



CRAAD-OI

Centre de Recherches et d'Appui pour les
Alternatives de Développement - Océan Indien

RSCDA-IO

Research and Support Center for
Development Alternatives - Indian Ocean

ECOFEMINST IMPACT ASSESSMENT OF THE RARE EARTHS EXPLOITATION PROJECT IN AMPASINDAVA, MADAGASCAR

Research Report (Draft Version)

Zo Randriamaro

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Digifonds



LIST OF ACRONYMS

ADAPS	<i>Association pour le Développement de l'Agriculture et du Paysannat du Sambirano</i>
CRAAD-OI	<i>Centre de Recherches et d'Appui pour les Alternatives de Développement – Océan Indien</i>
CRADES	<i>Comité de Réflexion pour l'Aide au Développement et à l'Environnement du Sambirano</i>
ESIA	Environmental and Social Impact Assessment
IPCC	Intergovernmental Panel on Climate Change
ONE	National Environment Office (<i>Office National pour l'Environnement</i>)
REM	Rare Earths Mining
UNFCC	United Nations Framework Convention On Climate Change
WoMin	African Gender and Extractives Alliance

I. INTRODUCTION

1.1. Background to the impact assessment

In 2021, the civil society organisations *Centre de Recherches et d'Appui pour les Alternatives de Développement – Océan Indien (CRAAD-OI)* and the *WoMin African Gender and Extractives Alliance* partnered to commission an ecofeminist impact assessment of the rare earths mining (REM) project in Ampasindava, Madagascar, with a view to continue supporting the resistance of the affected communities against this project with evidence-based advocacy strategies and tools.

Since 2015, the CRAAD-OI has worked with the affected communities to support their organizing and actions to oppose this rare earths exploitation project because of the threats that it poses to their fundamental rights and livelihoods, the high risks of pollution and its impacts on public health, and the destruction of their natural and cultural heritage.

The research utilises an *ecofeminist impact assessment framework* (see full framework in [Annex 1](#)), developed by WoMin in partnership with two other civil society organisations – *Lumière et Synergie pour le Développement (LSD)*, and *Gender Action* – to understand the extremely negative impacts of mega extractivist projects on women's lives, livelihoods and the environment and natural resources they and their communities rely upon for survival. The climate and ecological crises have particular impacts on the majority of Malagasy women who carry primary responsibility for putting food on the table and taking care of ecosystems and people according to a dominant gender division of labour. Given the ecological and climate crises facing Madagascar that would be compounded by the deleterious consequences of the REM project, focusing on their intersectional impacts on nature and women is critically important.

This report is primarily intended for communities and civil society organisations who wish to build an understanding and evidence of the impacts of large-scale projects in ways that address women's rights, ecology and climate. This ecofeminist impact assessment framework can be applied to analyse the impacts of such projects, and on the basis of evidence, support advocacy to the State authorities on the impacts of their policy options to promote mega mining projects that will bring about further poverty and immiseration for women and their affected communities.

1.2. Objectives of the ecofeminist impact assessment

The assumption underpinning the impact assessment is that both the State authorities and the financiers of the REM project have been making policy and investment decisions which fail to consider the inter-related gendered, ecological and climate impacts of large-scale mining projects. This is a basis for major concern, as the majority of women in the communities affected by the project are the primary agricultural workers, caretakers of natural resources, and principally responsible for the care and reproduction of their families and communities.

The specific objectives of this impact assessment are as follows:

- To identify the impacts of the REM project on women's rights and livelihoods and the local environment of the impacted communities;
- To analyse how ecological problems which arise from the project intersect with the social factors of gender, class, and patriarchy to impact women in particularly harmful ways;
- To assess the gendered impacts and implications of the REM extractivist project from an ecofeminist perspective against the social and environmental specifications as stated in the terms and conditions of its mining permit;
- To help African women's movements and networks develop effective strategies and a new tool to challenge extractivist projects.

1.3. Impact assessment methodology

The impact assessment framework was implemented through a participatory research process involving the members of women's groups from the communities affected by the REM project, in order to ensure that women will be in the driving seat in taking the outcomes forward at the local level.

The research draws on the existing literature and findings of the field mission by the CRAAD-OI team in some of the affected communities in October 2022 to provide a gendered analysis of its impacts and implications, and explore how an ecofeminist framework can help unpack and address the related issues, building on women's agency and proposals.

This report's methodology and findings are based on:

- an analysis of the existing documentation on the REM project, which includes the information from the project promoters and media, along with the existing reports and accounts from some researchers;
- publications in the press and specialized magazines on the REM project but also on the different types of rare earth exploitation in the world;
- information collected through focus group discussions with the women and community members affected by the REM project, and semi-structured interviews of key informants conducted during the field research in October 2022.

1.4. Limitations of the assessment

The assessment has been limited by the availability of and access to necessary documentary sources. The literature review could have benefited from access to documents on the REM project appraisal and monitoring that its promoters nor the National Environment Office (*Office National pour l'Environnement: ONE*) - the national department in charge of the environmental monitoring of the project - do not disclose.

Given the fact that the exploitation phase of the project has not started, this is essentially an *ex ante* assessment of its impacts. As such, there is no available data to document some of the indicators and standards proposed in the ecofeminist

assessment framework, namely on the actual impacts as opposed to the predicted/probable impacts of the project. There are therefore limitations in drawing firm conclusions on some of the indicators.

The number of interviews and discussions during the field research was also limited by the inability to meet the promoters of the project because its local office and operations were closed at that time.

1.5. Structure of the report

The report is composed of five main sections:

- Introduction and background to the evaluation, its objectives and methodology (this current section)
- Section 2 which describes the REM project, along with the social, economic and cultural context, and the legal and institutional framework within which the project is being implemented
- Section 3 which presents the critical analysis of the impacts of this project from an ecofeminist perspective
- Section 4 which offers some conclusions of relevance to the State authorities, as well as to civil society, community-based and women's organisations working to expose the impacts of large-scale extractivist projects.

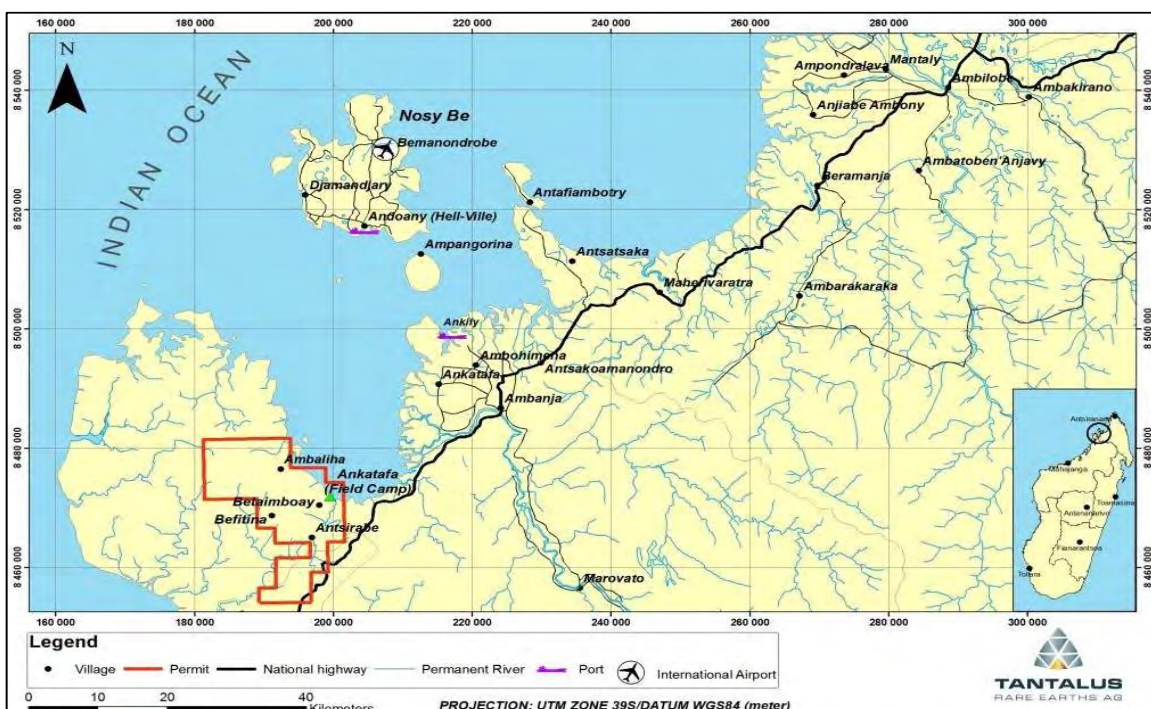
II. THE LOCAL CONTEXT

2.1. A unique and fragile natural environment

The majority of the people affected by the REM project live in the Ampasindava Peninsula, also called Tanibe Andrefa or "great land to the west" by the Sakalava, the majority ethnic group living therein. The Ampasindava peninsula has approximately 33,000 inhabitants spread over 27 villages and four rural communes (Ambaliha, Bemaneviky Ouest, Anorantsangana and Antsirabe). It is located in the district of Ambanja, in the DIANA region of Northwestern Madagascar. It enjoys a microclimate that has allowed the production of export crops with high added value (cocoa, vanilla, pepper, coffee). Thanks to its indented coastline, rich in both coral reefs and immense mangroves, it is home to an exceptional marine biodiversity that supports many households through traditional fishing activities.

