**Comments from Earthworks for the Call for Inputs- The toxic impacts of some climate change solutions**

**February 6, 2023**

Thank you for the opportunity to provide inputs to be considered in the Special Rapporteur on Toxics and Human Rights’ forthcoming report on the toxic impacts of some climate change solutions. Our submission includes introductory comments, general comments on toxics and metal mining, implications for human rights, and solutions to avoid human rights abuses.

**Introductory Comments**

For over 30 years Earthworks has worked to protect communities and the environment from the adverse impacts of mineral and energy development while promoting sustainable solutions. We fulfill our mission by working with communities and grassroots groups to reform government policies, improve corporate practices, influence investment decisions, and encourage responsible materials sourcing and consumption.

The projected increased demand for the minerals needed in the technology fueling the green transition is moving the world away from responsible mining standards at a time when mining is getting dirtier and riskier. It is also leading to a push for mining in places where it doesn’t belong, like in areas of high biodiversity conservation, where communities have not provided free, prior, and informed consent (FPIC), or in the deep sea where the potential effects of mining are still unknown.

As we accelerate the transition to low-carbon energy sources we need to ensure that people and the environment are not put at risk of destructive mining practices. New mining should be the last resort for supplying minerals, not the first. Mining should occur only with FPIC of Indigenous Peoples and the strongest health, environmental, and human rights protections.

**Toxics and Metal Mining**

Metallic mining is one of the most polluting industries in the world. According to the Toxics Release Inventory in the United States, metals mining is the country’s leading industrial polluter of air, land, and water. The Environmental Protection Agency in the U.S. estimates that 40% of the watersheds in the western United States have been contaminated by hardrock mining. Mining also contributes 10% of energy-related climate change impacts worldwide, according to the UN Environment Programme.

At metal mines, the target ore is often rich in sulfide minerals. When the mining process exposes the sulfides to water and air, together they react to form sulfuric acid which can dissolve other harmful metals and metalloids (like arsenic) from the surrounding rock. This process, called acid mine drainage, can have severe impacts on fish, animals, and plants. Many impacted waterways have a pH of 4 or lower — similar to battery acid. Acid mine drainage also dissolves toxic metals, such as copper, aluminum, cadmium, arsenic, lead, and mercury from the surrounding rock.

Acid mine drainage is especially harmful because it can occur indefinitely — long after mining has ended. A literature [review](https://earthworks.org/assets/uploads/2018/12/55-S.R.-Jenning-et-al.-2008.-Acid-Mine-Drainage-and-Effects-on-Fish-Health-and-Ecology-A-Review.pdf) on acid mine drainage concluded that “no hard rock surface mines exist today that can demonstrate that acid mine drainage can be stopped once it occurs on a large scale.” Metals are particularly problematic because they do not break down in the environment. They settle to the bottom and persist in watersheds, providing a long-term source of contamination to the aquatic insects that live there, and the fish that feed on them.

The lower the ore grade, the more waste mines produce to get the same or less ore. Significant declines in ore grades since the 1970s means that expanding mining for projected demand will create a [historic](https://www.sciencedirect.com/science/article/pii/S0921344922006917?dgcid=author) amount of waste. According to the USGS 86% of the materials that are extracted during the mining process becomes waste. One form of waste, tailings, may contain a variety of highly toxic elements and carcinogens including arsenic, lead, cadmium, and mercury, as well as chemicals like sulfuric acid and cyanide used in blasting and processing.

At tailings facilities, slow releases of contaminants can occur by seepage from the impoundment, windblown tailings, and an overtopping of the dam from increased rainfall or earthquakes. Additionally, [research](https://earthworks.org/assets/uploads/2018/12/44-Bowker-Chambers.-2015.-Risk-Public-Liability-Economics-of-Tailings-Storage-Facility-Failures.pdf) has shown tailings dams are failing with increasing frequency and severity. Tailings dam failures can lead to the sudden release of hundreds of millions of metric tons of mine waste. Catastrophic and slower releases from tailings facilities have long-term adverse effects on groundwater, surface water, soils, vegetation, and communities.

