



Tanja Rasmussen,
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6th March 2020

Dear Tanja

Thank you for your letter of February 21st 2020. Please see our comments below, and related notes to sections, which are **numbered in the text** and included in **Annex 1**.

Where we welcome RT's new radiation studies, undertaken in response to Swanson's recommendations (March 2019), we maintain the priority recommendation of Swanson – the one that RT systematically fails to reference in all its correspondence – namely that RT/QMM **manage mine wastewaters and provide safe drinking water to local communities**.

We believe these actions can and should be advanced. There is no rationale for doing nothing while waiting for the JBS&G study conclusions when 1) all the available data and studies indicate contaminants above WHO safe drinking water levels and 2) according to your explanations, JBS&G will not be measuring heavy metals (e.g. uranium and lead).¹ Measuring radiation levels is essential but as you are fully aware, it is the concentrations of uranium and lead that is an immediate concern regards water quality.

Swanson has satisfactorily explained how QMM's operation can be a source of elevated uranium in waters around Mandena (**Annex 1 Note 1**) and that radionuclides could potentially reach as far as Lake Lanirano, which feeds drinking water to the town of Ft Dauphin for some 50,000+ inhabitants. Emerman's study (**Note 2**) reinforces our concerns about the contaminants, including lead, finding their way into the water bodies. Any contamination of these critical water bodies and local groundwater through seepage, overflow or discharge at any point around the mine operation can have a negative impact on regional water quality.

Our studies show the negative impact on water quality from the QMM mining operation and, given that local people fish and largely draw drinking water from rivers and lakes next to the mine and not from established drinking water sources, we maintain that urgent action is required.

Action on water quality by Rio Tinto would confirm the company's commitments to protect the local communities and environment and prevent further loss of time in what have been considered *immediate* priorities by Swanson and Emerman. There is clear evidence (with statistical significance of better than 99%) indicating contamination of drinking water sources - but still no action.

RT does now concede *"the mining method may enhance the transfer of uranium and other materials in the suspended solids to the water column as a consequence of churning the sand,"* and also admits that its *"process water may have higher concentrations of minerals and metals than deemed safe by drinking water standards."* However, the concessions are hardly surprising and long overdue and should now allow for a meaningful advance towards piloting a water treatment process that ensures discharge waters conform with WHO guidelines, on which Malagasy water code is based.

¹ RT says: "The purpose of the study, undertaken by JBS&G, is to determine the levels of radioactivity in the surrounding communities and calculate the radiation doses to people, as a result of mining operations. The study aims to apply a defensible scientific method to collect sufficient spatial and temporal data to estimate doses to within an acceptable level of uncertainty. The study is not an occupational radiological or an environmental contamination study e.g. heavy-metals."

We continue to press for this because the explanations of QMM's water management process – details of which have been shared repeatedly to assuage our concerns – are not *in themselves* evidence to demonstrate that the “settling time” provided by the holding pond system prior to release of water from the mining site is successfully addressing the issues. Nor can QMM provide evidence that levels of uranium and heavy metals in waters leaving the QMM site into adjacent wetlands and streams are “*under permitted limits*” (Note 3).

No data or water management reports have been provided that demonstrate how water management systems used by QMM are definitely removing heavy metals and radionuclides before waste waters are released, and that water leaving the site is therefore “*safe to the community and the environment.*” RT/QMM simply say that it does. Please provide evidence.

Similarly, we remain dissatisfied by unanswered questions regarding the safety factor of the QMM dam (called a “berm” in previous correspondence) and unconvinced of the current structure's capacity to prevent seepage or overflow from the mining basin and paddocks into the groundwater and surrounding lakes/streams, the annual probability of failure for which Emerman has deemed “unacceptably high” (Emerman, 2018). We know of at least one reported overflow incident already.

The current impasse in our discussion is mostly due to the failure of RT/QMM to conduct baseline studies on water quality 3-5 years before constructing the mine, as would be expected. The burden of proof now falls on RT to demonstrate how the QMM activity is *not* contaminating waters. We believe the existing studies and information show that it is and provide a basis for action.

So we do not agree with or understand Rio Tinto's further delaying discussion and meaningful actions on water quality and drinking water provision. Moreover there is nothing in the Malagasy water code to suggest that RT/QMM's advancing of safe drinking water provision in Anosy is against or undermining of Malagasy policy, but in fact it falls in line with it (Note 4).

