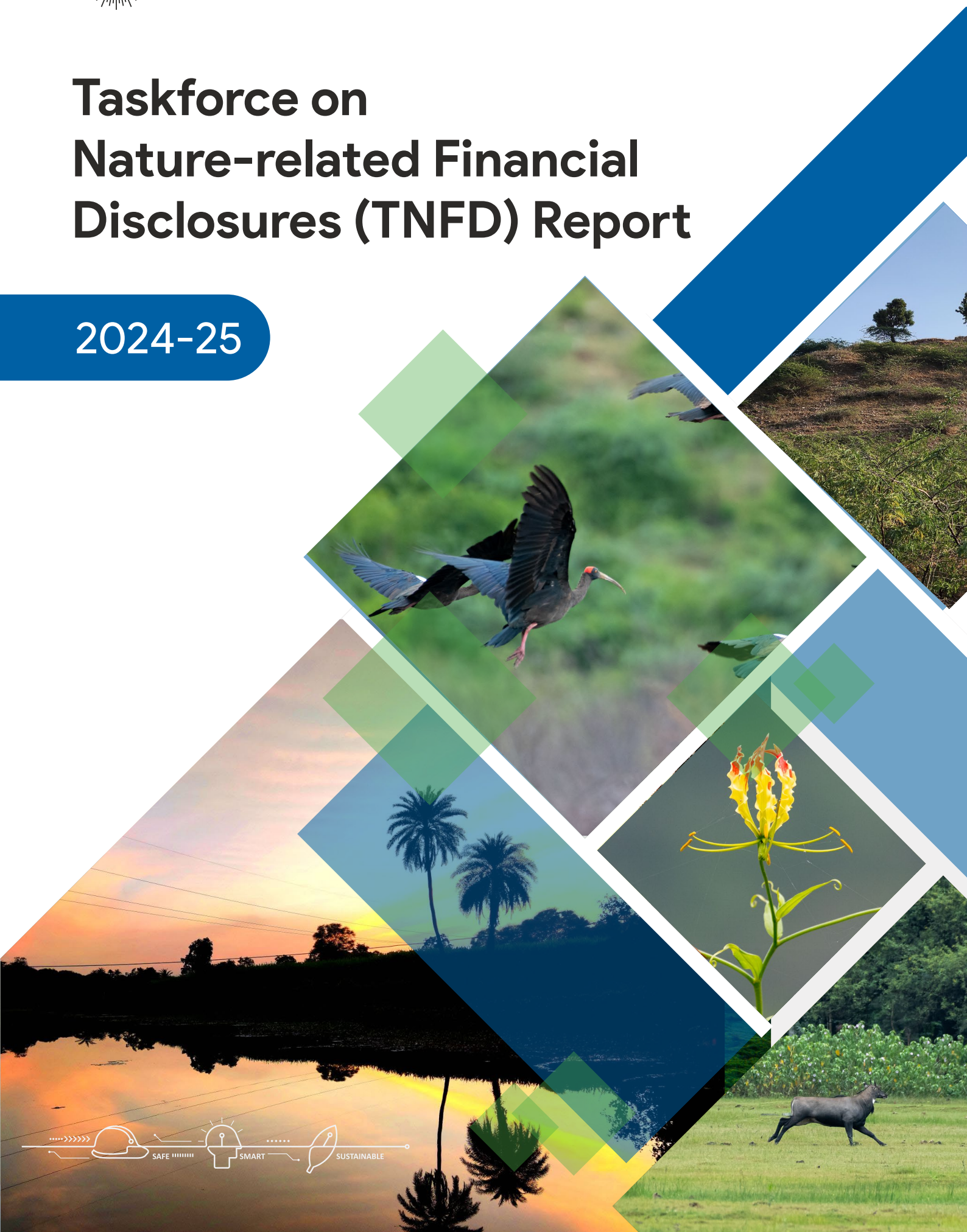
HINDUSTAN ZINC
Zinc & Silver of India

# Taskforce on Nature-related Financial Disclosures (TNFD) Report

2024-25



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TNFD Report for Hindustan Zinc Ltd

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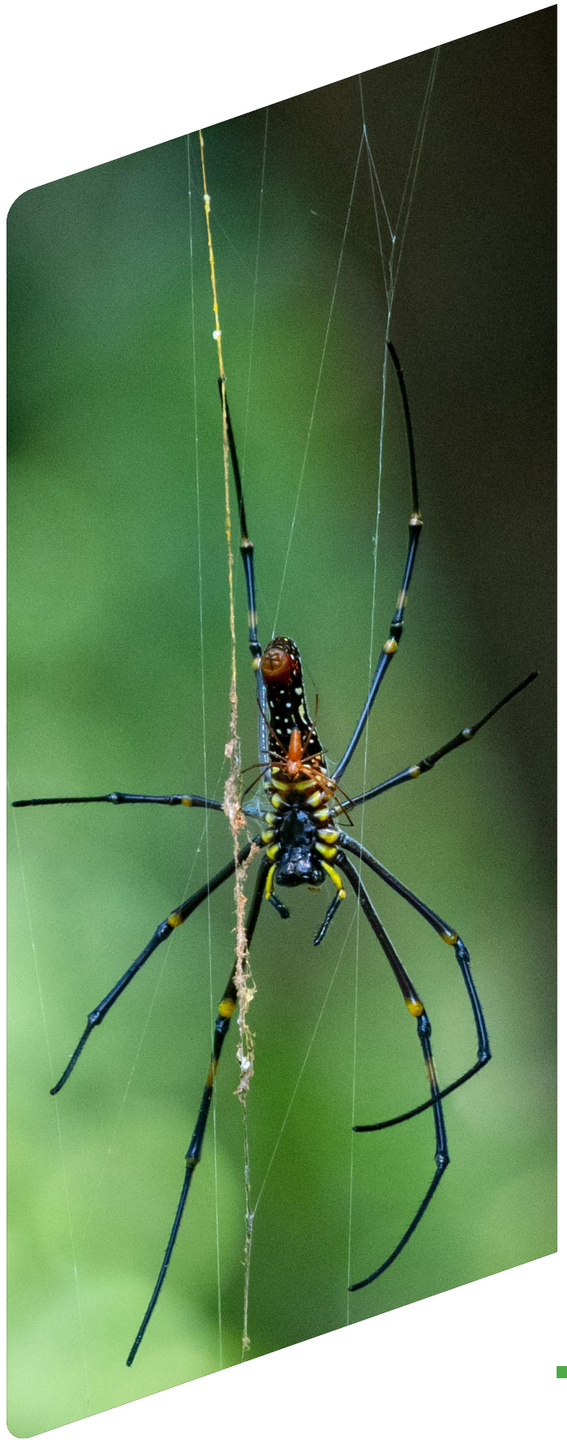
# About The Report

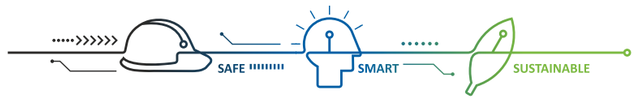
Taskforce on Nature-related Financial Disclosures (TNFD) report for the year FY 2024–25 highlights Hindustan Zinc Limited's (HZL's) enduring commitment to integrating nature-related considerations into its strategic and operational frameworks. Building on the TNFD's recommendations and the LEAP (Locate, Evaluate, Assess, and Prepare) approach, this report provides 14 disclosures under TNFD's recommended pillars: Governance, Strategy, Risk & Impact Management, and Metrics & Targets, addressing the nature-related Dependencies, Impacts, Risks, and Opportunities (DIRO).

HZL meticulously utilizes the LEAP framework alongside tools such as the WWF's Biodiversity Risk Filter, the ENCORE tool, and WRI's Ecosystem Services Review tool. These resources enable the company to effectively identify, assess, and manage nature-related dependencies, impacts, risks, and opportunities. The report details the development of HZL's site-specific Biodiversity Management Plans (BMPs) and their alignment with the approaches and statements from the International Council on Mining and Metals (ICMM).

Furthermore, the report underscores HZL's ongoing dedication to biodiversity conservation, with specific objectives such as achieving No-Net-Loss (NNL) and Net Positive Impact (NPI) in critical habitats. Through this document, HZL clearly outlines the methodologies employed for biodiversity enhancement, risk mitigation, and opportunity leveraging at both the site-specific and organizational levels. It also establishes the metrics and targets designed to monitor progress toward sustainability aspects in 2024-25 and beyond.

Ultimately, this comprehensive report serves as a vital tool for stakeholders, showcasing HZL's advancements in sustainable development and its resilience strategy amidst nature-related challenges. By demonstrating transparency and accountability in its environmental efforts, HZL reaffirms its commitment to fostering a harmonious relationship with the nature and contributing to global sustainable development goals.





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# Message from Chairperson

Dear All,

At a time when environmental resilience has become central to long-term business continuity and value creation, I am proud to present HZL second TNFD Report for FY 2024–25. This report reflects our core belief that nature is not a passive backdrop to economic activity but a vital pillar of sustainable growth.

As custodians of one of the world's most critical natural resources, we recognise the immense responsibility that comes with our footprint. Our operations intersect with ecosystems, communities, and climate systems and it is our duty to ensure that this intersection becomes a force for regeneration, not depletion.

