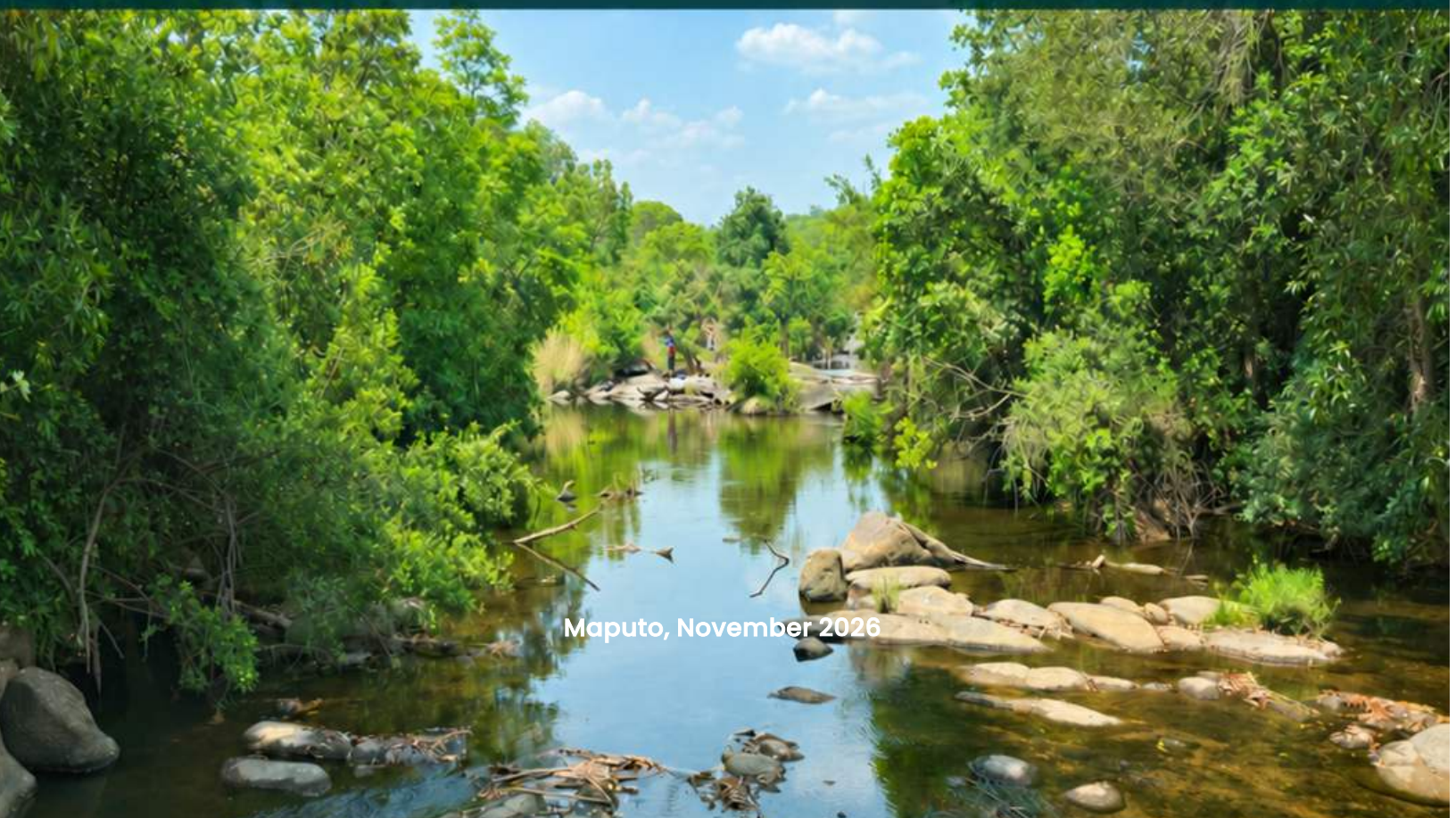
CENTRO DE INTEGRIDADE PÚBLICA

Boa Governação - Transparência - Integridade

THE RISK OF ENVIRONMENTAL COLLAPSE IN TETE

The physical and chemical degradation of rivers and its impact on communities



Maputo, November 2026

Director: Edson Cortez

Research team: Mery Rodrigues, Raúl Massingue**,** Milagrosa Calangue

Peer review: Edson Cortez, Rui Mate, Baltazar Fael, Lázaro Mabunda

Publisher: Public Integrity Center

Place and date: Maputo, November 2026

CONTENTS

EXECUTIVE SUMMARY 3

1. Introduction 5

2. Methodology 7

3. Results and discussion 10

3.1. Positive impact of gold mining on community perceptions 10

3.2. Lack of an Environmental Operating Licence for gold mining in Tete 11

3.3. Negative impacts of gold mining on water resources and communities 14

3.3.1. The Ponfi, Muende and Luia rivers are contaminated with mercury and arsenic 14

3.3.2. Mercury in the river sediments of Ponfi, Maué/Revuboe, Lumbune, Muende and Luia rivers 18

3.4. Effects of gold mining in the districts of Macanga, Tsangano, Chifunde and Chiuta... 21

3.5. Alcinda Abreu's children linked to environmental offences in gold mining in Tete 28

4. Conclusions 31

5. Recommendations 32

6. References 36

EXECUTIVE SUMMARY

Although gold mining in Tete province can bring socio-economic benefits, including tax revenue and employment, it has also been characterised by predatory practices. These contribute to environmental degradation, worsen food insecurity and lead to the loss of livelihoods and intensified social conflicts related to land expropriation.

Predatory mining has exacerbated socioeconomic inequalities and made the affected communities more vulnerable, perpetuating situations of poverty. Furthermore, it has contributed to a decline in local people's trust in government institutions, particularly with regard to their ability to regulate mining activities, protect the environment and ensure respect for the rights of host communities in mineral extraction projects.

With the aim of helping to mitigate environmental pollution, the Centre for Public Integrity (CIP) conducted a study to assess pollution levels in the Ponfi/Phonfi, Maué/Revuboe, Lumbune, Muende and Luia rivers, and their impact on local communities.

The study was carried out between October 2025 and October 2026. A mixed-methods approach was employed, combining qualitative and quantitative methods. The quantitative method involved collecting water and sediment samples between 25 and 27 October 2025 to assess pollution levels in the Ponfi, Maué/Revuboe, Lumbune, Muende and Luia rivers. The qualitative method consisted of a document and literature review, direct field observation and the distribution of questionnaires to 141 stakeholders. These included community members from the districts of Chiuta, Macanga, Tsangano and Chifunde, as well as local government authorities and gold mining associations and cooperatives.

The study identified the following positive impacts of gold mining: an increase in income and improved livelihoods; the construction of two bridges, one over the Maué River in Macanga and the other over the Lumbune River in Tsangano; improvements to the road in Macanga; and the construction of Massiquidzi Primary School. While the communities recognise the potential of gold mining to generate economic benefits, they feel that these are insufficient and do not fully reflect their hopes and expectations. Their main expectations include access to drinking water, the construction of hospitals and schools, and a formal agreement with the mining companies.

The study found that the companies MMC Resources, Lda. and Mineral Resources Moçambique, Limitada had commenced gold mining without an environmental operating licence. This highlights inadequate environmental oversight and poor coordination between the Ministry of Mineral Resources and Energy, and the Ministry of Agriculture, Environment and Fisheries. This is because the company in question appears on the production and export map of the former INAMI. However, the DNAMC has stated that it does not hold an environmental operating licence in Tete province.

The study also identified several environmental issues that are endangering Tete's rivers and putting them at risk of collapse. These issues include the pollution of water and sediments by mercury in the Ponfi, Maué/Revuboe, Lumbune, Muende and Luia rivers, which is likely linked to gold mining operations in

areas adjacent to these water resources. These operations are carried out by companies such as MMC Resources, Lda., Mineral Resources Moçambique, Limitada, and by illegal gold panners.

Gold mining companies practise open-cast mining and use mercury in an uncontrolled manner. They also dispose of waste directly into the environment without prior treatment and lack an effective liquid waste treatment system. As a result of these poor environmental practices, laboratory results show that mercury levels in the Ponfi and Muende rivers are 20 times higher than the limit permitted by Decree No. 52/2023 of 30 August.

Mercury pollution poses a threat to public health and the environment. Mercury is a highly toxic heavy metal that can damage the kidneys, liver, brain, heart, lungs and colon, as well as the immune, respiratory and neurological systems.

Furthermore, laboratory results indicate that the Muende and Luia rivers contained extremely high concentrations of orthophosphates in the water; these water bodies have been classified as hypereutrophic, indicating a high degree of water degradation, which contributes to a reduction in aquatic biodiversity. Heavy metal pollution associated with this hypereutrophic state poses a threat of environmental collapse.

Given the observed negative impacts, the government's lacklustre response has been characterised by insufficient control and monitoring measures relating to both mining activities and water resource management. The lack of effective oversight and transparency and accountability mechanisms has directly contributed to a deterioration in the quality of life of local communities and worsened environmental impacts. This scenario entrenches a purely extractivist development model that prioritises the financial returns of those involved in gold mining over ecological sustainability, social justice, and collective well-being.

In light of the study's findings, it is crucial that all parties involved – including the government, the Attorney General's Office (PGR), artisanal miners, and companies – fulfil their duties to protect social rights and environmental integrity. To this end, the following is recommended:

> (1) AQUA – Impose a fine on the companies MMC Resources, Lda. and Mineral Resources Moçambique, Limitada for operating without an Environmental Operating Licence; together with ARA-Centro, to assess the water quality of rivers in Tete province, particularly the concentration of heavy metals and phosphates; Carry out regular environmental inspections and fine offenders.
>
> (2) To the Attorney General's Office (PGR) – Investigate and hold to account those responsible for environmental offences and crimes, as well as violations of the collective rights of host communities; Investigate the circumstances under which the companies MMC Resources, Lda. and Mineral Resources Moçambique, Limitada are operating without an environmental operating licence and, where there are grounds to do so, hold the companies and the supervisory authorities that allowed this to happen to account.
>
> (3) To the companies MMC Resources, Lda. and Mineral Resources Moçambique, Limitada, and to artisanal miners – Comply with national environmental and labour legislation and adhere to good practices in gold mining, including the adoption of clean technologies; Suspend mining activities until an environmental operating licence has been obtained.

1. Introduction

The extractive industry plays a significant role in the Mozambican economy, contributing to national production, exports, public revenue collection and job creation. In Mozambique, gold mining is a major economic activity in the provinces of Manica, Tete, Niassa, Cabo Delgado and Zambézia.

In 2025, Tete Province was the country's second-largest gold producer, accounting for 28.1 percent (266.2 kg) of total production, behind Manica Province, which accounted for 69.8 percent (661.69 kg). In Tete, during the period in question, the company MMC Resources, Lda.[1] was, the sole entity responsible for the total gold production in Tete (see Appendix 2).

Gold mining in Tete province takes place in several districts, including Macanga, Chifunde, Chiuta, Zumbo, Tsangano, Changara and Angonia. The Provincial Environment Service in Tete has 13 gold mining entities registered, as well as 16 entities in the gold prospecting and exploration phase.[2] However, at the National Mining Institute (INAMI), only one company, MMC Resources, Lda., has declared its production; this company does not appear on the list of the Provincial Environment Service in Tete.

Gold mining can provide a range of socio-economic benefits, including tax revenue, job creation, increased demand for local goods and services, and infrastructure development. However, these benefits must be weighed against the negative socio-environmental impacts associated with different mining methods.

The risks associated with artisanal mining may include physical degradation of watercourses, increased turbidity due to mobilisation of sediments, changes to aquatic habitats, use of mercury in gold extraction and contamination of water, soil and sediments. Using mercury can also expose workers and surrounding communities to risk, particularly through inhaling vapours when burning amalgam or being exposed to contaminated environments.[3,4,5].

The study aimed to assess the levels of contamination in the Ponfi and Maué/Revuboe (Macanga), Lumbune (Tsangano), Muende and Luia (Chifunde) rivers, and their impact on neighbouring communities, between October 2025 and October 2026.

The report is structured into the following four sections: i) this introduction, which sets out the problem, objective and main findings; ii) the methodology, which sets out and describes the methods and techniques

[1] Production and marketing maps for 2022 to 2025 relating to mining activity in Mozambique: Data provided by the then National Mining Institute via a note bearing reference number N.Ref. 2368/INAMI/DG/2026
[2] Data provided by the Tete Provincial Environment Service on 3 September 2026.
[3] Spiegel, S. J., Savornin, O., Shoko, D., and Veiga, M. M. (2006). Mercury reduction in Munhena, Mozambique: Homemade solutions and the social context for change. International Journal of Occupational and Environmental Health, 12(3), 215–221.
[4] Swain, E. B., Jakus, P. M., Rice, G., Lupi, F., Maxson, P. A., Pacyna, J. M., Penn, A., Spiegel, S. J., and Veiga, M. M. (2007). Socioeconomic consequences of mercury use and pollution. Ambio, 36(1), 45–61.
[5] Shandro, J. A., Veiga, M. M., and Chouinard, R. (2009). Reducing mercury pollution from artisanal gold mining in Munhena, Mozambique. Journal of Cleaner Production, 17(5), 525–532.

used to gather evidence on socio-environmental issues, including the study's limitations; iii) the results and discussion, which present and describe the evidence gathered for the study and analyse the socio-environmental information obtained during fieldwork; iv) the conclusions, which summarise the key findings of the study; v) the recommendations, which propose practical actions to be taken by various public and private bodies to mitigate the environmental and social problems arising from predatory and illegal[6] gold mining in the districts of Macanga, Tsangano, Chifunde and Chiuta; vi) the references, which provide a complete list of the bibliographic, scientific, technical, legal and documentary sources consulted and cited throughout the report, enabling the information presented to be verified and lending greater rigour and credibility to the study; and vii) the appendices, which include a letter from the CIP submitted to the company MMC Resources, Lda., information from the then INAMI on the map of gold production and exports in the country, information on environmental operating licences, provided by the National Directorate for the Environment and Climate Change (DNAMC), and the laboratory results of water and sediment samples from the rivers under study to support the information presented in the report, enabling a more detailed examination of the evidence gathered during the fieldwork.

[6] Predatory mining is the exploitation of mineral resources that involves the violation of legal standards, the destruction of ecosystems and a disregard for the rights of local communities.

2. Methodology

The study, which took place from October 2025 to October 2026, adopted a mixed-methods approach, combining qualitative and quantitative methods. The qualitative approach consisted of a literature review involving consultation of journalistic and scientific articles, technical reports, official and legal documents, and government regulations, among other sources. This was done to establish the theoretical framework and facilitate preparation for the fieldwork. However, during the literature review, which was carried out in October 2026, it was not possible to consult the environmental operating licences of MMC Resources Lda. and Mineral Resources Moçambique Limitada, as these companies did not yet hold them.

The qualitative approach involved direct field observation and the recording of images, as well as the administration of questionnaires to the following key stakeholders: i) Madalitso Jacob, traditional leader of the village of Cassupe, in the hamlet of Chafuma, Macanga district; ii) Hortêncio Chimutsa, representative of the Pedras de Mdzimbe Mining Cooperative, Chiuta district; iii) Alexandre Luis Binguere, leader of the Banda miners' camp, Chifunde district, on 25 August 2026; and iv) Virgílio Costa Limbicane and Américo Estevão of the 7 September Mining Association of Mugomo, Macanga district, on 27 August 2026; v) Joaquim Laquene, Regional Director of the National Agency for Environmental Quality Control in Tete, on 2 September 2026; vi) the Provincial Director of the Environment for Tete, Euclides Sidumo, and vii) Otávio Vasco Semba, the Director of the Provincial Infrastructure Service for Tete, on 3 September 2026.

In addition, surveys were conducted amongst 141 members of the communities of Cassupe/Furancungo, Mugomo and Thaundi-Namadende (Macanga), Chiandame (Tsangano), Banda, Muende and Mugomo (Chifunde), M'Duimbi and Mdzimbe/Mange (Chiuta) who were both benefiting from and affected by gold mining. The survey respondents included traders[7] (33 percent), miners (23 percent), farmers (21 percent), shopkeepers[8] (13 percent), domestic workers (2 percent) and others (6 percent). Among the surveyed community members, 65 percent were male and 35 percent female.

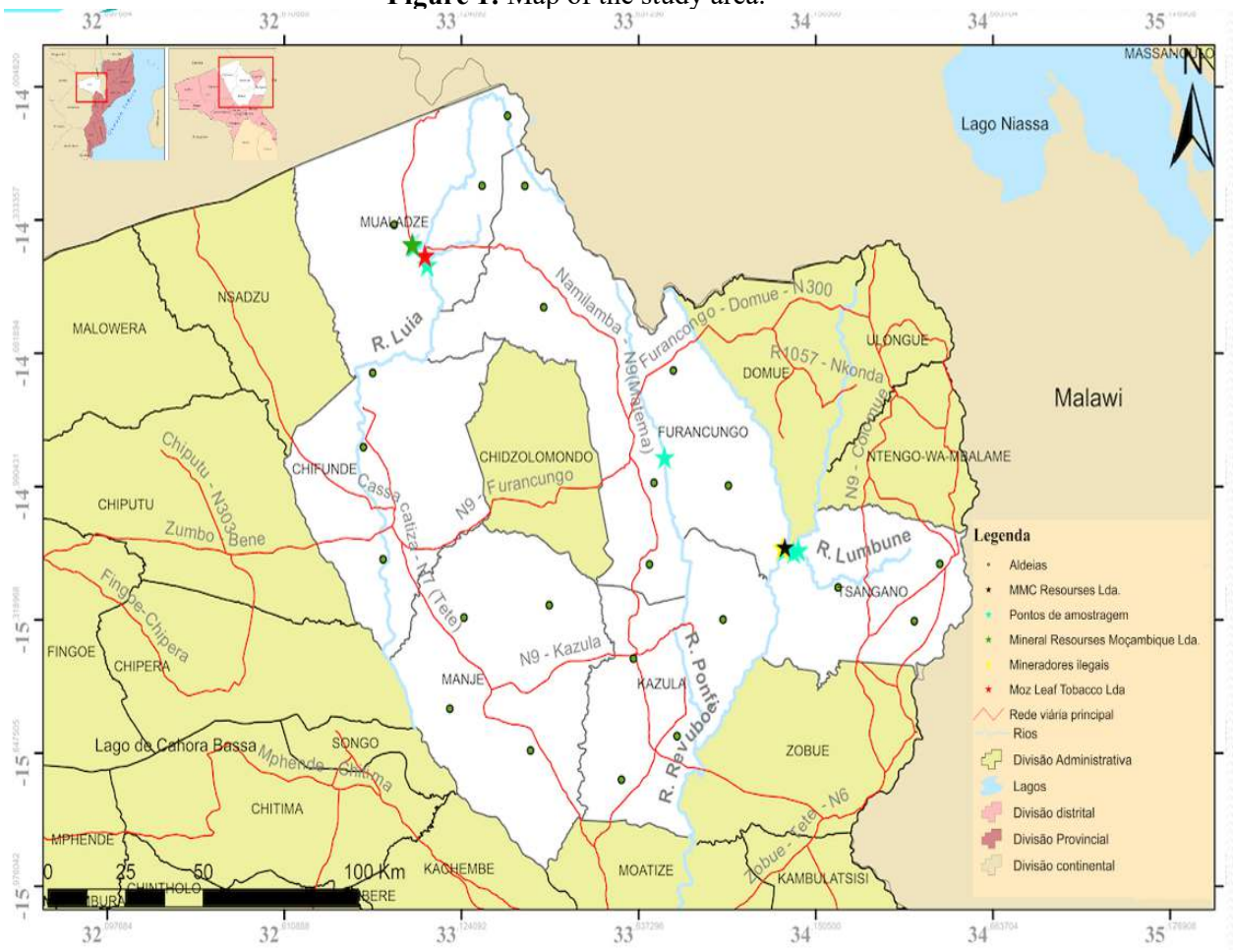
Structured and semi-structured questionnaires were administered between 15 July and 3 September 2026, with the primary aim of understanding the socio-environmental impacts associated with gold mining in Tete Province. These impacts were captured based on the perceptions of local communities situated in areas where mineral resources are extracted, as well as those of the local bodies responsible for managing and supervising mining activity. Additionally, questions were posed to local mining management bodies to identify the mechanisms adopted to prevent and combat environmental crimes, and the primary challenges faced in performing these duties.

[7] Traders were people who had the opportunity to buy and sell goods without a traditional physical shop.
[8] Traders are people who buy and sell goods from a fixed point or place of sale.

Water and sediment samples[9] from the Ponfi and Maué/Revuboe (Macanga), Lumbune (Tsangano), Muende and Luia (Chifunde) rivers were collected between 25 and 27 October 2025 to assess environmental quality. The samples were labelled PA, PB, PC (Macanga), PD (Tsangano), PE and PF (Chifunde) (Fig. 1):

PA – Ponfi River.
PB – Maué/Revuboe River near the company MMC Resources Lda , and an illegal gold panning site.
PC – Maué/Revuboe River near areas of illegal gold panning on the river and along the riverbank.
PD – Lumbune River.
PE – Muende River near the companies Mineral Resources Moçambique, Limitada and Moz Leaf Tobacco Lda, with illegal gold panning sites along the river.
PF – Luia River, with illegal gold panning sites along the river.

Figure 1: Map of the study area.



Source: From the author of the study (Mery Rodrigues, 2026).

