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RAID

in collaboration with



BENEATH THE GREEN

Report



Beneath the Green

**A critical look at the environmental and human costs
of industrial cobalt mining in DRC**

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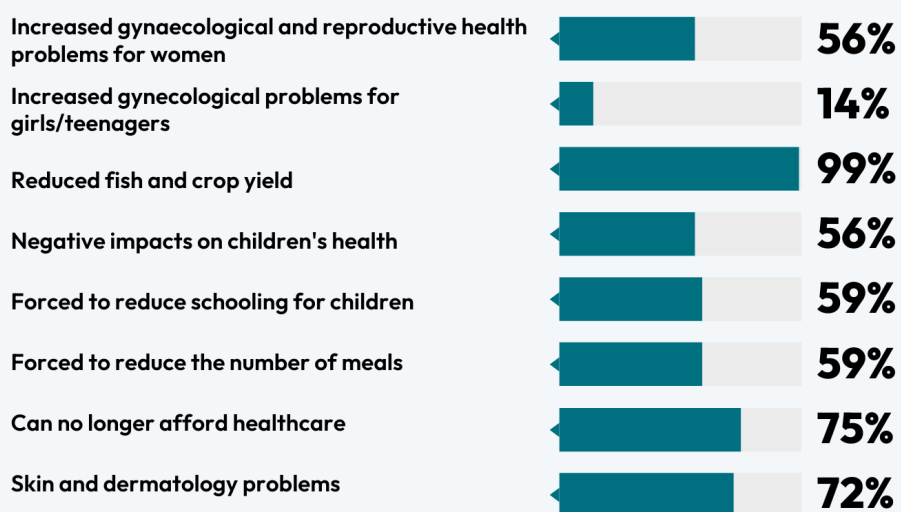
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Issues linked to water pollution most frequently cited by local communities living near the world's largest cobalt mines

% of total interviewees who reported the issue



KEY FINDINGS

“We live in an environment that brings us more problems than solutions. We are becoming sick, our soil and water are polluted, and our lands are taken from us.”

Pierre, an inhabitant of the village of Noa, in the Congolese copper-cobalt belt

1. Cobalt is a critical mineral for the green energy transition. It is used in the rechargeable batteries in electric vehicles and is primarily found in the Democratic Republic of Congo (DRC), which holds around 70% of the world’s reserves. It is mined as a by-product of copper, another critical mineral. DRC is the primary producer of cobalt and the third largest producer of copper. 88% of DRC’s cobalt is produced by industrial mines operated by some of the world’s largest mining companies; the remaining 12% is from artisanal miners.
2. In one of the first in-depth studies on the environmental impacts of cobalt mining on Congolese communities who live near the mines, RAID and AFREWATCH visited 25 villages and towns, and collected detailed testimonies from 144 people living around five of the world’s largest cobalt and copper mines.* We interviewed medical experts and scientists, scrutinised scientific studies and examined hundreds of pages of company documents.
3. Mining companies routinely promote the cobalt from DRC’s industrial mines as being “clean”, “sustainable”, and free from human rights and environmental harms. Yet our research reveals that water pollution and water depletion from mining operations are severely affecting the lives of hundreds of thousands of fenceline residents, infringing upon their right to clean water and their right to a clean, healthy and sustainable environment. The DRC’s cobalt and copper mining region appears to be turning into a “sacrifice zone”, which UN experts describe as areas where populations suffer devastating health consequences and human rights abuses from living in heavily contaminated areas.
4. Those we interviewed were unequivocal in that they believed water contamination from industrial mining activities is harming their health, the environment and is further limiting their income. The lack of access to clean water for drinking was a primary concern consistent across all interviews, as well as concerns about washing and hygiene. The health of women and girls appears to be acutely impacted by the contamination.
 - 56% of those interviewed said women are increasingly experiencing gynaecological and reproductive issues such as irregular menstruation, urogenital infections, more frequent miscarriages and, in some cases, birth defects. More and more young girls and teenagers also appear to be affected.
 - 72% reported recurring skin diseases including itching, spots, rashes, and white patches on the skin following contact with contaminated water.
 - 56% expressed serious concerns about the health of their children, who they said seem to experience the effects of water pollution more intensely than the adults.
 - Nearly everyone said contaminated water is negatively impacting their income and pushing them further into poverty. For instance, 99% of those who relied on fishing

KEY FINDINGS

- or agriculture said their yields have dramatically decreased. This included fewer and smaller fish, and crops rotting when irrigated with polluted water.
- Nearly 60% said the loss of income brought about by the water pollution has forced them remove their children from school as they could no longer afford school fees.
 - 59% said they have been forced to reduce their food intake to one meal a day.
 - 75% say they could no longer afford healthcare or medicine when sick.
5. Scientific studies back up the accounts we received from local communities. At least 22 scientific studies and 20 civil society reports clearly demonstrate that the rivers, lakes, streams, groundwater and wetlands near the DRC's cobalt and copper mines are severely polluted by mining activities. These studies have found that copper, cobalt, lead, arsenic, cadmium, uranium, manganese, mercury and acidified pollutants (such as sulphuric acid, of which huge amounts are used by industrial mines) have been released into the air, soil and water in nearby towns and communities.
 6. The mining companies in our study, which are all large European or Chinese multinationals, are aware of the possible contamination and its potential risks to people and the environment. These risks are clearly identified in their Environmental and Social Impact Assessments (ESIAs), which the mines are required to produce every five years, and which RAID and AFREWATCH have analysed.
 7. In their ESIs, as well as in correspondence and meetings with RAID and AFREWATCH, the companies highlight the steps they are taking to reduce the risks of contamination, and describe elaborate environmental policies they are implementing. Yet no company was willing to provide evidence, such as audits or third-party assessments, confirming that their practices were effective in curbing environmental contamination.
 8. The companies say historic pollution, contamination from artisanal mining, and other economic activities are largely to blame, and that their mines operate "closed circuits" which prevent wastewater discharge and do not contribute to environmental harms. However, almost none of the multinational companies profiting from extracting the cobalt and copper, nor the DRC government, appear to be taking meaningful steps to resolve the legacy pollution.
 9. Our research also shows that the pollution continues. Although the companies say that they take immediate steps to rectify the problem when an accident occurs, our research found that in at least 14 significant toxic incidents over the past few years, including tailings storage facility breaches and sulphuric acid spills, local communities viewed the clean-up as inadequate, with limited or no compensation for those impacted. In many of these incidents, local residents said the effects of the pollution continue.
 10. Recognising the lack of access to clean drinking water, mining companies have taken some steps to provide potable water by constructing boreholes and water pumping stations. While this partly alleviates the chronic shortage of clean water, our investigation found that none of the mining companies had provided the minimal number of water points required by DRC regulations. Nor did they meet the World Health Organisation's (WHO) guideline of 20 litres per person per day, the bare minimum required for drinking and basic hygiene.
 11. The DRC government is also failing. Congolese law provides for strong environmental protections, but government agencies tasked with upholding the laws appear unable to address the contamination concerns. Officials we interviewed said they had limited resources, lacked expertise, and often failed to coordinate effectively between agencies. Very few companies have been penalised for pollution.
 12. Although communities expressed increasing despair about the contamination in their
-

environment and its impact on their health when interviewed by RAID and AFREWATCH, the companies said they had received few or no grievances about these concerns. None of the companies said they were aware of the specific impacts on women and girls. Most said they were aware of a scientific study on increased birth defects, but did not see this as being linked to their operations. It raises important questions as to why these concerns are not being captured by companies or whether they are being ignored.

13. Despite financial constraints and difficulty accessing the courts, local residents have sought to use the law to challenge companies. Legal analysis shows there have been at least 3 cases in local courts in Kolwezi and Lubumbashi related to water pollution, and at least 7 other formal complaints to companies or government agencies, indicating local communities are deeply concerned about this issue.
14. The findings in this study raise important questions about the effectiveness of mining companies' environmental mechanisms and the DRC government's enforcement of its environmental and water laws. It also raises crucial questions about how we can better achieve climate justice, ensuring a just and fair transition to green energy, which does not exacerbate inequality or further violate people's rights and the environment.
15. The transition to 'net zero' is critical to address the climate emergency, but "going green" in the global North, should not come at the price of more harm to Congolese people. The world's electric vehicle and battery manufacturers who use cobalt from Congo's industrial mines should use their influence to press mining companies to supply cobalt that is truly 'clean' and 'sustainable'. The right to a clean, healthy and sustainable environment is universal to us all.

*The mines in our study are: Tenke Fungurume (owned by CMOC); Metalkol (Eurasian Resources Group); COMMUS (Zijin Mining); and Glencore's Kamoto Copper Company (KCC) and Mutanda Mining (MUMI).

HOW WE CONDUCTED OUR RESEARCH

The findings described in this report are based on extensive investigations conducted over 19 months between July 2022 and February 2024 by RAID and AFREWATCH. It combines fieldwork in the DRC's copper and cobalt belt and desk-based research. RAID and AFREWATCH conducted 172 interviews, including with 144 members of fenceline communities living around five large industrial cobalt and copper mines, plus lawyers, engineers, scientists, Congolese authorities, medical staff and industry experts, among others. Our interviews were in-depth, lasting on average between 1 to 2 hours, and were conducted individually with interpreters if required. RAID and AFREWATCH also conducted comprehensive desk-based research including reviewing relevant materials, policies and reports published by the five mining companies presented in this report and further engaged in extensive correspondence with the mining companies.

Many of those interviewed by RAID and AFREWATCH wanted their testimony to be shared but feared reprisal. Consequently, we have taken great care to maintain confidentiality where necessary. For more information about our research methodology, please see the relevant chapter below.

Please note, in this report, the term "fenceline communities" refers to local communities living adjacent to or near industrial copper and cobalt mines and who are directly affected by the mining operations. While there is usually a physical fence sectioning off local communities from mining operations, this is not always the case.¹



Two local residents walking towards the Lulu River near the KCC copper-cobalt mine ©2023 RAID

RECOMMENDATIONS

RECOMMENDATIONS FOR THE MINING COMPANIES

- **Dramatically increase the provision of clean water to fenceline communities**, ensuring the provision meets the WHO basic standard of 50 litres per person per day. Maintain all water points and test water regularly to ensure it meets WHO standards or other internationally recognised water quality standards.
- **Clean up all current contamination linked to your operations, ensure impacts on people and habitat are transparently documented, and fair remedy is provided.** Damaged environment should be rehabilitated in line with international best practice and to the full extent of existing technical knowledge. Appropriate remedy to all affected community members must be provided as per Congolese law at a minimum, and above if needed to ensure remedy is fair. Ensure all findings and investigations to document actual and potential damage are made public, including on company websites, and are communicated to impacted communities. Publish findings from previous contamination.
- **Take proactive steps to document impacts on women and girls from water pollution, depletion and environmental damage.** Conduct immediate, credible and transparent investigations into the gynaecological and reproductive issues raised in this report, and develop effective strategies to prevent, address and remedy women's health impacts. Collaborate with scientists and other experts to determine links between water contamination and gynaecological issues, miscarriages and birth defects. Ensure differentiated impacts on women are part of your risk assessment and due diligence processes.
- **Conduct immediate, credible and transparent investigations into the possible impacts of water pollution on other health and socioeconomic rights.** Integrate these risks in your risk assessments and due diligence practices and take appropriate, long-term and systemic action to prevent additional impacts and provide adequate remediation that meets or exceeds Congolese law. This may include comprehensive strategies to ensure free or accessible education and healthcare to the fenceline communities that face the economic and social impacts of water pollution.
- **Make the right to a clean, healthy and sustainable environment an integral part of your due diligence processes**, and ensure that all internal policies and procedures cover the protection of biodiversity and all environmental elements. These policies should be aligned with international standards – such as the UNGPs and the OECD Guidelines for Multinational Enterprises, among others, and domestic legislation. Go beyond compliance when these do not protect the environment and the rights of fenceline communities adequately.
- **Publish your Environmental and Social Impact Assessments (ESIAs)**, including your Environmental and Social Management Plan, on your website, in a regular and timely manner, as requested by Congolese law. Ensure summaries are provided to communities impacted by your operations in an accessible format.
- **Be transparent:** ensure all information on contamination that may impact the health of fenceline communities and on remediation measures is made public in a timely manner and is clearly communicated, including test results on rivers, streams, lakes, wetlands, groundwater and air quality.
- **Develop a credible action plan to clean up legacy environmental damage**, working together with DRC government authorities and other mining companies. Include in the action plan a reliable and independent mechanism to provide remedy to those impacted by legacy pollution, and projects for the rehabilitation of damaged environments.

RECOMMENDATIONS

- **Make water pollution and depletion a salient risk in your due diligence.** Publicly commit to zero harm to people and the environment from your operations in the DRC.
- **Involve fenceline communities at all stages of your environmental and human rights due diligence processes.** This includes, among others, ensuring all community members are aware and engaged in the protection of their rights and environment, contribute to risk assessments, and monitor your environmental performance and the operation of grievance mechanisms. Do not use social auditing as a proxy for your own due diligence responsibilities.
- **Analyse the quality and availability of surface and ground water on a frequent and regular basis** in line with international standards and indicators, and track your environmental and water management performances to prevent and address impacts on water quality and availability. Publish all water testing results and ensure they are accessible to fenceline communities, civil society organisations, Congolese authorities and other relevant stakeholders.
- **Re-assess your current human rights and environmental policies** to ensure they provide comprehensive information and effective procedures to prevent and address risks to the right to water and the right to a clean, healthy and sustainable environment. Include cumulative impacts that might arise from parallel contribution by other mining actors.
- **Provide accessible, credible, independent and transparent operational grievance mechanisms that allow for environmental and associated human rights complaints.** Review why existing mechanisms may not have captured issues impacting women, children and the environment. Publish, annually at a minimum, meaningful statistics on the effectiveness of the grievance mechanism.

RECOMMENDATIONS FOR THE CONGOLESE STATE

- **Urgently invest funds and resources for government agencies** charged with the protection of the mining environment to ensure more effective monitoring of the environmental practices of mining companies. Ensure personnel in these agencies have access to laboratories to conduct testing, are fully trained on monitoring and preventing pollution, have adequate technical skills and have the equipment needed to do their jobs (including vehicles and computers, among others).
- **Publicly call on companies to increase clean water provision to fenceline communities,** ensuring this meets the WHO basic standard of 50 litres per person per day. Ensure relevant ministries collaborate and assist companies to make this happen.
- **Enable, instruct and resource government agencies to collect data on the impacts on health, including on women and girls.** Request the Ministry of Public Health and the Ministry for Gender, Family and Children, alongside other relevant ministries, to conduct a fact-finding mission to the copper and cobalt mining areas to collect information on health impacts, including from scientific and academic researchers. Report publicly on the findings.
- **Enable, instruct and resource government agencies to collect data on water, air and soil contamination, deforestation and biodiversity loss in the copper-cobalt belt,** and other impacts of both legacy and current pollution. Report publicly on the findings.
- **Ensure that companies' ESIA are published on the Ministry of Mines' website** in a timely manner, as required by Congolese law.
- **Re-iterate publicly the need for mining companies to abide by the DRC's mining and environmental laws,** and effectively implement Congolese law's requirements as a condition before the renewal of mining permits and contracts.

- **Ensure robust implementation of enforcement and sanction mechanisms** for companies in non-compliance with Congolese environmental and mining laws. Provide training to magistrates, judges and other judicial personnel on relevant national and international environmental laws to ensure full implementation.
- **Provide regular and state-wide training on respective responsibilities and work coordination to public environmental agencies** to ensure more effective communication and collaboration.

RECOMMENDATIONS FOR SUPPLY CHAIN COMPANIES

- **Map your supply chain all the way to the cobalt mine and make it publicly available.** Detail the due diligence measures you have in place to protect human rights and the environment (including the right to a clean, healthy and sustainable environment) to ensure suppliers do not contribute to the pollution of Congolese water bodies and, more widely, to the destruction of the DRC's environment. This may include regular site visits, engagement with fenceline communities and open dialogue with your suppliers.
- Instead of relying on a regime of representations and warranties, **develop contractual clauses establishing shared obligations between you and your suppliers/sub-suppliers to protect human rights and the environment in your cobalt supply chain.** This includes setting clear contractual expectations about respecting the right to a clean, healthy and sustainable environment, and the right to water and sanitation in all your business relationships. These contractual clauses should provide for effective remediation for human rights and environmental harms. They should also provide for regular communication and information sharing with your suppliers to ensure effective risk assessment and due diligence implementation.
- **Immediately review your policy commitments and due diligence processes to ensure they encompass the right to a clean, healthy and sustainable environment,** and the right to water and sanitation. Address in a systematic and comprehensive manner the broad range of environmental and human rights concerns identified in this report. Given the water intensive nature of copper and cobalt mining, this may include identifying water pollution and depletion as salient risks in your suppliers' operations. Urgently address any gaps you may identify in your policies and due diligence processes.
- **Use all available means, as part of your leverage, to press suppliers and the companies who operate industrial copper and cobalt mines in the DRC to halt any water pollution, environmental degradation and associated human rights abuses against fenceline communities.** If your leverage is insufficient, consider responsibly exiting the business relationship with the supplier.
- **Immediately review whether your existing systems for tracking your environmental and human rights performance,** and that of your suppliers, are effective in preventing and addressing impacts on water, the environment and human rights in your supply chain, and address any gaps you identify. This includes using appropriate indicators such as internationally recognised environmental benchmarks to evaluate your environmental performance and that of your suppliers.
- **Regularly engage with scientific researchers, fenceline communities, international and local civil society,** and consumers to clearly establish their expectations, human rights and environmental/water risks in your supply chain, and your due diligence responsibilities.
- **Apply industry standards on responsible sourcing that not only comprehensively address environmental concerns and water stewardship, but that also provide for transparent and effective implementation and auditing mechanisms** that include, among others,

meaningful multi-stakeholder governance and fenceline community participation.

- **Use your influence to push for laws that protect all human rights and environment standards relevant to your industry.** Implement relevant due diligence laws and provide remedy to affected communities in a substantive manner, rather than as a “tick-the-box’ exercise.

RECOMMENDATIONS FOR OTHER STATE REGULATORS

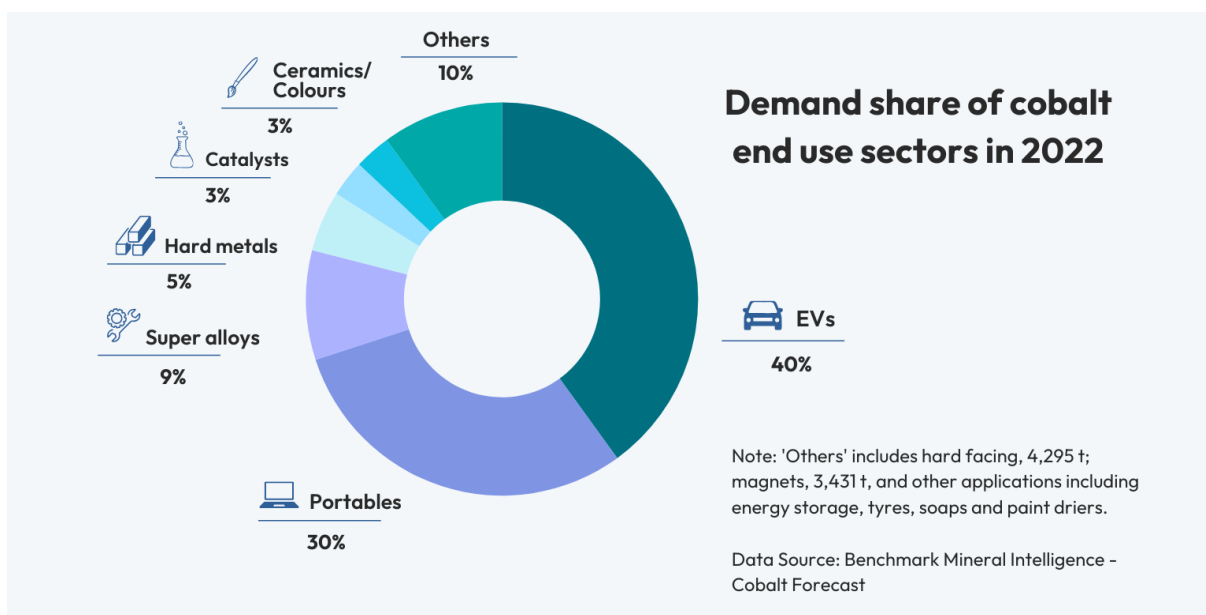
- **Clean up mineral supply chains and ensure the responsible sourcing of cobalt and other critical minerals,** working towards an energy transition that is both **fast and fair.**
- **Introduce legally binding regulations to protect the environment and human rights in mineral supply chains,** such as mandatory human rights due diligence laws that require companies to take action to prevent environmental harm and human rights abuses in their global operations, supply and value chains. Provide for effective enforcement and remedy where companies infringe or otherwise fail to prevent adverse impacts on the environment and the human rights of fenceline communities, including through civil action.

BACKGROUND: CONGOLESE COBALT AND ENVIRONMENTAL HARM

COBALT, AN ESSENTIAL MINERAL FOR THE GREEN TRANSITION

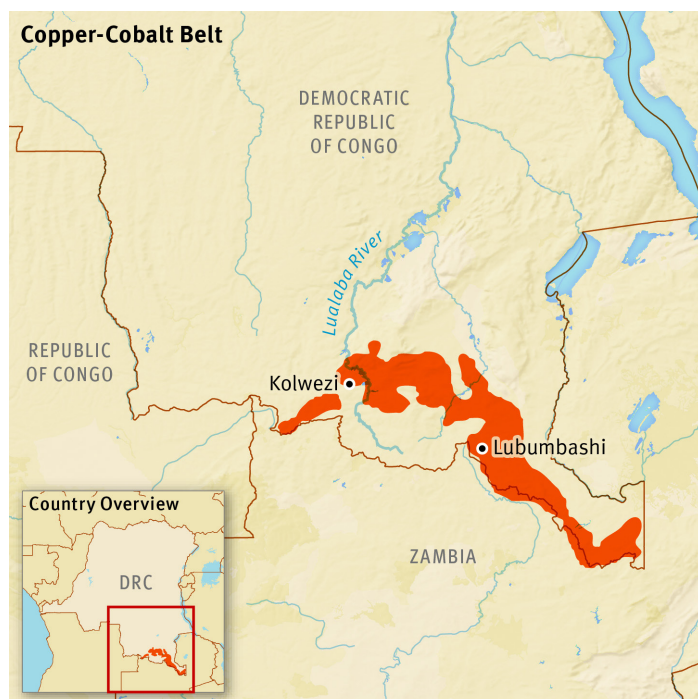
In December 2023, world leaders present at the COP28² in Dubai agreed for the first time in 28 years of international climate negotiation to “transit[ion] away from fossil fuels in energy systems”.³ This declaration signals a new international consensus that in order to reduce carbon emissions and address the climate crisis, a shift away from a fossil fuel-based economy towards “clean” energy sources is necessary. At the heart of this “green transition” is cobalt, a mineral which has come to define our modern technological world. Historically used as a colouring agent due to its vivid blue colour, cobalt was also found to have high heat resistance and energy density, making it ideal for our cell phones, laptops, smart watches, and drones. But its predominant use in recent years is as a key component in the rechargeable lithium-ion batteries that power electric vehicles (EVs), and store energy from solar panels and wind turbines.

Electric vehicle sales are expected to continue to surge from a predicted 16.7 million in 2024 to almost 27 million in 2026.⁴ The growth is driven by government policies to address the climate crisis, including new restrictions on petrol and diesel-powered vehicles. According to industry experts, three markets dominate global EV sales. China currently accounts for around 60% of global passenger EV sales. China is also the biggest global consumer of cobalt, with more than 80% being used to manufacture rechargeable batteries.⁵ In parallel, about 65% of global refined cobalt is produced in China-based facilities.⁶ In Europe, the second-largest market, electric car sales increased by over 15% in 2022⁷, while in the United States, the third-largest market, EVs are expected to make up nearly 28% of passenger vehicle sales by 2026, up from 7.6% in 2022.⁸ Driven by the growing demand for EVs and their lithium-ion batteries, global cobalt production is expected to mushroom. In 2022, batteries accounted for 72% of cobalt demand, up from 55% in 2018 and 70% in 2021.⁹ Battery demand for cobalt is expected to reach more than 320kt tonnes by 2030, or about 84% of the total cobalt demand.¹⁰



Significantly, over half of the world's cobalt reserves are in the Democratic Republic of Congo (DRC). The DRC is already the largest producer of cobalt – with nearly 70% of the world's cobalt having been extracted within its borders in 2022 – and the third largest producer of copper.¹¹ In the DRC, cobalt is a by-product of copper mining, and the extraction of both minerals is critical to the Congolese economy. In 2019, copper and cobalt combined represented 86.4% of the DRC's total exports, and the extractive sector (made up almost entirely of copper and cobalt) represented nearly a quarter of the DRC's total employment.¹² Despite its extraordinary mineral wealth, the DRC remains one of the world's poorest countries. In 2022,

62% of its population, equating to 60 million people, lived on less than the international poverty line of \$2.15 a day.¹³



The DRC, which holds half of Africa's forests and water resources, also has the potential to become an environmental powerhouse in a context of global climate change.¹⁴ Yet, increased deforestation, species depletion, heavy metal pollution and land degradation from mining are impacting Congolese people. An acute drinking water crisis has left an estimated 51 million Congolese without access to potable water,¹⁵ while Congolese children rank the world's ninth most exposed and vulnerable to climate and environmental shocks.¹⁶

Kolwezi, a mining town located in the south of the country, is at the heart of the Congolese cobalt industry. An estimated 88% of the DRC's cobalt came from industrial mines operating in Kolwezi and adjacent regions,¹⁷ with the remainder coming from artisanal mining. Both industrial and artisanal cobalt mining in the DRC rely on mines that produce both copper and its derivative cobalt. The economics and industrial processes of the two minerals are closely intertwined, and both are considered critical minerals for the energy transition, though this report focuses predominately on cobalt as the essential mineral in global efforts towards cleaner energies.¹⁸ Many of the industrial mines are run through partnerships between the state-owned mining company Gécamines and private foreign industrial mining companies that began operations in the DRC in the late 1990s.¹⁹

In the last 15 years, North American and European mining companies have been joined by Chinese firms in the DRC, encouraged by the Chinese government to expand foreign direct investment, especially in relation to mineral resources and infrastructure in Africa and Asia. The China-DRC 'minerals for infrastructure' deal, signed in 2008, saw China's state-owned banks invest \$3 billion in infrastructure projects in the DRC in return for access to copper and cobalt mineral development rights.²⁰ As a result, a sizeable 70% of the DRC's mining sector is now backed by Chinese investment.²¹

In parallel, North America and Europe, also part of the global competition for critical minerals,

are developing strategies to increase their interests in Congolese copper and cobalt. Adopted in 2022, the US Inflation Reduction Act includes provisions specifically aimed at boosting America's clean energy supply chain, notably by incentivising US-based manufacturing of EV rechargeable batteries, while reducing reliance on Chinese refining and manufacturing.²² To turn this strategy into a reality, the US is revamping its relationship with the DRC – and Africa more generally – to increase its access to critical minerals. On 13 December 2022, for instance, the US signed a Memorandum of Understanding with the DRC and Zambia to facilitate the development of an integrated value chain for the production of EV batteries in the DRC and Zambia.²³ A stated intention of this MoU is for the US “to take appropriate steps to promote awareness of the DRC and Zambia Electric Vehicle Battery initiative within the U.S. private and investment sector.”²⁴

Similarly, the currently negotiated EU Critical Raw Materials Act,²⁵ which aims to strengthen the European critical raw materials value chain and diversify the EU's imports, promotes strategic partnerships with resources-rich countries.²⁶ The EU has signed strategic partnerships with the DRC and Zambia, among others.²⁷ Alongside Australia, Canada, Finland, France, Germany, India, Italy, Japan, Norway, the Republic of Korea, Sweden, and the United Kingdom, both the US and the EU are part of the Minerals Security Partnership, a strategic alliance to diversify the supply chains of lithium, cobalt, nickel, manganese, graphite, rare earth elements, and copper.²⁸

However, some of these initiatives have been marred by accusations of human rights violations and environmental damage. A global assessment of human rights and environmental abuses associated with mining operations between 2010 and 2022, conducted by the Business and Human Rights Resource Center, shows that the DRC ranks third in the number of allegations identified.²⁹ One of the largest producers of cobalt and copper, multinational mining giant Glencore, which owns two mines in the Congolese copper-cobalt belt – the region sitting on the border area between northern Zambia and the southern DRC – is linked to 70 allegations of abuse, more than any of the other 93 companies evaluated.³⁰ During the same period, water pollution was the top environmental impact of mining activities.³¹

Similarly, the Business and Human Rights Resource Centre, also investigated the human rights and environmental footprint of Chinese companies operating abroad and found that Africa recorded the second highest number of human and environmental rights abuse allegations linked to Chinese investments overseas, mainly affiliated to metals and mining. In this sector, inadequate disclosure of environmental impact assessments (EIAs) was identified as one of the main risks (it was also the most frequently identified issue across sectors and was cited in 31% of 211 allegations), while pollution and health impacts were found to be common issues. The DRC ranked fourth in African countries where abuses by Chinese companies were the most frequently recorded.³²

The remaining 12% of the DRC's cobalt is produced by the 150,000 to 200,000 people working in artisanal and small-scale mining (ASM),³³ a legal but highly dangerous activity characterised by serious human rights abuses. After Amnesty International and AFREWATCH's research revealed how ASM cobalt tainted by child labour had entered electric vehicle supply chains,³⁴ several major vehicle manufacturers, keen to be seen by consumers and investors as good corporate citizens and concerned about potential legal liability, pledged to take action.³⁵

To address risks associated with poor governance and human rights and environmental harm

in the Congolese cobalt mining sector, but also to reduce the cost of manufacturing EVs, a growing number of manufacturers are seeking to cut back on purchases from the DRC and are developing battery chemistries that eliminate or reduce cobalt content.³⁶ In 2021, the Chinese government established a five-year economic plan which aims, among other things, to explore a variety of battery chemistries.³⁷ Recently, sodium-ion batteries have received much interest. These batteries rely on sodium, a cheap and abundant material, to replace lithium, and do not require either cobalt or nickel. Production of sodium-ion batteries is accelerating, too. Benchmark Mineral Intelligence has identified 28 sodium battery factories operating, planned or under construction, most of them in China.³⁸ By 2025, China is expected to have nearly 95 percent of the world's capacity to make sodium batteries.³⁹

Despite these new developments in battery chemistry, experts agree that the demand for cobalt will remain high in the short to medium term. About 57% of EV cathode demand still comes from battery chemistries containing cobalt, according to industry analysts.⁴⁰ Interviewed by S&P Global Market Intelligence, Andries Gerbens, a physical trader at Darton Commodities said: "Despite the prevailing transition to lower cobalt cathode chemistries and the growing share of non-cobalt chemistries, the cobalt bearing [nickel-cobalt-manganese] chemistry will remain the dominant chemistry in the foreseeable future. Furthermore, the sheer absolute growth in EV sales will mean that EV-related cobalt demand will continue to accelerate in the years to come."⁴¹ This means DRC's cobalt remains critical to the energy transition.

FOCUS ON FIVE INDUSTRIAL COPPER AND COBALT MINES

Resting on a history of colonialism and exploitation, the lives and economic opportunities for many people in modern-day DRC revolve around the country's mining industry, as does its economy. This report examines the human rights and environmental impacts of mining-related water pollution in communities surrounding five key industrial mines, providing a revealing insight into mining practices and patterns in the broader Congolese cobalt mining sector.

The provinces of Lualaba and Haut-Katanga are located on Central Africa's copper-cobalt belt and are the economic backbone of an industrial mining sector that creates tens of thousands of direct and indirect jobs.⁴² In 2023, at least 19 industrial-scale mining projects were in production in these two provinces.⁴³ Kolwezi, the capital of Lualaba province, is at the heart of the copper-cobalt belt. Founded in 1938, mining is its only significant industry and the main source of income for the city's inhabitants, estimated at more than half a million.⁴⁴ Three-quarters of developed space in Kolwezi is taken up by mining sites.⁴⁵

In 2022, the five mines featured in this report accounted for approximately 43% of the global supply of cobalt, much of it destined for the world's automotive manufactures.⁴⁶ These mines are all large-scale industrial operations, with open and underground pits, and processing facilities.

Tenke Fungurume Mining SA (TFM)⁴⁷

Located 106 km from Kolwezi, the Tenke Fungurume Mining (TFM) project was one of the

first large private sector projects to be initiated following the DRC's years of war, which ended in 2003.⁴⁸ Construction began in late 2006 and TFM produced its first copper output three years later. Since 2016, TFM has been 80% owned by Hong Kong and Shanghai-listed CMOC Group Limited, with Gécamines, the Congolese state-owned company, owning the remaining 20%.⁴⁹ In June 2023, TFM predicted a 2023 production target between 290,000 and 330,000 tonnes for copper, and between 21,000 and 24,000 tonnes of cobalt.⁵⁰ The mine is estimated to have around 103 million tonnes of cobalt reserves, with mining activity projected to last for 20 years and mineral processing for 40 years. Combined production at its TFM and other DRC asset, Kisanfu copper-cobalt mine (KFM)⁵¹, has allowed CMOC, as of January 2024, to leapfrog Glencore as the top global cobalt producer.⁵²

Kamoto Copper Company SA (KCC)⁵³ and Mutanda Mining SARL (MUMI)⁵⁴

Although the TFM mine has the top spot as the most productive individual cobalt mine, Glencore's two mining projects combined make the Swiss mining giant the largest producer of cobalt worldwide. It has two active copper and cobalt projects in the DRC. The first, KCC, is a complex of open pit and underground cobalt and copper mines located near Kolwezi. KCC is a joint venture between Gécamines (25%) and Katanga Mining Ltd (75%), the operator.⁵⁵ Katanga Mining's parent company is Glencore Plc, one of the world's largest commodity trading and mining companies. Glencore is headquartered in Switzerland and listed on the London Stock Exchange.⁵⁶ In 2023, KCC produced 206,400 tonnes of copper and 27,600 tonnes of cobalt.⁵⁷

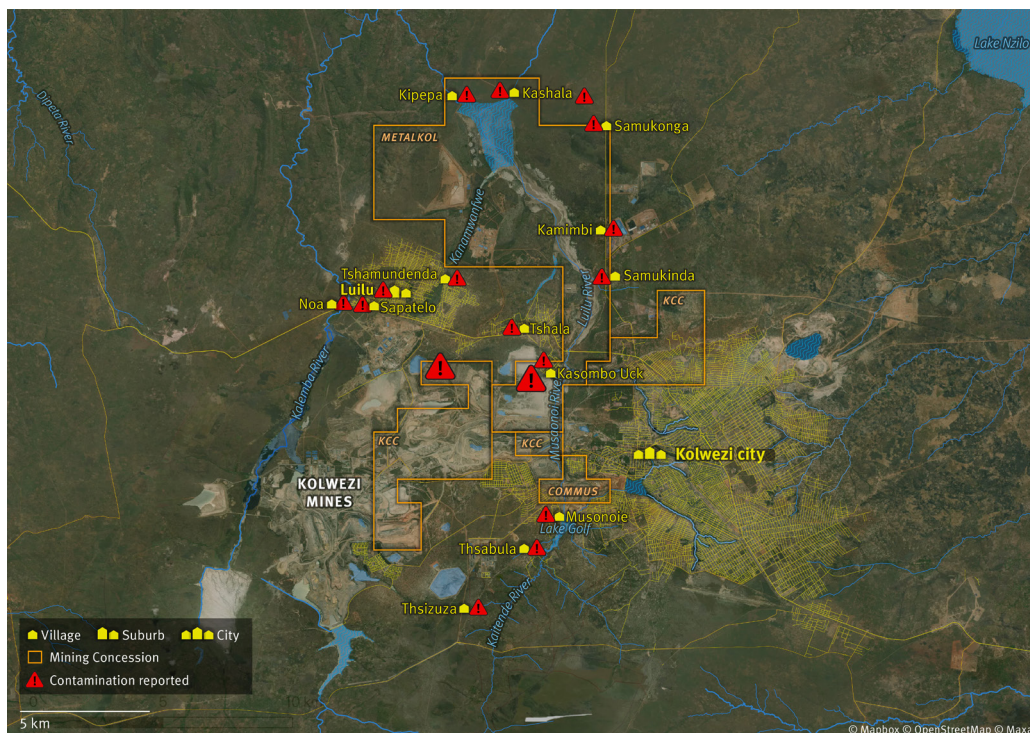
Located around 40 km east of the town of Kolwezi, the open pit copper and cobalt mine MUMI was between 2017 and 2023 a wholly owned subsidiary of Glencore. In 2023, Glencore transferred 5% of its shareholding in MUMI to the DRC government as required by the Congolese Mining Law. Closed temporarily in 2019, MUMI's operations restarted again in late 2021, processing ore from its existing stockpiles, with a view to resume full mining activity by 2024.⁵⁸ In 2023 MUMI's production amounted to 35,100 tonnes of copper and 11,200 tonnes of cobalt.⁵⁹

Metalkol SA⁶⁰

The Compagnie de Traitement des Rejets de Kingamyambo, also known as Metalkol, is a DRC-registered company, which holds the mining permit for the Metalkol RTR (Roan Tailing Reclamation project) mine, located 35km from Kolwezi and near KCC. Metalkol SA is owned by Eurasian Resources Group (ERG), a privately-owned Kazakh firm, registered in Luxembourg.⁶¹ ERG is the successor company to Eurasian Natural Resources Corporation PLC (ENRC).