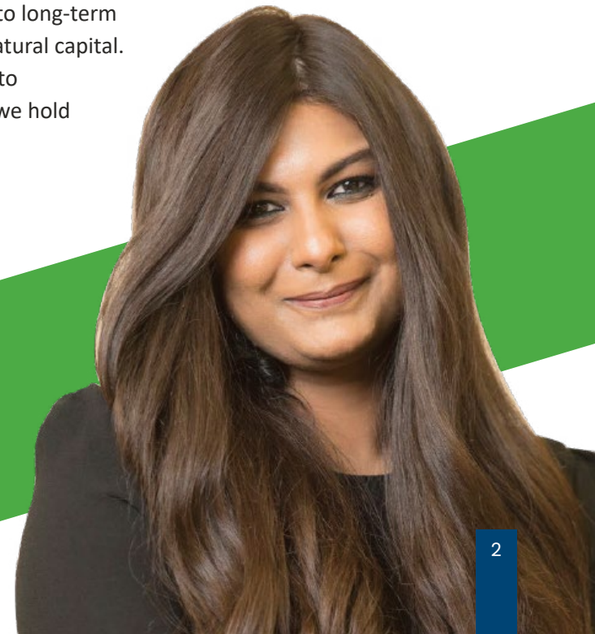
This year's report marks a significant step forward in our nature-positive journey. In alignment with the Kunming-Montreal Global Biodiversity Framework, and in collaboration with the International Union for Conservation of Nature (IUCN), we have successfully revised site-specific Biodiversity Management Plans (BMPs) across all our operational mines and smelters. These Biodiversity Management Plans (BMPs) are designed to ensure No-Net-Loss of biodiversity by mine closure and to strive for a Net Positive Impact in ecologically sensitive areas.

We have systematically embedded nature-related considerations into our governance structures, enterprise risk frameworks, and strategic planning processes. From implementing ecological restoration technologies and advancing conservation partnerships to engaging deeply with local communities, our efforts reflect a clear evolution from regulatory compliance to purpose-driven leadership.

This TNFD Report stands as a reaffirmation of our commitment to long-term value creation through the preservation and enhancement of natural capital. It represents our continued journey toward transparency, a call to collaborative action, and a reflection of the deep responsibility we hold toward future generations.

Thank you for walking with us on this path toward a more sustainable, inclusive, and resilient future.

Best Wishes,
**Priya Agarwal Hebbar**
Chairperson – Hindustan Zinc Limited



# Message from CEO

Dear All,

As we accelerate our transition towards a nature-positive future, I am proud to present HZL's second TNFD Report for FY 2024–25, a defining step in embedding ecological responsibility into our growth narrative.

The growing challenges of climate change, biodiversity loss, and ecosystem degradation are no longer future concerns they are immediate strategic issues requiring swift and holistic action. At HZL, we understand that protecting nature is not just an environmental necessity but a core business priority. Our operations are closely intertwined with natural ecosystems, and we are committed to making this relationship one of restoration and renewal, rather than depletion.

In FY 2024–25, we advanced with bold actions to strengthen our environmental stewardship. In collaboration with the International Union for Conservation of Nature (IUCN), we revised site-specific Biodiversity Management Plans (BMPs) across all our operational mines and smelters. These plans are aligned with global standards and are focused on achieving No Net Loss of biodiversity by the time of closure of mine site—driving our broader vision to halt and reverse biodiversity loss by 2030.

As one of the early adopters of the TNFD in India's metals and mining sector, we are embedding nature- related risks and dependencies into our core business strategy, governance, and enterprise risk framework. Importantly, we are broadening our focus to evaluate nature-related risks throughout our entire value chain upstream and downstream ensuring a holistic, systems-level approach to environmental responsibility.

This report serves as a strategic roadmap, outlining our advancing nature agenda. It highlights our dedication to restoring degraded ecosystems, empowering community- driven conservation efforts, and generating lasting value through nature-based solutions.

We strongly believe that the future of manufacturing is rooted in regeneration, and we are proud to be at the forefront of this transformation in India. We invite all our stakeholders investors, partners, regulators, and communities to explore this report, hold us to higher standards, and collaborate with us in shaping a nature-resilient future that is both sustainable and inclusive.

**Together, we can redefine value creation, for business, for biodiversity, and for generations to come. #LeadingGreenWithHZL**

Best Wishes,
**Arun Misra**
CEO & Whole-Time Director,
Hindustan Zinc Limited



# Nature Conservations Initiatives & Commitments

HZL's biodiversity strategy is structured around several key principles, including avoiding and minimizing negative impacts, aiming for No-Net-Loss (NNL) biodiversity, and achieving Net Positive Impact (NPI) in critical habitats. This commitment is further strengthened through partnerships with organizations like the International Union for Conservation of Nature (IUCN) and adherence to the International Council of Mining and Metals (ICMM) Mining Principles. HZL is also deeply collaborating with Forest Department of Rajasthan, India to implement its site wise wildlife conservation plans.

The above-mentioned approach of HZL focuses on integrating nature and biodiversity into strategic planning, financial decisions, and risk assessments, along with continuous monitoring and improvement to manage the risks and tap the opportunities.

**Key initiatives of HZL are provided below:**

### 1. Three-Year Collaboration with IUCN on Biodiversity Management Planning

Recently, HZL has completed a three-year collaboration with the IUCN to integrate biodiversity conservation into its management at site-level. This partnership aimed to enhance HZL's performance in biodiversity management. The collaboration focused on the following objectives:

- **Policy Enhancement:** Revised HZL's Biodiversity Policy, Technical Standard, and Guidance Note to align with global standards and achieve the No-Net-Loss of biodiversity.
- **Strategic Review:** Assessed existing Biodiversity Management Plans and practices, and established site-specific protocols for biodiversity and ecosystem services management, incorporating the best global practices to support the No-Net-Loss objective.
- **Biodiversity Management Plan:** Over the course of three years, HZL, in collaboration with IUCN, has developed Biodiversity Management Plans for all its business operations based in Rajasthan. The plan includes an Ecosystem Services Review, a site-level inventory of flora and fauna based on seasonal surveys (4 seasons), a biodiversity impact assessment, No-Net-Loss calculations, and detailed plans for habitat improvement, restoration, and offset.
- **Action Planning:** After having the site wise Biodiversity Management Plans (BMPs) in place. HZL is working on Developing an Annual Action Plan for implementing the Biodiversity Management Plans(BMP).
- **Capacity Building:** Trained and enhanced the skills of employees in managing biodiversity and ecosystem services by conducting capacity building workshops.



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### 2. Alignment with International Council of Mining and Metals (ICMM) approach and its Nature Position Statement:

HZL is committed to upholding its Sustainability Framework, which aligns with prestigious global standards such as the International Finance Corporation (IFC) and the International Council on Mining and Metals (ICMM). In line with this commitment, HZL has meticulously mapped and documented its policies and commitments to meet the requirements of the International Council on Mining and Metals (ICMM) Nature Position Statement. This alignment underscores HZL's dedication to enhancing sustainability and biodiversity management, as well as its aspiration to become an International Council on Mining and Metals (ICMM) member. Through these efforts, HZL continues to advocate responsible mining practices that contribute to nature-positive outcomes by 2030, in coherence with the Kunming-Montreal Global Biodiversity Framework targets.

HZL is dedicated to contributing to the global ambition of achieving a Nature Positive outcome by 2030, with 2020 as the baseline, by halting and reversing biodiversity loss.

This commitment spans four key spheres of influence: direct operations, value chains, landscapes, and system transformation, and is realized through various initiatives provided below:

**Direct Operations**

- Avoid operating/exploring/mining/drilling in World Heritage Sites, Key Biodiversity Areas and International Union for Conservation of Nature (IUCN) Category I-IV Protected Areas.
- Developing and implementing biodiversity management at each operating site in alignment with our Biodiversity Policy and Technical Standard on Biodiversity Management.

**Value Chain**

- Working with the value chain to address nature-related risks, enable collective action, and drive impact disclosure from high-risk suppliers.

**Landscapes**

- Engaging with key stakeholders by raising awareness, contributing to conservation or restoration initiatives.
- Supporting conservation of International Union for Conservation of Nature (IUCN) Red List Species and Nationally protected species around our operations by implementing wildlife conservation plans.

**System Transformation:**

- Supporting capacity building programs and research initiatives aimed at biodiversity conservation to develop and share effective strategies for addressing industry nature challenges.
- Progressively enhancing sharing of biodiversity and ecosystem monitoring data with local, national, and global data sharing platforms.

To fulfill commitments this year, the company has taken steps in direct operations, landscapes, and system transformation spheres. The details are provided below:

**Initiatives in Direct Operations and Landscapes**

- Engaged with forest department and supported for rehabilitation of degraded forest of 100 ha at Zawar Mines.
- Developed and implementing site-specific wildlife conservation plan for Schedule I species around our operations for habitat improvement, fostering awareness and supporting for rescue and rehabilitation of wildlife.
- Supported with INR 50 million towards Crocodile Conservation Park.
- Sponsored bird festival organized by Wildlife department for creating awareness.

**Initiatives in System Transformation**

Collaborated with The Energy and Resources Institute (TERI) to pilot the restoration of the Jarofix yard using Mycorrhiza-based reclamation technologies. Approximately 6.25 hectares have been successfully restored through plantation efforts. This initiative was the first research of its kind undertaken by HZL, and the technology experimented has the potential to be adopted by other industries to address similar industrial challenges. After the successful piloting, HZL has initiated Phase II of revitalizing 16 hectares of wasteland at the Chanderiya Lead-Zinc Smelter into a vibrant greenbelt.





# TNFD General Requirements

## Materiality Applications

HZL continues to prioritize a comprehensive approach to materiality assessment, building on the definition set out by Global Reporting Initiative (GRI) which states, “The organization priorities reporting on those topics that represent its most significant impacts on the economy, environment and people, including impacts on their human rights. Apart from the Global Reporting Initiative (GRI) standards, **HZL has adopted double materiality principles, which are rooted in both impact and financial materiality strategies and specific science-based targets for nature to address the intricacies of nature-related dependencies and impacts.** This transformation sees the inclusion of guidance from the Sustainability Accounting Standards Board (SASB) and alignment with the European Financial Reporting Advisory Group (EFRAG) and the EU Corporate Sustainability Reporting Directive (CSRD).

