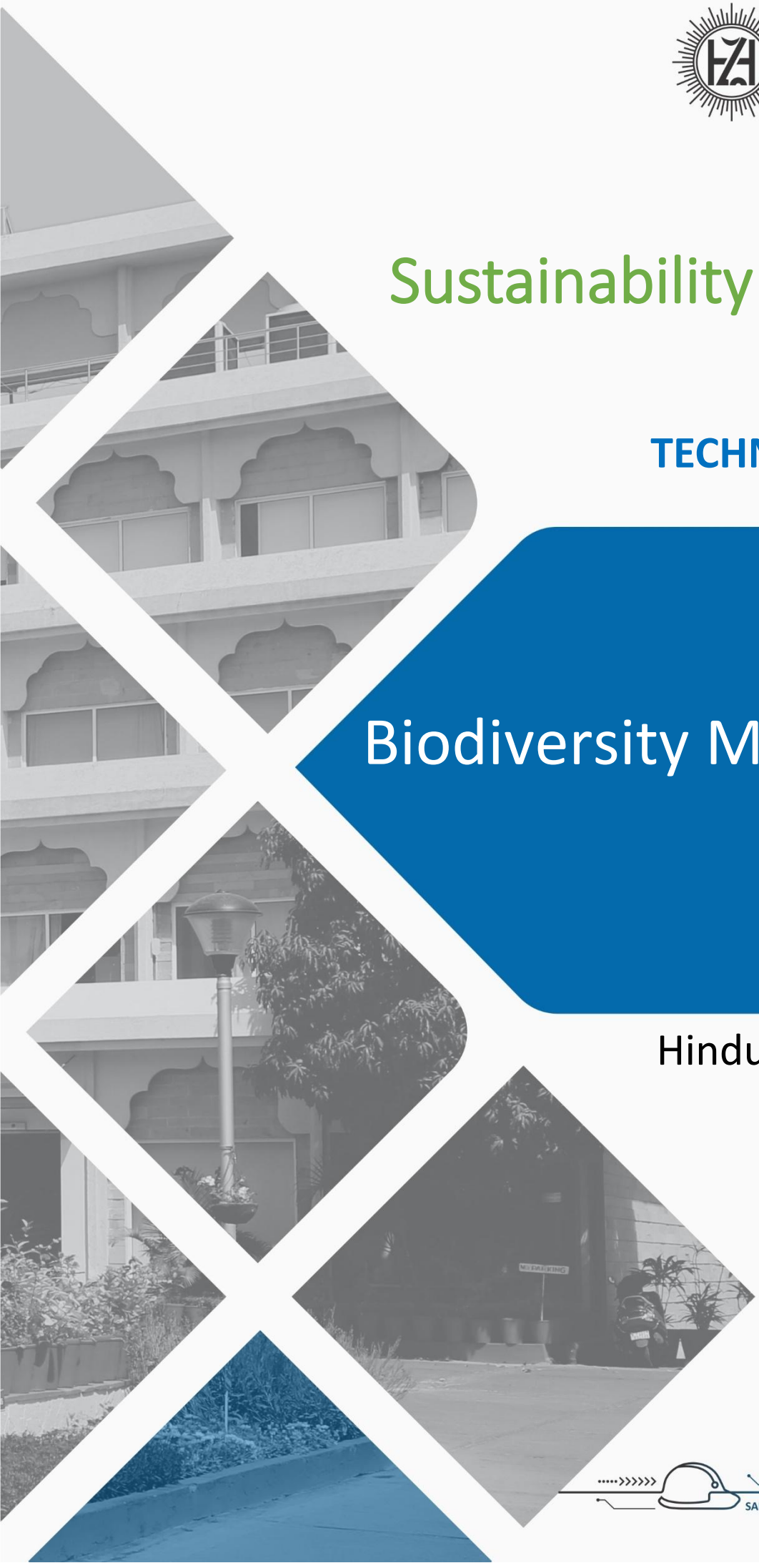
HINDUSTAN ZINC
Zinc & Silver of India

Sustainability Framework

TECHNICAL STANDARD

Biodiversity Management

Hindustan Zinc Limited



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16/08/2025	v.1	Initial issue

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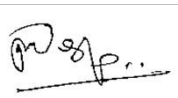
Signature	
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Confidentiality

