



HINDUSTAN ZINC
Zinc & Silver of India

Sustainability Framework

TECHNICAL STANDARD

Site Closure

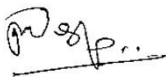
Hindustan Zinc Limited





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1. INTRODUCTION

The purpose of this Technical Standard is for HZL to develop systems and processes which ensure operations consider sustainability issues before, during and after site closure. Site closure plans shall be developed as early as feasibly possible, ideally in the early development phase of a new site, to identify, minimise or mitigate and manage risks (environmental, socio-economic, reputational and health and safety) associated with site closure. Plans should be agreed with regulatory authorities prior to commencement of operations. Sites shall be left in a condition which minimises adverse impacts on the human and natural environment, and leaves behind a positive legacy that contributes to sustainable development. This standard has been adopted from the parent company Vedanta's Sustainability framework.

2. SCOPE

3. This Technical Standard is mandatory and applies to all HZL subsidiaries, operations and managed sites, including new acquisitions, corporate offices and research facilities and to all new and existing employees. This Standard is applicable to the entire operational lifecycle (including exploration and planning, evaluation, operation and closure).

DEFINITIONS

Definitions of key terms used in this document are shown in the following table.

Term	Definition
Closure plan	A document that addresses mine closure planning and includes specific activities, roles and responsibilities, closure criteria and options, timeframes and resource requirements, including aftercare (post completion of closure work).
Competent Person	An individual who has the necessary and sufficient knowledge, skills and experience, as well as the necessary experience to complete their responsibilities safely, effectively and consistently.
Decommissioning	The shut-down and dismantling of a facility, including removal of equipment, buildings and other structures.
Environmental and Social Management System	The structured framework provides the arrangements for managing the environmental, health, safety and social aspects through the lifetime of the project.
ESIA	Environmental Social Impact Assessment – a formalised process designed to identify, assess and document environmental and social impacts associated with a project, along with the mitigation measures and management arrangements for ensuring such measures are implemented.
Financial provision	Funds held separately from operational funds and reserved to ensure successful implementation of the site closure plan. They should be held within an appropriate financing mechanism, such as a trust fund or bank guarantees, where appropriate and where prior approval of funds by regulators is not required.

Term	Definition
Grievance	A concern or complaint raised by any stakeholder either affected by or interested in company operations. Both concerns and complaints can result from either real or perceived impacts of a company's operations.
ICMM (International Council on Mining and Metals)	The International Council on Mining and Metals (ICMM) was established in 2001 and seeks to drive performance improvement through its members which comprise mining and metals companies, as well as national and regional mining associations and global commodity associations.
IFC (International Finance Corporation)	Member of the World Bank that finances and provides advice to private sector ventures and projects in developing countries.
Management of change	A systematic process to deal with changes that could impact sustainability risks. Changes can include, but are not limited to, personnel and other resources, plant, equipment, documents, legislation, systems and processes etc. In the context of this Standard, management of change is any change not considered to be a new project.
Operation(s)	A location or activity that is operated by a HZL Company and its subsidiaries. Locations could include exploration activities, mines, smelters, refineries, wind farms, offices including corporate head offices and research and development facilities.
Site closure	The decommissioning, rehabilitation and on-going monitoring associated with an operation after its operational life has ended.
Stakeholder	Persons or groups that are directly or indirectly affected by a project as well as those that may have interests in a project and/or the ability to influence its outcome, either positively or negatively. This can refer to shareholders, lenders, employees, communities, industry, governments and international third parties.
Stakeholder Engagement	An umbrella term encompassing a range of activities and interactions between HZL and its stakeholders over the life of a project that are designated to promote transparent, accountable, positive, and mutually-beneficial working relationships. Stakeholder engagement includes stakeholder identification and analysis, information disclosure, problem/conflict anticipation and prevention, ongoing consultation, formation of partnerships, construction of grievance resolution mechanisms, negotiated problem solving, employee involvement in project monitoring, regular reporting forums and procedures, and other related management activities.
Sustainability issues	These are issues that HZL and its operations are required to manage on an on-going basis and which are part of the HZL sustainability model (responsible stewardship, stakeholder engagement and adding value). Issues include, but are not limited to, health, safety, environmental and social risk management, community relations, human rights, biodiversity, water management, HIV/Aids, product stewardship, stakeholder engagement, suppliers and contractor management etc.