### Strategic Materiality and Priority Areas

HZL conducts materiality assessment every three years, followed by an annual review. In FY 2024-25, the company conducted a fresh double materiality assessment. Additionally, the outcomes of this materiality assessment have been systematically incorporated into their Enterprise Risk Management framework, enabling robust identification and mitigation of sustainability-related risks. This helped in identifying and prioritising material issues that are financially material to the business operations and have significant environmental and social impacts on the stakeholders. This year HZL focused on understanding the impacts (positive and negative), risks, and opportunities associated with the key material topics, to better align their sustainability strategy and disclosures with stakeholder expectations for long-term value.

Priority areas such as climate change, decarbonization, biodiversity, and ecosystems underline HZL's commitment to sustainable practices. These priorities are closely aligned with the Sustainable Development Goals, with a strong emphasis on achieving Net-Zero emissions and halting and reversing biodiversity loss.

## Scope of Disclosures

HZL has expanded its disclosure efforts to include a more comprehensive assessment of nature-related issues throughout its business operations (direct operations) and value chain, both upstream and downstream. **This TNFD report covers ten business sites involved in direct operations, including smelters, mines, power plants, and refineries. Additionally, it considers 37 Critical upstream suppliers and 61 downstream primary customers.** Among the ten direct operations, nine are currently operational, while one site, Bamniya Kalan, is in the development phase. Consequently, the report provides assessments for the nine operational sites only.

**The scope of disclosure for direct operations encompasses the leased area of each site and extends to a 10-kilometer radius surrounding these business operations.** The critical suppliers are identified based on their spend and the items they provide while 61 customers are chosen based on contribution to the top 75% of revenue across all zones. A detailed representation of the scope of the business value chain is provided in the accompanying figure.

**Figure 1: Scope of Business Value chain covered in the report**


In 2013, HZL developed Biodiversity Management Plans (BMPs) for all of its business operations. In 2024, these BMPs underwent revisions to ensure they effectively address HZL's evolving environmental standards and sustainability goals. The findings and recommendations from these Biodiversity Management Plans (BMPs) are incorporated into various disclosures as needed. Of the nine operational units, eight are located in the Semi-Arid Biogeographic Zone, while the Pantnagar Metal Plant (PMP) is situated in the Gangetic Plain Biogeographic Zone (please refer to map 1). Detailed information about these direct operations, including their locations and associated biomes, is presented in Table 1.

This year, for critical suppliers, HZL conducted a proximity and sensitivity analysis to assess site sensitivity. Additionally, to identify risks (both physical and transitional) for Critical upstream suppliers and downstream customers, HZL used the WWF Biodiversity Risk Filter (BRF) tool as recommended by TNFD. The results and detailed analysis are provided in the Strategy Pillar of this report.

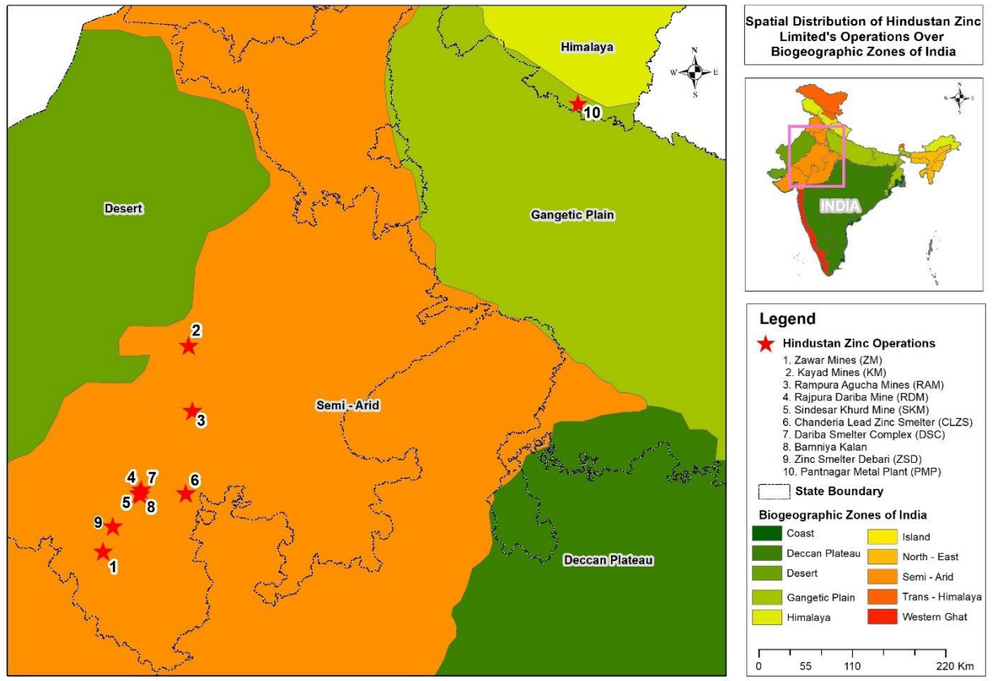




***Table 1: List of HZL operational units along with locations and IUCN Biomes Typology***

| S. No. | Unit Names | Locations | IUCN Biomes Typology | Operations |
|---|---|---|---|---|
| 1 | Zawar Mines (ZM) | Udaipur District, Rajasthan | T5.1 Semi-desert steppes | Zinc- Lead Mining, Power Plant |
| 2 | Kayad Mines (KM) | Ajmer District, Rajasthan | T5.1 Semi-desert steppes | Zinc- Lead Mining |
| 3 | Rampura Agucha Mines (RAM) | Bhilwara District, Rajasthan | T5.1 Semi-desert steppes | Zinc- Lead Mining |
| 4 | Rajpura Dariba Mine (RDM) | Rajsamand District, Rajasthan | T5.1 Semi-desert steppes | Zinc- Lead Mining |
| 5 | Sindesar Khurd Mine (SKM) | Rajsamand District, Rajasthan | T5.1 Semi-desert steppes | Zinc- Lead Mining |
| 6 | Chanderia Lead Zinc Smelter (CLZS) | Chittorgarh District, Rajasthan | T5.1 Semi-desert steppes | Smelter (Zinc and Lead), Power plant |
| 7 | Dariba Smelting Complex (DSC) | Rajsamand District, Rajasthan | T5.1 Semi-desert steppes | Smelter (Zinc and Lead), Power plant |
| 8 | Bamniya Kalan Mine (BKM) | Rajsamand District, Rajasthan | T5.1 Semi-desert steppes | Zinc- Lead Mining (Under development) |
| 9 | Zinc Smelter Debari (ZSD) | Udaipur District, Rajasthan | T5.1 Semi-desert steppes | Smelter (Zinc) |
| 10 | Pantnagar Metal Plant (PMP) | Udham Singh Nagar District, Uttarakhand | T4.2 Pyric tussock savannas | Silver Refinery, Zinc melting and casting |

**Map 1: Spatial Distribution of HZL's Operations over Biogeographic Zones of India**




*The basemap - India's Biogeographic Zones is based on the study by Rodgers and Panwar (1988)*

## The Time Horizons

This TNFD report evaluates three-time horizons—short-term, medium-term, and long-term—for planning, implementation, and reporting on nature-related issues. These time horizons are defined based on the requirements essential for managing dependencies and impacts on ecosystem services, habitats, biodiversity, and other relevant nature-related factors at the operational level, as outlined in the Biodiversity Management Plans (BMPs). A description of each of these three-time horizons is provided below.

***Table 2: Time Horizon***

| Time Horizons | Years | Activities* |
|---|---|---|
| **Short Term** | 5 years (2030) | 1. Annual action planning for biodiversity management for each site.<br>2. Green belt enhancement at each site.<br>3. Nursery upgradation considering the recommended species under site-wise biodiversity management plans. |
| **Medium Term** | 15 Years (2040) | 1. Plan and stakeholder engagement for offsite Ecological Restoration and Biodiversity Enhancement.<br>2. Implementation of wildlife conservation plans to support conservation of IUCN Red List Species and Nationally protected species around.<br>3. Supporting capacity building programs and research initiatives aimed at biodiversity conservation.<br>4. Performance monitoring to understand habitat improvements at each site. |
| **Long Term** | 25 Years (2050) | 1. Off-site collaborative plantations and related actions on degraded land – riparian zones, forest, grassland and wetland areas.<br>2. Plan and remove invasive species at each site<br>3. Performance monitoring to understand habitat improvements at each site.<br>4. Work with the value chain to address nature-related risks. |

HZL has developed BMP for all their Rajasthan-based units and identified short- (5 Years), medium- (15 Years), and long-term (25 Years) action plans for the conservation of biodiversity and ecosystem services at their operational sites. Implementing these BMPs across sites including Rampura Agucha Mine, Rajpura Dariba complex, Zawar Mine, Zinc Smelter Debari, Kayad Mine, and Chanderia Lead Zinc Smelter, HZL's comprehensive approach focuses on biodiversity conservation and ecosystem services enhancement. The activities for each time horizon are tailored to the specific habitat requirements of the smelter and mining plants.



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## Engagement with Local Communities and Affected Stakeholders

Under its biodiversity policy, HZL has set a specific objective to align with local, national and global conservation experts, indigenous peoples, local communities, affected stakeholders and organizations.