This territory is characterized by a unique and fragile biodiversity, located on important wooded mountain reliefs that supply a large part of the peninsula with fresh water. Following a succession of hills and valleys, its rivers flow into the Mozambique Channel forming estuaries bordered by immense mangroves. This mountainous and coastal landscape is partly covered by a forest which remains one of the richest of the northwest of Madagascar, in spite of the mounting anthropic pressures.

This exceptional situation makes of the Ampasindava peninsula a biodiversity hotspot which was formally designated as a protected area in 2015, except for the REM project's mining concession. An area of over 350 square miles (900 square kilometers) is now protected. Eighty percent of the plants are endemic to Madagascar, and 8 percent exist only on the peninsula. At least eight species of lemurs live on the peninsula, and six of them are endemic to Northwestern Madagascar. Six are listed as Endangered by the IUCN; the two others are Vulnerable (Mongabay, 2017).



With regard to the marine environment, the Ampasindava Peninsula is located in the Northern Mozambique Channel ecoregion, which is recognized as the second most diverse coral reef in the world (Obura, 2012). In 2012, the marine and coastal area around the peninsula was identified as a potential UNESCO World Heritage Site following a scientific assessment of the entire Western Indian Ocean (Obura et al, 2012). This area represents one of the last sanctuaries at the regional level for the dugong and blue whales, two critically endangered species according to the IUCN (Laran et al. 2012), and is home to a large diversity of cetaceans including humpback whales, beaked whales, sperm whales, and a number of dolphin species. Moreover, the beaches of the island of Nosy Iranja, off the peninsula, is one of the most important nesting sites for green and hawksbill turtles in Madagascar (Mihari, 2015).

The coasts of the Ampasindava peninsula are home to about 3,400 ha of mangroves. These coastal forests are the main source of firewood and charcoal for cooking, and provide quality construction wood for houses and canoes. They play a crucial role in sustaining fisheries that provide food and income for local people, protect villages from cyclones, and help combat climate change by storing significant amounts of carbon (Donato et al. 2011). Mangrove channels also represent critical habitat for three critically endangered or threatened sawfish species.

The sustainable management of the natural areas of the Ampasindava peninsula represents a major challenge for the world's biodiversity, for the harmonious development of the communities that live there, and for the development of tourism, which continues to grow in the region and represents a major asset for local communities and infrastructure development.

2.2. A rich cultural and historical heritage

The history of the peninsula of Ampasindava illustrates a cultural identity which was built at the crossroads of the maritime routes of the Indian Ocean. The Bay of Ampasindava shelters the vestiges of one of the oldest Malagasy cities Mahilaka, which was a Swahili trading post.

There are also many other archaeological sites in the area, such as the islands of Ambariotelo and Marodoka on Nosy Be, which are part of the so-called "*Echelles Anciennes du Commerce*" (Ancient Scales of Trade) in northern Madagascar, a commercial and cultural network that links the area to the Comoros, Zanzibar and East Africa.

Today, cults and rituals dedicated to the spirits and ancestors are still practiced on the Ampasindava peninsula, in places that have been preserved by local communities as animist sacred sites or burial grounds. In the Sakatia island where the CRAAD-OI is working with women's organisations, there are sacred places called Ankatafabe, Ampijoroa, and Ankofiamena where the local population comes during its annual 'fijoroana' (ritual prayer ceremony) to pray and to request benedictions. Since a long time, *fady* (taboos) have protected these sacred sites together with certain forests and other natural sanctuaries, and established a landscape where harmony between Man

and Nature prevails.

2.3. The institutional and legal framework¹

The REM project exploration, construction and exploitation phases are framed by a number of applicable regulations and norms, based on both national and international requirements in relation to environmental and social safeguards. The issues raised by the application of national and international requirements, regulations and norms to this project are discussed in more detail below.

2.3.1. National requirements

At the national level, the relevant legal and policy requirements pertain to the international conventions, treaties and protocols on the environment that Madagascar has ratified, together with an array of national laws and associated implementing decrees, as well as policies related to biodiversity, cultural heritage and public health (hygiene). In spite of this legal and regulatory framework, the two (2) existing large-scale mining projects - namely the QMM and Ambatovy projects - have entailed several human and environmental rights violations which are further discussed below.

2.3.1.1. Issues of land grabbing, expropriation and compensation

With respect to the set of permits required for mining projects, the promoters of the REM project were given an environmental permit for research/exploration at the beginning of the Transition regime, on November 11, 2009. This was followed by a mining permit obtained in 2012, which was challenged at the United Nations Human Rights Council, as it was issued by the Transition regime, which did not have the right to make long-term commitments on behalf of the country. The controversial nature of its permit did not prevent the REM project from starting its operations.

It should be noted that this kind of impunity was greatly facilitated by the legal framework which is very favorable to mining companies, notably the fact that the subsoil belongs to the State in Madagascar. Land owners and occupants face difficulties in defending their rights and their land. The land sector in Madagascar is characterized by the coexistence of the formal/modern land management system² and traditional customary law which remains dominant in rural areas.

Against this background, it came as no surprise that one of the first impacts of the two existing large-scale mining projects, from the point of view of the local communities living on the two mining sites, was that of land grabbing, i.e., the spoliation of the rights of the inhabitants who lose their access to the land. Indeed, in order to lease land to mining companies, the state is usually undertaking a procedure to demarcate several parcels of land belonging to small local farmers³. The entire mining project and infrastructure required an enormous amount of land, such that many farmers in the area had to leave their land. In 2005, when QMM began its construction phase,

¹ This sub-section draws heavily from the article of Collectif Tany, 2017.

² ECDPM, 2016

³ Ditto

about 8% of the affected population had land titles and were expropriated and compensated; the rest of the inhabitants were evicted or relocated in return for compensation.

Local communities contested the amount and payment of this compensation for several years⁴. Despite compensation and relocation, they felt betrayed, as shown in the documentary "*Je veux ma part de terre - Madagascar*". Some tried to fight and make their voices heard, but the project, including the port of Ehoala partly financed by a loan from the Malagasy government to the World Bank, represented too much interest. Today the roads of Fort Dauphin are beautiful, but the poverty is visible in the streets while the expatriate and national employees of the mining company live in a separate area of the city.

2.3.1.2. *Environmental damages, restoration and renaturalization.*

As elsewhere in the world, the development of a mining activity has caused environmental destruction, particularly of the forests, which are a source of food, raw materials, handicrafts and medicinal plants for the affected communities. In the case of the Ambatovy mining projects, hundreds of square kilometers of landscape, including a forest of 2,500 ha, were crossed by the 200 kms pipeline linking the ore extraction site of Moramanga to the port of Tamatave where it is processed. Around the Tamatave plant, the second largest city in Madagascar, there has been a public health problem with the storage and processing of mine tailings, as well as sulphuric acid emissions.

As part of the promotion of the "green" economy at the global level, mining companies are using the concepts of "biodiversity restoration" by planting new trees in an attempt to replace the endemic species destroyed in vain. For example, Rio Tinto, a major mining group, presented its Madagascar project as exemplary with a whole battery of biodiversity offsets. One of these involved the management of a forest in the area by QMM, which was supposed to compensate for the destruction of the biodiversity of the lagoons by the locks and the floating plant that sucks up the sand. On the other hand, however laudable environmental commitments may be, they can lead to land grabs as was the case near Fort Dauphin where the inhabitants of the village of Antsotso are no longer allowed to use their usual farming areas, but are forced to go far from the village to grow cassava on sandy land that is not very fertile, under the pretext of environmental conservation⁵.

In the case of Tamatave, residents living near the mining sites complain of health problems due to air and water pollution caused by the mining operations. An additional symptomatic phenomenon was the disappearance of bees in 2007-2008 with all its consequences on the livelihoods of farmers as well as on agriculture⁶. Finally, another contentious issue is the significant risk attached to the places where mining waste is stored, in the absence of adequate control or monitoring by the National Environment Office (*Office National pour l'Environnement: ONE*) which does not have the technical and financial means to provide proof of the responsibility

⁴ Andrews Lees Trust, 2009

⁵ WRM et Re:Common, 2016

⁶ EIB in Africa

of the mining company. This also raises questions about the importance of radioactivity in the Mandena area and the tightness of the mine of Fort Dauphin⁷.