Metalkol re-processes copper and cobalt waste, known as tailings, deposited in the 1950s by Gécamines in the Kingamyambo Tailings Dam and Musonoi River Valley. The construction of the Metalkol operation was financed by a capital investment of approximately \$650 million, secured through a financing package with a private Chinese consortium including China Nonferrous Metal Industry's Foreign Engineering and Construction Company (NFC).⁶² Production started in October 2018 and in 2022, the project extracted 99,800 tonnes of copper and 22,500 tonnes of cobalt hydroxide.⁶³

Five industrial copper and cobalt mines and associated environmental risks



Compagnie Minière de Musonoie Global SAS (COMMUS)

COMMUS operates an open pit copper and cobalt mine at the immediate outskirts of Kolwezi's city centre and is surrounded by residential neighbourhoods. Zijin Mining Group Ltd, a Chinese mining multinational, acquired a 72% interest in the mine through two acquisitions in 2014 and 2016, while Gécamines remains a minority owner. In 2022, Zijin Mining predicted a 2023 production at COMMUS of 126,000 tonnes of copper and 2,387 tonnes of cobalt.⁶⁴ While COMMUS' cobalt production is much smaller than the other mines studied here, its mere location, adjacent to Kolwezi and in a very populated area, has had strong impacts on local inhabitants.

THE ENVIRONMENTAL IMPACTS OF COBALT MINING: SCIENCE-BASED RESEARCH ON WATER POLLUTION IN DRC'S COPPER-COBALT BELT

The holder of a mining license is liable for damage caused to people, property and the environment as a result of its mining activities, even in the absence of any fault or negligence. They are required to repair them.

Article 285 bis of the Congolese Mining Code

The science behind water pollution in the DRC

There has been limited public attention to environmental pollution at DRC's copper and cobalt mines. Scientific studies and reporting from Congolese civil society researchers have, however, clearly demonstrated deep environmental concerns and have begun to draw links to associated human rights impacts. At least 70 academic studies demonstrate not only that industrial copper and cobalt mining releases large quantities of copper, cobalt, lead, arsenic, cadmium, uranium, manganese, mercury, and acidified pollutants into local environments, but also that even low exposure to these metals and elements can have harmful impacts on ecosystems and human health. Scientists conducting research internationally and in the DRC have demonstrated that copper and cobalt mining contributes to surface water and groundwater pollution or depletion, damage to wetlands, change to the flow and sedimentation patterns of rivers; and biodiversity loss⁶⁵ (please see annex 1 for a selection of these studies). For some, mining pollution in the Congolese copper-cobalt belt is so severe, that it is turning into a "sacrifice zone", which the Special Rapporteur on human rights and the environment described as places "where residents suffer devastating physical and mental health consequences and human rights violations as a result of living in pollution hotspots and heavily contaminated areas."⁶⁶

The methods used by cobalt mining companies to withdraw water from freshwater sources, and use and discharge it, varies considerably between mining operations.⁶⁷ Yet, research conducted at every stage of the lifecycle of copper and cobalt mining shows that water pollution



Families wash clothes in the village of Sapatelo near the KCC copper-cobalt mine ©2023 RAID

is often caused by the emission of toxic dust into the air – which falls in water bodies – as well as the discharge of wastewater and acidified pollutants into water bodies.⁶⁸ Scientists have also identified dewatering of a mining area and groundwater exploitation for use in the mining operations as a common impact of mining activities.⁶⁹

In 2019, engineers conducted an inventory of more than 416 million tons of mineral tailings and metallurgical slags⁷⁰ in the Congolese copper-cobalt belt and found that most were “not environmentally friendly” and were “a critical environmental hazard for the surrounding population.”⁷¹ Indeed, the toxic contaminants found in these mining wastes are dispersed in the environment by wind, by rainwater runoff into surface water, or directly by infiltration into groundwater. One of the authors of that study further explained to RAID and AFREWATCH that in several of the mines operating in the Congolese copper-cobalt belt the tailing dams were inadequate, with the dike being either too small or eroded. Mine operators build embankments near the mine, also known as tailings dams or storage facilities (TSF), to hold mining waste in either a liquid or solid form, and a rupture can cause catastrophic accidents for people and environment, with impacts often far beyond the immediate surroundings of a mine.⁷² Government officials tasked with checking tailings storage facilities and monitoring environmental damage and risks are frequently under-resourced or lack the engineering expertise to challenge companies.⁷³

What are Tailings Storage Facilities?

During copper and cobalt processing, tailings storage facilities (TSFs) are used to store the waste materials generated by the extraction and processing of these metals from ore. TSFs are structures designed for the safe storage of tailings and are an integral part of a mine’s waste management strategy. Their design, construction, and operation are critical to ensuring the safety of the environment and local communities, as their failures can lead to significant environmental disasters. TSFs can be constructed in various ways,

including different types of dam constructions, dams built in valleys, engineered rings around the perimeter of a disposal area, or in-pit storage where tailings are placed back into a mined-out pit.

There are international standards and guidelines that aim to regulate the management and design of TSF's to ensure their safety and minimize environmental impacts, including the Global Industry Standard on Tailings Management developed by the United Nations Environment Programme (UNEP), the International Council on Mining and Metals (ICMM), and the Principles for Responsible Investment (PRI). This standard was launched in 2020 in response to the Brumadinho dam disaster in Brazil which led to the deaths of at least 270 people and widespread environmental damage.

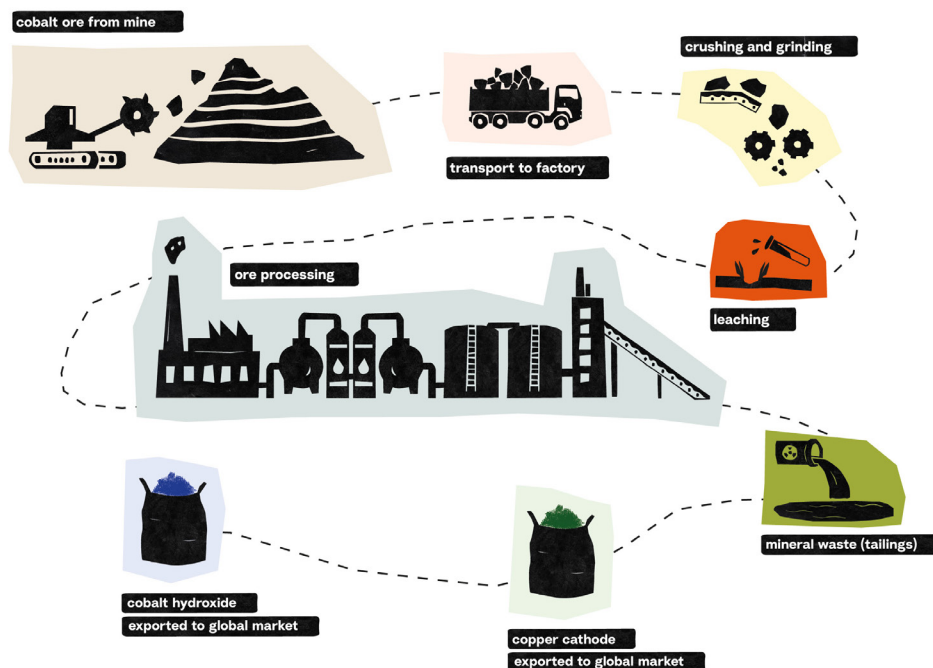
The composition of the tailings can vary depending on the specific ores being processed and the extraction techniques used, but generally, tailings from copper and cobalt processing may include:

1. Crushed rock particles: The bulk of tailings material usually consists of finely ground rock that was part of the ore body but does not contain economically recoverable amounts of copper, cobalt, or other valuable metals.
2. Water: Tailings are often mixed with water to create a slurry that can be pumped to the tailings storage facility. Over time, the solids settle out, and the water is often recycled back into the mining process.
3. Chemical reagents: Various chemicals may be used in the processing of copper and cobalt ores, including flotation reagents (collectors, frothers, and depressants), leaching agents (acids, bases, or other solvents), and other process aids. Residues of these chemicals can remain in the tailings.
4. Metals and minerals: In addition to copper and cobalt, tailings may contain trace amounts of other metals such as iron or sulfur, depending on the composition of the ore and the efficiency of the extraction process.
5. Process by-products: Certain processes, like smelting, can produce slag and other by-products that might be stored in tailings facilities if they are not recycled or disposed of separately.
6. Potential contaminants: Tailings can contain compounds that are harmful to the environment, such as heavy metals and sulfides, which can lead to acid mine drainage if not properly managed.

TSF need to be managed and designed carefully to minimize environmental impact, prevent dam failures, and protect local ecosystems and communities.

In this context, the increase in copper and cobalt mining in the DRC not only raises considerable environmental and human risks, but as demonstrated by scientific evidence, it is already causing irreversible damage to fragile ecosystems and harming the health and economic rights of fenceline communities, the groups living close to the copper and cobalt mines and directly affected by their operations and associated pollution. Satellite imagery shows that copper and

Stages of cobalt production



cobalt mines have grown exponentially over the past thirty years, taking over huge amounts of land in and around Kolwezi.⁷⁴ The US Geological Survey and the US Bureau of Mines found that cobalt production in the area increased by an estimated 600% between 1990 and 2021.⁷⁵ According to researchers, this expansion is encroaching on the Lualaba province’s other critical natural asset, its numerous water bodies. By using water for processing minerals and disposing of operational waste, industrial cobalt mines contaminate affluents of the Congo River and surrounding lakes⁷⁶ that have historically been local communities’ primary resources for fishing, farming, drinking, and household activities.

In 2013, chemists and environmental scientists evaluated the concentrations of metals in the surface water and sediment of the Luilu and Musonoie Rivers, two large rivers along which are located six communities interviewed by RAID and AFREWATCH. The researchers found concentrations of copper and cobalt, among other minerals, that largely exceeded the World Health Organization and the Aquatic Quality Guidelines for the Protection of Aquatic Life recommendation limits,⁷⁷ in particular around the areas where mining companies discharge wastewater.

According to them, these results suggested that the mining effluents being discharged into the rivers and the accumulation of pollutants in sediments might be toxic for aquatic living organisms and could constitute significant human health risks.⁷⁸ Further science-based research conducted in 2016 showed that the Dilala, Luilu and Mpingiri Rivers, all three known to receive mining discharge, contained quantities of copper, cobalt and lead in sediment that were above the Sediment Guidelines for the Protection of Aquatic Life.⁷⁹ Three of the communities interviewed by RAID and AFREWATCH live along the Luilu and Dilala Rivers.

To add to this literature and to support the testimonies collected, RAID and AFREWATCH commissioned further scientific analysis from the University of Lubumbashi’s Toxicology and

Environment Unit on the Dipeta River, in the Fungurume council, the Katapula, Kalenge and Dilala-UCK Rivers, and the Kando Lake. These five water bodies have been identified by local residents in communities close to MUMI, Metalkol and TFM as being problematic. While the research is still ongoing, preliminary results from March 2024 show that water pH for all of the rivers and the lake assessed is low. The scientists said this was a clear sign that these water bodies are affected by acidified industrial pollution. Both the Katapula and the Kalenge rivers have a pH inferior to 3.8, which qualifies them as “hyper-acidic”, while the Dipeta and Dilala Rivers are considered “very acidic” with a pH under 4.5. The Kando Lake is qualified as a “little acidic”, with a pH of 6.5, close to the basic pH value of 7. The scientific researchers assess that, given their acidity levels, the four rivers have become unable to host fish, and that their water is toxic for human and animal health.⁸⁰

Equally alarming, science researchers have also established a link between cobalt mining-related environmental contamination and exposure to pollutant metals, to serious health impacts on Congolese communities, especially on women and children. For the past four decades, toxicologists have demonstrated the toxicity on humans of several metals found in copper and cobalt mining processes, tailings, and waste. Their findings show that high exposure to metals and elements like copper, cobalt, arsenic, cadmium, uranium, manganese and mercury is deemed to cause a variety of health impacts ranging from pulmonary and skin diseases, heart and kidney damage, cancer, vision impairment, to nervous system deficit.⁸¹



Research evaluating populations’ exposure to pollutants specifically in the Congolese copper-cobalt belt is smaller, but rapidly developing. In 2009 and 2014, health scientists determined that high concentrations of cobalt, cadmium, copper, uranium and lead, among others, could be found in urine samples across the general population in the region, although cobalt exposure was more elevated for people living in areas with industrial mining pollution.⁸² These researchers, alongside agronomists and veterinarians, also identified that consumption of contaminated legumes and fish was the largest contributor to metal intake in adults, whereas dust ingestion

was a substantial contributor for children.⁸³ Across these studies, the levels of cobalt found in human samples, in particular in those of people living in the mining areas, exceeded levels at which toxic reactions and health effects are unlikely to occur – that is, they were well beyond safe levels.⁸⁴ These safe levels have been determined to be 15 µg/L for urinary cobalt and 1 µg/L for blood cobalt.⁸⁵ Conclusions in studies focusing on artisanal cobalt mining are similar,⁸⁶ although researchers also found a troubling increase in birth defects likely caused by high transfer of cobalt and other trace metals from mother to foetus.⁸⁷

In parallel to science-based research, Congolese and international civil society groups have, for years, been gathering evidence on the adverse environmental and human rights effects of the presence of large industrial mines in the DRC's copper-cobalt belt. Their conclusions recurringly show that the ongoing air, water and soil pollution by mining operations is increasingly making the environment unlivable. The lauded economic opportunities brought by mining may be providing some benefits to those employed in full-time jobs, but for fenceline communities their limited access to essential resources such as clean water and fertile soil, and increasingly scarce sources of subsistence, is only pushing them further into poverty. Exposed to toxic fumes, noise and contaminated mining waste, they are also becoming sicker.⁸⁸

THE CONGOLESE LEGAL FRAMEWORK ON THE MINING ENVIRONMENT

The social and environmental responsibility of mining companies operating in the DRC is regulated by the 2002 Mining Code (revised in 2018) and the 2018 Mining Regulation, the latter setting out implementation measures of the Mining Code and providing detailed environmental provisions. Other laws regulating water protection and the mining environment include the 2006 Constitution of the Democratic Republic of Congo (revised in 2011), the 2015 Law on Water and the 2011 Environment Protection Law.⁸⁹ These texts provide an extensive array of legal obligations for mining companies aimed at identifying, preventing, mitigating and providing remedies for the environmental and associated human rights risks of their activities. A selection of these obligations is detailed below.

Administrative obligations

Among other requirements, mining companies are required, in order to obtain and maintain their mining license, to prevent and mitigate their environmental impacts. To do so, the Mining Code requires mining companies to produce three documents:

- An Environmental and Social Impact Assessment (ESIA) to predict and assess the potential and actual social and environmental impacts of the mining activities and to develop suitable mitigation measures.⁹⁰ Mining companies are required to submit an ESIA to Congolese authorities every five years or any time there are significant modifications to the mine site.⁹¹
- An Environmental and Social Management Plan (Plan de gestion environnementale et sociale – PGES) aimed at implementing and monitoring the mitigation measures for the adverse environmental impacts identified in the ESIA.⁹²
- A Mitigation and Rehabilitation Plan, which compels mining companies to carry out activities to mitigate their impact on the environment and to rehabilitate the mining site.⁹³

According to the DRC's Mining Code and Mining regulation, a summary of both the ESIA and the Environmental and Social Management Plan (PGES) must be published both on the website of the Congolese Technical Mining Coordination and Planning Unit (Cellule Technique de Coordination et de Planification Minière – CTCPM) and on the website of all mining companies that have one.⁹⁴

Three Congolese government agencies are charged with examining a company's ESIA: (i) The Congolese Environment Agency (ACE), (ii) the National Fund for Promotion and Social Service (FNPSS), and (iii) the Directorate of the Ministry of Mines in charge of the protection of the mining environment (DPEM).⁹⁵ These state agencies are also responsible for monitoring a company's ongoing compliance with its ESIA and its mitigation measures.

Obligations to protect water and the environment

According to the Mining Code, companies have a general obligation to protect the environment both at the exploration and exploitation phases of a mining project.⁹⁶ This includes, for instance, an obligation to include in the company's ESIA specific information on the way both mine water and wastewater are collected, used, managed and disposed of,⁹⁷ and to share with Congolese authorities and at-risk communities a detailed emergency plan describing measures by the company to mitigate industrial accidents and limit their consequences on the environment and on people's health.⁹⁸

This obligation is to be read in conjunction with the Congolese constitution, which recognises the rights to a clean and healthy environment, to potable water, to health and to food security, among others.⁹⁹ Similarly, the Environment Protection Law prohibits the discharging of waste or substances likely to pollute both surface and ground water, and to create a danger for people's health.¹⁰⁰ The 2015 Law on Water establishes a set of measures to protect water resources and regulate their use.

International obligations

In addition to Congolese law, mining companies are also subject to international laws and standards. As a party to international treaties, like the International Covenant on Economic, Social and Cultural Rights (CESCR), the Convention on the Elimination on all Forms of Discrimination Against Women (CEDAW) and the Convention on the Rights of the Child (CRC), among others, the Congolese State has an obligation to protect a wide spectrum of human rights, such as the right to health, to education, to water and sanitation, and to a healthy environment. This includes protecting Congolese people from environmental damage – such as the pollution of air, land and water – which, according to the UN General Assembly, “has negative implications, both direct and indirect, for the effective enjoyment of all human rights.”¹⁰¹ The African Charter on Human and Peoples' Rights, which the DRC has ratified, specifically recognises a right to “a general satisfactory environment favourable to their development.”¹⁰² According to the UN Guiding Principles on Business and Human Rights (UNGPs), the DRC also has a duty to protect against human rights abuses by all actors, including companies, to prevent human rights abuse by all companies and to respond to such abuse when it occurs.¹⁰³

Similarly, mining companies have a responsibility to respect all human rights, including the right to a clean, healthy and sustainable environment, wherever they operate in the

world and throughout their operations. This is a widely recognised standard of expected conduct as set out in international business and human rights instruments including the UNGPs and the OECD Guidelines for Multinational Enterprises (OECD Guidelines). These are set out in more details below.

Mining companies' recognition of water pollution risks in their activities

The evaluation of environmental risks

Most of the cobalt mining companies operating in the DRC, including those featured in this report, are at pains to publicly demonstrate their corporate commitments to global “business and human rights” standards including, the UN Guiding Principles on Business and Human Rights (UNGPs), the OECD Guidelines for Multinational Enterprises on Responsible Business Conduct, the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High- Risk Areas, as well as the Chinese Due Diligence Guidelines for Responsible Mineral Supply Chains, inspired by the OECD Guidance on Mineral Supply Chains that sets out guidance on serious human rights abuses for all Chinese companies that extract, process, and use mineral resources and their related products.

In that context, many of these companies consider industrially mined cobalt as a reliable, more easily traceable, and “clean” mineral that can be acceptably used as part of a green, low-carbon future. Commodities giant, Glencore, for instance, showcases its DRC copper-cobalt mine Kamoto Copper Company as a “sustainable operation”, which uses processes that “[protect] lives [and the] environment”. It prides itself in “playing a lead role” in ensuring “that those minerals are produced in a very responsible and a sustainable way.”¹⁰⁴ Similarly, Eurasian Resources Group (ERG) sees its Clean Cobalt and Copper Framework as an opportunity to “support the technology for a low carbon economy while improving local communities’ quality of life and supporting multi-stakeholder efforts to achieve responsible cobalt and copper supply chains.”¹⁰⁵ Zijin Mining also highlights its commitment to “protecting the environment”, flagging its efforts to build “green mines” such as COMMUS, which “ensure maximum vegetation coverage [...] and minimum disturbance to land and the ecosystem.”¹⁰⁶

In the same vein, the mining companies highlight the efficiency of their water management systems, emphasising their use of “closed-circuits” that minimise potential impacts on water. In its response to RAID and AFREWATCH, ERG, the owner of the Metalkol mine, explained that “we work in a closed circuit and the wastewater from our treatment plant is not discharged into the environment. In the event of a problem at the treatment plant (linked, for example, to a power cut or breakdown of some kind), we have an event pond enabling us to receive and contain all the solution from the treatment plant.”¹⁰⁷

Glencore, on its water management webpage, similarly mentions: “Many of our industrial activities use water for cooling purposes, predominately for non-contact cooling activities (e.g., closed circuit furnace shell cooling) whereby typically no deterioration of the water quality takes place.”¹⁰⁸ As for TFM, it states in its response to RAID and AFREWATCH: “At TFM, leachate from the landfill is not discharged into nature. Instead, it is connected to water recirculating pump then is pumped into process plant (closed circuit).”¹⁰⁹ According to COMMUS’ parent

company Zijin Mining, which states establishing a “Water Balance Model” at each of its mines, “we place great importance on and continuously improve water resource management and enhance water utilisation to reduce negative impacts on local water resources resulting from our operations.”¹¹⁰

Yet, the mining companies in this study also recognise that copper and cobalt mining holds significant environmental and human rights risks, and that their activities may have adverse effects on the quality of surrounding water bodies.¹¹¹ The companies evaluate these risks in environmental and social impact assessments (ESIA) and develop implementation and monitoring strategies of their mitigation measures in Environmental and Social Management Plan (PGES). In these documents, which mining companies operating in the DRC are legally required to submit on a five-year basis,¹¹² they predict and assess the potential and actual social and environmental impacts of their activities, including risks to people’s health and livelihoods among others, and develop suitable mitigation measures.¹¹³

The ESIA are also occasionally opportunities for companies to recognise existing damage. TFM, for instance, recorded in 2019 high pH values and metal concentrations (antimony, arsenic, selenium, uranium and iron) in some surrounding locations, while acknowledging that “metals can be potentially toxic to humans”.¹¹⁴ Similarly, in 2018, KCC reported heavy metal exceedances in the Musonoie River.¹¹⁵ The COMMUS mine, which declined to share its ESIA with RAID and AFREWATCH (see below), operates on both sides of and in close proximity to the Musonoie River despite Zijin Mining, its parent company, stating “To ensure that the impact of our activities on water resources is minimised and to ensure the security of the rivers and groundwater sources in mine areas, we locate our sites far away from the water sources or the upstream of the rivers.”¹¹⁶

We have obtained the environmental and social impact assessments and corresponding Environmental and Social Management Plan (PGES) of four of the five mines studied in this report and analysed these documents in great detail. COMMUS declined to share its initial ESIA with us stating that it was out-of-date and that a new one had been filed with the DRC government in 2023 but had not yet been approved. It did not share its 2017 ESIA despite repeated requests and a reminder that such documents should be publicly available. Glencore also did not share its most recent ESIA for its KCC mine completed in 2023. In correspondence on 10 November 2023 the company stated it had “received a favourable advice from the [DRC] Environmental Mining authorities in July 2023.” When RAID and AFREWATCH requested a copy, Glencore responded in an email on 12 March that it could not be shared as it had “not yet been approved”. When we requested further clarification, Glencore said that since KCC was involved in an ongoing permit renewal process, its ESIA cannot be shared publicly until the permitting process has been completed.

In the ESIA and PGES that RAID and AFREWATCH obtained, the companies highlight, potential impacts on surface and ground water quality and availability, amongst other impacts. Some examples are detailed in the table.

MINE AND DATE OF ESIA	EXAMPLES OF ASSESSED RISKS
KCC (2017)	<p>Water pollution risks “The quantity of groundwater in the Project area may be reduced, either from dewatering activities or reduced infiltration rates associated with Project activities. This may potentially result in changes to the amount of groundwater resource available, which in turn may be an issue for local communities that use this resource for water supply.” (p. 8-20) “The cumulative contamination of ground and surface water has the potential to impact on the entire region drained by the Luilu and Musonoi Rivers for the life of mine and beyond.” (p. 8-25)</p> <p>Risks to ecosystems “A potential increase in dust fallout also poses an ecological health risk to the limited remaining indigenous flora and fauna.” (p. 8-18)</p> <p>Health risks “The health of residents of communities in the vicinity of Project activities may be affected due to the potential for: an increase in respiratable dust levels and air pollution [...]; and decrease in the quality of surface and groundwater resources [...] Potential human health risk from air and water pollution may be considered an indirect and cumulative impact.” (p. 8-35)</p> <p>Economic and social risks “As there are currently no agricultural activities taking place within the Project footprint areas, the potential loss will be confined to soil resources only and not the loss of production resources, with a resultant low potential risk of impact on livelihoods. No current agricultural land will be impacted.” (p. 8-14)</p>
MUMI (2021)	<p>Water pollution risks “Surface water bodies may be contaminated by the input of low-quality water, salinisation and siltation. The significance of this impact is rated as Moderate before and after mitigation. There may be run-off of contaminants from untreated run-off, spillages or seepage from hazardous facilities or stockpiles.” (p. 142) “Groundwater may also be polluted by diffuse pollution arising from the run-off emanating from contaminated areas. The extraction of ore will also impact the groundwater level and possibly quality as well. There may be infiltration of hazardous contaminants from waste dumps and stockpile areas due to seepage.” (p. 142)</p> <p>Health risks “The operation of the mine will result in cumulative impacts which may negatively affect the health of surrounding communities. These include air pollution, spills and contamination by hazardous chemicals and emissions of poisonous gases.” (p. 143 & 149)</p> <p>Economic and social risks “The dewatering of pits will result in the decrease of groundwater levels. Communities surrounding the mine may have less or no groundwater available for their use. The significance of this impact is rated as High, before and after mitigation.” (p. 143) “Fish from the Kando River plays a vital role as a protein source for the local communities. Local fishermen were encountered at all sampling sites as they clear areas to access the river which creates open water areas for sampling. The abundance of species was lower than expected. All four monitoring sites was in a severely modified state.” (p. 119)</p>

<p>METALKOL (2019)</p>	<p>Water pollution risks “Chemical spills and mobilisation of contaminated tailings [from the project] may enter downstream watercourses and may be harmful to the receiving wetland and aquatic ecosystems.” (p.23)</p> <p>Health risks “The following potential health impacts of the project have been identified [...]: Environmental health impacts from water quality and other factors.” (p.25)</p> <p>Economic and social risks Project activities could result in “Loss of land/crops and artisanal mining opportunities” (p. 24) and “loss of limited natural soil fertility.” (p. 22).</p>
<p>TFM (2019)</p>	<p>Water pollution risks “Dewatering of the groundwater system in multiple mines in the TFM area may continue to affect stream flows during operations.” (p. 237)</p> <p>Risks to ecosystems “The mining infrastructures envisaged by the 2019 ESIA revision can potentially cause direct losses of rare habitat or endemic species associated with cobalt-copper metalliferous vegetation.” (p. 270)</p> <p>Health risks “Spills near waterways (or water sources) could cause ecological or significant health impacts due to the rapid spread of contaminants in water, affecting downstream users.” (p.299)</p> <p>Economic and social risks “[Dust fallout] could cause a drop in crop yields in the area potentially affected by this situated within a hundred metres of the operations under normal operating conditions.” (p. 227)</p>
<p>COMMUS</p>	<p>COMMUS’s ESIA was not provided to RAID and AFREWATCH</p>

A legacy of pollution

Some companies deny contributing to water pollution in the copper-cobalt belt, sometimes arguing they have inherited an already polluted environment from previous operators. KCC, for instance, states in its ESIA that “Environmental liabilities have arisen from the historical activities of various parties that have undertaken mining operations in the area.”¹¹⁷ In its 2022 Sustainable Development Report, Metalkol claims that it “is not only producing significant volumes of cobalt and copper – two of the key commodities needed to drive the global energy transition – it is doing so whilst gradually reducing the negative impacts of historical tailings on local water, land and air quality.”¹¹⁸ ERG also presents its Metalkol copper-cobalt tailings reclamation project in Kolwezi as a “unique opportunity for [ERG] to go beyond ‘do no harm’ and to progressively address the extensive legacy of environmental degradation and pollution while improving the quality of life of local communities.”¹¹⁹ In its response to RAID and AFREWATCH, ERG said “it should be kept in mind that the country’s troubled legacy of conflict, environmental degradation, rapid urbanisation and under-investment in water infrastructure has seriously affected the availability of surface drinking water.”¹²⁰

It is asserted that causation between the activities of specific mines, pollution and human rights impacts is difficult to establish. Pollution and environmental harm have historically been

a consequence of mining activities in the Congolese copper-cobalt belt since well before the late 1990s, when the country privatised its mining sector.¹²¹ Moreover, in an area where at least 19 industrial-scale mining projects operate in close proximity to each other,¹²² it is complex not only to establish individual responsibility for environmental damage, but also to unpack the contribution of mining-related pollution – as opposed to other factors – to adverse health, economic, social and other human rights consequences. According to a medical and toxicology expert interviewed by RAID and AFREWATCH, for instance, it is still somewhat unclear to what extent mining pollution influences the emergence of some diseases as opposed to marginalisation or lack of access to basic services.¹²³ In that context where responsibilities are ill-defined, mining companies, despite eagerly demonstrating their “green” and “responsible” credentials, may have no real incentive to engage significantly in the human rights effects of environmental degradation on Congolese people.

Yet, a new, clear picture is emerging challenging claims for reduced environmental liability on the basis of historical pollution. Science-based and civil society literature now unequivocally shows that the recent expansion of mining activities in the Congolese copper-cobalt belt produces ongoing pollution that adds to existing legacy, and that this pollution is negatively affecting water, the environment and adjacent communities (see annex 1 for a selection of these reports and references). Researchers also predicted that the adverse environmental impacts of cobalt mining are likely to increase with heightened demand for the mineral,¹²⁴ including because of the risks associated with the expanded use of highly toxic and dangerous substances. A sense of the scale of the use of toxic chemicals is evident from Glencore’s KCC mine, which uses 3.5 to 4.5 tonnes of sulphuric acid for every tonne of copper produced.¹²⁵ Its Lulu plant alone produces 220 tonnes of sulphuric acid per day.¹²⁶ Other mines are also increasing their use and production of sulphuric acid. Given the scientific evidence and the recognition by mining companies of the serious and significant environmental risks associated with their operations, the onus is on the industrial mining companies operating in the DRC to fully address the environmental and human rights impacts of their operations.

The issue of legacy is partially addressed by Congolese law. The Mining Code and the Mining Regulation address the legacy principle only in the context of mining title transfers, establishing that the transferee is not required to assume the environmental protection obligations for which the transferor is responsible before the transfer.¹²⁷ The environmental responsibilities of the transferee are established after an environmental audit carried out by the Congolese Environment Agency in collaboration with the Directorate in charge of the protection of the mining environment.¹²⁸ In the current state of Congolese law, it is thus possible for a mining operator to be relieved of any liability for environmental damage when acquiring a mining title associated with pollution or environmental harm.

This approach appears wholly inconsistent with international standards relating to corporate responsibility to respect human rights and the environment such as the UN Guiding Principles on Business and Human Rights (UNGPs), the OECD guidelines for multinational enterprises, the International Finance Corporation guidelines, EITI 2023, The UN Global Compact, which all emphasize the importance and the necessity of effective environmental management systems.¹²⁹ Importantly, the responsibility to respect human rights and the environment extends beyond compliance with national laws and regulations, meaning that where national laws and regulations offer a level of human rights and environmental protection that falls short of internationally recognised standards, enterprises should operate to the higher standard.¹³⁰

In other words, even where Congolese environmental and human rights laws fail to protect the environment adequately, or when the Congolese government lacks the capacity or willingness to enforce domestic laws, mining companies extracting cobalt are expected to ensure respect for human rights and the environment throughout their operations and at the highest standard possible. The limitations of Congolese law on pollution legacy do not constitute a valid reason for cobalt mining companies to diminish their environmental responsibilities. Instead, the expectation is that they take all the measures available to limit their own environmental and human rights impacts while establishing strong and effective strategies for environmental rehabilitation.



A woman looks out to the landscape in the village of Tshala near the Metalkol copper-cobalt mine ©2023 RAID



Three men walk past a water station in Musonoie Golf, near the COMMUS copper-cobalt mine ©2023 RAID

FINDINGS: THE HUMAN RIGHTS IMPACTS OF WATER POLLUTION FROM COBALT MINES

Much of the research to date on the environmental degradation and human rights impacts linked to the Congolese copper and cobalt sector has focused on collecting scientific data demonstrating high levels of water, air and soil pollution, as well as the adverse consequences this pollution has on human health, biodiversity and food security. Yet, the perspectives of affected communities and their struggle to protect their environment against mining giants has rarely been considered. The invisibility of fenceline communities has been compounded by a concerted effort from international mining companies operating in the DRC to create a perception that industrially mined cobalt is ‘clean’, especially when compared to artisanal mining. By promoting the ‘clean cobalt’ narrative, industrial miners seek to avoid the ongoing environmental and human rights controversies linked to transition minerals.¹³¹

The research conducted by RAID and AFREWATCH provides a different assessment. By focusing on the experiences of fenceline communities living around industrial cobalt mines, our findings, as set out in this report, shatter the image of industrial mining companies as respectful corporate guests of the DRC. Instead, it builds on scientific data and corporate reporting to highlight the imbalance and inequality that underly much of the global energy transition to date. Implementing climate change policies in the global North currently creates significant risks for the environment and the people of countries in the global South. It is this stark reality that urgently needs to be addressed if the green energy transition is to be both fast and fair, one that avoids many of the harms that has defined the fossil fuel economy.

THE RIGHT TO A CLEAN, HEALTHY AND SUSTAINABLE ENVIRONMENT

In July 2022, the United Nations General Assembly followed the UN Human Rights Council resolution 48/13, and acknowledged that the right to a clean, healthy, and sustainable environment is an integral part of the international human rights framework.¹³² While there is not a universally agreed definition of the right to a healthy environment, this right is generally understood to include substantive elements such as clean air; a safe and stable climate; access to safe water and adequate sanitation; healthy and sustainably produced food; non-toxic environments in which to live, work, study and play; and healthy biodiversity and ecosystems. It also includes some procedural elements like the right to participate in decision-making, and access to justice and effective remedies, among others.¹³³ Other interdependent and indivisible human rights depend on the right to a clean, healthy and sustainable environment like the rights to life, to health and to development, among others.

The DRC similarly recognised the vital importance of protecting its environment and associated human rights by enshrining the right to a healthy environment in article 53 of its Constitution, its highest legal text.¹³⁴ The right of access to drinking water is guaranteed by article 48 of the Constitution.¹³⁵ In addition, multinational mining companies and their subsidiaries are required to comply with the DRC’s comprehensive set of environmental laws. It includes, mainly, environmental protection provisions in the 2018 Mining Code and Mining Regulation, as well as more specific laws like the 2011 Environment

Protection Law and, in relation to water management, the 2015 Law on Water.¹³⁶

The right to a clean, healthy and sustainable environment – like other international human rights – is binding on states and should have direct impact at the domestic level. In theory, it empowers Congolese people with the tools to hold their government, big polluters and all those responsible for environmental harm to account.¹³⁷ Yet, in the DRC, these legal protections have, to date, provided little comfort and remain largely unrealised. Far too often Congolese communities are left helpless when faced with multinational mining companies indifferent to the human rights and environmental impacts of their activities, and of public and judicial authorities that lack the resources and expertise to monitor corporate practice and hear their claims.

THE HEALTH IMPACTS OF USING CONTAMINATED WATER

The holder of a mining right shall remedy any damage caused by diseases attributable to the mining activity.

Article 285 quarter of the Congolese Mining Code

RAID and AFREWATCH’s research in communities around the five mines featured in this report shows that fenceline communities are consistently suffering from a similar range of diseases and health impacts that they directly associate with using contaminated water. Particularly alarming are the consistent impacts reported by women and children.

The mining companies recognise in their environmental and social impact assessments that their activities may result in environmental health impacts due to water and air pollution. For example:

- At Metalkol, the main baseline health issues within the mining project area and neighbouring villages “relate to a high reported incidence [of ...] diarrhoea (said by villagers to be as a direct result of poor water quality) [...]. Metalkol confirmed this information in its Health Impact Assessment and identified other environmental health impacts from water quality and other factors.”¹³⁸
- Glencore, in relation to both the KCC and MUMI mines, identified a risk of a decrease in the quality and quantity of surface and groundwater resources, which may impact the health of local residents. According to KCC’s ESIA, “The health of residents of communities in the vicinity of Project activities may be affected due to the potential for [...] decrease in the quality of surface and groundwater resources. Potential human health risk from air and water pollution may be considered an indirect and cumulative impact.”¹³⁹ MUMI’s ESIA states: “Communities surrounding the mine may have less or no groundwater available for their use. The significance of this impact is rated as High, before and after mitigation. The operation of the mine will result in cumulative impacts which may negatively affect the health of surrounding communities. These include air pollution, spills and contamination by hazardous chemicals and emissions of poisonous gases.”¹⁴⁰
- TFM mentions in its ESIA that “The Project can potentially cause community health and security issues including: quality and availability of water”.¹⁴¹

Medical doctors and nurses in Kolwezi interviewed by RAID and AFREWATCH reported that, in their practices, they have seen an alarming increase in the rates of specific diseases in the past five to ten years, which they associate with the beginning of the mining boom in the region. They said the most prominent health concerns were dermatological, ophthalmological and respiratory issues, impaired digestion, and, for women, gynaecological and reproductive concerns. While these medical practitioners were unable to certify that these health issues were directly linked to water pollution, due to a lack of scientific data systematically linking environmental damage in the Congolese copper-cobalt belt and health impacts, and because they lacked resources and lab equipment to conduct research, they nevertheless believed some correlations could be established.