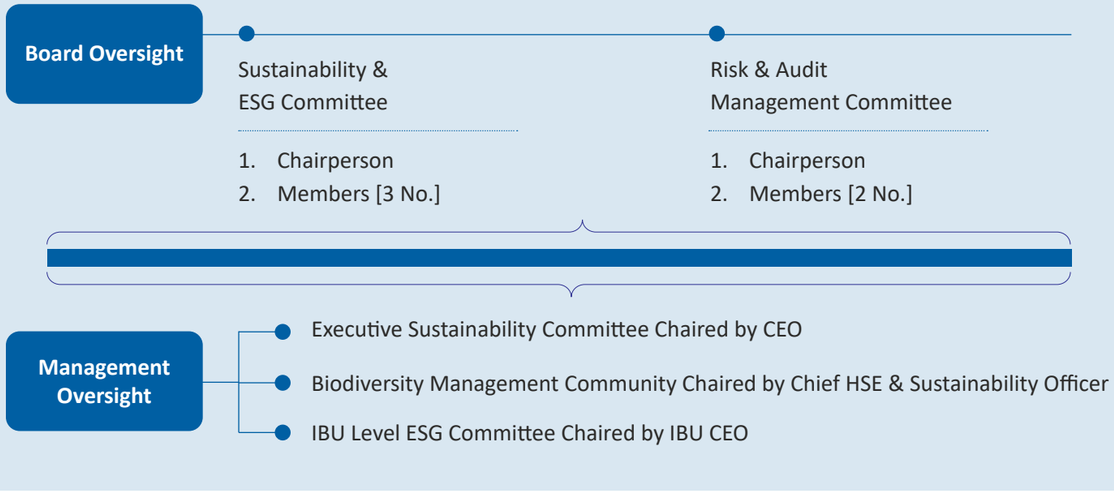
The scope of engagement with Indigenous Peoples, Local Communities and affected stakeholders are detailed out in disclosure under Governance pillar.

# Governance

HZL prioritizes sustainability and governance at the core of its operations, as evidenced in the TNFD report. The company employs a three-tier governance framework that fulfills the disclosures of the Governance, addressing Board and Management Oversight, as well as oversight concerning local communities, affected, and other stakeholders. This approach ensures clear roles and decision-making processes for environmental and climate-related initiatives, overseeing safety, health, environmental performance, and social impacts and mitigation plan.

Key principles guiding HZL's sustainability efforts include the adoption of eco-friendly technologies, conducting environmental assessments, and engaging transparently with stakeholders. The company's efforts are supported by a suite of policies, such as Biodiversity Policy[1], Energy & Climate Change Policy[2], CSR Policy[3], Environmental Policy[4], Human Rights Policy[5], and Water Management Policy.[6]

HZL's Corporate Governance framework is designed to foster responsibility, ethics, integrity, and accountability, thereby promoting stakeholder trust through strong leadership and transparency. This framework is instrumental in achieving sustainability objectives and enhancing brand reputation. Within the governance structure, the Board of Directors provides strategic guidance and is supported by dedicated committees that oversee various functions, ensuring alignment with organizational goals and the ethos of responsibility.




[1]https://www.hzlindia.com/wp-content/uploads/Biodiversity_Policy.pdf
[2]https://www.hzlindia.com/wp-content/uploads/Energy-and-Climate-Change-Management-Policy-English.pdf
[3]https://www.hzlindia.com/wp-content/uploads/CSR-Policy-FY26.pdf
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[6]https://www.hzlindia.com/wp-content/uploads/Water_Management_Policy.pdf



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## Board's Oversight

At HZL, the Board of Directors plays a pivotal role in guiding the company's strategy related to nature and biodiversity. Their proactive involvement is crucial for integrating sustainability considerations into the company's strategic objectives, risk management processes, and long-term sustainability goals. The Board oversees the sustainability and biodiversity related requirements through different committees responsible for governance related to nature-related dependencies, impacts, risks, and opportunities. The details of committees are provided below:

1. **Sustainability and ESG Committee:** Chaired by an Independent Director, the Sustainability and ESG Committee is tasked with supporting the Board in fulfilling its obligations related to ESG matters, including issues concerning biodiversity. It is charged with ensuring robust governance in sustainability matters. The committee is also responsible for overseeing the sustainability strategy, establishing long-term goals and targets, and ensuring continuous improvement in the company's sustainability performance. Additionally, it implements suitable processes and policies across the organization. The committee plays a strategic role in mitigating potential environmental damage and strengthening the company's commitment to its stakeholders, executing these responsibilities through bi-annual meetings to discuss Sustainability and ESG strategies and review progress against established targets and goals.

2. **Audit and Risk Management Committee (ARC):** The Audit & Risk Management Committee of the Board supervises the company's financial reporting and evaluates the effectiveness of internal financial controls and risk management frameworks. A significant aspect of its role involves overseeing the management of nature-related and other sustainability risks, specifically focusing on environmental, social, and governance (ESG) issues. It ensures that the company's risk management systems effectively address strategic, financial, operational, sectoral, sustainability, information, and compliance risks. This committee works to enhance the adequacy and effectiveness of the organization's compliance and governance programs from a legal, regulatory, and ethical standpoint. Additionally, it is responsible for monitoring the qualifications, expertise, resources, and independence of both internal and external auditors, assessing their performance and effectiveness annually.

*Table 3: Composition of Board-level committees of the company*

| Board Committee | Composition | Members |
|---|---|---|
| **Sustainability and ESG Committee** | Chairman | Mr. Akhilesh Joshi |
| | Members | Mrs. Nirupama Kotru |
| | | Mr. Arun Misra |
| | | Mr. Dinesh Mahur |
| **Audit & Risk Management Committee** | Chairman | Mr. Kannan Ramamirtham |
| | Members | Mrs. Nirupama Kotru |
| | | Mr. Akhilesh Joshi |

**Training and Development for the Sustainability and ESG Committee members**

To remain informed admist shifting environmental contexts, the Board Committee members actively participate in regular familiarization programs covering essential topics like Enterprise Risk Management, cybersecurity, and emerging ESG trends. These sessions foster continuous learning and provide Board members with valuable insights needed to effectively challenge and guide management. Additionally, site visits to operational locations offer Board members firsthand experience with on-ground practices, stakeholder engagement, and sustainability integration, thereby enhancing informed decision-making and governance oversight.

## Management's Oversight

At HZL, management plays a crucial role in evaluating and managing nature-related dependencies, impacts, risks, and opportunities, focusing on biodiversity and environmental stewardship. The company employs a robust three-tier governance framework to implement its sustainability strategies and targets, ensuring the integration of ESG principles throughout the organization.

To drive progress toward sustainability targets, HZL has established twelve Sustainability Communities. These communities, comprising representatives from all business units, ensure a comprehensive and integrated approach. Each communities is tasked with specific goals, consistently monitoring and reporting on the company's advancements toward these objectives. This structured approach enables coordinated efforts and accountability throughout the organization, with governing authorities meeting monthly to review progress against set targets.






**Sustainability Committees at ExCO Level**

Chaired by the Chief Executive Officer (CEO), the Executive Sustainability Committee, which includes all Executive Committee members and Chairpersons from twelve sustainability communities and ESG committee at IBU level, conducts monthly review of HZL's sustainability progress, it also oversees reporting on the TNFD. This committee formulates company-wide sustainability strategies, establishes long-term objectives, and tracks progress against these targets. It plays a pivotal role in guiding strategic resource allocation to achieve the Sustainability Goals, including long-term goals for climate change and ensures the effective execution of projects that contribute to these goals. Performance updates are presented bi-annually to the Board-level Sustainability and ESG committee.

**Biodiversity Management Community**

The Biodiversity Management Community is integral to the company's commitment to sustainable development through the protection and enhancement of biodiversity. Following the Biodiversity Management Policy and Performance Standard, the community facilitates the integration of biodiversity management into decision-making processes for both new and existing projects. Its purpose is to ensure measures are taken to mitigate biodiversity impacts throughout the lifecycle of projects, including during scoping, construction, operation, site closure, and beyond. A key objective is to achieve No-Net-Loss (NNL) and Net Positive Impact (NPI) of biodiversity, particularly in critical habitats.

The community meets monthly to report progress on biodiversity management projects to the chairman and

to seek guidance as needed. It is empowered to co-opt members from other functions as required to enhance its effectiveness.

The biodiversity management community is authorized to:

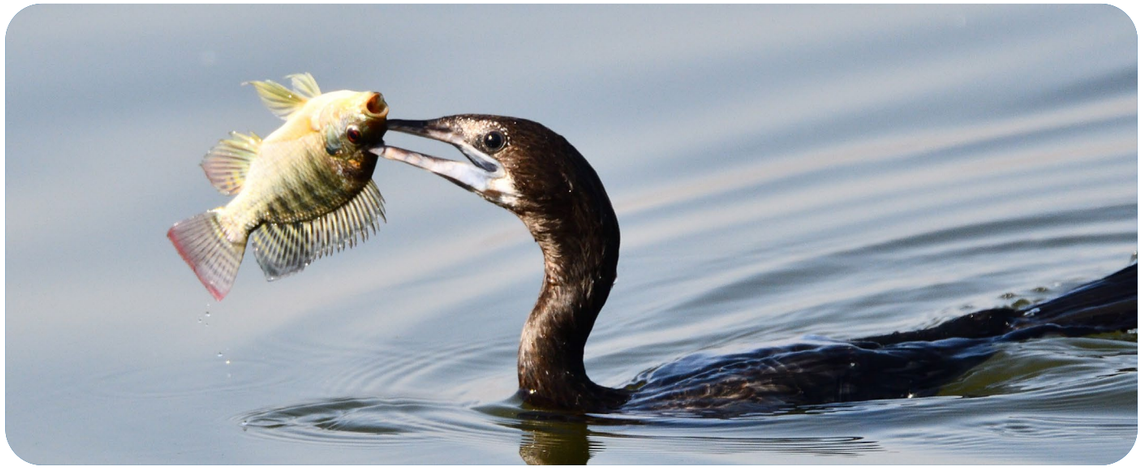
- Establish advisory or steering groups for focused advice on biodiversity risks and mitigation.