2.3.2. International norms and policies

It should be noted that Madagascar has ratified the African Charter on Human and People's Rights with its Article 24 that guarantees the right to a healthy environment; the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol and the Paris Conference of the Parties (COP) 21 agreement. All of the norms and policy prescriptions established in these international conventions are relevant to the REM project, which has raised issues of licensing, procedures, transparency and public consultations as discussed in more detail below.

The main issue is about the current mining legislation itself and the way in which it is applied. This is the only explanation for the problematic organisation of the mandated public consultations in rural areas, such as the Environmental and Social Impact Assessments (ESIAs) of several hundred pages deposited in paper form in the offices of the communes, which make it difficult, if not impossible, for all citizens to read them completely⁸. In short, the democratic process that is supposed to guarantee human rights is constantly flouted.

In particular, the right of the communities concerned to free, prior and informed consent is never respected, in violation of the African Charter on Human and Peoples' Rights (Article 21) that Madagascar has ratified, and which guarantees that "Peoples shall have the free disposal of their natural wealth and resources. This right is exercised in the exclusive interest of the people. In no case may a people be deprived of it. In case of spoliation, the spoliated people have the right to the legitimate recovery of their property as well as to adequate compensation." The same applies to Resolution 224 of the African Commission on Human and Peoples' Rights, which states that "all necessary measures shall be taken by the State to ensure participation, including the free, prior and informed consent of communities, in decision-making related to the governance of natural resources." (51st regular session, May 2012).

In the UNCTAD (United Nations Conference on Trade and Development) document on the Investment Policy Review of the Republic of Madagascar, the procedures and conditions for granting and extending permits are described as inadequate. A common criticism is the lack of transparency and public debate prior to obtaining permits, as well as the sharing of information on ESIAs and technical studies on the project. Although UNCTAD refers to environmental protection provisions, environmental permitting prior to obtaining a research permit or exploitation permit is the responsibility of the ONE. This body is primarily responsible for verifying the mining project promoter's social and environmental commitments at the technical level. The autonomy of the ONE from the mining companies it is supposed to assess is problematic, especially since the ONE does not have sufficient resources and depends on their financial support to inspect their mining operations.

⁷ London Mining Network, 2017

⁸ Notably in the case of the Toliara Sands mining project in 2015.

Finally, while the law requires technical and environmental studies to obtain environmental permits, it does not require a socio-economic impact analysis, which would improve the evaluation of the costs and benefits of each project. Similarly, it does not require the preparation of a health and safety plan or a comprehensive rehabilitation/restoration plan according to international best practices.

Instead of protecting the rights of communities and the environment, the reality is as if the law, or at least the way it is applied, is tailor-made for foreign investors at the expense of the Malagasy population. Worse, certain provisions may encourage speculation on mining permits, a phenomenon that is widespread in several countries. As a result, the benefits of mining seem to be the prerogative of the minority in power, who is the only one to benefit from it, without any real compensation for the socio-environmental impacts, despite the prevailing optimistic official discourse.

Regarding the legal aspect, it is interesting to note that in a document submitted to the United Nations Human Rights Council in May 2013, an international NGO denounced the delivery of operating permits to a list of mining companies by the Malagasy Transitional Authority, even though this body was not authorized to make decisions committing the country in the long term: the REM mining project is included in this list⁹.

2.4. Introduction to the REM project

2.4.1. A troubled history

The REM project is located on the Ampasindava peninsula, on a concession of 300 km² composed of 48 mining tiles granted by the Malagasy government to the company Tantalum Rare Earth Madagascar (TREM) which is registered in Mauritius as an offshore company. The history of the REM project started with the issuance of an environmental permit for research at the beginning of the Transition regime, on November 11, 2009. As mentioned in the previous section of this report, a mining permit obtained in 2012 was challenged at the United Nations Human Rights Council, as it was issued by the Transition regime, which did not have the right to make long-term commitments on behalf of the country. The exploration permit was renewed in January 2015 for 3 years. Despite the questionable nature of its mining permit, the company planned to carry out a pilot exploitation test¹⁰ and to build a plant in the Betaimboay area, very close to the seaside, in parallel with continued exploration in other areas of Ampasindava.

TREM announced in February 2015 that thousands of exploratory drillings carried out over 130 km²¹¹ discovered that the deposit in the Ampasindava region would contain 130 million tons of lateritic clay containing rare earth oxides at a concentration of 0.08%, including Praseodymium, Neodymium, Terbium and Dysprosium. According to the company, the ionic clays from Madagascar, 20% of which appear to be heavy

⁹ CETIM, 2013

¹⁰ Change.org

¹¹ Ditto

rare earths, the most sought after and the most difficult to produce, are similar to those mined in southern China. The technology that seems to be the most appropriate for their exploitation is on-site leaching¹².

2.4.2. Mobilisation and resistance of local communities and civil society

The failure of TREM to rehabilitate several pits and the complaints of farmers about research operations carried out without their prior agreement led to the mobilization of part of the communities bordering the REM project around a local farmers' organization, the *Association pour le Développement de l'Agriculture et du Paysannat du Sambirano (ADAPS)*, and the *Comité de Réflexion pour l'Aide au Développement et à l'Environnement du Sambirano (CRADES)*, which works in the environmental field, joined the movement by forming a coalition of civil society organizations in the town of Ambanja. Although they were able to participate in two meetings organized by TREM with the authorities of the district and the DIANA region respectively, because of the lack of satisfactory responses to their concerns, they continued to alert the population about the mining project and the risks of such exploitation.

On November 11, 2015, TREM organized an open house and information meeting in Ambanja, and set up an "official" Monitoring Committee bringing together all the stakeholders and headed by the District Chief. Two meetings of this Monitoring Committee were planned but did not take place.

In May 2016, a training and strategic planning workshop on Economic, Social and Cultural Rights for public and private actors involved in large-scale investment projects at the regional level was organized on May 5-7, 2016 in Antsiranana by CRAAD-OI in partnership with the Office of the United Nations High Commissioner for Human Rights. On this occasion, a declaration of the Civil Society Platform of the Diana region expressing its opposition to the rare earth exploitation project was published on May 7, 2016

On May 12-13, 2016, the CRAAD-OI Coordinator and the spokesperson of CED (Club Ethique et Développement) presented to the Parliamentarians and Senators in Antananarivo the REM project and the likely impacts of its exploitation, as well as the Declaration of the Civil Society Platform of the Diana region

In June 2016, TREM sent a letter to the Minister of Mines complaining about defamation by civil society. Further to this letter, the president of the local Coalition of Civil Society Organizations was summoned by the District Chief together with several local authorities and a dozen members of the local security forces to answer charges of conspiracy to plan a public demonstration against TREM in July 2016. A number of civil society leaders accompanied him so as to prevent his arrest.

Since then, this awareness raising and mobilization campaign by the coalition of civil society organisations and their allies within the affected communities and economic actors of the region is still going on with the continuing support of CRAAD-OI.

¹² The Business Times, 2016

2.4.3. An unfinished project

In April 2016, an extraordinary general meeting of TRE AG/Tantalus reportedly approved the sale to a Singapore-based company - Apphia Minerals SOF PTE Ltd - of part of its shares in the subsidiary Tantalum Holding (Mauritius) Ltd, which wholly owns TREM¹³. This privately owned company, changed its name to REO Magnetic Pte Ltd, and sold most of the shares to ISR Capital, another Singapore-based company.

TRE AG had handed over the management of TREM to REO in September 2016, but had to take back control due to what Mr. Kivimäki, TRE AG's Executive Director, called "certain challenges faced by the buyer"¹⁴, which seem to refer to the fact that "during the process of acquiring TREM, ISR's share price soared - by more than 700% -(4) only to collapse a few months later. ISR is currently under investigation for violating the Securities and Futures Act in Singapore, which applies to criminal acts such as market rigging and stock manipulation." (Mongabay, 2017)

At the national level, in 2016, the ONE authorized TREM to commission an environmental impact assessment of its plans for pilot production in Ampasindava. While pilot production cannot begin until the ONE has approved the assessment, over a year later, no assessment has been turned in to the ONE for approval. TREM's exploration permit ran out in January 2017 and the company had not taken samples since that time, although it still had two guarded compounds and at least one other fenced-off area in Ampasindava. According to the TRE AG's CEO, TREM had then applied for another exploration permit (Mongabay 2017).

