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Make safety the guiding principle with zero tolerance for human fatalities in design, construction, operation, and closure

- Tailings management must ensure zero harm to people and zero tolerance for human fatalities.
- Costs and risks must not be transferred to the environment, communities or governments.

- *Safety First* recognizes that mining is a fundamentally destructive industry, meaning that a goal of zero harm to the environment is impossible to achieve. Nevertheless, operating companies must do all that they can to minimize environmental harm everywhere. In particular, they must limit any environmental harm that inevitably occurs to within the mine site.

2

Consent of affected communities

- Operating companies must ensure the meaningful engagement, participation and consent of affected communities, including the right of communities to say no to tailings facilities.
- Consent must be achieved through an ongoing dialogue over the life of the mine for both proposed and existing facilities.
- Consent processes must be designed and conducted with affected communities, respect cultural norms and languages, and must be free of external manipulation, coercion or extortion.

- For Indigenous Peoples, international law recognizes their inherent right to self-determination and to Free, Prior and Informed Consent (FPIC).
- Operating companies must respect community land use plans and “no-go zones” to protect sensitive areas.
- Operating companies must provide communities with a transparent risk analysis identifying and evaluating the geographic and inhabited areas that could be affected by a tailings facility.

3

Ban new tailings facilities where inhabited areas are in the path of a tailings dam failure

- New tailings facilities must not be constructed if the operator cannot ensure the safe and timely evacuation of communities in the area.
- Existing tailings facilities too close to populated areas must be safely closed.
- Tailings facilities must not be constructed in a location where a tailings failure would materially impact public water supplies or critical habitats, or near protected ecological resources.
- Voluntary resettlement must only be offered with the full consent of affected communities, and only if the above conditions cannot be met.

- Specific consideration of all downstream communities, ecosystems, cultural, sacred and touristic sites and areas of economic production must be undertaken to determine potentially affected areas. It is important to recognize the interconnected relationship between people and the natural environment, thus protecting ecological resources is an extension of human safety.
- Involuntary resettlement must not be allowed under any circumstance.

4

Ban upstream dams at new mines, and safely close existing upstream facilities

- Upstream dams must not be built at new facilities due to their demonstrated significant risk of failure, especially in seismic and wet climate areas.
- An increasing number of jurisdictions have banned upstream tailings dams.
- Existing upstream dams must not be expanded and must be safely closed.

- Centerline and downstream dams are generally less vulnerable to failures.
- The structural zone of a filtered tailings stack must not be constructed on top of uncompacted or lightly-compacted filtered tailings.

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Any potential loss of life is an extreme event and design must respond accordingly

- If lives are at risk, facilities must be designed to withstand the most extreme credible meteorological and seismic events.

- Where lives are not at risk, facilities should be designed to withstand at least the 10,000-year flood and earthquake events.
- Design should take climate change into account for both closed and operating facilities.

6

Mandate the use of Best Available Technologies, in particular for filtered tailings

- Physical stability of tailings facilities is of paramount importance and must not be compromised.
- Eliminating or reducing the water content in and on tailings decreases the probability and consequences of failure.

- Filtered tailings disposal sites must be treated as an engineered tailings facilities (i.e. a tailings dam) for regulatory purposes.
- Conventional water covers or submergence can no longer be regarded as best practice.



Photo: Julia Bonfies



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Implement rigorous controls for safety

- If site conditions and risks are well understood, a Factor of Safety (FoS) of at least 1.5 must be applied in static conditions.
- In addition to FoS, dam designs and operation must consider the Annual Probability of Failure (APF).
- APF must not exceed 0.01% (equivalent to design for a 10,000-year flood or earthquake), or 0.001% if lives are at risk.
- Slopes of tailings dams and embankments must be 1V:5H or less, and must never be steeper than 1V:2H.
- The water management infrastructure of the facility must not allow the tailings pond to reach the dam crest even during extreme weather events, when lives are at risk.

8

Ensure a detailed evaluation of the dam foundation and the tailings properties

- Operating companies must provide detailed evaluations of the dam foundation, as well as of the physical and chemical properties of tailings material.
- Special attention must be paid to brittle tailings, clay content and liquefaction potential.
- Annual reporting must verify that tailings dams construction and operations adhere to the initial design.
- Departures from the initial design must be justified, documented, and evaluated by an Independent Tailings Review Board (ITRB).
- If potentially acid generating, facilities must be able to withstand the most extreme credible conditions.

9

Appropriate monitoring systems must be in place to identify, disclose, and mitigate risks

- Facilities must have appropriate and comprehensive monitoring systems to identify and mitigate risks.
- Operating companies must disclose the yearly Adaptive Management Plan (AMP) actions taken, including Independent Tailings Review Board (ITRB) reports.
- Facilities must have Adaptive Management Plans (AMP) that clearly define actions to be taken in response to possible changes in the facility's performance or risk profile (e.g. pressure on the dam, water levels, etc.).