After being collected, the samples were labelled and placed in a cool box at 4 °C for transportation to the SWISS laboratory in Maputo (see Appendix 3). The purpose of collecting water samples was to determine,

[9] Sediment is the particulate material that accumulates through deposition in aquatic environments such as rivers and lakes.

in the laboratory, physicochemical parameters, specifically turbidity, pH, oils and greases, mercury, cyanide, arsenic, lead, cadmium, nitrate, hardness, and orthophosphate. The purpose of collecting sediment samples was to determine pH, arsenic, cadmium, lead, and mercury. Sampling sites were selected based on their proximity to the mining area operated by MMC Resources, Lda., Mineral Resources Moçambique, Limitada and to areas of illegal mining.

To ensure data quality and the validity of the study, measures such as data triangulation, peer review, cross-checking of information and attention to the credibility and reliability of sources were adopted.

The study's main limitation was the lack of cooperation from MMC Resources Lda. and Mineral Resources Moçambique in providing information on their operating procedures. The companies did not respond to the interview request (see Appendix 1) submitted by the Centre for Public Integrity (CIP). This failure to respond to the CIP's interview requests is an indicator of a lack of willingness to cooperate, which reinforces the tendency for this sector to be characterised by a lack of available information – a factor consistently highlighted by the Extractive Industries Transparency Index in all its editions. To mitigate this limitation, documentary research was conducted at the National Directorate for the Environment and Climate Change (DNAMC) and at the former National Institute of Mines (INAMI), aerial images were obtained using drones, and questionnaires were administered to host communities.

Another limitation was the lack of identification signs in the areas where the companies operate, making it difficult to map gold mining companies in the districts of Macanga, Tsangano and Chifunde. As an alternative strategy, aerial images captured by drone were used to identify gold mining areas near the Ponfi and Maué/Revuboe rivers (Macanga), the Muende and Luia rivers (Chifunde) and the Lumbune river (Tsangano).

3. Results and discussion

3.1. Positive impact of gold mining on community perceptions

Gold mining brings socio-economic benefits to the communities of the Chifunde, Chiuta, Macanga and Tsangano districts. The main identified benefit is an increase in income and improved livelihoods (74 percent)[10]. Many families who depend on agriculture turn to mining during the dry season to supplement their income. In Chifunde, respondents stated that people had migrated there from other districts in search of a livelihood through mining.

Gold mining also contributes to boosting trade in the communities covered by the study. Around 20 percent of respondents mentioned the stimulation of trade as one of its benefits.

The circulation of income from mining can boost demand for goods and services and create opportunities for traders and other local service providers. This is a particularly significant benefit in these communities, where mining is one of the main economic activities. It is especially important for miners, who depend heavily on gold mining for their livelihoods.

Respondents stated that some gold mining companies have provided certain benefits to the communities. According to members of the Chiuta community and the representative of the Pedras de Mdzimbe Mining Cooperative, this company rents out a crusher to enable miners to extract gold. The company MMC Resources, Lda. built two bridges, one over the River Maué in Macanga and the other over the River Lumbune in Tsangano; it improved the road in Macanga and built Massiquidzi Primary School (Fig. 2).

Figure 2. Massiquidzi Primary School.



Source: CIP, 2026.

While the communities recognise the potential of gold mining to generate economic benefits, they believe that these benefits are insufficient and do not fully reflect their aspirations. The main expectations

[10] Informação compilada nos inquéritos realizado.

expressed include access to drinking water, construction of hospitals and schools, and signing of a Local Development Agreement by mining companies.

This perception shows that the economic benefits of mining coexist with unmet social needs. It is therefore necessary to analyse the negative impacts of gold mining, particularly with regard to environmental degradation, public health risks and consequences for local communities.

3.2. Lack of an Environmental Operating Licence for gold mining in Tete

MMC Resources, Lda., operating in Tete since 2018[11], has been doing so without an Environmental Operating Licence until 8 October 2026[12]. This constitutes a breach of Article 20(4) of Decree No. 54/2015 of 31 December[13], which states that "it is prohibited to commence any activity without an Environmental Operating Licence having been issued, on pain of a fine". According to information obtained from the National Directorate for the Environment and Climate Change (DNAMC) on 8 October 2026, the company does not hold an environmental operating licence for Tete province.

By cross-referencing data on mineral resource production and exports in Mozambique provided by the former National Institute of Mines (INAMI) with information obtained from the DNAMC, it was possible to establish that MMC Resources, Lda produced and exported approximately 1,000 kg[14], of gold between 2022 and 2025, with an annual average of 250 kg. In 2025 alone, the company produced 266.2 kg of gold, equivalent to approximately 33 million US dollars[15].

In an interview with CIP, the Director of the Tete Provincial Infrastructure Service (SPI) acknowledged weaknesses in the mechanisms for monitoring and reporting mining production, given that the production volumes reported by companies are based on self-declarations, without a sufficiently robust system of independent verification.

According to Director Otávio Semba, a comparative analysis of investments, fixed and variable mining operation costs, and declared mineral quantities has revealed discrepancies that call into question whether companies' reported production volumes match their actual production capacity. To ensure greater reliability in production reporting and transparency in the management of mineral resources, this situation requires continuous monitoring of operations, including the verification of operating costs, volumes extracted, and mineral outflows.

Director Otávio Semba also acknowledged that this challenge extends beyond the remit of the mining

[11] Diário Economico (2021, 16 de Dezembro). MMC Resources Vai Abrir Nova Mina de Extracção de Ouro em Cassossole. https://www.diarioeconomico.co.mz/2021/12/16/oilgas/extractivas/mmc-resources-vai-abrir-nova-mina-de-extraccao-de-ouro-em-cassossole/ [accessed on 03 July 2026, 2.55 pm].

[12] Date of the most recent update obtained from the National Directorate for the Environment and Climate Change (DNAMC) of the Ministry of Agriculture, Environment and Fisheries (MAAP) (see Annex 3) by the CIP research team.

[13] See p. 794–(490) of Decree No. 54/2015 of 31 December, which regulates the Environmental Impact Assessment Process.

[14] kg – kilogram

[15] The Bank of Mozambique's reference price for gold on 3 October 2025 was $3,859.85 per troy ounce. 1 ounce is equivalent to 31g of gold. Using an exchange rate of 64.5 meticais per dollar, 1 g of gold corresponds to 8,036.97 meticais. The reference price is 23.65 per cent higher than the price charged by artisanal miners in Tete, which is 6,500 meticais.

sector alone, necessitating effective coordination with the Mozambican Tax Authority and other bodies responsible for monitoring and collecting public revenue. This is to ensure that the exploitation of mineral resources appropriately contributes to the state's tax revenue.

Based on the evidence gathered, in accordance with Decree No. 54/2015 of 31 December, no activity may commence without an environmental operating licence, highlighting a lack of coordination between the Ministry of Mineral Resources and Energy (MIREME) and the Ministry of Agriculture, Environment and Fisheries (MAAP).

By commencing mining operations without first obtaining an environmental operating licence, the company MMC Resources, Lda. breached the provisions of Article 20(4) of the Regulation on the Environmental Impact Assessment Process, in conjunction with the provisions of Article 1(11) of the Environmental Regulation for Mining Activities[16] and Article 44(1)(a) of the Mining Act[17] , which stipulate that the commencement of mining operations is conditional upon the existence of an environmental licence. The licence is issued by the ministry responsible for environmental matters, in this case the MAAP.

Not only does the operation of MMC Resources Lda. without full authorisation constitute a breach of mining and environmental legislation, it also highlights shortcomings in the country's environmental enforcement capacity and breaches of the regulations governing mining activities.

This situation is serious and not confined to Tete province; it highlights a problem that may have wider implications for the Mozambican mining sector. As part of the study on 'The Invisible Cost of Gold'[18], Centre for Public Integrity (CIP) reported a similar situation involving the company HWA Minerals, Lda., which, according to the country's gold production data provided by the former INAMI, continues to mine gold without holding an environmental operating licence until October 2026 (Annex 3). A similar scenario was also identified in Niassa province, involving the company Lupilichi Mining, Lda. (see Appendix 3). These cases raise concerns regarding mining companies' compliance with environmental legislation and the effectiveness of the institutional mechanisms responsible for monitoring and controlling mining activities.

The situation regarding MMC Resources, Lda., which reportedly operated without an environmental operating licence between 2018 and 2026, requires a thorough investigation. This is necessary to clarify the circumstances under which the company commenced and continued its activities without meeting the necessary legal requirements. It is essential to ascertain whether the competent authorities were aware of this situation, what monitoring actions were carried out during this period, and why effective measures were not taken to ensure compliance with the law. Subsequently, the company must be held to account and, where legally applicable, so too must the officials and supervisory authorities who, through action or

[16] See pp. 406– (70–71) of Decree No. 26/2004 of 20 August, which approves the Environmental Regulations for Mining Activities.
[17] See p. 1448–(9) of Law No. 20/2014 of 18 August, the Mining Act.
[18] Rodrigues, M., Calangue, M., e Massingue, R. (2025, 30 de Setembro). O custo invisível do ouro em Manica: Poluição hídrica por mercúrio e seus efeitos nas comunidades. CIP. https://www.cipmoz.org/2025/09/30/o-custo-invisivel-do-ouro-em-manica-poluicao-hidrica-por-mercurio-e-seus-efeitos-nas-comunidades/

omission, allowed this situation to continue. The occurrence of similar situations in different provinces reinforces the need to investigate whether these irregularities result from isolated failures or from systemic problems in the governance of the mining sector.

The continuation of these activities without the necessary environmental authorisation may compromise the prevention and management of the socio-environmental impacts of mining and undermine the credibility of the public institutions responsible for ensuring that mining operations comply with current legislation.

In the district of Chifunde, the company Mineral Resources Moçambique Limitada carries out gold mining activities, despite not being listed on the production and marketing map of the National Institute of Mines (INAMI) at the time. The Provincial Directorate for the Environment has registered the company as a gold miner in the province of Tete.

Although Mineral Resources Moçambique, Limitada already has an Environmental Impact Assessment (EIA), it does not yet hold an environmental operating licence. The issue of this licence is pending, as the company has not yet submitted its Land Use and Exploitation Rights (DUAT) certificate[19]. It should be noted that mercury was detected in both the water and sediment samples collected from the Muende River, situated near the company's mining area, raising concerns regarding the potential impacts of this activity on environmental quality and biodiversity.

Mineral Resources Moçambique, Limitada has already commenced gold exploration activities in the Chifunde district. In the interview, the Director of the Tete SPI stated that the company is carrying out the processing of 'semi-finished' gold. Director Otávio Semba also reported that the company is currently in the process of setting up the facility for the final processing of the ore, which will enable the production of gold bars and the commencement of production reporting. This information is significant given that, according to data provided by the DNAMC, the company does not yet hold an environmental operating licence, the issue of which is conditional upon the submission of the DUAT.

The fact that ore exploration and processing activities are taking place before the environmental operating licence has been issued raises concerns about compliance with legal environmental requirements, and about the effectiveness of coordination between the institutions responsible for mineral resource management and environmental protection. The conditions under which the company's activities were authorised must be clarified, as must the monitoring mechanisms adopted by the competent authorities.

In an interview, the Director of the Tete Provincial Environment Service (SPA) acknowledged the growing demand for mining areas in the province, particularly for gold mining. Director Euclides Sidumo revealed that between 60 and 80 mining companies have applied for environmental licences, most of which are currently at the prospecting and exploration stage. Of these, more than 20 are involved in gold mining.

The expansion of mining activity presents challenges for the institutions responsible for monitoring and

[19] Information provided by the National Directorate for the Environment and Climate Change (DNAMC) on 8 October 2026.

controlling environmental impacts. This is particularly true in contexts where demand for new mining areas is not matched by effective environmental inspection and monitoring mechanisms.

3.3 Negative impacts of gold mining on water resources and communities

Gold mining in Macanga, Tsangano, Chifunde and Chiuta has had a significant negative impact on the environment and society. Notably, water pollution has had a severe impact on local communities, who depend on these resources for domestic consumption, irrigation of agricultural fields, swimming, personal hygiene, washing clothes and other household items, livestock farming and fishing. These resources are essential for the livelihoods of people in these districts, ensuring the basic conditions necessary for food security, income generation and maintaining sustainable livelihoods.

3.3.1 The Ponfi, Muende and Luia rivers are contaminated with mercury and arsenic

Laboratory results from water samples taken from the Ponfi, Muende and Luia rivers indicated the presence of heavy metals, such as mercury and arsenic, in the water. Mercury pollution was detected at concentrations 20 times higher than the limit permitted under Decree 52/2023 of 30 August[20] , in the Muende River adjacent to the mining area of Mineral Resources Moçambique, Limitada. The mercury concentration at Points A and E was 0.02 compared to 0.001 mg/L[21] permitted by Decree 52/2023 of 30 August[22] ; at Point F, the arsenic concentration was 0.02 compared to 0.1 mg/L as set out in the same Decree (Figure 1, Annex 4). Mercury pollution poses a threat to the health and safety of users, as, according to respondents, the water is used for domestic consumption (72 percent), livestock (35 percent), irrigation (28 percent) and fishing (25 percent) (fig. 3). This water pollution also jeopardises aquatic biodiversity.

Figura 3: Different Uses of River Water in Tete.



Fonte: From the study's authors (2026)

[20] Decree 52/2023 of 30 August, regulating the Quality Standards for Raw Water and for Liquid and Solid Effluent Discharges.
[21] mg/L – milligrams per litre.
[22] Ibid: Decree 52/2023 of 30 August.

Mercury is a highly toxic substance, even at low concentrations. It can accumulate in aquatic organisms and pose a serious danger to human health through the consumption of contaminated food[23].

The results indicate that the Ponfi and Muende rivers are contaminated with mercury, posing a serious threat to environmental quality and to the health and well-being of local communities. This is a particular cause for concern given these communities' dependence on water resources for a range of daily activities, including drinking water, personal hygiene, food preparation, washing clothes, washing and cleaning household utensils and homes, as well as irrigating agricultural land.

Mercury contamination[24] can occur through the ingestion of contaminated water, fish, vegetables and other foods. The Joint FAO/WHO Expert Committee on Food Additives (JECFA) has established a tolerable weekly intake of 1.6 µg/kg body weight for dietary exposure to methylmercury, with the aim of protecting the developing foetus from neurotoxic effects[25]. Methylmercury is highly absorbed by the gastrointestinal tract (over 90 percent) and accumulates readily in the brain and tissues. Health problems resulting from mercury intake include: damage to the kidneys, liver, brain, heart, lungs, colon, and to the immune, respiratory and neurological systems[26,27]. Foetuses and children exposed to mercury during pregnancy may suffer effects on cognitive development, affecting memory, attention, language, fine motor skills and visuospatial abilities[28].

Around 65 percent of respondents know people who have experienced health problems after drinking river water. The most commonly reported symptom is diarrhoea (55 percent), followed by vomiting (10 percent) and stomach ache (9 percent). Although the consumption of untreated surface water is associated with various public health problems caused by pathogenic microorganisms, it is essential to bear in mind that exposure to chemical contaminants can also give rise to similar symptoms. It is therefore essential to carry out in-depth studies to identify the actual causes of the health conditions experienced by communities consuming water from unsafe sources.

The arsenic detected in the River Luia, at point F (0.02 of 0.1 mg/L), falls within the limits stipulated in Decree 52/2023 of 30 August. Studies indicate that arsenic is commonly released during the mining and

---

[23] World Health Organisation (WHO). (24 October 2024). Mercury and health. https://www.who.int/news-room/fact-sheets/detail/mercury-and-health. [accessed on 21 September 2026 at 10:06].

[24] Mercury is highly toxic to human health, posing a particular threat to the development of the foetus and during the first years of life. It occurs naturally and exists in various forms: elemental (or metallic); inorganic (mercury chloride); and organic (methylmercury). All these forms exhibit different degrees of toxicity, with distinct implications for health and for measures designed to prevent exposure (International Chemical Safety Cards on a number of mercury compounds. Geneva: WHO and International Labour Organisation. https://www.ilo.org/dyn/icsc/showcard.home.
Elemental mercury is a liquid that vapourises easily. It can remain in the atmosphere for up to a year, where it can be transported and deposited on a global scale. It eventually settles in the sediments of lakes, rivers or bays, where it is converted into methylmercury, absorbed by phytoplankton, and ingested by zooplankton and fish.

[25] FAO/WHO Expert Committee on Food Additives (2004). Evaluation of certain food additives and contaminants: sixty-first report of the Joint FAO/WHO Expert Committee on Food Additives. Rome and Geneva: Food and Agriculture Organisation of the United Nations and World Health Organisation. https://www.who.int

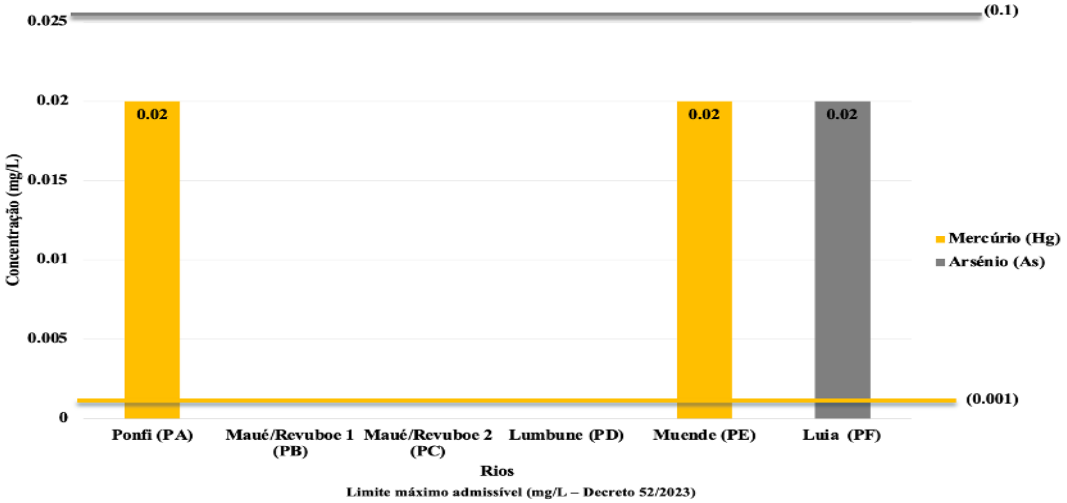
[26] Bakir, F. et al. (1973). Methylmercury poisoning in Iraq. *Science*, 181: 230.

[27] USEPA (2024, 5 December). Health Effects of Exposure to Mercury. https://www.epa.gov/mercury/health-effects-exposures-mercury [accessed 3 July 2026 at 14:55].

[28] USEPA (5 December 2024). Health Effects of Exposure to Mercury. https://www.epa.gov/mercury/health-effects-exposures-mercury [accessed 30 August 2026 at 10.01].

processing of gold ores. Prolonged exposure to arsenic can cause adverse effects on human health and is associated with the development of serious diseases, including various types of cancer and cardiovascular diseases[29].

Figure 1: Concentration of heavy metals in mg/L in the water of the Ponfi, Maué/Revuboe, Lumbune, Muende and Luia rivers.



Source: From the author of the study (Mery Rodrigues, 2026).

The water analysed from the Ponfi, Muende and Luia rivers is not recommended for human consumption, as it contains concentrations of arsenic and mercury that are two and twenty times higher, respectively, than the maximum permissible limits established by Decree No. 180/2004 of 15 September. Exposure to arsenic may increase the risk of developing skin cancer, whilst exposure to mercury can cause damage to the kidneys and the nervous system, posing a significant risk to public health[30].

Furthermore, the Muende and Luia rivers exhibited extremely high concentrations of orthophosphates[31] – 0.68 and 2.1 mg/L, respectively – classified as hypereutrophic[32], indicating that these ecosystems are in a critical state of environmental degradation, with a high probability of reduced fish biodiversity and severe eutrophication[33]. The high concentration of orthophosphate detected in the study is likely to originate from agriculture and livestock farming, from laundry and from gold extraction following the use of mercury, as

[29] Berg, M., Stengel, C., Trang, P. T. K., Viet, P. H., Sampson, M. L., & Samreth, S. (2007). Arsenic Contamination in Groundwater: Causes, Effects, and Mitigation. *Environmental Science & Technology*. DOI: 10.2350/ES14-02221.9.

[30] See page 374 of Decree 180/2004 of 15 September, which regulates the quality of water for human consumption.

[31] In Mozambique, Decree 52/2023 of 30 August does not set a maximum limit for orthophosphate in raw water, but rather for phosphorus, which is 0.1 and 0.083 mg/L for agricultural and domestic use, respectively. Under the South African *Department of Water and Sanitation* (DWS) standard, which falls under the National Water Act, orthophosphate is monitored and the health of the river is classified according to its trophic level; the maximum acceptable concentration is 0.025 mg/L, above which the river is classified as eutrophic, which is an indicator of ecosystem degradation.

[32] Toledo Jr., A. P., Talarico, M., Chinez, S. J. and Agudo, E. G. (1983). Aplicação-modelos-simplificados. Congresso Brasileiro de Engenharia Sanitária. 1983. p. 1. Available from: https://repositorio.cetesb.sp.gov.br/server/api/core/bitstreams/d7c9193b-7d01-4098-89e0-5f9b67a955cc/content [Accessed 1 August 2026].

[33] Eutrophication is a global environmental problem that has caused serious environmental and public health issues. This phenomenon has resulted in massive algal blooms, particularly of cyanobacteria, some species of which produce cyanotoxins that can cause severe liver damage, vomiting, diarrhoea, gastroenteritis, dermatitis, kidney damage, central nervous system disorders and even death.

well as from the use of washing powder[34], which contains phosphate derivatives, such as sodium tripolyphosphate (STPP)[35].