A paediatrician, who has been recording patients' data since 2016, explained that the rates of genital infections and skin pathologies among female and young patients had exploded. She believed this was because these populations are the primary users of "unclean water",¹⁴² making them particularly vulnerable to diseases. Another General Practitioner lamented the frequent diseases caused by poor-quality water in the region, including typhoid fever and a range of gastrointestinal issues: "Water-related pathologies are very common in our region. There are many cases of typhoid fever, linked to parasites present in the water, and diarrhea. Most of our patients, about 6 out of 10, develop typhoid fever by ingesting contaminated water."¹⁴³ Yet, the doctors explained that because they do not have access to high-performance testing facilities, they faced limitations in the results they could obtain and the conclusions they could draw, including confirming that the diseases were caused by exposure to heavy metals and other pollutants.



Women wash clothes at the Golf Lake near the COMMUS copper-cobalt mine ©2023 RAID

Despite the practical limits faced by Kolwezi doctors seeking to confirm their suspicions, scientists now have a much better understanding of the environmental risks associated with cobalt mining, and there is a growing body of evidence on the systemic and long-term health risks for adjacent populations and ecosystems, including in the Congolese copper-cobalt belt. For example, scientists have demonstrated that particles emitted during cobalt mining may

cause vision problems, vomiting and nausea, heart issues, and thyroid damage.¹⁴⁴ Similarly, contact with high concentrations of cobalt has been shown to cause asthma and pneumonia,¹⁴⁵ as well as skin conditions such as allergic dermatitis.¹⁴⁶ Recent research quantifying the impacts of cobalt extraction process using a life cycle assessment also revealed that the mining of cobalt led to detrimental human health effects including, possibly, cancer.¹⁴⁷ In 2020, the European Commission classified cobalt as Class 1B Carcinogen (presumed to have carcinogenic potential).¹⁴⁸ This supports the findings of other researchers who have associated exposure to arsenic, copper and cadmium – all of which emanate from cobalt mining – to increased rates of lung, kidney, bone and breast cancers.¹⁴⁹

Impacts on women’s gynaecological and reproductive health

It is well known that environmental harm disproportionately impacts persons, groups, and peoples already in vulnerable situations, augmenting the structural and other intersecting barriers they face.¹⁵⁰ In that context, countless studies show that women and girls, because of their roles and responsibilities in using and managing water, are more severely affected by water contamination.¹⁵¹ In the DRC, family water supply and usage is a highly gendered activity with women and children assuming the main responsibility for collecting water from rivers, lakes, wells and rainwater, which is later used for drinking, cooking, cleaning, washing laundry, and personal hygiene.¹⁵² As a result of their regular contact with contaminated water, women are routinely exposed to hazards and diseases.

Significantly, lack of clean water, sanitation and hygiene disproportionately affects women and girls’ gynaecological and reproductive health. Although the scientific community is still unclear about the extent to which frequent contact with water contaminated with copper and cobalt mining waste, sulfuric acid and heavy metals specifically affect women’s health, it is widely known that poor hygiene practices due to a lack of access to clean water and sanitation facilities puts women and girls at risk of infections and other gynaecological and reproductive diseases.¹⁵³

Consistently across the towns and villages RAID and AFREWATCH’s researchers visited, 56% of those interviewed reported having noticed a significant increase in gynaecological and reproductive issues in women since the beginning of industrial mining activities in the region, although exact periods varied according to the area. This was an issue of concern reported by both men and women. All those impacted described the same symptoms, irregular menstruations, urogenital infections, vaginal mycoses and warts, more frequent miscarriages and, in some cases, birth defects, which they all associated with their using contaminated surface and well water.

In Tshabula, a community close to COMMUS, Cybèle told us: “When COMMUS started polluting the river, we women started having itching, infections and infertility, these were the signs of pollution on our health. Even our periods were irregular. A woman could menstruate 3 times a month. Before, there were no such problems.”¹⁵⁴ Jeanne, who lives in a rural area on the shore of Kando Lake, said: “A lot of women suffer from vaginal infections, and I know it’s because of the water in the lake because before, when we sat in the water, we didn’t have any problems. Now, at the slightest contact with that water, we have an infection.”¹⁵⁵

These concerns were shared by women in urban centres. Mireille, who lives in UCK, a town



Two women walk together near the TFM copper-cobalt mine in the village of Mwelampande ©2023 RAID

close to the Metalkol mine, told us:

“I use water from the Kinanga and Katapula rivers and from the well for household chores. I don’t see a difference between river and well water. Even if I use the water from the well for two months, I still get sick, and I try to use less river water because I think it is polluted. [...] There are more and more diseases that did not exist before. [...] Women’s infections have become chronic. We’re used to it now. I think it’s because of the water we use to wash ourselves.”¹⁵⁶

Recurring infections have impacted more than women’s health and, in some communities, are loosening the family and social fabric. In Kasanga, close to the TFM mine, women told us: *“Since the arrival of TFM and the pollution of the water, there are many problems of infection of women. There have even been several divorces because men thought their wives had cheated on them, whereas infections and menstrual problems here are due to water pollution.”¹⁵⁷*

Others have noticed more frequent miscarriages in their community, which they explained by their usage of contaminated water. In Noa, a village near the KCC mine, Constance explained:

“The water from the [Kamilembe] river and from the [Luilu] river is full of acid, and no one uses it. We use water from our traditional wells but, as its quality is also not very good, it causes us diseases. In our village, there are regular vaginal infections for women [...], abortions and miscarriages. [...]”¹⁵⁸

According to Cynthia, who lives in Rianda, near to the MUMI mine, *“There are many health problems among women: miscarriages and difficulties in giving birth. It’s because we are in contact with the waste from the mine all the time, that’s why we are sick all the time. We women, we are more often in contact with water than men, because we use it to wash ourselves, to wash clothes,*

to prepare food.”¹⁵⁹

Closer to COMMUS, in Golf Musonoie, Lorraine has given birth to a child with a birth defect and, she said, she is not alone:

“In 2017, I gave birth to a child with a malformation; he only had 3 fingers. At the hospital when they asked me where I live, the doctor said that the malformation was related to the pollution of the mines. Our government tells us that women should not live near mines, but they put a mine right in front of our house! All my other children are healthy, but there are other women who have given birth to children with birth defects and all of them have died, except mine.”¹⁶⁰

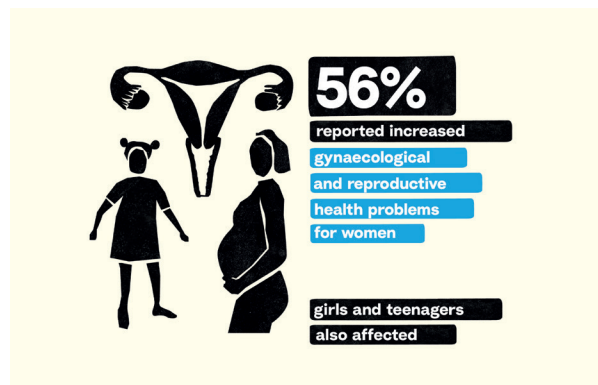


Medical professionals in Kolwezi confirmed women’s experiences. They told RAID and AFREWATCH that they are receiving more and more cases of women with infertility, urinary tract infections and vaginal infections. Yet, because of the polluted environment in which their patients live, they are unable to prescribe them long-term, effective solutions. “Urogenital infections are also very common,” a general practitioner said. “It often starts with a urinary tract infection, for which we usually recommend

doing water-based treatments. The management of urogenital diseases is multidisciplinary. It is generally necessary to combine personal hygiene with disinfectants. But if the woman washes herself with contaminated water, this is a vicious circle.”¹⁶¹

Doctors and nurses have also noticed increased numbers of miscarriages and birth defects. They believed this increase was influenced by women’s proximity to both industrial and artisanal mines, and to the dilapidated state of their environment, although they said they could not back their observations with hard evidence. While some medical practitioners are trying to compile evidence to advance research on possible links between cobalt mining pollution, miscarriages and birth defects, they are limited by severe lack of resources. “The biggest problem we have is that we don’t have a very efficient laboratory, so we are limited in the results that we can obtain. It is difficult for us to do certain examinations,” a hospital doctor reported.¹⁶²

Medical practitioners also felt restricted in what they could say and the results they could draw from their analyses because of possible repercussions from mining companies or public authorities benefiting from mining activities. Doctors working in health centres contracted by mining companies were very reluctant to speak to RAID and AFREWATCH researchers on the environmental impacts of cobalt mining and their effects on women’s health, while others preferred avoiding the subject of miscarriages and birth defects altogether: “We doctors cannot talk too much about congenital malformations because it is a very sensitive subject in relation to the mining sector.”¹⁶³



THE POSSIBLE LINKS BETWEEN METAL EXPOSURE AND BIRTH DEFECTS

Literature on the effects of toxic metals on birth defects is scarce, and still little is known on whether prolonged exposure to the metals that accompany the extraction and processing of copper and cobalt ores may cause or contribute to congenital malformations.¹⁶⁴ Until recently, no study had been conducted in the Congolese copper-cobalt belt.

But between 2013 and 2015, researchers from the universities of Lubumbashi, in the Haut-Katanga province of the DRC, and Leuven, Belgium, collected birth data from 63 Lubumbashi-based maternities. They established that the numbers of recorded birth defects were 1.6 times higher for maternities situated close to mining areas than for the maternities in health zones outside mining areas.¹⁶⁵ They also concluded that mothers having paid jobs outside the home and fathers having mining-related jobs were associated with a higher risk of birth defects, the paternal factor being the strongest.¹⁶⁶

In 2020, the researchers did not find higher metals concentrations in the blood and urine of mothers of newborns with birth defects, but they found significant levels of manganese and zinc in the cord blood of the newborns, leading to uncertain conclusions as to a possible relationship between in-utero exposure to toxic metals and birth defects.¹⁶⁷ Yet, further research conducted in 2022 demonstrated strong concentrations of cobalt in the umbilical cord blood and placenta, providing evidence of a high transfer of cobalt from mother to foetus.¹⁶⁸

This research suggests that there might be links between exposure to contaminants in copper and cobalt mining areas – including through usage of spoiled water, contaminated food, breathing of polluted air, or ingestion of dust – and birth defects, although further analysis might be needed for more definitive results. All these studies were conducted in Lubumbashi – also known as the “Copper Capital” or the “Mining Capital” – the second biggest city in the DRC and located in the copper-cobalt belt. No similar studies have been conducted in or around Kolwezi.

Strikingly, some of the gynaecological conditions that women reported also affected teenage and prepubescent girls. In most of the communities RAID and AFREWATCH visited, women explained that in addition to pimples and infections that most females, irrespective of their age, were developing on their genital area, the majority of teenage girls suffered from irregular and/or haemorrhagic periods.¹⁶⁹ In Tshamundenda, a village a short distance away from KCC, young girls complained from very dark period blood accompanied by blood clots and unbearable pelvic pain.¹⁷⁰

Yvette lives in Kashala, a village close to Metalkol. She felt more comfortable being interviewed in her house, where she could freely discuss the gynaecological issues her young daughter is suffering from, specifically swelling in her vulva, which started with small pimples and became more inflamed. She felt helpless, not knowing what to do to cure her daughter, but acknowledged that she was not an isolated case in her village: “girls here start developing infections at a very young age.”¹⁷¹

No one outside of civil society and the medical field appears to be probing this issue further and asking why increasing numbers of women and girls are complaining of gynaecological and reproductive issues. Despite public information increasingly available, such as the widely disseminated Lancet article on birth defects, cobalt mining companies do not seem to take the issue seriously and fail to respond to the questions Congolese women ask themselves as to the causes of their illnesses.

When asked about the reported health impacts on women and girls by RAID and AFREWATCH, none of the five companies in this study appeared to have any information about it. Glencore did not provide any information about potential links between mining pollution and gynaecological and reproductive conditions around mine sites. Instead, the company highlighted its social contributions: “With regards to women’s health, MUMI supports a menstrual hygiene campaign. As part of their social investment initiatives, KCC has also supported the construction of the Kapata maternity clinic to improve obstetric and post-natal care in Kolwezi.”¹⁷² CMOC underlined no evidence of increased prevalence of women’s health issues relates to industrial operations, suggesting instead that reported gynaecological issues were caused by microbes, unprotected intercourse, antibiotic treatment, hormonal deficiency, mechanical irritation and, possibly, population migrations.¹⁷³ Similarly, Zijin Mining did not identify specific impacts on women’s health around COMMUS. Instead, it explained that “According to the company’s existing archived information, there have been no reports of concerns about women’s diseases” but committed to consider these issues going forward.¹⁷⁴ ERG reported receiving no complaints related to gynaecological issues through its grievance mechanism or otherwise, and said they would investigate them if such cases were reported.¹⁷⁵ This despite RAID informing ERG as early as 2019 of the gynaecological problems that local female residents had reported to our researchers during previous field missions.¹⁷⁶

 CASE STUDY

BREACH OF METALKOL’S TAILINGS FACILITY 2019 AND OTHER ENVIRONMENTAL IMPACTS

On January 2019, following heavy rains, the dam holding Metalkol’s tailings waste ruptured, spilling wastewater into adjoining fields and land. Photos and a video of the aftermath of the incident, obtained by RAID and AFREWATCH, indicate large volumes of wastewater were released, resulting in significant damage.¹⁷⁷

ERG in correspondence to RAID and AFREWATCH said the breach impacted “small areas of the permit following extensive rainfall” and that compensation had been paid in relation to damaged crops, according to official rates set by the provincial division of the Ministry of Agriculture, Fishing, and Livestock (AGRIPEL). ERG said “testing was conducted and there were no other environmental or community impacts.”¹⁷⁸ It added that “The Environmental Department conducted an investigation and concluded that the discharge was neutral and did not contain harmful elements.”¹⁷⁹ ERG did not specify which “environmental department” had carried out the assessment (whether its own or a government agency), nor did it share the testing results, or the amounts of compensation paid.

Two whistleblowers from ERG raised concerns with RAID and AFREWATCH about environmental pollution at Metalkol. They described consistent overflows of toxic waste product from the belt filter building at the Metalkol plant, a problem which according to them was known to Metalkol’s management.¹⁸⁰ One whistleblower said that it had been raised repeatedly at management meetings over a number of years, but that to fix it would require a halt to production, which, he said, management did not wish to do. The whistleblower described the waste as being held in a temporary containment pond, which he said leaked into adjoining fields and wetlands.¹⁸¹ Various Google Earth satellite images taken between 2022 and 2024 appear to back up these accounts. When asked about these concerns, ERG said in its correspondence on 20 November 2023 that “[t]here has never been a problem of overflow or repeated spillage following a breach.” It added, “we work in a closed circuit and the wastewater from our treatment plant is not discharged into the environment.”¹⁸²

RAID and AFREWATCH shared the videos and photos it had received, as well as the Google Earth images and asked for ERG’s comment. In response, ERG said it was a “settling pond [...] designed to capture sediment-laden clean rainwater runoff. The pond allowed for slow, controlled release into the surrounding wetlands, preventing direct discharge and protecting the environment.” ERG added that “the water was tested and if the PH was deemed out of the limits it would be treated using quicklime.” ERG further added “In relation to the horizontal belt filter building, this is located within a bunded area. This bund is designed to contain any potential spills, minimising environmental impact.” ERG said it has a wetland monitoring point, which has “not recorded any exceedances or impacts”¹⁸³ and shared results obtained between 18 January and 21 December 2023 at monitoring points for the Musonoie, Kakifuluwe, Kanamwamwa and Chinganda rivers, as well as the Kasobantu and Nzilo dams.¹⁸⁴ The results shared had



A view of the wastewater spill after the tailings at the Metalkol copper-cobalt mine ruptured

missing data for multiple months.

While consulting Google Earth, RAID and AFREWATCH also noticed a further leak from a pipe leading to Metakol's treatment plant which appeared to be spilling raw material into a nearby wetland. ERG, in a March 2024 letter to RAID and AFREWATCH, said it was not clear in which time the image had been taken. It said, *"These pipes are used for pumping tailings and water from the Kinganyambo reserve. There are no chemicals added before the tailings slurry enters the plant."* It did not provide a further explanation as to why tailings slurry may have been leaking into a wetland.¹⁸⁵

In further correspondence, when asked about toxic spills at the Metakol plant since 2018, ERG said there had been three acidic solution spills in 2023, including on 17, 22 and 23 August 2023. ERG said these were due to an improper environmental risk assessment, wear of a pipe and a pump malfunction. In each incident, ERG said it had used lime to "neutralise the spilled solution". ERG said it viewed these incidents as "minor" since they had been reported and dealt with immediately.¹⁸⁶

Specific impacts on children's health

Children, because of their less-developed physiology and immune systems and their specific behaviours, also experience the effects of environmental degradation, food shortage and water pollution more intensely and are also more prone to pollution-borne diseases than other groups.¹⁸⁷ In its 2023 General Comment No. 26, the UN Committee on the Rights of the Child underlined that the "unsustainable extraction and use of natural resources, combined with widespread contamination through pollution and waste, have had a profound impact on the natural environment", and have contributed to a triple "planetary crisis" – the climate emergency, the collapse of biodiversity and pervasive pollution – that constitutes "an urgent and systemic threat to children's rights globally."¹⁸⁸ It confirmed that children have a right to a clean, healthy and sustainable environment,¹⁸⁹ and urged States party to the Convention on the Rights of the Child to immediately "ensure access to safe and sufficient water and sanitation and healthy aquatic ecosystems to prevent the spread of waterborne illnesses among children",¹⁹⁰ and to protect children's rights against abuse by business enterprises.¹⁹¹ The UN Committee also clarified the responsibility of businesses to respect children's rights in relation to the environment.¹⁹² The DRC, which ratified the Convention on the Rights of the Child in 1990, should thus comply to its international obligations under that text, as interpreted by the Committee.

Yet, in the communities RAID and AFREWATCH visited, children continue to be seriously impacted by ongoing water pollution. 56% of the interviewees expressed serious concerns about the health of their children, whom they said appeared to experience the effects of water pollution more intensely than the adults and to develop a range of diseases at alarming rates. Consistently, community members reported that children suffer from itchiness, rashes, eye irritations, coughing and diarrhea, which they associate with kids playing or being in contact with water. In Rianda, a village near to MUMI, Adèle said:

"My children swim in the water of the [Luakusha] river and the [Kando] lake. They play



Children collect water from a well in the Salabwe village near the TFM copper-cobalt mine
©2023 RAID

with this water and develop chronic coughing. I'm sure it's the water and not the air, because we are surrounded by water and it's impossible to forbid children from playing in the water. Even if we forbid them, I am sure they are sick because they are in the water all the time.”¹⁹³

For Maria, who lives in Kahindu, a community impacted by the activities of MUMI, “some women have to go to the lake to do laundry. There are also children who swim there and some fishermen fish there. These people scratch themselves a lot and complain that they have skin problems.” Despite her constations, she believes the company does not do enough to address the health problems children face: “Our environment is so polluted; I'm really scared for my children. There are children who have developed infections after going into the lake water. Their parents have to get them treated in Lualaba because Mutanda has built a health centre in Rianda, closer to here, but they have now restricted its access to children under 5 years old, I don't know why.”¹⁹⁴

When asked about it, Glencore, MUMI's parent company, responded that while, in the past, doctors from the MUMI site clinic offered consultations to community members in the Rianda health centre, when the MUMI site clinic integrated with the Watu Wetu hospital in Kolwezi, this support was no longer possible. No further explanation was provided, but Glencore added that the Rianda health centre does not have the necessary government authorisations to operate anymore, and that MUMI had started discussions with Watu Wetu management and the provincial health authorities to support the Rianda health centre in obtaining such authorisations.¹⁹⁵

Interviewees also detailed the specific impacts pollution caused by mining accidents had on the health of their children. They deplored that mining companies had provided no medical care

to children they said had suffered severe burns from exposure to acids emanating from their operations. For example, in March 2021, a tank containing sulphuric acid ruptured in KCC, destroying farmland around the mine site and spilling acid into the Luilu, Musonoie and Kanamwanfwe rivers.¹⁹⁶ While KCC paid for the medical expenses of one victim, who was severely burnt, community members said other people, including children, were injured and were refused compensation. In Tshamundenda, for instance, Aristide told RAID and AFREWATCH:

“My child was burned in the 2021 spill. That day, dead fish were floating in the water [of the Kanamwanfwe river] and he entered the water to look at them, he is only a child. He was 12 years old, and he was burned on his legs. KCC should have born the cost of it, but they didn’t. I was the one who had to take him to the hospital. The KCC community relay officer came to the village and he promised that KCC would pay for our medical expenses, but it was not done.”¹⁹⁷

In a letter dated 13 October 2023, RAID and AFREWATCH asked Glencore what steps the company had taken to clean up the damage caused by the 2021 spill at KCC, and what compensation, if any, was provided.¹⁹⁸ On 10 November 2023 the company responded that they had evaluated the incident’s community impacts, including agricultural impacts, but did not provide any specific information as to potential health impacts and remediation.¹⁹⁹ Following the incident, Glencore issued a statement mentioning that *“Follow-up with the community was conducted to advise of the event and our community officers have not registered any complaints nor concerns from their engagement with the surrounding communities.”²⁰⁰*

As children are primarily affected by water pollution, the economic and social consequences of environmental degradation, notably food shortages, also have differentiated impacts on them. Recent science-based research conducted in the Congolese copper-cobalt belt analysed the effects on populations of ingesting contaminated water, either by drinking or using it to wash food and cook. The researchers found more concentrations of mining pollutants in children’s urine than in adults’.²⁰¹ According to them, children are more the most vulnerable populations impacted by toxic metals.²⁰² They are particularly exposed because of their regular hand-to-mouth activity, and higher relative gastrointestinal absorption of trace metals, which they retain more readily.²⁰³ A traditional doctor we interviewed in a community close to TFM made similar observations: *“In traditional medicine, it is known that you need to eat healthy foods to be healthy, but now we eat contaminated and nutrient-poor foods. That is why children get sick and are anaemic.”²⁰⁴*

Because of the numerous health risks their children face, many of the people we interviewed were worried about their children’s life and future. André expressed his anguish: *“The future of our children is in danger. My father has been here since 1935 and he is still alive. I was born in 1955 but I don’t know if I will live as long. So, what about the life of my children? They get sick. Before, children could run and swim freely but not anymore. I’m really afraid for their future.”²⁰⁵*

Health impacts on entire communities

“We are the big losers from mining. During my 53 years of life, I have seen a lot of changes: these companies have come only to enrich themselves and to bring us death.”

Jacques, an inhabitant of Sapatelo²⁰⁶

Skin diseases

Generally, for the residents of cobalt-mining affected communities, the implications of living in a polluted environment and using contaminated water are significant, often taking the form of dermatological diseases. 72% of the people we interviewed reported that any contact with water from surrounding lakes and river, led to itching, spots, rashes, and white patches on their skin.

The effects appear particularly severe for fishermen and women, who spend long hours in the water. Joseph, who has been fishing in the Kando Lake, a lake impacted by MUMI, for nearly forty years, explained: *“I feel the effects of pollution a lot because I am often in the water. The water is so polluted that I am used to having itching, but a person who is not used to it should go to the hospital because this itching is so severe.”*²⁰⁷ In Kipepa, a village close to the Metalkol mine, Francis had skin damage from his regular contact with water from the Musonoie river: *“If someone looks at me, they will think that I am an old man, but I am very young!”*²⁰⁸

CASE STUDY

THE 2017 MUMI SPILL AND ITS ENVIRONMENTAL AND HEALTH IMPACTS

During the night of 16 to 17 April 2017, a pipeline running from the MUMI processing plant and the tailings storage facility burst, releasing acid into the Luakusha river, which flows into Kando lake. Both these water bodies were used by neighbouring populations for fishing, agriculture and housework purposes.²⁰⁹

In addition to destroying the crops of farmers whose plots were in proximity to the pipeline, the accident had severe effects on local ecosystems, according to research by AFREWATCH at the time. It decimated several plants and aquatic species living in the Luakusha River such as fish, toads, and frogs.²¹⁰ It also had significant impacts on people’s health, leading to local residents experiencing a range of skin conditions, sometimes severe. Sarah, who was interviewed by AFREWATCH a week after the spill, was admitted to the Mwangeji General Hospital in Kolwezi, after she entered the Luakusha river and started experiencing unbearable itchiness.²¹¹

This was a traumatic event that the individuals we interviewed in Kahindu, Kapaso and

Rianda remembered vividly. Maria, as many in Kahindu, witnessed Sarah’s plight but, she said, the bursting of MUMI’s pipeline also completely changed the nature of the river and, consequently, the lives of the communities who relied on it:

“I used to cross the Luakusha river to go to my fields. We used the water from this river to drink when we were in our fields, but that day there was a spill. After our day of work, on the way back home, we saw a lot of dead fish along the river. Then we saw the MUMI agents pouring lime and they forbade us to cross the river. When I arrived in the village, I saw a woman who had gone into the water and was constantly scratching herself; she was in pain everywhere. Her husband sent her to the hospital in Kolwezi and they told her that she had acid on her skin. The agents of MUMI did not come back to tell us not to use the water, but we have noticed that since that day the river has completely changed. We built a small bridge to cross the river because if we walk in the water, we start to feel itchy, and a whitish layer settles on our feet.”²¹²

Downstream in Kapaso, where the Luakusha river flows into the Kando Lake, inhabitants also felt the effects of the spill. Jeanne explained to RAID and AFREWATCH’s researchers how the accident completely changed the lake’s ecosystem, and the rippling effects it had on her family:

“I moved here from Kolwezi in 1993 primarily for the lake, to fish and to farm. The lake had a very good reputation. People used to say that there was a lot of fish and that one could make a good living from fishing. At that time, our life was pleasant. I could fish two to three baskets a day. I used to sell my fish in Fungurume and could earn up to one million francs (\$500). But I had to stop fishing six years ago, after the rupture of the Mutanda pipeline and the dumping of acidified waste in the lake. That day, a woman got into the water and her body burned. Even the fishermen who were present suffered from burns. Following this event, the fish became smaller, and their taste was different. Some fish had sores. Before, the fish had fat, but now they are all dry.”²¹³

RAID and AFREWATCH asked Glencore what mitigation measures, beyond spreading lime, had been implemented by the company to address concerns on the quality of the water from the Luakusha river and the Kando lake, and what compensation had been provided to injured residents. We also asked whether they deemed water safe for human usage and, if not, what steps were being taken at MUMI to rehabilitate these water bodies. Glencore replied: “two booster stations have been decommissioned and replaced. The impacted land was rehabilitated and is currently used by community members for agricultural purposes.”²¹⁴ No information was provided as to water quality and compensation for health impacts. When asked more details, Glencore declined to answer any additional questions on this matter.

Again, because they use surface water regularly in their daily chores, women appear more affected than other community members to the adverse health impacts of polluted water.²¹⁵ Marie-Jeanne, from Rianda, near to the MUMI mine, said she believes that because women use water and are exposed to mining waste more than men, women are particularly vulnerable to pollution-generated diseases: “There are many health problems among women [...]. It’s because we are in contact with the waste from the mine all the time, that’s why we are sick all the time.

*We women are in contact with water more often than men, because we use it to wash ourselves, to wash clothes, to prepare food.*²¹⁶

According to Sylvie, most women in Golf Musonoie, where she lives, go to the Golf Lake to wash their laundry. She has noticed that every time she gets into the water her skin starts to itch and develop rashes.²¹⁷ This experience was shared kilometres from there by Francesca, in Kapaso, who said: *“there is only lake Kando here. We use its water to do the laundry and we use the water from the well to cook, wash and drink. The water in the lake is of bad quality. Every time we use it to wash our clothes or ourselves, we immediately start to get itchy.”*²¹⁸

This increase in skin conditions is a well-known fact among the medical professionals we interviewed. A doctor, who works at a hospital in Kolwezi and receives clients from mining-affected areas told us in April 2023: *“There are many skin pathologies related to the use of water, such as chronic dermatoses. In people who live near mining sites, we even see types of dermatoses that do not heal with common medications; we have had four patients of this nature since the beginning of the year. These patients demonstrated itchy erythematous lesions, such as pimples that create itching. Some had them on their genitals.”*²¹⁹

Gastrointestinal issues

According to those interviewed by RAID and AFREWATCH, other illnesses have also appeared with the arrival and multiplication of big copper and cobalt mining projects in the region. Among them, unexplained digestive issues. Scientists have indeed established a causal link between ingesting heavy metals found in copper and cobalt mining with gastrointestinal conditions. Drinking contaminated water or eating contaminated food leads to people absorbing elements like arsenic, lead or copper, which in turn is known to generate gastrointestinal symptoms such as, nausea, vomiting, abdominal pain, diarrhea²²⁰ or, in the case of high ingestion of iron, gastrointestinal cancer.²²¹ Interviewed by RAID and AFREWATCH, a Kolwezi-based gastroenterologist had also witnessed an increase in diarrhea, gastroenteritis and vomiting in patients who did not have access to drinkable water or who drank water containing high levels of minerals.²²² Likewise, nurses from a local health centre close to the MUMI mine site reported seeing many cases of gastrointestinal issues, which they explained by their patients drinking bad quality water and eating contaminated foods.²²³

For Jean, the link between drinking water from the Luakusha river and gastrointestinal issues is undeniable, which has led him to transport water to his fields, even if it is less convenient: *“I use the river water to water my fields but [...] I don’t drink it. This water smells bad and leaves a bitter taste in the mouth, and if I drink it, I get diarrhea. So, I take the water from the well to drink during the day in the fields.”*²²⁴ In Sapatelo, near the KCC mine, Joanne only drinks water from the Mungowa spring during the wet season, when it is not covered with dust. Yet, she still suffers from regular diarrhea, stomach pain and vomiting.²²⁵ In Kamimbi, residents complained of digestive issues, even when drinking underground water, from their well. Marie never uses water from the Kalenge river anymore, *“it is full of acids”* she said, and yet, she still feels unwell after drinking well water: *“I have never seen a Metalkol agent come to check the water quality of the well. I can’t tell if the well water is of good quality or not. What I do know is that we develop diseases when we drink it, such as diarrhea and stomach aches.”*²²⁶

The mental health implications of living in a polluted environment

Scientific research conducted across the globe shows that living in a polluted environment significantly increases risks of psychological distress and mental health problems in affected populations. Air and water pollution exposure has been associated with serious symptoms of depression, generalised anxiety, psychosis, and with disruptive, impulse control and conduct disorder.²²⁷

It was clear from the interviews RAID and AFREWATCH conducted that fenceline communities living in polluted areas in proximity to cobalt mines, suffered a significant mental toll. The vast majority of people interviewed said they felt stressed and worried. Many reported that they had no hope for the future, that they were in constant state of fear for their life and that of their children. Jean-Pierre, who lives in Mibanze, expressed his worry about his family's future:

“Our waterways and our environment are being destroyed by the companies. I feel bad living in such an environment, and I fear for my life and that of my family. I don't know if we are healthy and what we are going to become. The future does not bode well for my children; I only see a bad future for them because the mines are more and more numerous. I'm struggling to send my children to school, but really, what will they use this education for if they live in a polluted environment where only death awaits them?”²²⁸



A resident at the village of Chungu near the TFM copper-cobalt mine ©2023 RAID

In Tshabula, Julie also felt hopeless about the future of her children and resented COMMUS for “having taken everything from [them],”²²⁹ while Rose reported feeling deep sadness: “I live in sadness, a very great sadness. I live in a polluted place. We used to go to bed at night, looking forward to getting up to farm but now we have nothing to hope for; we live in fear. I don’t know what tomorrow holds for me, my future is uncertain. We are already living like the dead, so how can we envision a better future for tomorrow?”²³⁰

Others are experiencing physical effects of their stress. In UCK, close to the Metalkol mine, Sonia has developed sleeping problems because of the uncertainty she lives in: “I don’t have the words to explain how bleak the future of my children and my community seems to me; it’s a catastrophe. As the years go by, the situation gets worse and worse, that’s why I’m saying this. When I think about our life, I don’t sleep. I suffer a lot from insomnia.”²³¹

For most of the interviewees, the difficult feelings and emotions they had developed was directly linked to the arrival and presence of large cobalt mining projects in their community, the degradation of their environment, and the health and socioeconomic impacts this was having on their lives. Jean-Yves, who has lived in Rianda for 15 years, felt sorrow for everything he had lost after MUMI started its operations, and explained how the presence of the mine had made him regret his life choices:

*“I worry a lot and I have a lot of regrets. I moved here because I was looking for a better life, but my situation is worse than before, and I don’t have enough money to go back home. [...] When the company arrived, everyone was happy because we thought that our life would change for the better. But nothing has changed, everything is worse than before, this is a big failure. With this company here, I am completely desperate, I have no hope left.”*²³²

In the villages closer to TFM, local residents lived with constant fear and anxiety about the possible collapse of TFM’s nearby tailings storage facilities. They reported that they believed TFM’s tailing dams were compromised and could break at any time. In Shongo (also written Shungu), people felt TFM had abandoned them: “[T]here are risks with the TFM basins. [...] We are sad because TFM officers told us to find a place to take refuge, because the basin has a lot of cracks and may give way, but this is our home. TFM knows that there is a danger. So why don’t they find us a place themselves?”²³³

In nearby Salabwe, interviewees felt they could lose their life: “The basin continues to be fed, but we don’t know when it will give way because there are leaks and the acid continues to leak into the river and into the soils. You could find out at any moment that the people you interviewed all died in a mining accident.”²³⁴ According to local residents, TFM’s response has been inadequate and has done little to alleviate their worries. In Salabwe, the residents said that TFM had placed alarms and promised them megaphones to spread the news if the dam breaks, which they have not yet received. When RAID and AFREWATCH asked CMOC about those concerns, the company replied:

“This concern might be linked to the tailings storage facilities for which we are implementing a system of emergency response process involving the participation of the downstream community. This is part of the good practices we are implementing in line with international standards. These allegations are due to misunderstanding from the communities and do not mean the pond status is bad. We are aware of the need of continuously enhancing the

communication with the downstream community regarding the TSF emergence response process.”²³⁵

In some communities, people preferred being relocated and leaving everything behind rather than continuing to live in a polluted environment. Sylvie told us: *“I suffer a lot. I feel a deep pain because the suffering I am experiencing is linked to the presence of the mine. Before, my life and that of my family was peaceful. [...] I would like MUMI to relocate us so that we can live in peace again. This land and this water are the only things that allow us to live, but we can’t even use them anymore. I have no hope that my children’s future will be better than mine if they still live in this polluted place.”²³⁶*

THE SOCIOECONOMIC IMPACTS OF WATER POLLUTION

The liability of the holder of a mining license is engaged in the event of direct or indirect contamination due to mining activities having an impact on human health and / or causing environmental degradation, particularly resulting in the pollution of water, soil, atmosphere and causing damage to humans, fauna and flora.

Article 285 of the Congolese Mining Code

Cobalt mining activities can have severe environmental consequences on a wide range of ecological assets, as has been increasingly documented by scientists and others. The research presented in this study focuses primarily on water contamination, an issue of significant concern repeatedly raised by fenceline communities. Although not covered in this report, our research identified that further studies on air pollution, soil contamination and the loss of biodiversity, including its impact on the rights of local communities, would be extremely beneficial to better understand the full range of environmental and human rights impacts of cobalt and copper mining.

As previously mentioned, in order to fast track the energy transition, cobalt mining companies have ramped up their production,²³⁷ with increasing concerns about their adherence to environmental standards.²³⁸ Disturbingly, freshwater pollution and depletion in the Congolese copper-cobalt belt takes place in the context of global water crisis, with growing threats to water security and irreversible losses in freshwater ecosystems as climate change worsens.²³⁹ , Despite possessing more than 50% of the African continent’s water reserves, the DRC paradoxically stands out with one of the lowest rates of access to drinking water and adequate sanitation in sub-Saharan Africa.²⁴⁰

RAID and AFREWATCH’s research in 25 fenceline communities surrounding the five mines featured in this report shows that local communities are deeply impacted by the contamination of virtually all of the nearby waterbodies. Not only do community members associate the water contamination from mining activities with impacts on their health, but they also report that it

has had adverse effects on other social, economic and cultural rights. In essence, 88% of the people we interviewed report that they have become poorer.

Academic research backs this up. When researchers reviewed 52 empirical studies of possible links between extractive industries and poverty, they found that industrial mining was more frequently associated with increasing poverty, as opposed to artisanal mining which was found to be more frequently associated with poverty reduction.²⁴¹ Indeed, by limiting their opportunities to earn a decent living, water contamination by large-scale industrial mining companies is resulting in families reducing their food intake, sacrificing access to health and foregoing education for their children. While RAID and AFREWATCH received reports of other negative impacts on human rights, such as the right to work for instance, these were more anecdotal. This study is limited to the human rights impacts that were mentioned systematically across all the communities we visited.