In 2020, Reenova Holding (Mauritius) Limited ("RHM") became the owner of 100% of TREM, which was renamed Reenova Rare Earth (Malagasy) S.A.R.L.U. ("RREM"), and was holding the mining rights to the concession in Ampasindava. In the face of strong opposition from the affected communities, RREM tried to re-start its operations until mid-2022, when its Chairman passed away and two senior executives resigned, stating the company is unable to function as an entity (The Business Times, 15 June 2022). At the time of writing this report, the RREM project has been terminated and its local offices have been closed.

¹³ Mongabay, 2017

¹⁴ Ditto

III. ANALYSIS OF THE REM PROJECT'S IMPACTS FROM AN ECOFEMINIST PERSPECTIVE

3.1. Ecofeminism and ecofeminist impact assessment

An ecofeminist perspective posits that the prevailing development system is predicated on the concept that nature or natural resources are at the service of humans and can be reduced to inputs to extractivist production projects and processes, such as mining projects, power stations, dams, or large-scale agricultural projects that ultimately destroy them. An ecofeminist orientation also holds that patriarchy - the organisation of society to serve the interests of men - dehumanizes women, excludes them from decision-making, and puts their unpaid labour at the exploitative service of the dominant economic system and men's interests in households and communities.

The existing gendered division of labour assigns primary responsibility to women for the production, processing and preparation of food; provisioning water and fuel; and taking care of household members. Because of these roles, women (and working class and peasant women in particular) have a deep reliance on natural resources and a healthy environment, and consequently when there is environmental fallout as a result of projects such as REM, the negative impacts fall most heavily on women and their unpaid care work. Women are often forced to work longer hours to supplement for lost household income, search for clean sources of water and energy, and take care of household members who fall ill as a result of polluted environments. These externalized costs to women are generally unrecognized, not costed or compensated for, or recognized for claims against corporations and states.

An ecofeminist orientation also acknowledges that, by virtue of their assigned social and economic roles in society, women have different perspectives on and needs in respect of development which must be recognized and taken into account in any just development process.

Ecofeminist perspectives are generally poorly represented in most feminist or women's rights organisations, but resonate powerfully with the experiences and perspectives of women in peasant and poor urban communities across the African continent. It is from this vantage point that WoMin has evolved its ecofeminist ideas and approach which have shaped a new and ground-breaking ecofeminist impact assessment framework.

Impact assessment frameworks employed by women's rights and mainstream development organisations, as well as multilateral institutions and IFs are generally constructed around a gender perspective, which aims to bring attention to differences in gender roles, decision-making rights and interests on the basis of the social construction of gender. A gender approach to impact assessment would therefore work to identify gendered interests, forecast gendered impacts, and work to mitigate or challenge negative impacts on men and women. As such, a mainstream gender approach would generally not:

- focus particular attention to women as a constituency but rather on gender differences between men and women;

- would not work to advance women's organizing and women's particular perspectives within its process;
- would not highlight the environmental or climate impacts of a project and the differentiated impacts of climate or environmental crisis on women; and,
- would not work to critique the inherent logic driving large-scale development projects.

3.2. Assessing the REM project from an ecofeminist perspective

An ecofeminist perspective addresses the limitations of gender impact assessments and brings questions of ecology and climate, women's rights, and alternative viewpoints on development into the evaluation process. The impact assessment framework developed by WoMin and its partners is founded on ecofeminist considerations. It has four key indicators and a set of standards in relation to each of these. See the detailed framework in Annex 1 of this report.

INDICATOR 1 - CONSENT RIGHTS FOR AFFECTED COMMUNITIES AND WOMEN

INDICATOR 2 - WOMEN'S RIGHTS AND ECOFEMINIST ANALYSIS IN PROJECT PLANNING, IMPLEMENTATION AND ONGOING MONITORING

INDICATOR 3 - COMPENSATION AND REDRESS

INDICATOR 4 - ECOFEMINIST COST BENEFIT ANALYSIS

This section of the report applies each of these indicators (and their associated standards) to provide an *ex post* evaluation of the REM project's exploration phase, along with an *ex ante* evaluation of the exploitation phase, based on the literature review and the findings of the field research of October 2022. The evaluation is mainly qualitative in nature, except for the ecofeminist cost benefit analysis which involves some quantitative evaluation. The base year is 2011, when the REM project started the operations in Ampasindava under its research/exploration phase.

INDICATOR 1. CONSENT RIGHTS FOR AFFECTED COMMUNITIES AND WOMEN

Standards:

Participatory methods in which women and all affected peoples are involved in the process of researching/ assessing potential impacts and making informed decisions

Full and ongoing participation of women in all key decision-making processes throughout the project cycle (including ongoing monitoring post-project operationalisation) and provision for safe women-only spaces to elicit their views and perspectives on the project

Complete information about the full range of social, economic, political and environmental impacts on potentially affected community men and women presented as the basis for their full involvement and participation (see indicator 2 on forecasting impacts)

Based on the receipt of all relevant project information pertinent now and into the future:

- *Affected community women and men exercise their free, prior and informed consent right to accept or refuse a proposed project which impacts on their rights to land, forests, fisheries, livelihoods, cultural heritage, bodily autonomy and health. Specifically, people and women specifically have the right to refuse:*
 - *The current terms of a project proposal;*
 - *The project with or without amendments to project design;*
 - *Resettlement to new land and/or homes which do not satisfy their needs and replace for real losses that will be incurred as a result of the proposed project;*
 - *Compensation, including monetary payment;*
 - *Corporate social responsibility attempts which do not address substantive losses; and*
 - *Toxic chemicals and harmful technologies, including technological responses to the climate crisis, that destroy health, biodiversity, soil fertility, pollute waters and increase GHG emissions and the risk of climate change calamities.*

The Environmental and Social Impact Assessment (ESIA) for the exploitation phase, conducted since 2013 by the consulting firm Gaia Consulting in partnership with a consortium of consulting firms and local NGOs coordinated by Biotope Madagascar has never been disclosed. This blatant lack of transparency is not a good signal from TREM, as the promoter of a mining project that carries obvious risks. As the ESIA for the research permit and the one carried out by Gaia Consulting for the future construction permit regarding the pilot production unit are not accessible, the information on the impacts of the REM project comes from the Book of Environmental Charges (*Cahier de Charges Environnementales*) containing its environmental and social specifications, and its letter to the President and several Ministers.

Complaining about a "campaign of intoxication of public opinion by the civil society", TREM publishes in this letter the results of a mission report of the ONE for the socio-environmental evaluation of the REM project activities in 2009. This ONE report allows to understand the broad outline of an environmental and social management plan (ESMP). The letter also confirms that the planned technique for the REM project's operations is *in situ* leaching, as further described below.

3.1.1. TREM's Environment and Social Management Plan (ESMP)

The ESMP that emerges from the ONE document seems to focus its activities on the conservation of the Bongomirahavavy massif. These two mountains designated as a "priority conservation area" by the Inter-Ministerial Order 52005/2010 in 2010 are home to one of the three main primary forests of the peninsula. The promoter of the Ampasindava-Galoko reserve, the MBG, initially proposed the inclusion of this massif in the NAP. TREM refused, arguing the anteriority of the exploration permit, and won its case with the Director General of Forests at the Ministry of the Environment, Sea, Water and Forests, who authorized TREM in a letter dated May 6, 2013 to conduct its prospecting work in the area (Letter 256/13-MEF/SG/DGF). The ONE has designated sixteen mining squares in this zone on which TREM does not have the right to prospect, i.e., an area of 625 ha, and which TREM has however committed to protect (ONE, 2014).

According to the letter, the current characteristics of biodiversity and human communities within the entire research permit area of TREM have been identified and described in order to establish references for the impact studies of the future operations (soil ore beneficiation tests in pilot unit, future mining project) on ecosystems, landscape and human communities, as well as the different measures to be taken as a consequence of avoidance, compensation, etc. In order to better preserve the natural environment within its research permit area, and to better establish the studies of the impacts that future valorisation tests in the pilot unit and the eventual project will have on the biodiversity, landscape and human communities, the REM project has established a baseline for its entire research phase.

During the meetings with both the authorities and the population, it has already been explained that the studies of the impacts of the methodology of valorization recommended on the natural elements and on the components of the biodiversity are in progress. These studies will bring the adequate solutions still to be submitted in public meetings with the local populations as well as with the regional, district and communal authorities. The Communes and populations concerned are those directly impacted by the recovery trials. If these solutions are acceptable to the audiences of the said meetings, they will be adopted.

It is well specified that the methodology of *in situ* leaching is currently the only process considered the most likely to optimize the impacts of its implementation on the environment by. For example, it excludes the excavation of quarries to extract the ore, so there will be no destruction of the landscape, including no deforestation and, by extension, no destruction of ecosystems. The social and environmental impact studies of the pilot unit tests will allow to assess its feasibility, while the pilot unit tests themselves will confirm its validity for wider implementation in the future mining project.