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1. INTRODUCTION

Protecting and enhancing biodiversity is an integral part of HZL's commitment to sustainable development. In recognition of this commitment, HZL has adopted a Biodiversity Policy aligned with ICMM's Nature Position statement as well as Post 2020 Global Biodiversity Framework. This Technical Standard on Biodiversity Management builds on HZL's Biodiversity Policy and is intended to facilitate units to operate in a more sustainable and progressive manner with respect to Biodiversity and Nature. This standard shall guide HZL operations to integrate biodiversity and ecosystem service conservation into decision making processes for new and existing projects and/or operations and to help ensure that all necessary measures are taken to avoid, minimize and in some cases compensate for the impacts of our projects. This standard has been adopted from the parent company Vedanta 's Sustainability framework.
The assessment and management of biodiversity and ecosystem service impacts shall be considered as part of the overarching environmental and social impact assessment and therefore this document should be read in conjunction with the Conducting ESIAs to International Standards Technical Standard.

2. SCOPE

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). This Technical Standard should be considered with reference to the *HZL Biodiversity Policy*.

3. DEFINITIONS

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

Term	Definition
Affected Communities	Local communities directly affected by the new or existing project.
Alien (Non-Native) Species	An alien or non-native plant or animal species is one that is introduced beyond its original range of distribution.
Baseline Biodiversity Survey	A survey of the habitats and species in the project area to determine the biodiversity baseline and may include identification of Legally Protected Areas and Internationally Recognised Areas, critical and endangered habitats, natural and disturbed habitats, and alien (non- native) species of flora and fauna and shall address biodiversity attributes of all forms (e.g. water, land, flora, fauna, etc.).
Biodiversity	The variability among living organisms from all sources including inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems (cf. United Nations Convention on Biological Diversity).
Biodiversity Management Plan (BMP)	A document that sets out the organisational arrangements to eliminate, minimize, mitigate and manage impact to all biodiversity attributes associated with an operation or new project. The plan shall be commensurate with the level of risk identified.
Critical Habitat	Critical habitats are areas with high biodiversity value, including (i) habitat of significant importance to Critically Endangered and/or Endangered species; (ii) habitat of significant importance to endemic and/or restricted-range species; (iii) habitat of significant importance to

Term	Definition
	globally significant concentrations of migratory species and/or congregator species; (iv) regionally significant and/or highly threatened or unique ecosystems; and/or (v) areas which are associated with key evolutionary processes (IFC Performance Standard Guidance Note 6).
Critically Endangered and Endangered species	Species listed on the International Union for the Conservation of Nature (IUCN) Red List of Threatened Species.
Cumulative Impacts	Based on the IFC description, cumulative impacts are those that result from the incremental impact of the project when added to other existing, planned and reasonably predictable future projects and developments.
Direct Impacts	Based on the IFC description, direct impacts are impacting that result directly from project activities, such as habitat loss and disturbance, emissions and effluents, alterations of hydrology and land forms, loss of ecosystem services or access to such services, etc.
Ecosystem Services	The benefits that people, including businesses, derive from ecosystems. Ecosystem services are organized into four types of services: (i) provisioning services, which are the products people obtain from ecosystems; (ii) regulating services, which are the benefits people obtain from the regulation of ecosystem processes; (iii) cultural services, which are the nonmaterial benefits people obtain from ecosystems; and (iv) supporting services, which are the natural processes that maintain the other services (IFC Performance Standard Guidance Note 6).
ESIA (Environmental and Social Impact Assessment)	A formalised process designed to identify and assess environmental and social impacts associated with a project, along with the mitigation measures and management arrangements for ensuring such measures are implemented.
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.
Indirect Impacts	Based on the IFC description, indirect impacts are impacting that result indirectly from project activities, such as accidental introductions of alien invasive species, project-induced access by third parties, in- migration and associated impacts on resource use.
Internationally Recognised Area	Exclusively defined as UNESCO Natural World Heritage Sites, UNESCO Man and the Biosphere Reserves, Key Biodiversity Areas, and wetlands designated under the Convention on Wetlands of International Importance (the Ramsar Convention) (IFC Performance Standard Guidance Note 6).

