☐ Other environmental impacts ☐ Other social impacts

2.4.1. If other, specify

## Questionnaire for local authorities

### 1. SEMP

1.1. *Have you ever seen or participated in the review of an ESMP for the QMM project changes (2014-2018)?*

☐ Yes ☐ No ☐ Don't want to answer

1.1.1. *If yes, what specifically was it about and how were you involved?*

1.2 *Do you know what a buffer zone is?*

☐ Yes ☐ No ☐ Don't want to answer

1.3. *Do you know that there is a specified legal boundary between the mine and local waterways - under Malagasy law? (e.g. 80m)*

☐ Yes ☐ No ☐ Don't want to answer

1.4. *Did you receive assistance in understanding the technical aspects of the ESMP and the implications of reducing the buffer zone?*

☐ Yes ☐ No ☐ Don't want to answer

1.4.1. If yes, by whom?

☐ QMM team ☐ Local authorities ☐ ONE team ☐ Others

### 2. Stakeholder consultation/involvement

2.1. *Have you been involved in a stakeholder consultation process for the reduction of the buffer zone boundary at Mandena by 30m - (i.e., to a smaller 50m boundary), as proposed in the ESMP, to allow for an expansion of the operational mine site?*

☐ Yes ☐ No ☐ Do not wish to answer

2.1.1. *If yes, what specifically was it and how were you involved?*

2.2. *Was the community involved in this consultation?*

☐ Yes ☐ No ☐ Don't want to answer

2.2.1. *If yes, did the community agree with QMM reducing the buffer zone?*

☐ Yes ☐ No ☐ Don't want to answer

## 3. Impacts of the buffer zone reduction

3.1. *Has the buffer zone reduction had any negative impacts on your community?*

☐ Yes ☐ No ☐ Don't want to answer

3.1.1. *If yes, in order of importance/significance, what were the impacts of the buffer zone reduction on your community?*

☐ Loss of land ☐ Deterioration in water quality ☐ Access to natural resources ☐ Access to the city ☐ Other

3.1.1.1. If other, specify

3.2. *Did the reduction in the buffer zone have any benefits for the community?*

☐ Yes ☐ No ☐ Don't want to answer

3.2.1. If yes, which ones?

3.3 *Did the reduction in the buffer zone affect the lake/environment?*

☐ Yes ☐ No ☐ Don't want to answer

3.3.1. *If yes, what are the impacts?*

## 4. Breach

4.1. *Are you aware that mining has expanded beyond the agreed upon boundary between QMM and the MG government, thus forming a breach in the buffer zone (reduced to 50 m)?*

☐ Yes ☐ No ☐ Don't want to answer

4.2. *What impacts did you experience as a result of this buffer zone breach?*

☐ Deterioration of lake flora ☐ Change in water color ☐ Change in taste of the water ☐ Decrease in lake fauna ☐ Other

4.2.1. if other, specify

4.3. *Were you aware that mining results in the release of tailings (waste sand) into the lake?*

☐ Yes ☐ No ☐ Don't want to answer

4.3.1. *If yes, from what source did you get this information?*

4.3.2. *Were you aware that these releases contained toxic elements, such as uranium?*

☐ Yes ☐ No ☐ Don't want to answer

4.3.2.1. *If yes, from what source did you get this information?*

4.4. *Is the community aware of the buffer zone breach?*

☐ Yes ☐ No ☐ Don't want to answer

4.4.1. *If yes, from what source did they receive this information?*

## 5. Impact assessment

5.1. *Are you aware of any assessment of the buffer breach undertaken by the NEB?*

☐ Yes ☐ No ☐ Don't want to answer

5.1.1. *If yes, were you involved in the assessment of these impacts?*

☐ Yes ☐ No ☐ Don't want to answer

5.1.1.1. *If yes, under what circumstances?*

☐ At a consultation workshop ☐ At a meeting ☐ Simple announcement ☐ Other

5.1.1.1.1. If other, specify

5.2 *Are you aware that the NEB has deemed the impact of the breach in the buffer zone to be "negligible"?*