These statements from TREM notwithstanding, findings from the discussions and interviews during the field research suggest that the ESMP can be questioned for the lack of several baseline assessments, especially for the absence of baseline and monitoring data on economic, social and cultural impacts, notably on livelihoods, health, social wellbeing, cultural heritage, safety, and women's unpaid labour. It can also be criticised for its failure to properly assess the potential impact of the REM project on community health and safety.

In October 2015, an exchange and capacity-building workshop for representatives of local communities and civil society organizations organized by CRAAD-OI in Ambanja showed that the inhabitants of the Ampasindava peninsula had not been informed at all of the potential negative impacts of rare earth mining.

Thus, it was confirmed that the affected communities were not given adequate and timely information about the negative impacts and mitigation measures before project design, in violation of their right to information. The women and all affected people were not involved in any process of researching/assessing potential impacts, as evidenced in the available documents. During the discussions and interviews, they criticised the promoters of the REM project for their failure to share and implement an adequate environmental management plan.

Moreover, the group discussions and interviews confirm that the project promoters and local authorities had not engaged with all the affected local communities to ensure that their views and interests would be considered in decision-making processes, that is apart from the limited public consultations in 2015. Thus, the Chief of Befitina, a village on the western edge of the mining concession, explained that he had never been shown TREM's permits. Besides, the women interviewed underlined that they have not participated fully in all key decision making processes.

As discussed in more detail in the following section of this report, women and their affected communities have not been consulted about the technological aspects of the REM project, nor able to exercise their right to refuse the harmful technology of *in situ* leaching that destroys health, biodiversity, soil fertility, pollute waters, and increase the risk of climate change calamities.

INDICATOR 2. WOMEN'S RIGHTS AND ECOFEMINIST ANALYSIS IN PROJECT PLANNING, IMPLEMENTATION AND ONGOING MONITORING

Standards:

- *Mapping and baselining of gendered resource access and control, livelihoods, the gender division of labour, and patterns of decision-making to forecast potentially negative impacts on women in affected communities;*
- *On the basis of this analysis and the experience of other similar projects, presentation of the most likely gendered economic (land rights, economic displacement), social (livelihoods, access to energy and drinking water, health) cultural (customs and cultural rights), and environmental (air and water pollution, climate change) impacts of the project;*
- *Pays particular attention to the dominant gender division of labour, the volume of women and girls' unpaid labour and the tasks/areas of work in which this predominates, and carefully forecasts possible increases in this unpaid care work;*
- *Situations where sexual and gender-based violence (SGBV) is likely to occur are fully evaluated and measures are implemented to prevent it, especially in regard to:*
 - o *potential SGBV perpetrated by security guards and/or military engaged to guard project sites;*
 - o *potential impacts of the influx of male construction workers;*
 - o *safety conditions of girls and women's access to water points, energy, latrines, schools, etc.;*
 - o *mechanisms to obtain redress for SGBV including providing high-quality healthcare and psychological support for victims and punishment for perpetrators.*
- *Contains measures to prevent negative project impacts on women and men within environmental safeguards; risk calculations; and financial guarantees for clean up or rehabilitation of land and resources on project conclusion;*
- *Has mechanisms for ongoing monitoring of the project, including the gathering of gender disaggregated data; and*
- *Addresses women's specific issues, perspectives and concerns raised throughout the project cycle.*

The REM project representatives have never made public the ESIA or a geological study that would prove the accuracy of their arguments about the benign nature of

the exploitation process. They behave as if rare earths mining does not entail any risk for the environment and the population. However, a cross-referenced analysis of the available information already shows the probable environmental and social impacts of the project.

3.2.1. Probable impacts of the mining/exploitation process

In its 2016 letter to the authorities and during the public meetings held at the beginning of February 2015 to announce its next steps, TREM explained that the recommended method of valorization of rare earths from the soils is *in situ* leaching, and it is this method that will be tested during the trials in pilot unit. The methodology was briefly and globally explained: wells will be dug to be filled with leachant (ammonium sulfate diluted in clear water). The pulp (water containing rare earth sulfate) will be collected through sub-horizontal tunnels. After the rare earths have been washed out of the soil, the site will be power-washed to remove all residual chemicals to clean up the groundwater before any excavations (tunnel shafts) used to circulate the leachate are closed.

The Chinese government has mandated *in situ* leaching technology since June 2011 to break with two decades of surface filtration of ammonium sulfate clays that resulted in severe environmental degradation and serious worker health impacts. While considered less harmful, the use of *in situ* leaching is controversial because its environmental impacts are not negligible (Zhao, 2000; Li and Shao, 2001; Liu, 2002; Li et al., 2010). It does not completely avoid the destruction of the vegetation cover, necessarily leads to soil pollution and potentially to groundwater pollution. According to an expert close to the project, without drastic preventive measures, "the environmental consequences of rare earth mining in Ampasindava could be catastrophic", as elaborated in more detail below.

3.2.1.1. *Destruction of vegetation cover and biological resources*

Given that the average concentration of rare earths in the Ampasindava Peninsula ionic clay deposit is 900 ppm according to TREM documents, and the average extraction yield is 84% (TREAG, 2015), to obtain 1 ton of rare earths it is necessary to process approximately 1300 t of clay soil. Knowing that a production of 10,000 tons per year is expected for at least 40 years (TREAG, 2015), we can estimate that the astronomical amount of 520 Million tons of clay soil will have to be processed.

This corresponds to an estimated 7,000 ha of affected area (with a soil density of 1.1 tons/m³ and an average deposit thickness of 6.5 m according to SGS), of which one-third is expected to have vegetation completely destroyed and the top soil layer removed (SGS, 2014; Yang et al. 2013). Approximately 2,200 hectares of natural vegetation cover, rice fields, cash crop plantations, as well as the areas necessary for the livelihoods of riparian communities will be destroyed.

More than 100 reported landslides with significant human costs in the Ganzhou area (China) have been attributed to *in situ* mining and leaching practices, and ionic absorption losses of rare earth resources. In this regard, the topography of the

Ampasindava peninsula, its rugged terrain combined with the heavy rainfall that occurs during the cyclone season increases the phenomenon of erosion and the risks associated with it. The natural environment of the mining perimeter is characterized by steep slopes, bamboo stands and remnants of secondary forests. This perimeter is surrounded by classified forests (FC 154 to the west, FC 158 to the southwest, FC 162 to the east).

The question of the feasibility and cost of rehabilitating the affected areas is central, and will require special attention. Indeed, Zuo et al. (2012) note that rehabilitation of *in situ* leach mines may be more expensive than surface or heap mining. In addition, capillary forces surrounding the leach holes draw high concentrations of leach solution to the surface layer, destroying vegetation and making rehabilitation more difficult. In the same vein, in 2011 the SRK office in charge of evaluating the Ampasindava mineral resources noted that "there remains a risk that environmental legislation will increase the cost of developing the Ampasindava project" (SRK, 2011). If the environmental cost is high, the project promoter may be tempted to avoid it, which is all the more reason to demand more transparency and public debate in the interest of the Malagasy nation.

Furthermore, the anticipated massive deforestation by the REM project is expected to considerably reduce the territory for the Mittermeier sportive lemur (*Lepilemur mittermeieri*), one of the lemurs listed as Endangered that is found only on the Ampasindava peninsula. According to a scientist, "the problem with the TREM project will be that lots of forests will disappear...(…)... We don't know if the species will survive or not if the project goes on." (Leslie Wilmet, cited in Mongabay 2017).

Other scientists also agreed that this mining project could damage the surrounding protected area, as a result of the build-up to exploitation that would bring lots of new people to Ampasindava, putting a strain on water and forest resources and entailing massive changes in lifestyle that won't be manageable (MBG, 2017).

3.2.1.2. Sludge storage and treatment

According to an article published in Environmental Research, "the production of one ton of rare earths generates 1,000 tons of water contaminated with ammonium sulfate and heavy metals, and 2,000 tons of toxic waste". Knowing that TREM plans to export 10,000 tons of rare earths per year for more than 40 years, the waste generation can be estimated to be 400 million tons of contaminated water and 800 million tons of toxic waste over the life cycle of the mine.

To avoid any contamination, TREM will have to ensure that the sludge is stored in perfectly sealed compartments that are strong enough to withstand torrential rains and violent weather. Northern Madagascar experiences rainfall levels exceeding 2000 millimeters per year, most of which falls between December and March. There is therefore a high risk of leakage or overflow from the storage sites which would lead to changes in acidity (pH) and siltation of nearby rivers.