Term	Definition
IUCN (International Union for Conservation of Nature)	A democratic membership union with more than 1,000 government and NGO member organizations, and almost 11,000 volunteers scientists in more than 160 countries which supports scientific research manages field projects all over the world and brings governments, non-government organizations, United Nations agencies, companies and local communities together to develop and implement policy, laws and best practice.
"Like for Like or Better' Principle	In relation to biodiversity offsets, the adoption of this principle indicates that the offset must be designed to conserve the same biodiversity values that are being impacted by the project (an 'in- kind' offset) or, that where the biodiversity to be impacted by the project may be neither a national nor a local priority, and there are other biodiversity attributes of higher priority for conservation or need of protection, an 'out-of-kind' offset that involves 'trading up' may be designed (IFC Performance Standard Guidance Note 6).
Legally Protected Area	A clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values (IUCN definition).
Mitigation Hierarchy	The prioritised list of mitigation measures that shall be used to determine the most appropriate measures for mitigating impact on biodiversity attributes. The hierarchy starts with elimination of impact, followed by use of engineering controls to reduce at source, impact reduction measures, offsetting and restoration of damage caused by the project.
Modified Habitat	Areas that may contain a large proportion of plant and/or animal species of non-native origin, and/or where human activity has substantially modified an area's primary ecological functions and species compositions. Modified habitats may include areas managed for agriculture, forest plantations, reclaimed coastal zones, and reclaimed wetlands (IFC Performance Standard Guidance Note 6).
Natural Habitat	Areas composed of viable assemblages of plant and/or animal species of largely native origin, and/or where human activity has not essentially modified an area's primary ecological functions and species compositions (IFC Performance Standard Guidance Note 6).
Offset	Measurable conservation outcomes resulting from actions designed to compensate for significant adverse biodiversity impacts arising from project development and persisting after appropriate avoidance, minimization and restoration measures have been taken (IFC Performance Standard Guidance Note 6).
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.
Project	Any planned or proposed change to either an existing site or to a Greenfield, undeveloped site which may be small, medium or large in scale – for example ranging from a building extension on an existing site,

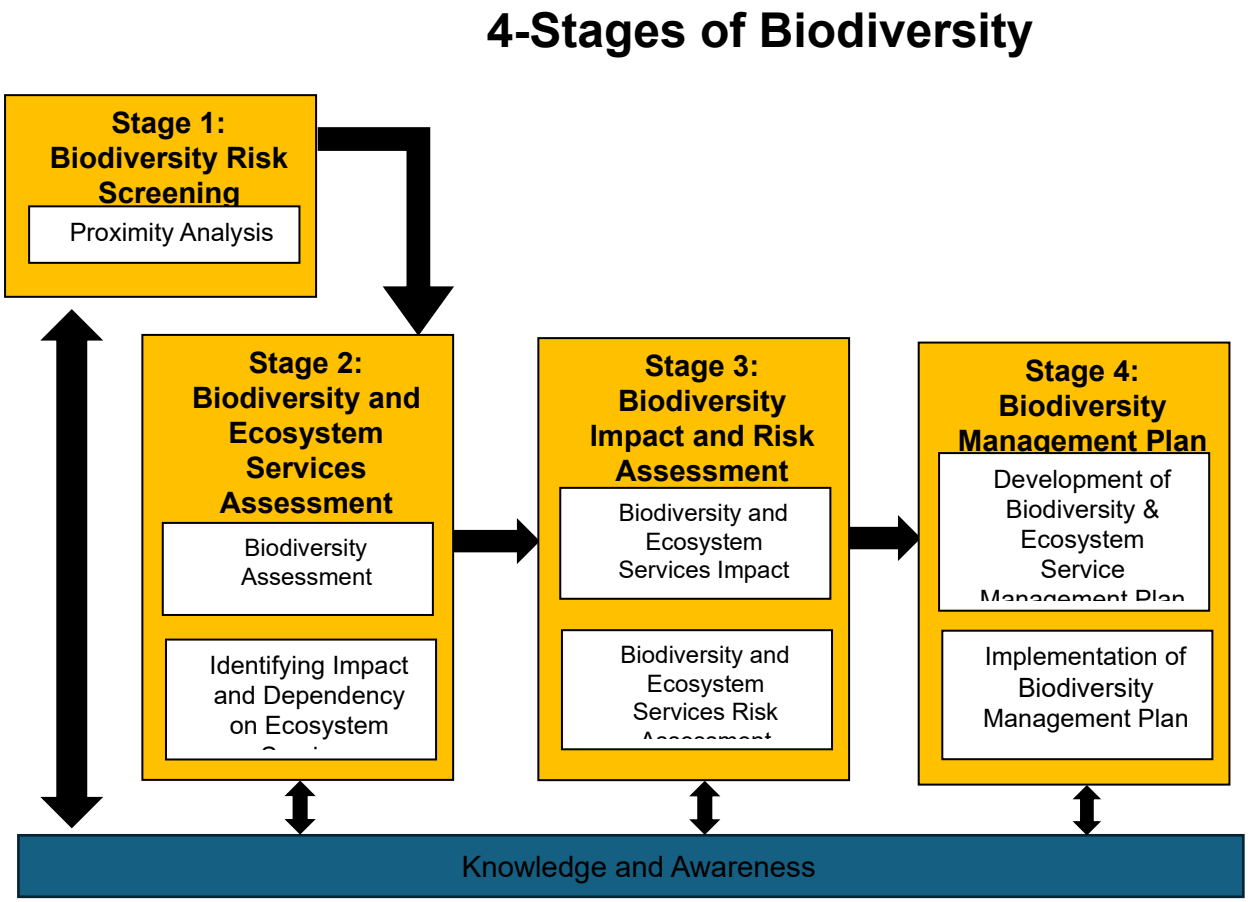
Term	Definition
	to construction of a facility comprising office buildings, to development of a new mine.
Residual Impacts	Residual impacts are significant project-related biodiversity and ecosystem services impact that remain after on-site mitigation measures have been implemented.
Social and Environmental Management System (SEMS)	A SEMS defines the Company's organizational structure, responsibilities, practices and resources for managing and monitoring its activities and performance on social and environmental issues.