Dramatic impacts on rivers and lakes

“Our children are sacrificed because the land that should belong to them belongs to foreigners, but it is the land of their ancestors. They will not know how to hunt, fish, raise livestock or even farm because everything is disappearing.”²⁴²

Célestin, inhabitant of Kashala

Ninety-four of the people RAID and AFREWATCH interviewed for this report live in rural environments and were largely reliant on subsistence farming or fishing. Nearly all of them reported that since the arrival of industrial mining companies to their neighborhoods, they had experienced a sharp decrease in income. Those we interviewed largely attributed this downturn to the severe impacts of water pollution on their access to fish and on the productivity of their river-reliant agricultural activities. The interviewees explained that in the past seven to ten years and the recent mining boom in the Lualaba province, they have lost opportunities to make enough money to feed and take care of their themselves and their family. Fishermen/women and vegetable farmers appear to be particularly impacted – 99% of those we interviewed said their yields had dramatically decreased. They directly associated this with polluted water.

CASE STUDY

GLENCORE: A LEGACY OF ENVIRONMENTAL DEGRADATION

Glencore gained operational control of two Congolese copper and cobalt mines, KCC and MUMI, respectively in 2009 and 2011.²⁴³ The two mines have repeatedly been the focus of concern raised by scientists, NGOs and local communities regarding pollution and environmental degradation.

KCC

2012: Research conducted by a Swiss NGO, including laboratory analysis, demonstrated that the water discharged by the mine's Luilu hydrometallurgical plant caused massive acid pollution of the Luilu River.²⁴⁴ The contamination made the water unsuitable for human consumption and dangerous for human health, and it also had significant impacts on fish populations and aquatic flora.²⁴⁵ In response to the study, Glencore said it had inherited the problem from the mine's previous operator, the state company Gécamines. It also added that, just before the publication of the study, KCC had completed an engineering project, via which the effluent generated by the operation was deposited into the tailings storage facility, to stop the acid discharge permanently.²⁴⁶ In 2013, a team of researchers and scientists demonstrated that despite Glencore's project, waste from the Luilu plant continued to be discharged into the Luilu River, only further upstream.²⁴⁷ Glencore said this was not its operations, but was the responsibility of other mining operations.²⁴⁸

2018: A drum burst at the KCC mine, releasing sodium hydrosulfide, a highly alkaline chemical base, in a perimeter of 4 kilometres around the site. It damaged and polluted surrounding fields and fish farms, and impacted 460 households in the Tshamundenda village.²⁴⁹ In its 2018 Water Report, Glencore stated that the damage had been "fully remediated", including compensation to farmers affected by crop damage.²⁵⁰ According to two Swiss NGOs who reported on the damage, KCC did not depollute the contaminated areas, but instead encouraged impacted farmers to form associations to integrate into KCC's development program and have access to seeds and fertiliser.²⁵¹

2021: In two instances, on 16 March and 7 April 2021, accidents on the KCC site – caused, respectively, by the bursting of an eroded pipeline and the overflow of a containment tank – led to the release of sulfuric acid and acidified solutions in surrounding farmland and in the Luilu, Musonoie and Kanamwanfwe Rivers.²⁵² Community members reported that their vegetable crops and fish farms were damaged, and that the river water suddenly developed a foul smell. Several persons suffered burns after entering in contact **with the** polluted water.²⁵³ KCC spread lime where the incident occurred to lessen the toxicity of the acid and paid the medical fees of one burn victim, although this compensation was deemed largely insufficient by communities and NGOs.²⁵⁴ When asked about the environmental and human rights impacts of this event, Glencore responded to RAID and AFREWATCH that a report from the provincial division of the Ministry of Agriculture, Fishing, and Livestock (AGRIPEL) did not identify impacts on fish farms but that, given the interest of community members in fish farming, the company launched a pilot project.²⁵⁵ Glencore did not respond to other questions about compensation and other impacts.

MUMI

2013-2014: Over the course of a year, spills of sulfuric acid and acidified solutions from the MUMI mine site caused damage to the crops and fields of 26 households in Moloka, a village located at the southwestern limit of MUMI's concession.²⁵⁶ In total, 23.85 hectares of land was destroyed.²⁵⁷ After pressure from the media and civil society, MUMI compensated the 26 households, though that the amount was deemed unfair by civil society organisations. Two years after the event, MUMI started regeneration of the affected area.²⁵⁸

2017: A pipeline transporting sulfuric acid burst, releasing acid into surrounding farm land and the Luakusha River. 28 households reported that their crops had been destroyed, and local residents said that considerable amounts of fish and other aquatic species had died in the polluted water, and that at least one person was severely burnt.²⁵⁹ MUMI spread lime where the spill had occurred to lessen the toxicity of the acid and identified a number of victims.²⁶⁰ In its response to RAID and AFREWATCH, Glencore later stated that “two booster stations have been decommissioned and replaced” and that “the impacted land was rehabilitated.”²⁶¹

A stark decrease in fish populations

André, 70, who has lived in Mibanze his entire life, reminisced about a time where his community was able to live comfortably from farming and fishing: “We are surrounded by mines, and their arrival has destroyed our lives. Before their arrival we lived very well, there were no diseases, we grew food crops, and the production was very good. I am a farmer, but the fishermen also lived very well. There were a lot of trucks coming from Kolwezi to buy their fish. But because of the acid spills from the [MUMI] mine, the big fish have disappeared. Now there are just small fish and there are not even enough of them to feed us.”²⁶²



Indeed, fishermen and women are particularly impacted as the lakes and rivers they relied on for fishing are so polluted that, according to scientists, they have lost their capacity to retain aquatic life.²⁶³ Interviewees clearly identified a “before” and “after” the installation of the mines. Before the recent mining boom, fishing was a very profitable activity, which had encouraged many to move from other areas of the Haut-Katanga and Lualaba provinces in search of a better life. Local lakes and rivers were renowned across the provinces for producing abundant,

varied and high-quality fish and crustaceans. After the mines started their operations, community members said they saw drastic drops in the numbers, the variety and quality of fish. Pierre, a fisherman in his late 40s, said he had witnessed how the Kando lake has changed since MUMI started operating, in 2005,²⁶⁴ resulting in a rippling effect on his ability to earn a decent living. “Lake Kando no longer has fish because of the pollution that comes from the Luakusha river that flows into the lake”, he said. “We see a lot of dead fish when before the lake was full of fish. We fished a lot, and we lived so well that people didn’t want to work in the mines. I used to fish sardines, tilapias and catfish and their sale brought me about 200,000 to 300,000 francs a day [\$100 to 150]. Now I earn at most 50,000 francs per day [\$25]. We didn’t even eat the whitebait (“fretin”) before. There was so much of it that we were throwing it away, but now that’s what we consume and even that has become difficult to find. Catfish and tilapias have become even rarer.”²⁶⁵

The situation is similar closer to Kolwezi, where COMMUS operates. Faustin remembered a time when people gathered at the side of the Musonoie river to work and enjoy its freshness. Now, the river is so polluted that it has been deserted by humans and animals: “Before, in this river, there were several species of fish [...]. There were catfish and tilapias, crabs. There were also

small aquatic animals, small mammals that looked like beavers [referring to hyraxes]. [...] COMMUS dumps acidified waste into the river, and the fish and small mammals have disappeared. It's created big changes for us. We used to eat fish and sell them; we lived thanks to it. Women also used the water to do laundry. Since then, life has become difficult; we no longer use the water from the river for anything, the children no longer play in it, the women no longer wash in it."²⁶⁶

The impacts of ecosystem loss on surrounding communities are so severe that now fishing appears to be reserved for a section of the population. According to Francesca, in Kapaso: "Before, there were a lot of fish in Lake Kando, and many species [...]. We put the fish in baskets, and I sold a basket a day, which amounted to about 200,000 francs. When I stopped, there were so few fish that the sale was reserved for fishermen's wives."²⁶⁷

Significant loss in farming opportunities



Farmers have also seen the adverse impacts of mining activities and have noticed a marked decline in the quantity and quality of the cereals, fruits and vegetables they grow. Particularly impacted are the people farming fruit and vegetable crops, such as aubergines, tomatoes, cabbages, onions, amaranth and sorrel. Such crops used to grow abundantly along the lakes and rivers of the region. Contrary to cereal and root vegetable crops, which rely on rainwater to grow, vegetables need to be watered regularly. For generations,

vegetable farmers installed their gardens on the shores close to water bodies to enable regular watering. But farmers say that since the recent boom in industrial mining, their crops are rotting before they are fully grown or do not grow to full maturity. Overall, the vegetable and fruit farmers we interviewed consistently reported that their yields were now much lower, with a knock-on impact on their income.

For Jean-Yves, who has lived in Rianda for 10 years, the past three to four years have been marked by a sharp decrease in the quantity and quality of aubergines he grows: "[...] for the past three to four years, my crops have stopped yielding, because of pollution. [...] Mutanda uses lime that flows into the Luakusha river, and it is that water that I use to water [my gardens]. Because of this water, the fruits begin to rot directly on the plant, sometimes even young seedlings do not grow. In the past, I harvested 10-11 kg of aubergines, twice a week, but now I harvest about half of that. I used to sell, and still sell, my eggplants for 25,000 francs per bag, but this no longer gives me enough money to feed and raise my children."²⁶⁸

“They earn a lot with minerals, but they kill us instead of helping us out of poverty.”²⁶⁹

Irène, inhabitant of Kasanga

For Antoine, his agricultural yield is so low that he has been pushed into further poverty: “I have my garden [referring to his fields] where I grow cabbage and tomatoes. I use the water from

*the Dilala River through an irrigation system. The plants don't grow very well; maybe it's due to the water but it is the only water there is here [...]. For the past two years, I have produced almost nothing. Today, I can no longer provide for all my needs; I earn a third of what you call a living wage.*²⁷⁰

In 2023, RAID calculated the living wage for Kolwezi, the minimum remuneration needed for a basic but decent standard of living, to be \$480 per month. Today, Antoine earns about \$160 per month, far too little to adequately feed his family or to pay for medical care. The situation is similar across the communities RAID and AFREWATCH visited. To try and mitigate the effects of polluted surface water on their crops, some farmers have dug little wells along the river to try and collect what they hope is cleaner, underground water. But even then, the impacts are visible, said Ange who cultivates along the Luilu river, close to KCC, *“in an area where I normally make 10 bags of cabbage, now I only make 5 bags, and the cabbages don't heart.”*²⁷¹

Most of the mines featured in this report said they had programmes to provide assistance to some farmers with seeds and fertilisers. But the farmers we interviewed said, the seeds and fertilisers were either not provided on time to ensure proper plant cycles or were insufficient to mitigate the poor yields and economic losses they experience. For some mining companies, decrease in soil biodiversity and reduced yield are primarily due to the farmers practices and lack of crop rotation. For instance, when RAID and AFREWATCH asked ERG about concerns on sharp decrease in crop production the organisations had received from farmers, the company replied *“Sustainable farming is a multifaceted activity that involves a variety of practices and techniques in order to achieve optimal results. One particular practice that is often overlooked by farmers is crop rotation, which compromises the opportunity to improve soil health and productivity levels.”*²⁷² It added that *“a number of the livelihoods projects being undertaken by Metalkol involve sustainable agricultural initiatives.”*²⁷³

While it is generally accepted that crop rotation is important, it is equally well known that pollution from extractive industries also affects soils²⁷⁴ and water sources used by farmers to irrigate crops,²⁷⁵ and that food crops growing on polluted soils show reduced growth, performance, and yield, resulting in poor harvest and food shortages.²⁷⁶ In this context, responses from mining companies focused solely on seeds and fertilisers provision and sustainable agriculture practices, and without any water and soil rehabilitation seems perfunctory and inadequate.

MINING-RELATED POLLUTION AND BIODIVERSITY LOSS

The DRC has a unique natural habitat that hosts several vulnerable and endangered species such as hippopotamuses, gorillas, rhinoceroses and okapis. Despite its endemic flora and fauna being threatened by, among other factors, deforestation, illegal hunting and human encroachment, the Congolese government has established, since the 1930s, measures to protect this fragile ecosystem. This includes the delineation of nine national parks and 63 game and wildlife reserves representing approximately 215,000 Km², or 9% of the area of country.²⁷⁷ Six protected areas are located in the Lualaba and Haut-Katanga provinces.²⁷⁸

The mining industry has long constituted a threat to the DRC's ecosystems, in part because of its significant contribution to the deforestation of large plots of land,

particularly in the last 15 years. Between 2016 and 2020, the provinces of Haut-Katanga and Lualaba had the highest deforestation rates of the country.²⁷⁹ Mining pollution also puts tremendous pressure on the country's fauna and flora, and is impacting its parks and reserves. The MUMI mining concession, for example, overlaps with the Basse Kando game reserve, despite more recent Congolese law setting out protections for such areas (see box below).

Most of the communities surrounding the five mines featured in this report have long relied on their local fauna and flora for health and subsistence. Yet, the pollution of waterways by mining activities appears to have led to the disappearance of several animal species that people used to fish and hunt.

- For Henri, who has lived in Mibanze since 1974, *“The most dangerous thing is the [Kando] lake water because MUMI pours its wastewater into the [Luakusha] river, which itself flows into the lake. And we see the signs of that pollution, the vegetation and the trees dry up. Species have also disappeared. Many of the wild animals that we used to see in the bush have disappeared and some plants no longer grow.”*²⁸⁰
- In Tshala, a community located on the concession of Metalkol, Victor said that the Kasombo river dried up because of mining activities, which has had severe consequences on their local ecosystem: *“Before, in the river, [...] there were fish that we caught. There were also many wild animals that have disappeared today such as beavers [referring to hyraxes] and antelopes.”*²⁸¹
- In Muelampande, close to TFM, Étienne also noticed a change in the local fauna and explained that the pollution of the Dipeta river caused the disappearance of many species he used to see like crocodiles, reptiles and hyraxes. A traditional healer, he also told RAID and AFREWATCH that some of the plants he used to use to prepare natural remedies have now disappeared, forcing people in his community to turn to “modern” medicine.²⁸²

According to articles 285 bis and ter of the Congolese Mining Code, alongside article 68 of the Environment Protection Law, mining companies have a legal liability for all damage to the environment they may cause, including in cases of direct or indirect contamination of waters, soil and the atmosphere that cause damage to individuals, fauna and flora.²⁸³ While the Congolese copper-cobalt belt has a long history of mining pollution, based on our research on five industrial cobalt mines, environmental damage and associated human rights risks are continuing.

Increased poverty and food insecurity

The impact of polluted water on people's economic and social rights is so severe that the communities who live around the mines say they have become food deprived. Nearly 60% of the people RAID and AFREWATCH interviewed reported changing their eating patterns. In Tshabula, a community close to the COMMUS mine, Rose told us how difficult it had become for her to feed her family since the mining company dried up the Kayitende river that the village used for fishing: *“Before COMMUS arrived, the river was big and there was a lot of fish. Our children went fishing and we could eat the fish. There were also vegetable crops along the river, on both sides. But the company has dried up the river. [...] It is very difficult to eat. [...] Before, I could eat meat, fish and milk but now, where can I find the money for all this? We now eat once a day, at 5pm. We do not eat fish anymore and we eat meat very rarely, maybe once a week. We mainly eat vegetables”*²⁸⁴

In Kanimbu, Joseph, too, regularly experiences hunger since he cannot fish in the polluted Kalenge river anymore: “Now, our water does not give us fish anymore and our land does not give us food anymore, so eating has become difficult. [...] We only eat once a day, and in small amounts, and then we go straight to bed to forget about our hunger.”²⁸⁵ Closer to TFM food is also lacking. In Mwelanpande, residents now have to strategize: “Before, we ate very well in terms of quality and quantity. We ate whenever we felt like it. But nowadays we eat once a day in small quantities. We use measuring cups, and we calculate everything. Every person has a fufu ball, even if it is not enough, that’s what there is.”²⁸⁶

CASE STUDY

THE PRESENCE OF MUMI IN A PROTECTED AREA

MUMI conducts some of its operations in the Basse Kando game reserve in the Kolwezi district, a protected area.²⁸⁷ Until 2007, when the DRC government granted mining concessions to several mining companies in the Basse Kando,²⁸⁸ it was home to various wildlife, including endangered species protected by Congolese law, such as elephants, hippos, black antelope, rock hyraxes and a variety of plant species. The development of mining activities on the reserve has led to the disappearance of most of these species.²⁸⁹ In 2024, an estimated 77% of the Basse Kando reserve is allocated to mining concessions.²⁹⁰

MUMI was the first company to start operating in the reserve. According to the organisations Bread for All, the Swiss Catholic Lenten Fund, who studied MUMI’s environmental impacts in the Basse Kando between 2008 and 2012, “firstly, the noise and deforestation have apparently made the elephants, buffalo, antelopes and numerous other animal species flee towards Zambia. Secondly, the intensive use of water from the Kando River has apparently caused the level of water to drop, which consequently apparently has caused the hippopotami to migrate to other regions.”²⁹¹ Despite holding 14% of allocated land in the Basse Kando, the third biggest plot after those of Gécamines (32%) and Chemicals of Africa SA (25%),²⁹² MUMI makes no reference in its ESIA to its operating in a protected area. While the company’s ESIA includes a range of mitigation measures for sparse fauna and flora in its concession, it does not refer to any special measure that it may have taken to minimise its impacts on the reserve’s specific fauna or flora, as is required by the Mining Code and Regulation.²⁹³ Instead, in a 2014 response to a study conducted by Bread for All, the Swiss Catholic Lenten Fund and RAID, Glencore deflated its possible responsibility for operating in a protected area:

“We refute that there was any exploitation of ambiguities in the mining law. The mining law is very clear in that the Cadastre Minier grants all mining licenses in accordance with the laws of the country including the Mining Code. In addition, our operations fall under the Ministerial direction of the Minister of Mines. The Mutanda license was subject to the Mining license review of 2007 which was concluded in 2008 and our license was subsequently upheld. We have complied with all requirements of the Ministry, including stakeholder consultation. We have made an offer to ICCN [Institut Congolais pour la Conservation de la Nature, the Congolese wildlife Authority]²⁹⁴ to meet with us; to date, we have not received a response from ICCN.”²⁹⁵



Men stop to drink while filling jerrycans with water in Kasombo near the Metalkol copper-cobalt mine ©2023 RAID

Increased shortages of potable water

Severe impacts on groundwater quality and availability

Equally alarming, communities in the Congolese copper-cobalt belt are losing access to clean, potable water. With surface water unsafe for human consumption, it is also becoming clear that underground freshwater is increasingly contaminated by mining pollution or altogether depleted. The industrial mining companies we studied in this report are aware that their activities jeopardise the water security of the communities where they operate as evident from their ESIA.

For KCC, “The quantity of groundwater in the Project area may be reduced, either from dewatering activities or reduced infiltration rates associated with Project activities. This may potentially result in changes to the amount of groundwater resource available, which in turn may be an issue for local communities that use this resource for water supply”.²⁹⁶ MUMI too identifies a severe risk of water depletion that cannot be mitigated: “The dewatering of pits will result in the decrease of groundwater levels. Communities surrounding the mine may have less or no groundwater available for their use. The significance of this impact is rated as High, before and after mitigation.”²⁹⁷ In parallel, Glencore, their parent company, is eager to promote its commitment to sustainable water management stating on its water micro-site, that “We seek to understand fully and minimise our operational water footprint and manage our activities in a way that protects our shared water resources”²⁹⁸ Yet, in 2022, it withdrew more groundwater in its DRC operations than in any of its other operations across the globe, except Peru, while recycling less water in DRC than in several of its other operations.²⁹⁹

More conservatively, TFM observed that metal concentrations in groundwater are generally low, except where concentrations increase because of the proximity with mining activities and/or mineralised rocks.³⁰⁰ Metalkol identified that “The RTR project may have an impact on surface water and groundwater as a result of seepage of leachate from the hydraulic monitoring of the Kingamyambo tailings dam, the hydraulic monitoring and dredging of the Musonoi/ Kasobantu tailings dam, and deposition of processing residue on the RSF.”³⁰¹

The contamination or depletion of groundwater by the mines’ activities leaves people no choice but to drink and use water containing high metal concentrations. In Kanimbu, a village of 175 people living near the Metalkol mine, there is no potable water. The population uses water from the nearby, polluted, Kalenge river, and drinks from a well individuals have dug, even though that water is unclean. Michel explained: “We dug a well next to the river, but every time Metalkol uses its dam, the river rises until it overflows into the well and we drink the water like that. [...] Even without the dam, the water is of poor quality because it is close to the river, and it is always polluted.”³⁰²

In some villages, like Kapaso or Kashala, respectively impacted by MUMI and Metalkol, the mines try to mitigate the impacts of their operations on groundwater by regularly pouring chlorine in the boreholes. In Shongo, however, people used to drink from the Kasana river. But in 2019, residents said, TFM’s dams started failing and leaking in the river, making the water inadequate for consumption or usage. The village now only relies on the borehole built by TFM, but even that water is contaminated, they say. Simon told us: “The water from the borehole is not good quality; it is salty and has a bitter aftertaste. It also gives us pimples and constipation. When we heat it, it looks like there is salt in the pot, something white. We have complained many times to TFM about it, but the company has done nothing.”³⁰³

When RAID and AFREWATCH asked CMOC about these concerns, the company responded that “There are two wells drilled before 2018 in Shungu [...] These two Shungu wells are being used by the community, which has never complained about water quality to COGEPSCO [Comité de Gestion des Puits d’eau dans la Concession – TFM’s wells management committee] or to TFM.” It added that “The last inspection carried out by the team from the Lualaba Provincial Health Division and the Fungurume Health Zone (i.e. the Government) on 03 February 2024 found that the population was using the water without any problems, and no complaints about water quality were mentioned.”³⁰⁴

Increased difficulty to access potable water

To respond to risks associated with lack of drinkable water, industrial mining companies have drilled boreholes in a number of the communities impacted by their activities. Yet, these mitigation measures are not enough. In 2002, the UN Committee on Economic, Social and Cultural Rights stated that: “The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses.”³⁰⁵ These uses include drinking, personal sanitation, washing of clothes, food preparation and personal and household hygiene.³⁰⁶ In practice, continuous and sufficient water supply means that 50 litres of water per person per day, from a source within one kilometre of the household, are needed to ensure that the most basic needs are met and few health concerns arise, according to United Nations standards.³⁰⁷ As for the African Development Bank, it recommends that the basic water requirements be between 20 and 35 litres of water per person per day all

year long, and within a distance of about 500 meters from the user.³⁰⁸ According to a DRC Policy Document, a water point should serve a maximum of 400 users and be located less than 250 metres from their home.³⁰⁹

In many fenceline communities, these standards are not upheld by either the mining companies or the Congolese government. There are simply not enough potable water points for all the inhabitants. RAID and AFREWATCH findings on this are stark. Based on information provided by the five companies, combined with field visits, we found that none of the mining companies ensured that the provision of clean water for affected communities met the minimum number of water points required under DRC's 2016 National Policy for Public Water Services. Nor did the mining companies meet the African Development Bank's guideline of 20-35 litres per person per day, the bare minimum required for drinking and basic hygiene, let alone the 50 litres per person per day recommended by WHO to meet basic needs and to minimise health problems. Mining companies appeared to view the provision of clean water as a benevolent benefit, rather than as a responsibility, despite UN guidance stating that companies are required to prevent or mitigate adverse human rights and environmental impacts directly linked to their operations (see below).

The failure to ensure adequate provision of clean water is particularly problematic in a context where, local residents are unable to safely access surface water due to contamination, and where doing so is directly linked to health risks. In essence, due to the inadequate supply of clean water, many fenceline communities are left with no choice but to use contaminated water, exposing them to a myriad of health and other risks.

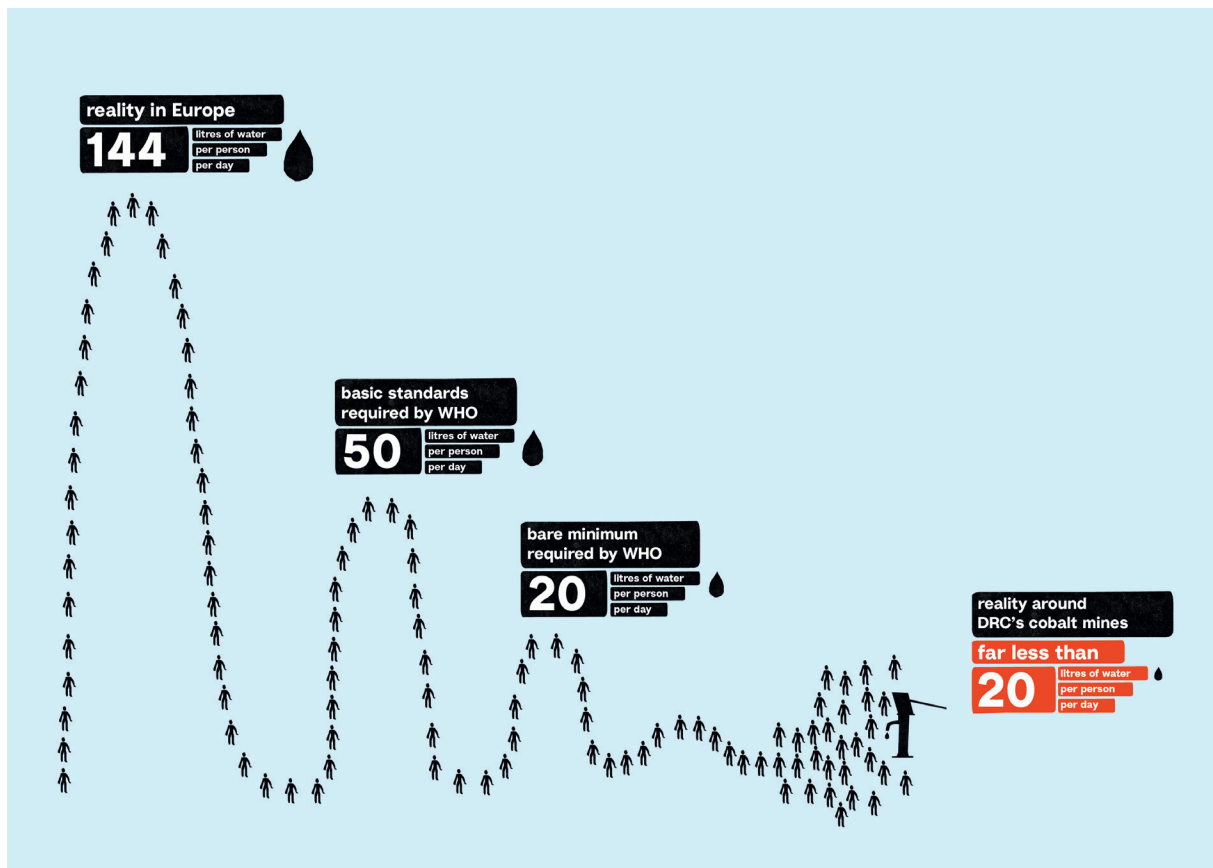
The inadequate supply of clean water is corroborated by the vast majority of community members RAID and AFREWATCH interviewed. For Francesca, who lives in the village of Musonoie Golf, with a population of about 8,000 inhabitants, the village's proximity to Golf Lake was initially a blessing, but she said that since the COMMUS mine started discharging its waste in the lake, she cannot use its water anymore. Instead, she must pay to travel every day to another village, Musonoie, some three kilometers away, to collect water from a borehole for her household usage and her chicken breeding.³¹⁰

She is not alone. In Sapatelo, residents have asked the KCC mine to drill a borehole in their community but, they said, the company refused, and had not explained its reasons. As a result, because there is no road connecting Sapatelo to other distant communities, three to four kilometers away, which are equipped with boreholes, they drink water from a local spring. Its often dirty and the water gets mixed with dust because the area has lost most of its vegetation from mining activities.³¹¹ Even then, the water is insufficient for everyone, which has led to conflictual relations between inhabitants. As Fanny explained: *"Water here is insufficient for the entire population. Sometimes people get into fights to draw water. If other villages around don't have wells or electricity to run their boreholes, they come here."*³¹²

Even in larger towns like Luilu Centre, with an estimated population of 45,385 inhabitants, there is insufficient water. Merveille told us: *"We suffer a lot from the lack of water. [...] We have five wells in the Kalasa block, where I live, but this is not enough because the population has become very large. You have to wait in line at the well, sometimes for two hours. It was not the company that built the wells, it was individuals. We have repeatedly asked KCC to drill boreholes. They make promises but do nothing."*³¹³

Community members have reported that several of the boreholes that have been drilled by the mining companies are no longer operational. For example in Tshala,³¹⁴ Donat told RAID and AFREWATCH that because the borehole drilled by Metalkol no longer functions, the community relies on a borehole that produces contaminated underground water: *“Here we have a manual well; it is the one we use for drinking, washing and everything else. Boreholes have been drilled by the mining company, but they haven’t been working since 2018 or 2019. One of them was dry from the beginning and the other broke after two months. The water in our well is not of good quality because when we keep it at home, we see microorganisms developing in it.”*³¹⁵

In Salabwe, the TFM mine drilled two boreholes, but only one is operational, providing too little water for the entire community of about 300 inhabitants. Residents are worried about the lack of water and its quality. One local resident said, *“I also wonder if the water from the wells that have been drilled is of good quality because just upstream there are large basins, and their content infiltrates the groundwater. We tell TFM that the other borehole no longer works every time they come, but they don’t do anything. [W]e are like abandoned children because TFM doesn’t care about us.”*³¹⁶



Even when there is enough underground water for the entire community, in several villages people have to pay a fee, either to the mine itself or to community representatives, to access the boreholes drilled by the mining companies. A small payment for water is a common practice used by international development and humanitarian agencies who construct water points for free to encourage local communities to maintain the well, using the communal funds collected to cover technical repairs and maintenance costs.³¹⁷ But in an environment where the activity of industrial mining is leaving traditional free water sources unusable, it seems perverse to put

the onus on local communities to pay for the use of a water point installed by the company. Local residents say these fees, even if small, weigh heavily and cuts into their already meagre income.

In Samukinda, Dieudonné explained that the borehole built by the Metalkol mine no longer functions, and that he pays to get water from the well built by another company, Central Copper Resources: *“We also have to buy water from the borehole to be able to drink. I spend 100 francs per jerrycan of water plus 150 francs per jerrycan for transport. There is a designated person to collect the payment for the well water. In my household, we use 10 jerrycans a day, that’s 2,500 francs (\$1.25) a day for water. We use this water to do laundry, do housework, wash vegetables. We have to do the children’s laundry and every day we wash, drink and do household chores.”*³¹⁸

In Golf Musonoie, paying for water has taken a toll on Grace’s finances too. Because she cannot use water from the Golf Lake anymore, she pays for transportation to and from Musonoie, where she buys borehole water for her chicken breeding activities. This has *“increased my costs and decreased my profits. Now I can only send my children to school 9 months a year.”*³¹⁹

The companies studied in this report are aware of the concerns of fenceline communities for access to clean, potable water, and they have taken some measures to address the issue.

- In its letter to RAID and AFREWATCH, dated 10 November 2023, Glencore stated that KCC implemented a Community Groundwater Impact Assessment in 2022 “following community feedback regarding potable water quality and quantity”, and “identified communities potentially impacted by mine dewatering.”³²⁰ The company further stated that “If an exceedance in water quality against WHO standards or reduction in water level in community wells is observed, monitoring frequencies are adapted and corrective actions implemented.”³²¹ The company did not provide to RAID and AFREWATCH the number of water wells KCC and MUMI have built for fenceline communities, despite repeated requests.³²²
- ERG mentioned that during its Participatory Rural Appraisals in 2017, “Access to clean water was identified as the top priority across communities”, which had led Metalkol to install solar-powered water stations in those communities.³²³ Between 2018 and 2023, ERG stated that Metalkol had constructed 29 water points for fenceline communities.³²⁴ According to the company, water wells “are subject to chlorine dioxide (EOXIDE) treatment on a weekly basis and are monitored monthly.”³²⁵
- CMOC, in a letter dated 24 November 2023, informed the organisations that TFM had drilled 20 water wells between 2018 and 2023 across 15 villages for an estimate of 20,959 inhabitants and had built 15 water distribution points within the same period across 3 localities for an estimated population of 57,016. The letter indicated that TFM had overall constructed 139 water wells, 19 of which were dysfunctional as of April 2023.³²⁶ The company also explained that it monitors well water annually, and that the results showed the water quality was within the WHO’s standards.³²⁷ However, TFM’s 2019 ESIA contained indications that some substances (such as pH and selenium) were at levels above those standards.³²⁸
- COMMUS, in a letter sent to RAID and AFREWATCH in March 2023, stated that it had built 24 water wells for fenceline communities since the beginning of its operations in 2015 – three of which are no longer operational – and that nine additional wells were either being planned or constructed. According to the company, these wells are built “based on the actual needs of the communities.”³²⁹ COMMUS also indicated that

all “wells are subject to sampling and testing by the provincial and municipal water authorities, the local communities and the company, both before and after they become operational”.³³⁰

Despite the measures taken by the mining companies, the testimonies collected by RAID and AFREWATCH from their research at five industrial cobalt and copper mines is illustrative of a wider problem in Congo’s copper-cobalt belt. They indicate that cobalt mining companies seem to be failing their responsibilities to respect and implement affected communities’ right to water and sanitation, formally recognised in 2010 by both the United Nations General Assembly and Human Rights Council.³³¹



The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible, and affordable water for personal and domestic use.³³² It is clear from the UN Guiding Principles on Business and Human Rights (UNGPs), the most widely accepted standard which sets expectations for states and companies for protecting and respecting human rights in corporate activities, that mining companies have a responsibility to respect all the rights contained in the International Bill of Human Rights, including the human right to safe drinking water and sanitation. The Office of the United Nations High Commissioner for Human Rights, which interpreted the corporate responsibility to respect human rights, specifically stated that a mining company is infringing on the enjoyment of the right to safe drinking water when it pollutes the water source of the surrounding communities so that people do not have the same access to safe drinking water as before.³³³

Although the five industrial cobalt mines featured in this report are all providing some access to water, as reported in their correspondence to RAID and AFREWATCH, the quantity provided is inadequate and does not meet DRC or international requirements. In addition, it appears that some of the mining companies have built or are planning to build water points as part of their *Cahier des charges* (Community Development Plan Agreement), rather than as a direct strategy to respond to and remedy risks of lack of access to potable water that may derive from their activities.

The 2018 Mining Code establishes that mining companies have a responsibility to agree a *cahier des charges* with each affected community,³³⁴ and it sets out their social responsibilities towards the local communities affected by mining activities. The document includes an agreement to fulfil these social responsibility commitments from the transfer of funds obtained from mining royalties, which are to be allocated from the national level to regional and local levels.

Glencore's 2023 *Cahier des charges*, for instance, mentions that KCC and MUMI are planning to drill 84 and 16 boreholes, respectively.³³⁵ CMOC also referred RAID and AFREWATCH to its *Cahiers des Charges*, under which the company is planning, among other things, to drill 71 water wells with hand pumps in 70 villages.³³⁶ As for ERG, it states that out of the 29 boreholes it has drilled since 2018, nine have been installed by Metalkol through its Community Development Plan Agreement, and that more will be installed under this Agreement and the 0.3% Committee projects "if the communities define this as a critical need."³³⁷ COMMUS did not share its *Cahier des charges* with RAID and AFREWATCH.

Whilst there is no prohibition on using *Cahier des charges* funds for these issues, this approach from the mining companies seems inadequate. Instead of drilling and planning water points for fenceline communities as direct mitigation for the actual and potential impacts of their activities on water quality and availability, which community members identify as a priority problem, the mines appear to use funds allocated for community development to provide basic services that they should be providing as part of their human rights and environmental due diligence practices.

In a context where mining activities are largely responsible for the water contamination and where companies are making sizeable profits from their mining activities, it seems perverse that fenceline communities are left in dire straits, unable to use contaminated surface water and without sufficient access to clean water.

 **CASE STUDY**

COMMUS AND TFM: THE ENVIRONMENTAL AND HUMAN RIGHTS RISKS OF INDUSTRIAL FACILITIES

COMMUS

Testimonies and video footage shared by affected community members with RAID and AFREWATCH, as well as reports in the Congolese media³³⁸ show that, in December 2023, there was a breach from a COMMUS tailings dam, flooding the Kamilombe artisanal mining site and destroying roads, a school and houses in the nearby Kapepa neighbourhood. While the company did not mention this incident in its exchanges with RAID and AFREWATCH, and did not appear to have made a public statement, AFREWATCH received information that COMMUS paid about \$450,000 to rehabilitate the artisanal mine, which had been destroyed, leaving hundreds of artisanal miners unemployed. We also received information indicating that the company provided compensation of \$2,000 for each house destroyed in Kapepa.

RAID and AFREWATCH were not able to corroborate information regarding compensation paid and have not conducted further investigation on this incident before publication of this report.