Orthophosphates are dissolved forms of phosphorus that can be absorbed by algae and macrophytes. High concentrations of phosphates can lead to eutrophication and consequently increase water turbidity[36] and the risks of public health problems.

Turbidity levels in the five rivers studied were well above the limits permitted under Decree 18/2004 of 2 June[37], which stipulates that turbidity must be zero or virtually absent. The values exceeded 1 UNT[38], with the highest recorded value being 796 UNT. These high turbidity levels may have been caused by excavation and soil disturbance in mining areas, surface runoff and soil erosion, as well as the washing and concentration of ore on the riverbanks and even within the rivers themselves.

In addition to these causes, turbidity may be linked to the constant discharge of substances from washing clothes, originating from the washing powders used by local communities when washing clothes in the rivers, as well as by miners, who, according to their own accounts, use these powders during mining operations to complete the separation of gold following the use of mercury.

The ingredients of washing powders include surfactants, builders, silicates, anti-redeposition agents, fragrances, optical brighteners and enzymes, and they contain sodium carbonate, sodium dodecylbenzene sulphonate, sodium silicate, sodium C12-13 alkyl sulphate, sodium carbonate peroxide, sodium C12-13 pareth sulphate, bentonite and sodium tripolyphosphate. These washing powders can affect water quality through their anionic surfactants, which can form foam and be toxic to fish and invertebrates, whilst sodium carbonate and sodium silicate can increase alkalinity. Sodium percarbonate can release hydrogen peroxide, which is potentially toxic at high concentrations, and bentonite can increase turbidity and particle deposition in water[39,40].

As river water has a high level of turbidity, it is unsuitable for drinking and swimming as it poses a risk to public health[41], particularly for children and people with compromised immune systems. Turbidity may indicate the presence of pathogenic microorganisms, such as bacteria, viruses and parasites, which can cause diarrhoea, nausea or other symptoms.

---

[34] The representative of the Pedras de Mdzimbe Mining Cooperative reported that gold panners use washing powder in the gold separation process.

[35] When the detergent dissolves in water, the phosphates may undergo chemical hydrolysis and biological processes, resulting in dissolved inorganic forms, including orthophosphates.

[36] Turbidity is a physical parameter used as an indicator of water quality; it is caused by suspended matter such as clay, silt, organic matter, plankton and other microorganisms that interfere with the passage of light through the water.

[37] Decree No. 18/2004 of 2 June, which approves the Regulation on Environmental Quality Standards and Effluent Emissions.

[38] Nephelometric Turbidity Unit (NTU).

[39] Roy, D. (1988). Toxicity of an anionic detergent, dodecylbenzene sodium sulphonate, to a freshwater fish, Rita rita: Determination of LC_{50} values by different methods. Ecotoxicology and Environmental Safety, 15(2), 186–194.

[40] Lewis, M. A. (1990). Chronic toxicities of surfactants and detergent builders to algae: A review and risk assessment. Ecotoxicology and Environmental Safety, 20(2), 123–140.

[41] American Public Health Association (APHA) (1998). Standard Methods for the Examination of Water and Wastewater (20th ed.). Washington DC: American Public Health Association.

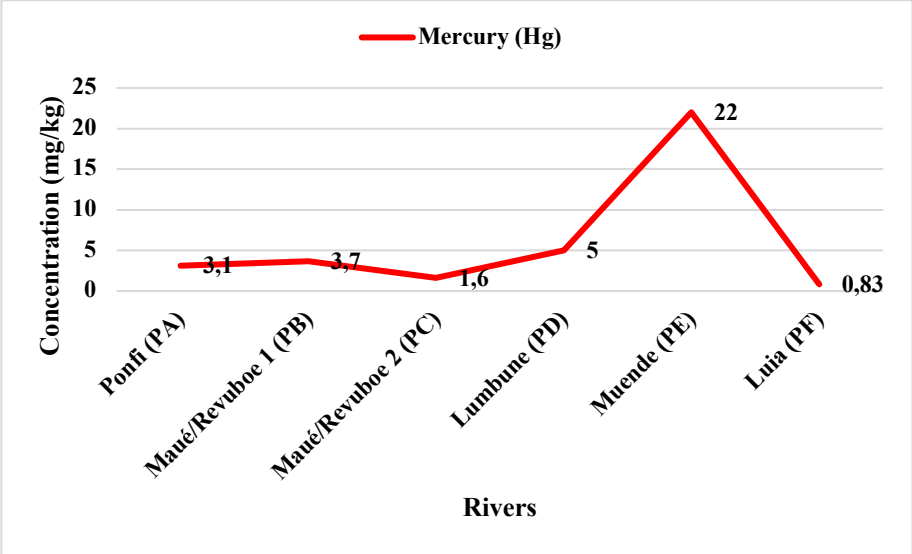
The turbidity levels detected in the study may also harm aquatic ecosystems by reducing light penetration into the water column and diminishing primary productivity, which is crucial for sustaining subsequent trophic levels, such as those of fish[42], which are important for the livelihoods of local communities.

To safeguard public and environmental health, it is essential that the National Agency for Environmental Quality Control (AQUA) regularly monitors river water quality to identify possible changes in its physical, chemical and biological composition, particularly in areas close to mining operations.

3.3.2 Mercury in the river sediments of Ponfi, Maué/Revuboe, Lumbune, Muende and Luia rivers

Samples collected from the sediments of the rivers studied indicated high concentrations of mercury in all five rivers, with values ranging from 0.83 to 22.0 mg/kg, and 0.17 mg/kg in the[43] (Figure 2, Annex 4).

Figure 2: Mercury concentration in mg/kg in river sediments.



Source: From the author of the study (Mery Rodrigues, 2026).

Ponfi, Maué/Revuboe, Lumbune, Muende and Luia rivers showed alarming levels of mercury in their sediments. This high concentration may be linked to adjacent gold mining companies and to the regions upstream of the respective rivers, where discharges of mining by-products combined with surface runoff may be contaminating water resources.

Mercury is a metal found in the Earth's crust at an average concentration of 0.08 mg/kg[44]. Mercury concentrations in the sediment of the rivers studied were extremely high, well above the maximum limit

[42] Davies-Colley, R. J., & Smith, D. G. (2001). Turbidity, suspended sediment, and water clarity: A review. Journal of the American Water Resources Association, 37(5), 1085–1101.
[43] Maximum acceptable concentration of mercury in freshwater sediments as set out in the Interim Sediment Quality Guideline for Canada established by *the Canadian Council of Ministers of the Environment* (CCME, 2019).
[44] Jonasson, I. R. and Boyle, R. W. (1971). Geochemistry of mercury. In: Mercury in man's environment. Proceedings of a symposium. *The Royal Society of Canada*, 22.

stipulated in the Canadian guideline[45]. These figures indicate that the rivers under study are heavily polluted and, unfortunately, Mozambique does not yet have regulations limiting mercury concentrations in soil and sediment.

Mercury is a toxic substance that poses a danger to public health and the ecosystem. The concentration of these heavy metals was higher in the sediment than in the water, showing that they have a greater tendency to accumulate in the sediment. Sediments are widely regarded as excellent indicators of chronic contamination in aquatic ecosystems, acting as a reservoir for contaminants.

The bioavailability and exposure of these metals to aquatic organisms are governed by their concentration and distribution between water and sediment. Sediment pollution results in adverse biological effects on aquatic organisms[46], including mortality, reduced fertility and impaired development in the early life stages of aquatic benthic organisms such as gastropods and chironomids[47].

Heavy metals persist for a long time in sediments[48] and pose a significant threat as they accumulate in food chains, from their uptake by the first trophic level—that of primary producers such as algae and macrophytes—to the final aquatic trophic level, that of fish.

Fish are important for the diet and livelihood of communities. The contamination of an aquatic ecosystem by mercury compromises the biological integrity of fish, as this metal can accumulate in various parts of their bodies, such as the flesh, liver, kidneys and gonads, thereby compromising their offspring. High concentrations of mercury in fish – levels above 0.5 mg/kg[49] – affect their survival and that of the humans who consume them, particularly endangering the most vulnerable groups, which include children, the elderly and pregnant women[50].

Gold mining has an impact on water quality and biodiversity. Contamination of water and sediment by heavy metals reduces water availability, which is a cause for concern for populations that have no other source of water for survival and livelihoods.

In the interview, Director Euclides Sidumo and Delegate Joaquim Laquene acknowledged the need to control the environmental impacts of mining and admitted to facing financial and technical constraints that hamper environmental quality monitoring. Director Euclides Sidumo stated that he did not have a laboratory to carry out water quality analyses, which makes it difficult to assess the condition of the rivers

[45] CCME (1999). Canadian sediment quality guidelines for the protection of aquatic life: Mercury. In: Canadian environmental quality guidelines for the protection of aquatic life. Winnipeg: Canadian Council of Ministers of the Environment. https://ccme.ca/en/res/mercury-canadian-sediment-quality-guidelines-for-the-protection-of-aquatic-life-en.pdf [accessed 14 April 2026 at 10.04].

[46] Aikpokpodion, P. E., Lajide, L., and Aiyesanmi, A. F. (2010). Heavy metal contamination in fungicide-treated cocoa plantations in Cross River State, Nigeria. American-Eurasian Journal of Agricultural and Environmental Sciences, 8 (3), 268–274.

[47] Ibid.

[48] Abdul-Wahab, S. A. and Marikar, F. A. (2011). The environmental impact of gold mines: pollution by heavy metals. *In Open Engineering,* 2 (2). DOI: 10.2478/s13531-011-0052-3.

[49] Maximum acceptable level in Canada for mercury in fish (Government of Canada, 2020).

[50] USEPA (5 December 2024). Health Effects of Exposure to Mercury. https://www.epa.gov/mercury/health-effects-exposures-mercury [accessed 11 May 2025 at 14:55].

and identify any contamination.

Director Euclides Sidumo and Delegate Joaquim Laquene also stated that they had no information on pollution levels in the rivers affected by mining. This situation highlights a weakness in institutional response capacity, as the body responsible for environmental monitoring of mining activities does not have sufficient analytical data to assess the risks associated with the use of mercury and the degradation of water resources.

Delegate Joaquim Laquene acknowledged the challenges in ensuring that mining companies comply with their environmental obligations, emphasising that environmental performance levels are still not satisfactory. According to the Delegate, the assessments carried out as part of environmental audits are conducted annually and have recorded performance levels of around 57 percent to 58 percent, representing an improvement on the approximately 30 percent recorded before AQUA began operating.

The poor environmental performance of mining companies highlights weaknesses in their compliance with legal obligations and in the implementation of measures to prevent, mitigate and control environmental impacts, as set out in environmental management frameworks. This situation raises concerns regarding the effectiveness of the environmental management mechanisms adopted by companies, particularly with regard to the prevention of water pollution, the management of waste and hazardous substances, and the rehabilitation of degraded areas.

Despite progress in environmental auditing and enforcement, the findings emphasise the importance of strengthening systematic monitoring of mining operations and implementing corrective and accountability measures. This will ensure that mineral resources are exploited in accordance with environmental legislation and sustainability principles.

3.4 Effects of gold mining in the districts of Macanga, Tsangano, Chifunde and Chiuta

The study found that the company Mineral Resources Moçambique, Limitada and illegal miners may be linked to mercury pollution in the Muende River in Chifunde and the Ponfi River in Macanga, through the discharge of gold-washing waste into the rivers without prior treatment. According to Alexandre Binguere, the leader of the Banda miners' camp, mercury has been used in artisanal gold mining (fig. 4).

Figura 4: Mercury use in artisanal mining.



Fonte: From the author of the study (Raúl Massingue, 2026)

Director Euclides Sidumo acknowledged that artisanal mining is one of the main sources of environmental pressure associated with gold mining in the province, highlighting the use of mercury during ore processing. The Director stated that he does not have a register of active artisanal miners, a situation which makes it difficult to identify operators, locate sources of pollution and implement monitoring and accountability mechanisms. As a response, the Director has been raising awareness amongst artisanal miners to encourage them to organise themselves into cooperatives.

The lack of systematic information on the number of operators and their respective areas of operation highlights weaknesses in the regulation of artisanal mining, particularly with regard to the use of hazardous chemicals and the prevention of water resource contamination.

The involvement of women and children in artisanal gold mining is a cause for concern. The environmental, social, and public health impacts warrant a specific and in-depth study, given their complexity and multidimensional nature.

During the study, it was observed that some women, in order to ensure their livelihood, engage in mining activities accompanied by their children, including infants (fig. 5). This reality exposes particularly vulnerable groups to extremely dangerous conditions, characterized by open pits, the risk of cave-ins and being buried, exposure to dust, and poor hygiene and sanitation, endangering the physical well-being, health, and very lives of these women and children. The situation becomes even more alarming when one considers the potential risks of exposure to toxic substances associated with gold mining, particularly mercury.

Figura 5: Women and Minors in the Gold Mining Sector.



Source: From the author of the study (Mery Rodrigues, 2026).

In addition to environmental and health risks, these women face a double vulnerability stemming from the need to balance economic survival with maternal care, often in environments lacking even the most basic conditions of safety, social protection, and medical care. Children, in turn, are exposed not only to immediate dangers but also to potential irreversible consequences for their growth, cognitive development, and well-being. The involvement of children in gold mining poses a risk to the protection of children's rights (fig. 6). It undermines school attendance and opportunities for psychosocial development and exposes minors to extremely dangerous working conditions.

Figura 6: Children Involved in Gold Mining.



Source: From the author of the study (Mery Rodrigues, 2026).

On the banks of the Maué/Revuboe River in Macanga, children were observed taking part in gold mining activities without the use of Personal Protective Equipment (PPE). The exposure of children to mercury, a chemical used in gold processing, whilst they are at a stage of neurological and cognitive development[51] increases the risk of contracting diseases associated with mercury exposure.

Consequently, efforts to combat child labor in gold mining must include the inspection of mining sites, the adoption of mechanisms for removing children from mining and reintegrating them into school, psychosocial support, socioeconomic assistance for affected families, and the administration of toxicological tests to children involved in mining.

The presence of women with infants and children in mining areas highlights the urgent need to understand the socioeconomic factors that perpetuate this situation, including poverty, the lack of alternative sources of income, and inadequate social protection mechanisms. One cannot speak of economic development when families' survival requires exposing infants and children to the risk of being buried alive, poisoning, and the jeopardizing of their future.

Miners, including women and children, do not use PPE during their activities. Furthermore, failure to observe workplace safety protocols can result in occupational health problems. Furthermore, the use of mercury in the gold separation process and the resulting exposure to this substance, through direct contact and inhalation of vapors during the burning of amalgam, can cause serious respiratory, neurological, and skin problems.

Director Otávio Semba stated that there are instances of non-compliance with occupational health and

[51] USEPA (2024, 5 December). Health Effects of Exposure to Mercury. https://www.epa.gov/mercury/health-effects-exposures-mercury [accessed 30 August 2026 at 10.01].

safety standards in mining activities, highlighting the failure to use PPE, notably helmets, boots and appropriate clothing. The Director also noted that some mining companies do not employ environmental technicians to ensure the proper management of toxic substances used during ore extraction and processing. These practices increase workers' vulnerability to occupational risks and exposure to hazardous chemicals, particularly in a context where mercury is used in gold recovery.

The lack of qualified professionals in environmental management, combined with a failure to comply with personal protective measures, highlights weaknesses in the implementation of occupational safety obligations and the prevention of environmental impacts, requiring greater coordination between the Ministry of Labour, Gender and Social Action (MTGAS), MAAP, MIREME and MISAU.

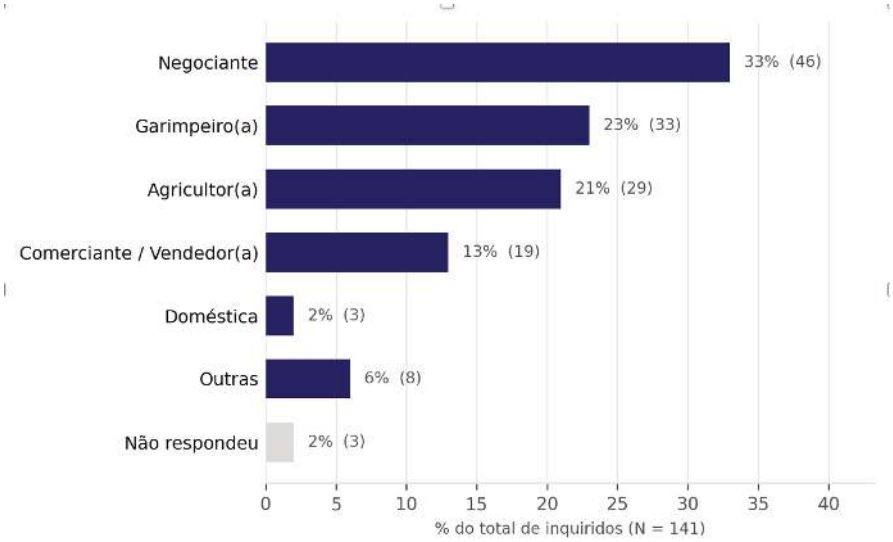
Communities living in Cassupe/Furancungo, Mugomo and Thaundi-Namadende (Macanga), Chiandame (Tsangano), Banda, Muende and Mugomo (Chifunde), M'Duimbi and Mdzimbe (Chiuta) are exposed to mercury. Exposure to mercury through inhalation, ingestion of contaminated water or food can lead to public health problems.

With a view to protecting public health, the Ministry of Health (MoH) could strengthen the capacity of the national health system to prevent, identify and respond to the potential effects of mercury exposure by implementing mechanisms for epidemiological surveillance and screening of populations living in areas subject to contamination, with particular attention to pregnant women and children, given their greater vulnerability. The Ministry could also strengthen the training of healthcare professionals in the diagnosis and management of diseases associated with mercury exposure, as well as establish coordination mechanisms with environmental authorities, with a view to monitoring contamination risks and the timely adoption of measures to protect public health.

Report from communities in the districts of Macanga, Tsangano, Chifunde and Chiuta

65 percent of the 141 surveys carried out in the districts of Macanga, Tsangano, Chifunde and Chiuta, were completed by male respondents and 35 percent by female respondents. The average age of participants is 32, ranging from 19 to 57. The profile of respondents includes traders (33 percent), miners (23 percent), farmers (21 percent), shopkeepers (13 percent), domestic workers (2 percent) and others (6 percent) (Figure 3), 97 percent of whom stated they were aware of gold mining in the region, listing the names of companies in the region including MMC Resources Lda. in Macanga, Mineral Resources Moçambique, Limitada and Rio Mugomo SU, SA. in Chifunde.

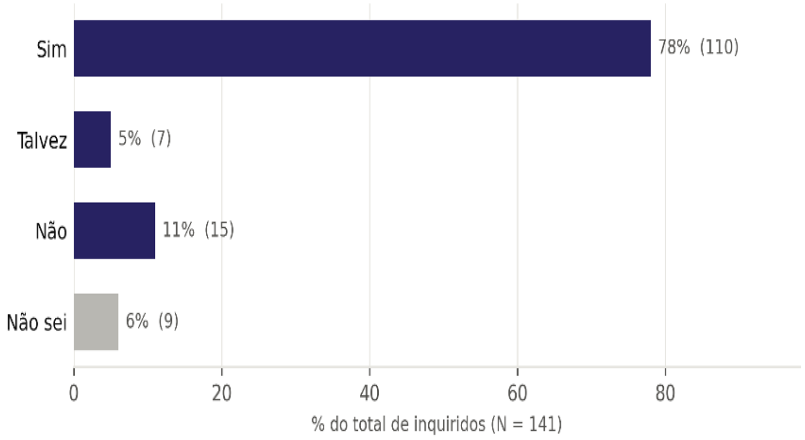
Figure 3. Profile of respondents from the districts of Chiuta, Chifunde, Macanga and Tsangano.



Source: CIP, 2026.

The majority of respondents (78 percent) are in favour of gold mining (Figure 4) as it improves the source of income in the communities. Only 9 percent of these reported environmental damage resulting from mining, such as river and soil contamination and a decline in fish stocks.

Figure 4: Percentage of respondents in favour of gold mining in Tete.



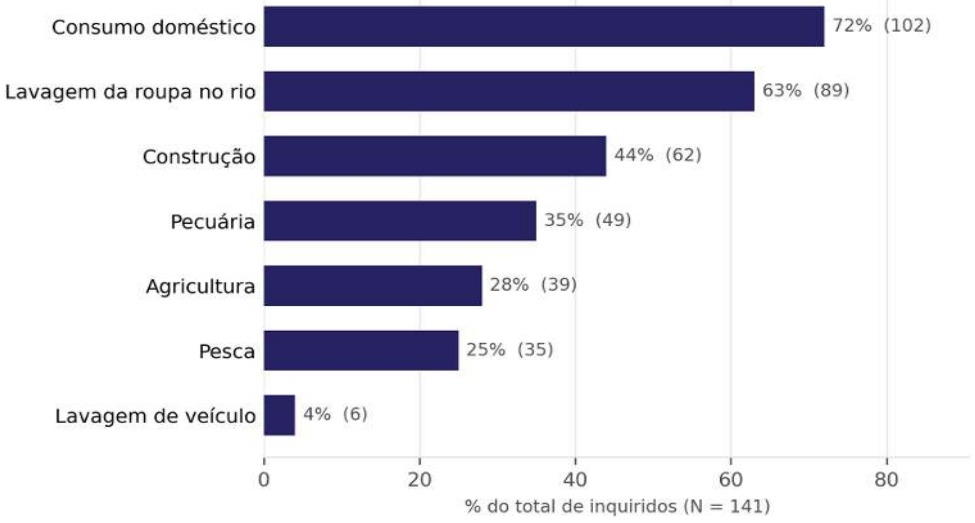
Source: CIP, 2026.