We therefore see further delays as unacceptable, not least given the repeated concerns and needs expressed by civil society and communities in Anosy - including regarding health issues such as those raised most recently at the ONE public meeting about QMM in December 2019.²

As well as no water quality baselines, there has been an embarrassing lack of a radiation-monitoring plan until now, as well as an absence of health studies to support RT's claims that the mine presents “no health risks” to local people (Note 5). Ultimately, we cannot see how the deficiencies in practices and persistent delays to water management and remediation reflect RT's standards and commitments, or justify the company's claim or aims to be a “responsible operator.”

We are still waiting for answers to multiple questions from our 29th November letter, as well as to previous inquiries we have made since 2017, specifically on technical water and berm safety issues. We ask that these be addressed in full and that documentation requested also be made available swiftly in the interests of transparency, e.g. the CNRE report on water research from 2019, QMM's water discharge licence, and all data/reports for water management, which can scientifically demonstrate that contaminants in QMM's process water are “safe” when they are discharged into the environment (Note 6).

We look forward to hearing from you,

² At this meeting local people complained to QMM and the ONE that they have health issues as a result of the mine's presence. For example, they complain of more diarrhea and stomach problems than before; they also complained of itching of the skin, coughing and asthma – these respiratory problems in particular they say they have not experienced before, such as people in their 30s suddenly developing asthma. One local doctor has cited an exponential increase in demand for asthma medicine following high increases in respiratory illnesses in Anosy. At the meeting the ONE asserted that the drinking water was safe and placed the responsibility for water on the local commune. Citizens were scolded for failing to present at the hospital when they are sick. It must be understood that there are costs associated with individuals presenting for medical care in Madagascar, hence the reluctance or inability of many villagers to seek medical advice or go to the hospital for help when sick since they are living on less than \$1.90 per day.

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Yvonne Orengo, Director,
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ANNEX 1

Additional Explanatory Notes

1. Water quality

Swanson has established elevated levels of uranium in the mining pond. She has done so based on further review of the QMM data. It was not a question that was asked in the original 2019 review but was the subject of a separate, subsequent inquiry, as explained in the memo. The new water studies reinforce Swanson's original review findings and have contested RT/QMM's claims that there is no change made by the mining process.

RT now concedes that the mining operation can increase levels of uranium in the mining pond and also process waters can contain concentrations of contaminants higher than WHO guidelines for safe drinking water.

Emerman's study confirms the elevated radionuclides (uranium and thorium) and also lead contaminants. The CNRE research in 2019³ also points to concerns over heavy metal contaminants in the mining pond. The recommendations for alternate, safe drinking water sources are therefore pressing and have been on the table since February 2019.

2. Emerman's study

RT is fully aware of Dr Emerman's credentials. We welcome any peer review process RT wishes to undertake for any of the studies we have commissioned and published.

The issue raised of downstream samples being from "muddy ponds" is designed to obfuscate, and misses the point. Firstly, the three samples collected from wetlands, Q1, Q2 and Q4, all had very low uranium, thorium and lead. If those samples were removed for the analysis, the conclusion that the QMM mine was negatively impacting regional water quality would be even stronger.

Secondly, although locals may not pull drinking water directly from these specific sites, these wetlands are relevant since, as RT/QMM is aware, there is a hydraulic connection between the wetlands and the lake. The wetlands and lakes are all connected, part of the estuary system where people collect their drinking water and fish for food and which runs through to Lake Lanirano.

We disagree that water treatment in Anosy should focus only on and address pathogens, since this will not treat water for uranium and other heavy metal contaminants. We have already argued this point in the Nov 29th letter and questions about this are still outstanding.

3. Settling ponds

Rio Tinto has provided no information as to the settling time that occurs in the ponds. This settling time will depend upon the distribution of particle sizes, the shapes of particles, the concentration of particles, the depth of the water, and the disturbance in the ponds (for example, the impact of wind on the settling of particles). Rio Tinto has provided no information on the maximum size of particles that will exit the ponds without settling. Rio Tinto has provided no assurance that no water can short-circuit the settling ponds (for example, by flowing over the top of the ponds), so as to exit the settling pond with the full complement of suspended particles.

Most importantly, settling does nothing to remove dissolved heavy metals. In fact, the settling process can promote the transfer of heavy metals from the sorbed phase (attached to particles) to the dissolved phase by maximizing the exposure of each particle to water. Typically, settling is the first step in water treatment. However, it is the final step only in the most primitive water treatment.

³ Powerpoint slides , public presentation by CNRE and ONE in Anosy 2019

4. Provision of safe drinking water

As already explained, our demand for safe drinking water is aligned with the Malagasy water code and laws; also with RT's desire to be a "responsible operator" in line with its own commitments and water targets as well as with Malagasy water policy.