TFM

On 28 February 2021, the non-governmental organisation Southern Africa Resource Watch (SARW) was approached by residents of the villages of Kabombwa, Lukotola, Kioni [Kyoni], Mwanga Kakunta and Panga Ntadi, in the rural commune of Fungurume, where TFM operates. The community members reported that the activities of TFM's lime plant was polluting and drying up surrounding rivers, causing health impacts, in particular skin diseases, in fenceline communities.³³⁹ Similar testimonies were shared with AFREWATCH in 2022.³⁴⁰ Scientific research commissioned by the Mayor of Fungurume confirmed that air and water pollution was likely caused by the discharge by TFM's lime plant of lime-filled wastewater in local streams.³⁴¹

In 2022, TFM denied any correlation between the activities of its lime factory and skin diseases, stating that tests had been conducted under the supervision of the Congolese government and local and international NGOs, none of which established links. It also mentioned that additional surface and ground water testing had been conducted, with results aligned to international standards.³⁴²

Diminished access to education and healthcare

The adverse effects of mining pollution on children's education

The impact of water contamination on income is forcing fenceline communities to make difficult choices. Nearly, 60% of the parents RAID and AFREWATCH interviewed reported that the loss of income meant they had to reduce the education of their children – a decision with serious

long-term impacts. Those we interviewed either reported either removing all their children from school, only sending some of their kids to school, or sending them occasionally when money was available.

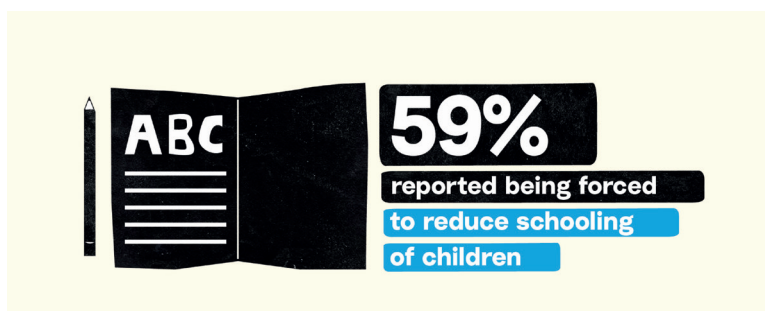
Antoine told us: *“I am now living in great misery; it is a calamity. My children don’t go to school because I can’t afford to pay for their schooling. The school costs 15,000 francs (\$7.5) a month but I don’t have that money to pay for it.”*³⁴³ Dieudonné explained with sadness how he had tried, in vain, to send his children back to school after having to leave them at home for the past six years:

*“Before, I could send my children to school and pay their tuition fees, but I had to withdraw them in 2017. They stay at home alone. This year, I really wanted to enroll them again because I thought public school was free. But when I arrived there, I was asked for 8,000 francs (\$4) for primary classes and 15,000 francs (\$7.5) for secondary classes. I can’t pay such amounts, so I turned around and took them back home. They were crying, but I really don’t have anything, I couldn’t do anything.”*³⁴⁴

Henri, a teacher at a local primary school tries to encourage parents to maintain their kids at school, but he understands the challenges they face and, sometimes, their complete inability to afford the requested fees:

*“There is a big problem with the payment of the school fees because the parents cannot afford it. [...] Some parents come to explain their situation to us and, as we are a private school, we follow their pay schedule, and we collect the fees when they are paid. Also, since this year, public schools are no longer free. Parents must pay fees which amount to 8,000 francs per month per child. The future of the children here is not good because we are surrounded by mines. [...] We often call parents to tell them to enroll their children in school, that the future is school, that we need to supervise children, but many parents cannot afford it.”*³⁴⁵

With no alternative, in an environment dominated by mining activity, some of these children have turned to small sales or artisanal mining or banditry. In Musonoie, Appoline’s family has lived this situation firsthand: *“Before waste water was discharging into the Musonoie river, my aunt had gardens by the river, and she could pay to send her children to school. Today she no longer has an income due to the pollution of the soil and the water, and as a result, these children no longer study; they sell bags of peanuts at the market.”*³⁴⁶ Henri, the teacher, deplored: *“The future of the children here is not good because we are surrounded by mines. There are children under the age of 10 who go to get ore crumbs, run after trucks, and earn a little money like that.”*³⁴⁷



For Joseph, in Kanimbu, the presence of mines and their impact on local environment was a threat to the future of children: *“We still take our children to school, but they get expelled all the time because we don’t have money to pay the fees regularly. It’s difficult for children to be*

smart because they go to school very irregularly. The future of the children here cannot be good because the children are not studying, their future is in danger.”³⁴⁸

Indeed, The DRC’s Human Capital Index is low, standing at 0.37.³⁴⁹ This means that a Congolese child born today can expect to achieve only 37% of their potential, compared to what would have been possible if they had benefited from a full, quality schooling experience and optimal health conditions. The main contributors to the low score are low child survival rates under age five, high child stunting, and low quality of education. In mining areas, where mining companies have the potential to improve economic and educational opportunities for fenceline communities and children, environmental damage and increasing poverty have the opposite effect, leaving many children and their families unsure of future circumstances.

The impact of pollution on access to healthcare

Similarly, 75% of the community members interviewed by RAID and AFREWATCH had seen a sharp decrease in their access to basic healthcare, because they now lack the money to see a doctor or to pay for hospital care. Most said that when they or a family member gets sick, they preferred waiting in the hope their ailment would pass or to buy over the counter pain killers at a pharmacy rather than paying for transport and medical fees, which would constitute an unsurmountable amount for them afford. In the DRC, public healthcare is not available for free, and patients are expected to pay bills which can range anywhere from \$5-10 for uncomplicated case and general consultations, or up to \$150 per medical act or hospital stay.

For residents, such as Honoré, who found it “impossible”³⁵⁰ to earn the Kolwezi living wage of \$480 per month, such medical costs are prohibitively expensive. In Tshabula, Thérèse said that whenever she or her kids get sick, she pawns her belongings so she can go to the hospital or a health centre. *“I only do it for severe cases”, she said, “otherwise I just stay home and wait.”³⁵¹ In UCK, Josette too pawns her belongings and pays the medical fees gradually. Before, she said, “I could even ask the doctor to come to my house because I could afford it.”³⁵²*

Because they lack access to health services, most of the community members, rely on alternative, cheaper options, like over the counter medication or traditional medicine. Dieudonné explained that it has become very difficult to ensure his children are healthy, although he tries as much as possible to make it a priority:

“It’s the same for the hospital, I don’t have any money, so we go to the pharmacy. I buy medicine without knowing what it is because we never go to the doctor. It is the lady from the pharmacy who gives us what she has according to what we explain to her. For example, if a child has a headache, she gives me tablets that cost an average of 1,000 to 1,500 francs (\$0.5 to \$0.75). I can’t stand to see my children suffer, so if a child is sick, I don’t wait for it to pass, I go straight to the pharmacy. But it’s a lot of money for me.”³⁵³

In Tshizuza, Lionel’s preferred option is traditional medicine: *“It is difficult to get treatment because the costs are enormous. Here, we suffer a lot when we are sick. Sometimes it is so difficult that you have to fight to get to the hospital, but because it costs a lot of money, it is not accessible to everyone. Personally, I use traditional medicine first, and if the plants don’t work, I go to the dispensary.”³⁵⁴*

A nurse at a local health centre told RAID and AFREWATCH that most people in the fenceline



A medical centre in Salabwe near the TFM copper-cobalt mine ©2022 RAID

communities avoided attending the health centre, and preferred self-medicating by buying over-the-counter medication. He had witnessed patients coming to the health centre only when their case had become severe but, often, because the health centre lacked even basic medical supplies, nurses had to transfer patients to the hospital in Kolwezi, where more resources are available.³⁵⁵ For Jacques, the price of limited access to even the most basic healthcare is high: *“Many children die because their parents cannot afford to go to the hospital.”*³⁵⁶

THE LOSS OF CULTURAL HERITAGE

The people of the DRC have a rich heritage, culture, and history dating over twenty-five thousand years, with about 250 distinguishable ethnic groups speaking an estimate of 242 languages. In that context, traditional practices and customs rooted in link to the customary governance and generational usage of land and natural resources remain widespread.³⁵⁷ Yet, destruction or dispossession of natural resources like soil, water and plants by industrial mining companies have led to a loosening of communities' social fabric and the loss of their cultural heritage.

Several interviewees were worried about losing their historical and traditional knowledge, which, to them, was a direct result of pollution and mining activities. RAID and AFREWATCH met three traditional medicine practitioners who all explained that, because several plants had disappeared or were located on sites the mining companies had forbidden access to, they could not treat or prevent as many diseases as they used to. They also said that many plants were losing their healing capacities because of water and soil pollution, which was impacting the amounts needed to treat patients, as well as associated costs, making traditional medicine expensive for many.

Another recurring concern was the fear of being forced to leave their ancestors' land. Many reported that, because their environment had become virtually unliveable, the mining companies were considering relocating them, which caused worry and suffering for the ones attached to their land and willing to die on their soil. A village chief, close to TFM, told RAID and AFREWATCH: "We are devastated to leave our land but there is a complicity between the state, mining companies and the other great customary chiefs who share the land without worrying about us, the trees, the animals, the rivers that live here. As a village chief, will I also be a chief in the new community? Will I be respected? I don't know."³⁵⁸ In Salabwe, residents were resentful of their lack of agency in the face of mining giant TFM: "We don't want to leave our village, the land of our ancestors, but we have no choice. It's either dying or going somewhere else."³⁵⁹



A woman pumps water from a well in the village of Kahindu near the MUMI copper-cobalt mine ©2023 RAID

AN INSUFFICIENT RESPONSE FROM THE CONGOLESE STATE

The Congolese government has the primary responsibility to protect its environment and the rights of its citizens, and to ensure that its laws are respected. But the DRC remains a weak state, with significant challenges that impede its economic progress, including ongoing conflict in its eastern provinces, underinvestment in its public services, infrastructure deficiencies and weak tax collection. The DRC ranks among the five poorest nations in the world. In 2022, nearly 62% of Congolese, around 60 million people, lived on less than \$2.15 a day. According to the World Bank, about one out of six people living in extreme poverty in sub-Saharan Africa lives in DRC.³⁶⁰

The mining sector remains the country's main driver of growth. In 2022, the extractive sector grew by 20.8% and played a significant role in driving the country's overall economic growth.³⁶¹ While attention has focused on expanding this sector, especially in the race for critical minerals, one aspect has lagged behind – the management of environmental risks.

According to article 42 of the Mining Code and the 2018 Inter-ministerial Decree 0914,³⁶² the mandate to ensure the protection of the environment in business contexts, and to assess and monitor mining companies' environmental obligations and performance, is shared between three public agencies:

1. the Congolese Environment Agency (Agence Congolaise de l'environnement – **ACE**),
2. the National Fund for Promotion and Social Service (Fonds National de Promotion et de Service Social – **FNPSS**), and
3. the Directorate of the Ministry of Mines, in charge of the protection of the mining environment (Direction Provinciale de l'environnement Minier – **DPEM**).

ACE and the DPEM are also charged with receiving and hearing claims from affected communities to determine whether the holder of a mining right has failed to meet its social obligations.³⁶³

In Kolwezi, where mines are numerous and multiplying, expectations are that agents of these three agencies are allocated the resources necessary to ensure they can perform their duties effectively. Yet, in practice, this is not the case. Representatives from the agencies tasked with environmental protection reported a severe lack of resources and expertise when interviewed by RAID and AFREWATCH. One interviewee at ACE told us the staff relied heavily on their sight and sense of smell to assess cases of pollution, because they had neither the equipment nor enough expertise to conduct adequate testing. These concerns were shared by an interviewee at the DPEM who explained to RAID and AFREWATCH that the agency did not yet have the level of expertise required to conduct effective environmental monitoring: “We need to adapt to that level of technicality”, he said, “it requires time.”³⁶⁴ In the meantime, the government agencies rely on external private laboratories and consultancies to analyse the samples they collect and to draw environmental data.³⁶⁵

This lack of resources has negatively impacted the ability of the three agencies to conduct regular mine site visits. According to article 503 of the Mining Regulation, the agencies are

AN INSUFFICIENT RESPONSE FROM THE CONGOLESE STATE



Water streaming along the COMMUS copper-cobalt mine's tailings ©2023 RAID

required to organise two environmental missions per year per mine, as well as occasional visits in specific situations, including when there is widespread and sudden pollution or when there are denunciations of a company's practice by civil society or other stakeholders.³⁶⁶ According to those we interviewed, none of the agencies had the financial or material resources to conduct regular visits. One interviewee explained that regular and sporadic site visits were their "only resource" to ensure the implementation of environmental impact assessments, but recognised, at the time of the interview, not having started regular visits for the first semester of the year, despite having only 45 days left to visit 30 mining companies.³⁶⁷ This lack of resources also means the agencies conduct sporadic missions well after cases of pollution have occurred, compromising results and consequences for mining companies. In such a context, environmental damage in and around Kolwezi is often overlooked with little accountability.

The representatives of the agencies told RAID and AFREWATCH that they try to conduct as many visits as possible, but they are often refused entry to the mine sites, despite the Mining Regulation authorising them to enter a company's facilities freely.³⁶⁸ In this context, the representatives RAID and AFREWATCH interviewed were reluctant to criticize the practices of mining companies, unless they were aware of widespread environmental damage. Instead, they explained, they focused on "informing" and "raising awareness" among companies on their environmental and social obligations, using dialogue and recommendations. One interviewee found engagement with Chinese-owned companies particularly difficult, but in general public officials said they believed they had good relationships with the mining companies. Government officials can follow-up on their recommendations, which mining companies have 30 days to implement. In cases of non-compliance, fines can be issued.³⁶⁹

The details of the collaboration between the three environmental agencies are established by an inter-ministerial decree,³⁷⁰ which define their respective responsibilities. Yet, the government officials RAID and AFREWATCH interviewed deplored a difficult partnership, which impedes their ability to implement their mandate effectively. One ACE official reported facing “issues in the distribution of our tasks [...]. The three departments must work collaboratively but it is a work in progress.”³⁷¹ This concern was shared by a DPEM representative who explained: “It is not very clear to know how to work together. We intervene upstream and the ACE intervenes downstream.”³⁷² With the Congolese government failing to clarify the agencies’ respective mandates, international cooperation agencies are funding Congolese legal and scientific experts to train and support the three environmental departments to work better together.³⁷³ We interviewed one of them who confirmed that collaboration, as defined by the revised 2018 Mining Code and Regulation, was difficult, which, combined with a lack of training and equipment from the government personnel, had led to very few site visits being organised since 2018.³⁷⁴

The lack of resources, but also the lack of clarity in shared responsibilities, has prevented ACE and DPEM from collecting, analysing, synthesising and publishing all the environmental and social impact assessments they validate. In accordance with articles 204 of the Mining Code and Article 450 of the Mining Regulation, all mining operations, except temporary quarrying, must be the subject to an ESIA and an Environmental and Social Management Plan (Plan de gestion environnementale et sociale – PGES).³⁷⁵ Yet, research conducted in 2023 on the implementation of their environmental and social obligations by mining companies in the Haut-Huele, Haut-Katanga and Lualaba provinces, shows that out of 93 mining company assessed, 75 exploitation permits were not accompanied by a PGES.³⁷⁶

Similarly, article 42 of the Mining Code and section 25 of the Mining Regulation establish that a summary of the ESIA and of the Environmental and Social Management Plan (Plan de gestion environnementale et sociale – PGES) must be published both on the website of the country’s Technical Mining Coordination and Planning Unit (Cellule Technique de Coordination et de Planification Minière – CTCPM) and on the website of the mining license holder.³⁷⁷ Yet, neither the Mining Code nor the Mining Regulation identify which entity is competent to elaborate the ESIA and PGES summaries, creating uncertainties and significant gaps in their publication process, in particular as it appears few copper and cobalt mining companies comply with their legal obligations to publish their ESIA on their website.

This failure means communities impacted by the mining operations have limited or no access to the information about the environmental impacts of a mining project or the strategies that companies are due to apply to mitigate them. It leaves local communities and public watchdogs, such as the press and civil society, with limited scope to press for action.

CORRUPTION AND BRIBERY

The DRC has long been plagued by corruption and bribery, including linked to protecting its environment. In April 2022, the Congolese government released an audit of the country’s logging industry, which found that six successive ministers had illegally allocated at least 18 logging concessions, breaking a near 20-year moratorium on new industrial felling in the world’s second largest rainforest.³⁷⁸ Similarly, in August 2023, the US Department of State sanctioned three top Congolese public officials at the Congolese

Institute for the Conservation of Nature and the DRC Management Authority for the Convention on International Trade in Endangered Species of Wild Fauna and Flora for their involvement in “significant corruption” and allegedly trafficking protected wildlife in return for bribes.³⁷⁹

Corruption and maladministration are also rife in the country’s mineral sector. To date, significant attention has focused on corruption linked to the acquisition and negotiation of mining rights with increasing amounts of information about corruption and bribery in the public domain through the work of civil society groups, investigative journalists, financial institutions such as the IMF and World Bank, and international bodies such as the United Nations and the Africa Progress Panel.³⁸⁰ In 2022, Glencore pleaded guilty before US, UK and Brazilian criminal and civil authorities for making and concealing corrupt payments and bribes through intermediaries for the benefit of foreign officials across multiple countries, including the DRC.³⁸¹ A key actor, Dan Gertler, who had close ties to former Congolese president, Joseph Kabila, was designated a “corrupt actor” by the US government and placed under sanctions in December 2018.³⁸²

Less attention, however, has focused on corruption risks in the implementation and monitoring of mining projects, including its environmental and human rights consequences. Public officials interviewed for this research suggested corrupt relationships between mining companies and the Congolese government. They told RAID and AFREWATCH that personal friendships between Congolese political elites and mining representatives, or personal economic interests, negatively influenced decisions as to which mining companies could be scrutinised, monitored and sanctioned for environmental degradation. Most of these interviewees qualified the Congolese Ministry of Mines, involved through its Direction Provinciale de l’environnement Minier (DPEM) in the evaluation of mining companies’ ESIs and the monitoring their ongoing compliance with their environmental commitments and its mitigation measures, as a “political administration”. A representative gave us an example: “When politicians intervene in cases that relate purely to pollution, we must withdraw.... There are cases when we receive a call from politicians to stop an investigation because there are political implications. It is common.”³⁸³

The research by RAID and AFREWATCH was not focused on these concerns, and we did not seek to confirm the accuracy of these allegations. There is, however, clearly a need for further research into these claims.

There is no public information available to demonstrate that the Congolese government is taking measures to increase resources in its environmental agencies that are regulating the mining sector. Yet, it is beginning to show some robustness in protecting its environment from the activities of mining companies. In May 2023, Antoinette Nsamba Kalambayi, the Congolese Minister of Mines, suspended Eurasian Resources Group’s Boss Mining copper and cobalt project on the basis of environmental and safety concerns after flooding sent mine waste into the nearby Kakanda river and Kakanda town, with multiple death reported.³⁸⁴ Initially instituted for three months, the suspension was renewed after the mining operator failed to implement the recommendations formulated by the Ministry.³⁸⁵ These included, notably, recommendations relating to the rehabilitation of the environment or the mitigation of the pollution, the revision of the environmental management system at Boss Mining, and the compensation of damages

caused to people and communities affected by the mining waste. Interviewed by a news outlet, the minister declared the suspension of Boss Mining's operations highlighted a broader push by the DRC to hold miners accountable for environmental damage.³⁸⁶ It also illustrates how water pollution is an important challenge for the Congolese government as it threatens not only the communities and ecosystems located in close proximity to the mines, but also those located downstream, at undetermined distances.³⁸⁷

It remains to be seen if the robust intervention by the Congolese Minister of Mines, which is to be welcomed, will set a pattern for stronger action against environmental harms by other mining projects.



Women wash clothes in the village of Mwelampande near the TFM copper-cobalt mine ©2023 RAID

RESPONSES FROM MINING COMPANIES

RAID and AFREWATCH sent detailed letters to the mining companies' four parent companies – CMOC, ERG, Glencore and Zijin Mining – setting out the findings of our field research and requesting responses to the concerns raised by community members. Each company was asked questions about: its water management and water quality monitoring; its assessment of health and economic and social risks associated with water pollution; its compliance and grievance procedures; episodes of pollution or environmental damage linked to its operations; and the due diligence it carried out to ensure its policies were being implemented.

All four companies provided written responses to our questions, with Glencore providing a joint response for KCC and MUMI. Only CMOC and ERG responded to all the questions, although most of the four parent companies responded in general terms, referring us to the policies and commitments in their public-facing literature. ERG provided the most detailed responses. RAID and AFREWATCH held a video meeting with Zijin Mining, who followed-up with further responses in writing for the company's COMMUS mining project. Shortly after the meeting, AFREWATCH met with COMMUS staff at the mine site to seek further clarification.

In general, we noted that despite emphasising the effectiveness of their water management systems, the mining companies provided very limited answers on the actual implementation of these systems, and were reluctant to acknowledge possible causal links between their activities and the human rights impacts of water pollution on fenceline communities. None of the companies provided evidence, such as audits or independent third-party assessments, confirming that their environmental policies had been effective in curbing environmental contamination, despite repeated requests. ERG provided an audit of its Clean Cobalt Initiative, but the auditors verified the management systems and controls the company had in place, not the effectiveness of the implementation of these policies.³⁸⁸ None of the companies were willing to share copies of the annual environmental reports they are required to submit to DRC government authorities to demonstrate the implementation of their Environmental and Social Management Plan (PGES).³⁸⁹

The responses from the companies also demonstrated that none had identified any specific risks or impacts on women's health linked to water contamination. This is clearly an area that requires greater attention by all industrial mining companies operating in DRC's copper and cobalt belt, especially since women's roles and responsibilities increases their contact with contaminated water and since scientific research is increasingly making clear the link between heavy metals exposure and reproductive issues.

CMOC, ERG and Zijin Mining were the only three companies who provided us with the exact numbers of water wells they had built. CMOC was the only company to report that it had received pollution-related complaints, although it recognised no responsibility in the problems raised by communities in these complaints. It is nevertheless surprising that none of the other mines reported receiving such concerns. All the companies said they planned to build additional water wells, with some stating this was part of the "cahier des charges" (a local community benefit agreement) negotiated with impacted communities, indicating that the lack of clean water remains a top concern for those living in fenceline communities near to the mines.

The letters and full responses from the companies can be found on RAID's website. Some of

the information in this correspondence has been referred to above. Further salient points are listed below.

COMMUS/ZIJIN MINING

COMMUS and its parent company Zijin Mining communicated with RAID and AFREWATCH on three occasions. On 23 April 2024, representatives of COMMUS and Zijin Mining first met with RAID and AFREWATCH in a two-hour online meeting for an informal discussion during which they provided preliminary answers to some of the questions listed in our letter. This meeting was followed by a written response, dated 1 March 2024, to RAID and AFREWATCH's questions, and a visit of the COMMUS mine by the AFREWATCH's team on 7 March 2024.

In its written response, COMMUS stressed its commitment to environmental stewardship in compliance with the Congolese legal framework. The company indicated having more than ten monitoring points for potable, surface, and ground water, and added that monitoring results from both the company's internal tests and external governmental tests showed a water quality within the DRC's legal limits. It stated that "the company holds the distinction of being the first and only local company to undertake comprehensive greening of dump sites and tailings pond slopes, showcasing a pioneering approach to environmental sustainability". It further outlined its anti-seepage measures to contain any wastewater leak or ensure its timely remediation.

COMMUS also mentioned in its letter that "since the beginning of mine construction, the company has had no leakage or pollution incidents", and that it has "no special remediation program [...] in place" since "all of the company's current water quality indicators remain in compliance." The company did not reference an incident local press and others reported in December 2023 when there was a breach of the COMMUS' tailings dam, flooding the kKamilombe artisanal mining site and destroying roads and houses in the nearby Kapepa neighbourhood.³⁹⁰

About potable water, COMMUS stated in its written response that it had built 24 water wells for an estimate of 154,284 residents surrounding the mine since beginning its operations in 2015, three of which are no longer operational. According to the company, nine additional wells are either being planned or constructed. COMMUS explained basing the construction of wells "on the actual needs of the communities." During the online meeting between representatives of the companies and the organisations, COMMUS explained that when it drills water points, it supports fenceline communities with monitoring and maintenance of these water points. COMMUS' Compliance Director gave the example of wells drilled since 2016 that are still operational today but, he said, local population growth has led to an increase of maintenance and repair costs. He stated that the company is currently in discussions with communities and civil society organisations to ensure the sustainability of existing wells.

In its letter, COMMUS indicated that all "wells are subject to sampling and testing by the provincial and municipal water authorities, the local communities and the company, both before and after they become operational". This point was also discussed during the online meeting, and COMMUS' Compliance Director said that water quality tests were undertaken once or twice a year, although they could be conducted more frequently if the communities wished so. The results obtained, he said, did not show any trace metal exceedance but, instead, only dust and faecal matter.

Regarding the health impacts of water contamination, COMMUS wrote in its letter that it does its “utmost to assist communities in analysing and responding to the source of diseases.” COMMUS also confirmed receiving complaints about health issues caused by sewage discharge by the company but that local government agencies had undertaken “water quality sampling analysis and testing in the surrounding areas, and the results showed that all data met the standards.” The company did not identify specific impacts on women’s health. Instead, it explained that “According to the company’s existing archived information, there have been no reports of concerns about women’s diseases” but committed to consider these issues going forward. On birth defects specifically, COMMUS highlighted its collaboration with “the Ionizing Radiation Commission of DRC (CNPRI)”, which aimed at “professionally inspect[ing] radiation levels in our mining area.” According to the company, “No radioactive elements such as uranium or lead were found, and there were no violations of other standards. To date, the company has not received any concerns or reports from stakeholders regarding this issue”. COMMUS also referred to its investment in health facilities and regular communication with local residents.

On impacts on fenceline communities’ economic and social rights, COMMUS expressed in its letter that it “prepares and updates community management plans for the next three years” every year. It also outlined its investments in agricultural support for local residents, “to empower communities in developing industries and protecting livelihoods”, and stated that its social investments in the DRC had amounted to \$28 million since 2018. The company also stated in its written response that through its community engagement programme, it had received 64 grievances on issues including relocation, water and electricity supplies, dust, noise and wastewater discharge by the company. Yet, COMMUS mentioned that seven of these grievances had been dismissed “mainly due to unreasonable requests for relocation compensation.” This approach was also shared by COMMUS’s Compliance Director during our online meeting, where he stated that the company had received many complaints asking for relocation, but that, in the company’s view, the complainants were seeking compensation to purchase or buy a house in Kolwezi. No further information was provided regarding this conclusion. When asked about claims for relocation based on pollution, security risks and loss of people’s houses, which had been reported to RAID and AFREWATCH during our field visits, COMMUS admitted that some of the complaints regarded cracks in the homes of nearby communities – caused by the company’s blasting operations – and that the negative impacts of the company’s activities on fenceline communities could not be denied. COMMUS did not explain how the other grievances which had not been rejected had been resolved and if those who complained were satisfied with the result.

KCC AND MUMI/GLENCORE

Glencore communicated with RAID and AFREWATCH on two occasions, first responding to our letter and then, in a letter dated 30 January 2014, declining to provide answers to our additional questions stating: “Given the significant volume of information already provided to your respective organisations, we do not consider it practical to provide further details.”³⁹¹ In its first letter, dated 30 January 2024, Glencore did not provide specific responses to most of our questions, but provided an overview of its environmental policies and practices. About its Environmental policy, notably, it stated that it articulates the group’s “commitment to minimise harm to the environment through environmental stewardship and responsible resource management.”

Glencore also stressed that KCC and MUMI seek to comply with Congolese legal and regulatory requirements. The company pointed to its ESIA's for its two mining projects in DRC which, it said, illustrates their compliance to reporting obligations under the Congolese Mining Code and Mining Regulation.

Regarding water stewardship and water management at KCC and MUMI, Glencore stated that both mines “conduct water quality and water level monitoring of community boreholes on a monthly basis”, and the “results are measured against DRC government regulations and international best practice. Samples are analysed by accredited laboratories both in the DRC and South Africa”. According to the company, results of their water monitoring are shared with the Congolese government and, for MUMI, are posted on a weekly basis on noticeboards in 15 communities. Glencore declined to share the results with RAID and AFREWATCH.

Glencore outlined that its Incident Management Policy applies in situations of spills and other environmental incidents at KCC and MUMI. It stated that such incidents may be reported to Glencore and/or the Congolese government, depending on their severity, but did not respond to our questions on the total number of environmental incidents that had occurred at KCC and MUMI between 2018 and 2023. Glencore did provide some information on two spills – or “loss of containment” as it termed such incidents– at MUMI (2017) and KCC (2021).

In relation to MUMI’s 2017 spill, Glencore explained that “the impacted land was rehabilitated and is currently used by community members for agricultural purposes.” About the 2021 KCC incident, Glencore referred to a report written by AGRIPPEL (Congolese Ministry of Agriculture, Fisheries and Livestock) which, it said, “did not identify impacts on fish farms”. RAID and AFREWATCH asked about these two incidents in our initial letter and requested further clarifying information about the extent of the damage and the mitigation and remediation measures taken by both companies. We also asked further information on a 2018 acid spill at KCC caused by leaking sodium hydro-sulphide drums, which Glencore reported in its 2018 Water Report, and, in our follow-up letter, on a further spill that took place at MUMI in 2019. Glencore provided no answers or additional comments on these events.

On potable water, Glencore’s response provided an indication that the quality and quantity of potable water around KCC were not consistently at the required standard. Glencore indicated that KCC, “following community feedback regarding potable water quality and quantity”, conducted a Community Groundwater Impact Assessment in 2022 that allowed the mine to identify “communities potentially impacted by mine dewatering.” It further stated that “If an exceedance in water quality against WHO standards or reduction in water level in community wells is observed, monitoring frequencies are adapted and corrective actions implemented.” In our follow-up letter, we asked about the locations where WHO water standards have not been met, and at which frequency, but the company declined to answer. The company did not provide either the number of water wells KCC and MUMI have built for local residents. Instead, it referred to the recently agreed Cahiers des Charges (local community benefits agreement), under which KCC and MUMI have committed to drill an further 84 and 16 boreholes, respectively, in surrounding communities.

In relation to health issues, Glencore highlighted the general environmental monitoring mechanisms established by KCC and MUMI in their ESIA's, as well as social programmes the companies implemented such as community health awareness initiatives. On women’s health

issues, Glencore only stated that “MUMI supports a menstrual hygiene campaign” and that KCC “has also supported the construction of the Kapata maternity clinic to improve obstetric and post-natal care in Kolwezi.”

On the economic and social impacts of its activities, Glencore recognised that whilst its operations can “make a contribution to society, they may also have adverse social and environmental impacts”. In response to these potential negative impacts, it highlighted its complaints and grievance mechanisms, as well as the companies’ periodic engagement with local communities. It particularly outlined its social investments, observing that “Glencore expects its social investment in the DRC to increase to around \$40 million over the next 5 years for KCC and \$13 million for MUMI”. Glencore did not respond about the number of complaints it had received about environmental harms or contamination at its operations in DRC”.

METALKOL/ERG

Among the five companies featured in this report, ERG provided RAID and AFREWATCH with the most detailed answers. It gave answers to our initial questions in a letter dated 20 November 2023, and to our follow-questions on 28 February 2024 and on 20 March 2024. In relation to its environmental performance, ERG pointed its Clean Cobalt & Copper Framework, a set of policy commitment for sustainable cobalt and copper production.³⁹² The company also highlighted its environmental management system, which it said includes “*biannual 3rd party environmental audits and annual environmental reports [...] as well as monthly internal reports acting as [...] risk-based controls to avoid/prevent, minimise, mitigate and/or remedy physical and psychological health, safety and environmental impacts on workers and local communities.*” As stated above, these audits appear to consider management policies, and not the effectiveness of implementation.

It is also worth noting that research increasingly shows that “social audits”, which are now a dominant feature of the mining industry’s approach to human rights due diligence, tend to emphasise deficient standards and methodologies based on incomplete understanding of human rights, environmental risks and accountability, and fail to ensure substantial implementation of due diligence policies and measures.³⁹³ Some have established that they are “riddled with conflicts of interest, loopholes, and other problems that render it an inadequate tool to ensure respect for human rights and environmental standards.”³⁹⁴

In its first letter, ERG reported that they “do not have any evidence of any environmental pollution” and said that Metalkol had tested surrounding surface and groundwater via 3rd party audits and external laboratories, which had “not raised any issues of non-compliance.” These tests are conducted weekly, monthly or quarterly according to criteria set in Metalkol’s ESIA.³⁹⁵ ERG did not share copies of these reports.

The company stated that it had recorded “three minor chemical spills” since 2018 but “within the operational area, which were addressed in accordance with the applicable incident management and environmental procedures.” When asked about these incidents, ERG responded in its second letter that the three spills mentioned previously all happened in 2023 and had caused soil pollution. It said the spills did not cause “any acidic pollution because all these incidents occurred in the process plant, were controlled, neutralised and the area covered was

small.” In its second response, ERG did not make reference to a 2019 spill from its tailings storage facility, although in its 20 November 2023 letter to us it said the breach had impacted some crops and that compensation was paid. In parallel, RAID obtained video footage and photos of this spill, which appeared to show considerable flooding and damage beyond the mine site, which it shared with ERG for comment. ERG responded on 20 March 2024, with further information. It said “testing was conducted and there were no further environmental or community impacts. We reported this to the DRC authorities and they provided a response indicating that there was no lasting impact on the environment and to continue with the statutory monitoring programme, which has been done.”³⁹⁶ The company added that the tailings facility is “continuously monitored by a third-party consultant, Epoch, who is the appointed engineer of record.”³⁹⁷ It did not share further information on the type of tests that were conducted at the time.

As mentioned above, ERG also provided further responses to questions from RAID and AFREWATCH on 20 March 2024 about other reported pollution incidents (see case study above). ERG also provided testing results at six water monitoring points between January and December 2023, although a number of months had missing results.

ERG described some of Metalkol’s incident management procedures in its first letter to RAID and AFREWATCH, stating that “In the event of an accidental spill, a pollution control pond is available to receive and contain the spilled solutions.” “Where an environmental incident occurs”, the company added, “an investigation is carried out and corrective measures are taken immediately to mitigate or even eradicate the impact. Any spill is investigated. Accidental spills are contained so that they do not exceed the boundaries of the area in which they occurred.”

Regarding access to potable water, ERG mentioned that it conducted Participatory Rural Appraisals in 2017, during which “access to clean water was identified as the top priority across communities.” In response to these appraisals, ERG said Metalkol had installed 29 water points, including solar-powered water stations, in affected communities between 2018 and 2023. Out of these water points, the company said, three were dysfunctional as of April 2023, including two dried-up wells. ERG did not mention specific plans for drilling additional water points. Instead, it wrote in its first letter “more water points will be installed if the communities define this as a critical need.” According to the company, water points “are subject to chlorine dioxide (EOXIDE) treatment on a weekly basis and are monitored monthly”. It also stated that results of this monthly water testing were shared with community members during quarterly community meeting. ERG confirmed that residents “pay a small fee to the water committee to help with the upkeep of the water supply system.” It also stated that “Regular maintenance of the boreholes is carried out on a monthly basis. However, the company should not guarantee to replace wells that become inoperable due to sabotage.”

In its second letter to RAID and AFREWATCH, ERG wrote that “There have not been any documented incidences of water-related health issues either reported to the company or recorded by the health clinics that the company partners with, in relation to these systems.” It had already indicated in its initial letter that “unlike other operators in the region, Metalkol does not discharge wastewater into the river” and that Metalkol’s monitoring program indicated “No cases of acid pollution.” ERG added that its EOXIDE treatment of water wells should rule out any link between Metalkol’s operations and the digestive problems residents complain of. On women’s health, ERG stated that “no complaints related to gynaecological issues [were]

received through the grievance mechanism or otherwise made known to [them]”. Nor did Metalkol receive, the company said, “any complaints related to birth defects associated with copper and cobalt mining activities.”

In relation to economic and social impacts, ERG stated that “Metalkol does not discharge into the environment and conducts regular water monitoring. The monitoring results show no pollution, thus ruling out Metalkol’s operations contributing to claims of diminishing aquatic life” and crop yields. Instead, the company said the cause of decreasing fish populations and crop production is “likely to be found in agricultural and fish farming practices, which can be impacted by a variety of factors, such as climate conditions and soil health.” Nevertheless, ERG said “Metalkol regularly conducts community awareness-raising campaigns on nature protection to address these issues, in addition to its air and water quality monitoring activities.” The company reported having invested \$11,940,577 in social programmes, and an additional \$12,966,088 was accumulated under its 0.3% contribution to community funds as requested by the Congolese Mining Code.³⁹⁸

TFM/CMOC

CMOC provided detailed and comprehensive answers to our questions. The company responded both to our initial questions in a letter to us dated 24 November 2023 (“initial letter”) and to our follow-up questions on 19 February 2024 (“second letter”) and 8 March 2024 (“third letter”). In its initial letter, CMOC highlighted its water management policies and procedures and said its “operations maintain mature Environmental Management Systems (EMS) certified to ISO 14001 standards, including TFM. These management systems are independently audited at each operating site for recertification and include required training of all employees and contractors on environmental objectives and procedures”. It further specified that “TFM’s management system is independently audited annually by international accredited organizations: ERM CVS for ISO 14001 and ISO 45001; SGS for ISO 9001”. The letter included detailed results of water and dust monitoring between 2018 and 2023. These seemed to be within the “safe” levels established by the international standards the company used as a reference.³⁹⁹

CMOC reported no major incident at its TFM mine, stating that “there were no major spills recorded.” In parallel, in-depth examination of CMOC’s 2020 ESG Report revealed that “68% of the complaints received by TFM [in 2020] were in the environment category, primarily regarding the discharge of water from the mine pits.”⁴⁰⁰ In addition, residents of the village of Shongo reported to RAID and AFREWATCH that in 2022, their crops had been destroyed by acid waste being dumped by TFM along the river Kasanga, in reaction to which TFM sent staff to assess the damage. When asked about these events and its criteria to assess the severity of environmental incidents, CMOC replied, in its second letter, that it did receive “complaints regarding a whitish substance that appeared on vegetable fields,” in Shongo, but that laboratory tests had found the substance to be “mainly calcium and magnesium, which are the usual constituents of rocks.”