**Key Responsibilities of community includes:**

- Conducting brainstorming sessions to strategize biodiversity conservation efforts.
- Tracking and updating the Biodiversity Management Plan (BMP) and exploring implementation opportunities.
- Identifying and applying peer practices and innovative technologies across various locations to enhance biodiversity conservation, including plantation initiatives.
- Monitoring performance against biodiversity conservation projects and reporting progress to senior management.
- Outline necessary actions and measures for effective biodiversity management.
- Facilitate the integration of biodiversity management into project decision-making processes.
- Developing strategies and initiatives to foster a culture of biodiversity conservation throughout the project lifecycle, engaging employees.
- Collaborating with renowned agencies to increase biodiversity awareness among employees and nearby communities through assessments and implementation efforts.
- Performing Green Belt inventory across HZL.

**Independent Business Unit (IBU) ESG Committees**

Independent Business Unit (IBU) at HZL has its own ESG Committee responsible for implementing sustainability practices related to environmental, social, and governance (ESG) aspects. These committees are tasked with continuously evaluating and mitigating risks from both internal and external sources. They operate within a structured governance framework that involves line managers to support effective risk management and advance the ESG agenda, including biodiversity management at the site level. The committees' responsibilities include managing projects at the site level, executing biodiversity and wildlife conservation plans, and overseeing the progress of each initiative.





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## Addressing Local Community's Concerns into Governance

The biodiversity policy emphasizes the collaboration with conservation experts, local communities and affected stakeholders. The company has implemented the Assess, Plan, and Implement process to develop and execute site-specific Biodiversity Management Plans (BMPs) for its operational sites. The Biodiversity Management Plans (BMPs) are complemented by the Ecosystem Services Review (ESR) exercise conducted in 2024, which helps to understand the dependency and impact of operations, as well as the reliance of nearby communities on ecosystem services. The Ecosystem Services Review (ESR) exercise also provides insights into the community's perception of business operations, illustrating how their dependency has been affected, both positively and negatively, by these operations. Below is a table of the community engagement process at each stage of the Biodiversity Management Plan (BMP) development.

***Table 4: Community Engagement stages***

| Stages | Activity | Community Involvement |
|---|---|---|
| **Assess** | Biodiversity Assessment and Ecosystem Services Study | In this study, an extensive community survey was conducted at each site. Especially the survey was focused on:<br>• the condition of ecosystem services,<br>• changes in the patterns of ecosystem services,<br>• impact of these changes on the community and,<br>• their suggestion on managing the ecosystems.<br>These inputs were the part of the Biodiversity & Ecosystem Services (BES) inventory as Ecosystem Service Review (ESR) report for each site. |
| **Plan** | Biodiversity Management Plan (BMP) development | The Biodiversity Management Plans (BMPs) developed for each site of HZL with a specific component on the socio-economic environment. This component shall deal with the initiatives related to local communities and relevant stakeholders for biodiversity management in the area. |
| **Implement** | BMP Implementation | The Biodiversity Management Plan (BMP) implementation outside the boundaries of HZL sites shall be done in collaboration with local communities. |

# Strategy

HZL has developed a comprehensive four-tier process to identify and manage nature-related Dependencies, Impacts, Risks, and Opportunities (DIRO). This process begins with an initial screening of the metal and mining sector at the business sector level, followed by in-depth assessments at the site level (direct operations), and subsequently extends to both upstream and downstream assessments. The entire approach is aligned with the Locate, Evaluate, Assess, and Prepare (LEAP) framework.

In its 2024 disclosure report, HZL focused on direct operations and the upstream value chain. In 2025, HZL is expanding its scope to include the downstream value chain, ensuring a more comprehensive coverage.

For upstream suppliers, HZL employed Proximity Analysis to identify material locations where the upstream value chain operates near Protected or Key Biodiversity Areas.

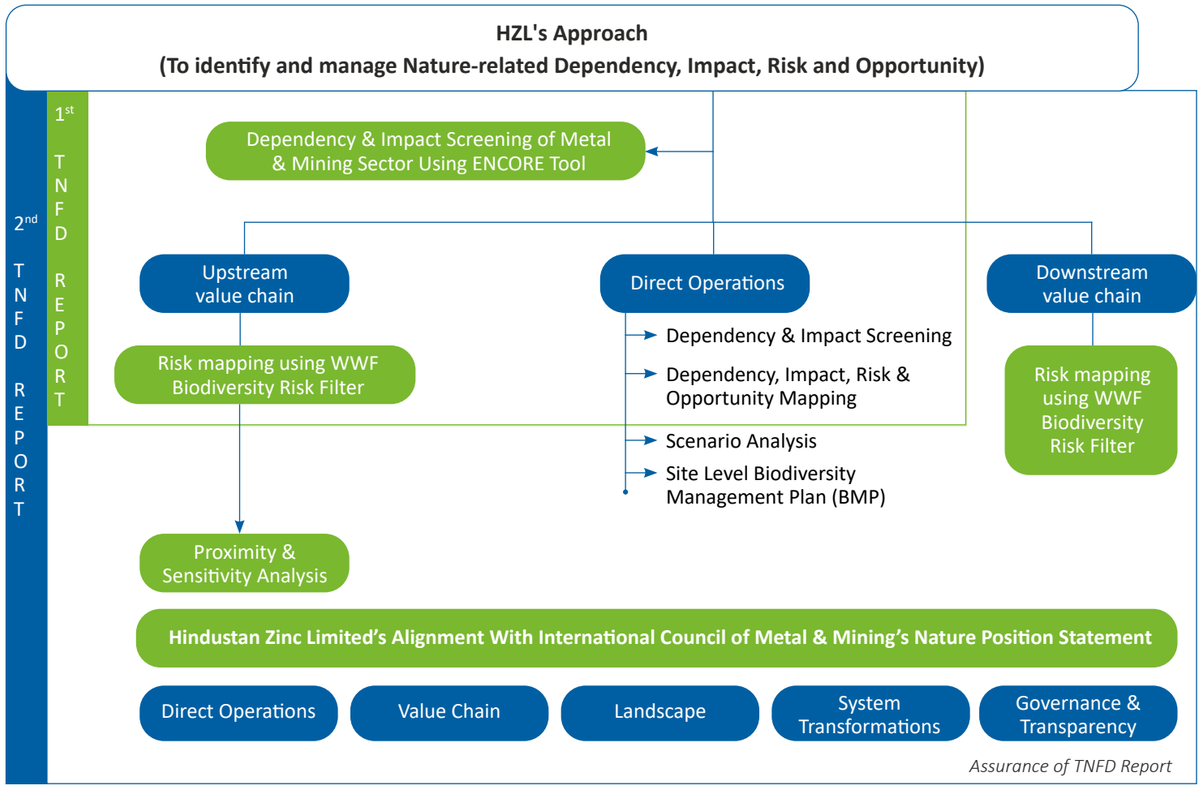
For direct operations, alongside Proximity Analysis and DIRO Mapping, HZL has developed Biodiversity Management Plans (BMPs) for sites, including Rampura Agucha Mines, Chanderiya Zinc-Lead Smelter, Rajpura Dariba Complex, Debari Smelter, Zawar Mines, and Kayad Mines. These plans aim to mitigate impacts on biodiversity and ecosystems, striving for No-Net-Loss (NNL) or a Net Positive Impact (NPI) through natural habitat restoration, flora species protection, and community engagement. HZL also adheres to the Nature Position Statement, with alignment details provided in relevant disclosures as required.

The alignment of HZL with the LEAP framework is presented in Table 5 below, and approach for identifying and managing DIRO is illustrated in Figure 2 and further detailed in the sections below.

***Table 5: HZL's Alignment with LEAP Approach***

| Stages | Activity | Community Involvement |
|---|---|---|
| LOCATE | L1. Span of the business model and value chain | The company's comprehensive assessment covers all elements, including its direct operations, as well as the upstream supply chain with 37 Critical Suppliers and the downstream value chain involving 61 Customers. |
| | L2. Dependency and impact screening | ENCORE tool ratings for **Mining, Metal Processing and Diversified Metals** are used for Dependency and Impact screening. |
| | L3. Interface with nature | The Biomes presence at all the operational sites are mapped as per IUCN Biomes Typology. |
| | L4. Interface with sensitive locations | None of the sites fall within proximity of areas of high biodiversity importance. 8 sites in Rajasthan fall under Water Stress. The company has Biodiversity Management Plans(BMPs) for all the **sites and revised** them recently in 2024. |
| EVALUATE | E1. Identification of environmental assets and ecosystem services | Ecosystem services mapping and review are conducted at each direct operational site to identify environmental assets and ecosystem services. This process involves direct collaboration with operational units utilizing WRI's Ecosystem Services Review (ESR) tool |
| | E2. Identification of dependencies and impacts (Business Sectors) | Identification of dependency and impact of company's business sector are done using ENCORE tool and WWF Biodiversity Risk Filter (BRF). |
| | E3. Dependency and Impact analysis (size and scale) | WRI's Ecosystem Services Review (ESR) tool is used for dependency and Impact analysis for each site on the ecosystem service. Both size and scale of dependency and impact are identified, and ranking is done. |
| | E4. Impact Materiality Assessment | The company has considered the impacts on its operations, employees and local communities as material impacts for identifying risks and opportunities. |
| ASSESS | A1. Risk and Opportunity identification | The risk and opportunities corresponding to the impact and dependencies are identified for all the sites. Also, the risk assessment was done for all the critical suppliers using WWF's Biodiversity Risk Filter (BRF). |
| | A2. Adjustment of existing risk mitigation and risk and opportunity management | HZL has a well-established framework for assessing and managing biodiversity risks. Initially developed in 2014, their site-specific Biodiversity Management Plans (BMPs)were updated in 2024 to reflect current conditions. The company also uses the World Resources Institute's Ecosystem Services Review (ESR) tool to evaluate impacts, dependencies, risks, and opportunities at each site. This tool helps assess ground-level conditions and identify specific risks and opportunities related to nature and biodiversity. |
| | A3. Risk and opportunity measurement and prioritisation | The risk and opportunity identified by LEAP assessment have been integrated in the revised site-specific Biodiversity Management Plans (BMPs) of all priority sites. The Biodiversity Management Plans (BMPs) have the prioritization of risks and corresponding actions required to restore habitat and achieve No-Net-Loss (NNL). |
| | A4. Risk and opportunity materiality assessment | The company has considered all medium and high impact and dependency-related risks as material risks and opportunities. |
| PREPARE | P1. Strategy and resource allocation | The risks and opportunity management strategy and resources allocations have been included in the Biodiversity Management Plans (BMPs) for each site. |
| | P2. Target setting and performance management | HZL has adopted targets for 2025 and 2030 for 3 Nature Realms (Land, Water and Atmosphere). Also, the company has adopted the TNFD core global disclosure indicators and Metrics for reporting and monitoring the company's performance. By taking these actions, HZL aims to align itself for ICMM Nature Position Statement requirements. |
| | P3. Reporting | The company has reported the assessment results as part of "Strategy" and "Metrics & Targets" sections of the TNFD report. |
| | P4: Presentation | The company shall continue to disclose nature-related risks and opportunities using TNFD recommendation in coming years as well. |