Each year, mining companies dump over 220 million tonnes of tailings, or other hazardous mine waste directly into oceans, rivers, and lakes. This puts communities, fisheries, and ecosystems at risk and has repeatedly proven to devastate the environment. While new projects that would dispose of tailings into rivers and lakes are increasingly uncommon, the practice of ocean tailings dumping remains a threat as companies and governments seek cheap solutions to greenlight mining on terrain that cannot safely support land-based tailings facilities. Ocean and marine habitats are of critical importance in order to mitigate the impacts of climate change and provide sustainable livelihoods and food sources to families and communities around the world. Where mines have achieved FPIC of Indigenous Peoples and secured all environmental permits, tailings facilities should undergo rigorous engineering standards to ensure their safety.

**Impacts on Human Rights**

*The Right to Water and Sanitation*

Metallic mining operations can compromise the Human Right to Water and Sanitation, which entitles everyone to have access to sufficient, safe, acceptable, physically accessible, and affordable water for personal and domestic use. Mining pollution affects both the quantity and quality of water for surrounding communities. Water stress also has strong correlations with both formal and informal conflict throughout communities and states.

**Example of Violations of the Right to Water:**

Since 2021, there have been four reported tailings dam failures at Rio Tinto’s QMM mine in Madagascar. Uranium and lead have been [detected](http://www.andrewleestrust.org/studies_and_reports.html) in waters downstream of the QMM mine, 50 and 40 times respectively above WHO safe drinking water levels. Villagers collect drinking water and fish for food and livelihoods from the lakes around the mine. Following two tailings failures in 2022, hundreds of dead fish appeared downstream from the mine. A fishing ban and months of conflict and protests [ensued](http://www.andrewleestrust.org/blog/?p=2763).

*The Rights of Indigenous Peoples*

Indigenous Peoples are among those most impacted by mining. As countries in the Global North demand more extraction to fuel electric vehicles and low-carbon energy technologies, Indigenous communities stand to bear the brunt of this extraction, including the associated gender-based violence and the waste that is left behind as a result. In [the US](https://www.msci.com/www/blog-posts/mining-energy-transition-metals/02531033947), for example, 79% of lithium reserves are located within 35 miles of Indigenous reservations, increasing up to 89% and 97% for copper and nickel, respectively. Globally, 69% of current or planned [extractive projects](https://www.nature.com/articles/s41893-022-00994-6) for renewable energy minerals are on or near Indigenous and/or Peasant Peoples’ lands. While Indigenous Peoples have inherent and guaranteed territorial rights by virtue of having long-standing, ancestral ties to the land they live on, mining operations often threaten these rights via state-sanctioned land grabs.

**Example of Violations of the Rights of Indigenous People:**

In Nevada, USA, a subsidiary of the Canadian corporation Lithium Americas

Corp., is looking to build an open pit lithium mine, a critical mineral for electric vehicle batteries. The proposed Thacker Pass mine would cover 17,933 acres of land culturally significant to the Fort McDermitt Paiute and Shoshone Tribe. Tribal members assert the mine would “[cause irreversible harm…to ancestral massacre sites, water, air medicines and culturally important wildlife](https://peopleofredmountain.com/about-us/).” The U.S. Bureau of Land Management approved the mine in 2021, without adequately consulting with tribal members.

*Right to a Clean, Healthy, and Sustainable Environmental*

Mining operations can have a wide array of detrimental impacts on the environment including, but not limited to water, air, soil, vegetation, and fauna. It is important to recognize the interconnected relationship between peoples and the natural environment; protecting ecological resources is an extension of human rights and public safety.