☐ Yes ☐ No ☐ Don't want to answer

5.2.1. If yes, do you agree?

5.2.1.1. If no, why not?

## 6. Measures taken and to be taken

6.1. Has the community taken any collective action regarding the buffer breach?

☐ Yes ☐ No ☐ Don't want to answer

6.1.1. If yes, which ones?

6.1.2. If no, why what prevented him/her from doing so?

6.2. *Did you or your community file a complaint about the buffer breach?*

☐ Yes ☐ No ☐ Don't want to answer

6.2.1. If yes, to whom?

☐ QMM ☐ ONE ☐ regional mayor-authority ☐ Other

6.2.1.1. If other, specify

6.3. *Have you or your community filed a complaint about water quality?*

☐ Yes ☐ No ☐ Don't want to answer

6.3.1. If yes, to whom?

☐ QMM ☐ ONE ☐ regional mayor-authority ☐ Other

6.3.1.1. If other, specify

6.4. *Have you or your community filed a complaint against QMM on any other matter?*

☐ Yes ☐ No ☐ Don't want to answer

6.4.1. If yes, about what?

6.4.2. *If yes, to whom?*

☐ QMM ☐ ONE ☐ Regional mayor-authority ☐ Other

6.4.2.1. If other, specify

6.5. *What outcomes have you had as a result of the complaints filed?*

6.6. *Are you aware of any actions taken by QMM or the government to address the breach?*

☐ Yes ☐ No ☐ Don't want to answer

6.6.1. If yes, which ones?

6.7. *What steps should be taken to address the problems caused by the breach?*

6.7.1. By the community?

6.7.2. By the NEB?

6.7.3. By QMM?

6.7.4. Other?

## Questionnaire for QMM

### 1. Project Changes - Process

QMM has made significant changes to the Anôsy Mine project including: the construction of a spillway, and the reduction of the buffer zone

1.1. *Were SEIAs conducted for these two changes?*

☐ Yes ☐ No ☐ Don't want to answer

1.1.1. *If yes, where are the SEIA reports? Can we get a copy/see them?*

1.1.2. *Were these documents shared with stakeholders/community members before a decision was made/permissions given to move forward with changes?*

☐ Yes ☐ No ☐ Don't want to answer

1.1.2.1. *If yes how/with whom/when?*

1.1.2.2. *If no, why not?*

1.2 *How was the process publicized and local stakeholders involved in the decisions?*

1.2.1. *For the weir*

1.2.2. *For Buffer Zone B*

1.3 *How were the affected communities consulted?*

1.4 *Are there records of the public consultation process?*

☐ Yes ☐ No

1.4.1. If yes, where are these records kept?

1.4.2. To what extent are they accessible to local people?

1.4.3. Can we have a look at them?

1.5. In what year did the NEB authorize changes to :

1.5.1. Construction of a weir

1.5.2. Buffer zone reduction

### 2. Impacts - compensation

The weir has had a significant impact on the tidal currents of the lake with consequences for fishing stocks. This is noted in several places.

2.1. *Has QMM conducted risk assessments or technical evaluations to determine/anticipate losses to local communities, e.g. fish stocks and livelihoods?*

☐ Yes ☐ No ☐ Don't want to answer

2.1.1. *If yes, where are the documents related to this? Can we access them?*

2.1.2. *If no, why not?*

2.2. *Has compensation been provided by QMM for the losses suffered by the people affected locally?*

2.2.1. *If yes, what exactly did it consist of? How was it defined?*

2.2.2. *If no, why not?*

14.4 hectares were lost due to the reduction of the buffer zone - the equivalent of a new mining basin.

2.3 Was this agreed upon in a new lease with the government?

☐ Yes ☐ No ☐ Don't want to answer

2.3.1. *If yes, can we see the lease agreement?*

2.3.2. *What benefits/retributions/benefits will the additional extraction capacity generate for the Malagasy government?*

2.4. *What permissions have been sought from local communities for the additional extraction?*
2.5. *Has there been consultation with local authorities, the Management Committee and the Management Development Plan (MDP) in Mandena as promised in the 2014 ESMP?*

☐ Yes ☐ No ☐ Don't want to answer

2.5.1. *If yes, where are the related documents recorded?*
2.5.2. *If no, why not?*

There was a breach of the buffer zone in 2013-14, constituting a breach of the terms of the agreement between QMM and the Malagasy government.