Rivers are the source of water for the majority (91%) of respondents, whilst the remainder use water from other sources such as Malulu Lagoon (4%) and the spring[52] (1%). Respondents reported that they use river water for various purposes, namely domestic consumption (72 percent), washing clothes in the river (63 percent), construction (44 percent), livestock farming (35 percent), agriculture (28 percent), fishing (25 percent), washing vehicles (4 percent) and alluvial gold mining (1 percent) (Figure 5). The water used for domestic consumption serves various purposes, including drinking (93%), personal hygiene (92%), food preparation (89%), washing clothes (72%) and household utensils (69%), cleaning the home (65%) and

[52] In addition to the respondents, during the interview on 26 August 2026, the traditional leader of the village of Cassupe stated that the communities use water from the spring for domestic consumption.

irrigation (1%).

Figure 5: Uses of rivers by communities in the districts of Chiuta, Macanga, Chifunde and Tsangano.



Source: CIP, 2026.

Furthermore, more than half of those surveyed (54 percent) stated that river flow had decreased, and 28 percent said it had fallen to less than half its previous level. The reduction in river flow may be linked to various factors, including irresponsible gold mining[53] , domestic consumption, irrigation, livestock farming and the fact that these are seasonal rivers, which further highlights the need for effective water resource management.

Gold mining companies may be using surface water resources in an unsustainable manner. Excessive water abstraction to supply mining areas and ore-washing processes reduces river flow, jeopardising the survival of aquatic flora and fauna and affecting the availability of water for local communities. Uncontrolled water extraction, combined with chemical pollution from heavy metals and phosphates, could lead to the collapse of the rivers[54], and Tete; it is therefore imperative that water consumption in mining operations be rigorously monitored, regulated and controlled by the competent authorities.

Rivers are vital to the survival and livelihoods of communities in the districts of Macanga, Tsangano, Chifunde and Chiuta. Their degradation could harm thousands of people and even future generations if preventive or mitigating measures are not taken into account in good time. Respondents reported that water quality has deteriorated over the last 10 years; whilst 10 years ago, 43 percent of them described river water as clear/clean, 66 percent now state that the water is cloudy. The decline in river water quality may be related to public health issues.

[53] Rodrigues, M., Calangue, M., e Massingue, R. (2025, 30 de Setembro). O custo invisível do ouro em Manica: Poluição hídrica por mercúrio e seus efeitos nas comunidades. *CIP*. https://www.cipmoz.org/2025/09/30/o-custo-invisivel-do-ouro-em-manica-poluicao-hidrica-por-mercurio-e-seus-efeitos-nas-comunidades/

[54] River collapse refers to a severe and often irreversible loss of the ecological balance of a watercourse, rendering it incapable of sustaining aquatic life, supplying the population or fulfilling its natural functions within the environment.

The physical and chemical deterioration of the water, as well as posing a risk to public health, may compromise fish stocks and fish health. Around 38 percent of respondents stated that fish are currently scarce, in contrast to the situation 10 years ago, when they were very abundant and it was possible to catch *Ncheni, Mbhangua, Ndziyo* (tiger fish), *Mulamba* (African catfish), *Nkunga / Mucunga* (snakefish/eel), *Nkhongolo, Ngongolo, Nkholocolo* (catfish), *Pende, Mberu, Tchambo and Mpassa* (tilapia).

The rivers under study may have seen a reduction in fish abundance as a result of the ingestion of water and food contaminated with heavy metals[55], high turbidity and low water flow[56,57]. In addition to requiring organisms from lower trophic levels - which depend on water transparency to carry out photosynthesis (algae and macrophytes) - to reproduce and sustain zooplankton and macroinvertebrate communities, fish rely on visual cues to feed[5859].

As for social benefits, the majority (60%) of respondents stated that companies and prospectors' associations do not carry out social projects, with the benefits mainly accruing to individual incomes and sometimes outside the community. Another aspect is that only 8% of all respondents participated in decision-making during the initial phase of the projects.

Low community participation in public consultations is a recurring problem in mining projects[60,61] and others[62]. Communities have not been informed about proposed projects to be developed in the region, which reduces their participation during consultations, where these take place, and this lack of prior and informed consultation has led to numerous social conflicts between local authorities, gold mining companies and local communities over land disputes.

The land expropriation in Mugomo is one of the main examples of conflict between the communities and Mineral Resources Moçambique, Limitada. According to the representative of the 7 de Setembro Mining Association, the disputes surrounding the area led to the company's premises being occupied in 2014.

Furthermore, there has often been a lack of active and effective community participation in decision-making regarding mineral extraction projects. Communities have often taken part in public consultations

[55] Ali, H., Khan, E., & Ilahi, I. (2019). Environmental Chemistry and Ecotoxicology of Hazardous Heavy Metals: Environmental Persistence, Toxicity, and Bioaccumulation. Journal of Chemistry, 2019, Article ID 6730305. You can read or access the publication via the Wiley Online Library

56 Atli, G.; Canli, M. 2010. Response of the antioxidant system of the freshwater fish *Oreochromis niloticus* to acute and chronic metal (Cd, Cu, Cr, Zn, Fe) exposures. Ecotoxicology and Environmental Safety, 73: 1884–1889.

57 Jabeen, G.; Javed, M.; Azmat, H. 2012. Assessment of heavy metals in fish collected from the River Ravi, Pakistan. Pakistan Veterinary Journal, 32: 107–111.

[58] Utne-Palm, A. C. (2002). Visual feeding of fish in a turbid environment: Physical and behavioural aspects. Marine and Freshwater Behaviour and Physiology, 35(1–2), 111–128.

[59] Fernandes, R., Pelicice, F. M., Ferreira, E. A., Menezes, C. W. F., & Tavares, V. N. S. (2025). The effect of turbidity on predator–prey interactions between invasive fish species. Environmental Biology of Fishes, 108(10).

[60] Rodrigues, M., Calangue, M., e Massingue, R. (2025, 30 de Setembro). O custo invisível do ouro em Manica: Poluição hídrica por mercúrio e seus efeitos nas comunidades. Centro de Integridade Pública.

[61] Rodrigues, M., Mate, R., e Massingue, R. (2024, 19 de Setembro). Mineração predatória: Impactos socioeconómico e ambiental da exploração de areias pesadas pela empresa Haiyu Mining, para as comunidades do distrito de Angoche. Centro de Integridade Pública.

[62] Rodrigues, M. (2026, 31 de Março). Avaliação dos benefícios das comunidades e a transparência orçamental no Programa Integrado de Gestão da Paisagem da Zambézia (ZILMP). Centro de Integridade Pública.

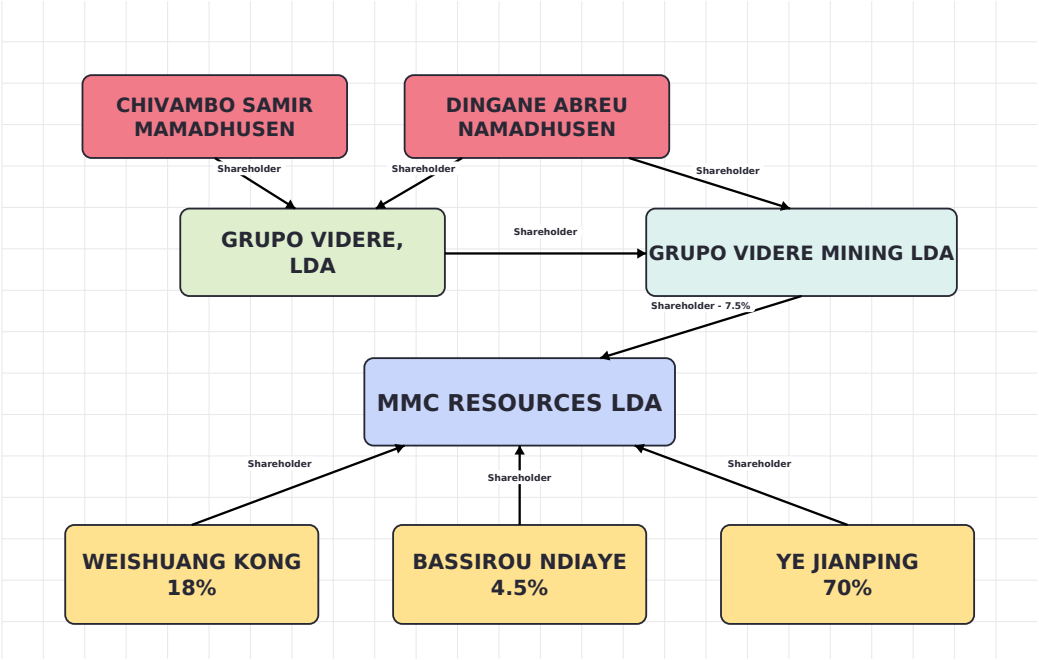
without knowing which mineral is to be extracted, its economic value, the goods and services required to improve their quality of life, the environmental and social problems arising from mining, or how to monitor environmental quality – which is crucial for safeguarding the health and food security of the communities hosting the projects.

Due to the social problems outlined, the communities are calling for access to drinking water, the fulfilment of social responsibility, and the allocation of profits from gold sales towards improving their living conditions, including hospitals, schools and water pumps.

3.5 Alcinda Abreu's children linked to environmental offences in gold mining in Tete

MMC Resources, Lda., a company engaged in gold mining in the districts of Macanga and Tsangano, in Tete province, without holding an Environmental Operating Licence for its concessions (Appendix 3), was incorporated in Maputo, on 7 November 2013. According to the certificate of incorporation, the company has a share capital of 20,000.00 MT (twenty thousand meticais), held by four shareholders: a Chinese national named Ye Jianping, who holds 70 percent of the share capital; another Chinese national, Weishuang Kong, with 18 percent; Videre Mining Group, Lda , with 7.5 percent; and a Malawian national, Bassirou Ndiaye, who holds 4.5 percent[63] (see fig. 7 and Appendix 5).

Figura 7: PEPs Linked to Gold Mining in Tete.



Source: From the author of the study (Milagrosa Calangue, 2026).

[63] Information obtained from the company's certificate.

The Abreu family's connection to MMC Resources, Lda. is established through Grupo Videre Mining, Lda , the company's third-largest shareholder. Grupo Videre Mining, Lda was incorporated on 6 August 2015, with Alcinda Abreu's son, Dingane Abreu Mamadhusen, and Grupo Videre, Lda[64] as shareholders (see Appendix 6). Meanwhile, Grupo Videre, Lda was incorporated on 27 April 2011, with Alcinda Abreu and her two sons, Chivambo Samir Mamadhusen and Dingane Abreu Mamadhusen[65], as shareholders (see Appendix 7).

In October 2017, Alcinda Abreu formally ceased to be a shareholder in Grupo Videre, Lda., transferring her 30 percent shareholding, amounting to 6,000.00 MT, to her two children. Each child received 50 percent of the shares previously held by their mother[66] (see Appendix 8).

In addition to representing the interests of Grupo Videre Mining, Lda., Dingane Abreu Mamadhusen serves as a director of MMC Resources, Lda., alongside Bassirou Ndiaye. In this capacity, he has full powers to represent the company in all matters under both domestic and international law[67] (see Appendix 9).

The business links between Alcinda Abreu's children and MMC Resources, Lda. are particularly significant given their mother's political position. Alcinda Abreu has been a member of Frelimo's Political Commission, a body comprising 21 members[68], for over 20 years. According to Frelimo's party statutes, the Political Commission is responsible for coordinating and guiding the actions of not only the Frelimo parliamentary group, but also the Government[69]. This means that any decisions the Government wishes to make must be submitted to this body for consideration and approval. This demonstrates the Political Commission's supremacy over the Government. In other words, there is no fundamental decision that the Government can take without submitting it to this body.

Furthermore, Alcinda Abreu has held the post of State Councillor since March 2026. The role involves advising the President of the Republic on the performance of his duties and issuing opinions on matters of crucial importance to the life of the State.

Thus, although Alcinda Abreu is no longer listed as a direct shareholder of this company, her children still hold the family's stake in MMC Resources, Lda, which remains politically exposed. This stake amounts to 7.5 percent of MMC Resources, Lda.

Mozambique's anti-money laundering regime (Law No. 14/2023 of 28 August) extends the definition of Politically Exposed Persons (PEPs) beyond officeholders. It also considers their family members to be PEPs, including their spouse or civil partner, as well as their parents and children.

[64] See p. 2614 — (1)— (4) of the Government Gazette No. 67, Series III, Supplement of 24 August 2015.
[65] See p. 448 — (14) — (15) of the Government Gazette No. 19, Series III, Supplement of 11 May 2011.
[66] See p. 6644 of the Government Gazette No. 165, Series III, Supplement of 23 October 2017.
[67] Information obtained from the company's certificate.
[68] Fael, B., Cortez, E., Essinalo, G., Maússe, I., Mabunda, M., Rodrigues, M., Calangue, M., Mate, R., Boene, T., Bila, S. and Chilundo, Z. (11 March 2026). GOVERNAÇÃO EM 2026: RISCOS A MONITORAR NO SEGUNDO ANO DE GOVERNAÇÃO DE DANIEL CHAPO. CIP. 6ª ed.
[69] Ibid.

Why does the involvement of PEPs pose a risk?

The involvement of Alcinda Abreu's children in the shareholding structure and management of MMC Resources, Lda is consistent with the business relations commonly observed in the Mozambican mining sector. In these relations, foreign-owned companies establish shareholdings with national PEPs, which can potentially facilitate access to licences for the exploitation of resources in strategic areas.

These shareholdings are not illegal in themselves. However, they can expose the mining sector to corruption, environmental regulation breaches and impunity. When a foreign company forms a shareholdership with a national partner linked to influential figures within the political elite, it may benefit from networks of influence with the bodies responsible for licensing, oversight and accountability. These relationships can create conditions that allow companies to operate outside legal requirements and without accountability.

During the launch of the CIP study on the invisible cost of gold in Manica[70] in October 2025, the representative of the Provincial Environment Directorate in Manica Province criticised the supervisory authorities for their inaction in the face of influential figures associated with the mining sector. "*We are all in a position to identify the companies, approach the Chinese national working there, and ask them about the owners of the company. If the Chinese national fails to contact the real owner within the next minute, someone will call for the enforcement officers to be removed from the premises*" he said.

In this context, transparency regarding the ultimate beneficial owners of companies operating in the mining sector is of particular importance.

In 2016, as part of the commitments made by Mozambique under the Extractive Industries As part of Mozambique's commitments under the Extractive Industries Transparency Initiative (EITI) in 2016, a regulation requiring the disclosure of the beneficial owners of companies in the extractive industries[71] was to be adopted by 2020. However, this obligation was not introduced until 2024 through the Regulation on the Register of Legal Entities, which was approved by Decree-Law No. 1/2024 on 8 March. This regulation now requires companies to register their beneficial owners with the Registry of Legal Entities.

Despite this progress, information on beneficial owners remains unavailable to the public. Access to this information is restricted to authorities such as the Attorney General's Office and the Tax Authority, whose heads are appointed by the executive branch – a which raises the risk of political interference. Furthermore, the mining sector still lacks a specific regime for disclosing this information, which limits transparency regarding the individuals who effectively control the companies exploiting the country's mineral resources.

[70] For further details, see: https://www.cipmoz.org/2025/09/30/o-custo-invisivel-do-ouro-em-manica-poluicao-hidrica-por-mercurio-e-seus-efeitos-nas-comunidades/

[71] Bande *et al* (2023). *Falta de Lei Propicia Corrupção no Sector Extractivo e no Procurement Público.* Available at: https://www.cipmoz.org/wp-content/uploads/2023/08/Beneficiarios-Efectivos-CIP.pdf . [Accessed on 10 November 2026 at 12.00].

4. Conclusions

Gold mining in Tete Province has improved the monthly income and living conditions of local communities by creating jobs and developing trade. However, this activity incurs significant hidden social and environmental costs.

There is also evidence of serious environmental infringements, such as in the case of MMC Resources, Lda. and Mineral Resources, which are mining gold in the districts of Macanga and Chifunde, respectively, without an environmental operating licence. This constitutes a clear violation of the Regulation on the Environmental Impact Assessment Process.

The high levels of mercury pollution in the waters of the Ponfi and Muende rivers, which are 20 times higher than permitted, pose a risk to public health. This is particularly true for communities that depend on these water resources for domestic consumption, agricultural irrigation and subsistence fishing. Prolonged exposure to mercury is not only a public health issue, but also an environmental justice issue, as it can affect populations whose survival depends directly on local water resources disproportionately.

The presence of mercury detected in all the studied river sediments shows that these ecosystems are acting as reservoirs of toxicity. Gold mining companies carrying out their activities in the vicinity of, and sometimes even within, the rivers may be linked to their mercury contamination, which poses a high risk of bioaccumulation and biomagnification in fish, thereby jeopardising food security.

Among local authorities, there are institutional weaknesses in the province's environmental and mining governance. The main problems identified include the weak institutional coordination between MIREME and MAAP, insufficient financial and laboratory resources for monitoring environmental quality, the lack of a register of artisanal miners, non-compliance with the measures set out in environmental management instruments, discrepancies in the declared mining production figures, and shortcomings in compliance with occupational safety standards.

Despite inspection activities and the imposition of fines by AQUA, the study's findings demonstrate the persistence of environmental risks, particularly those associated with mercury contamination of water resources. The lack of laboratory capacity in provincial institutions limits the ability to identify, monitor and respond promptly to pollution incidents, compromising the protection of aquatic ecosystems and the communities that depend on them. These findings reinforce the need for coordinated, preventive and transparent action by public institutions, accompanied by effective mechanisms for environmental monitoring and accountability.

5. Recommendations

Promoting sustainable mining requires the commitment and effective collaboration of all responsible stakeholders. In this context, the following is recommended:

i) To the companies MMC Resources, Lda. and Mineral Resources Moçambique, Limitada, and to artisanal miners:

- Comply with national environmental legislation and good practices in gold mining;
    - The companies MMC Resources, Lda. and Mineral Resources Moçambique, Limitada, must:
      - Suspend mining activities until an environmental operating licence has been obtained;
      - Once compliance has been achieved:
        Prepare and publish quarterly reports on the quality of effluents discharged into the environment;
        Make reports on environmental control and monitoring, and on the level of implementation of local development, available on their website;
- Respect the rights of host communities and establish a Local Development Agreement (LDA);
- Provide and require workers to use Personal Protective Equipment;
- Adopt clean technologies and replace mercury-based methods with alternatives such as flotation and gravity concentrators for industrial mining, and non-toxic methods such as sodium borate and pan or manual washing for artisanal miners;
- Provide training for staff on sustainable mining and safe methods for handling toxic substances whilst carrying out their work;
- Implement an effective waste treatment system based on Nature-based Solutions (NbS), such as phytoremediation;
- Apply the phytoremediation method using Typha capensis or other Nature-based Solutions (NbS) in areas contaminated with mercury.

ii) To the Council of Ministers:

- Establish a Multisectoral Commission of Inquiry to:
    - Assess the impacts of gold mining in Tete Province;
    - Assess the compliance with the law of the mining operations of MMC Resources, Lda. and Mineral Resources Moçambique, Limitada in Tete;
    - Assess the compliance with the law of the activities of other companies operating in gold mining throughout the country.
- Establish inter-ministerial working groups comprising the MAAP, MIREME, MISAU and the Ministry of Labour, Gender and Social Action to ensure the integrated management of occupational risks in the country's gold mining sector.

iii) To the Ministry of Agriculture, Environment and Fisheries (MAAP):

- Establish environmental education initiatives for host communities and require gold mining companies to carry out environmental education campaigns and provide basic training for some members of host communities as part of their social responsibility;
- Fund the construction of laboratories for AQUA, so that this regulatory body can assess environmental quality by carrying out physical, chemical and biological analyses in mining areas,

thereby enabling it to follow up on the environmental monitoring reports submitted by companies.

iv) To the National Agency for Environmental Quality Control (AQUA):

- Impose a fine on the companies MMC Resources, Lda. and Mineral Resources Moçambique, Limitada for operating without an Environmental Operating Licence;
- Carry out regular environmental quality inspections in Tete and across the country;
- Publish on its website the reports of inspections carried out across the country and the sanctions imposed;
- Together with ARA-Centro, assess the water quality of rivers in Tete province, particularly the concentration of heavy metals and phosphates;
- Compare the results of the environmental quality assessments carried out with the environmental quality reports submitted by mining companies, firms and associations.

v) To the Ministry of Mineral Resources and Energy (MIREME):

- In conjunction with the Tax Authority and other relevant bodies, improve the tax inspection mechanisms for gold mining companies and cooperatives/associations, so as to ensure an adequate contribution to the State's tax revenue;
- Disseminate best practices developed by gold mining companies, associations and other entities;
- Limit mining areas and prohibit gold mining near or within riverbeds;
- Resolve and manage conflicts between companies and local communities.
- Strengthen coordination with the MAAP regarding mining and environmental licences.

vi) Ministry of Health (MISAU):

- Strengthen the capacity of the national health system to prevent, identify and respond to the potential effects of mercury exposure, through the implementation of epidemiological surveillance mechanisms and screening of populations living in areas subject to contamination, with particular attention to pregnant women and children, given their greater vulnerability.
- Train health professionals to diagnose and monitor diseases associated with mercury exposure, as well as to establish coordination mechanisms with environmental authorities, with a view to monitoring contamination risks and the timely adoption of measures to protect public health.

vii) To the Ministry of Labour, Gender and Social Action (MTGAS):

- Investigate the working conditions of employees in gold mining companies and associations/co-operatives, with a view to assessing occupational risks and taking preventive and corrective measures;
- Ensure the monitoring of child labour in the gold mining sector in the country;
- In conjunction with MISAU, identify and refer children involved in mining for toxicological testing and provide them with psychosocial support;
- Allocate resources to monitor working conditions in mining activities, ensuring compliance with occupational health and safety standards, particularly for women, young people and people with disabilities.

viii) To the Ministry of Finance:

- Create tax incentives for companies that adopt clean technologies;

- Ensure transparency in the management of funds transferred to communities by publishing details of the amounts deposited by all companies in the extractive industry on the websites of the Ministry of Mineral Resources and Energy and the Ministry of Finance.

ix) To the Attorney General's Office:

- Investigate and hold to account those responsible for environmental offences and crimes, and for violations of the collective rights of host communities;
- Investigate the circumstances under which the companies MMC Resources, Lda. and Mineral Resources Moçambique, Limitada have been operating for almost a decade (2018 to 2026) without an environmental operating licence and, where there are grounds to do so, hold the companies and the supervisory authorities that allowed this to happen to account;
- Work in conjunction with the Centre for Legal and Judicial Training to strengthen the training of judges, prosecutors, and the National Criminal Investigation Service (SERNIC) in matters relating to corruption and environmental crimes, including their impact on communities. Ensure that cases involving environmental damage are punished.

x) To Parliament:

- Establish a Parliamentary Committee of Inquiry to investigate:
    - The use of hazardous chemicals in mining operations in Tete province and other provinces where gold is mined;
    - The working conditions of employees of gold mining companies and associations/co-operatives;
- To review the Environment Act, which has been in force for almost three decades, and bring it into line with current environmental protection requirements, taking mining into account. The Act must address the issue of mining separately and make reference to climate change, given that mining has an impact on the climate through the unchecked destruction of vegetation and the emission of pollutants into the atmosphere;
- Require the Government to approve regulations on soil quality standards and the quality of river and lake sediments, taking into account the various human activities and their impacts across different sectors: agriculture, livestock farming and fisheries, as well as on water quality. For example, in gold mining areas, parameters such as mercury, arsenic, lead, cadmium and other heavy metals in the soil are essential;
- Call on the Government to adopt a regulation on water use, particularly in areas where natural resources are extracted;
- Revise Ministerial Decree 180/2004 of 15 September, which regulates Water Quality Standards for human consumption. The Decree must include limits for chlorophyll″ and″ , and reduce the turbidity limit from 5 UNT[72] to zero;
- Step up oversight of the Government's actions relating to mining;
- Conduct working visits to natural resource extraction companies and local communities, through the Parliamentary Committee on Agriculture, Economy and the Environment;
- Include questions relating to illegal mining and poor practices in the exploitation of natural resources in communications with the Government.