On potable water, CMOC reported drilling 20 water wells between 2018 and 2023 across 15 villages, for an estimated population of 20,959. The company said that during the same period, it also built 15 water distribution points across 3 localities for an estimated population of 57,016. Overall, CMOC’s third letter stated that TFM had drilled a total of 157 water wells between 2008 and 2023, 16 of which were dysfunctional as of March 2024. In addition, CMOC

referred us to TFM's Cahier des Charges (local community benefits agreement), in which the company committed to building a further 71 water wells with hand pumps across 70 villages.

CMOC confirmed that community members are expected to pay to access most of the water points, which, according to the company, "facilitates the payment of salaries of people directly managing each water point and for the maintenance." CMOC also wrote that the quality of well water was monitored annually, and that the results, which it shared with RAID and AFREWATCH, showed the water quality was aligned with WHO standards. However, TFM's 2019 ESIA contained indications that some indicators, such as pH and levels of selenium, were at levels above those safe standards.⁴⁰¹

CMOC said that health risks associated with water pollution are not caused by TFM's activities and thus "not relevant to TFM." For instance, the company's first letter mentions that the gynaecological issues RAID and AFREWATCH identified may be caused by the fact that "female artisanal miners are exposed to health risks when they wash ores without PPEs in contaminated rivers." CMOC also confirmed that the Dipeta clinic, on TFM's concession, receives approximately five cases of birth defects per year, but that "no deep investigation is conducted for every single case". According to the company, "a mature environmental management system, which is in line with ISO 14001 and 45001, ensures that [TFM] can minimize the health impacts of [its] operations". RAID and AFREWATCH followed up on these questions in a second letter asking CMOC the detailed steps TFM takes to assess whether the water quality on TFM's mining concession has specific impacts on women's gynaecological and reproductive health. In its second letter to us, the company did not answer this question but, instead, mentioned TFM's financial, material and training investments to "strengthen infrastructure and people's capacity in public health system."

On economic and social risks, CMOC's first letter mentioned that TFM has contributed US \$139,370,000 to community development and infrastructure since 2018, "including water and electricity supply, schools, and clinics as well as health facilities."

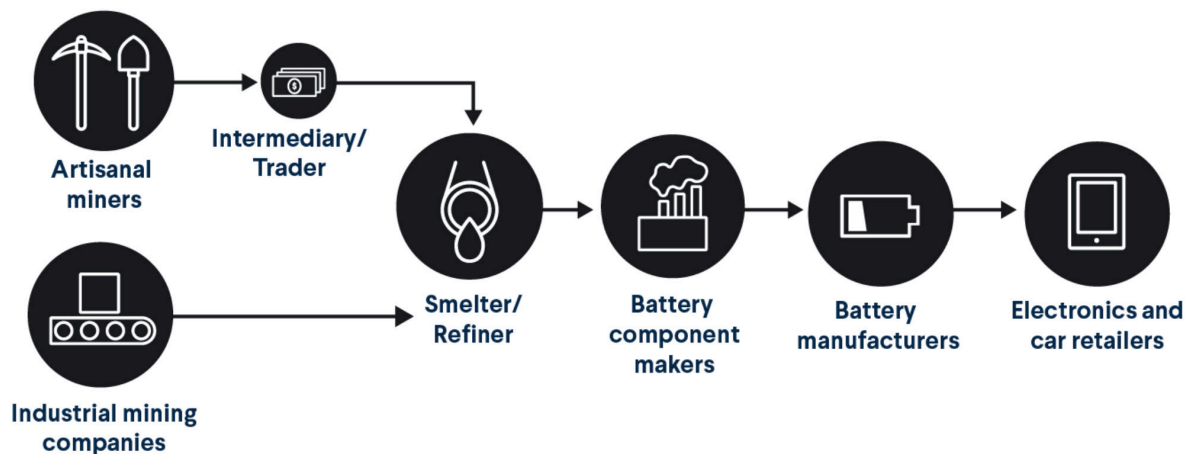
CMOC further stated that TFM had received 785 grievances between 2018 and 2023, among which 3 were about road safety, 28 were about access to water and 754 were related to property damage. Given the impact of water pollution on the social and economic rights of local residents that were reported to RAID and AFREWATCH, the organisations asked CMOC to clarify the causes of the property destructions, and the proportion of complaints that related to accidental spillages and/or environmental concerns. In its second letter, CMOC responded that the "majority of these cases were related to crops damaged by TFM's geological exploration work, such as road marking or boreholes".

ENVIRONMENTAL CONCERNS IN GLOBAL COBALT SUPPLY CHAINS: THE WAY FORWARD

THE ESSENTIAL LEVERAGE OF CONSUMER-FACING COMPANIES

Cobalt is an integral component of the transition to clean energy and is considered an essential material in numerous products ranging from everyday medical devices, drones, phones, laptops, and smart watches to, most importantly, electric vehicles. All are powered by rechargeable lithium-ion batteries, of which cobalt is an essential material. Once cobalt is extracted from the mines in the DRC, it is refined, manufactured into battery components and then transported across the world in many of our high-tech products. In essence, the DRC’s cobalt is everywhere.

The Cobalt Supply Chain



Source: Amnesty

In 2022, the five mining companies featured in this report produced approximately 43% of the world’s cobalt and about 31% of the Congolese supply of copper, another critical mineral. Cobalt from KCC, MUMI, Metalkol and TFM has been traced to some of the world’s largest and most influential automobile manufacturers, such as Tesla, Renault, General Motors, Volkswagen, Ford and BMW, among others, as well as to Microsoft and Apple.⁴⁰² Ultimately these products end up in the hands of all of us – the consumers.

In this context, consumer-facing companies have an important role to play in ensuring that the cobalt used in their products is not contributing to environmental damage, water pollution or human rights abuses. In recent years, there has been growing pressure from states, consumers, investors and employees for companies to responsibly source the goods and materials they use. Industry actors have responded by adopting environmental, social and governance (ESG) commitments, though these loose commitments can be difficult to measure with no agreements on which metrics to apply. Nevertheless, growing numbers of institutional investors and funds are integrating ESG requirements into their portfolios. Bloomberg estimates that ESG assets

are on track to reach \$53 trillion in 2025.⁴⁰³ In parallel, a 2018 global survey by Nielson, a global leader in audience measurements, found that 81% of respondents said it is extremely or very important that companies implement programs to improve the environment, while 73% said they would either definitely or probably change their consumption habits to reduce their impact on the environment.⁴⁰⁴

Inefficient industry initiatives

To meet social expectations, mining companies, EV manufacturers and others along the cobalt supply chain are increasingly making public commitments to conduct thorough environmental and human rights due diligence on how they source their cobalt. Many have also adopted disclosure standards and other industry-based initiatives that seek to promote responsible and transparent supply chains. Most of these commitments demonstrate a will from the cobalt sector to show that industrially mined cobalt is “clean”, “sustainable” and free from human rights and environmental harm.

For instance, mining companies like ERG and Glencore, as well as EV manufacturers like BMW, Renault and Hyundai, among others, are members of the Global Battery Alliance,⁴⁰⁵ a voluntary public-private collaboration platform founded in 2017 at the World Economic Forum to help establish a sustainable battery value chain by 2030.⁴⁰⁶ Other industry initiatives focus exclusively on cobalt, like the Cobalt Institute’s “*Cobalt Industry Responsible Assessment Framework*”⁴⁰⁷ and the China-led “*Responsible Cobalt Initiative*”.⁴⁰⁸ Other mineral-wide initiatives have also been largely accepted. Among them the Responsible Minerals Initiative (RMI), which focuses on responsible minerals procurement,⁴⁰⁹ and the International Council on Mining and Metals principles (ICMM),⁴¹⁰ both of them containing environmental performance requirements.

The proliferation of industry standards, in particular in relation to raw materials, has been accompanied by an increasing trend of policymakers relying on these schemes.⁴¹¹ For instance, the 2023 European Regulation on Batteries sets a process to recognise “*due diligence schemes*” as equivalence with the requirements laid down in the Regulation itself.⁴¹² Similarly, the EU’s proposed Critical Raw Materials Act includes a provision allowing the European Commission to recognise “*certification schemes*” for the sustainability of critical raw materials projects.⁴¹³

On the positive side, these initiatives demonstrate a general recognition that environmental and human rights concerns need to be addressed by companies from the mines to the consumer-facing manufacturers. But there are also major challenges. None of these initiatives are binding on companies, all rely on voluntary adherence, and most are led by industry players. There is little or no independent oversight or penalties for non-compliance. Coordination between the initiatives is weak and the requirements they establish often overlap, making it confusing to navigate for companies, as well as for states and civil society groups involved in monitoring cobalt supply chains.

In 2024 Lead the Charge, a network of civil society and advocacy groups, assessed eight of the most prominent industry schemes in EV supply chains, including among others the Initiative for Responsible Mining Assurance (IRMA), RMI and ICMM, and found that the majority of the schemes lacked transparency, applied varying quality of auditing procedures, and failed to establish systems for meaningful multi-stakeholder governance and rights-holder and community participation.⁴¹⁴ Significantly, while most of these initiatives recognise some level of

environmental protection including, on occasion, water stewardship, the significant flaws in their implementation acts as an enabler for greenwashing and perpetuates environmental damage.

International standards and the potential of mandatory due diligence

Although companies highlight their adherence to industry initiatives to publicly show their commitment to human rights and the environment, it is international business and human rights standards that establish the framework according to which companies along the supply chain are expected to act to identify environmental and human rights risks in their activities and their supply chains, as well as mitigate and remediate their adverse impacts.

The UN Guiding Principles on Business and Human Rights and the Right to a Clean, Healthy and Sustainable Environment

All companies have a responsibility to respect all human rights, wherever they operate in the world and throughout their operations, regardless of their nationality or size. This is a widely recognized standard of expected conduct as set out in international business and human rights standards including the UN Guiding Principles on Business and Human Rights (UNGPs) and the OECD Guidelines for Multinational Enterprises (OECD Guidelines). This corporate responsibility to respect human rights is independent of a state's own human rights obligations and exists over and above compliance with national laws and regulations protecting human rights.

The responsibility to respect human rights requires companies not to cause or contribute to human rights abuses through their own business activities, and address impacts in which they are involved, including by remediating any actual impacts. It also requires companies to seek to prevent or mitigate adverse human rights impacts directly linked to their operations, products or services by their business relationships, even if they have not contributed to those impacts.

Although the UNGPs do not explicitly mention the environment in their human rights due diligence framework, the recognition of the right to a clean, healthy, and sustainable environment as a universal human right by the UN Member States in 2022,⁴¹⁵ gave the guidelines a new significance. The resolution, which followed recognition of the right by the Human Rights Council in October 2021, affirms *“the importance of a clean, healthy and sustainable environment for the enjoyment of all human rights.”*⁴¹⁶

Furthermore, two of the main international human rights law instruments to which the UN Guiding Principles specifically refer (in UN Guiding Principle 12) – the International Covenant on Civil and Political Rights (ICCPR) and International Covenant on Economic, Social and Cultural Rights (ICESCR) – have been interpreted since 2011 in a manner consistent with international environmental and climate law. The Committee on Economic, Social and Cultural Rights (CESCR), the UN body responsible for issuing authoritative interpretations of and monitoring compliance with the ICESCR, has interpreted the ICESCR's goals as including *“the prevention and reduction of the population's exposure to harmful substances ... and harmful chemicals or other detrimental environmental conditions that directly or indirectly impact upon human health.”*

Glencore, ERG, CMOC and Zijin Mining have all publicly committed to implementing the UNGPs.⁴¹⁷

HUMAN RIGHTS AND ENVIRONMENTAL DUE DILIGENCE

Human rights due diligence is a way for companies to “identify, prevent, mitigate and account for how they address their impacts on human rights”.⁴¹⁸ It involves four components according to which companies are expected to:

1. to assess risks in their supply chains as well as the potential and actual environmental and human rights impacts of their activities;
2. to integrate these findings into internal decisions and implement strategies to respond to identified risks;
3. to track the effectiveness of their response;
4. to publicly communicate their due diligence efforts.

In practice, the recognition of an international right to a clean environment means that businesses, including mining companies and EV manufacturers, have a responsibility under the UNGPs to identify and respond to environmental risks and associated human rights risks throughout their entire due diligence process. This means that all the companies along the cobalt supply chain, including EV manufacturers and cobalt refiners, among others, should take all the necessary measures to identify, assess and respond to risks to right to a clean environment and associated human rights.

For example, if the world’s biggest cobalt refiner, Zhejiang Huayou Cobalt Company Ltd.,⁴¹⁹ which directly purchases cobalt extracted at the KCC and MUMI mines,⁴²⁰ identifies water pollution, environmental damage, or associated human rights violations linked to the mines’ activities, it should use its leverage to mitigate these environmental and human rights impacts and collaborate with KCC and MUMI to improve their environmental and human rights due diligence and remedy the situation. In such situation, if the abuse continues, the UNGPs recommend, under certain circumstances and in a responsible manner, for the refiner or the manufacturer to discontinue the commercial relationship with the mining company.⁴²¹

Similarly, this environmental and human rights responsibility suggests that refiners and battery or EV manufacturers should establish systems through which they can collect information on the way the cobalt they process or use was extracted, traded, handled and exported, including through site visits and environmental audits. This includes ensuring that the mining companies supplying their cobalt comply with Congolese law relating to environmental reporting and certification. There are limitations, however, in relying on auditors to assess suppliers’ environmental performance. The European Centre for Constitutional and Human Rights, which analysed cases of serious human rights abuses across four sectors including mining, showed that not only can audits and certifications ignore some human rights abuses and environmental damage, they can also increase human rights risks because of lack of regulation and structural deficits in the social auditing industry.⁴²²

One of the first steps of the human rights and environmental due diligence process is to identify salient risks, that is the most severe potential negative impact on human rights or the

environment that a company's activities and business relationships could cause or contribute to.⁴²³ This involves identifying the full range of potential human rights and environmental harms, including the right to a clean, healthy and sustainable environment.

Given the long history of environmental damage in the Congolese copper-cobalt belt, the growing scientific evidence of the harms of water and air pollution, and the inability of the DRC government to effectively implement environmental protection, it seems relevant that mining companies, refiners and manufacturers include environmental risks, and its associated impacts on human rights, as priority risks. Yet only some of the mining companies studied in this report have done so:

- Glencore identified six salient human rights risks across its business activities, one of which is "Access to water and sanitation".⁴²⁴
- Metalkol's eight salient risk "areas" include "Environmental impacts", although the company is not specific as to the environmental risks identified. Its 2023 Clean Cobalt & Copper Performance Report states: "Metalkol RTR supports the protection of the environment and the importance of identifying and managing the potential environmental impacts of our activities. We are committed to environmental stewardship and as such will develop an environmental management system and set performance indicators to ensure sustainable environmental practices."⁴²⁵
- TFM's due diligence process conducted between October 2022 and July 2023 did not rank "environment and human rights risks" as salient, although the auditing company recommended that TFM "continue to focus on water and land issues as priorities from a community perspective and from a human rights perspective."⁴²⁶
- For COMMUS, RAID and AFREWATCH's were unable to find public information about the company's risk evaluation.

Although there is some recognition of salient environmental risks by mining companies, it is unclear if these concerns have traveled down the cobalt supply chain to refiners and manufacturers. Given the impacts on human rights and the environment from ongoing water contamination as a result of mining activities, as set out in this report, as well as the growing scientific literature, it is clear that downstream companies need to urgently consider these risks and take action to influence mining companies to improve their environmental and human rights performance.

The OECD Guidelines for Multinational Enterprises

As mentioned above, environmental and human rights due diligence expectations for companies are also set in the OECD Guidelines for Multinational Enterprises, which set out standards for responsible business conduct.⁴²⁷ The OECD Guidelines are not legally binding on companies, but they are binding on signatory governments, which are required to ensure the Guidelines are implemented and observed by companies registered in their jurisdictions. All 38 OECD countries and another 12 non-OECD countries have made commitments to adhere to the Guidelines. China is not one of them. ERG/Metalkol and Glencore/KCC both publicly state they adhere to the OECD Guidelines.

In 2023, the OECD Guidelines were updated to reflect new societal challenges and the evolving context for international business.⁴²⁸ This involved stronger emphasis on environmental risks and new recommendations for companies to align with internationally agreed upon goals on environmental protection, climate change and biodiversity. In particular, the OECD Guidelines

now clearly illustrate ways in which companies can be involved in adverse environmental impacts, including, among others, air, water and soil pollution, waste mismanagement and biodiversity loss.⁴²⁹ They also provide renewed guidance on how companies should address environmental risks, including in the context of the energy transition. Specifically, the framework advises companies to “assess and address social impacts in the context of their environmental management and due diligence activities and to take action to prevent and mitigate such adverse impacts both in their transition away from environmentally harmful practices, as well as towards greener industries or practices, such as the use of renewable energy.”⁴³⁰

Noteworthy is also the specific mention of “enhanced due diligence” processes in relation to risks to biodiversity in protected areas, while recognising that enterprises should avoid and address land, marine and freshwater degradation.⁴³¹ In other words, while all mining companies operating in the DRC have a clear responsibility to protect Congolese water resources and refrain from activities that may pollute water and consequently affect the rights of surrounding communities, the companies which, like MUMI, operate in protected areas where risks of



Spring water stagnating at the Sapatelo village near the KCC copper-cobalt mine ©2023 RAID

biodiversity loss are particularly high, are expected to develop particularly complex and comprehensive due diligence mechanisms to prevent and address the environmental impacts of their activities.

In relation to supply chain risks, the updated OECD Guidelines highlights that environmental and human rights due diligence extends to adverse impacts occurring at the downstream part of the value chain. Multinational companies are expected to “take into account known or reasonably foreseeable circumstances related to the use of the product or service in accordance with its intended purpose, or under conditions of reasonably foreseeable improper use or misuse, which may give rise to adverse impacts.”⁴³² This means that under the OECD Guidelines, EV manufacturers and other companies using DRC’s cobalt cannot turn a blind eye to the destruction of Congolese ecosystems and the plight of Congolese communities affected by

environmental and water pollution.

Several of the mining companies featured in this report have also publicly committed to implementing the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas, a context-specific guidance for mining companies operating in high-risk areas, such as the DRC.⁴³³ It aims to help companies respect human rights and avoid contributing to conflict through mineral sourcing. Except mentioning “environmental harm” in its supplements, it provides no general recommendation for mining companies to limit their environmental impacts.

THE POTENTIAL OF ENVIRONMENTAL AND HUMAN RIGHTS DUE DILIGENCE IN COBALT SUPPLY CHAINS

The limitations in corporate practices presents larger issues in the regulation of cobalt supply chains. Because they are voluntary, international standards and industry initiatives fail to create real incentives and accountability for companies along the cobalt supply chain to protect the environment and respect the rights of fenceline communities. Norms creating binding transparency and due diligence obligations for downstream companies importing minerals from the DRC – such as section 1502 of the US Dodd-Frank Act⁴³⁴ and the European Union Conflict Minerals Regulation⁴³⁵ – do not include cobalt.

However, regulatory practice is slowly shifting. An increasing number of countries and regions are developing norms creating binding environmental and human rights due diligence obligations for companies, regardless of the commodity.

In Europe, some governments are currently developing mandatory human rights due diligence legislation.⁴³⁶ These developments come after France adopted its 2017 Duty of Vigilance Law.⁴³⁷ On January 30, the European Union similarly released the final draft of the Corporate Sustainability Due Diligence Directive,⁴³⁸ which was approved by the European Parliament’s Legal Affairs Committee on March 19, after it was watered down to apply only to companies with 1,000 employees or more. If it is adopted during the final vote in the plenary of all European Members of Parliament, it will impose on large EU companies a requirement to address environmental, human rights and governance risks both within their activities and in their supply chain. The new rules should apply to companies established within the EU, but also to those established outside the EU that sell goods and services in the EU.

Despite creating a stronger framework for better corporate accountability in cases of environmental damage and human rights violations, mandatory human rights due diligence is not a silver bullet that will fix all the issues outlined in this report. Challenges will remain, such as those relating to inadequate auditing; due diligence legislation that may be too narrow in scope to adequately address environmental and associated human rights impacts; or liability risks that are too low to compel companies to establish effective due diligence practices. There are also risks with defining legal duties to undertake due diligence against a “checklist” without also extending a positive legal duty to address harm against the environment and fenceline communities. Yet, it could be a significant step in the right direction. The UN Working Group on Business and Human Rights, which promotes the implementation of the UNGPs, has recognised that such

legislation can be critical for speeding and scaling up companies' respect for human rights.⁴³⁹

LEGAL OPPORTUNITIES FOR ENVIRONMENTAL CHALLENGES

Because of DRC's dominant role in the cobalt market, nearly all electric vehicle manufacturers have a direct link to the DRC's cobalt via their supply chain. As the consumer-facing companies, they have a critical role to play in helping to rectify environmental damage, widespread water pollution and severe human rights abuse that jeopardises the lives of millions of Congolese people and push them further into poverty. EV manufacturers have pledged to implement international standards on business and human rights, and to conduct environmental and human rights due diligence in their cobalt supply chains. Yet, as our research reveals, widespread pollution and egregious human rights abuses are still associated with industrial cobalt mining, often with impunity. This indicates there are significant gaps, and that corporate human rights due diligence practices to date remain ineffective at tackling the problems.

In parallel, the scope of human rights due diligence is progressively developing to address environmental risks, as is the case, for instance, in the revised OECD Guidelines for Multinational Enterprises which has placed stronger emphasis on environmental matters, as described



A woman pumps water from a well in the village of Kahindu near the MUMI copper-cobalt mine ©2023 RAID

above.⁴⁴⁰ Similarly, the UN Open-ended intergovernmental working group, created in 2014 and charged with elaborating an international legally binding treaty to regulate the activities of corporate actors,⁴⁴¹ has recommended that environmental risks be included into the due diligence procedures that companies are expected to conduct.⁴⁴² In this context, and with the emergence of mandatory due diligence laws, lawsuits based on the corporate responsibility to protect human rights and the environment, and seeking to protect ecosystems by claiming environmental rights or rights of nature, are multiplying across the globe.⁴⁴³

Complaints in favour of a just transition to cleaner energies are also developing before extrajudicial institutions. For instance, in 2022 an Italian non-governmental organisations issued a formal complaint before the Italian and, later, the Dutch OECD National Contact Points (NCP)⁴⁴⁴ claiming that FCA Italy, a leading Italian EV manufacturer, had failed to disclose adequate information

on its supply chain in relation to the risk of human rights violations by its cobalt suppliers in the DRC.⁴⁴⁵ Similarly in 2021, the Global Legal Action Network filed specific instances against five companies affiliated with the Cerrejón coal mine in northern Colombia with the NCPs of Ireland, the UK, Australia, and Switzerland. The complaints allege that the Cerrejón mine has caused adverse human rights impacts by displacing indigenous and Afro-Colombian communities without their free, prior, and informed consent, and that the mine has polluted the air and water in the vicinity of the mine with consequent human rights impacts.⁴⁴⁶

LIABILITY FOR ENVIRONMENTAL DAMAGE UNDER CONGOLESE LAW

According to the Congolese Constitution, any pollution or destruction caused by the activities of a company entitles any impacted person to compensation and/or reparation.⁴⁴⁷ This general principle applies to the mining industry, as detailed in the Mining Code and the Mining Regulation, according to which the holder of a mining licence is liable for direct or indirect contamination of water, soil or air caused by its mining activities and which adversely affects human health, the fauna or the flora.⁴⁴⁸ This liability extends to diseases caused by mining activities.⁴⁴⁹ In parallel, the Environment Protection Law establishes civil liability for anyone who causes damage to the environment or to people's health.⁴⁵⁰ Notably, this means that affected groups or individuals are entitled to protect their environment and claim compensation or reparation either through collective or individual legal action.⁴⁵¹

In practice, however, most of the limited cases brought by Congolese communities or community members for mining pollution and its environmental impacts are either settled out of court, often to the detriment of the claimants who receive unsubstantial compensation, or are dismissed by courts during the judicial process. Currently, one case against Mutanda Mining is being examined at the Kolwezi Peace Tribunal and Court de Cassation, after a truck delivering sulphuric acid to the company got into an accident and spilled large quantities of acid leading to pollution of surrounding soil and river, injuries and deaths.⁴⁵²

In the DRC, where both the Mining Code and the Environmental Protection Law provide for civil liability in cases of pollution by mining companies and other private actors, communities have also started using Congolese environmental laws to bring strategic litigation cases against copper and cobalt mines for alleged environmental damage, including water pollution. For instance, in May 2023, members of the Kalongo and Mulomba communities, near Kolwezi, started a legal action against Kalongwe Mining⁴⁵³ before the Kolwezi High Court.⁴⁵⁴ The claimants allege that the company is discharging sulphuric acid, as well as toxic waste, into the Kalongo and Kafupana rivers and the Zuweji stream, which has led to the disappearance of aquatic fauna and flora. While the tribunal has still not decided if it is competent to hear the matter, this case is an example of local communities taking domestic action against companies accused of pollution. This case is only an example of the several judicial cases brought before Congolese courts and formal complaints made by fenceline communities to mining companies operating in the DRC. Additional cases and complaints are listed in a legal analysis conducted by Congolese mining and environmental law expert, Professor Arthur Kaniki, for RAID and AFREWATCH. This study is published in a separate document alongside this report.

Of course, there are significant obstacles to bringing strategic environmental litigation in the DRC. The two main barriers, according to legal experts interviewed by RAID and AFREWATCH, are corruption, which remains rife across Congolese institutions, and a lack of expertise on environmental law among judges and lawyers.

Nevertheless, environmental litigation in the countries where the big mining companies are incorporated, as well as in the jurisdictions where they conduct mining activities, may provide further opportunities to seek accountability for environmental damage and water pollution. Congolese fenceline communities who have organised to bring legal cases and formal complaints before Congolese courts and multinational mining companies demonstrate that there is an appetite to bring such cases. DRC's courts appear increasingly interested in hearing cases on water pollution and environmental damage in mining operations, and given the country's strong legal framework on environmental protection, opportunities for successful environmental litigation in the DRC are developing. The DRC's courts have shown they are willing to hear, and rule in favour of, individuals or communities whose legal rights have been violated by companies. This has been most clearly demonstrated, for instance, in recent successful legal challenges by Congolese workers - who had had their labour rights abused - against mining companies and their subcontractors. A number of these strategic cases were supported by RAID and its Congolese partner, the Centre d'aide juridico-judiciaire (CAJJ), a pro-bono group of lawyers.

With increasing calls for a just transition to green energy, it seems inevitable that both governments and companies will be challenged in courts in the global North and the global South on adherence to national and international standards on the right to a clean, healthy and sustainable environment. In that context, it appears the way of strategic environmental litigation can be a fruitful avenue for future challenges.

RESEARCH METHODOLOGY AND SOURCES

The findings described in this report are based on extensive investigations conducted over 19 months between July 2022 and February 2024 by RAID and AFREWATCH. It combines fieldwork in the DRC's copper and cobalt belt and desk-based research. RAID and AFREWATCH conducted 172 interviews with members of fenceline communities living around five large industrial cobalt and copper mines operating in the DRC, as well as lawyers, engineers, scientists, Congolese authorities, medical staff and industry experts, among others. RAID and AFREWATCH further engaged in extensive correspondence with the mining companies featured in this report.

As part of this research, RAID and AFREWATCH conducted two field missions. The first was a scoping mission, conducted by AFREWATCH between 2 and 7 March 2023, aimed at determining which communities reported being significantly impacted by mining-related water pollution and which water bodies were affected. It was conducted in urban and rural areas around Kolwezi and Fungurume. Following this research, RAID and AFREWATCH identified five industrial cobalt mining companies who operated large-scale mines where local residents repeatedly reported concerns relating to the environmental and human-rights harms and where we focused our second stage of research. These included: Compagnie Minière de Musonoi (COMMUS), Kamoto Copper Company (KCC), Metalkol, Mutanda Mining (MUMI), and Tenke-Fungurume Mining (TFM). Although there were other mines where concerns were reported, RAID and AFREWATCH limited our research to five mines as an initial selection. We further mapped the main water points surrounding these five mines and pinpointed a total of 70 reportedly affected communities.



RAID and AFREWATCH researchers investigate water pollution in Kolwezi, DRC ©2023 RAID

Following the scoping mission, a team of three RAID and AFREWATCH researchers conducted in-depth field research in the targeted areas around Kolwezi and Fungurume between 3 and 21 April 2023. In total, we individually interviewed 144 persons across 25 communities located in close proximity to the five mines. We interviewed both men and women via in-depth interviews lasting on average over an hour; nearly all interviews were conducted individually with interpreters if required. During the field visits, we also collected the GPS data of the main water bodies surrounding each of the communities. Out of the 25 communities RAID and AFREWATCH selected, some are not listed as impacted communities in the mining companies' documents, including their environmental and social impact assessments, or located on the mines' concessions. Yet, based on their proximity to the five mines or to water bodies seemingly polluted by the mines, as well as people's perceptions of being impacted by the five mines, we decided to include them in this study.

In addition, RAID and AFREWATCH researchers met with 16 medical professionals (doctors and nurses) working in Kolwezi hospitals and village health centres, as well as employees of three government agencies, the Congolese Environmental Agency (*Agence congolaise de l'environnement*), the Haut-Katanga Provincial Ministry of Mines, and the Lualaba Department of Mining Environment Protection (*Direction de protection de l'environnement minier*). Nine representatives from local non-government organisations (NGOs), legal experts, engineers, and academic scientists were also interviewed. Substantial scientific research demonstrates that local water bodies are contaminated by mining related pollution. To add to this literature and to support the testimonies collected, RAID and AFREWATCH commissioned further scientific analysis from the University of Lubumbashi's Toxicology and Environment Unit on water bodies identified by local residents as being problematic. We intend to publish these results when available. During the course of our research, RAID also received information from whistleblowers and former employees of some of the mining companies. This information has also been included.

Aside from fieldwork and interviews, RAID also conducted comprehensive desk-based research including reviewing relevant materials, policies and reports published by the five mining companies presented in this report. These included reviewing the Environmental and Social Impact Assessments and the Environmental and Social Management Plans that mining companies are required to publish every five years. According to the DRC Mining Code, such reports should be made publicly available. One company, COMMUS, did not share its report with us. COMMUS said its old ESIA was out-of-date, and that its new one, completed in 2023, had not yet been approved by the government. Despite repeated requests, the company did not wish to share its previous ESIA.

RAID also examined publications from third parties. These include scientific reports, academic literature, documents from industry associations, and other relevant research by international organisations and civil society groups. We further consulted materials from court proceedings in the DRC and elsewhere, and Congolese and international press coverage.

Crucial to our research was understanding the domestic and international laws and standards that frame mining companies' liability in relation to environmental responsibilities and practices. For that purpose, RAID and AFREWATCH engaged a leading Congolese legal expert to conduct an analysis of DRC's environmental laws and legal precedents. We also received support from a leading international law firm to help us clarify the corporate responsibilities deriving from international and domestic laws and standards and to verify the validity of legal arguments

made.

Based on the results of our research, RAID and AFREWATCH wrote to the five companies featured in this report and their parent companies to inform them of our research findings and seek responses to a detailed list of questions about their environmental procedures and practices, and the allegations made by the research participants. We also sent copies of the letters to Congolese state-owned mining company, Générale des carrières et des mines (Gécamines), which holds shares in three of the five companies. As the Congolese state holds 5% shares in Metalkol and MUMI, the organisations wrote to the office of the Congolese Minister of Mines to the letter to Metalkol.

RAID and AFREWATCH received substantive responses from all five companies. Our assessment of company practices is informed by these responses, as well as by other reports, policies, statements and certificates that the companies have made publicly available or have shared with the organisations. RAID and AFREWATCH's letters, as well as companies' responses can be found in annex 2 of this report.

Many of those interviewed by RAID and AFREWATCH wanted their testimony to be shared but feared reprisal. Consequently, we have taken great care to maintain confidentiality where necessary. The names of all the interviewees have been replaced by pseudonyms and information about their position or other details have been withheld when they could be used to identify individuals. Throughout the report, asterisks are added after pseudonyms. Statistics and production figures cited in this report are accurate as of 25 March 2024.

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Anaïs Tobalagba of RAID, along with Céline Tshizena and Jacques Kabulo of AFREWATCH conducted the field research in the DRC. The research findings and desk-based investigations were written into a report by Anaïs Tobalagba, Legal and Policy Researcher at RAID, with significant support from Bonheur Minzoto, Legal Associate at RAID. This report was reviewed and edited by the RAID and AFREWATCH teams including Anneke Van Woudenberg, the Executive Director of RAID, and Emmanuel Umpula, the Executive Director of AFREWATCH, as well as Zainab Rahim, Communications Officer at RAID.

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ENDNOTES

- 1 See also the definition used by Human Rights Watch in “‘We’re Dying Here’. The Fight for Life in a Louisiana Fossil Fuel Sacrifice Zone’ (Human Rights Watch, 2024).
- 2 UN Framework Convention on Climate Change, Conference of the Parties, Session 28 (“COP 28”) (Dubai, United Arab Emirates, 30 November – 12 December 2023).
- 3 UN Framework Convention on Climate Change, ‘First global stocktake: Outcome of the first global stocktake’, UN Doc. FCCC/PA/CMA/2023/L.17, 13 December 2023, 28(d).
- 4 Colin McKerracher and others, ‘Electric Vehicle Outlook 2023: Executive Summary’ (BloombergNEF, 2023); Aleksandra O’Donovan ‘Electrified Transport Market Outlook Q4 2023 - Growth Ahead’ (BloombergNEF, 4 January 2024). The term “passenger EV” refers to passenger cars and light commercial vehicles. This definition excludes buses, two-wheelers and three-wheelers.
- 5 US Department of Interior, US Geological Survey, ‘Mineral Commodity Summaries 2023’ (US Geological Survey, Reston, Virginia: 2023), p. 61.
- 6 Ekaterina Savinova and others, ‘Will global cobalt supply meet demand? The geological, mineral processing, production and geographic risk profile of cobalt’ (2023) 190 Resources, Conservation and Recycling 1.
- 7 International Energy Agency, ‘Electric Vehicle Outlook 2023: Catching up with climate ambitions’ (April 2023).
- 8 Colin McKerracher and others, ‘Electric Vehicle Outlook 2023: Executive Summary’ (BloombergNEF, 2023), 2.
- 9 Cobalt Institute, ‘Cobalt Market Report 2022’ (May 2023), 13.
- 10 ‘Cobalt market may need new pricing mechanisms for EV era’ (Benchmark Minerals Intelligence, 12 May 2023).
- 11 US Department of Interior, US Geological Survey, ‘Mineral Commodity Summaries 2023’ (US Geological Survey, Reston, Virginia: 2023), pp. 61 and 63.
- 12 Initiative pour la Transparence des Industries Extractives en RDC, ‘Rapport assoupli 2018-2019-2020’ h 2021 pp. 260 and 261.
- 13 ‘The World Bank in DRC’ (The World Bank, 25 September 2023).
- 14 UN Environment Programme, ‘UNEP Study Confirms DR Congo’s Potential as Environmental Powerhouse but Warns of Critical Threats’ (UNEP, 7 August 2017).
- 15 Ibid.
- 16 UNICEF, ‘Children in DRC at ‘extremely high risk’ of the impacts of the climate crisis’ (UNICEF, 20 August 2021).
- 17 Cobalt Institute, ‘Cobalt Market Report 2021’ (May 2022), 4.
- 18 Ethan N. Elkind, Patrick R.P. Heller and Ted Lamm, ‘Sustainable Drive Sustainable Supply. Priorities to Improve the Electric Vehicle Battery Supply Chain’, (Berkeley Law and Natural Resource Governance Institute, July 2020) 3-4.
- 19 The Carter Center, ‘A State Affair: Privatizing Congo’s Copper Sector’ (November 2017), 6.
- 20 ‘China opens coffers for minerals’ (BBC, 18 September 2007)
- 21 Charlotte Cosset, ‘En RDC, le secteur minier à la recherche de nouveaux investisseurs’ (RFI, 17 December 2022).
- 22 Inflation Reduction Act 2022 [H.R.5376 – 117th Congress (2021-2022)] (USA)
- 23 ‘Support for the Development of a Value Chain in the Electric Vehicle Battery Sector’ (Memorandum of Understanding between the USA, DRC and Zambia, 13 December 2022).
- 24 Ibid.
- 25 EU Commission, Proposal for a European Parliament and Council Regulation (EU) on establishing a framework for ensuring a secure and sustainable supply of critical raw materials and amending Regulations (EU) 168/2013, (EU) 2018/858, 2018/1724 and (EU) 2019/1020 [2023/0079 (COD), 16 March 2023].
- 26 European Commission, ‘Questions and Answers on the European Critical Raw Materials Act’ (16 March 2023).
- 27 ‘Partenariat sur les Chaînes de valeur Durables des Matières Premières Critiques et Stratégiques’ (Protocole d’Attente entre l’Union Européenne et la République Démocratique du Congo, 26 Oct 2023)
- 28 ‘Minerals Security Partnership’ (US Department of State).
- 29 Caroline Avan and others, ‘Transition Minerals Tracker: 2022 Analysis’ (Business and Human Rights Resource Centre, June 2023) 14.
- 30 Ibid.
- 31 Caroline Avan and others, ‘Transition Minerals Tracker: 2022 Analysis’ (Business and Human Rights Resource Centre, June 2023) 7.