**Example of Violations to the Right to a Clean, Healthy, and Sustainable**

**Environment:**

Norilsk Nickel mining operations in the arctic have [routinely impacted](https://www.themoscowtimes.com/2020/06/29/explainer-russias-arctic-environmental-disasters-a70730) the surrounding environment and water sources for the Indigenous small-numbered peoples of the North, Siberia, and the Far East of the Russian Federation, specifically in the Taymyr Peninsula and Murmansk Oblast. For example, in 2020, Norilsk Nickel’s Talnakh enrichment plant dumped mine processing wastewater into a nearby tundra. News reports stated that around 6,000 cubic meters of processing liquids were released, spurring government agencies opening an inquiry into the event. Air and water pollution by the mining operations have also been [documented](https://www.culturalsurvival.org/news/indigenous-activists-demand-tesla-stop-buying-nickel-nornickel-russia). The extensive environmental damage to the territories of Indigenous Peoples in the Arctic led an informal association of experts, activists, leaders and organizations in the area to [call on Tesla](https://indigenous-russia.com/archives/5785) to stop purchasing nickel from Norilsk.

The Ramu cobalt and nickel mine and processing facility in Papua New Guinea pumps 14,000 tonnes of mine waste daily into the Basamuk Bay at just 150 meters below the ocean’s surface. The practice of submarine tailings disposal (STD) smothers the seabed and fragile organisms in an area well beyond the projected disposal area, increases turbidity and results in upwelling, in which cancer-causing processing chemicals and heavy metals are dispersed throughout the water table. Coastal residents, including an estimated 30,000 fisherfolk, living depend on the ocean for bathing, food, and medicine are experiencing increasingly contaminated water, decreasing fish stocks and a rise in related health issues. An [international research team](https://news.mongabay.com/2020/05/locals-stage-latest-fight-against-png-mine-dumping-waste-into-sea/) contracted by the provincial government in 2019 found mass fish deaths, high concentrations of [heavy metals](https://news.pngfacts.com/2019/11/dead-dolphin-and-sea-water-samples-near.html) including arsenic linked to a spill and the ongoing use of STD. Earthworks and allies have [called on the project’s owners](https://earthworks.org/resources/self-proclaimed-leader-in-responsible-battery-metals-fails-to-address-serious-environmental-harms-from-mine-waste-disposal/) to address the irreversible environmental impacts and social problems, highlighting the incompatibility with commitments to responsible battery metals sourcing, and a [major Norwegian asset manager divested](https://earthworks.org/releases/norwegian-asset-manager-divests-from-operator-of-controversial-ramu-mine/) from the majority owner of the mine over STD.

**Solutions**

*Demand reduction and mandatory recovery rates of minerals*

The Intergovernmental Panel on Climate Change (IPCC) 2018 Global Warming of 1.5°C special report warned that the only viable way ahead was for rich countries to decisively cut their rates of material production and consumption. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), the International Resource Panel (IRP), and the European Environment Agency reached similar conclusions, with the latter stating that “political initiatives for a sustainable future require not only technological change but also changes in consumption and social practices.” There is significant untapped potential to reduce overall demand by changing transportation systems and [the latest research](https://www.climateandcommunity.org/_files/ugd/d6378b_3b79520a747948618034a2b19b9481a0.pdf) has modeled how policies prioritizing public transit while reducing car dependency and limiting EV battery sizes in countries, like the U.S., would lower the demand of lithium between 18-66%.

Secondary minerals sourcing must also be actively promoted as a means of reducing demand for primary minerals and metals. This will require renewable energy technologies, and batteries, designed for disassembly and efficient recycling of all their material components, and investment into and incentives for building circular supply chains more competitive than linear ones. This is particularly true with regards to what are often referred to as “transition minerals”. Policymakers must create incentives for minerals recycling and requirements for companies to take back their products once they reach their end-of-life and laws should be passed that require original equipment manufacturers (OEMs) to meet minimum recovery rates by 2031, such as the [EU Battery Law](https://ec.europa.eu/commission/presscorner/detail/en/ip_22_7588).