10

Ensure the independence of reviewers to promote safety

- Independent evaluations must be done for all aspects of tailings facility design, construction, operation, and maintenance.
- Independent reviewers, such as ITRB members, must be contracted through public procurement by local regulatory agencies, must not have financial conflict with the operator they review, and they and the firms they work for must not be dependent on a single operating company for their incomes.
- Reviewers must sign a disclosure declaration about past and present personal and economic relationships, and these declarations must include a fine for misrepresentation.
- The competence of reviewers must include demonstrated experience and skill engaging with communities, including rural and Indigenous communities, in a meaningful way.
- Independent reviewers must have an accessible way to receive third-party information from whistleblowers and civil society.
- Operating companies must publicly disclose, justify and be held accountable for any reviewers' recommendations they do not follow.

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Towards safer closure with no credible failure modes

- A tailings facility is safely closed when it no longer receives tailings and the facility requires only routine monitoring, inspection and maintenance in perpetuity or until there are no credible failure modes.
- If the consequences of failure at some future time are unacceptable, the tailings facility must not be built in that location.
- Operating companies must not be allowed to declare bankruptcy or sell to junior companies to avoid closure monitoring and liability.
- Operating companies must provide sufficient funding and financial securities for closure and post-closure monitoring and maintenance.

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Address financial risks, including securities for site closure and proper insurances for accidental spills

- Safety risks are not separate from financial risks and operating companies must
 - 1) be able to pay for the safest technologies and practices,
 - 2) provide sufficient financial securities for site closure and post-closure maintenance (no self-bonding allowed),
 - 3) hold sufficient financial insurance to cover potential third-party damages in the event of a failure.
- New or expanding facilities should not be approved without a bankable feasibility study that considers all technical, environmental, social and economic risks of the project, including evaluations of potential failure modes and costs.
- Financial risks, securities and insurances must be publicly disclosed, independently reviewed, and updated regularly.



13

Grievance procedures and whistleblower protection

- Operating companies must provide whistleblower protection and independent grievance procedures to the highest standards.
- Protections must be established and made available in a culturally appropriate way to all employees, contractors, suppliers, and regulators, as well as to Indigenous Peoples, rights holders, and affected community members.
- Whistleblower protection must ensure workers can put safety first without fearing retaliation.
- For grievance mechanisms, Principle 31 of the U.N. Guiding Principles on Business and Human Rights stipulates they be: (a) legitimate, (b) accessible, (c) predictable, (d) equitable, (e) transparent, (f) rights-compatible, (g) a source of continuous learning, and (h) based on engagement and dialogue.
- Remedy must be adequate, effective, provide prompt reparation for harm suffered, and may include one or more of the following: an apology, guarantees of non-repetition, restitution, rehabilitation, financial or non-financial compensation and punitive sanctions.

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Emergency preparedness and response

- Emergency preparedness and response plans (EPRP), as well as compensation and indemnification criteria in case of catastrophic failures, must be prepared in advance with all potentially affected communities, downstream agricultural producers and businesses, mine workers, first responders, and relevant authorities.
- Operating companies are responsible for taking all steps necessary to save lives and provide appropriate humanitarian aid during a failure. They must assume the entirety of the costs of indemnification, remediation and reclamation, including any additional damages incurred during remediation and reclamation efforts.
- Worst-case scenarios must be modeled, publicly disclosed, independently reviewed, and regularly updated.
- Operating companies must ensure trained professional support during an emergency will reach all affected populations in a timely manner, and must hold yearly evacuation drills.
- Emergency and evacuation drills can be traumatizing for communities, so special care must be taken to ensure communities are not negatively impacted by the process.
- Tailings facilities must not be constructed in locations that present considerable challenges for safe evacuation, including jails or prisons, hospitals, and assisted-living or elder care facilities.

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Information regarding mine safety must be made publicly available

- Operating companies must publicly disclose all information relevant to the safety of tailings facilities.
- Information must be free of charge, available in all relevant languages, and include raw input data for transparency purposes.
- Relevant information includes Dam Safety Reviews (DSR), Independent Tailings Review Board (ITRB) reports, Emergency Preparedness and Response Plans (EPRP), Adaptive Management Plans (AMP), closure plans, financial securities, etc.
- Operating companies must publicly disclose the date, location, amount of tailings released and impacts on surrounding areas immediately after a tailings failure.
- Governments and regulators must also make all information relevant to the safety and stability of tailings facilities publicly available.

16

Ensure access to independent technical assistance

- In order for affected communities and Indigenous Peoples to exercise their right to access to information, participation and consent, they require independent technical assistance over the life of a tailings facility.
- Operating companies must cover the costs of independent technical experts that are trusted and chosen by the affected communities and/or Indigenous Peoples impacted by their projects. These experts must be accountable to the communities, not the operating companies.
- Access to technical assistance may be necessary during exploration, through monitoring and closure plans, and during any consultation, FPIC, grievance or remediation process.

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Accountability for risk, minimizing the consequences of failure, preventing failure, and the consequences of failure must primarily rest with the board of directors

- The board of directors must be held accountable for the safety of tailings facilities (or lack thereof).
- The board must develop and implement policies, budgets and performance evaluations that prioritize safety considerations over costs.
- The board must have at least one member with expertise in tailings disposal facility failure risks.
- Zero tolerance for any bribery of auditors, consultants, or officials that could compromise the facilities' safety.