-
- 32 Business and Human Rights Resource Centre, “‘Going Out’ Responsibly. The Human Rights Impact of China’s Global Investments’ (August 2021) 18-19.
- 33 Andy Home, ‘Cobalt, Congo and a mass artisanal mining experiment’ (Reuters, 13 May 2021).
- 34 Amnesty International and AFREWATCH, ‘This Is What We Die For. Human rights abuses in the Democratic Republic of the Congo power the global trade in cobalt’ (Amnesty International 2016).
- 35 See, e.g., Responsible Cobalt Initiative, ‘Facing challenges, sharing responsibility, joining hands and achieving win-win’ (2016); Cobalt for Development (C4), The Democratic Republic of the Congo, ‘Support artisanal cobalt mining cooperatives to implement “zero child labour” procedures and address its root causes in communities’ (2021). See also Amnesty International, ‘Time to Recharge. Corporate Action and Inaction to Tackle Corporate Abuses in the Cobalt Supply Chain’ (Amnesty International 2017).
- 36 Camellia Moors, ‘Battery-makers slash cobalt intensity in the face of accelerating demand’ (S&P Global Market Intelligence, 29 August 2022).
- 37 ‘Firms are exploring sodium batteries as an alternative to lithium’ (The Economist, 25 October 2023).
- 38 ‘Over 100 GWh of sodium ion battery capacity planned for 2030 as industry seeks alternative to lithium’ (Benchmark Minerals Intelligence, 22 March 2023).
- 39 Rory McNulty and Ethan Williams, ‘OPINION: Why sodium ion batteries will take longer than people think’ (Benchmark Minerals Intelligence, 7 September 2023). See also Keith Bradsher, ‘Why China Could Dominate the Next Big Advance in Batteries’ (The New York Times, 12 April 2023).
- 40 Michael J Kavanagh, ‘Congo’s Next President Will Be a Key Voice in Green Energy Talks’ (Bloomberg 19 December 2023), quoting Benchmark Minerals.
- 41 Camellia Moors, ‘Battery-makers slash cobalt intensity in the face of accelerating demand’ (S&P Global Market Intelligence, 29 August 2022).
- 42 Benjamin Rubbers, ‘Mining Boom, Labour Market Segmentation and Social Inequality in the Congolese Copperbelt’ (2020) 51:6 Development and Change Volume 1555, 1565.
- 43 ‘Chinese Mining ‘Wrecking Lives’ in DRC’ (Africa Defense Forum, 3 October 2023); ‘Cobalt Mining Market Analysis by Reserves, Production, Assets, Demand Drivers and Forecast to 2030’ (Global Data, 16 December 2023).
- 44 ‘Kolwezi Population 2024’ (World Population Review).
- 45 Gregory Mthembu-Salter, ‘Natural Resource Governance, Boom and Bust: The Case of Kolwezi in Congo’ (South African Institute of International Affairs, Occasional Paper No.35, June 2009) 4-5.
- 46 This percentage was calculated by RAID on 21 February 2024 based on the world total cobalt supply in 2022, and public information on the five companies’ cobalt production and sales in 2022.
- 47 ‘The DRC - copper and cobalt’ (CMOC).
- 48 ‘Tenke Fungurume Mining project, Democratic Republic of Congo (DRC)’ (European Investment Bank, 2 August 2007).
- 49 CMOC Group Ltd, ‘Announcement (1) Termination of BHR DRC equity acquisition and (2) Connected and disclosable transaction in relation to BHR equity acquisition’ (19 June 2019). TFM was previously owned by U.S. company Freeport McMoran which held a 56% stake in the mine, with 24% held by Toronto-based Lundin Mining and 20% by Gécamines. The TFM mineral concession covers an area of approximately 1500 km².
- 50 CMOC Group Ltd, ‘Interim Results Announcement for the Six Months Ended 30 JUNE 2023’ (25 August 2023).
- 51 KFM started operations in H1 2023. See ‘CMOC’s KFM copper-cobalt mine scheduled to start production in 1H 2023’ (CMOC Group Ltd, 01 July 2022).
- 52 Mark Burton, ‘Chinese Miner Takes Glencore’s Cobalt Crown as Output Jumps 170%’ (Bloomberg, 4 January 2024).
- 53 ‘Kamoto Copper Company’.
- 54 ‘Mutanda Mining S.A.R.L (MUMI)’ (Glencore DRC).
- 55 KCC, ‘KCC Responsible Minerals Supply Chains Report 2022’ (updated July 2023) 2.
- 56 Glencore, ‘Annual Report 2022’ 137.
- 57 Glencore, ‘Full Year 2023 Production Report’ (1 February 2024) 10.
- 58 ‘Who we are. Mutanda Mining’ (Glencore DRC).
- 59 Glencore, ‘Full Year 2023 Production Report’ (1 February 2024) 10.
- 60 ‘Metalkol’ (ERG).
- 61 ‘Group at Glance’ (ERG).
- 62 ‘Metalkol RTR’ (ERG Africa).
- 63 Eurasian Resources Group, ‘Sustainable Development Report 2022’ 20.
- 64 Zijin Mining Group, ‘Annual Report 2022’ 43.
-

-
- 65 'Congo : le cobalt, désastre écologique et sanitaire' (Le Soir, 4 February 2020) 2 – 3 ; Linda Ager-Wick Ellingsen and others, 'Life cycle assessment of a lithium-ion battery vehicle pack' (2013) 18:1 *Journal of Industrial Ecology* 113; Shahjadi Hisan Farjana, Nazmul Huda and Parvez Mahmud, 'Life cycle assessment of cobalt extraction process' (2019) 18:3 *Journal of Sustainable Mining* 150; Philip Nuss and Matthew J. Eckelman, 'Life Cycle Assessment of Metals: A Scientific Synthesis' (2014) 9:7 *Plos One* 1.
- 66 UN Human Rights Council, 'The right to a clean, healthy and sustainable environment: non-toxic environment' (Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment. UN Doc A/HRC/49/53, 12 January 2022).
- 67 Stephen A. Northey and others, 'Sustainable water management and improved corporate reporting in mining' (2019) 21 *Water Resources and Industry* 1.
- 68 Khizar Khalil and others, 'Mines, Lakes, and Global Stakes: The effects of mining on water bodies in the DRC' (2021); Shahjadi Hisan Farjana, Nazmul Huda and Parvez Mahmud, 'Life cycle assessment of cobalt extraction process' (2019) 18:3 *Journal of Sustainable Mining* 150; Philip Nuss and Matthew J. Eckelman, 'Life Cycle Assessment of Metals: A Scientific Synthesis' (2014) 9:7 *Plos One* 1; SNC Lavalin International, 'Etude sur la restauration des mines de cuivre et de cobalt. République Démocratique du Congo' (M-6708 (603082) Avril 2003). Studies also show there can be a considerable impact from the heavy use by mining companies of pumped water, diesel and electricity.
- 69 Ingrid Dennis and others, 'Methods to Assess the Impacts of Tailings Dams on the Groundwater System in South Africa' (2008) 44 *Journal of Mining and Metallurgy* 59.
- 70 Mineral tailings are wastes from mineral processing plants whereas metallurgical slags are wastes from smelters.
- 71 Arthur Tshamala Kaniki and Kaniki Tumba, 'Management of mineral processing tailings and metallurgical slags of the Congolese copperbelt: Environmental stakes and perspectives' (2019) 2010 *Journal of Cleaner Production* 1406.
- 72 RAID, Interview with Arthur Kaniki, Online, 19 February 2024.
- 73 Ibid.
- 74 Khizar Khalil and others, 'Mines, Lakes, and Global Stakes: The effects of mining on water bodies in the DRC' (2021); *Time-Lapse 1984-2020 Kolwezi and Lake Nzilo* (Directed by People and the Planet, Youtube 2021); Victoria Beaulé, 'Artisanal cobalt mining swallowing city in Democratic Republic of the Congo, satellite imagery shows' (ABC News 8 February 2023).
- 75 Cobalt production in the Copperbelt (mostly in the DRC) has increased ~600% between 1990 and 2021 (U.S. Bureau of Mines, 1992; U.S. Geological Survey, 2022)
- 76 Khizar Khalil and others, 'Mines, Lakes, and Global Stakes: The effects of mining on water bodies in the DRC' (2021).
- 77 Emmanuel K. Atibu and others, 'Concentration of metals in surface water and sediment of Luilu and Musonoie Rivers, Kolwezi-Katanga, Democratic Republic of Congo Author links open overlay panel' (2013) 39 *Applied Geochemistry* 26. In the Luilu River, Cu and Co were found at the values of 47,468 and 13,199 mg kg⁻¹, respectively, while at the Musonoie River, the maximum values were of 370.8 mg kg⁻¹ for Cu and 240.6 mg kg⁻¹ for Co.
- 78 Emmanuel K. Atibu and others, 'Concentration of metals in surface water and sediment of Luilu and Musonoie Rivers, Kolwezi-Katanga, Democratic Republic of Congo Author links open overlay panel' (2013) 39 *Applied Geochemistry* 26.
- 79 Emmanuel K Atibu and others, 'High contamination in the areas surrounding abandoned mines and mining activities: An impact assessment of the Dilala, Luilu and Mpingiri Rivers, Democratic Republic of the Congo' (2018) 191 *Chemosphere* 1008.
- 80 Célestin Lubaba Nkulu Banza, 'Evaluation des risques environnementaux et sanitaires associés à la pollution des cours d'eau et mise en œuvre des mécanismes de protection des écosystèmes aquatiques dans la Province du Lualaba en République Démocratique du Congo. Preliminary results', (RAID and AFREWATCH, March 2024).
- 81 See, e.g., Mina Suh and others, 'Inhalation cancer risk assessment of cobalt metal' (2016) 79 *Regulatory Toxicology and Pharmacology* 79 74e82; Chantal E. Holy and others, 'Site-specific cancer risk following cobalt exposure via orthopedic implants or in occupational settings: A systematic review and meta-analysis' (2022) 129 *Regulatory Toxicology and Pharmacology* 105096; J Moulin and others, 'Lung Cancer Risk in Hard-Metal Workers' (1998) 148 *American Journal of Epidemiology* 241; Allan Astrup Jensen and Finn Tuchsén, 'Cobalt Exposure and Cancer Risk' (1990) 20:6 *Critical Reviews in Toxicology* 427; Philip E Enterline, Richard Day and Gary M Marsh, 'Cancers related to exposure to arsenic at a copper smelter' (1995) 52 *Occupational and Environmental Medicine* 28; Kathy Welch and others, 'Arsenic exposure, Smoking and Respiratory Cancer in Copper Smelter Workers' (1982) 37 *Archives of Environmental Health* 325; Ana Lee-Feldstein, 'Cumulative Exposure to Arsenic and Its Relationships to Respiratory Cancer Among Copper Smelter Employees' (1986) 28 *Journal of Occupational Medicine* 296; Xiaping Zhang and Qun Yang, 'Association between serum copper levels and lung cancer risk: A meta-analysis' (2018) 46 *Journal of International Medical Research* 4863; Celia
-

- Byrne and others, 'Metals and Breast Cancer' (2013) 18 *J Mammary Gland Biol Neoplasia* 63. See also S. Obiri and others, 'Cancer and Non-Cancer Risk Assessment from Exposure to Arsenic, Copper, and Cadmium in Borehole, Tap, and Surface Water in the Obuasi Municipality, Ghana' (2010) 16 *Human and Ecological Risk Assessment* 651; Marcus Cooke and others, 'Oxidative DNA damage: mechanisms, mutation, and disease' (2003) 17 *The FASEB Journal* 1195; R. Lauwerys and D. Lison, 'Health risks associated with cobalt exposure -- an overview' (1994) 150 *The Science of the Total Environment* 1; Laura Leyssens and others, 'Cobalt toxicity in humans. A review of the potential sources and systemic health effects' (2017) 387 *Toxicology Volume* 43; Manju Mahurpawar, 'Effects of Heavy Metals on Human Health' (2015) *International Journal of Research - GRANTHAALAYAH* 1.
- 82 Célestin Lubaba Nkulu Banza and others, 'High human exposure to cobalt and other metals in Katanga, a mining area of the Democratic Republic of Congo' (2009) 109 *Environmental Research* 745; Karlien Cheyns and others, 'Pathways of human exposure to cobalt in Katanga, a mining area of the D.R. Congo' (2014) 490 *Science of the Total Environment* 313; Laura Leyssens and others, 'Cobalt toxicity in humans. A review of the potential sources and systemic health effects' (2017) 387 *Toxicology Volume* 43.
- 83 Karlien Cheyns and others, 'Pathways of human exposure to cobalt in Katanga, a mining area of the D.R. Congo' (2014) 490 *Science of the Total Environment* 313; S. Squadrone and others, 'Human exposure to metals due to consumption of fish from an artificial lake basin close to an active mining area in Katanga (D.R. Congo)' (2016) 568 *Science of the Total Environment* 679. See also B. Katemo Manda, 'Evaluation de la contamination de la chaîne trophique par les éléments traces (Cu, Co, Zn, Pb, Cd, U, V et As) dans le bassin de la Lufira supérieure (Katanga/RD Congo)' (2010) 28 *TROPICULTURA* 246.
- 84 Karlien Cheyns and others, 'Pathways of human exposure to cobalt in Katanga, a mining area of the D.R. Congo' (2014) 490 *Science of the Total Environment* 313; S. Squadrone and others, 'Human exposure to metals due to consumption of fish from an artificial lake basin close to an active mining area in Katanga (D.R. Congo)' (2016) 568 *Science of the Total Environment* 679. See also B. Katemo Manda, 'Evaluation de la contamination de la chaîne trophique par les éléments traces (Cu, Co, Zn, Pb, Cd, U, V et As) dans le bassin de la Lufira supérieure (Katanga/RD Congo)' (2010) 28 *TROPICULTURA* 246.
- 85 These numbers have been established by the ACGIH biological exposure index; Mayo Clinic Laboratories, 'Test Definition: COWB Cobalt, Blood'; Mayo Clinic Laboratories, 'Cobalt Occupational Exposure, Random, Urine' (2021).
- 86 See, e.g., Célestin Banza Lubaba Nkulu, 'Sustainability of artisanal mining of cobalt in DR Congo' (2018) 1 *Nature Sustainability* 495.
- 87 Tony Kayembe-Kitenge and others, 'Incidence of congenital malformations and proximity to mining in Lubumbashi, DR Congo' (2019) 3 *Environmental Epidemiology* 194; Daan Van Brusselen and others, 'Metal Mining and Birth Defects: A Case-Control Study in Lubumbashi, Democratic Republic of the Congo' (2020) 4 *The Lancet Planetary Health* e158; Tony Kayembe-Kitenge and others, 'Transplacental transfer of cobalt: Evidence from a study of mothers and their neonates in the African Copperbelt Author links open overlay panel' (2022) 80 *Journal of Trace Elements in Medicine and Biology Volume* 127294.
- 88 See, e.g. Fleur Scheele, Esther de Haan, Vincent Kiezebrink, 'Cobalt Blues. Environmental pollution and human rights violations in Katanga's copper and cobalt mines' (SOMO April 2016); Pain pour le prochain ("Brot für Alle") and Action de Carême ("Fastenopfer"), 'Glencore en RD Congo : une diligence raisonnable incomplète' (November 2018); AFREWATCH, 'RESUME DE MISSION D'ENQUETE EFFECTUEE PAR AFREWATCH SUR LE DOSSIER D POLLUTION PAR MUMI AU LUALABA (MISE A JOUR)' (26 -30 April 2017) (Document on file); AFREWATCH, 'GLENCORE DONNE PRIORITE A LA PRODUCTION DU CUIVRE QU'A PROTEGER LES VIES HUMAINES : Rapport d'enquête sur les impacts des déversements d'acide sulfurique de l'entreprise minière KCC dans l'environnement de la province du Lualaba' (December 2021); AFREWATCH, 'THE SOCIAL AND ENVIRONMENTAL ISSUES CAUSED BY SICOMINES MINING IN LUALABA: The unbearable living conditions in YENGE and KAPANGA villages' (February 2022).
- 89 Loi n° 007/2002 du 11 juillet 2002 portant code minier telle que modifiée et complétée par la Loi n° 18/001 du 09 mars 2018 [DRC Mining Code]; Décret N° 038/2003 du 26 Mars 2003 portant Règlement Minier tel que Modifié et Complété par le Décret N° 18/024 Du 08 Juin 2018 [DRC Mining Regulations]; Loi n° 11/002 du 20 janvier 2011 portant révision de certains articles de la Constitution de la République Démocratique du Congo du 18 février 2006 ; Loi n° 15/026 du 31 décembre 2015 relative à l'eau ; Loi N°11/009 du 09 juillet 2011 portant principes fondamentaux relatifs à la protection de l'environnement [DRC Environmental Protection Law].
- 90 DRC Mining Code, Section 1.
- 91 DRC Mining Regulations, Art 463.
- 92 DRC Mining Code, section 1.
- 93 DRC Mining Code, Section 1.
- 94 DRC Mining Code, Art 42; DRC Mining regulations, Art 25 octies.
- 95 DRC Mining Code, Section 42.
- 96 DRC Mining Code, Art 202 et seq.

-
- 97 DRC Mining Regulations, Art 16, 18 & 19.
- 98 DRC Environmental Protection Law, Art 40.
- 99 Constitution de la République Démocratique du Congo telle que modifiée par la Loi n° 11/002 du 20 janvier 2011 portant révision de certains articles de la Constitution de la République Démocratique du Congo du 18 février 2006 [DRC Constitution] Articles 53, 47 & 48.
- 100 DRC Environmental Protection Law, Art 49.
- 101 UN General Assembly, ‘Resolution on the human right to a clean, healthy and sustainable environment’ (26 July 2022) UN Doc. A/76/L.75.
- 102 African Charter on Human and Peoples’ Rights (Adopted 27 June 1981, OAU Doc. CAB/LEG/67/3 rev. 5, 21 I.L.M. 58 (1982) entered into force 21 October 1986) art 24.
- 103 HRC, ‘Guiding Principles on Business and Human Rights: Implementing the United Nations “Protect, Respect and Remedy” Framework’ (21 March 2011) UN Doc A/HRC/17/31, Principle 1. [UNGPs].
- 104 KCC promotional video.
- 105 ‘Clean Cobalt and Copper Framework. An ERG Initiative’ (ERG 2022), p. 6.
- 106 ‘Chairman Chen Jinghe Inspects Zijin Mining’s Projects in Africa’ (Zijin News, 2 March 2023).
- 107 ‘Meeting with ERG’ (ERG’s Correspondence to RAID and AFREWATCH 20 November 2023).
- 108 ‘Sustainability. Water’ (Glencore).
- 109 CMOC’s Correspondence to RAID and AFREWATCH (24 November 2023).
- 110 ‘Water’ (Zijin).
- 111 See, e.g. ‘Sustainability. Water’ (Glencore) and ‘Environmental and social performance management at Glencore operations in DRC’ (Glencore’s Correspondence to RAID and Afrewatch, Baar, 10 November 2023) [Glencore’s Correspondence to RAID and Afrewatch, 10 November 2023].
- 112 DRC Mining Regulations, Art 454 & 463.
- 113 DRC Mining Code, Art 204; DRC Mining regulations, Art 450 – 452.
- 114 SRK Consulting and Okapi Environment & Génie Civil, ‘Rapport d’Impact Environnemental et Social. Volume 2’ (TFM, July 2019) pp.135 & 241 [TFM ESIA 2019].
- 115 SRK Consulting, ‘Environmental Impact Study and Environmental Management Plan for the Kamoto Mine Project, DRC (PE525, PE11602, PE4961)’ (KCC, April 2018, Report Number 201704/Final) p. 5-45 [KCC ESIA 2018].
- 116 ‘Water’ (Zijin).
- 117 KCC ESIA 2018, p. 8-1.
- 118 ERG, ‘Sustainable Development Report 2022’ 54.
- 119 ‘Metalkol RTR’ (ERG Africa).
- 120 ERG correspondence to RAID and AFREWATCH, 20 November 2023, p. 6. Though Metalkol recognises temporary air pollution in the same correspondence: “Metalkol did experience temporary dust exceedances due to very dry weather conditions between July and September 2022”. Ibid., p. 6.
- 121 See Iva Peša, ‘Between waste and profit: Environmental values on the Central African Copperbelt’ (2021) 8 *The Extractive Industries and Society* 100793. Demonstrating historical widespread knowledge of environmental pollution and its impacts on human health among mining companies.
- 122 ‘Chinese Mining ‘Wrecking Lives’ in DRC’ (Africa Defense Forum, 3 October 2023); ‘Cobalt Mining Market Analysis by Reserves, Production, Assets, Demand Drivers and Forecast to 2030’ (Global Data, 16 December 2023).
- 123 RAID and AFREWATCH Interviews, Medical Professional, Kolwezi, April 2023.
- 124 Marc van der Meide and others, ‘Effects of the Energy Transition on Environmental Impacts of Cobalt Supply: A Prospective Life Cycle Assessment Study on Future Supply of Cobalt’ (2022) 26 *Journal of Industrial Ecology* 1631.
- 125 ‘KCC Virtual Tour. Acid Plant’ (Glencore).
- 126 Ibid.
- 127 DRC Mining Code, Art 182, paragraph 3.
- 128 DRC Mining Code, Art. 185 paragraphs 3 and 4; DRC Mining Regulations, Art 379 bis.
- 129 HRC, ‘Guiding Principles on Business and Human Rights: Implementing the United Nations “Protect, Respect and Remedy” Framework’ (21 March 2011) UN Doc A/HRC/17/31, [UNGPs]; OECD, *OECD Guidelines for Multinational Enterprises on Responsible Business Conduct* (Paris: OECD Publishing 2023); IFC, ‘IFC’s Performance Standards on Environmental and Social Sustainability’; EITI, ‘EITI Standard 2023’; UN Global Compact, ‘The Ten Principles of the UN Global Compact’.
- 130 OHCHR, ‘The Corporate Responsibility to Respect Human Rights. An Interpretative Guide’ (2012), p. 77.
-

-
- 131 Maeve Campbell, 'In pictures: South America's 'lithium fields' reveal the dark side of our electric future' (Euronews, 1 February 2022).
- 132 HRC Res 48/13 (8 October 2021) UN Doc A/HRC/RES/48/13; UNGA Res 76/300 (1 August 2022) UN Doc A/RES/76/300.
- 133 HRC, 'Right to a healthy environment: good practices', (Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment, 2019) UN Doc A/HRC/43/53.
- 134 DRC Constitution, Art 53.
- 135 DRC Constitution, Art 48.
- 136 DRC Mining Code, Title VIII; DRC Mining Regulations, Title XVIII; Loi n° 15/026 du 31 décembre 2015 relative à l'eau (DRC Law on Water), see e.g., art 28 & 30; DRC Environmental Protection Law.
- 137 OHCR, UNEP and UNDP, 'What is the Right to a Healthy Environment? Information Note' (25 January 2023) 4.
- 138 Golder Associates Africa (Pty) Ltd, 'Metalkol Roan Tailings Reclamation Project: Environmental Impact Study. Executive Summary' (Metalkol, 2019) 24 [Metalkol ESIA 2019].
- 139 KCC ESIA 2019, p. 8-35.
- 140 Knight Piésold Consulting RDC SARL, 'Environmental and Social Impact Assessment for the Mutanda Mine' (MUMI, 2021) pp. 143, 149 [MUMI ESIA 2021]
- 141 TFM ESIA 2019, p. 295.
- 142 RAID and AFREWATCH Interviews, Medical Professional, Kolwezi, April 2023.
- 143 RAID and AFREWATCH Interviews, Medical Professional, Kolwezi, April 2023..
- 144 Karlien Cheyens and others, 'Pathways of human exposure to cobalt in Katanga, a mining area of the D.R. Congo' (2014) 490 *Science of the Total Environment* 313; Rajamanickam Baskar and others, 'Cancer and radiation therapy: current advances and future directions' (2012) 9 *Int J Med Sci* 193; Manju Mahurpawar, 'Effects of Heavy Metals on Human Health' (2015) *International Journal of Research - GRANTHAALAYAH* 1.
- 145 E L Ruokonen and others, 'A fatal case of hard-metal disease' (1996) 22 *Scand J Work Environ Health* 62; Laura Leyssens and others, 'Cobalt toxicity in humans. A review of the potential sources and systemic health effects' (2017) 387 *Toxicology Volume* 43.
- 146 R. Lauwerys and D. Lison, 'Health risks associated with cobalt exposure -- an overview' (1994) 150 *The Science of the Total Environment* 1.
- 147 Shahjadi Hisan Farjana, Nazmul Huda, M.A. Parvez Mahmu, 'Life cycle assessment of cobalt extraction process' (2019) 18 *Journal of Sustainable Mining* 150.
- 148 Commission Delegated Regulation (EU) 2020/217 of 4 October 2019 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures and correcting that Regulation.
- 149 See, e.g., Rajamanickam Baskar and others, 'Cancer and radiation therapy: current advances and future directions' (2012) 9 *Int J Med Sci* 193; Mina Suh and others, 'Inhalation cancer risk assessment of cobalt metal' (2016) 79 *Regulatory Toxicology and Pharmacology* 79 74e82; J Moulin and others, 'Lung Cancer Risk in Hard-Metal Workers' (1998) 148 *American Journal of Epidemiology* 241; Ana Lee-Feldstein, 'Cumulative Exposure to Arsenic and Its Relationships to Respiratory Cancer Among Copper Smelter Employees' (1986) 28 *Journal of Occupational Medicine* 296.
- 150 OHCR, UNEP and UNDP, 'What is the Right to a Healthy Environment? Information Note' (25 January 2023) 5.
- 151 Bolormaa Purevjav, Adiya Baratova Tudiyarova and Elena Gordillo Fuertes, 'Gender-blind policies ignore the disproportionate effects of water crisis on women' (The Conversation 12 April 2023).
- 152 UNEP, 'Water Issues in the Democratic Republic of the Congo: Challenges and Opportunities' (UNEP, Nairobi 2011) 36. Although men are increasingly involved in water collection as water commercialisation has increased. For instance, they are often found transporting and delivering water, or as standpost agents.
- 153 'Access to water in developing countries' (Government of Canada. Updated January 2024); Kelly K. Baker and others, 'From menarche to menopause: A population-based assessment of water, sanitation, and hygiene risk factors for reproductive tract infection symptoms over life stages in rural girls and women in India' (2017) 12(12) *PLoS One* e0188234; Georgia L Kayser, and others, 'Water, sanitation and hygiene: measuring gender equality and empowerment' (2019) 97(6) *Bull World Health Organ.* 438.
- 154 RAID and AFREWATCH Interviews, Tshabula, 15 April 2023.
- 155 RAID and AFREWATCH Interviews, Rianda, 4 April 2023.
- 156 RAID and AFREWATCH Interviews, Yenge, 6 April 2023.
- 157 RAID and AFREWATCH Interviews, Shongo, 19 April 2023.
-

-
- 158 RAID and AFREWATCH Interviews, Noa, 11 April 2023.
- 159 RAID and AFREWATCH Interviews, Rianda, 4 April 2023.
- 160 RAID and AFREWATCH Interviews, Golf Musonoie, 13 April 2023.
- 161 RAID and AFREWATCH Interviews, Medical Professional, Kolwezi, April 2023.
- 162 Ibid.
- 163¹⁶²Ibid.
- 164 See Bora Cengiz and others, 'Serum Zinc, Selenium, Copper, and Lead Levels in Women with Second-Trimester Induced Abortion Resulting from Neural Tube Defects A Preliminary Study' (2004) 97 *Biological Trace Element Research* 225; H Ziaee and others, 'Transplacental transfer of cobalt and chromium in patients with metal-on-metal hip arthroplasty. A Controlled Study' (2007) 89 *J Bone Joint Surg* 301; Hui Hu and others, 'Correlation between Congenital Heart Defects and Maternal Copper and Zinc Concentration' (2014) 100(12) *Birth Defects Res* 965; Lailai Yan and others, 'Association of Essential Trace Metals in Maternal Hair with the Risk of Neural Tube Defects in Offspring' (2017) 109(3) *Birth Defects Res* 234; Nannan Zhang and others, 'Association between metal cobalt exposure and the risk of congenital heart defect occurrence in offspring: a multi-hospital case-control study' (2020) 25(38) *Environmental Health and Preventive Medicine* 1.
- 165 Tony Kayembe-Kitenge and others, 'Incidence of congenital malformations and proximity to mining in Lubumbashi, DR Congo' (2019) 3 *Environmental Epidemiology* 194.
- 166 Daan Van Brusselen and others, 'Metal Mining and Birth Defects: A Case-Control Study in Lubumbashi, Democratic Republic of the Congo' (2020) 4 *The Lancet Planetary Health* e158.
- 167 Ibid.
- 168 Tony Kayembe-Kitenge and others, 'Transplacental transfer of cobalt: Evidence from a study of mothers and their neonates in the African Copperbelt Author links open overlay panel' (2022) 80 *Journal of Trace Elements in Medicine and Biology Volume*127294.
- 169 RAID and AFREWATCH Interviews, Yenge, 6 April 2023.
- 170 RAID and AFREWATCH Interviews, Musonoie, 13 April 2023.
- 171 RAID and AFREWATCH Interviews, Kashala, 15 April 2023; RAID and AFREWATCH Interviews, Salabwe, 19 April 2023
- 172 Glencore's Correspondence to RAID and AFREWATCH (10 November 2023). p. 5.
- 173 CMOC's Correspondence to RAID and AFREWATCH (24 November 2023) pp. 12-13.
- 174 COMMUS' Correspondence to RAID and AFREWATCH (1 March 2024).
- 175 'Meeting with ERG' (ERG's Correspondence to RAID and AFREWATCH 20 November 2023) p. 16.
- 176 RAID Meeting with ERG Staff, Amsterdam, 14 May 2019.
- 177 Video footage of January 2019 TSF rupture at Metalkol plant in DRC. On file at RAID.
- 178 ERG correspondence to RAID and AFREWATCH, 20 November 2023, pp 20-21.
- 179 Ibid, p. 21.
- 180 RAID interviews with Metalkol Whistleblower A, Kolwezi (October – December 2020); phone interviews with Whistleblower B (2 December 2020 and 18 January 2024); and written correspondence with whistleblower B (various) between November 2020 and February 2024.
- 181 Ibid, Whistleblower B.
- 182 ERG correspondence to RAID and AFREWATCH, 20 November 2023, pp 20-21.
- 183 ERG correspondence to RAID and AFREWATCH, 20 March 2024, p. 3.
- 184 Ibid. Appendix, Laboratory Results for Monitoring Points around Musonoi River.
- 185 Ibid. ERG letter to RAID and AFREWATCH, 20 March 2024, p. 4.
- 186 ERG correspondence to RAID and AFREWATCH, 28 February 2024, pp 2-3.
- 187 OHCHR, UNEP and UNDP, 'What is the Right to a Healthy Environment? Information Note' (25 January 2023) 5.
- 188 Committee on the Rights of the Child, 'General Comment No 26 (2023) on children's rights and the environment, with a special focus on climate change' (22 August 2023) 93rd sess UN Doc CRC/C/GC/26, para 1.
- 189 Ibid, para 63.
- 190 Ibid.
- 191 Ibid. para 78.
- 192 Ibid.
- 193 RAID and AFREWATCH Interviews, Rianda, 4 April 2023.
- 194 RAID and AFREWATCH Interviews, Mibanze, 4 April 2023.
-

- 195 Glencore's Correspondence to RAID and Afrewatch, 10 November 2023, p. 7.
- 196 AFREWATCH, 'GLENCCORE DONNE PRIORITE A LA PRODUCTION DU CUIVRE QU'A PROTEGER LES VIES HUMAINES : Rapport d'enquête sur les impacts des déversements d'acide sulfurique de l'entreprise minière KCC dans l'environnement de la province du Lualaba' (December 2021); 'Glencore's KCC mine in Congo had acid spill on March 16' (Reuters, 6 April 2021).
- 197 RAID and AFREWATCH Interviews, Tshamundenda, 12 April 2023.
- 198 'Water pollution and environmental risks at Kamoto Copper Company (KCC) and Mutanda Mining (MUMI) Mines in DRC', Correspondence from RAID and AFREWATCH to Glencore (13 October 2023).
- 199 Glencore's Correspondence to RAID and Afrewatch, 10 November 2023, p. 4.
- 200 'Glencore's KCC mine in Congo had acid spill on March 16' (Reuters, 6 April 2021).
- 201 A Muimba-Kankolongo and others, 'Impacts of Trace Metals Pollution of Water, Food Crops, and Ambient Air on Population Health in Zambia and the DR Congo' (2022) 2022 Journal of Environmental and Public Health e4515115. See also Célestin Lubaba Nkulu Banza and others, 'High human exposure to cobalt and other metals in Katanga, a mining area of the Democratic Republic of Congo' (2009) 109 Environmental Research 745; Elisha Ncube, Clement Banda and Jhonnah Mundike, 'Air Pollution on the Copperbelt Province of Zambia: Effects of Sulphur Dioxide on Vegetation and Humans' (2012) 3 Journal of Natural & Environmental Sciences 34; Karlien Cheyns and others, 'Pathways of Human Exposure to Cobalt in Katanga, a Mining Area of the D.R. Congo' (2014) 490 Science of The Total Environment 313.
- 202 See also, Joint FAO/WHO Food Standards Programme, Codex Committee on Food Additives and Contaminants, 'Report on the 32nd Session of the Joint FAO/WHO Food Standard Programme, Codex Alimentarius Commission' (Beijing, People's Republic of China . Geneva, Switzerland: WHO; 2001); WHO Europe, 'Effects of Air Pollution on Children's Health and Development. A Review of the Evidence' (2005).
- 203 A Muimba-Kankolongo and others, 'Impacts of Trace Metals Pollution of Water, Food Crops, and Ambient Air on Population Health in Zambia and the DR Congo' (2022) 2022 Journal of Environmental and Public Health e4515115; WHO Europe, 'Effects of Air Pollution on Children's Health and Development. A Review of the Evidence' (2005).
- 204 RAID and AFREWATCH Interviews, Mwelanpande, 20 April 2023.
- 205 RAID and AFREWATCH Interviews, Mibanze, 4 April 2023.
- 206 RAID and AFREWATCH Interviews, Sapatelo, 11 April 2023.
- 207 RAID and AFREWATCH Interviews, Mibanze, 4 April 2023.
- 208 RAID and AFREWATCH Interviews, Kipepa, 15 April 2023.
- 209 Association pour le Développement des Communautés du Lac Kando and AFREWATCH, "'Mutanda Mining should assume responsibility for polluting the Luakusha River and the Kando Lake and for destroying population's farms'", 2017, Joint Press Release N°00 1 /AFREWATCH/2017, p. 1.
- 210 Ibid.
- 211 ibid.
- 212 RAID and AFREWATCH Interviews, Mibanze, 4 April 2023.
- 213 RAID and AFREWATCH Interviews, Dianzama, 15 April 2023.
- 214 Glencore's Correspondence to RAID and Afrewatch, 10 November 2023, p. 4.
- 215 'Women and girls bear brunt of water and sanitation crisis – new UNICEF-WHO report' (WHO, 6 July 2023).
- 216 RAID and AFREWATCH Interviews, Kahindu, 4 April 2023.
- 217 RAID and AFREWATCH Interviews, Musonoie, 13 April 2023.
- 218 RAID and AFREWATCH Interviews, Rianda, 4 April 2023.
- 219 RAID and AFREWATCH Interviews, Medical Professional, Kolwezi, April 2023.
- 220 Manju Mahurpawar, 'Effects of Heavy Metals on Human Health' (2015) International Journal of Research - GRANTHAALAYAH 1.
- 221 S. Squadrone and others, 'Human exposure to metals due to consumption of fish from an artificial lake basin close to an active mining area in Katanga (D.R. Congo)' (2016) 568 Science of the Total Environment 679.
- 222 RAID and AFREWATCH Interviews, Medical Professional, Kolwezi, April 2023.
- 223 RAID and AFREWATCH Interviews, Kapaso, 4 April 2023.
- 224 RAID and AFREWATCH Interviews, Rianda, 4 April 2023.
- 225 RAID and AFREWATCH Interviews, Sapatelo, 11 April 2023.
- 226 RAID and AFREWATCH Interviews, Kamimbi, 8 April 2023.
- 227 Linda C Theron and others, 'A Systematic Review of the Mental Health Risks and Resilience among Pollution-Exposed Adolescents' (2022) 146 Journal of Psychiatric Research 55. See also George B Cunningham, Pamela Wicker and Brian P McCullough, 'Pollution, Health, and the Moderating Role of Physical Activity Opportunities' (2020) 17 International Journal of Environmental Research and Public Health 6272; Johanna