[72] Nephelometric Turbidity Unit (NTU).

xi) To the academic community:

- Conduct nationwide studies on environmental quality, including heavy metals, in water resources near mineral resource extraction sites;
- Assess the trophic level of rivers and lakes throughout the country, particularly in areas subject to anthropogenic influence;
- Carry out studies to assess the concentration of heavy metals in fish from rivers in Tete province;
- Conduct studies on the abundance and diversity of fish in the rivers of Tete Province;
- Test the ability of native species to remove heavy metals such as mercury and arsenic from soil and water, for subsequent use as phytoremediators;
- In partnership with the National Institute of Health – carry out toxicological analyses and biomonitoring of heavy metals, particularly mercury and arsenic, in communities living around polluted rivers.

xii) To Civil Society Organisations and Grassroots Community Organisations:

- Raise awareness amongst host communities about the risks posed by mercury to health and the environment;
- Promote transparency in the mining sector through discussion forums on mining in Mozambique;
- Promote accountability for environmental offences by reporting and publicising bad practices;
- Promote the conduct of independent studies with the support of universities or research centres.

6. References

- Abdul-Wahab, S. A. e Marikar, F. A. (2011). The environmental impact of gold mines: pollution by heavy metals. *In Open Engineering,* 2 (2). DOI: 10.2478/s13531-011-0052-3.
- Aikpokpodion, P. E., Lajide, L., e Aiyesanmi, A. F. (2010). Heavy metals contamination in fungicide treated cocoa plantations in Cross River State, Nigeria. American-Eurasian Journal of Agricultural and Environmental Sciences, 8 (3), 268–274.
- Ali, H., Khan, E., & Ilahi, I. (2019). Environmental Chemistry and Ecotoxicology of Hazardous Heavy Metals: Environmental Persistence, Toxicity, and Bioaccumulation. Journal of Chemistry, 2019, Article ID 6730305. You can read or access the publication through the Wiley Online Library
- American Public Health Association (APHA) (1998). Standard Methods for the Examination of Water and Wastewater (20th ed.). Washington DC: American Public Health Association.
- Atli, G.; Canli, M. 2010. Response of antioxidant system of freshwater fish Oreochromis niloticus to acute and chronic metal (Cd, Cu, Cr, Zn, Fe) exposures. Ecotoxicology and Environmental Safety, 73: 1884-1889.
- Bakir, F. et al. (1973). Methylmercury poisoning in Iraq. *Science*, 181: 230.
- Berg, M., Stengel, C., Trang, P. T. K., Viet, P. H., Sampson, M. L., & Samreth, S. (2007). Arsenic Contamination in Groundwater: Causes, Effects, and Mitigation. *Environmental Science & Technology*. Doi: 10.2350/ES14-02221.9.
- CCME (1999). Canadian sediment quality guidelines for the protection of aquatic life: Mercury. In: Canadian environmental quality guidelines for the Protection of Aquatic Life. Winnipeg: Canadian Council of Ministers of the Environment. https://ccme.ca/en/res/mercury-canadian-sediment-quality-guidelines-for-the-protection-of-aquatic-life-en.pdf [acessado a 14 de Abril de 2026 as 10:04h].
- Davies-Colley, R. J., & Smith, D. G. (2001). Turbidity, suspended sediment, and water clarity: A review. Journal of the American Water Resources Association, 37(5), 1085–1101.
- Decreto 52/2023, de 30 de Agosto, que regula os Padrões de Qualidade de Água Bruta e de Descargas de Efluentes Líquidos e Sólidos.
- Decreto n.º 54/2015, de 31 de dezembro que regula o Processo de Avaliação do Impacto Ambiental.
- Decreto n°18/2004 de 02 de Junho que aprova o Regulamento sobre Padrões de Qualidade Ambiental e de Emissões de Efluentes.
- Decreto n°26/2004 de 20 de Agosto que aprova o Regulamento Ambiental para a Actividade Mineira.
- Diário Economico (2021, 16 de Dezembro). MMC Resources Vai Abrir Nova Mina de Extracção de Ouro em Cassossole. https://www.diarioeconomico.co.mz/2021/12/16/oilgas/extractivas/mmc-resources-vai-abrir-nova-mina-de-extraccao-de-ouro-em-cassossole/ [acessado a 03 de Julho de 2026 as 14:55h].
- FAO/WHO Expert Committee on Food Additives (2004). Evaluation of certain food additives and contaminants: sixty-first report of the Joint FAO/WHO Expert Committee on Food Additives. Rome and Geneva: Food and Agriculture Organization of the United Nations and World Health Organization. https://www.who.int
- Fernandes, R., Pelicice, F. M., Ferreira, E. A., Menezes, C. W. F., & Tavares, V. N. S. (2025). The effect of turbidity on predator–prey interactions between invasive fish species. Environmental Biology of Fishes, 108(10).
- Instituto Nacional de Minas (INAMI) através da nota com referência N.Ref. 2368/INAMI/DG/2026.

- International Chemical Safety Cards (ICSCs) on a number of mercury compounds. Geneva: World Health Organization and International Labour Organization. https://www.ilo.org/dyn/icsc/showcard.home.
- Jabeen, G.; Javed, M.; Azmat, H. 2012. Assessment of heavy metals in the fish collected from the river Ravi, Pakistan. Pakistan Veterinary Journal, 32: 107-111.
- Jonasson, I. R. e Boyle, R. W (1971). Geochemistry of mercury. In: Mercury in man's environment. Proceedings of a symposium. *The Royal Society of Canada*, 22.
- Lei nº 07/2026 de 03 de Junho Lei de Minas.
- Lewis, M. A. (1990). Chronic toxicities of surfactants and detergent builders to algae: A review and risk assessment. Ecotoxicology and Environmental Safety, 20(2), 123–140.
- Organização Mundial da Saúde (OMS). (2024, 24 de Outubro). Mercúrio e saúde. https://www.who.int/news-room/fact-sheets/detail/mercury-and-health. [acessado a 21 de Setembro de 2026, às 10:06h].
- Rodrigues, M. (2026, 31 de Março). (2026). Avaliação dos benefícios das comunidades e a transparência orçamental no Programa Integrado de Gestão da Paisagem da Zambézia (ZILMP). Centro de Integridade Pública.
- Rodrigues, M., Calangue, M., e Massingue, R. (2025, 30 de Setembro). O custo invisível do ouro em Manica: Poluição hídrica por mercúrio e seus efeitos nas comunidades. Centro de Integridade Pública. https://www.cipmoz.org/2025/09/30/o-custo-invisivel-do-ouro-em-manica-poluicao-hidrica-por-mercurio-e-seus-efeitos-nas-comunidades/ [acessado a 30 de Agosto de 2026 as 18:45h].
- Rodrigues, M., Mate, R., e Massingue, R. (2024, 19 de Setembro). Mineração predatória: Impactos socioeconómico e ambiental da exploração de areias pesadas pela empresa Haiyu Mining, para as comunidades do distrito de Angoche. Centro de Integridade Pública.
- Roy, D. (1988). Toxicity of an anionic detergent, dodecylbenzene sodium sulfonate, to a freshwater fish, Rita rita: Determination of LC50 values by different methods. Ecotoxicology and Environmental Safety, 15(2), 186–194.
- Serviço Provincial de Ambiente de Tete – dados fornecidos no dia 03 de Setembro de 2026.
- Shandro, J. A., Veiga, M. M., e Chouinard, R. (2009). Reducing mercury pollution from artisanal gold mining in Munhena, Mozambique. Journal of Cleaner Production, 17(5), 525–532.
- Spiegel, S. J., Savornin, O., Shoko, D., e Veiga, M. M. (2006). Mercury reduction in Munhena, Mozambique: Homemade solutions and the social context for change. International Journal of Occupational and Environmental Health, 12(3), 215–221.
- Swain, E. B., Jakus, P. M., Rice, G., Lupi, F., Maxson, P. A., Pacyna, J. M., Penn, A., Spiegel, S. J., e Veiga, M. M. (2007). Socioeconomic consequences of mercury use and pollution. Ambio, 36(1), 45–61.
- Toledo Jr., A. P., Talarico, M., Chinez, S. J. and Agudo, E. G. (1983). Aplicação-modelos-simplificados. Congresso Brasileiro de Engenharia Sanitária. 1983. p. 1. Available from: https://repositorio.cetesb.sp.gov.br/server/api/core/bitstreams/d7c9193b-7d01-4098-89e0-5f9b67a955cc/content [acessado a 01 de Agosto de 2026 as 16:45h].
- USEPA (2024, 05 de Dezembro). Health Effects of Exposures to Mercury. https://www.epa.gov/mercury/health-effects-exposures-mercury [acessado a 30 de Agosto de 2026 as 10:01h].
- Utne-Palm, A. C. (2002). Visual feeding of fish in a turbid environment: Physical and behavioural aspects. Marine and Freshwater Behaviour and Physiology, 35(1-2), 111–128.

7. ANNEX

I- Letter requesting interviews with MMC Resources Lda. and Mineral Resources Moçambique, Limitada

13/10/2026

MMC RESOURCES
NUIT: 400471622
Av. Kim il Sung, n.º 95
MAPUTO
Contacto: 850485203

CIP
CENTRO DE INTEGRIDADE PÚBLICA
Boa Governação - Transparência - Integridade

À
Empresa MMC Resources, Lda.

Maputo, 12 de Outubro de 2026

N. Ref.ª C.104/EC/2026

Assunto: Pedido de entrevista / informação sobre a exploração de ouro na província de Tete

O Centro de Integridade Pública (CIP), organização da sociedade civil moçambicana que trabalha nas áreas da transparência, anticorrupção e integridade na esfera pública, encontra-se a realizar uma pesquisa sobre os impactos socioambientais da mineração de ouro em Moçambique.

A extracção de ouro é uma actividade com elevado potencial económico, mas que pode igualmente provocar impactos negativos no ambiente e na coesão social. Entre os principais impactos destacam-se a poluição dos recursos hídricos, a alteração dos cursos dos rios e a contaminação dos solos, colocando em risco a saúde das comunidades e a sustentabilidade ambiental.

No âmbito do trabalho de pré-pesquisa, foi identificada uma concessão mineira pertencente à empresa MMC Resources, Lda., localizada no distrito de Macanga província de Tete, onde a empresa desenvolve actividades de exploração de ouro.

Neste contexto, e ao abrigo do artigo 14 da Lei n.º 34/2014, de 31 de Dezembro, Lei do Direito à Informação, o CIP vem, por este meio, solicitar a realização de uma entrevista com os representantes da empresa, com o objectivo de obter esclarecimentos sobre as operações mineiras desenvolvidas na referida concessão, os seus impactos socioambientais e as medidas adoptadas para prevenir, mitigar e monitorar eventuais danos ambientais.

Adicionalmente, solicitamos a disponibilização dos seguintes documentos, referentes aos últimos 5 anos, conforme aplicável:

Rua Fernão Melo e Castro n.º 124, Bairro da Sommerschield
Tel.: (+258) 21 499916 ou (+258) 21 499917 | Cel.: (+258) 84 389 0584
E-mail: cip@cipmoz.org | www.cipmoz.org | Maputo - Moçambique

1. Relatório do Estudo de Impacto Ambiental (EIA) da empresa;
2. Licença ambiental em vigor e respectivas actualizações;
3. Relatórios de controlo e monitoria ambiental relativos às actividades de exploração mineira.

Agradecemos, desde já, a atenção dispensada ao presente pedido e manifestamos a nossa disponibilidade para coordenar a data, a hora e os demais detalhes necessários à realização da entrevista.

Na expectativa de uma resposta favorável, subscrevemo-nos com elevada estima e consideração.

Atenciosamente,

Edson Cortês, Ph.D

Director Executivo

Rua Fernão Melo e Castro n.º 124, Bairro da Sommerschield
Tel.: (+258) 21 499916 ou (+258) 21 499917 | Cel.: (+258) 84 389 0584
E-mail: cip@cipmoz.org | www.cipmoz.org | Maputo - Moçambique

CENTRO DE INTEGRIDADE PÚBLICA
Boa Governação - Transparência - Integridade

À
Empresa Mineral Resources Moçambique, Limitada

Maputo, 12 de Outubro de 2026

N. Ref.ª C.760/EC/2026

Assunto: Pedido de entrevista / informação sobre a exploração de ouro na província de Tete

O Centro de Integridade Pública (CIP), organização da sociedade civil moçambicana que trabalha nas áreas da transparência, anticorrupção e integridade na esfera pública, encontra-se a realizar uma pesquisa sobre os impactos socioambientais da mineração de ouro em Moçambique.

A extracção de ouro é uma actividade com elevado potencial económico, mas que pode igualmente provocar impactos negativos no ambiente e na coesão social. Entre os principais impactos destacam-se a poluição dos recursos hídricos, a alteração dos cursos dos rios e a contaminação dos solos, colocando em risco a saúde das comunidades e a sustentabilidade ambiental.

No âmbito do trabalho de pré-pesquisa, foi identificada uma concessão mineira 4719C, pertencente à empresa Mineral Resources Moçambique, Limitada, localizada no distrito de Chifunde, província de Tete, onde a empresa desenvolve actividades de exploração de ouro.

Neste contexto, e ao abrigo do artigo 14 da Lei n.º 34/2014, de 31 de Dezembro, Lei do Direito à Informação, o CIP vem, por este meio, solicitar a realização de uma entrevista com os representantes da empresa Mineral Resources Moçambique, Limitada, com o objectivo de obter esclarecimentos sobre as operações mineiras desenvolvidas na referida concessão, os seus

Rua Fernão Melo e Castro n.º 124, Bairro da Sommerschield
Tel.: (+258) 21 499916 ou (+258) 21 499917 | Cel.: (+258) 84 389 0584
E-mail: cip@cipmoz.org | www.cipmoz.org | Maputo - Moçambique

Recebi. 30/10/2026
Bivi Forenze
Mineral Resource, Lda

impactos socioambientais e as medidas adoptadas para prevenir, mitigar e monitorar eventuais danos ambientais.

Adicionalmente, solicitamos a disponibilização dos seguintes documentos, referentes aos últimos 5 anos, conforme aplicável:

1. Relatório do Estudo de Impacto Ambiental (EIA) da empresa;
2. Licença ambiental em vigor e respectivas actualizações;
3. Relatórios de controlo e monitoria ambiental relativos às actividades de exploração mineira.

Agradecemos, desde já, a atenção dispensada ao presente pedido e manifestamos a nossa disponibilidade para coordenar a data, a hora e os demais detalhes necessários à realização da entrevista.

Na expectativa de uma resposta favorável, subscrevemo-nos com elevada estima e consideração.

Atenciosamente,

Edson Cortês, Ph.D

Director Executivo

Rua Fernão Melo e Castro n.º 124, Bairro da Sommerschield
Tel.: (+258) 21 499916 ou (+258) 21 499917 | Cel.: (+258) 84 389 0584
E-mail: cip@cipmoz.org | www.cipmoz.org | Maputo - Moçambique

II- Map of Gold Production, Exports, and Domestic Sales in the Country from 2022 to 2025

INAMI
Instituto Nacional de Minas

MAPA DE DE PRODUÇÃO DE OURO em Kg

Ord.	Nº da Licença	Titular	Região Geográfica	2022	2023	2024	2025	Obs.
1	9783C	Mwiriti Mining 1	Cabo Delgado	0.43	0.08	0.01	0.00	
2	9785C	Mwiriti Mining 3	Cabo Delgado	0.35	0.41	0.57	0.08	
3	9786C	Mwiriti Mining 6	Cabo Delgado	0.20	0.05		1.27	
4	8566C	AFRICA MINERAIS LIMITADA	Manica	9.29	7.85	1.12	9.31	
5	6333C	AFRICAORO	Manica					
6	9600C	Bangor Mining, Lda	Manica	7.57		4.64	3.94	
7	8870C	Clay & Gravel Mining, Limitada	Manica	6.63	1.91	18.64	8.84	
8	3373C	Clean Tech Mining, Lda	Manica	38.16	24.34	20.13	103.09	
9	3421C	Companhia Mineira de Gilé	Manica			4.80	3.16	
10	9353C	Daima Mining Mozambique SA	Manica		2.92	10.77	20.85	
11	3990C	Explorator, Lda	Manica	189.50	363.23	50.97	44.20	
12	8624C	Flomining Lda	Manica	12.94	11.72	20.71	13.66	
13	8400C	Harvest Fame, Lda	Manica			7.16	7.05	
14	4814C	HS Mining, Limitada	Manica	2.20	1.54	1.38	9.31	
15	7352C	KD Prospero	Manica	7.05		8.83	8.51	
16	9562C	Labenmon International Mining, Lda	Manica	6.32	7.16	7.68	5.67	
17	10644C	Marangue Mining	Manica	0.22	0.85			
18	3924C	Mineradores de Mavonde, Lda	Manica			3.16	2.73	
19	7404C	NRG Africa, Lda	Manica	3.05	0.51	3.16	1.34	
20	9724C	Precious Activities	Manica	0.02				
22	3881C	SLT Mining, Lda	Nampula					
23	11147C	Lapilitchi Mining Lda	Niassa			16.12	11.39	
24	9040C	MMC Resources, Lda	Tete	223.60	253.00	259.03	266.20	
25	220C	Two Hills Mining Company, Ltd	Manica	0.02	5.61	3.72	0.17	
26	3468C	Nilton Arao Jose	Zambézia					
27	11460LPM	Mutapa Mining & Processing Lda	Manica		268.48	414.95	414.95	
28	11743CM	Cooperativa dos Mineradores artesanais de Tsiquir, Lda.	Sofala		0.04	0.03		
29	8243 CM	Associação de Chiveve	Zambézia	4.62	5.81	3.02	1.31	
39	UGPK	Rastrio UGPK	Nampula					
40	9101C	Horizotes Minerais, Lda	Manica		13.41	6.62		
41	8499C	HWA Minerais, Lda	Manica			9.81	4.91	
Ord.	**Nº da Licença**	**Titular**	**Região Geográfica**	**2022**	**2023**	**2024**	**2025**	**Obs.**
1	6671/SM/01	Associações Mineiras 7 de Abril e Wakucia	Cabo Delgado	6.627	2.588	1.026	5.900	