RT/QMM's advancing of safe drinking water provision in Anosy is not undermining of Malagasy policy, but in fact would fall in line with it. RT has already undertaken water initiatives in Anosy with the state-owned public utilities provider Jirama and World Bank, and is quick to highlight such actions, e.g. in the letter of 12 November 2019, as reported by WaterAid, and aired in RT public presentations.⁴ There is consequently a serious contradiction in RT's current position that it cannot advance new initiatives for safe water provision.

We have already provided significant discussion and questions with regard to RT/QMM's approach for engaging the WHO and government on water quality and safe drinking water provision, and our questions and contestations in our November letter remain largely unaddressed and unanswered.

In respecting the Malagasy government as it does, RT/QMM must be well aware of the challenges it faces in delivering on the current Malagasy water code and its SDG potable water commitments. As far as we understand, there is no precedent or expertise in country to tackle the complex water issues in Anosy – hence the WHO sending the Swanson report to Nairobi (feedback is still outstanding from RT).

RT should also be aware of the Malagasy water code's requirement for private sector actors to participate in providing finance and/or other supports to meet the country's potable water targets. In this, no one is suggesting a unilateral approach to the issue.

RT/QMM has failed to provide any technical, social or politically robust reason why testing and piloting a water treatment process for households, such as presented by CAWST, is inappropriate or undesirable.

5. Monitoring

RT's claim of setting up a "monitoring plan" after the initial baselines surveys by QMM is not supported by the Swanson study, which highlights the lack of a monitoring plan around QMM exposure limits: *"To the knowledge of the author, there is no over-arching monitoring plan and no explicit connection between the results of environmental monitoring and management of radiation dose to the public."* Either information about the QMM plan was withheld from the review, which would be a breach of the legal agreement between RT and ALT UK, or it is a retrospective claim that we cannot accept, once again, simply on the basis of RT telling us it is so.

6. Questions, documents and studies outstanding

The burden of proof now rests upon Rio Tinto to show the waters around Mandena are not contaminated.

We note that in the ONE's table of "suivi" (monitoring) for July 2018, the regulator has included in the impact section column 1 *"SAN-5: Augmentation du niveau de la radioactivité consécutive de la gestion des sables radioactifs"* (increase in the level of radioactivity resulting from the management of radioactive sands) and that QMM has planned to *"reinforce the capacity of all the doctors in Ft Dauphin on sickness related to radiation."* The ONE goes on to recommend *"establish[ing] an analysis of the findings of the evolution of sickness over the last five years"* and *"implement[ing] a refresher course for doctors in Ft Dauphin on diseases due to radioactivity"* (page 16).

⁴ In 2011, in a [powerpoint produced by Dr Elaine Dorward-King](#) (Managing Director at Rio Tinto's RBM operation) Rio Tinto claims to have entered into a collaborative partnership with the World Bank and the local water authority (Jirama). The World Bank would upgrade the local water supply network, and QMM would assist in training and management. This is claimed to be a "leading example for other Rio Tinto projects."

Such planning would seem to concede that the concerns local people are raising warrant more than generalized assurances that the QMM mine poses “no health risks” and require systematic monitoring and reporting that hitherto has been lacking.

We notice this issue is mentioned again in the latest ONE Table de Suivi (monitoring table, Sept 2019) and we request details as to whether this plan for local medical capacity building and analysis is currently underway or pending implementation.

We note also in the ONE Sept 2019 Table de Suivi the mention of a “major” environmental incident. There is no detail on what occurred. Also mentioned are concerns about the storage of monazite i.e. the storage of monazite not in compliance with the Social and Environmental Management Plan (SEMP), such that the ONE requires QMM to take “drastic and immediate action”. QMM’s International Independent Advisory Panel (IIAP) similarly refers to this issue in its latest report. Please will RT share information about what action QMM has taken, and the relevant report/s. Also, there are observations with regard to the treatment of contaminated soil for which ONE has recommended “improved performance”.

The 2018 overflow incident is also reported and improvements in water quality management expected, in particular following complaints in lack of conformity around STEP 1 and STEP 2 with problems of STEP 2 persisting and requiring “drastic action” from QMM. We ask again that QMM supply a copy of the full CNRE report from research following the overflow incident and further explanations.

Possible sanctions are also mentioned in regard to ambient air quality P10 and P2.5 and failure to advance “modelling results” after repeated recommendations for this by the ONE. What action is being taken by QMM, especially given the elevated accounts of asthma and respiratory related health issues in the region (see footnote also above).

We also ask for reports and documentation related to the item reported by the IIAP Point 16 that reflects the ONE Table de Suivi (Sept 2019) comment regarding the modification of the surface water quality of bodies of water and swamps downstream from wastewater treatment plants. The ONE highlights non-conformity by QMM and demands that **water quality downstream needs to be corrected if company is to avoid sanctions**. This is obviously of concern with regard to our comments above, and insufficiently explained both by the IIAP and the ONE and we would like to see all relevant assessments and documentation/reports.