-
- Brinkel, Mobarak H Khan and Alexander Kraemer, 'A Systematic Review of Arsenic Exposure and Its Social and Mental Health Effects with Special Reference to Bangladesh' (2009) 6 International Journal of Environmental Research and Public Health 1609; Pierrich Plusquellec and Dave Lanoix, 'Adverse Effects of Pollution on Mental Health: The Stress Hypothesis' (2013) 1 OA evidence based medicine; Shyamal Chowdhury, Annabelle Krause and Klaus Zimmermann, 'Arsenic Contamination of Drinking Water and Mental Health' [2016] SSRN Electronic Journal; Kristina Marusic, 'How contaminated water contributes to mental illness' (Environmental Health News 19 November 2021).
- 228 RAID and AFREWATCH Interviews, Mibanze, 4 April 2023.
- 229 RAID and AFREWATCH Interviews, Tshabula, 14 April 2023.
- 230 RAID and AFREWATCH Interviews, Tshabula, 14 April 2023.
- 231 RAID and AFREWATCH Interviews, Kasombo UCK, 8 April 2023.
- 232 RAID and AFREWATCH Interviews, Kahindu, 4 April 2023.
- 233 RAID and AFREWATCH Interviews, Shongo, 19 April 2023
- 234 RAID and AFREWATCH Interviews, Salabwe, 19 April 2023.
- 235 CMOC's Correspondence to RAID and AFREWATCH, 7 February 2024, p. 7.
- 236 RAID and AFREWATCH Interviews, Kahindu, 4 April 2023.
- 237 Cobalt Institute, 'Cobalt Market Report 2022' (May 2023), 23.
- 238 See, e.g., Lassana Kone, 'Democratic Republic of the Congo: A rights-based analysis of mining legislation' (Forest Peoples Programme, June 2023); AFREWATCH, 'GLENCORE DONNE PRIORITE A LA PRODUCTION DU CUIVRE QU'A PROTEGER LES VIES HUMAINES : Rapport d'enquête sur les impacts des déversements d'acide sulfurique de l'entreprise minière KCC dans l'environnement de la province du Lualaba' (December 2021); AFREWATCH, 'THE SOCIAL AND ENVIRONMENTAL ISSUES CAUSED BY SICOMINES MINING IN LUALABA: The unbearable living conditions in YENGE and KAPANGA villages' (February 2022); Zélie Pelletier Hochart, 'La Face Sombre de la Transition Énergétique : Cobalt et Impact Ecologique' (IntelCongo 25 February 2022).
- 239 IPCC, Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC, Geneva, Switzerland 2023) pp. 46, 50.
- 240 'Supporting drinking water access, a key to progress in Democratic Republic of Congo (DRC)' (The World Bank, 15 November 2023).
- 241 Jonathan Gamu, Philippe Le Billon and Samuel Spiegel, 'Extractive Industries and Poverty: A Review of Recent Findings and Linkage Mechanisms' (2015) 2 The Extractive Industries and Society 162.
- 242 RAID and AFREWATCH Interviews, Kashala, 15 April 2023
- 243 Glencore, 'Glencore response to Key Findings and Questions, presented by Bread for All, the Swiss Catholic Lenten Fund and RAID' (17 June 2014); 'Who we are. Mutanda Mining' (Glencore DRC); Glencore, 'First Quarter 2011 Interim Management Statement' (Baar, 14 June 2014).
- 244 Bread for all and Swiss Catholic Lenten Fund, 'Glencore in the Democratic Republic of Congo: profit before human rights and the environment' (April 2012), pp. 23-24.
- 245 Ibid.
- 246 Ibid. pp. 25-26.
- 247 Chantal Peyer, Patricia Feeney, François Mercier, 'PR or Progress? Glencore's Corporate Responsibility in the Democratic Republic of the Congo' (Bread for All, RAID and Fastenopfer, June 2014).
- 248 Ibid.
- 249 Pain pour le prochain ("Brot für Alle") and Action de Carême ("Fastenopfer") , 'Glencore en RD Congo : une diligence raisonnable incomplète' (November 2018), p. 4.
- 250 Glencore, 'Water Report 2018', p. 20.
- 251 Pain pour le prochain ("Brot für Alle") and Action de Carême ("Fastenopfer") , 'Glencore en RD Congo : une diligence raisonnable incomplète' (November 2018), p. 4.
- 252 AFREWATCH, 'GLENCORE DONNE PRIORITE A LA PRODUCTION DU CUIVRE QU'A PROTEGER LES VIES HUMAINES : Rapport d'enquête sur les impacts des déversements d'acide sulfurique de l'entreprise minière KCC dans l'environnement de la province du Lualaba' (December 2021), pp. 10-11.
- 253 AFREWATCH, 'GLENCORE DONNE PRIORITE A LA PRODUCTION DU CUIVRE QU'A PROTEGER LES VIES HUMAINES : Rapport d'enquête sur les impacts des déversements d'acide sulfurique de l'entreprise minière KCC dans l'environnement de la province du Lualaba' (December 2021).
- 254 Ibid.
- 255 'Environmental and social performance management at Glencore operations in DRC' (Glencore's Correspondence to RAID and Afrewatch, Baar, 10 November 2023) [Glencore Correspondence to RAID and Afrewatch, 10 November 2023].
- 256 CAJJ, 'Pollution, dégradation environnementale du site Moloka, dommages aux tiers, quelle responsabilité
-

- pour l'entreprise MUMI ?' (May 2017), p. 9.
- 257 Pain pour le prochain ("Brot für Alle") and Action de Carême ("Fastenopfer"), 'Glencore en RD Congo : une diligence raisonnable incomplète' (November 2018), p. 3.
- 258 CAJJ, 'Pollution, dégradation environnementale du site Moloka, dommages aux tiers, quelle responsabilité pour l'entreprise MUMI ?' (May 2017), pp.15-16 & 26-31.
- 259 AFREWATCH, 'RESUME DE MISSION D'ENQUETE EFFECTUEE PAR AFREWATCH SUR LE DOSSIER D POLLUTION PAR MUMI AU LUALABA (MISE A JOUR)' (26 -30 April 2017) (Document on file) ; Pain pour le prochain ("Brot für Alle") and Action de Carême ("Fastenopfer") , 'Glencore en RD Congo : une diligence raisonnable incomplète' (November 2018), p. 4.
- 260 AFREWATCH, 'RESUME DE MISSION D'ENQUETE EFFECTUEE PAR AFREWATCH SUR LE DOSSIER D POLLUTION PAR MUMI AU LUALABA (MISE A JOUR)' (26 -30 April 2017) (Document on file); Association pour le Développement des Communautés du Lac Kando and AFREWATCH, "'Mutanda Mining should assume responsibility for polluting the Luakusha River and the Kando Lake and for destroying population's farms'", 2017, Joint Press Release N°00 1 /AFREWATCH/2017, p. 1.
- 261 Glencore's Correspondence to RAID and Afrewatch, 10 November 2023.
- 262 RAID and AFREWATCH Interviews, Mibanze, 4 April 2023.
- 263 Manda and others, 'Evaluation de la contamination de la chaîne trophique par les éléments traces (Cu, Co, Zn, Pb, Cd, U, V et As) dans le bassin de la Lufira supérieure (Katanga/RD Congo)' (2010) 28 TROPICULTURA 246; Célestin Lubaba Nkulu Banza, 'Evaluation des risques environnementaux et sanitaires associés à la pollution des cours d'eau et mise en œuvre des mécanismes de protection des écosystèmes aquatiques dans la Province du Lualaba en République Démocratique du Congo. Preliminary results', (RAID and AFREWATCH, March 2024).
- 264 'Mutanda Mine, Democratic Republic of Congo' (EJAtlas - Global Atlas of Environmental Justice). Glencore gained operational control of MUMI in 2011 and full ownership in 2017. See, Glencore, '2010 Annual Results Update' (March 2011); 'Glencore purchases stakes in Mutanda and Katanga' (Glencore, 13 February 2017).
- 265 RAID and AFREWATCH Interviews, Rianda, 4 April 2023.
- 266 RAID and AFREWATCH Interviews, Tshamundena, 12 April 2023.
- 267 RAID and AFREWATCH Interviews, Kapaso, 5 April 2023.
- 268 RAID and AFREWATCH Interviews, Rianda, 4 April 2023.
- 269 RAID and AFREWATCH Interviews, Kasanga, 19 April 2023.
- 270 RAID and AFREWATCH Interviews, Kasombo UCK, 8 April 2023.
- 271 RAID and AFREWATCH Interviews, Noa, 11 April 2023.
- 272 'Meeting with ERG' (ERG's Correspondence to RAID and AFREWATCH 20 November 2023) p. 5.
- 273 ERG's Correspondence to RAID and AFREWATCH 20 November 2023) p. 5.
- 274 See, e.g., Emmanuel K Atibu and others, 'Assessment of Trace Metal and Rare Earth Elements Contamination in Rivers around Abandoned and Active Mine Areas. The Case of Lubumbashi River and Tshamilemba Canal, Katanga, Democratic Republic of the Congo' (2016) 76 Geochemistry 353; Arsene Mushagalusa Balasha and Iva Peša, "'They Polluted Our Cropfields and Our Rivers, They Killed Us": Farmers' Complaints about Mining Pollution in the Katangese Copperbelt' (2023) 9 Heliyon e14995.
- 275 See, e.g., Carter Centre 2012; Fleur Scheele, Esther de Haan, Vincent Kiezebrink, 'Cobalt Blues. Environmental pollution and human rights violations in Katanga's copper and cobalt mines' (SOMO April 2016); A Muimba-Kankolongo and others, 'Impacts of Trace Metals Pollution of Water, Food Crops, and Ambient Air on Population Health in Zambia and the DR Congo' (2022) 2022 Journal of Environmental and Public Health e4515115; B Katemo Manda and others, 'Evaluation de la contamination de la chaîne trophique par les éléments traces (Cu, Co, Zn, Pb, Cd, U, V et As) dans le bassin de la Lufira supérieure (Katanga/RD Congo)' (2010) 28 TROPICULTURA 246; Céline Banza and others, 'Sources of exposure to cobalt and other metals in populations from Likasi and Lake Changalele in Katanga, D.R. Congo' in Bohdan Křibek (ed.), Mining and the Environment In Africa (Czech Geological Survey, 2011) 7.
- 276 Arsene Mushagalusa Balasha and Iva Peša, "'They Polluted Our Cropfields and Our Rivers, They Killed Us": Farmers' Complaints about Mining Pollution in the Katangese Copperbelt' (2023) 9 Heliyon e14995. See also, A Muimba-Kankolongo and others, 'Impacts of Trace Metals Pollution of Water, Food Crops, and Ambient Air on Population Health in Zambia and the DR Congo' (2022) 2022 Journal of Environmental and Public Health e4515115; Félicien Mununga Katebe and others, 'Assessment of Heavy Metal Pollution of Agricultural Soil, Irrigation Water, and Vegetables in and Nearby the Cupriferous City of Lubumbashi, (Democratic Republic of the Congo)' (2023) 13 Agronomy 357; B Katemo Manda and others, 'Evaluation de la contamination de la chaîne trophique par les éléments traces (Cu, Co, Zn, Pb, Cd, U, V et As) dans le bassin de la Lufira supérieure (Katanga/RD Congo)' (2010) 28 TROPICULTURA 246.
- 277 Muyaya Kalambay Bruno and others, 'Réseau d'Aires Protégées De La République Démocratique du Congo : État des Lieux et Perspectives' (2022) 14(3) Am. J. innov. res. appl. sci. 132.

-
- 278 'Democratic Republic of Congo' (Protected Planet).
- 279 Lassana Kone, 'Democratic Republic of the Congo: A rights-based analysis of mining legislation' (Forest Peoples Programme, June 2023), p. 4.
- 280 RAID and AFREWATCH Interviews, Mibanze, 4 April 2023.
- 281 RAID and AFREWATCH Interviews, Kasombo UCK, 8 April 2023.
- 282 RAID and AFREWATCH Interviews, Mwelanpande, 20 April 2023
- 283 DRC Mining Code, Art. 285 bis – ter ; DRC Environmental Protection Law, Art 68.
- 284 RAID and AFREWATCH Interviews, Tshabula, 14 April 2023.
- 285 RAID and AFREWATCH Interviews, Kanimbu, 15 April 2023.
- 286 RAID and AFREWATCH Interviews, Kasanga, 19 April 2023.
- 287 'Reserve de la Basse Kando'.
- 288 Bread for all and Swiss Catholic Lenten Fund, 'Glencore in the Democratic Republic of Congo: profit before human rights and the environment' (April 2012),pp. 29-30.
- 289 Earth Netherlands/Milieu defensie, SOMO and the GoodElectronics Network, 'Congolese Cobalt and Consumer Electronics. Katanga Calling' (May 2015).
- 290 Jonas Kiriko, "New energy' rush is stripping DRC's nature reserves' (InfoNile, 12 February 2024).
- 291 Bread for all and Swiss Catholic Lenten Fund, 'Glencore in the Democratic Republic of Congo: profit before human rights and the environment' (April 2012),p. 30.
- 292 Jonas Kiriko, "New energy' rush is stripping DRC's nature reserves' (InfoNile, 12 February 2024).
- 293 Knight Piésold Consulting RDC SARL, 'Environmental and Social Impact Assessment for the Mutanda Mine' (MUMI, 2021) [MUMI ESIA 2021].
- 294 'Institut Congolais pour la Conservation de la Nature (ICCN)' (Ministère de l'Environnement et du Développement Durable).
- 295 Glencore, 'Glencore response to Key Findings and Questions, presented by Bread for All, the Swiss Catholic Lenten Fund and RAID' (17 June 2014).
- 296 KCC ESIA 2018, p. 8-20.
- 297 MUMI ESIA 2021, p. 143.
- 298 'Sustainability. Water' (Glencore).
- 299 Glencore, 'Water withdrawal, discharge, use and consumption by country and river basin 2022'
- 300 TFM ESIA 2019, p. 149.
- 301 Metalkol ESIA 2019, p. 21.
- 302 RAID and AFREWATCH Interviews, Kanimbu, 15 April 2023.
- 303 RAID and AFREWATCH Interviews, Shongo, 19 April 2023.
- 304 CMOOC's Correspondence to RAID and AFREWATCH (19 February 2024) p.5.
- 305 Economic and Social Council, 'General Comment No. 15 (2002). The right to water (arts. 11 and 12 of the International Covenant on Economic, Social and Cultural Rights)' (20 January 2003) 29th sess UN Doc E/C.12/2002/11, para 2.
- 306 *ibid.* para 12; 'The Human Right to Water and Sanitation Media brief' (The UN). https://www.un.org/waterforlifedecade/pdf/human_right_to_water_and_sanitation_media_brief.pdf
- 307 UNDP, 'Beyond scarcity: Power, poverty and the global water crisis' (UNDP, Human Development Report 2006) p. 34.
- 308 African Development Bank, 'Rural Water Supply and Sanitation Initiative - Framework for Implementation: "A Regional Response to Africa's Rural Drinking Water and Sanitation Crises"' (1 January 2000) p. 14.
- 309 Ministère de l'Energie et des Ressources Hydrauliques, 'Politique Nationale de Service Public de l'Eau (PNSPE)' (June 2016), p. 8. This Policy Document implements the Loi n° 15/026 du 31 décembre 2015 relative à l'eau (DRC Law on Water), Art 71.
- 310 RAID and AFREWATCH Interviews, Musonoie, 13 April 2023.
- 311 RAID and AFREWATCH Interviews, Sapatelo, 11 April 2023.
- 312 RAID and AFREWATCH Interviews, Sapatelo, 11 April 2023.
- 313 RAID and AFREWATCH Interviews, Luilu Centre, 11 April 2023.
- 314 Golder Associates Africa (Pty) Ltd, 'Metalkol Roan Tailings Reclamation Project: Environmental Impact Study. Executive Summary' (Metalkol, 2019) 16 [Metalkol ESIA 2019].
- 315 RAID and AFREWATCH Interviews, Tshala, 8 April 2023.
- 316 RAID and AFREWATCH Interviews, Salabwe, 19 April 2023.
- 317 See, e.g., Ministère de la Santé, Ministère de l'Enseignement Primaire, Secondaire et Professionnel (MEPSP)
-

- and Programme National École et Village Assainis (PNEVA), 'Accès à l'Eau Potable, à l'Hygiène et à l'Assainissement pour les Communautés Rurales et Périurbaines de la République Démocratique Du Congo' (UNICEF 2018).
- 318 RAID and AFREWATCH Interviews, Samukinda, 9 April 2023
- 319 RAID and AFREWATCH Interviews, Golf Musonoie, 13 April 2023.
- 320 'Environmental and social performance management at Glencore operations in DRC' (Glencore's Correspondence to RAID and Afrewatch, Baar, 10 November 2023) p. 3. [Glencore's Correspondence to RAID and Afrewatch, 10 November 2023]
- 321 'Environmental and social performance management at Glencore operations in DRC' (Glencore's Correspondence to RAID and Afrewatch, Baar, 10 November 2023) p. 3. [Glencore's Correspondence to RAID and Afrewatch, 10 November 2023].
- 322 See Raid and AFREWATCH Correspondence to Glencore, 12 January 2024 and Glencore Correspondence to RAID and AFREWATCH, 30 January 2024
- 323 'Meeting with ERG' (ERG Correspondence to RAID and AFREWATCH 20 November 2023) p. 3.
- 324 Ibid. p. 14.
- 325 Ibid. p. 6.
- 326 CMOC's Correspondence to RAID and AFREWATCH (24 November 2023) Reply to Q/ 6(d).
- 327 SRK Consulting and Okapi Environment & Génie Civil, 'Rapport d'Impact Environnemental et Social. Volume 2' (TFM, July 2019) pp.135 & 241 [TFM ESIA 2019], p. 135. Standards used were the WHO Guidelines for drinking-water quality and the . See, *ibid.*, pp. 361-362.
- 328 TFM's 2019 ESIA, p. 135.
- 329 COMMUS Correspondence to RAID and AFREWATCH (1 March 2024).
- 330 COMMUS Correspondence to RAID and AFREWATCH (1 March 2024).
- 331 HRC Res 48/13 (8 October 2021) UN Doc A/HRC/RES/48/13; UNGA Res 76/300 (1 August 2022) UN Doc A/RES/76/300.
- 332 Economic and Social Council, 'General Comment No. 15 (2002). The right to water (arts. 11 and 12 of the International Covenant on Economic, Social and Cultural Rights)' (20 January 2003) 29th sess UN Doc E/C.12/2002/11.
- 333 OHCHR, 'The Corporate Responsibility to Respect Human Rights. An Interpretative Guide' (2012), p. 15, Q6.
- 334 Pursuant to section 285g of the Mining Code. The cahier des charges' purpose is to guide and organise the implementation of the mining rights holders' obligations to create socioeconomic infrastructures and social services to benefit the local communities affected by their mining activities. The holder of mining rights is obliged, from the date of issue of his mining title and at the latest six months before the start of operation, to draw up and submit the specifications defining the social responsibility to the local communities affected by the mining activities and to obtain the Provincial Government's approval after receiving advice from the technical services.
- 335 'Environmental and social performance management at Glencore operations in DRC' (Glencore's Correspondence to RAID and Afrewatch, Baar, 10 November 2023) p, 7. [Glencore Correspondence to RAID and Afrewatch, 10 November 2023].
- 336 CMOC Correspondence to RAID and AFREWATCH (24 November 2023) Reply to Q/ 6(c).
- 337 'Meeting with ERG' (ERG Correspondence to RAID and AFREWATCH 20 November 2023) p. 14.
- 338 'Lualaba : à Kapepa, des maisons, écoles et une avenue englouties après débordement des eaux de rétention de l'entreprise Commus' (Actualité.cd, 30 December 2023); Lualaba : Débordement Des Eaux de COMMUS, Le Village KAPEPA En Pleure. (Directed by WANGU INFOS, YouTube, 2024).
- 339 'RDC: Les activités minières de TFM, filiale de la China Molybdenum, auraient des impacts environnementaux et sanitaires, selon un rapport; l'entreprise rejette les accusations' (Business & Human Rights Resource Centre, 6 March 2022).
- 340 AFREWATCH, 'Exploitation Dangereuse de la Chaux par : enquêtes sur l'impact de l'usine à chaux de Tenke Fungurume Mining sur la vie de la communauté locale du village Kabombwa' (November 2022).
- 341 Commission des Experts, 'Rapport de Synthèse. Impacts de l'Usine à Chaux de TFM sur les Communautés Locales' (Centre de Recherches Agro-Alimentaires, Office Congolais de Contrôle, Laboratoire Environnement and Université de Lubumbashi, November 2021).
- 342 'Dossier Kabombwa : TFM dément la pollution de son usine à chaux et affirme que les analyses de 4 labos montrent qu'il n'y a aucun lien entre la gale et la présence de son usine (communiqué)' (7SUR7.CD, 25 February 2022).
- 343 RAID and AFREWATCH Interviews, Mibanze, 4 April 2023.
- 344 RAID and AFREWATCH Interviews, Samukind, 9 April 2023.
- 345 RAID and AFREWATCH Interviews, Kamimbi, 8 April 2023.

-
- 346 RAID and AFREWATCH Interviews, Musonoie, 13 April 2023.
- 347 RAID and AFREWATCH Interviews, Kamimbi, 8 April 2023.
- 348 RAID and AFREWATCH Interviews, Kanimbu, 15 April 2023.
- 349 'The World Bank in DRC' (The World Bank, Last Updated 25 September 2023).
- 350 RAID and AFREWATCH Interviews, Tshala, 8 April 2023.
- 351 RAID and AFREWATCH Interviews, Tshabula, 14 April 2023.
- 352 RAID and AFREWATCH Interviews, Kasombo UCK, 8 April 2023.
- 353 RAID and AFREWATCH Interviews, Kamimbi, 8 April 2023.
- 354 RAID and AFREWATCH Interviews, Thsizuzu, 14 April 2023.
- 355 RAID and AFREWATCH Interviews, Kapaso, 5 April 2023.
- 356 RAID and AFREWATCH Interviews, Noa, 11 April 2023.
- 357 Lassana Kone, 'Democratic Republic of the Congo: A rights-based analysis of mining legislation' (Forest Peoples Programme, June 2023), p. 11.
- 358 RAID and AFREWATCH Interviews, Kasanga, 19 April 2023.
- 359 RAID and AFREWATCH Interviews, Salabwe, 19 April 2023.
- 360 'The World Bank in DRC' (The World Bank), Last Updated 25 September 2023).
- 361 'Democratic Republic of Congo Economic Outlook' (African Development Bank Group).
- 362 ARRETE INTERMINISTERIEL N°0914/CAB.MIN/MINES/01/2018, N°••/ CAB.MIN/EDD/AAN/2018 ET N°••/ CAB. MIN/AFF.SOC/2018 DU 17/11/2018 FIXANT LES MODALITES DE COLLABORATION ENTRE L'AGENCE CONGOLAISE DE L'ENVIRONNEMENT, LA DIRECTION CHARGEE DE PROTECTION DE L'ENVIRONNEMENT MINIER ET LE FONDS NATIONAL DE PROMOTION ET DE SERVICE SOCIAL.
- 363 DRC Mining Code, Article 288.
- 364 RAID and AFREWATCH Interviews, DRC Government officials, Kolwezi, 17 April 2023.
- 365 Ibid; RAID and AFREWATCH Interviews, DRC Government officials, Kolwezi, 7 April 2023.
- 366 DRC Mining Regulations, Art 503.
- 367 RAID and AFREWATCH Interviews, DRC Government officials, Kolwezi, 17 April 2023.
- 368 DRC Mining Regulations, Art 505.
- 369 DRC Mining Code, Art 286 et seq., Décret n° 14/019 du 02 août 2014 fixant les règles de fonctionnement des mécanismes procéduraux de la protection de l'environnement.
- 370 Arrêté Interministériel 0083/CAB.MIN/MINES/01/2019, N°003/CAB/MIN.EDD/AAN/2019 et N°045/CAB. MIN/AFF.SOC/2019 du 22 février 2019 des Ministres ayant respectivement les Mines, l'Environnement et les Affaires Sociales dans leurs attributions.
- 371 RAID and AFREWATCH Interviews, DRC Government officials, Kolwezi, 7 April 2023.
- 372 RAID and AFREWATCH Interviews, DRC Government officials, Kolwezi, 17 April 2023.
- 373 RAID, Interview with Arthur Kaniki, Online, 19 February 2024
- 374 Ibid.
- 375 DRC Mining Code, Art 204; DRC Mining Regulations, Art 450.
- 376 KPMG, 'Rapport d'évaluation du niveau d'exécution par les entreprises extractives de leurs obligations sociales et environnementales dans trois provinces pilotes de la RDC' (ITIE – RDC, March 2023), p. 14.
- 377 DRC Mining Code, Art 42; DRC Mining Regulations, Art 25 octies.
- 378 Photo Nhumba and others, 'Rapport de mission relatif au contrôle de la légalité des allocations et cessions des concessions forestières et des droits dus au Trésor public par les exploitants forestiers formels' (Inspection Générale des Finances, May 2020).
- 379 Matthew Miller, 'Designation of Democratic Republic of the Congo (DRC) Public Officials for Significant Corruption' (Press Statement, US Department of State, 16 August 2023).
- 380 See, e.g., Congo Research Group 'All the President's Wealth: The Kabila Family Business' (19 July 2017); UN Security Council, 'Final report of the Panel of Experts on the Illegal Exploitation of Natural Resources and Other Forms of Wealth in DR Congo (S/2003/1027)' (23 October 2003); Africa Progress Panel, 'Equity in Extractives. Stewarding Africa's natural resources for all', Africa Progress Report 2013 (2013); RAID, "Bribery in its purest form": Och-Ziff, asset laundering and the London connection' (January 2017).
- 381 'Glencore Reaches Coordinated Resolutions with US, UK and Brazilian Authorities' (Glencore, Barr, 24 May 2022); 'Glencore Entered Guilty Pleas to Foreign Bribery and Market Manipulation Schemes' (US Department of Justice, Office of Public Affairs, 24 May 2022).
- 382 'United States Sanctions Human Rights Abusers and Corrupt Actors Across the Globe' (U.S. Department of the Treasury, 21 December 2017); and 'Treasury Sanctions Fourteen Entities Affiliated with Corrupt Businessman Dan Gertler Under Global Magnitsky' (U.S. Department of the Treasury, 15 June 2018).
-

- 383 RAID and AFREWATCH Interviews, DRC Government officials, Kolwezi, 17 April 2023.
- 384 Michael J Kavanagh, 'Congo Halts ERG's Copper Mining Project After Waste Leakage' (Bloomberg, 2 June 2023).
- 385 Michael J Kavanagh, 'Congo Government Extends Suspension of ERG's Boss Mining' (Bloomberg, 4 December 2023).
- 386 Michael J Kavanagh, 'Congo Halts ERG's Copper Mining Project After Waste Leakage' (Bloomberg, 2 June 2023).
- 387 Khizar Khalil and others, 'Mines, Lakes, and Global Stakes: The effects of mining on water bodies in the DRC' (2021).
- 388 PWC, Independent Limited Assurance Report on Metalkol Clean Cobalt and Copper Performance Report of ENRC Congo by Covering the Reporting Period 01 May 2022 – 30 April 2023, on file at RAID.
- 389 DRC Mining Regulations, Article 458.
- 390 Reported to RAID and AFREWATCH by affected people. See also 'Lualaba : à Kapepa, des maisons, écoles et une avenue englouties après débordement des eaux de rétention de l'entreprise Commus' (Actualité.cd, 30 December 2023); Lualaba : Débordement Des Eaux de COMMUS, Le Village KAPEPA En Pleure. (Directed by WANGU INFOS, YouTube, 2024).
- 391 'Additional questions re. Glencore environmental and social performance management in DRC' (Glencore's Correspondence to RAID and AFREWATCH, 30 January 2024).
- 392 ERG, 'Clean Cobalt & Copper Framework. ERG's Commitment to Responsible Production' (October 2021).
- 393 'Beyond Social Auditing Numerous reports have found the social audits to be ineffective in capturing human rights abuses. What are the solutions and options for reform?' (Business & Human Rights Resource Centre).
- 394 Human Rights Watch, "'Obsessed With Audit Tools, Missing The Goal" Why Social Audits Can't Fix Labor Rights Abuses in Global Supply Chains' (November 2022).
- 395 'Meeting with ERG' (ERG's Correspondence to RAID and AFREWATCH 20 November 2023) p. 17.
- 396 Ibid, ERG letter to RAID and AFREWATCH, 20 March 2024.
- 397 Ibid.
- 398 Ibid. p. 18.
- 399 For water quality - WHO Drinking Water Guideline and (Chronic) Aquatic Exposure Guideline; for leachate - World Bank EHS Discharge Guidelines for Mining & DRC Effluent standards; for dust, the letter does not state so but the EIS mentioned the US NAAQS.
- 400 CMOC, '2020 Environmental Social and Governance Report' p. 8.
- 401 TFM ESIA 2019, p. 135.
- 402 'Cobalt Supply Chain' (Resources Matters).
- 403 Adeline Diab and Gina Martin Adams, 'ESG assets may hit \$53 trillion by 2025, a third of global AUM' (Bloomberg Intelligence, 23 February 2021).
- 404 'The Database: What Sustainability Means Today' Episode 17 (Nielsen, October 2018).
- 405 '150+ organizations support the Global Battery Alliance' (Global Battery Alliance).
- 406 'About The GBA' (The Global Battery Alliance).
- 407 'The Cobalt Industry Responsible Assessment Framework (CIRAF)' (Cobalt Institute, 9 January 2019).
- 408 Chinese Chamber of Commerce for Metals, Minerals & Chemicals (CCCMC) Importers & Exporters and the OECD 'Responsible Cobalt Initiative (RCI)' 2016 (Respect International).
- 409 'Responsible Minerals Initiative'.
- 410 'Our Principles' (International Council on Mining and Metals).
- 411 Lead the Charge, 'An Assessment of Third-Party Assurance and Accreditation Schemes in the Minerals, Steel and Aluminum Sectors: A tool for automakers and other supply chain stakeholders' (6 February 2024).
- 412 European Parliament and Council (EU) Regulation (EU) 2023/1542 concerning batteries and waste batteries, amending Directive 2008/98/EC and Regulation (EU) 2019/1020 and repealing Directive 2006/66/EC (EU Batteries Regulation) [2023] OJ L191, art 53.
- 413 EU Commission, Proposal for a European Parliament and Council Regulation (EU) on establishing a framework for ensuring a secure and sustainable supply of critical raw materials and amending Regulations (EU) 168/2013, (EU) 2018/858, 2018/1724 and (EU) 2019/1020 [2023/0079 (COD), 16 March 2023].
- 414 Lead the Charge, 'An Assessment of Third-Party Assurance and Accreditation Schemes in the Minerals, Steel and Aluminum Sectors: A tool for automakers and other supply chain stakeholders' (6 February 2024).
- 415 HRC Res 48/13 (8 October 2021) UN Doc A/HRC/RES/48/13; UNGA Res 76/300 (1 August 2022) UN Doc A/RES/76/300.
- 416 UNGA Res 76/300 (1 August 2022) UN Doc A/RES/76/300, p. 3.

-
- 417 For CMOC, 'Our Approach' (CMOC); For Glencore, 'Human Rights' (Glencore); For ERG, 'Respecting Human Rights' (ERG); For Zijin Mining: 'Human Rights' (Zijin Mining).
- 418 UNGPs, Guiding Principle 15.
- 419 'Refined cobalt production worldwide in 2022, by company' (Statista, 14 November 2023).
- 420 'Cobalt Supply Chain' (Resources Matters).
- 421 UNGPs, Guiding Principle 19 and its commentary.
- 422 ECCHR, Brot für die Welt and Misereor, 'Human rights fitness of the auditing and certification industry? A cross-sectoral analysis of current challenges and possible responses' (June 2021).
- 423 UNGPs, Guiding Principle 7 – 18.
- 424 'Human Rights' (Glencore).
- 425 ERG, 'Metalkol RTR Clean Cobalt & Copper Framework. Performance Report 2023', p. 6.
- 426 Triple R Alliance, 'Tenke Fungurume Mining: Human Rights Due Diligence. Summary Report' (TFM, October 2023), pp. 4 & 11.
- 427 'Guidelines for multinational enterprises' (OECD).
- 428 OECD, OECD Guidelines for Multinational Enterprises on Responsible Business Conduct (Paris: OECD Publishing 2023).
- 429 OECD, OECD Guidelines for Multinational Enterprises on Responsible Business Conduct (Paris: OECD Publishing 2023), 33
- 430 Ibid. Commentary 70 on Chapter VI, p.36.
- 431 Ibid. Commentary 80 on Chapter VI, p. 38.
- 432 Ibid. Commentary 20 on Chapter II, p. 18.
- 433 OECD, OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas: Third Edition (OECD Publishing 2016).
- 434 Dodd-Frank Wall Street Reform and Consumer Protection Act 2010 [H.R.4173].
- 435 European Parliament and Council (EU) 2017/821 laying down supply chain due diligence obligations for Union importers of tin, tantalum and tungsten, their ores, and gold originating from conflict-affected and high-risk areas [2017] OJ L130.
- 436 See, e.g. Corporate Due Diligence in the Supply Chain Act, 16 July 2021 (Germany); Loi n° 2017-399 du 27 mars 2017 relative au devoir de vigilance des sociétés mères et des entreprises donneuses d'ordre (JORF n°0074 du 28 mars 2017).
- 437 Loi n° 2017-399 du 27 mars 2017 relative au devoir de vigilance des sociétés mères et des entreprises donneuses d'ordre (JORF n°0074 du 28 mars 2017).
- 438 Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Corporate Sustainability Due Diligence and amending Directive (EU) 2019/1937 (Text with EEA relevance)2022/0051(COD)DRAFT Agreement [CSDD 4CT Post ITM on 22-23.1.2024 (final)]24-01-2024. [CSDDD Draft Agreement]
- 439 'Mandatory human rights due diligence (mHRDD)' (HRC, UN Working Group on Business and Human Rights).
- 440 See, e.g., CSDDD Draft Agreement; and OECD, OECD Guidelines for Multinational Enterprises on Responsible Business Conduct (Paris: OECD Publishing 2023).
- 441 HRC Res 26/9 (14 July 2014) UN Doc A/HRC/RES/26/9.
- 442 UN, OEIGWG Chairmanship Second Revised Draft 06.08.2020, article 6.3a.
- 443 See, e.g. ClientEarth, Surfrider Foundation Europe, and Zero Waste France v. Danone [2023].
- 444 FOCSIV and others v. FCA Italy (Stellantis NV) [2022] OECD National Contact Point, Italy.
- 445 FOCSIV and others v. FCA Italy (Stellantis NV) [2022] OECD National Contact Point, Italy;FOCSIV and others v. FCA Italy (Stellantis NV) [2022] OECD National Contact Point, Italy;Italian CSOs vs. Stellantis NV and Stellantis Italy [2022] OECD National Contact Point, The Netherlands.
- 446 GLAN vs. Anglo American Plc [2021] OECD National Contact Point, The United Kingdom.
- 447 DRC Constitution, Art 54 al 2.
- 448 DRC Mining Code, Art. 285 ter ; DRC Mining Regulations, Art 405 bis.
- 449 DRC Mining Code, Art. 285 quater ; DRC Mining regulations, Art 405 bis.
- 450 Loi N°11/009 du 09 juillet 2011 portant principes fondamentaux relatifs à la protection de l'environnement, Art 68 et 69[DRC Law on Fundamental Principles relating to the Environment].
- 451 DRC Law on Fundamental Principles relating to the Environment, Art 46 & 68- 70.
- 452 Le Parquet de Grandes Instances de Kolwezi avait ouvert un dossier judiciaire sous le RMP : 1981/PRO59/1/SIM ; Le parquet avait transféré le dossier au tribunal de paix où le dossier est toujours ouvert sous RP 9382
- 453 Kalongwe is majority owned (85%) by the Australia-based minerals company Nzuri Copper. The Congolese La Generale Industrielle et Commerciale au Congo (GICC) and the DRC Government hold the remaining 15%
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shareholding. See, 'Kalongwe Copper-Cobalt Project' (NS Energy).
454 Tribunal de Grande Instance de Kolwezi, RMP 22615 /PR /059/1/NAZ.

ANNEXES

Annex 1: Selected scientific studies on the environmental impacts of mining in the DRC's copper-cobalt belt <https://raid-uk.org/wp-content/uploads/2024/03/Annexe-1-Selected-Studies.pdf>

Annex 2: Correspondence between RAID / AFREWATCH and mining companies https://raid-uk.org/wp-content/uploads/2024/03/Annex-2-Letters-and-Emails-with-Mining-Companies_Redacted.pdf

Legal analysis of DRC's environmental and water laws https://raid-uk.org/wp-content/uploads/2024/03/Legal-Study_Rapport-pollution-des-eaux-et-mecanisme-de-reparation.pdf