Legenda
Sem início de Produção
Produção Paralisada

INAMI
Instituto Nacional de Minas

EXPORTAÇÃO DE OURO em Kg

Ord.	Nº da Licença	Titular	Região Geográfica	2022	2023	2024	2025	Obs.
1	8566C	AFRICA MINERAIS LIMITADA	Manica					
2	6333C	AFRICAORO	Manica					
3	8870C	Clay & Gravel Mining, Limitada	Manica					
4	3373C	Clean Tech Mining, Lda	Manica					
5	3421C	Companhia Mineira de Gilé	Manica					
6	3990C	Explorator, Lda	Manica	39.23	68.97			
7	8624C	Flomining Lda	Manica					
8	9101C	Horizontes Minerais, Lda	Manica					
9	4814C	HS Mining, Limitada	Manica					
10	7352C	KD Prospero	Manica					
11	9562C	Labenmon International Mining, Lda	Manica					
12	7404C	NRG Africa, Lda	Manica					
13	11147C	Lupilichi Mining, Lda	Niassa				5.00	
14	9040C	MMC Resources, Lda	Tete	240.00	180.00	280.00	300.00	
15	8243 CM	Associação de Chiveve	Zambézia					
16	220C	Two Fulls Mining Company, Ltd	Manica					
17	11460LPM	Mutapa Mining & Processing.,Lda	Manica		281.85	419.07	443.94	

Legenda

Sem início de exportação

Não exportou

INAMI
Instituto Nacional de Minas

EXPORTAÇÃO DE OURO em Kg

Ord.	Nº da Licença	Titular	Região Geográfica	2022	2023	2024	2025	Obs.
1	8566C	AFRICA MINERAIS LIMITADA	Manica					
2	6333C	AFRICAORO	Manica					
3	8870C	Clay & Gravel Mining, Limitada	Manica					
4	3373C	Clean Tech Mining, Lda	Manica					
5	3421C	Companhia Mineira de Gilé	Manica					
6	3990C	Explorator, Lda	Manica	39.23	68.97			
7	8624C	Flomining Lda	Manica					
8	9101C	Horizontes Minerais, Lda	Manica					
9	4814C	HS Mining, Limitada	Manica					
10	7352C	KD Prospero	Manica					
11	9562C	Labenmon International Mining, Lda	Manica					
12	7404C	NRG Africa, Lda	Manica					
13	11147C	Lupilichi Mining, Lda	Niassa				5.00	
14	9040C	MMC Resources, Lda	Tete	240.00	180.00	280.00	300.00	
15	8243 CM	Associação de Chiveve	Zambézia					
16	220C	Two Fulls Mining Company, Ltd	Manica					
17	11460LPM	Mutapa Mining & Processing.,Lda	Manica		281.85	419.07	443.94	

Legenda

Sem início de exportação

Não exportou

INAMI
Instituto Nacional de Minas

COMERCIALIZAÇÃO INTERNA DE OURO em Kg

Ord.	Nº da Licença	Titular	Região Geográfica	2022	2023	2024	2025	Obs.
1	8566C	AFRICA MINERAIS LIMITADA	Manica	5.547	7.849			
2	9600C	Bangor Mining, Lda	Manica	3.125	3.047	4.160		
3	8870C	Clay & Gravel Mining, Limitada	Manica	3.714	1.910	19.817		
4	3373C	Clean Tech Mining, Lda	Manica	9.306	18.145	16.527		
5	3421C	Companhia Mineira de Gilé	Manica			2.374		
6	9353C	Daima Mining Lda	Manica		2.380	3.169		
7	3990C	Explorator, Lda	Manica	9.886	3.130	33.502		
8	8624C	Flomining SA	Manica	5.456	11.716	20.707		
9	4814C	HS Mining, Limitada	Manica	1.330	1.017	1.375		
10	8499C	HWA Minerais, Lda	Manica		1.260	7.939	6.471	
11	8400C	Harvest Fame, Lda	Manica			3.814		
12	9101C	Horizontes Minerais, Lda	Manica	8.506	11.983	5.461		
13	7352C	KD Prospero	Manica	4.606		9.560		
14	9562C	Labenmon International Mining, Lda	Manica	1.380	5.245	5.118		
15	10644C	Marangue Mining	Manica		0.625			
16	3924C	Mineradores Mavonde, Lda	Manica			1.655		
17	7404C	NRG Africa, Lda	Manica	2.220	0.210	2.728		
18	220C	Two Fulls Mining Company, Ltd	Manica	0.015	3.899	3.221		
19	9040C	MMC Resources, Lda	Tete			19.000		

Ord.	Nº da Licença	Titular	Região Geográfica	2022	2023	2024	2025	Obs.
1	6671/SM/01	Associações Mineiras 7 de Abril e Wakueia	Cabo Delgado	2.166	0.548	0.319		

Legenda

Sem início de venda interna

Não vendeu internamente

III- Information on the environmental operating permits of certain mining companies

REPÚBLICA DE MOÇAMBIQUE

MINISTÉRIO DA AGRICULTURA, AMBIENTE E PESCAS
DIRECÇÃO NACIONAL DO AMBIENTE E MUDANÇAS CLIMÁTICAS

AO:
CENTRO DE INTEGRIDADE PÚBLICA - CIP
Exmo.Senhor Edson Cortês
Director Executivo
Maputo

N.Ref 628**/MAAP/DINAMC/GDN/252/26** **Maputo 16 /10/2026**

Assunto: **Pedido de consulta de Licença Ambiental**

Exmo. Senhor,

A Direcção Nacional do Ambiente e Mudanças Climáticas (DINAMC), em referência à Vossa Nota n.º C.623/EC/2026, de 31 de Agosto, através da qual solicita, ao abrigo do artigo 14 da Lei n.º 34/2014, de 31 de Dezembro (Lei do Direito à Informação), a consulta de 11 Estudos de Impacto Ambiental, informa que foram disponibilizados 6 estudos já consultados. Relativamente aos restantes 5, apresentam-se os seguintes fundamentos:

1. Lupilichi Mining, Lda. – Lago Niassa: não possui Licença Ambiental;
2. Rio Mugomo – Chifunde -Tete: processo de licenciamento ambiental em curso;
3. Mineral Resources – Chifunde -Tete: emissão da Licença Ambiental condicionada à apresentação do DUAT;
4. MMC Resources, Lda – Tete – Nos nossos registos consta a Licença Ambiental da empresa na Província de Niassa;
5. GPS Minerais – Chifunde -Tete: não foi localizada informação nos nossos registos.

Sem mais momento, apresentamos os nossos melhores cumprimentos.

A Directora Nacional

Sónia Muando
(Investigadora Assistente)

Rua da Resistência 1746/47, 2115 – CP 2020 **HSL**

IV- Laboratory results

1. Physical and chemical parameters of the water in the studied rivers (points: PA through PF)

SwissLab

Laboratório de Controle de Qualidade

RELATÓRIO DE ENSAIO Nr.: 250720

Cliente:

Cliente Nr: 79

Morada: Maputo-Mocambique,

Versão: 1

Estado: Boletim Definitivo

Ponto de Amostragem:

Referência: Águas dos Rios (1)

Descrição da Amostra: PA - 01 (1)

Responsável pela Amostragem: Cliente

Data de Colheita: 29/10/2025 (1)

Data de Receção: 29/10/2025

Data de Início da Análise: 29/10/2025

Data de Fim da Análise: 06/11/2025

Data de Emissão: 06/11/2025 16:36:00

Ensaio	Método de Análise	Resultados	Unidades	Valor Limite
Físico-Química				
Turvação *	SMEWW 2130B, 24ª Edição	1,48	NTU	---
Determinação de pH *	MI(IT/SwissLab/FQL/007)(Rev.6)	6,60	Sorensen	---
Óleos e Graxas *	SMEWW 5520 D, 24ª Edição	< 1,0 (LQ)	mg/L	---
Determinação de Mercúrio (Hg) *	SMEWW 3120/3030E,24ª Edição	0,02	mg/L	---
Cianeto Total (CN) *	SMEWW 4500- CN D, 24ª Edição	< 0,01 (LQ)	mg/L	---
Determinação de Arsénio (As) *	SMEWW 3120/3030E,24ª Edição	< 0,01 (LQ)	mg/L	---
Determinação de Chumbo (Pb) *	SMEWW 3120/3030E,24ª Edição	< 0,01 (LQ)	mg/L	---
Determinação de Cádmio (Cd) *	SMEWW 3120/3030E,24ª Edição	< 0,01 (LQ)	mg/L	---
Nitrato (NO_3) *	SMEWW 4500 - NO3 B,24ª Edição	0,552	mg/L	---
Dureza Total *	SMEWW 2340 C, 24ª Edição	85	mg/L	---
Ortofosfato *	SMEWW 4500 - P E, 24ª Edição	< 0,20 (LQ)	mg/L	---

Observações

Os resultados se referem apenas aos itens ensaiados e se aplicam às amostras conforme rececionadas.
Os dados fornecidos pelo cliente são da sua responsabilidade. (1)

SwissLab – Laboratório de Controle de Qualidade, E-mail: swisslab.moz@gmail.com, Tel1: (+258) 21 780 405, Tel2: (+258) 84/87 30 08 193, Avenida da Namoacha, nr 2229 Q.20, Bairro do Fomento - Matola

Laboratório de Controle de Qualidade

RELATÓRIO DE ENSAIO Nr.: 250720

Joel Macandja

(Gestor da Qualidade)

Os ensaios assinalados com * não estão incluídos no âmbito de acreditação.

A amostragem não está incluída no âmbito da acreditação.

A reprodução proibida sem a permissão do laboratório, salvo na íntegra.
Sempre que o resultado da amostra estiver associado ao sinal (±). quer dizer que a amostra apresenta valor da incerteza associada ao respectivo ensaio.
A incerteza é determinada com o grau de confiança aproximadamente 95% e k igual a 2 para uma distribuição normal.
As opiniões e apreciações estão fora do âmbito da acreditação. Na declaração da conformidade para a regra de decisão não é contabilizada a incerteza.

MI.IT/Swisslab - Método interno de instrução de trabalho; U - Incerteza expandida; LQ - Limite de Quantificação; UFC - Unidades Formadoras de Colónias; NTU - Nephilometric Turbidity Units; TCU - True Colour Unit; mg/L - miligramas por litro, µg/L - microgramas por litro, µs/cm - microsiems por centimetro, MI.PE /SwissLab - Método Interno de Procedimento de Ensaio; SMEWW - Standard Method of Examination of Water and Wastewater; EPA - Environmental Protection Agency; DIN - Deutsches Institut fur Normung (Instituto Alemão para Normalização); BS - British Standard; EN - European Standard; NP - Norma Portuguesa; ISO - International Organization for Standardization; AOAC - Association of Official Agricultural Chemists: NIR – Near Infrared Spectroscopy, CMMEF - Compendium of Methods for the Microbiolobical Examination of Foods.

SwissLab – Laboratório de Controle de Qualidade, E-mail: swisslab.moz@gmail.com, Tel1: (+258) 21 780 405, Tel2: (+258) 84/87 30 08 193, Avenida da Namoacha, nr 2229 Q.20, Bairro do Fomento - Matola

Laboratório de Controle de Qualidade

RELATÓRIO DE ENSAIO Nr.: 250722

Cliente:

Cliente Nr: 79

Morada: Maputo-Mocambique,

Versão: 1

Estado: Boletim Definitivo

Ponto de Amostragem:

Referência: Águas dos Rios (1)

Descrição da Amostra: PB - 01 (1)

Responsável pela Amostragem: Cliente

Data de Colheita: 29/10/2025 (1)

Data de Receção: 29/10/2025

Data de Início da Análise: 29/10/2025

Data de Fim da Análise: 06/11/2025

Data de Emissão: 06/11/2025 16:36:00

Ensaio	Método de Análise	Resultados	Unidades	Valor Limite
Físico-Química				
Turvação *	SMEWW 2130B, 24ª Edição	28,4	NTU	---
Determinação de pH *	MI(IT/SwissLab/FQL/007)(Rev.6)	7,63	Sorensen	---
Óleos e Graxas *	SMEWW 5520 D, 24ª Edição	< 1,0 (LQ)	mg/L	---
Determinação de Mercúrio (Hg) *	SMEWW 3120/3030E,24ª Edição	< 0,005 (LQ)	mg/L	---
Cianeto Total (CN) *	SMEWW 4500- CN D, 24ª Edição	< 0,01 (LQ)	mg/L	---
Determinação de Arsénio (As) *	SMEWW 3120/3030E,24ª Edição	< 0,01 (LQ)	mg/L	---
Determinação de Chumbo (Pb) *	SMEWW 3120/3030E,24ª Edição	< 0,01 (LQ)	mg/L	---
Determinação de Cádmio (Cd) *	SMEWW 3120/3030E,24ª Edição	< 0,01 (LQ)	mg/L	---
Nitrato (NO_3) *	SMEWW 4500 - NO3 B,24ª Edição	1,39	mg/L	---
Dureza Total *	SMEWW 2340 C, 24ª Edição	73	mg/L	---
Ortofosfato *	SMEWW 4500 - P E, 24ª Edição	< 0,20 (LQ)	mg/L	---

Observações
Os resultados se referem apenas aos itens ensaiados e se aplicam às amostras conforme rececionadas.
Os dados fornecidos pelo cliente são da sua responsabilidade. (1)

SwissLab – Laboratório de Controle de Qualidade, E-mail: swisslab.moz@gmail.com, Tel1: (+258) 21 780 405, Tel2: (+258) 84/87 30 08 193, Avenida da Namoacha, nr 2229 Q.20, Bairro do Fomento - Matola

Laboratório de Controle de Qualidade

RELATÓRIO DE ENSAIO Nr.: 250722

Joel Macandja

(Gestor da Qualidade)

Os ensaios assinalados com * não estão incluídos no âmbito de acreditação.

A amostragem não está incluída no âmbito da acreditação.

A reprodução proibida sem a permissão do laboratório, salvo na íntegra.

Sempre que o resultado da amostra estiver associado ao sinal (±), quer dizer que a amostra apresenta valor da incerteza associada ao respectivo ensaio.

A incerteza é determinada com o grau de confiança aproximadamente 95% e k igual a 2 para uma distribuição normal.

As opiniões e apreciações estão fora do âmbito da acreditação. Na declaração da conformidade para a regra de decisão não é contabilizada a incerteza.

MI.IT/Swisslab - Método interno de instrução de trabalho; U - Incerteza expandida; LQ - Limite de Quantificação; UFC - Unidades Formadoras de Colónias; NTU - Nephilometric Turbidity Units; TCU - True Colour Unit; mg/L - miligramas por litro, µg/L - microgramas por litro, µs/cm - microsiems por centimetro, MI.PE /SwissLab - Método Interno de Procedimento de Ensaio; SMEWW - Standard Method of Examination of Water and Wastewater; EPA - Environmental Protection Agency; DIN - Deutsches Institut fur Normung (Instituto Alemão para Normalização); BS - British Standard; EN - European Standard; NP - Norma Portuguesa; ISO - International Organization for Standardization; AOAC - Association of Official Agricultural Chemists; NIR – Near Infrared Spectroscopy, CMMEF - Compendium of Methods for the Microbiolobical Examination of Foods.

SwissLab – Laboratório de Controle de Qualidade, E-mail: swisslab.moz@gmail.com, Tel1: (+258) 21 780 405, Tel2: (+258) 84/87 30 08 193, Avenida da Namoacha, nr 2229 Q.20, Bairro do Fomento - Matola

Laboratório de Controle de Qualidade

RELATÓRIO DE ENSAIO Nr.: 250724

Cliente:

Cliente Nr: 79

Morada: Maputo-Mocambique,

Versão: 1

Estado: Boletim Definitivo

Ponto de Amostragem:

Referência: Águas dos Rios (1)

Descrição da Amostra: PC - 01 (1)

Responsável pela Amostragem: Cliente

Data de Colheita: 29/10/2025 (1)

Data de Receção: 29/10/2025

Data de Início da Análise: 29/10/2025

Data de Fim da Análise: 06/11/2025

Data de Emissão: 06/11/2025 16:36:00

Ensaio	Método de Análise	Resultados	Unidades	Valor Limite
Físico-Química				
Turvação *	SMEWW 2130B, 24ª Edição	36,7	NTU	---
Determinação de pH *	MI(IT/SwissLab/FQL/007)(Rev.6)	7,61	Sorensen	---
Óleos e Graxas *	SMEWW 5520 D, 24ª Edição	< 1,0 (LQ)	mg/L	---
Determinação de Mercúrio (Hg) *	SMEWW 3120/3030E,24ª Edição	< 0,005 (LQ)	mg/L	---
Cianeto Total (CN) *	SMEWW 4500- CN D, 24ª Edição	< 0,01 (LQ)	mg/L	---
Determinação de Arsénio (As) *	SMEWW 3120/3030E,24ª Edição	< 0,01 (LQ)	mg/L	---
Determinação de Chumbo (Pb) *	SMEWW 3120/3030E,24ª Edição	< 0,01 (LQ)	mg/L	---
Determinação de Cádmio (Cd) *	SMEWW 3120/3030E,24ª Edição	< 0,01 (LQ)	mg/L	---
Nitrato (NO_3) *	SMEWW 4500 - NO3 B,24ª Edição	0,513	mg/L	---
Dureza Total *	SMEWW 2340 C, 24ª Edição	111	mg/L	---
Ortofosfato *	SMEWW 4500 - P E, 24ª Edição	< 0,20 (LQ)	mg/L	---

Observações

Os resultados se referem apenas aos itens ensaiados e se aplicam às amostras conforme rececionadas.
Os dados fornecidos pelo cliente são da sua responsabilidade. (1)

SwissLab – Laboratório de Controle de Qualidade, E-mail: swisslab.moz@gmail.com, Tel1: (+258) 21 780 405, Tel2: (+258) 84/87 30 08 193, Avenida da Namoacha, nr 2229 Q.20, Bairro do Fomento - Matola

Laboratório de Controle de Qualidade

RELATÓRIO DE ENSAIO Nr.: 250724

Joel Macandja

(Gestor da Qualidade)

Os ensaios assinalados com * não estão incluídos no âmbito de acreditação.

A amostragem não está incluída no âmbito da acreditação.

A reprodução proibida sem a permissão do laboratório, salvo na íntegra.

Sempre que o resultado da amostra estiver associado ao sinal (±), quer dizer que a amostra apresenta valor da incerteza associada ao respectivo ensaio.

A incerteza é determinada com o grau de confiança aproximadamente 95% e k igual a 2 para uma distribuição normal.

As opiniões e apreciações estão fora do âmbito da acreditação. Na declaração da conformidade para a regra de decisão não é contabilizada a incerteza.

MI.IT/Swisslab - Método interno de instrução de trabalho; U - Incerteza expandida; LQ - Limite de Quantificação; UFC - Unidades Formadoras de Colónias; NTU - Nephilometric Turbidity Units; TCU - True Colour Unit; mg/L - miligramas por litro, µg/L - microgramas por litro, µs/cm - microsiems por centimetro, MI.PE /SwissLab - Método Interno de Procedimento de Ensaio; SMEWW - Standard Method of Examination of Water and Wastewater; EPA - Environmental Protection Agency; DIN - Deutsches Institut fur Normung (Instituto Alemão para Normalização); BS - British Standard; EN - European Standard; NP - Norma Portuguesa; ISO - International Organization for Standardization; AOAC - Association of Official Agricultural Chemists; NIR – Near Infrared Spectroscopy, CMMEF - Compendium of Methods for the Microbiolobical Examination of Foods.

SwissLab – Laboratório de Controle de Qualidade, E-mail: swisslab.moz@gmail.com, Tel1: (+258) 21 780 405, Tel2: (+258) 84/87 30 08 193, Avenida da Namoacha, nr 2229 Q.20, Bairro do Fomento - Matola

SwissLab

Laboratório de Controle de Qualidade

RELATÓRIO DE ENSAIO Nr.: 250726

Cliente:

Cliente Nr: 79

Morada: Maputo-Mocambique,

Versão: 1

Estado: Boletim Definitivo

Ponto de Amostragem:

Referência: Águas dos Rios (1)

Descrição da Amostra: PD - 01 (1)

Responsável pela Amostragem: Cliente

Data de Colheita: 29/10/2025 (1)

Data de Receção: 29/10/2025

Data de Início da Análise: 29/10/2025

Data de Fim da Análise: 06/11/2025

Data de Emissão: 06/11/2025 16:36:00

Ensaio	Método de Análise	Resultados	Unidades	Valor Limite
Físico-Química				
Turvação *	SMEWW 2130B, 24ª Edição	18,64	NTU	---
Determinação de pH *	MI(IT/SwissLab/FQL/007)(Rev.6)	7,19	Sorensen	---
Óleos e Graxas *	SMEWW 5520 D, 24ª Edição	< 1,0 (LQ)	mg/L	---
Determinação de Mercúrio (Hg) *	SMEWW 3120/3030E,24ª Edição	< 0,005 (LQ)	mg/L	---
Cianeto Total (CN) *	SMEWW 4500- CN D, 24ª Edição	< 0,01 (LQ)	mg/L	---
Determinação de Arsénio (As) *	SMEWW 3120/3030E,24ª Edição	< 0,01 (LQ)	mg/L	---
Determinação de Chumbo (Pb) *	SMEWW 3120/3030E,24ª Edição	< 0,01 (LQ)	mg/L	---
Determinação de Cádmio (Cd) *	SMEWW 3120/3030E,24ª Edição	< 0,01 (LQ)	mg/L	---
Nitrato (NO_3) *	SMEWW 4500 - NO3 B,24ª Edição	0,347	mg/L	---
Dureza Total *	SMEWW 2340 C, 24ª Edição	91	mg/L	---
Ortofosfato *	SMEWW 4500 - P E, 24ª Edição	< 0,20 (LQ)	mg/L	---

Observações

Os resultados se referem apenas aos itens ensaiados e se aplicam às amostras conforme rececionadas.
Os dados fornecidos pelo cliente são da sua responsabilidade. (1)

SwissLab – Laboratório de Controle de Qualidade, E-mail: swisslab.moz@gmail.com, Tel1: (+258) 21 780 405, Tel2: (+258) 84/87 30 08 193, Avenida da Namoacha, nr 2229 Q.20, Bairro do Fomento - Matola

RELATÓRIO DE ENSAIO Nr.: 250726

Joel Macandja

(Gestor da Qualidade)

Os ensaios assinalados com * não estão incluídos no âmbito de acreditação.

