

- 1** **Make safety the guiding principle (not cost) in design, construction, operation, and closure, with zero tolerance for human fatalities.**

  - Costs and risks must not be transferred to the environment, communities or governments.

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- 2** **Ban new mine tailings facilities immediately upstream from inhabited areas**

  - Prevent new tailings facilities immediately upstream of working and populated areas
  - Existing tailings facilities too close to populated areas must be safely closed
  - In case of emergency, facilities must be far enough from potentially affected populations to have enough time to evacuate
  - Voluntary resettlement must be offered with the full consent of affected peoples only if above conditions cannot be met
  - Involuntary resettlement must not be allowed under any circumstance

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

  - Upstream dams have demonstrated significant risks of failures, especially in seismic and wet climate areas
  - Centerline and downstream dams are generally less vulnerable to failures
  - Existing upstream dams must not be expanded and should be safely closed
  - An increasing number of jurisdictions have banned upstream tailings dams

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- 4** **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

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- 5** **Mandate the use of Best Available Technologies to avoid catastrophic failures, including the use of filtered tailings and the elimination of overlying water**

  - 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
  - Paste, thickened, and especially filtered tailings are safer than conventional slurry
  - Conventional water covers or submergence can no longer be regarded as best practice

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- 6** **Implement rigorous controls for safety, including conservative factors of safety, strict thresholds for annual probability of failure, and safer embankment slopes**

  - 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
  - Proposals for embankments steeper than 1V:5H must be justified in writing and be made publicly available

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- 7** **Ensure a detailed evaluation of the dam foundation and of the tailings properties**

  - Provide detailed evaluations of the dam foundation, as well as of physical and chemical properties of tailings material
  - Special attention must be paid to clay content and liquefaction potential
  - Ongoing reporting must verify that tailings dams construction and operations adhere to initial design
  - Departures from 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 meteorological / seismic events

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- 8** **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
  - Operators must disclose the yearly 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.)



Photo: Julia Pontés



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| 9  | <b>Ensure the independence of reviewers to promote safety, including Independent Tailings Review Boards</b>               | <ul style="list-style-type: none"> <li>Independent evaluations must be done for all aspects of tailings facility design, construction, operation, and maintenance</li> <li>Operators must publicly disclose, justify and be held accountable for any reviewers' recommendations they did not follow</li> </ul>   | <ul style="list-style-type: none"> <li>Independent reviewers, such as ITRB members, must not have financial conflict with the operator they review, nor should they, or the firms they work for, be dependent on a single operating company for their incomes</li> </ul>   |
| 10 | <b>Ensure zero failure after mine closure, even under extreme meteorological and seismic events</b>                       | <ul style="list-style-type: none"> <li>Operators must demonstrate that closed facilities will withstand the most extreme credible meteorological / seismic events</li> <li>If not possible to demonstrate the above, operators must ensure permanent site monitoring and maintenance</li> </ul>  | <ul style="list-style-type: none"> <li>Operators must provide sufficient funding and financial securities for closure and post-closure monitoring and maintenance</li> </ul>   |
| 11 | <b>Consent of affected communities, including the rights to self-determination and FPIC for Indigenous Peoples</b>        | <ul style="list-style-type: none"> <li>Operators must ensure the meaningful engagement, participation and consent of affected communities</li> <li>Consent processes must be designed and conducted with affected communities, and respect cultural norms and languages</li> </ul>   | <ul style="list-style-type: none"> <li>For Indigenous Peoples, international law recognizes the inherent rights to self-determination and to Free, Prior and Informed Consent (FPIC)</li> <li>Operators must also respect community-based land use plans and "no-go zones" to protect sensitive areas</li> </ul>   |
| 12 | <b>Grievance procedures and whistleblowers protection</b>   | <ul style="list-style-type: none"> <li>Operators must provide whistleblower protection and independent grievance procedures to the highest standards</li> <li>Those 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</li> </ul>   | <ul style="list-style-type: none"> <li>Whistleblower protection must ensure workers can put safety first without fearing to suffer any punishment</li> <li>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</li> </ul> |
| 13 | <b>Prepare for the worst: ensure effective emergency preparedness and response plans in case of catastrophic failures</b> | <ul style="list-style-type: none"> <li>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, mine workers, first responders, and relevant authorities</li> </ul>   | <ul style="list-style-type: none"> <li>Worst-case scenarios must be modeled, publicly disclosed, independently reviewed, and regularly updated</li> <li>Operators &amp; regulators must have the capacity to implement EPRP at all time and hold yearly evacuation drills</li> </ul>   |
| 14 | <b>Transparency: information regarding mine safety must be made publicly available</b>                                    | <ul style="list-style-type: none"> <li>Operators must publicly disclose all information relevant to safety of tailings facilities</li> <li>The information must be accessible in relevant languages, with the raw data available for more in-depth reviews</li> </ul>  | <ul style="list-style-type: none"> <li>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.</li> </ul>   |
| 15 | <b>Address financial risks, including securities for site closure and proper insurances for accidental spills</b>         | <ul style="list-style-type: none"> <li>Safety risks are not separate from financial risks and operators must               <ol style="list-style-type: none"> <li>be able to pay for the safest technologies and practices,</li> <li>provide sufficient financial securities for site closure and post-closure maintenance, (no self-bonding allowed),</li> <li>hold sufficient financial insurance to cover potential third-party damages in the event of a failure.</li> </ol> </li> </ul> | <ul style="list-style-type: none"> <li>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</li> <li>Financial risks, securities and insurances must be publicly disclosed, independently reviewed, and updated regularly</li> </ul>  |
| 16 | <b>Accountability must primarily rest with the operator's Board of Directors</b>  | <ul style="list-style-type: none"> <li>A culture of safety must be upheld and safety policies approved at the highest level within a corporation</li> <li>The Board of Directors must be held accountable for its actions (or lack thereof)</li> </ul>   | <ul style="list-style-type: none"> <li>The Board must develop and implement safety policies and performance evaluations for all its operations and workers</li> <li>Zero tolerance for any bribery of auditors, consultants, or officials that could compromise the facilities' safety</li> </ul>  |