3.2.1.3. Depletion and contamination of water resources

In situ leaching uses large quantities of water and is "not hydrogeologically controllable", which implies a high risk of contamination of groundwater and surface water because the medium in which the leaching solution circulates is not confined (CNRS, 2012). In China, ammonium sulfate contamination in groundwater, high pH, and increased concentrations of ammonium, sulfate, and REE (80-160 mg / L ammonium and 20 mg / L REE) in surface water have been reported at some sites after using *in situ* leaching (Liu, 2002). The pH of surface water and groundwater increased by 11% and 17.8% near the Longnan and Xunwu *in situ* leaching sites of Ganzhou region (Du, 2001). The resulting water pollution due to the increase of pH, electrical conductivity, total dissolved solids, sulfate and other pollutants causes the disruption of ionic balances and a decline in biodiversity. Sulfate pollution of rivers and downstream reservoirs persists long after mining has ceased due to increased microbial production of hydrogen sulfate, a substance that is extremely toxic to many aquatic organisms and plants (Palmer et al., 2010).

After pumping the REE-saturated solution from the on-site leach to the surface, the target elements must be separated from the rest of the ore, then each of them must be isolated and then the concentration of the rare earths in the product must be increased as much as possible (1). These different steps in the industrial process involve the production of "large quantities of toxic residues, in the form of gaseous emissions, dust, wastewater, and solid waste, containing in particular, fluorides, sulphides, acids, and heavy metals. It is estimated that 6 to 7 tons of ammonium sulfate and 1.2 to 1.5 tons of oxalic acid are required to produce one ton of rare earth oxides (CNRS, 2012).

Furthermore, the radioactive risk during the extraction and concentration of rare earths cannot be overlooked, even though TREM has claimed the existence of low levels of radioactivity as well as a minimal presence of thorium and uranium in the ores they explore. According to the ONE report, the radioactivity of the samples measured by teams from Madagascar's National Institute of Nuclear Sciences and Techniques is not significant enough to pose a risk. TREM's argument on this point is based on their decision to no longer exploit the primary, deep layers containing radioactive elements.

While this decision seems to be a foregone conclusion, the same TREM letter explains this choice without completely abandoning primary minerals, when the author states: "once TREM was in possession of the encouraging results of assaying for rare earth chemical elements contained in the native soils, the decision to strategically change the target of exploration from primary to secondary mineralization was made. The primary potential may be a battery of the future."

3.2.1.4. The pollution of the sea and destruction of the marine ecosystem

The need mentioned by TREM to "clean up the water table" before the closure of all excavations means that the water table will be polluted for the duration of the operations planned for several decades. This certain risk, admitted in writing, fully justifies the fears and concerns about the pollution of the surrounding seabed expressed by experts in biodiversity conservation, coastal fishermen and tourist operators living along the mining perimeter, which includes neighboring islands such as Nosy Be.

As mentioned earlier, the topography and hydrography of the peninsula increase the risk of contamination, given the streams or runoff that flow from the mountains to the sea through the peninsula, its valleys, forests, crops and mangroves. In the event of a cyclone, mismanagement of the storage of clayey sludge can lead to an unprecedented disaster for the entire coastal zone, its biodiversity and the resources on which the survival of its communities depends. One of the risks is the acidification of the coastal waters, which is fatal for the coral reefs.

3.2.2. The gendered impacts of the mining/exploitation process

The literature review indicates that most of the data on the REM project is not gender-disaggregated, which means that the data has not been collected separately on men and women as a starting point for the analysis, planning, monitoring and evaluation of the project from a gender perspective. In particular, the project's environmental and social specifications do not include sex-disaggregated data, and scanty references to the potential impacts of the REM project on women's livelihoods. By and large, the available information from both the literature and the field research suggest that the impact assessment framework used by the REM project as well as the measures to prevent negative impacts are gender-blind and tend to ignore women's specific issues and perspectives.

The above analysis of the likely impacts of the mining process on women's access to vital resources ranging from land, to drinking water and energy, points to the subsequent increase in the volume of women and girls' unpaid care work if the REM project proceeds, in addition to the destructive impacts on their livelihoods and health. Environmental impacts affect the health of people and have differential impacts on men and women in households and the community at large.

Whatever their causes, diseases and an increased range and incidence of health problems have gendered impacts, and this is because of the prevailing division of labour which assigns women household members primary responsibility for the work of care. This means that women have to increase the time they spend in unpaid care work and divert scarce household resources to medical support (transport to health facilities, visits to doctors, the purchase of medicines etc.).

The participants in the discussions and interviews also complained that the impacts of the REM project on their cultural rights was not adequately assessed or mitigated, as evidenced in the fact that the project has negatively affected sacred and culturally-sensitive sites with the digging of thousands of pits. This is of particular concern given the significance of those sites in the territory of the entire Ampasindava peninsula.

None of the documents related to the REM project - the ESIA and the ESMP - address the question of violence and risks women in the community might confront as a result of the project. These include, very obviously, the increased presence of construction workers and male staff working in the plant; the increased vulnerability of local women to exploitation and intra-household GBV as a result of eroded livelihoods and significant stress in impacted families and households; and deepening social conflict

and division about the REM project with the affected communities. It is also worth noting that among displaced populations, there is increased occurrence of violence against women, no doubt a sensitive but possibly unexplored potential issue in Ampasindava.

INDICATOR 3. COMPENSATION AND REDRESS

Standards:

Provide full compensation and redress in the event that the project harms women by:

- *reducing, interfering with or grabbing women's rights to land and natural resources;*
- *eroding or eliminating women's role in food production and stewardship of natural resources;*
- *causing gendered violence; and*
- *increasing women's unpaid labour.*

3.3.1. Impacts of the research/exploration process

The actual impacts of the REM project to date have been limited to TREM's exploration activities in the field. These consisted of three campaigns (2011, 2013 and 2014) during which 6,460 wells and boreholes were drilled to collect over 47,000 samples. A total of 77,975 wells are planned by the end of the exploratory phase in 2017 (ONE, 2014).

3.3.1.1. *Impacts on the land of the ancestors and cultural rights*

The detrimental impacts of the REM project on the land rights of the affected population, which define their culture and livelihoods, is at the epicenter of their resistance against the promoters of the REM project. In Madagascar, one's home village is the *tanindrazana*, "the land of the ancestors," - where they lived, worked, and were buried. Thus, respecting the ancestors means respecting the land. The affected communities wonder what will become of the buried ancestors, as mentioned by one of their members: "even our ancestral tombs will be destroyed. That's not our culture." (Solondraza, cited in Mongabay 2017).

For him and these communities, another crucial issue with the threat posed by the REM project is whether the next generations will have a decent place to live. This is the reason why he joined an association of concerned local farmers that sought to organize the opposition to the REM project and to protect the land from TREM.

Likewise, women interviewed during the field research raised repeatedly the issue of the REM project's encroachment on agricultural land along with the resulting eviction of traditional occupants and lack of people's access to their bio-cultural heritage sites. They foresee that many of them would lose access to the plots of land located in the REM project site where they used to grow rice, vanilla, coffee, pepper, cocoa and other vegetables for their subsistence and income-generating activities, in the glaring absence of any proposal for resettlement and/or any form of compensation or redress from TREM.

3.3.1.2. Impacts on livelihoods

In 2011, when the REM project started its exploration activities, the consulting firm SRK assures in its report that "TREM has the necessary environmental permits [for exploration activities] and employs a full-time environmental expert in charge of ensuring that the physical impacts of the activities are minimized." The document explains that drilling and wells on agricultural land are only carried out with the prior consent of the landowners and in return for compensation (SRK, 2011). The same document explains that the wells, measuring 1m² by 10m in depth, are systematically restored by the company (SRK, 2011).

Nevertheless, many farmers complained that wells had been dug on their land without their prior consent (Mongabay 2017). In addition, according to the two civil society organisations *ADAPS* and *CRADES*, the wells have not been systematically filled in and made safe. Animals falling down into such wells have been reported, as well as the communities' concerns about the potential risk of falling, especially for children. The CRAAD-OI team could also see some of these wells and heard the same complaints from the affected communities during its successive field visits in the area between 2015 and 2019.

A journalist who visited the area in 2017 was told by a young farmer interviewed in Ankintsopo, a village in the center of the mining concession, that "they just cover the pits beside the street so that when there is a supervisor passing by the pits look covered. The pits further away are not covered. That's the truth here." (Mongabay 2017). Moreover, this journalist reported that "people are also frustrated by the number of exploratory pits TREM has dug: several thousand, most of them ten meters deep. Worse, they say the company has failed to refill the holes properly, and the uncovered wells trip up zebu cattle. Once injured, the highly prized zebu, a major source of local wealth, have to be killed. Mongabay saw dozens of uncovered pits in the area." (Mongabay 2017).