Term	Definition
Vulnerable Groups	Individuals or groups within the project area of influence who could experience adverse impacts more severely than others based on their vulnerable or disadvantaged status. This vulnerability may be due to an individual's or group's race, sex, language, religion, political, or other opinion, national or social origin, property, birth or other status. In addition other factors should be considered such as gender, ethnicity, culture, sickness, physical or mental disability, poverty or economic disadvantage, and dependence on unique natural resources.

4. PROGRAMME REQUIREMENTS

All HZL operations are required to follow the requirements listed below with regards the mechanisms for decommissioning and site closure. All HZL operations are also required to ensure the mechanisms for undertaking decommissioning and site closure meet the requirements of international standards (e.g. IFC development/performance standards, IFC EHS Guidelines and ICMM principles) and impact assessment and consultation processes where these apply.

4.1. General Requirements

- Meet HZL sustainability policies and standards.
- Manage all their operations throughout their full lifecycle in a manner that ensures the optimisation of post closure outcomes across the environmental, social and economic needs of sustainable development.
- Protect and enhance the reputation of HZL as a responsible company and preserve shareholder value
- Comply with relevant regulatory requirements
- Identify and mitigate environmental and socio-economic impacts
- Protect the health, safety and welfare of employees and the general public
- Return sites to a state comparable to conditions before operations commenced or otherwise to a state acceptable to society.
- Where possible promote a sustainable use for the site after closure, which leaves a positive legacy for both the local communities and the environment. This should be determined through comprehensive multi-stakeholder engagement.
- Where possible operations should implement progressive closure to demonstrate the approach being adopted. This has the benefit of availing of the skill sets available during the operational phase and to ensuring that the site risk is as low as possible prior to closure.

The Site Closure technical standard shall also meet the requirements of the *IFC Performance Standards and EHS guidelines*. These requirements are summarised as follows:

- IFC Environmental, Health, and Safety Guidelines for Mining. A Mine Reclamation and Closure Plan should be drafted prior to the start of operations, which should incorporate both physical rehabilitation and socio-economic considerations through the project lifecycle. The closure plan should promote a beneficial future land use and include appropriate after-care and monitoring. The closure plan for the site should be regularly updated and refined to reflect changes in conditions and circumstances. Funding should be made available to cover closure costs, including a provision for early or temporary closure, and it should be kept either by a cash

accrual system or a financial guarantee. The site must be left in a stable state, with appropriate steps taken to ensure the physical, chemical and ecological integrity of the site.

- **General EHS Guidelines: Construction and Decommissioning.** Environmental impacts arising from decommissioning activities include those relating to noise and vibration, soil erosion, air quality, solid wastes, hazardous materials, wastewater discharges and contaminated land. Occupational Health and Safety considerations include overexertion, slips and falls, working from heights, being struck by objects, moving machinery, dust and confined spaces and excavations. Community health and safety considerations include general site hazards, disease prevention and traffic safety.

The International Council on Mining and Metals (ICMM) also provides some useful guidance:

- *Planning for Integrated Mine Closure: Toolkit.* This document provides a toolkit intended to promote a more disciplined approach to closure planning, and to increase the uniformity of good practice across the sector. It consists of 13 separate tools covering different areas of the mine closure process, along with detailed guidance, and can act as a useful reference to mine closure activities.
- *Guidance Paper: Financial Assurance for Mine Closure and Reclamation.* This guidance paper sets out the increasing requirements for the financing of mine closure to be provided and guaranteed up front at the development stage. It provides guidance on how to establish financial resources for mine closure effectively, and the types of financial mechanisms through which this can be delivered.