A amostragem não está incluída no âmbito da acreditação.

A reprodução proibida sem a permissão do laboratório, salvo na íntegra.

Sempre que o resultado da amostra estiver associado ao sinal (±). quer dizer que a amostra apresenta valor da incerteza associada ao respectivo ensaio.

A incerteza é determinada com o grau de confiança aproximadamente 95% e k igual a 2 para uma distribuição normal.

As opiniões e apreciações estão fora do âmbito da acreditação. Na declaração da conformidade para a regra de decisão não é contabilizada a incerteza.

MI.IT/Swisslab - Método interno de instrução de trabalho; U - Incerteza expandida; LQ - Limite de Quantificação; UFC - Unidades Formadoras de Colónias; NTU - Nephilometric Turbidity Units; TCU - True Colour Unit; mg/L - miligramas por litro, µg/L - microgramas por litro, µs/cm - microsiems por centimetro, MI.PE /SwissLab - Método Interno de Procedimento de Ensaio; SMEWW - Standard Method of Examination of Water and Wastewater; EPA - Environmental Protection Agency; DIN - Deutsches Institut fur Normung (Instituto Alemão para Normalização); BS - British Standard; EN - European Standard; NP - Norma Portuguesa; ISO - International Organization for Standardization; AOAC - Association of Official Agricultural Chemists; NIR – Near Infrared Spectroscopy, CMMEF - Compendium of Methods for the Microbiolobical Examination of Foods.

SwissLab – Laboratório de Controle de Qualidade, E-mail: swisslab.moz@gmail.com, Tel1: (+258) 21 780 405, Tel2: (+258) 84/87 30 08 193, Avenida da Namoacha, nr 2229 Q.20, Bairro do Fomento - Matola

SwissLab

Laboratório de Controle de Qualidade

RELATÓRIO DE ENSAIO Nr.: 250728

Cliente:

Cliente Nr: 79

Morada: Maputo-Mocambique,

Versão: 1

Estado: Boletim Definitivo

Ponto de Amostragem:

Referência: Águas dos Rios (1)

Descrição da Amostra: PE - 01 (1)

Responsável pela Amostragem: Cliente

Data de Colheita: 29/10/2025 (1)

Data de Receção: 29/10/2025

Data de Início da Análise: 29/10/2025

Data de Fim da Análise: 06/11/2025

Data de Emissão: 06/11/2025 16:36:00

Ensaio	Método de Análise	Resultados	Unidades	Valor Limite
Físico-Química				
Turvação *	SMEWW 2130B, 24ª Edição	796	NTU	---
Determinação de pH *	MI(IT/SwissLab/FQL/007)(Rev.6)	7,46	Sorensen	---
Óleos e Graxas *	SMEWW 5520 D, 24ª Edição	< 1,0 (LQ)	mg/L	---
Determinação de Mercúrio (Hg) *	SMEWW 3120/3030E,24ª Edição	0,02	mg/L	---
Cianeto Total (CN) *	SMEWW 4500- CN D, 24ª Edição	< 0,01 (LQ)	mg/L	---
Determinação de Arsénio (As) *	SMEWW 3120/3030E,24ª Edição	< 0,01 (LQ)	mg/L	---
Determinação de Chumbo (Pb) *	SMEWW 3120/3030E,24ª Edição	< 0,01 (LQ)	mg/L	---
Determinação de Cádmio (Cd) *	SMEWW 3120/3030E,24ª Edição	< 0,01 (LQ)	mg/L	---
Nitrato (NO_3) *	SMEWW 4500 - NO3 B,24ª Edição	0,179	mg/L	---
Dureza Total *	SMEWW 2340 C, 24ª Edição	63	mg/L	---
Ortofosfato *	SMEWW 4500 - P E, 24ª Edição	0,68	mg/L	---

Observações

Os resultados se referem apenas aos itens ensaiados e se aplicam às amostras conforme rececionadas.
Os dados fornecidos pelo cliente são da sua responsabilidade. (1)

SwissLab – Laboratório de Controle de Qualidade, E-mail: swisslab.moz@gmail.com, Tel1: (+258) 21 780 405, Tel2: (+258) 84/87 30 08 193, Avenida da Namoacha, nr 2229 Q.20, Bairro do Fomento - Matola

RELATÓRIO DE ENSAIO Nr.: 250728

Joel Macandja

(Gestor da Qualidade)

Os ensaios assinalados com * não estão incluídos no âmbito de acreditação.

A amostragem não está incluída no âmbito da acreditação.

A reprodução proibida sem a permissão do laboratório, salvo na íntegra.

Sempre que o resultado da amostra estiver associado ao sinal (±). quer dizer que a amostra apresenta valor da incerteza associada ao respectivo ensaio.

A incerteza é determinada com o grau de confiança aproximadamente 95% e k igual a 2 para uma distribuição normal.

As opiniões e apreciações estão fora do âmbito da acreditação. Na declaração da conformidade para a regra de decisão não é contabilizada a incerteza.

MI.IT/Swisslab - Método interno de instrução de trabalho; U - Incerteza expandida; LQ - Limite de Quantificação; UFC - Unidades Formadoras de Colónias; NTU - Nephilometric Turbidity Units; TCU - True Colour Unit; mg/L - miligramas por litro, µg/L - microgramas por litro, µs/cm - microsiems por centimetro, MI.PE /SwissLab - Método Interno de Procedimento de Ensaio; SMEWW - Standard Method of Examination of Water and Wastewater; EPA - Environmental Protection Agency; DIN - Deutsches Institut fur Normung (Instituto Alemão para Normalização); BS - British Standard; EN - European Standard; NP - Norma Portuguesa; ISO - International Organization for Standardization; AOAC - Association of Official Agricultural Chemists; NIR – Near Infrared Spectroscopy, CMMEF - Compendium of Methods for the Microbiolobical Examination of Foods.

SwissLab – Laboratório de Controle de Qualidade, E-mail: swisslab.moz@gmail.com, Tel1: (+258) 21 780 405, Tel2: (+258) 84/87 30 08 193, Avenida da Namoacha, nr 2229 Q.20, Bairro do Fomento - Matola

Laboratório de Controle de Qualidade

RELATÓRIO DE ENSAIO Nr.: 250730

Cliente:

Cliente Nr: 79

Morada: Maputo-Mocambique,

Versão: 1

Estado: Boletim Definitivo

Ponto de Amostragem:

Referência: Águas dos Rios (1)

Descrição da Amostra: PF - 01 (1)

Responsável pela Amostragem: Cliente

Data de Colheita: 29/10/2025 (1)

Data de Receção: 29/10/2025

Data de Início da Análise: 29/10/2025

Data de Fim da Análise: 06/11/2025

Data de Emissão: 06/11/2025 16:36:00

Ensaio	Método de Análise	Resultados	Unidades	Valor Limite
Físico-Química				
Turvação *	SMEWW 21308, 24ª Edição	306	NTU	---
Determinação de pH *	MI(IT/SwissLab/FQL/007)(Rev.6)	7,47	Sorensen	---
Óleos e Graxas *	SMEWW 5520 D, 24ª Edição	< 1,0 (LQ)	mg/L	---
Determinação de Mercúrio (Hg) *	SMEWW 3120/3030E,24ª Edição	< 0,005 (LQ)	mg/L	---
Cianeto Total (CN) *	SMEWW 4500- CN D, 24ª Edição	< 0,01 (LQ)	mg/L	---
Determinação de Arsénio (As) *	SMEWW 3120/3030E,24ª Edição	0,02	mg/L	---
Determinação de Chumbo (Pb) *	SMEWW 3120/3030E,24ª Edição	< 0,01 (LQ)	mg/L	---
Determinação de Cádmio (Cd) *	SMEWW 3120/3030E,24ª Edição	< 0,01 (LQ)	mg/L	---
Nitrato (NO_3) *	SMEWW 4500 - NO3 B,24ª Edição	4,24	mg/L	---
Dureza Total *	SMEWW 2340 C, 24ª Edição	79	mg/L	---
Ortofosfato *	SMEWW 4500 - P E, 24ª Edição	2,1	mg/L	---

Observações

Os resultados se referem apenas aos itens ensaiados e se aplicam às amostras conforme rececionadas.
Os dados fornecidos pelo cliente são da sua responsabilidade. (1)

SwissLab – Laboratório de Controle de Qualidade, E-mail: swisslab.moz@gmail.com, Tel1: (+258) 21 780 405, Tel2: (+258) 84/87 30 08 193, Avenida da Namoacha, nr 2229 Q.20, Bairro do Fomento - Matola

Laboratório de Controle de Qualidade

RELATÓRIO DE ENSAIO Nr.: 250730

Joel Macandja

(Gestor da Qualidade)

Os ensaios assinalados com * não estão incluídos no âmbito de acreditação.

A amostragem não está incluída no âmbito da acreditação.

A reprodução proibida sem a permissão do laboratório, salvo na íntegra.
Sempre que o resultado da amostra estiver associado ao sinal (±), quer dizer que a amostra apresenta valor da incerteza associada ao respectivo ensaio.
A incerteza é determinada com o grau de confiança aproximadamente 95% e k igual a 2 para uma distribuição normal.
As opiniões e apreciações estão fora do âmbito da acreditação. Na declaração da conformidade para a regra de decisão não é contabilizada a incerteza.

MI.IT/Swisslab - Método interno de instrução de trabalho; U - Incerteza expandida; LQ - Limite de Quantificação; UFC - Unidades Formadoras de Colónias; NTU - Nephilometric Turbidity Units; TCU - True Colour Unit; mg/L - miligramas por litro, µg/L - microgramas por litro, µs/cm - microsiems por centimetro, MI.PE /SwissLab - Método Interno de Procedimento de Ensaio; SMEWW - Standard Method of Examination of Water and Wastewater; EPA - Environmental Protection Agency; DIN - Deutsches Institut fur Normung (Instituto Alemão para Normalização); BS - British Standard; EN - European Standard; NP - Norma Portuguesa; ISO - International Organization for Standardization; AOAC - Association of Official Agricultural Chemists; NIR – Near Infrared Spectroscopy, CMMEF - Compendium of Methods for the Microbiolobical Examination of Foods.

SwissLab – Laboratório de Controle de Qualidade, E-mail: swisslab.moz@gmail.com, Tel1: (+258) 21 780 405, Tel2: (+258) 84/87 30 08 193, Avenida da Namoacha, nr 2229 Q.20, Bairro do Fomento - Matola

2. Physical and chemical parameters of the sediment in the studied rivers (points: PA through PF)

SwissLab

Laboratório de Controle de Qualidade

RELATÓRIO DE ENSAIO Nr.: 250733

Cliente:

Cliente Nr: 79

Morada: Maputo-Mocambique,

Versão: 1

Estado: Boletim Definitivo

Ponto de Amostragem:

Referência: Solos (1)

Descrição da Amostra: PA - 02 (1)

Responsável pela Amostragem: Cliente

Data de Colheita: 29/10/2025 (1)

Data de Receção: 29/10/2025

Data de Início da Análise: 29/10/2025

Data de Fim da Análise: 06/11/2025

Data de Emissão: 06/11/2025 16:36:00

Ensaio	Método de Análise	Resultados	Unidades	Valor Limite
Físico-Química				
Determinação de pH *	MI(IT/SwissLab/FQL/007)(Rev.6)	6,01	Sorensen	---
Determinação de Arsénio (As) *	ASTM D5258:2022/SMEWW 3120 B: 2023	< 0,025 (LQ)	mg/kg	---
Determinação de Cádmio (Cd) *	ASTM D5258:2022/SMEWW 3120 B: 2023	< 0,025 (LQ)	mg/kg	---
Determinação de Chumbo (Pb) *	ASTM D5258:2022/SMEWW 3120 B: 2023	0,14	mg/kg	---
Determinação de Mercúrio (Hg) *	ASTM D5258:2022/SMEWW 3120 B: 2023	3,1	mg/kg	---

Observações

Os resultados se referem apenas aos itens ensaiados e se aplicam às amostras conforme rececionadas.
Os dados fornecidos pelo cliente são da sua responsabilidade. (1)

Joel Macandja

(Gestor da Qualidade)

Os ensaios assinalados com * não estão incluídos no âmbito de acreditação.

A amostragem não está incluída no âmbito da acreditação.

A reprodução proibida sem a permissão do laboratório, salvo na íntegra.
Sempre que o resultado da amostra estiver associado ao sinal (±), quer dizer que a amostra apresenta valor da incerteza associada ao respectivo ensaio.
A incerteza é determinada com o grau de confiança aproximadamente 95% e k igual a 2 para uma distribuição normal.
As opiniões e apreciações estão fora do âmbito da acreditação. Na declaração da conformidade para a regra de decisão não é contabilizada a incerteza.

MI.IT/Swisslab - Método interno de instrução de trabalho; U - Incerteza expandida; LQ - Limite de Quantificação; UFC - Unidades Formadoras de Colónias; NTU - Nephilometric Turbidity Units; TCU - True Colour Unit; mg/L - miligramas por litro, µg/L - microgramas por litro, µs/cm - microsiems por centimetro, MI.PE /SwissLab - Método Interno de Procedimento de Ensaio; SMEWW - Standard Method of Examination of Water and Wastewater; EPA - Environmental Protection Agency; DIN - Deutsches Institut fur Normung (Instituto Alemão para Normalização); BS - British Standard; EN - European Standard; NP - Norma Portuguesa; ISO - International Organization for Standardization; AOAC - Association of Official Agricultural Chemists; NIR – Near Infrared Spectroscopy. CMMEF - Compendium of Methods for the Microbiolobical Examination of Foods.

SwissLab – Laboratório de Controle de Qualidade, E-mail: swisslab.moz@gmail.com, Tel1: (+258) 21 780 405, Tel2: (+258) 84/87 30 08 193, Avenida da Namoacha, nr 2229 Q.20, Bairro do Fomento - Matola

SwissLab

Laboratório de Controle de Qualidade

RELATÓRIO DE ENSAIO Nr.: 250734

Cliente:

Cliente Nr: 79

Morada: Maputo-Mocambique,

Versão: 1

Estado: Boletim Definitivo

Ponto de Amostragem:

Referência: Solos (1)

Descrição da Amostra: PB - 01 (1)

Responsável pela Amostragem: Cliente

Data de Colheita: 29/10/2025 (1)

Data de Receção: 29/10/2025

Data de Início da Análise: 29/10/2025

Data de Fim da Análise: 06/11/2025

Data de Emissão: 06/11/2025 16:36:00

Ensaio	Método de Análise	Resultados	Unidades	Valor Limite
Físico-Química				
Determinação de pH *	MI(IT/SwissLab/FQL/007)(Rev.6)	6,08	Sorensen	---
Determinação de Arsénio (As) *	ASTM D5258:2022/SMEWW 3120 B: 2023	< 0,025 (LQ)	mg/kg	---
Determinação de Cádmio (Cd) *	ASTM D5258:2022/SMEWW 3120 B: 2023	< 0,025 (LQ)	mg/kg	---
Determinação de Chumbo (Pb) *	ASTM D5258:2022/SMEWW 3120 B: 2023	< 0,025 (LQ)	mg/kg	---
Determinação de Mercúrio (Hg) *	ASTM D5258:2022/SMEWW 3120 B: 2023	3,7	mg/kg	---

Observações

Os resultados se referem apenas aos itens ensaiados e se aplicam às amostras conforme rececionadas.
Os dados fornecidos pelo cliente são da sua responsabilidade. (1)



Joel Macandja

(Gestor da Qualidade)

Os ensaios assinalados com * não estão incluídos no âmbito de acreditação.
A amostragem não está incluída no âmbito da acreditação.

A reprodução proibida sem a permissão do laboratório, salvo na íntegra.
Sempre que o resultado da amostra estiver associado ao sinal (±), quer dizer que a amostra apresenta valor da incerteza associada ao respectivo ensaio.
A incerteza é determinada com o grau de confiança aproximadamente 95% e k igual a 2 para uma distribuição normal.
As opiniões e apreciações estão fora do âmbito da acreditação. Na declaração da conformidade para a regra de decisão não é contabilizada a incerteza.

MI.IT/Swisslab - Método interno de instrução de trabalho; U - Incerteza expandida; LQ - Limite de Quantificação; UFC - Unidades Formadoras de Colónias; NTU - Nephilometric Turbidity Units; TCU - True Colour Unit; mg/L - miligramas por litro, µg/L - microgramas por litro. µs/cm - microsiems por centimetro. MI.PE /SwissLab - Método Interno de Procedimento de Ensaio; SMEWW - Standard Method of Examination of Water and Wastewater; EPA - Environmental Protection Agency; DIN - Deutsches Institut fur Normung (Instituto Alemão para Normalização); BS - British Standard; EN - European Standard; NP - Norma Portuguesa; ISO - International Organization for Standardization; AOAC - Association of Official Agricultural Chemists; NIR – Near Infrared Spectroscopy, CMMEF - Compendium of Methods for the Microbiolobical Examination of Foods.

SwissLab – Laboratório de Controle de Qualidade. E-mail: swisslab.moz@gmail.com, Tel1: (+258) 21 780 405, Tel2: (+258) 84/87 30 08 193, Avenida da Namoacha, nr 2229 Q.20, Bairro do Fomento - Matola

SwissLab

Laboratório de Controle de Qualidade

RELATÓRIO DE ENSAIO Nr.: 250736

Cliente:

Cliente Nr: 79

Morada: Maputo-Mocambique,

Versão: 1

Estado: Boletim Definitivo

Ponto de Amostragem:

Referência: Solos (1)

Descrição da Amostra: PC - 01 (1)

Responsável pela Amostragem: Cliente

Data de Colheita: 29/10/2025 (1)

Data de Receção: 29/10/2025

Data de Início da Análise: 29/10/2025

Data de Fim da Análise: 06/11/2025

Data de Emissão: 06/11/2025 16:36:00

Ensaio	Método de Análise	Resultados	Unidades	Valor Limite
Físico-Química				
Determinação de pH *	MI(IT/SwissLab/FQL/007)(Rev.6)	4,55	Sorensen	---
Determinação de Arsénio (As) *	ASTM D5258:2022/SMEWW 3120 B: 2023	< 0,025 (LQ)	mg/kg	---
Determinação de Cádmio (Cd) *	ASTM D5258:2022/SMEWW 3120 B: 2023	< 0,025 (LQ)	mg/kg	---
Determinação de Chumbo (Pb) *	ASTM D5258:2022/SMEWW 3120 B: 2023	< 0,025 (LQ)	mg/kg	---
Determinação de Mercúrio (Hg) *	ASTM D5258:2022/SMEWW 3120 B: 2023	1,6	mg/kg	---

Observações

Os resultados se referem apenas aos itens ensaiados e se aplicam às amostras conforme rececionadas.
Os dados fornecidos pelo cliente são da sua responsabilidade. (1)

Joel Macandja

(Gestor da Qualidade)

Os ensaios assinalados com * não estão incluídos no âmbito de acreditação.

A amostragem não está incluída no âmbito da acreditação.

A reprodução proibida sem a permissão do laboratório, salvo na íntegra.
Sempre que o resultado da amostra estiver associado ao sinal (±), quer dizer que a amostra apresenta valor da incerteza associada ao respectivo ensaio.
A incerteza é determinada com o grau de confiança aproximadamente 95% e k igual a 2 para uma distribuição normal.
As opiniões e apreciações estão fora do âmbito da acreditação. Na declaração da conformidade para a regra de decisão não é contabilizada a incerteza.

MI.IT/Swisslab - Método interno de instrução de trabalho; U - Incerteza expandida; LQ - Limite de Quantificação; UFC - Unidades Formadoras de Colónias; NTU - Nephilometric Turbidity Units; TCU - True Colour Unit; mg/L - miligramas por litro, µg/L - microgramas por litro, µs/cm - microsiems por centimetro, MI.PE /SwissLab - Método Interno de Procedimento de Ensaio; SMEWW - Standard Method of Examination of Water and Wastewater; EPA - Environmental Protection Agency; DIN - Deutsches Institut fur Normung (Instituto Alemão para Normalização); BS - British Standard; EN - European Standard; NP - Norma Portuguesa; ISO - International Organization for Standardization; AOAC - Association of Official Agricultural Chemists; NIR – Near Infrared Spectroscopy, CMMEF - Compendium of Methods for the Microbiolobical Examination of Foods.