4. STAGES OF BIODIVERSITY MANAGEMENT AT HZL

This Technical Standard on Biodiversity Management provides a 4-stage process to guide HZL to integrate biodiversity policy commitments into their operations and decision making.

The 4-stages of biodiversity management are:

4.1 Biodiversity Risk Screening.
4.2 Biodiversity and Ecosystem Services Assessment.
4.3 Biodiversity Impact and Risk Identification.
4.4 Biodiversity Management Planning.



4.1 Stage 1: Biodiversity Risk Screening

Biodiversity Risk Screening is the very first stage as defined in this Technical Standard. This stage comprises of initial desktop review to collect the information about existing biodiversity sensitive features (Protected Area, KBAs, Wildlife Sanctuaries, IUCN RED List species etc) falling within the close proximity of HZL's business site. Although this activity can be carried out with by in-house experts with the help of globally accepted spatial databased, but it would be encouraged to engage by subject matter experts on biology, ecology, protected area management etc can be engaged in this stage also.

The stage 1 Biodiversity Risk Screening involves following two steps:

4.1.1 Step 1 - Secondary Data collection

The first step of screening is to gather secondary information from existing sources on local biodiversity in and around the HZL site. Such information on biodiversity is available from government agencies, universities, non-governmental organisations (NGOs), and the global databases. IUCN knowledge products are always very good source of information on Biodiversity at multiple levels.

4.1.1.1 Spatial databases

Globally accepted spatial databases/tools shall be the authentic source of information for the screening. These databases may include Integrated Biodiversity Assessment Tool (IBAT), Global Biodiversity Information Facility (GBIF), WWF WildFinder, GlobalCanopy etc. Sites of local, regional, and international importance may include nationally and internationally protected areas and reserves, Key Biodiversity Areas (KBAs: that include AZEs, IBBAs), Ramsar Sites (Wetlands of International Importance), sites known for congregation of species and unique or threatened ecosystems. Examples of these spatial databases and links to them are presented in Annexure 1.

4.1.1.2 Desktop Research

Desktop research shall supplement the information obtained from the spatial databases with information at a relatively higher resolution at the site level. Key sources for biodiversity information include Environmental Impact Assessment (EIA), Strategic Environmental Assessments (SEA), National Biodiversity Strategies and Action Plans (NBSAP), relevant sector plans (including those that may be impacted, such as eco-tourism or fisheries), Wildlife Conservation Plans, Environment Impact Assessments, Scientific journals and Government (local and national) documents such as forest department working plans or wildlife management plans for the relevant area.