4.2. Closure planning

Proactive closure planning and implementation is critical to minimise the need for major modifications near to closure and any post-closure liabilities that might otherwise arise.

- Operations shall ensure that closure and post-closure activities are considered as early as possible in the planning and design stages, and before operational activities begin, so that sites are designed, constructed and operated with closure in mind.
- This process shall be underpinned by the development and maintenance of a closure plan specific to each site, a standalone document which should consist of, as a minimum, the following:
 - The closure planning steps and activities required.
 - Assignment of roles and responsibilities for each action.
 - Schedules and timeframes for each action.
 - Resources required and where these will come from.
 - List of 'success criteria' which will be used to demonstrate to stakeholders that the closure plan has been successful.
 - Communication plan for internal and external stakeholders.
- Operations must engage with regulators to ensure that there is agreement on the detail of the plan and that there is a mechanism for the operation to 'walk away' from the site following the successful implementation of the plan.
- In the case of an acquisition or divestment of an existing operation, the closure plan for the site shall be reviewed and updated as soon after the acquisition as possible and shall

meet the requirements of the HZL Management Standard MS08 *Acquisitions, Divestment and Joint Ventures Due Diligence*.

In the case of divestments, a formal agreement must be executed between the company and the purchaser, ensuring that the purchaser agrees to fulfill a minimum set of closure requirements. It must be ensured that the agreement has financial provisions so that the closure requirements are met by the purchaser, and there is no liability on the divesting company.

- e) The operations shall consider fully the socio-economic impacts and make detailed plans to address them, including transitional plans and hand over strategies for company towns, infrastructure projects and social services developed from the operations, and minimising the impacts of job losses directly from the site and indirectly through ancillary services that have built up around the site.