**Figure 2: HZL'S Approach to Identify and Manage Nature-Related Issues**

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## Nature-related Dependencies, Impacts, Risks and Opportunities

To effectively navigate the interplay between its business operations and the surrounding environment, HZL has conducted an in-depth assessment to map its dependencies, impacts, risks, and opportunities. As a leading entity in the mining and metal industry, HZL is steadfast in its commitment to environmental protection, implementing a range of proactive measures such as biodiversity screening and tailored biodiversity management plans for each business operation. These initiatives are designed to identify and address nature-related challenges with precision. HZL's comprehensive approach for managing dependencies, impacts, risks, and opportunities is outlined below and visually represented in Figure 2 above.

### 1. Nature-related dependencies, impacts screening at Business Sector Level

HZL has leveraged TNFD-recommended tools, such as the Exploring Natural Capital Opportunities, Risks and Exposure (ENCORE) and WWF's Biodiversity Risk Filter (BRF). These tools help assess how a business sector or operation depends on or impacts ecosystem services. To develop an understanding of how the metal and mining sector is exposed to nature-related issues, HZL has employed the aforementioned tools. The results were published in the 1st TNFD report[8] and are summarized in this report as well.

[8]https://www.hzlindia.com/wp-content/uploads/Final-TNFD-Report.pdf





**The screening result of Exploring Natural Capital Opportunities, Risks and Exposure (ENCORE) tool reveal that:**

- Mining operations have a high dependency on water resources (surface and groundwater), water flow maintenance, and climate regulation, with a medium dependency on erosion control.
- Metal processing has a medium dependency on water resources (surface and groundwater) and water flow maintenance, with very low dependency on climate regulation and mass stabilization and erosion control.
- There is a very high impact on water and terrestrial ecosystem use, and a high impact on greenhouse gas (GHG) and non-GHG emissions, as well as water and soil pollutants.

**The screening result of WWF's Biodiversity Risk Filter tool reveals that:**

- The metal and mining sector has a very high dependency on water scarcity and media scrutiny (a reputational factor), and a high dependency on forest productivity, distance to markets, and regulating ecosystem services.
- The metal and mining sector has a very high impact on land, freshwater, and sea use change, tree cover loss, pollution, protected/conserved areas, and a high impact on key biodiversity areas and other important delineated areas, ecosystem condition, and labor/human rights.

The screening results demonstrate the extent of the metal and mining sector's dependencies and impacts on environmental factors. However, HZL effectively mitigates or lower downs these dependencies and impacts through its approach to managing nature-related issues at the site or operational level. The assessment results of dependencies, impacts, risks, and opportunities at the site level (direct operations) are provided in the section below.

### 2. Nature-related dependencies, impacts, risks and opportunities at Site Level (Direct Operation)

To identify dependencies, impacts, risks, and opportunities at the site level, HZL conducted a **site-specific Ecosystem Service Review (ESR).** This exercise was based on the World Resource Institute's Corporate Ecosystem Review methodology and tool.

The ESR aimed to assess how the operations rely on and impact various ecosystem services, including Provisioning services (such as food, water, and raw materials), Regulating services (like climate regulation and water purification), Cultural services (such as recreation and spiritual enrichment), and Supporting services (habitat). The Ecosystem Service Review (ESR) process involved collecting data on ecosystem services used or impacted by the site, either through operations or manpower, within a 10 km radius of each site. Primary data was gathered from nine direct operation sites using a structured questionnaire, as recommended by the World Resources Institute (WRI).

The results of dependency were categorized as High (H), Medium (M) or Low (L), while impacts were classified as High Positive (H+), or High Negative (H-), Medium Positive (M+), Medium Negative (M-) and Low (L). A negative level (-) indicates degradation or deterioration of ecosystem services, while a positive level (+) indicates improvements due to specific activities. Detailed methodology is provided in Risk and Impact Management of this report.

The Ecosystem Service Review (ESR) exercise identified key ecosystem services with significant dependencies and impacts. It also helped HZL recognize potential risks stemming from these dependencies and impacts, as well as opportunities for improvement specific to site conditions. Detailed information is provided as follows: the dependency and impact of each site (direct operations) in Table 6, the Risks summary in Table 7 and detailed Risks in Annexure 1, and the Opportunities in Table 8.

**The site-level dependencies and impacts revealed by the ESR exercise indicate that:**

- There are two business operations where there is a high dependency on erosion control.
- There is a medium dependency of 7 business operations on crops, 2 on freshwater, 1 on Recreation & ecotourism and 2 on Ethical & spiritual values.
- There is no site having High negative impact.
- There are 5 sites having Medium Negative (M-) impact on Regulation of water timing and flows ecosystem services while there is one site having Medium Negative (M-) on freshwater ecosystem services.

*Table 6: Summary of Sites with High/Medium Dependencies and Impacts*

| Business Operations | Indicators | Dependency | Impact |
|---|---|---|---|
| **Zawar Mines (ZM)** | Crops | M | H+ |
| | Freshwater | M | M+ |
| | Regulation of water timing and flows | L | M- |
| **Kayad Mines (KM)** | Crops | M | L |
| | Regulation of water timing and flows | L | M- |
| | Ethical & spiritual values | M | H+ |
| **Rampura Agucha Mines (RAM)** | Freshwater | M | M+ |
| | Regulation of water timing and flows | L | M- |
| | Erosion Control | H | L |
| **Rajpura Dariba Mines (RDM)** | Crops | M | H+ |
| | Regulation of water timing and flows | L | M- |
| **Sindesar Khurd Mine (SKM)** | Crops | M | H+ |
| | Regulation of water timing and flows | L | M- |
| **Chanderia Lead Zinc Smelter (CLZS)** | Freshwater | M | M- |
| | Erosion Control | H | L |
| | Recreation & ecotourism | M | L |
| | Ethical & spiritual values | M | H+ |
| **Dariba Smelting Complex (DSC)** | Crops | M | H+ |
| **Zinc Smelter Debari (ZSD)** | Crops | M | H+ |
| **Pantnagar Metal Plant [PMP]** | Crops | M | L |



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## 3. Nature-related risks and opportunities at Site Level (Direct Operation)

The table below outlines the physical and transition risks associated with each business operation due to their dependency and impact on ecosystem services. Further details are provided in Annexure 1.

*Table 7: Summary of Risks to Each Business Operations (Direct Operations)*

| Business Operations | Ecosystem Services | Dependency | Impact | Physical Risk | | Transition Risk | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Acute | Chronic | Policy | Market | Technology | Reputational | Liability |
| Zawar Mines (ZM) | Crops | M | H+ | | | | | | | |
| | Freshwater | M | M+ | | | | | | | |
| | Regulation of water timing and flows | L | M- | | | | | | | |
| Kayad Mines (KM) | Crops | M | L | | | | | | | |
| | Regulation of water timing and flows | L | M- | | | | | | | |
| | Ethical & spiritual values | M | H+ | | | | | | | |
| Rampura Agucha Mines (RAM) | Freshwater | M | M+ | | | | | | | |
| | Regulation of water timing and flows | L | M- | | | | | | | |
| | Erosion Control | H | L | | | | | | | |
| Rajpura Dariba Mines (RDM) | Crops | M | H+ | | | | | | | |
| | Regulation of water timing and flows | L | M- | | | | | | | |
| Sindesar Khurd Mine (SKM) | Crops | M | H+ | | | | | | | |
| | Regulation of water timing and flows | L | M- | | | | | | | |
| Chanderia Lead Zinc Smelter (CLZS) | Freshwater | M | M- | | | | | | | |
| | Erosion Control | H | L | | | | | | | |
| | Recreation & ecotourism | M | L | | | | | | | |
| | Ethical & spiritual values | M | H+ | | | | | | | |

| Business Operations | Ecosystem Services | Dependency | Impact | Physical Risk | | Transition Risk | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Acute | Chronic | Policy | Market | Technology | Reputational | Liability |
| Dariba Smelting Complex (DSC) | Crops | M | H+ | ● | ● | ● | ● | ● | ● | ● |
| Zinc Smelter Debari (ZSD) | Crops | M | H+ | ● | ● | ● | ● | ● | ● | ● |
| Pantnagar Metal Plant (PMP) | Crops | M | L | ● | ● | ● | ● | ● | ● | ● |

Note: The ● symbol indicates no risk, while the ● symbol indicates the presence of a risk.