According to the Sakalava tradition, zebu breeding represents the main form of capitalization for households on the peninsula. Almost half of households (49%) own a small herd of 8 heads on average. The animals are occasionally sold to finance major family expenses (building a house, paying for a wedding, funeral or hospitalization, etc.) or sacrificed during certain ritual ceremonies.

Furthermore, the women interviewed during the field research complained about the degradation of the land in the places where drilling and wells have been done by TREM. Together with many other local people, they worry that their future crops are at risk in light of the reduction of their yields and production, which is between 35 and 50 percent in most cases.

This is yet another indicator of the social and economic stresses which accompany the erosion of livelihoods and the absence of options for the relocation of displaced communities. These stresses impact on women in particular ways as they will always have to provision the basic needs and care for the households that would become significantly more vulnerable.

INDICATOR 4. ECOFEMINIST COST BENEFIT ANALYSIS

Standards:

Undertake full project cost-benefit analysis to deeply inform decisions that are usually quite superficially based on corporate and political interests. Cost benefit analysis should embrace the principles of ecofeminism, cross generational equity, and a deep commitment to address the ecological and climate crisis and address the following dimensions:

- *Define and closely interrogate benefits at different levels – from the national economy, through to the local economy, immediately affected communities and those indirectly affected, and the generations to follow. Benefit analysis must be disaggregated by gender, age, class and location and interrogate standard notions of benefit which conceal vested interests and hidden costs;*
- *Define and closely interrogate costs at different levels – from the fiscus, to the health and education system, to the local economy and local communities, to the sustainability of ecosystems upon which life depends, on generations to follow, and ultimately costs to the planet and human life on it;*
- *Undertake cost-benefit analysis on a number of project/development options which claim to satisfy the same or similar objectives – different routes to energy provision or electricity, building local economies and supporting livelihoods/work, opening access to water and market infrastructure etc.; and*
- *Open cost benefit analysis to public scrutiny and involve potentially affected communities in discussions about costs and benefits, and their own development aspirations which may be at odds with large scale development projects.*

The previous analysis of the probable impacts of the REM project's exploitation phase (in sub-section 3.2.1.) raises grave concerns about its potential costs, and calls for a fuller exploration of its many costs against the benefits from an ecofeminist perspective, with a focus on the critical dimensions set out in the standards related to indicator 4 in WoMin's ecofeminist impact assessment framework.

4.1. Actual economic and social benefits

According to its promoters, "the development of the REM (TRE) project will inevitably impart positive aspects on the local economy in respect of employment and the potential for taxation revenues to be used for further social development, but also runs the risk of causing negative impact on the physical environment recognized for its unique biodiversity" (SGS 2011).

4.1.1. Economic and social benefits for the affected communities and the State

With regard to the expected economic benefits, job creation and tax revenues are indeed the arguments put forward by mining companies to say that they contribute to the economic development of the country, in spite of the evident failure of the two major mining projects to live up to their promises and the expectations of the affected people.

As far as job creation is concerned, the technical nature of mining operations requires qualifications that the population living in the vicinity of the mining sites does not possess, so that a few Malagasy engineers from the capital and/or expatriates often hold most of the permanent positions, while local people are content with odd jobs as road workers, laborers or watchmen. If many people were able to get jobs during the construction phase of the existing large-scale mining projects, they realized that once the mining operations were launched, a considerable number of them were laid off.

After several years of exploration by TREM, there has been a significant feeling of frustration among the people in Ampasindava. In particular, women said that “TREM discriminates against them and has never hired a woman as a manual laborer or guard.” According to Catherine Soamalaza, the president of a women’s group in Befitina, “they say that women can’t do the work like digging the holes, so they only take men” (Mongabay 2017). This is a typical example of the marginalization of women from employment in the mining projects and the mining sector in general, which points out that they would not benefit from the creation of jobs by the REM project.

As for the tax revenues expected from the REM project, they would remain minimal given the tax exemptions and a mining royalty that amounts to 1% of the price of materials exported after "transformation" on site. Moreover, TREM was registered as an offshore company in Mauritius, considered by the European Union institutions as a tax haven¹⁵, with the obvious aim of avoiding paying taxes to Madagascar and paying only 3% tax on its profits thanks to the bilateral tax agreement (double taxation agreement) between the two countries. This clearly shows that TREM intended to earn the maximum from the rare earth deposits by paying the minimum of what it owes to the Malagasy nation for its mining operations. This kind of fiscal evasion represents a significant cost to the national treasury in terms of forgone fiscal revenues.

According to the above-mentioned TREM’s letter to the Minister of Mines in 2016, the following activities have already been implemented as part of the research phase in regard of its commitments to the social development of the affected communities:

- "The rehabilitation of the old dirt road that connects TREM's Ankatafa life base to the paved national road, via the village of Antsirabe in the rural Commune of the same name;
- the payment of the salaries of 39 teachers in public schools of its concession area;
- the rehabilitation of some public buildings, schools or health centers - the number and location of which were not specified;
- the organization and financing of a medical mission to the concession area;
- a reforestation session in 2015;
- setting up a team of patrols in collaboration with the local security forces and the creation of a file for the creation of the Bongomirahavavy Reserve in 2014.”

Except for the rehabilitation of the road, most of the people who were asked about these activities said that they were not aware of them, even as they were supposed to be their beneficiaries. Given the isolation of the large majority of the affected

¹⁵ L’OBS, 2015

communities from the main road network, they considered the rehabilitation of the road by TREM as an important contribution to the local infrastructure development that benefits all the local population. However, this contribution ended with the REM project's research activities, while it appears that the road is not well maintained by the local officials and users.

With respect to the various benefits mentioned earlier, it is important to note that women have shared a very little part of these, and that their marginalization is a defining feature of large-scale extractivist projects such as the rare earths exploitation.

4.2. Externalised costs on women and their communities

The analysis of the probable impacts of the REM project demonstrates that it is likely to undermine livelihoods and the local economy, compromise the environment and people's health and well-being, and erode community relations and cultural heritage. All these impacts represent hidden costs that are clearly gendered and mainly borne by women and the affected communities; and yet, such costs are not counted in the conventional cost-benefit analysis of large-scale mining projects like REM.

4.2.1. The erosion of livelihoods and loss of income

With respect to the costs in terms of livelihoods and income, the impacts and implications of the REM project must be situated within the context of the local economy, where the majority of households, particularly inland, derive their primary income from a variety of cash crops. The most prevalent and oldest is coffee, followed by pepper, vanilla, coconut, and cocoa. All of these crops are intended for export and are purchased by collectors who travel to the area at harvest time. Cocoa, vanilla and pepper from the peninsula enjoy an excellent international reputation and are destined for niche markets in Europe and the United States (MBG, 2014). Cocoa in particular is exported as part of fair trade.

Two-thirds of households (75%) in the peninsula grow unimmersed rice on wooded hillsides. Rice is the national staple food and its production is primarily aimed at feeding the members of the farmers' households, and the remaining production is sold to obtain cash and avoid losses. Most households thus run out of rice after six months and have to buy it or replace it with cassava, bananas, or maize, grown by a minority of households, while waiting for the next harvest (MBG, 2014).

The women farmers interviewed in TREM's concession area grow rice, vanilla, pepper, coffee and cocoa. Their average annual income from those cash crops is about MGA 23,625.000 / Ha / person. Projections based on this estimate can give an idea of the potential loss of income that these women as well as the other farmers would incur if the exploitation of rare earths proceeds.

Likewise, the large majority of households living in the concession area would be unable to produce both their staple food and cash crops, and would face serious income and food insecurity. The resulting food crisis would most probably impact the

entire population of the district beyond the REM concession area, due to the shortfall in rice production from the area, which plays a central role in the supply chain for the local and regional food markets.

4.2.2. Costs to the sustainability of ecosystems and future generations

Furthermore, the erosion of living standards and loss of income for women and their families mean that many of their children, especially the girls, would no longer be able to go to school, as evidenced in the findings of the field research in the coastal areas of the Ampasindava peninsula (CRAAD-OI, 2022). This would clearly have detrimental long-term impact on their future education and employment prospects.

The potential impacts of the rare earths exploitation process on the local ecosystems is a basis for major concern, particularly in the coastal areas that would be affected by devastating pollution of the sea and destruction of the marine ecosystem, including the acidification of the coastal waters with the subsequent effects on the bleaching of coral reefs and reduction of fish catches for fisherfolks. With regard to the local economy, the impacts on the development of the tourism sector would be particularly disastrous, as it is the mainstay of the great majority of the population of Nosy Be, Sakatia and the other islands bordering the peninsula.