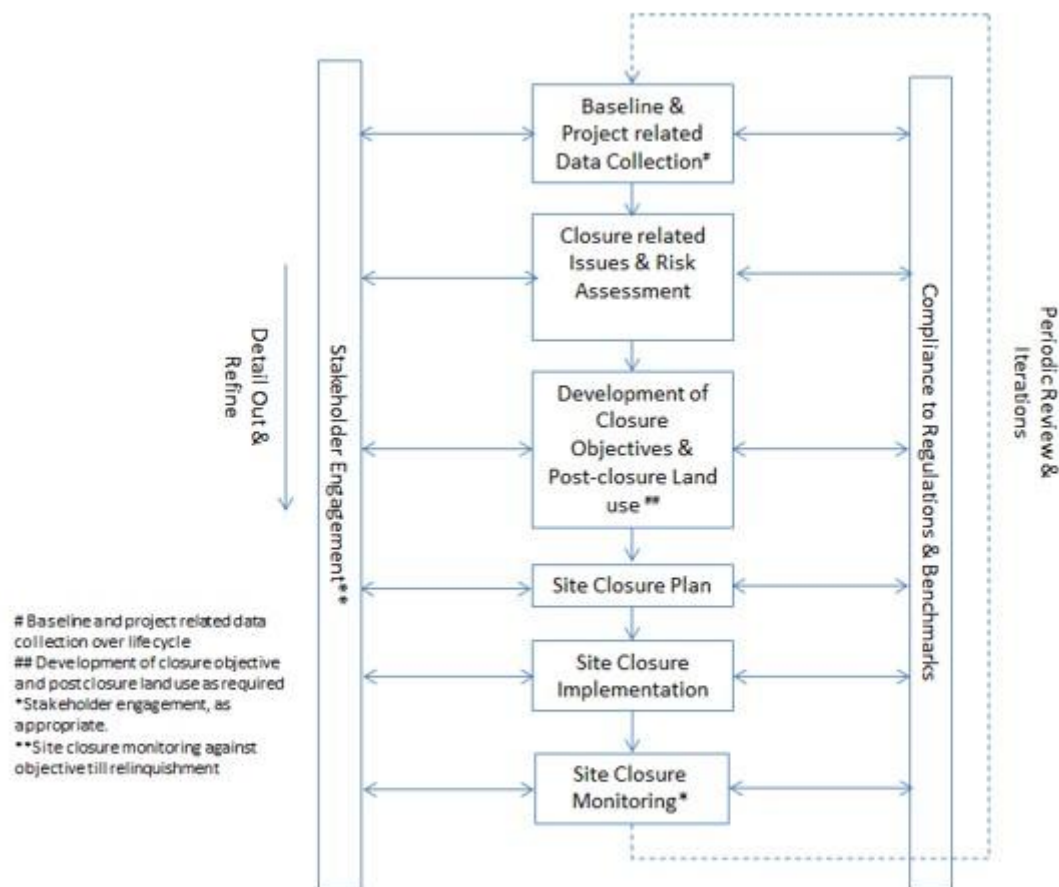


Figure 1: Planning & Implementation Framework for Site Closure

4.3. Developing the closure plan

- a) The closure plan shall be developed based on the following:
- A detailed knowledge base of the operating environment, including socioeconomic, cultural and environmental information, as well as legal and regulatory requirements for closure.
 - An evaluation of alternative closure options against selection criteria (including environmental, reputational risk, socio-economic, community), with documentation of why the preferred option was selected.



- An assessment of the key threats and opportunities of the preferred closure option, together with any uncertainties and the additional work required to resolve them.
 - The key economic, environmental, and social risks associated with specific aspects of closure must be identified (e.g. the risk of acid mine drainage etc.). Site specific solutions must be developed to address these risks.
 - A comprehensive consultation process with both internal and external stakeholders and a detailed assessment made to ensure all relevant stakeholders have been identified and plans developed to address stakeholder needs, aspirations and concerns.
- b) *The closure plan shall include social and environmental parameters as identified during the feasibility stage or during impact assessment.*
 - c) The closure plan shall include objectives and measurable, time-bound targets for the closure which reflect corporate, regulatory and stakeholder requirements, including sustainability considerations, and should be developed in line with the HZL Management Standard MS05 *Objectives, Targets and Performance Improvement*.
 - d) Contingency plans shall be made for premature closure of the site, where the site is closed in advance of the scheduled life of its operation due to unforeseen circumstances (such as a change in economic conditions).
 - e) The closure plan shall comply with all legal and regulatory requirements that apply to the business or site, along with sustainability-related international standards and any other requirements to which HZL subscribes.
 - f) The closure plan shall be designed by a multi-disciplinary team of competent persons, and approved by persons with appropriate seniority.
 - g) Training shall be provided where sufficient skills and experience are not available, and external consultants can be used where required.

4.4. **Financing site closure**

- a) A financial provision for closure costs shall be maintained that is sufficient to ensure the successful implementation of the closure plan, whether under a planned or premature closure.
- b) The provision shall cover the best estimates of all post closure costs, whether one-off or ongoing.
- c) It shall be held separately from operational funds, via an appropriate method. The *IFC EHS Guidelines for Mining* states that funding should be provided by either a cash accrual system (fully funded escrow accounts or sinking funds) or a financial guarantee provided by a reputable financial institution. The ICMM guidance paper *Financial Assurance for Mine Closure and Reclamation* reviews a number of different funding options, including third-party guarantee, cash deposit, letter of credit, trust fund and insurance policy.
- d) The provision shall be determined using best and most recent estimates of expected costs, and shall be fully auditable.
- e) The provision shall be reviewed on an annual basis, and updated in line with changes to the closure plan, so that the accuracy of the provision increases as the closure date approaches and the closure plan becomes more detailed.
- f) A financial contingency shall be provided to reflect any uncertainties existing within the current closure plan.