The output of step 1 should be a report summarizing secondary information on biodiversity proximate to the site under review. The minimum information the summary should include is following:

- A list of reported species of flora and fauna
- A summary of special biodiversity features including:
- Species protected under relevant national legislation
- Species listed as Vulnerable, Endangered and Critically Endangered in the IUCN Red List
- Endemic and migratory species
- Wildlife Corridors
- Protected areas notified under relevant national legislation
- Formally identified ecosystems with special conservation value (i.e. Ramsar Sites, KBAs, UNESCO World Heritage sites, Natura 2000 and others)
- Areas locally known to be important for the presence of certain species but possibly not yet formally designated or documented.

It is recommended to engage the support of local experts and or organizations such as universities or certain conservation NGO's to collect the biodiversity information.

4.1.2 Step 2 - Initial Risk Screening and Prioritization

Once the biodiversity information is collected, the second step shall be to analyze the special biodiversity features falling within 5 km, 10km and 15 km radius of the site. This step shall support in understanding the

initial risk level and prioritize the action under next stages. This technical standard defined prioritization to be done as follows:

Table 1. Prioritization based on Biodiversity Risk Screening

Priority 1	**If the special Biodiversity features falling with 5 km radius.**
Priority 2	**If the special Biodiversity features falling with 5-10 km radius**
Priority 3	**If the special Biodiversity features falling with 10-15 km radius**

4.2 Stage 2: Biodiversity and Ecosystem Services Assessments

The Stage 2 of Biodiversity Management involves undertaking the comprehensive field assessment to collect primary Biodiversity and Ecosystem Services data for the HZL's site. These two studies shall generate information critical to subsequent phases of the biodiversity management process, including helping guide the development of mitigation measure and management planning. The Biodiversity Assessment and Ecosystem Services Review shall help in developing better understanding of what biodiversity and ecosystem services are present both within and proximate to the site.

4.2.1 Biodiversity Assessment

The Biodiversity Assessment is a study to develop a qualitative and quantitative description of flora and fauna presence in the site and within 10 km buffer zone. This study shall also include the crosschecking of the secondary data collected in stage 1. The Biodiversity Assessment defined by this technical standard shall at a minimum include following:

Gathering data from secondary sources: published and unpublished reports; government records; company records; universities; local NGOs; local communities; IUCN Red Data List. (This shall be completed in Stage 1 – Biodiversity Risk Screening. Refer to Section 4.1.1).

Delineation of habitats in the area operation. Identification of Natural, Modified and Critical habitats in the Core Zone and Buffer Zone. GIS mapping should be done for habitat delineation.

Carry out **comprehensive field assessments** (3 seasons) using a team of biodiversity experts and taxonomists with specializations in Flora – Trees, Herbs, Shrubs and Grasses and Fauna – Butterfly, Avian fauna, Mammals, Herpetofauna. The analysed data shall include Richness, Abundance, Diversity index (Shannon weaver), Importance Value Index (IVI) for respective biodiversity groups. All indexes shall be calculated separated for core zone and buffer zone.

Consultation with local communities (or indigenous communities) and other local stakeholders (such as relevant NGOs, scientific or technical institutions) to collect information on traditional ecological knowledge and local biodiversity features and issues; and

Analyse and interpret the special biodiversity characteristics of the site and assess present and potential future impacts on these features due to the activities of the company and local stakeholders.

The detailed methodology for carrying out biodiversity assessment is described in Guidance Note of Biodiversity Management.

4.2.2 Ecosystem Services Assessment

Ecosystem Services Assessment is a study to understanding the Ecosystem Services provided by the region, understand dependencies and impacts of HZL's business unit on these and identify priority ecosystem services for site. This study shall also include present Ecosystem Services status, trends, drivers, risks and opportunities. This technical standard follows the ESR methodology developed by the World Resource Institute (WRI) for carrying out Ecosystem Services Assessment.

The detailed methodology for carrying out Ecosystem Service Assessment is described in Guidance Note of Biodiversity Management.

4.3 Stage 3: Biodiversity Impact and Risk Identification

The Stage 3 involves the deep dive into the impact and risk identification based on the data collected in Stage 1 & 2.