2.6. *What remedy has QMM made to:*
2.6.1. *Compensate the local population for the unagreed encroachment on Lake Besaroy?*
2.6.2. *Restore the buffer zone?*
2.7. *Where are these actions recorded?*
2.8. *Can we see the corresponding reports?*

The authorized thresholds for cadmium and aluminum concentration have been exceeded as a result of wastewater discharges by QMM (ref. QMM 2021)

2.9. *What remedy has QMM provided to:*
2.9.1. *Compensate the local population for the release of mine waste toxins in excess of legal limits into the environment/waterways where it collects drinking water?*
2.9.2 *Provide alternative sources of drinking water?*
2.9.3. *Repair and redesign its water management system to avoid contamination of streams with these and other heavy metals in the future?*
2.9.4. *Avoid similar problems at proposed future QMM mine sites (St Luce/Petriky)?*
2.10. *How are these actions or commitments recorded?*
2.11. *Are they available in the public domain?*

☐ Yes ☐ No ☐ Don't want to answer

2.12. *Are they accessible?*

## 3. Impact tracking.

According to RT/QMM, a bi-annual reporting of the environmental audit process has been established with the NEB.

3.1. *Are the semi-annual compliance assessment reports available from this process?*
3.2. *Are these documents publicly available?*

☐ Yes ☐ No ☐ Do not wish to answer

3.2.1. *If yes, where and how can they be accessed?*

As noted in the ESMP, the revised buffer required risk assessments for the 5 "pinch points".

3.3 *Where are the documents related to these risk assessments?*
3.4. *Are they accessible?*

☐ Yes ☐ No

The revised 50 m buffer zone was not fully maintained and the mine advanced at least 90 meters beyond the agreed upon boundary, depositing tailings on the bed of Besaroy Lake.

3.5. *To what extent can the NEB's "exemption" for this breach be considered temporary, when the breach is there forever, i.e., the mine operation rests on the lakebed (Besaroy Lake)?*

3.6. *How has QMM monitored and assessed the impact of the breach over the past 6-7 years since it first occurred?*

3.7. *According to QMM, the management of its mining perimeters is done using several tools e.g. with flags, radar surveys, weekly inspections, etc. How could the mine's encroachment on Lake Besaroy for at least 90 meters beyond the boundary go unnoticed?*

## 4. Actions Taken

4.1. *Have communities complained to QMM about the impacts of the mine?*

- 4.1.1. Weir
- 4.1.2. Buffer Zone Reduction
- 4.1.3. QMM Buffer Violation

4.2 *How were these complaints handled? By whom or what department? And where are they recorded?*

4.3. *What was the outcome of the complaints?*

4.4. *What actions did QMM take to address the negative impacts of the complaint?*

- 4.4.1. Weir
- 4.4.2. Buffer zone
- 4.4.3. Buffer Violation

4.5. *What measures does QMM implement with respect to its responsibilities to citizens for*:

- 4.5.1. Radioactivity monitoring
- 4.5.2. Water quality monitoring
- 4.5.3. Monitoring of water toxicity (e.g., exceeding permitted cadmium/aluminum concentration limits)
- 4.5.4. Other environmental impacts of the mine

## 5. Relationships

5.1. *What is QMM's relationship with the NEB?*

5.2. *How much does the NEB receive each year for monitoring the mine* (Rio Tinto told us it is $30-40,000 per year)?

5.3. *How does QMM see its responsibilities increasing and/or needing further improvement as the QMM mine moves to new sites (St Luce and Petriky)?* For example, no baseline was established for water quality at Mandena before mining began - will QMM provide a baseline for water quality before other mine sites are mined?

5.4. *RT/QMM promised the establishment of a national commission to review reports/studies on water contamination risks around the QMM mine. Has this been done?*

5.5. *QMM has told Malagasy CSOs that it has set up an integrated management steering committee to work on improving water management.*

- 5.5.1. Who is on this committee?

5.5.2. Does it produce publicly available reports?
5.5.3. What is the level of transparency practiced in the process?

5.6. *QMM has invested in access to water in Fort Dauphin, is there any reason why the frontline communities directly affected by the pollution generated by the mines in Mandena have not benefited?*

5.7. *What actions has QMM taken to help secure access to safe drinking water for communities in Mandena, for example with support from the World Bank, WHO, the UN system and other agencies?*

5.8. *QMM has engaged the WHO office in Antananarivo (September 2019) to provide leadership for the 2019 Swanson report on radioactivity levels related to the QMM mine. What steps have been taken since then to advance WHO's involvement in monitoring, assessment, and communication on this topic?*

## 6. Corporate Social Responsibility (CSR)

6.1. *What CSR activities have you undertaken so far? Do you have any data that you can share with us?*

6.2. *By what parameters did you choose these activities?*

6.3. *What are the tools to measure the impacts of these activities? For example: school, road,... ?*

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