4.5. **Communicating the closure plan**

- a) The site closure plan shall be communicated to all relevant stakeholders and authorities in a timely, consistent and transparent manner, and used in stakeholder engagement activities where appropriate.
- b) Agreement shall be reached with the relevant government agencies to ensure their approval of the preferred closure plan.
- c) Employees shall be consulted throughout the process, made clearly aware of the closure plans, and kept informed of any updates or amendments to the closure plan and timeframes.
- d) Engagement with local communities in closure plan development to ensure that:
 - The expectations of local communities are understood and managed effectively.
 - The dependency of local communities on the operation is managed and reduced through the life cycle of the operation.
 - Communities are made aware of any residual impacts that will arise from decommissioning and post closure.
 - Consider the possibility, where appropriate, to offer communities a role in the management of the aftercare of parts of the site, which can be of value.

4.6. **Maintaining the closure plan**

- a) Accounting for progressive mine closure requirements, each mining facility should go through an annual review of proposed closure plans, implementation status of plans being executed against measurable performance targets as well as postclosure monitoring outcomes of plans already actioned (including long term reclamation and closure liabilities).
- b) The closure plan and associated financial cost estimating shall be refined and updated on a regular basis, to meet changing circumstances in mine development and operational planning, changes to the environmental and social conditions, changing stakeholder expectations, permit changes, mine expansion, EIA review or to take account of new techniques / technologies made available.
- c) Reviews shall be carried out by a multidisciplinary team with appropriate skills and experience, and include input from key stakeholders.
- d) Responsibility for the ongoing management of the closure plan must be clearly allocated, and it must cover all aspects of the closure process.
- e) The environmental and social closure impact assessment to be conducted at least five years prior to closure.
- f) The closure plan shall become more detailed as the date for site closure draws nearer, with increasingly accurate scoping of all work required, and a fully detailed and costed closure plan shall be put in place at least five years prior to closure.

4.7. **Decommissioning and closure implementation**

- a) Closure activities should be implemented in line with the final closure plan, ensuring that all closure objectives and targets are met.
- b) Each business-unit must ensure that adequate resources are made available to meet the objectives and targets within the agreed timeframe, including:



- Personnel resources
 - Technical resources
 - Financial resources
- c) Responsibility for the implementation of each part of the closure plan shall be clearly assigned, establishing a clear line of accountability and authority.
 - d) Progress against the closure plan shall be communicated to all internal stakeholders and relevant external stakeholders on a regular and transparent basis.
 - e) The health and safety and welfare of employees and contractors shall be considered and any risks addressed. In addition to addressing risks that arise directly from carrying out the site closure activities, consideration must also be given to the risk of the site's health and safety procedures becoming less robust during the period that the operations unwind, and any necessary actions taken to mitigate this risk.
 - f) All staff involved in implementing the closure plan shall be provided with the training necessary to carry out their activities effectively and safely.
 - g) Decommissioning and closure shall comply with all legal and regulatory requirements that apply to the business or site, along with sustainability-related international standards and any other requirements to which HZL subscribes.
 - h) The implementation of the closure plan shall be monitored closely to ensure that it is progressing effectively and in line with the overall plan, and that the objectives and targets for successful closure are being met.

4.8. **Post-closure considerations**

- a) The closure concept and plan should account for progressive/concurrent mine reclamation and closure objectives, where required aligning with country regulatory requirements
- b) Every effort shall be made to return the site to a state comparable to conditions before operations commenced or otherwise to a state acceptable to society.
- c) A positive and lasting legacy should be sought from the site after closure, with the promotion of a sustainable use for the land that will benefit both local communities and the surrounding environment.
- d) Community involvement and ownership of the post operational outcomes shall be promoted.
- e) Future public health and safety shall be considered, and any potential risks addressed, e.g. unguarded shafts and other openings permanently blocked to the public, drains and diversion ditches maintained after closure, and ongoing protection of drinking water supplies from chemical leaching.
- f) Adequate support and training shall be provided to staff, and every effort made to assist in finding them alternative employment.
- g) Post-closure activities shall comply with all legal and regulatory requirements that apply to the business or site, along with sustainability-related international standards and any other requirements to which HZL subscribes.
- h) Post closure activities, after decommissioning, demolition and rehabilitation has been completed, shall include a period of monitoring, care and maintenance. The duration of post-closure monitoring should be defined on a risk-based approach, although the *IFC*



Environmental, Health, and Safety Guidelines for Mining suggests that a minimum of five years after closure is usually required.