4.3.1 Biodiversity Impact Assessment

The activities associated with industrial processes may generate diverse range of environmental changes and many times these changes are irreversible. The most common environmental problems associated with industrial activities are conversion of land, deforestation, soil erosion, disturbance to surface and ground water hydrological system of the area, visual intrusion, water, air and noise pollution and reduction of faunal and floral diversity, health and resource.

HZL's Biodiversity policy embraces the approach of No Net Loss (NNL) on biodiversity which means nullifying the impacts of HZL's operation on the biodiversity. To achieve NNL, the understanding the impact of HZL's operations are very important. This technical standard prescribes 9 broader impact types to evaluate the impact of any industrial activity. The evaluation shall include the likelihood & magnitude of each impact category based on the HZL's business operations.

- *Impact on Forest and other Land Resources*
- *Impact on Water Resources*
- *Impacts on Ground Water – Pollution*
- *Impact of new structures due to industrial operation i.e. waste dumps*
- *Impacts of Dust and Noise Pollution*
- *Effects of Vehicular Movements on Faunal Groups*
- *Impact on Threatened and Unique Biodiversity*
- *Impacts of Labour Force*
- *Impacts on Wildlife Corridor*

The detailed methodology for carrying out biodiversity impact assessment is described in Guidance Note of Biodiversity Management.

4.3.2 Biodiversity Risk Assessment

The Biodiversity Impact Assessment completed under section 4.3.1 shall provide a complete qualitative analysis of each impact of HZL's business operation. The impact evaluation shall be used to analyze the risk associate with each identified impact. This technical standard had adopted the TNFD's risk assessment framework which defined risk under two categories 1) Physical Risk and 2) Transition risk.

The detailed methodology for carrying out biodiversity risk assessment is described in Guidance Note of Biodiversity Management.

4.4 Stage 4: Biodiversity Management Planning

The Stage 4 involves the preparation of Biodiversity Management Plan based Biodiversity & Ecosystem services assessment completed in stage 2 and the impact & risk assessment completed under stage 3. The key commitment of HZL Biodiversity Policy are:

- Adoption of Mitigation Hierarchy to achieve No Net Loss (NNL) and aim for Net Positive Impact (NPI)
- Commitment to No Net Deforestation
- Integration of Nature based Solutions (NbS)

The principles of mitigation hierarchy shall be applied to identify the course of action against each impact. The severity of impacts and risk shall define the level of management action required at the for a given HZL's business location. Biodiversity Management Plan should give priority to biodiversity protection/restoration and enhancement targets, including those related to supporting ecosystem components (e.g. air, water, soil/landscape) targets. This Technical Standard defines that Biodiversity Management Plan should include bare minimum following points:

- Impact specific mitigation measures.
- biodiversity targets or performance indicators.

- monitoring programmes to assess progress and management effectiveness; and
- details on how to implement BMP e.g. assigning roles and responsibilities, annual action plan, budget, schedules, initiate monitoring, adaptive management and continuous improvement cycle.

The detailed methodology for developing Biodiversity Management Plan is described in Guidance Note of Biodiversity Management.

5. MONITORING AND REPORTING

Monitoring of activities relating to biodiversity management are very important to understand the HZL's progress on biodiversity and subsequently communicating the progress. The basic monitoring objectives of HZL's biodiversity management shall be:

- monitor relative changes in biodiversity against biodiversity performance targets; and
- reporting on biodiversity management performance and outcomes in a transparent manner appropriate for the target audience.

It is highly recommended to use globally accepted tools such as IUCN's Biodiversity Indicator Reporting System (BIRS) to monitor the biodiversity enhancement ecological restoration.

5.1 External Reporting

The external reporting shall be the reporting on Biodiversity and Ecosystem Services enhancement done by HZL's Business at Company level as well as group level which will go in public domain. This technical standard suggested to adopt Taskforce for Nature Related Financial Disclosures (TNFD) framework for external reporting. The methodology for preparing TNFD report is provided in the Guidance Note on Biodiversity and Ecosystem Services Assessment.

6. 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.