***Table 8: Site-specific Opportunities for Sustainability Performance based on the Ecosystem Services Review***

| Business Operations | Ecosystem Services | Opportunities – Sustainability Performance |
|---|---|---|
| **Zawar Mines (ZM), Kayad Mines (KM), Rajpura Dariba Mines (RDM), Sindesar Khurd Mine (SKM), Dariba Smelting Complex (DSC), Zinc Smelter Debari (ZSD)** | **Crops** | The company's initiative to adopt sustainable agricultural practices, such as utilizing improved seeds and new technologies through its CSR program, presents a strategic opportunity to enhance its sustainability performance. By focusing on these practices, the company not only improves crop production and quality but also contributes positively to the provisioning ecosystem services related to crops.<br>These are some initiatives which further help in improving the sustainability performance of the company.<br>**Expand CSR Initiatives:** Extend the CSR initiative to multiple panchayats, with special consideration for marginal farmers.<br>**Collaborate for Innovation:** Partner with research institutions or agricultural technology firms to continuously innovate and adopt cutting-edge practices in sustainable agriculture, benefiting local communities. |
| **Zawar Mines (ZM), Rampura Agucha Mines (RAM), Sindesar Khurd Mine (SKM)** | **Freshwater** | **Water:** Develop and rejuvenate dried water bodies/ wetlands in and around the site boundary with a mix of riparian species to support local flora and fauna.<br>**Groundwater:** Support local communities to maintain and develop dug wells. Dried dug wells to be used for groundwater recharge. |
| **Kayad Mines (KM), Chanderia Lead Zinc Smelter (CLZS)** | **Ethical & spiritual values** | **Collaboration & Partnerships:** Engage in partnerships to foster cultural conservation alongside environmental protection, ensuring long-term benefits for both society and the environment.<br>**Cultural and Environmental Stewardship:** Supporting cultural festivals, heritage talks, and eco-friendly practices that position the company as a culturally sensitive and environmentally conscious entity. |
| **Chanderia Lead Zinc Smelter (CLZS)** | **Recreation & ecotourism** | **Eco-Cultural Education Programs:** Invest in community education to raise awareness about the importance of cultural preservation and ecosystem health. Training programs could focus on sustainable resource use, traditional ecological knowledge, and the benefits of cultural diversity.<br>**Community Based Tourism:** Support community-led tourism initiatives that offer authentic cultural experiences, such as local craft workshops, traditional culinary tours, and cultural performances, contributing to the local economy. |



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## 4. Nature-related Risk Identification for Upstream and Downstream value-chain

The Upstream Value Chain encompasses 37 critical suppliers. The Downstream Value Chain consists of 61 primary customers. To identify and manage the Nature-related risks associated with them, HZL has employed WWF's Biodiversity Risk Filter (BRF) tool. Parameters involved for assessing the risk includes the geo-coordinates of each upstream and downstream value chain, business Importance like High, Medium, Low and the type of industry they operate in.

The risk identification is divided in 2 risk categories namely the Physical Risk and Reputational Risk.

Physical risk consists of 5 type of ecosystem services i.e., Provisioning Services, Regulating and Support Services- Enabling and Mitigating, Cultural services and Pressures on Biodiversity. Reputational Risk consists of Environmental Factors, Socioeconomic Factors, and Additional Reputational Factors. The identified risks are levelled with Very High, High, Medium, Low, Very Low, Not Applicable (NA), and No Risk (NR).

The results and its summary obtained from the WWF's Biodiversity Risk Filter Tool are provided below:

*Table 9: An Assessment Result of Biodiversity Risk Filter Showing Physical Risk for Critical Upstream Value Chain*

| Risk Level | Physical Risk | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Provisioning Services | | | | Regulating & Supporting Services- Enabling | | | | | Regulating Services - Mitigating | | | | | | Cultural Services | Pressures on Biodiversity | | | |
| | Water Availability | Forest Productivity and Distance to Markets | Limited Wild Flora & Fauna Availability | Limited Marine Fish Availability | Soil Condition | Water Condition | Air Condition | Ecosystem Condition | Pollination | Landslides | Wildfire Hazard | Plant/Forest/ Aquatic Pests and Diseases | Herbicide Resistance | Extreme Heat | Tropical Cyclones | Natural & Cultural Resources | Land, Freshwater and Sea Use Change | Forest Canopy Loss | Invasives | Pollution |
| Very High | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 5 | 0 | 0 | 35 |
| High | 30 | 13 | 5 | 0 | 0 | 2 | 34 | 0 | 0 | 3 | 6 | 0 | 0 | 25 | 11 | 0 | 3 | 1 | 0 | 2 |
| Medium | 4 | 2 | 19 | 0 | 0 | 16 | 2 | 0 | 0 | 0 | 24 | 0 | 0 | 2 | 7 | 0 | 3 | 15 | 0 | 0 |
| Low | 0 | 1 | 3 | 0 | 0 | 18 | 1 | 0 | 0 | 34 | 7 | 0 | 0 | 2 | 19 | 0 | 22 | 0 | 15 | 0 |
| Very Low | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 21 | 0 | 0 |
| NA ( Not Applicable | 0 | 0 | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NR (No Risk) | 0 | 21 | 10 | 0 | 37 | 0 | 0 | 37 | 37 | 0 | 0 | 37 | 37 | 0 | 0 | 37 | 0 | 0 | 22 | 0 |

*Table 10: An Assessment Result of Biodiversity Risk Filter Showing Reputational Risk for Critical Upstream Value Chain*

| Risk Level | Reputational Risk | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Environmental Factors | | | | | Socioeconomic Factors | | | | Additional Reputational Factors | | | |
| | Protected/ Conserved Areas | Key Biodiversity Areas | Other Important Delineated Areas | Ecosystem Condition | Range Rarity | Indigenous Peoples (IPs); Local Communities (LCs) Lands and Territories | Resource Scarcity: Food - Water - Air | Labor/Human Rights | Financial Inequality | Media Scrutiny | Political Situation | Sites of International Interest | Risk Preparation |
| Very High | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 0 |
| High | 1 | 6 | 3 | 2 | 1 | 8 | 8 | 8 | 0 | 2 | 0 | 14 | 0 |
| Medium | 9 | 4 | 0 | 8 | 2 | 29 | 24 | 26 | 0 | 5 | 8 | 2 | 0 |
| Low | 26 | 25 | 16 | 26 | 9 | 0 | 5 | 0 | 35 | 1 | 28 | 5 | 0 |
| Very Low | 0 | 2 | 18 | 1 | 25 | 0 | 0 | 3 | 2 | 0 | 1 | 16 | 37 |
| NA ( Not Applicable | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NR (No Risk) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |





*Table 11: An Assessment Result of Biodiversity Risk Filter Showing Physical Risk for Primary Customers*

| Risk Level | Physical Risk | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Provisioning Services | | | | Regulating & Supporting Services- Enabling | | | | | Regulating Services - Mitigating | | | | | | Cultural Services | Pressures on Biodiversity | | | |
| | Water Availability | Forest Productivity and Distance to Markets | Limited Wild Flora & Fauna Availability | Limited Marine Fish Availability | Soil Condition | Water Condition | Air Condition | Ecosystem Condition | Pollination | Landslides | Wildfire Hazard | Plant/Forest/ Aquatic Pests and Diseases | Herbicide Resistance | Extreme Heat | Tropical Cyclones | Natural & Cultural Resources | Land, Freshwater and Sea Use Change | Forest Canopy Loss | Invasives | Pollution |
| Very High | 11 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 |
| High | 37 | 12 | 11 | 0 | 2 | 3 | 58 | 0 | 0 | 15 | 27 | 1 | 0 | 55 | 15 | 0 | 3 | 0 | 0 | 0 |
| Medium | 11 | 5 | 15 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 31 | 0 | 0 | 3 | 23 | 0 | 7 | 0 | 0 | 0 |
| Low | 2 | 0 | 6 | 0 | 0 | 48 | 0 | 0 | 0 | 46 | 3 | 0 | 0 | 0 | 23 | 0 | 39 | 0 | 0 | 19 |
| Very Low | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 11 | 0 | 0 | 0 |
| NA ( Not Applicable | 0 | 0 | 0 | 61 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 61 | 61 | 0 |
| NR (No Risk) | 0 | 44 | 29 | 0 | 59 | 0 | 0 | 61 | 61 | 0 | 0 | 60 | 59 | 0 | 0 | 59 | 0 | 0 | 0 | 42 |

*Table 12: An Assessment Result of Biodiversity Risk Filter Showing Reputational Risk for Downstream Value Chain*

| Risk Level | Reputational Risk | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Environmental Factors | | | | | Socioeconomic Factors | | | | Additional Reputational Factors | | | |
| | Protected/ Conserved Areas | Key Biodiversity Areas | Other Important Delineated Areas | Ecosystem Condition | Range Rarity | Indigenous Peoples (IPs); Local Communities (LCs) Lands and Territories | Resource Scarcity: Food - Water - Air | Labor/Human Rights | Financial Inequality | Media Scrutiny | Political Situation | Sites of International Interest | Risk Preparation |
| Very High | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 |
| High | 0 | 2 | 0 | 1 | 1 | 2 | 0 | 2 | 0 | 10 | 0 | 12 | 0 |
| Medium | 3 | 5 | 1 | 12 | 12 | 56 | 45 | 59 | 0 | 31 | 3 | 0 | 0 |
| Low | 55 | 32 | 36 | 46 | 13 | 3 | 9 | 0 | 61 | 0 | 58 | 3 | 0 |
| Very Low | 3 | 22 | 24 | 5 | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 61 |
| NA ( Not Applicable | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NR (No Risk) | 0 | 0 | 0 | 0 | 3 | 0 | 7 | 0 | 0 | 0 | 0 | 3 | 0 |

### Upstream Value Chain (Critical Suppliers)

- In the Upstream value chain, the very high risks are posed by pollution, extreme heat, land, fresh water and sea use change, water availability, and media scrutiny indicators. Out of 37 suppliers, 35 have risks due to pollution. Media scrutiny poses risks to 29 suppliers, highlighting the need for transparency and effective communication to maintain organizational reputation.
- High-risk areas include water availability, air condition, and extreme heat. Water availability poses high risk to 30 suppliers, showcasing the requirement to effectively manage and invest in water infrastructures.