5. ROLES AND RESPONSIBILITIES

HZL operations and sites shall ensure that roles and responsibilities for implementing and complying with this Standard are allocated. Key responsibilities shall be included in job descriptions, procedures and/or other appropriate documentation.

6. COMPLIANCE AND PERFORMANCE

Each HZL operation shall ensure it complies with the requirements of this standard. Performance against meeting the requirements of this Standard shall be assessed periodically, documented and, where required, reported to HZL.

The assessment of performance shall include setting and reporting on key performance indicators (KPIs) where these have been established at HZL Company or local level. The evaluation of performance shall include, as a minimum, confirmation that:

- Closure and post-closure activities are considered as early as possible in the planning and design stages for each site.
- Each site has developed and is maintaining a site specific closure plan.
- A financial provision for closure costs has been established and is being reviewed on a regular basis.
- The closure plan has been communicated to all relevant stakeholders and authorities in a timely, consistent and transparent manner.
- The closure plan is being reviewed and updated on a frequency that is appropriate for the nature of the operation (previously defined), and responsibility for the ongoing management of the closure plan shall be clearly allocated.
- For closing sites, that closure activities are being implemented in line with the final closure plan, ensuring that all objectives and targets for successful site closure are being met.
- Every effort is being made to return the site to a state comparable to conditions before operations commenced or otherwise to a state acceptable to society.
- A positive and lasting legacy is being sought for the site after closure, with the promotion of a sustainable use for the land that will benefit both local communities and the surrounding environment.
- Post closure monitoring, care and maintenance activities have been clearly set and as appropriate being undertaken in line with the defined plans.

7. SUPPORTING INFORMATION

Reference	Description
ICMM (International Council of Mining and Metals)	<p>The ICMM has produced and published good practice guidance on a range of health, safety, environment and community issues relating to mining.</p> <p>http://www.icmm.com/library</p> <p>Of particular relevance are the following two guides:</p> <p>http://www.icmm.com/page/1232/guidance-paper-financial-assurancefor-mine-closure-and-reclamation</p> <p>http://www.icmm.com/page/9568/planning-for-integrated-mine-closuretoolkit</p>
International Finance Corporation EHS Guidelines	<p>The <i>IFC Environmental, Health, and Safety Guidelines for Mining</i> provide useful information on site closure:</p> <p>http://www.ifc.org/ifcext/sustainability.nsf/AttachmentsByTitle/gui_EHSGuidelines2007_Mining/\$FILE/Final+-+Mining.pdf</p> <p>The <i>General EHS Guidelines: Construction and Decommissioning</i> also provide some more general information:</p> <p>http://www.ifc.org/ifcext/sustainability.nsf/AttachmentsByTitle/gui_EHSGuidelines2007_GeneralEHS_4/\$FILE/4+Construction+and+Decommissioning.pdf</p>

8. REVIEW

This Technical Standard shall be periodically audited and reviewed to determine its accuracy and relevance with regard to legislation, education, training and technological changes. In all other circumstances, it shall be reviewed no later than 12 months since the previous review.

9. RELATED DOCUMENTATION

A summary of the references and supporting documents relevant to this document is provided in the following table.

Doc. Ref.	Document name
MS 03	New Projects, Planning Processes and Site Closure
MS 05	Objectives, Targets and Performance Improvement
MS 07	Management of Change
MS 08	Acquisitions, Divestment and Joint Venture Due Diligence
TS 05	Stakeholder Engagement