SwissLab – Laboratório de Controle de Qualidade. E-mail: swisslab.moz@gmail.com, Tel1: (+258) 21 780 405, Tel2: (+258) 84/87 30 08 193, Avenida da Namoacha, nr 2229 Q.20, Bairro do Fomento - Matola

SwissLab

Laboratório de Controle de Qualidade

RELATÓRIO DE ENSAIO Nr.: 250738

Cliente:

Cliente Nr: 79

Morada: , Maputo-Mocambique,

Versão: 1

Estado: Boletim Definitivo

Ponto de Amostragem:

Referência: Solos (1)

Descrição da Amostra: PD - 01 (1)

Responsável pela Amostragem: Cliente

Data de Colheita: 29/10/2025 (1)

Data de Receção: 29/10/2025

Data de Início da Análise: 29/10/2025

Data de Fim da Análise: 06/11/2025

Data de Emissão: 06/11/2025 16:36:00

Ensaio	Método de Análise	Resultados	Unidades	Valor Limite
Físico-Química				
Determinação de pH *	MI(IT/SwissLab/FQL/007)(Rev.6)	4,41	Sorensen	---
Determinação de Arsénio (As) *	ASTM D5258:2022/SMEWW 3120 B: 2023	< 0,025 (LQ)	mg/kg	---
Determinação de Cádmio (Cd) *	ASTM D5258:2022/SMEWW 3120 B: 2023	< 0,025 (LQ)	mg/kg	---
Determinação de Chumbo (Pb) *	ASTM D5258:2022/SMEWW 3120 B: 2023	0,12	mg/kg	---
Determinação de Mercúrio (Hg) *	ASTM D5258:2022/SMEWW 3120 B: 2023	5,0	mg/kg	---

Observações

Os resultados se referem apenas aos itens ensaiados e se aplicam às amostras conforme rececionadas.
Os dados fornecidos pelo cliente são da sua responsabilidade. (1)

Joel Macandja

(Gestor da Qualidade)

Os ensaios assinalados com * não estão incluídos no âmbito de acreditação.

A amostragem não está incluída no âmbito da acreditação.

A reprodução proibida sem a permissão do laboratório, salvo na íntegra.
Sempre que o resultado da amostra estiver associado ao sinal (±), quer dizer que a amostra apresenta valor da incerteza associada ao respectivo ensaio.
A incerteza é determinada com o grau de confiança aproximadamente 95% e k igual a 2 para uma distribuição normal.
As opiniões e apreciações estão fora do âmbito da acreditação. Na declaração da conformidade para a regra de decisão não é contabilizada a incerteza.

MI.IT/Swisslab - Método interno de instrução de trabalho; U - Incerteza expandida; LQ - Limite de Quantificação; UFC - Unidades Formadoras de Colónias; NTU - Nephilometric Turbidity Units; TCU - True Colour Unit; mg/L - miligramas por litro, µg/L - microgramas por litro, µs/cm - microsiems por centimetro, MI.PE /SwissLab - Método Interno de Procedimento de Ensaio; SMEWW - Standard Method of Examination of Water and Wastewater; EPA - Environmental Protection Agency; DIN - Deutsches Institut fur Normung (Instituto Alemão para Normalização); BS - British Standard; EN - European Standard; NP - Norma Portuguesa; ISO - International Organization for Standardization; AOAC - Association of Official Agricultural Chemists; NIR – Near Infrared Spectroscopy, CMMEF - Compendium of Methods for the Microbiolobical Examination of Foods.

SwissLab – Laboratório de Controle de Qualidade, E-mail: swisslab.moz@gmail.com, Tel1: (+258) 21 780 405, Tel2: (+258) 84/87 30 08 193, Avenida da Namoacha, nr 2229 Q.20, Bairro do Fomento - Matola

SwissLab

Laboratório de Controle de Qualidade

RELATÓRIO DE ENSAIO Nr.: 250740

Cliente:

Cliente Nr: 79

Morada: Maputo-Mocambique,

Versão: 1

Estado: Boletim Definitivo

Ponto de Amostragem:

Referência: Solos (1)

Descrição da Amostra: PE - 01 (1)

Responsável pela Amostragem: Cliente

Data de Colheita: 29/10/2025 (1)

Data de Receção: 29/10/2025

Data de Início da Análise: 29/10/2025

Data de Fim da Análise: 06/11/2025

Data de Emissão: 06/11/2025 16:36:00

Ensaio	Método de Análise	Resultados	Unidades	Valor Limite
Físico-Química				
Determinação de pH *	MI(IT/SwissLab/FQL/007)(Rev.6)	5.30	Sorensen	---
Determinação de Arsénio (As) *	ASTM D5258:2022/SMEWW 3120 B:2023	< 0,025 (LQ)	mg/kg	---
Determinação de Cádmio (Cd) *	ASTM D5258:2022/SMEWW 3120 B:2023	< 0,025 (LQ)	mg/kg	---
Determinação de Chumbo (Pb) *	ASTM D5258:2022/SMEWW 3120 B:2023	< 0,025 (LQ)	mg/kg	---
Determinação de Mercúrio (Hg) *	ASTM D5258:2022/SMEWW 3120 B:2023	22	mg/kg	---

Observações

Os resultados se referem apenas aos itens ensaiados e se aplicam às amostras conforme rececionadas.
Os dados fornecidos pelo cliente são da sua responsabilidade. (1)

Joel Macandja

(Gestor da Qualidade)

Os ensaios assinalados com * não estão incluídos no âmbito de acreditação.

A amostragem não está incluída no âmbito da acreditação.

A reprodução proibida sem a permissão do laboratório, salvo na integra.
Sempre que o resultado da amostra estiver associado ao sinal (±), quer dizer que a amostra apresenta valor da incerteza associada ao respectivo ensaio.
A incerteza é determinada com o grau de confiança aproximadamente 95% e k igual a 2 para uma distribuição normal.
As opiniões e apreciações estão fora do âmbito da acreditação. Na declaração da conformidade para a regra de decisão não é contabilizada a incerteza.

MI.IT/Swisslab - Método interno de instrução de trabalho; U - Incerteza expandida; LQ - Limite de Quantificação; UFC - Unidades Formadoras de Colónias; NTU - Nephilometric Turbidity Units; TCU - True Colour Unit; mg/L - miligramas por litro, µg/L - microgramas por litro, µs/cm - microsiems por centimetro, MI.PE /SwissLab - Método Interno de Procedimento de Ensaio; SMEWW - Standard Method of Examination of Water and Wastewater; EPA - Environmental Protection Agency; DIN - Deutsches Institut fur Normung (Instituto Alemão para Normalização); BS - British Standard; EN - European Standard; NP - Norma Portuguesa; ISO - International Organization for Standardization; AOAC - Association of Official Agricultural Chemists; NIR – Near Infrared Spectroscopy, CMMEF - Compendium of Methods for the Microbiolobical Examination of Foods.

SwissLab – Laboratório de Controle de Qualidade, E-mail: swisslab.moz@gmail.com, Tel1: (+258) 21 780 405, Tel2: (+258) 84/87 30 08 193, Avenida da Namoacha, nr 2229 Q.20, Bairro do Fomento - Matola

SwissLab

Laboratório de Controle de Qualidade

RELATÓRIO DE ENSAIO Nr.: 250742

Cliente:

Cliente Nr: 79

Morada: Maputo-Mocambique,

Versão: 1

Estado: Boletim Definitivo

Ponto de Amostragem:

Referência: Solos (1)

Descrição da Amostra: PF - 01 (1)

Responsável pela Amostragem: Cliente

Data de Colheita: 29/10/2025 (1)

Data de Receção: 29/10/2025

Data de Início da Análise: 29/10/2025

Data de Fim da Análise: 06/11/2025

Data de Emissão: 06/11/2025 16:36:00

Ensaio	Método de Análise	Resultados	Unidades	Valor Limite
Físico-Química				
Determinação de pH *	MI(IT/SwissLab/FQL/007)(Rev.6)	6,50	Sorensen	---
Determinação de Arsénio (As) *	ASTM D5258:2022/SMEWW 3120 B: 2023	< 0,025 (LQ)	mg/kg	---
Determinação de Cádmio (Cd) *	ASTM D5258:2022/SMEWW 3120 B: 2023	< 0,025 (LQ)	mg/kg	---
Determinação de Chumbo (Pb) *	ASTM D5258:2022/SMEWW 3120 B: 2023	< 0,025 (LQ)	mg/kg	---
Determinação de Mercúrio (Hg) *	ASTM D5258:2022/SMEWW 3120 B: 2023	0,83	mg/kg	---

Observações

Os resultados se referem apenas aos itens ensaiados e se aplicam às amostras conforme rececionadas.
Os dados fornecidos pelo cliente são da sua responsabilidade. (1)

Joel Macandja

(Gestor da Qualidade)

Os ensaios assinalados com * não estão incluídos no âmbito de acreditação.
A amostragem não está incluída no âmbito da acreditação.

A reprodução proibida sem a permissão do laboratório, salvo na íntegra.
Sempre que o resultado da amostra estiver associado ao sinal (±), quer dizer que a amostra apresenta valor da incerteza associada ao respectivo ensaio.
A incerteza é determinada com o grau de confiança aproximadamente 95% e k igual a 2 para uma distribuição normal.
As opiniões e apreciações estão fora do âmbito da acreditação. Na declaração da conformidade para a regra de decisão não é contabilizada a incerteza.

MI.IT/Swisslab - Método interno de instrução de trabalho; U - Incerteza expandida; LQ - Limite de Quantificação; UFC - Unidades Formadoras de Colónias; NTU - Nephilometric Turbidity Units; TCU - True Colour Unit; mg/L - miligramas por litro, µg/L - microgramas por litro, µs/cm - microsiems por centimetro, MI.PE /SwissLab - Método Interno de Procedimento de Ensaio; SMEWW - Standard Method of Examination of Water and Wastewater; EPA - Environmental Protection Agency; DIN - Deutsches Institut fur Normung (Instituto Alemão para Normalização); BS - British Standard; EN - European Standard; NP - Norma Portuguesa; ISO - International Organization for Standardization; AOAC - Association of Official Agricultural Chemists; NIR – Near Infrared Spectroscopy, CMMEF - Compendium of Methods for the Microbiolobical Examination of Foods.

SwissLab – Laboratório de Controle de Qualidade, E-mail: swisslab.moz@gmail.com, Tel1: (+258) 21 780 405, Tel2: (+258) 84/87 30 08 193, Avenida da Namoacha, nr 2229 Q.20, Bairro do Fomento - Matola

V- Incorporation and Shareholder Composition of the MMC Resources, Lda.

REPÚBLICA DE MOÇAMBIQUE

MINISTÉRIO DA JUSTIÇA, ASSUNTOS CONSTITUCIONAIS E RELIGIOSOS

DIRECÇÃO NACIONAL DOS REGISTOS E NOTARIADO

CONSERVATÓRIA DAS ENTIDADES LEGAIS

CERTIDÃO

Identificação PROC Nº SGV514894

Número da entidade legal:	100443449
Tipo de entidade legal:	Sociedade por Quotas
Nome da entidade legal:	MMC RESOURCES, LDA
Data da constituição:	07-11-2013
Capital social:	20 000,00 MTn
Capital realizado:	20 000,00 MTn
Endereço:	Moçambique, Cidade de Maputo, distrito de Kamavota, bairro de Bairro Sommerschield II,, Av . Kim Il Sung nº 950
Beneficiários efectivos:	Dentro do prazo de declaração

Objecto

1) A sociedade tem por objecto principal:

a) A prospecção, pesquisa, extração, transformação, processamento, comercialização, importação e exportação de recursos minerais;

b) Investimento e desenvolvimento de projectos de mineração;

2) A sociedade, p or deliberação da Assembleia Geral, poderá exercer quaisquer actividades subsidiárias ou complementares do seu objecto social, e explorar qualquer outra área de negócio, que não seja proibido por lei. 3) A sociedade, por deliberação do Assembleia Geral, poderá adquirir participações em sociedades com objecto diferente do referido nos números anteriores, em sociedades reguladas por leis especiais ou participar no capital social de outras sociedades constituidas ou a constituir.

Menções especiais

YE JIANPING, de nacionalidade chinesa, titular do passaporte número G57209393, emitido aos 16 de Novembro de 2011 e válido até 15 de Novembro de 2021 WEISHUANG KONG, de nacionalidade Chinesa, portador do Passaporte número E62221450, emitido aos de 30 de Outubro de 2015 e válido até 29 de Outubro de 2025, doravante designado por Weishuang. GRUPO VIDERE MINING, LIMITADA, uma sociedade por quotas, de responsabilidade limitada, constituída à luz das leis da República de Moçambique, registada na Conservatória de Registo das Entidades Legais sob o número 100638533, doravante designado por "GVMining" BASSIROU NDIAYE, de nacionalidade moçambicana, portador do passaporte número 15AH80885, emitidos aos 03 de Maio de 2016 e válido até 03 de Maio de 2021, doravante designado por "Bassirou" Ye

Jianping..... 14,000.00 MT Weishuang Kong.....3,600.00 MT Grupo Videre Mining, Lda..... 1,500.00 MT Bassirou Ndiaye..... 900.00 MT. Administração Um) A sociedade é administrada por um ou mais administradores que, além de poderem constituir-se em órgão colegial, podem ser pessoas estranhas à sociedade. Dois) Os Administradores tem plenos poderes para delegar a terceiros todos ou parte dos seus poderes, nomear assim mandatários da sociedade, conferindo os necessários poderes de representação. Três) Compete aos Administradores a representação da sociedade em todos os actos, activa e passivamente em juizo e fora dele, tanto na ordem jurídica interna como internacional, dispondo dos mais amplos poderes legalmente consentidos para a prossecução e realização do objecto social, nomeadamente, quanto ao exercício da gestão corrente dos negócios da sociedade. Quatro) Sendo a administração composta por dois administradores, ambos têm iguais poderes de administração, considerando-se a sociedade obrigada pelos actos praticados, em nome dela, por qualquer deles, dentro dos limites dos seus poderes. Quatro) A sociedade obriga-se pela assinatura:

i. De um dos administradores; e

ii. De um procurador constituído nos termos e limites do respectivo mandato. Cinco) A Administração não poderá obrigar a sociedade bem como realizar em nome desta, quaisquer operações alheias ao seu objecto social, nem conferir a favor de terceiros, quaisquer garantias, finanças ou abonações." Ficam nomeado como administradores da sociedade, os senhores DINGANE MAMADHUSEN E BASSIROU NDIAYE.

Representações

Ord	Designação	Tipo	Endereço
1	,		Província de Tete, ANGONIA, DOMUE, DOMUE - SEDE, Bairro de Chioto, , Tsangano e Macanga

O conservador

VI- Incorporation and Shareholder Structure of the Grupo Videre Mining, Lda.

ANÚNCIOS JUDICIAIS E OUTROS

Grupo Videre Mining, Limitada

Certifico, para efeitos de publicação, que no dia seis de Agosto de dois mil e quinze, foi matriculada na Conservatória do Registo de Entidades Legais sob NUEL 100638533, uma entidade denominada Grupo Videre Mining, Limitada, entre:

É celebrado o presente contrato de sociedade, nos termos do artigo noventa do Código Comercial, entre:

Primeiro. Grupo Videre, Limitada, com domicílio na rua das Rosas, número cento e cinco, em Maputo, registada na Conservatória do Registo de Entidades Legais sob o n.º 100216558, representada pelo senhor Chivambo Samir Mamadhusen, de nacionalidade moçambicana, portador do Bilhete de Identidade n.º 110100000769P, emitido aos onze de Novembro de dois mil e nove pelo Arquivo de Identificação Civil de Maputo, na qualidade de administrador, adiante designada, abreviadamente, por Grupo Videre;

Segundo. Dingane Abreu Mamadhusen, de nacionalidade moçambicana, portador do Bilhete de Identidade n.º 1101000007701, emitido aos vinte e sete de Novembro de dois mil e catorze pelo Arquivo de Identificação Civil de Maputo, residente na Avenida Kenneth Kaunda, número setecentos e sete, bairro da Sommerschield, cidade de Maputo.

CAPÍTULO I

Da firma, sede, duração e objecto social

ARTIGO PRIMEIRO

(Firma)

A sociedade é constituída sob a forma de sociedade por quotas de responsabilidade limitada, adopta o nome Grupo Videre Mining, Limitada, e será regida pelos presentes estatutos e pela legislação aplicável.

ARTIGO SEGUNDO

(Sede)

Um) A sociedade tem a sua sede na cidade de Maputo, rua das Rosas, número cento e cinco, rés-do-chão.

Dois) Mediante deliberação dos sócios tomada em assembleia geral, a sede social poderá ser transferida para qualquer outro local dentro do território nacional, bem como poder-se-á criar, transferir ou encerrar sucursais, filiais, agências ou quaisquer outras formas de representação em qualquer parte do território nacional ou no estrangeiro.

ARTIGO TERCEIRO

(Duração)

A sociedade é constituída por tempo indeterminado, contando-se o seu início, para todos os efeitos legais, a partir da data da sua constituição.

VII- Incorporation and Shareholder Structure of the Grupo Videre, Lda.

Grupo Videre, Limitada

Certifico, para efeitos de publicação que por escritura pública de vinte e sete de Abril de dois mil e onze, lavrada de folhas dezaseis a folhas vinte e quatro, do livro de notas para escrituras diversas número trezentos e dez, traço A, deste Cartório Notarial de Maputo, perante, Carla Roda de Benjamim Guilaze, licenciada em Direito, técnica superior dos registos e notariado N1, e notária em exercício neste Cartório, foi constituída entre: Chivambo Samir Mamadhuseu, Alcinda António de Abreu, Dingane Abreu Mamadhusen, uma sociedade por quotas de responsabilidade limitada, denominada Grupo Videre, Limitada, com sede nesta cidade de Maputo, que se regerá pelas cláusulas constantes dos artigos seguintes:

ARTIGO PRIMEIRO

Denominação e sede

A sociedade adopta a denominação de Grupo Videre, Limitada, e tem a sua sede nesta cidade na Avenida Julius Nyerere, número quatro mil, loja sete, Maputo, podendo abrir as delegações em qualquer ponto do território nacional e no estrangeiro.

ARTIGO SEGUNDO

Duração

A duração da sociedade é por tempo indeterminado, contando-se o seu começo a partir da data da sua constituição.

VIII- Announcement of Alcinda Abreu's departure from the Grupo Videre, Lda.

Grupo Videre, Limitada

Certifico, para efeitos de publicação, que por acta de treze de Novembro de dois mil e catorze, os sócios da sociedade Grupo Videre, Limitada, matriculada na Conservatória do Registo de Entidades Legais de Maputo sob o NUEL 100216558, com o capital social de vinte mil meticais, deliberaram sobre a saída de um sócio e cessão de quotas,resultando na alteração do artigo quarto do estatuto da mesma, e assim.

Por todos os sócios presentes, nomeadamente, Chivambo Mamadhusen com uma quota correspondente a quarenta porcento do capital social, Alcinda António Abreu e Dingane Mamadhusen, ambos com uma quota correspondente a trinta porcento do capital social cada, foi manifestada a vontade de, encontrando-se devidamente representada a totalidade do capital social, considerar a assembleia validamente constituída, com dispensa das demais formalidades legais e estatuárias, tendo sobre o ponto único da agenda deliberado o seguinte:

Um) A sócia Alcinda António Abreu, detentora de uma participação social com o valor nominal de seis mil meticais (6.000,00MT), correspondente a trinta por cento (30%) do capital social, declarou que abdica da sua qualidade de sócia e cede: (*i*) cinquenta por cento (50%) da sua quota de trinta porcento (30%) na sociedade Grupo Videre, Limitada, ao sócio Chivambo Mamadhusen e (*ii*) cinquenta porcento (50%) da sua quota de trinta por cento (30%) na sociedade Grupo Videre, Limitada, ao sócio Dingane Abreu Mamadhusen.

IX- Administration of the MMC Resources, Lda.

Novembro de 2011 e válido até 15 de Novembro de 2021 WEISHUANG KONG, de nacionalidade Chinesa, portador do Passaporte número E62221450, emitido aos de 30 de Outubro de 2015 e válido até 29 de Outubro de 2025, doravante designado por Weishuang. GRUPO VIDERE MINING, LIMITADA, uma sociedade por quotas, de responsabilidade limitada, constituída à luz das leis da República de Moçambique, registada na Conservatória de Registo das Entidades Legais sob o número 100638533, doravante designado por "GVMining" BASSIROU NDIAYE, de nacionalidade moçambicana, portador do passaporte número 15AH80885, emitidos aos 03 de Maio de 2016 e válido até 03 de Maio de 2021, doravante designado por "Bassirou" Ye
Jianping..... 14,000.00 MT Weishuang
Kong.....3,600.00 MT Grupo Videre Mining,
Lda..... 1,500.00 MT Bassirou
Ndiaye..... 900.00 MT. Administração Um) A sociedade é administrada por um ou mais administradores que, além de poderem constituir-se em órgão colegial, podem ser pessoas estranhas à sociedade. Dois) Os Administradores tem plenos poderes para delegar a terceiros todos ou parte dos seus poderes, nomear assim mandatários da sociedade, conferindo os necessários poderes de representação. Três) Compete aos Administradores a representação da sociedade em todos os actos, activa e passivamente em juizo e fora dele, tanto na ordem jurídica interna como internacional, dispondo dos mais amplos poderes legalmente consentidos para a prossecução e realização do objecto social, nomeadamente, quanto ao exercício da gestão corrente dos negócios da sociedade. Quatro) Sendo a administração composta por dois administradores, ambos têm iguais poderes de administração, considerando-se a sociedade obrigada pelos actos praticados, em nome dela, por qualquer deles, dentro dos limites dos seus poderes. Quatro) A sociedade obriga-se pela assinatura:

i. De um dos administradores; e

ii. De um procurador constituído nos termos e limites do respectivo mandato. Cinco) A Administração não poderá obrigar a sociedade bem como realizar em nome desta, quaisquer operações alheias ao seu objecto social, nem conferir a favor de terceiros, quaisquer garantias, finanças ou abonações." Ficam nomeado como administradores da sociedade, os senhores DINGANE MAMADHUSEN E BASSIROU NDIAYE.

Representações

Ord	Designação	Tipo	Endereço
1	,		Provincia de Tete, ANGONIA, DOMUE, DOMUE - SEDE, Bairro de Chiúta, , Tsangano e Macanga

O conservador