*Mandatory Human Rights and Environmental Due Diligence and supply chain transparency*

There is a growing global movement to legally require companies to undertake mandatory human rights due diligence across their supply chains. In addition to the recently passed EU Battery Directive, mandatory due diligence schemes are being proposed by civil society and/or at various levels of the legislative process in Mexico, Canada, the EU, and in the legislatures of more than a dozen European countries.

Any due diligence standard should align with the UN Guiding Principles on Business and Human Rights (UNGPs) and reflect mining companies’ past performance on human rights, anti-corruption, support for collective bargaining, project-level payment transparency, and beneficial ownership information.

Taken together, the UNGPs and the OECD Due Diligence Guidance for Responsible Business Conduct Guidelines and supporting guidance on mineral supply chains create an ongoing obligation of companies to implement Human Rights and Environmental Due Diligence (HREDD) to identify and address—through prevention or mitigation—the severe impacts these businesses cause the planet and people—women and girls in particular—in due consultation with affected rights-holders. Mining companies and mine operators should have oversight and responsibility for performing due diligence and report to regulators and underserved communities on performance.

HREDD involves assessing actual or potential adverse impacts on rights-holders, including Indigenous Peoples’, integrating findings into management plans, taking action, providing remedy and gender-responsive grievance mechanisms when violations occur, and tracking and communicating externally on performance. It is an ongoing process, requiring periodic review and revisions as project operations and operating contexts change.

Mandatory HREDD is also bolstered when companies are required to be transparent with regards to their supply chains as it enables civil society and government to hold them accountable for any environmental harms and human rights abuses across their supply chains.

*Tailings management*

While safer technologies and practices exist for tailings management, the mining industry has not moved towards their broad implementation. The industry consistently prioritizes reducing the cost of their operations over safety. There must be significant changes to the design, construction, operation, and closure of tailings facilities to prevent human rights violations. In the case of submarine tailings disposal, the outdated practice should be banned full stop.

Current industry standards, including the 2020 Global Industry Standard on Tailings Management, do not go far enough to adequately protect communities and ecosystems from tailings dam failures. Ultimately, protective tailings regulation must fall to the regulators charged with protecting public safety and human rights. In many places, protective tailings regulations either do not exist or are not adequately enforced. Too frequently governmental agencies are unable, because of limited resources or technical expertise, or unwilling, because of political pressure, corruption, or the undue influence of the mining industry, to enact and/or enforce regulations that prioritize safety.

In 2022, over 160 frontline community groups, Indigenous Peoples, environmental and human rights NGOs, and scientists from 32 countries endorsed a set of 17 guidelines for the safer tailing storage. The guidelines, [*Safety First: Guidelines for Responsible Mine Tailings Management*](https://earthworks.org/resources/safety-first/),provide concrete steps that must be taken to move away from the riskiest technologies, to ensure consent from affected communities, to establish transparency and to hold mining companies accountable for implementing best practices. Regulators should move towards implementing stringent protections, like those outlined in *Safety First*, to protect against human rights violations from dangerous tailing disposal facilities.

Ultimately, the safest tailings facility is the one that is not built. To avoid the long-term liability of mine waste sites and their social and environmental impacts, we must reduce the volume of tailings produced, as well as the overall demand for primary raw minerals.

Annex:

[Safety First: Guidelines for Responsible Mine Tailings Management](https://earthworks.org/resources/safety-first/)

[Achieving Zero Emissions with More Mobility and Less Mining](https://www.climateandcommunity.org/_files/ugd/d6378b_3b79520a747948618034a2b19b9481a0.pdf)

[Reducing new mining for electric vehicle battery metals: responsible sourcing through demand](https://earthworks.org/resources/recycle-dont-mine/)

[reduction strategies and recycling](https://www.uts.edu.au/sites/default/files/2019-04/ISFEarthworks_Responsible%20minerals%20sourcing%20for%20renewable%20energy_Report.pdf)

[Responsible minerals sourcing for renewable energy](https://www.uts.edu.au/sites/default/files/2019-04/ISFEarthworks_Responsible%20minerals%20sourcing%20for%20renewable%20energy_Report.pdf)