7. COMPLIANCE AND PERFORMANCE

Each HZL operation shall ensure they comply 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:

- A biodiversity assessment comprising at a minimum a desk study, stakeholder consultations and baseline survey is undertaken for every potential project.
- Stakeholder engagement must be included as an essential component of the assessment and involves Affected Communities where they exist within the project area.
- The competence and credibility of all specialists (internal and external) that contribute to the biodiversity assessments and impacts management must be able to present evidence (such as training, certification, etc) to demonstrate this.
- The decision-making process involved in determining the need for a risk and impacts identification and assessment process and of the communication of the results to all stakeholders is fully documented.
- A Biodiversity Management Plan is documented and evidence of implementation and tracking of implementation is available.

- The data and findings of the impact assessment and management plan must be disclosed formally either as standalone reports or within the ESIA disclosure report and in a manner and form that is accessible to all stakeholders.
- Clear and transparent evidence of the adoption of the mitigation hierarchy must be available to support the proposed impacts management arrangements.
- All management and monitoring arrangements must be actively maintained and implemented, and documentary evidence kept demonstrating this.

8. SUPPORTING INFORMATION

Reference	Description
A-Z Areas of Biodiversity Importance	Developed by the UNEP World Conservation Monitoring Centre (WCMC) and partners, the A to Z is an online guide with detailed information for a number of recognized systems to prioritize and protect areas of biodiversity importance that fall into two main categories: areas under protected area frameworks that are supported by national or sub-national institutions as well as international conventions and programs, and global prioritization schemes that are developed by academic and conservation organizations. http://www.biodiversitya-z.org/
CITES – The Convention on International Trade in Endangered Species of Wild Fauna and Flora	CITES is an international agreement aimed at ensuring that international trade in specimens of wild animals and plants does not threaten their survival. Around 25,000 plant species and 5,000 animal species are covered by the provisions of the Convention. The CITES website provides substantial resources on endangered species. http://www.cites.org/index.html
FAO Forest Assessments, The Nature Conservancy, Nature Serve, Global Forest Watch, Conservation International, the GEO GEOSS Africa Ecosystem Mapping Project.	Regional ecosystem mapping systems have been developed by these organisations for particular ecosystems and/or geographies and should be consulted as part of the baseline desk study as appropriate for the proposed project area.
Global Reporting Initiative (GRI)	The Global Reporting Initiative (GRI) is a network-based organization that produced an internationally applicable sustainability reporting and disclosure framework. The GRI periodically updates the framework and also provides sector-specific guidance omits application to environmental, social and governance performance. http://www.globalreporting.org/Home
Integrated Biodiversity Assessment Tool (IBAT)	A tool designed to facilitate access to accurate and up-to-date biodiversity information to support critical business decisions. The tool is the result of a ground-breaking conservation partnership among Birdlife International, Conservation International, IUCN and UNEP WCMC.

	https://www.ibatforbusiness.org/
IFC Biodiversity Guide	Provides further information to guide IFC clients in the development of Biodiversity Action Plans and also provides further information on how businesses can address biodiversity in their business activities. http://www.ifc.org/ifcext/sustainability.nsf/Content/BiodiversityGuide
IFC Performance Standards Guidance Notes	Provides detailed guidance for adopting and implementing the requirements of the different Performance Standards. http://www.ifc.org/ifcext/sustainability.nsf/Content/PerformanceStandards
World Heritage Convention– The Convention Concerning the Protection of World Cultural and Natural Heritage (UNESCO, 1972)	Aims to identify and conserve the world 's cultural and natural heritage. Its World Heritage List contains sites of outstanding cultural and natural value. http://whc.unesco.org/en/conventiontext

9. 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 12months since the previous review.

10. RELATED DOCUMENTATION

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

Doc. Ref.	Document name
	HZL Code of Conduct
MS 03	New Projects, Planning Processes and Site Closure
TS 05	Stakeholder Engagement
TS 08	Conducting ESIA to International Standards
TS 06	Supplier and Contractor Management
GRI	Indicator Protocols Set – Environment - Mining and Metals Sector Supplement
IFC Performance Standard PS1 and Guidance Note GN1 (v.1)	Performance Standard and Guidance Note 1 on the Assessment and Management of Social and Environmental Risks and Impacts.
IFC Performance Standard PS6 and Guidance Note GN6 (v.1)	Performance Standard and Guidance Note 6 on Biodiversity Conservation and Sustainable Management of Living Natural Resources.