Communications remains also an on-going issue in terms of local people’s concerns about radioactivity. The ONE has recommended that QMM consider the difference between “prudence and transparency” and we concur and believe that failure to provide any information or educational basis upon which local people can begin to understand the reality about radioactivity in their environment is both negligent and creating greater problems for advancing appropriate and transparent communications in the longer term. Local people are considered stakeholders and therefore party to all monitoring exercises around QMM’s activity. How can they legitimately be included in monitoring processes without even basic information with which to approach key issues?

We would add that although QMM mentions there is a “plan de communication” we see no evidence that such a plan exists, simply a proposal to hold a local workshop in April. It has already been explained to ALT UK that no information on the radioactivity status of the mine or water quality issues and data will be provided to those attending. How does this meet with needs and expectations of local people, or the ONE’s recommendation?

See Annex 2 below for relevant sections of the ONE Table de Suivi QMM Sept 2019

Additionally, we have not yet received clear answers to all our questions, comments and requests for documentation from the November 29th letter and also await the WHO Nairobi feedback (as above).

ANNEX 2 Relevant Sections of the ONE Table de Suivi Sept 2019

Page 4 : “ Le stockage des sacs de monazite au MSP n’est pas conforme aux dispositions du PGES Monazite Existence de fuites en plusieurs points des pipelines au niveau du MSP. **Prendre de mesures drastiques dans l’immédiat**

Page 4 : 12,8 tonnes des sols contaminés ont pu être traités ; La quantité de sols traités en 2018 a diminué de 38% par rapport en 2017 par manque de réactif pour l’analyse des TPH du sol.

Améliorer la performance

Page 6 : Q-1 : Modification de la qualité physico- chimique et microbiologique des eaux souterraines suite à un déversement accidentel de produits polluants *Qualité des eaux souterraines* : Application -des mesures générales requises, -des mesures relatives aux sols, -des mesures relatives aux régimes hydriques. Mettre en œuvre un programme de suivi de la radioactivité dans l’eau dans le PGES 2019- 2013. Présenter les résultats dans le bilan 2019 et **soyez très vigilants**

Page 7 : Q-3 : Modification de la qualité des eaux de surface, des milieux, due aux effluents des stations de traitement d’eaux usées ; *Indice de la qualité des eaux (effluents)*. Existence de plainte sociale par rapport au STEP 1. Persistance de la non- conformité des STEP 1 et 2 : Attention !!! la non- conformité au niveau du STEP 2 semble persister. **Prendre des mesures drastiques immédiatement**

Page 7 : Q-4 : Modification de la qualité des eaux de surface des plans d’eau et des marécages en aval des usines de traitement des eaux usées - Non-conformité relative aux paramètres Conductivité, Turbidité, Nitrates, Coliformes totaux, entérocoques, E coli, germes anaérobiques sulfito-réducteurs ou ASR. **Faites les efforts et les investissements nécessaires pour que ces non conformités ne se reproduisent plus à l’avenir sous peine de sanction au prochain suivi**

Page 21: Prévoir la poursuite de la mesure du taux de radioactivité ambiante via ONE/INSTN pour 2019 .Revoir l’approche de communication par rapport à ce sujet en considérant les points critiques: bien établir la différence entre communication prudente et transparence. **Intensifier les communications Envisager la production de supports de communication adaptés aux différents cibles** et collaborer avec les autres entités pour la diffusion (supports adaptés aux enfants pour les écoles, STD, CTD, ...)

Page 21 : SAN-5 : Augmentation du niveau de la radioactivité consécutive de la gestion des sables radioactifs *Niveau radioactivité dans le site minier* : comme l’exportation de monazite est un projet qui vient d’être démarré, c’est la collecte de données par rapport à la santé de la population auprès du SDSP qui doit être fait. L’analyse est nécessaire au moment des évaluations périodiques pour voir les éventuels changements. accès d’information avec les personnels médicaux du CHRR Fort-dauphin, CSBII Ampasy et MMM, école paramédicale ISPAFOR réalisées (PPT sur la valorisation des sables contenant de la monazite avec **Augmentation de la superficie des zones contrôlées au niveau de la mine. Mettre les rapports des réalisations relatives au plan de gestion de la radiation dans le bilan.**

Page 22 : Stockage de la monazite au niveau du MSP non conforme au PGES Monazite. **Prendre des mesures drastiques immédiatement et envoyer un rapport de mise en œuvre des mesures correctives.**