It is important to underline the intersections of all these predicted consequences of rare earths exploitation with the growing impacts of the climate crisis, which are already felt by the fishing communities in a context where fishing concerns more than a third (39%) of households on the peninsula and complements or replaces cash crops in almost all households in the coastal zones. Fishermen fish daily, using wooden pirogues that do not enable them to go more than one or two hours away from the village because their boats cannot go to the high seas and they do not have the equipment to preserve the catch on the boat (MBG, 2014). The women who participated in the group discussions with the fishing communities were deeply concerned about the shrinking fish catches which do not allow them to earn their living anymore.

According to their testimonies, the daily catches of the fishermen have been reduced by 50-60 percent on average between 2019 and 2022 (CRAAD-OI, 2022). The group discussions also focused on the potential impacts of rare earths exploitation in the context of this compromised environment, and what the implications would be for the development of their communities and the survival of future generations.

Our review of the available documentation and research findings reveals that no cost-benefit analysis of the REM project was undertaken, and there was no in-depth assessment of its potential impacts in the context of a global climate crisis which is already impacting Madagascar in deep and irreversible ways, especially its coastal areas where it is contributing to coastal erosion, increased heat and reduced fish catches. Therefore, this project would undermine prospects for the sustainable development of the affected communities at the same time as they suffer the growing impacts of the climate emergency.

CONCLUSIONS

The REM project violates consent rights for the affected communities and women.

This ecofeminist impact evaluation has clearly evidenced that the REM project has paid very little attention to consultations with the affected people in general, and women in particular, especially in regard of the potential impacts of its operations on their livelihoods and the natural environment on which they depend entirely for their survival.

Because the REM project did not undertake gender analysis or produce gender-disaggregated data, the complete lack of gender baseline and monitoring data implies that its promoters would be unable to identify and respond to the particular impacts on women in the affected communities, nor to measure and monitor project changes which have similar or differential impacts on women and men's rights and livelihoods.

It appears that women and their communities have not been able to exercise their free, prior and informed consent right to refuse the disastrous implications of the project for their land rights in addition to the destructive impacts on their health and livelihoods, which affect women disproportionately.

Ecofeminist analysis raises critical issues about the exploitation of strategic minerals through large-scale extractivist projects in a time of ecological and climate crisis.

The REM project has been confronted by strong and continuing opposition since 2015, as mentioned earlier, because of the growing awareness about the likely impacts of such a toxic and large-scale development project on people's livelihoods, health and well-being, as well as the local economy, natural environment and cultural heritage.

This impact evaluation of the REM project from an ecofeminist perspective, offers further evidence of the intersections between environmental degradation and inequalities based on gender and class, and raise important questions about the type of development priorities and projects promoted by corporate interests and State institutions in the context of a mounting climate and ecological crisis.

This ecofeminist impact assessment confirms that the exploitation of strategic minerals like rare earths will only create hazardous social and environmental impacts which destroy local economies, drain the fiscal revenues as the State responds to those impacts, and heighten tensions and conflicts associated with rising poverty and inequality. An ecofeminist cost-benefit analysis demonstrates that the expected benefits from strategic minerals exploitation projects such as REM in regard of the "green" energy transition away from fossil fuels, are illusory in light of their enormous costs that are mostly externalised onto women and Nature.

Thus, the ecofeminist approach to the analysis of "green" extractivist projects

together with their gendered direct and indirect impacts in the context of the climate emergency, raises larger and critical questions about the prevailing development model and its costs to women, their affected communities and ultimately the planet.

The relevance of the ecofeminist impact assessment framework for other civil society organisations

The results of ecofeminist analysis, such as this one, can serve as a basis to confront the international development and State institutions as well as civil society organisations (CSOs) with new and challenging questions about the dominant development system and its costs.

In particular, CSOs working on large-scale development projects who are concerned about their intersecting and interrelated impacts on women's bodies, livelihoods and safety, the environment and climate, could use the proposed ecofeminist impact assessment framework to tease out strategies to mitigate those impacts and define more adequate markers of development success.

Last but not least, CSOs could build on the ground breaking evidence from this framework to inform their advocacy tools and strategies for a radical re-thinking and transformation of the dominant development paradigm in these times of polycrisis.

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Annex 1: Ecofeminist impact assessment framework

INDICATOR 1. CONSENT RIGHTS FOR AFFECTED COMMUNITIES AND WOMEN

Standards:

Participatory methods in which women and all affected peoples are involved in the process of researching/ assessing potential impacts and making informed decisions

Full and ongoing participation of women in all key decision-making processes throughout the project cycle (including ongoing monitoring post-project operationalisation) and provision for safe women-only spaces to elicit their views and perspectives on the project

Complete information about the full range of social, economic, political and environmental impacts on potentially affected community men and women presented as the basis for their full involvement and participation (see indicator 2 on forecasting impacts)

Based on the receipt of all relevant project information pertinent now and into the future:

- *Affected community women and men exercise their free, prior and informed consent right to accept or refuse a proposed project which impacts on their rights to land, forests, fisheries, livelihoods, cultural heritage, bodily autonomy and health. Specifically, people and women specifically have the right to refuse:*
 - o *The current terms of a project proposal;*
 - o *The project with or without amendments to project design;*
 - o *Resettlement to new land and/or homes which do not satisfy their needs and replace for real losses that will be incurred as a result of the proposed project;*
 - o *Compensation, including monetary payment;*
 - o *Corporate social responsibility attempts which do not address substantive losses; and*
 - o *Toxic chemicals and harmful technologies, including technological responses to the climate crisis, that destroy health, biodiversity, soil fertility, pollute waters and increase GHG emissions and the risk of climate change calamities.*

INDICATOR 2. WOMEN'S RIGHTS AND ECOFEMINIST ANALYSIS IN PROJECT PLANNING, IMPLEMENTATION AND ONGOING MONITORING

Standards:

- *Mapping and baselining of gendered resource access and control, livelihoods, the gender division of labour, and patterns of decision-making to forecast potentially negative impacts on women in affected communities;*
- *On the basis of this analysis and the experience of other similar projects, presentation of the most likely gendered economic (land rights, economic displacement), social (livelihoods, access to energy and drinking water, health) cultural (customs and cultural rights), and environmental (air and water pollution, climate change) impacts of the project;*
- *Pays particular attention to the dominant gender division of labour, the volume of women and girls' unpaid labour and the tasks/areas of work in which this predominates, and carefully forecasts possible increases in this unpaid care work;*
- *Situations where sexual and gender-based violence (SGBV) is likely to occur are fully evaluated and measures are implemented to prevent it, especially in regard to:*

- *potential SGBV perpetrated by security guards and/or military engaged to guard project sites;*
- *potential impacts of the influx of male construction workers;*
- *safety conditions of girls and women's access to water points, energy, latrines, schools, etc.;*
- *mechanisms to obtain redress for SGBV including providing high-quality healthcare and psychological support for victims and punishment for perpetrators.*
- *Contains measures to prevent negative project impacts on women and men within environmental safeguards; risk calculations; and financial guarantees for clean up or rehabilitation of land and resources on project conclusion;*
- *Has mechanisms for ongoing monitoring of the project, including the gathering of gender disaggregated data; and*
- *Addresses women's specific issues, perspectives and concerns raised throughout the project cycle.*

INDICATOR 3. COMPENSATION AND REDRESS

Standards:

Provide full compensation and redress in the event that the project harms women by:

- *reducing, interfering with or grabbing women's rights to land and natural resources;*
- *eroding or eliminating women's role in food production and stewardship of natural resources;*
- *causing gendered violence; and*
- *increasing women's unpaid labour.*

INDICATOR 4. ECOFEMINIST COST BENEFIT ANALYSIS

Standards:

Undertake full project cost-benefit analysis to deeply inform decisions that are usually quite superficially based on corporate and political interests. Cost benefit analysis should embrace the principles of ecofeminism, cross generational equity, and a deep commitment to address the ecological and climate crisis and address the following dimensions:

- *Define and closely interrogate benefits at different levels – from the national economy, through to the local economy, immediately affected communities and those indirectly affected, and the generations to follow. Benefit analysis must be disaggregated by gender, age, class and location and interrogate standard notions of benefit which conceal vested interests and hidden costs;*
- *Define and closely interrogate costs at different levels – from the fiscus, to the health and education system, to the local economy and local communities, to the sustainability of ecosystems upon which life depends, on generations to follow, and ultimately costs to the planet and human life on it;*
- *Undertake cost-benefit analysis on a number of project/development options which claim to satisfy the same or similar objectives – different routes to energy provision or electricity, building local economies and supporting livelihoods/work, opening access to water and market infrastructure etc.; and*

- *Open cost benefit analysis to public scrutiny and involve potentially affected communities in discussions about costs and benefits, and their own development aspirations which may be at odds with large scale development projects.*



Impressum

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