### Primary Customers

- Very high risks are primarily associated with media scrutiny, water availability, extreme heat, and air condition. Media scrutiny poses serious reputational risks, underscoring the need for robust communication to manage public perceptions and protect credibility.
- High-risk areas include water availability, air condition, and plant/forest/aquatic pests and diseases. There are 37 primary customers partners having water availability risks.
- Medium-risk factors encompass landslides, land, freshwater, and sea use change. These necessitate balanced strategies to support conservation efforts and community engagements while enhancing disaster preparedness and resource allocation.
- Services such as soil condition, ecosystem condition, and pollination are currently categorized under no risk, highlighting stable practices that should be maintained to ensure ongoing resilience and sustainability. Overall, addressing these risks involves the dual focus of mitigating high-pressure areas while sustaining existing low-risk services to bolster ecological integrity and reputational resilience across the value chain.
- In the medium-risk category, landslides and land, freshwater, and sea use change call for strategic planning and conservation efforts to balance development and preserve natural resources.
- Lastly, soil condition, ecosystem condition, and pollination are currently stable, classified under no risk. Continued best practices are essential to ensure their resilience. Overall, addressing these risks involves mitigating high-pressure points and sustaining stable areas to achieve ecological and reputational resilience across the value chain.

The primary risks of water availability and media scrutiny are consistent across both upstream and primary customers, indicating universal challenges in maintaining both ecological and reputational integrity. However, differences arise in the specific high and medium-risk areas, reflecting distinct priorities and concerns inherent to each stage of the value chain.



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## HZL's Actions in accordance with the Mitigation Hierarchy and SBTN's Action Framework (AR3T)

HZL is deeply committed to conserving biodiversity within its leased territories. The company's strategy aims to ensure No-Net-Loss at its business operations and go for Net Positive Impact in critical habitat using each step of mitigation hierarchy and Science Based Targets Network's (SBTN) AR3T action framework.

To achieve these ambitious goals, HZL follows the comprehensive Biodiversity Policy[9] and Biodiversity management standard[10] which serves as a framework for its conservation initiatives. This policy outlines the principles and practices that guide HZL in its efforts to protect and enhance biodiversity.

In developing site-specific Biodiversity Management Plans (BMPs), HZL has partnered with the International Union for Conservation of Nature (IUCN). This collaboration ensures that each plan is thorough and tailored to the unique ecological characteristics of the site. The plans encompass inventory of flora and fauna, the ecosystem services assessment, impact assessment, No-Net-Loss strategy and action plan. The management plans are built on the core concept of mitigation hierarchy. The steps taken by HZL are summarized and provided in the table below.

In addition to its focus on biodiversity, HZL has implemented a Water Management Policy[11] designed to improve the efficiency of water use across its operations. This policy sets clear objectives for monitoring water withdrawal and consumption, ensuring that water use is sustainable and responsible.

HZL employs various tools to conduct these evaluations, including the World Resources Institute (WRI), India Water Tool, WRI Aqueduct, and GEMI Local Water Tools. These resources assist in the identification of risks and facilitate the development of effective management strategies. By leveraging these tools, HZL proactively addresses water resource challenges and optimizes its water management practices to support both its operational needs and environmental conservation goals.

Overall, HZL's commitment to biodiversity and efficient water management reflects its broader dedication to sustainable development and environmental stewardship. The company recognizes the importance of balancing industrial activities with ecological preservation and works diligently to align its operations with these principles.

Outlined below are the actions HZL has implemented in line with the mitigation hierarchy and AR3T action framework.

[9]https://www.hzlindia.com/wp-content/uploads/Biodiversity_Policy.pdf
[10]https://www.hzlindia.com/sustainability-management/pdf/HZL_BIODIVERSITY_MANAGEMENT.pdf
[11]https://www.hzlindia.com/wp-content/uploads/water-management-policy-English.pdf

***Table 13: HZL's Actions in accordance with the Mitigation Hierarchy***

| Mitigation Level | Actions Taken | Potential Impacts of Actions |
|---|---|---|
| AVOID | As per biodiversity Policy HZL "Avoid deforestation and habitat loss in **internationally recognized areas such as** World Heritage Sites, **IUCN category (I-VI) Protected Areas, legally designated Protected Areas, and Key Biodiversity Areas."** | By refraining from operations in sensitive areas, HZL immediately reduces the risk of significant biodiversity loss and legal repercussions, ensuring compliance with international standards. |
| REDUCE/ MINIMIZE | To mitigate impacts on freshwater ecosystems and minimize related risks, the company has<br>• Installed Zero Liquid Discharge systems at its direct operations.<br>• In Udaipur, the company commissioned a 60 MLD Sewage Treatment Plant (STP) through a public-private partnership. Nearly 36% of total water withdrawal is now met with treated sewage.<br>• The company maintains the necessary green belt areas at each site. At all mining locations, operations are conducted underground, which helps preserve the surface cover. | The installation of Zero Liquid Discharge systems ensures that wastewater is effectively treated and recycled, leading to properly manage the dependency of freshwater and potential negative impact on water quality of nearby water bodies. |
| REGENERATE/ RESTORE | • To restore and regenerate degraded habitats within the lease boundaries of direct operation especially at Chanderia Lead Zinc Smelter (CLZS), Rampura Agucha Mines (RAM), and Zawar Mines (ZM), the company employs restoration techniques to reclaim both natural and modified habitat.<br>• HZL has formulated strategies as part of its Biodiversity Management Plan (BMP) to expand green belt areas and areas designated for restoration. Additionally, it identifies other open spaces that can be utilized to enhance and increase the onsite green cover, contributing to ecosystem revitalization. | Restoration initiatives within lease boundaries can significantly improve habitat quality and boost biodiversity by enhancing conditions for native flora and fauna while expanding green belt areas.<br>Additionally, these efforts reinforce ecosystem services, contributing to environmental health and supporting both natural ecosystems and local communities. |
| OFFSET & TRANSFORM | HZL adopts a comprehensive and strategic approach to biodiversity offsets, aiming to transform its operations and surrounding areas. The strategy involves:<br>• Utilizing "Like for Like" and "Like for Better" concepts from the International Finance Corporation (IFC) Performance Standard 6 for biodiversity offsets.<br>• Using satellite imagery and historical datasets to identify degraded habitats such as floodplains, grasslands, forest patches, wetlands, and deteriorating riverine environments for offsetting and transforming the surroundings of its operations.<br>• Focusing on both natural and modified habitats with a commitment to surpassing the goals of achieving No-Net-Loss (NNL) and a Net Positive Impact (NPI).<br>In executing these activities, HZL emphasizes collaboration and stakeholder engagement, working closely with the forest department to develop site-specific wildlife conservation plans. | Company's strategic approach to biodiversity offsets and habitat restoration revitalizes degraded habitats, improving ecological health and enhancing ecosystem connectivity, which facilitates wildlife movement.<br>These efforts lead to cleaner water and air, and enriched soil quality, significantly benefiting local communities by boosting public health and offering opportunities for community engagement, education, and eco-tourism. |





## Scenario Model at Site Level

In response to evolving environmental challenges, HZL conducted a scenario analysis specifically for one of its business operations, the Chanderia Lead-Zinc Smelter. This analysis aimed to model the risk and opportunities of freshwater ecosystem services on business operations. Informed by the results from Ecosystem Services Review (ESR) exercises and guided by the TNFD's recommended Uncertainty Matrix on Ecosystem Degradation and Market and Non-market Forces, the analysis outlines the risks and opportunities associated with freshwater availability and scarcity over different timeframes.

The analysis revealed a spectrum of financial impacts ranging from minimal short-term disruptions to significant long-term challenges. Key findings emphasize the need for water efficiency improvements and the integration of ecosystem services into operational strategies. In scenarios of moderate ecosystem degradation, the business model remains largely unaffected due to proactive water management efforts, including the use of the Gosunda Dam. However, severe ecosystem degradation scenarios necessitate strategic investments in water conservation and infrastructure enhancements due to potential disruptions and policy challenges.

These insights empower HZL to strengthen its operational resilience and sustainability. Investments in freshwater ecosystem services can also create livelihood opportunities for local communities. Additionally, this analysis reinforces HZL's commitment to sustainable development, enhancing its capacity to navigate environmental uncertainties while maintaining its status as an industry leader.

## Locations of Assets and/or Activities in the Organisation's Direct Operations and Upstream Value Chain(s)

HZL has undertaken a study using the Integrated Biodiversity Assessment Tool (IBAT) to assess the impact of its business operations on important biodiversity areas. IBAT is a user-friendly online platform that helps evaluate the proximity and sensitivity of operational sites in relation to Protected Areas and Key Biodiversity Areas.

To gain insights into the presence of species classified as Vulnerable (VU), Endangered (EN), and Critically Endangered (CR) on the International Union for Conservation of Nature (IUCN) Red List, HZL conducted biodiversity assessments over four seasons. These assessments offer a detailed site-specific inventory and highlight the presence of these species. The study also examined ecosystem integrity, using data from Global Forest Watch, satellite imagery analyses, and Forest Survey of India (FSI) reports, to identify areas experiencing rapid ecological decline. water-stressed locations were assessed using reports from the Central Ground Water Board, Ministry of Jal Shakti. The outcomes of this study, presented in Table 14, include data on International Union for Conservation of Nature (IUCN) Red List species, water-stressed regions, high-integrity ecosystems, and areas facing significant ecological threats.

Additionally, HZL assessed the impact of its critical upstream suppliers by analyzing their proximity and sensitivity to biodiversity using Geographic Information System (GIS) platforms and various data layers, such as Protected Areas and Key Biodiversity Areas. HZL has thoroughly reviewed the results and is considering relevant actions, including increased collaboration with suppliers and capacity building, to effectively manage nature-related risks.

***Table 14: Sensitivity of HZL Business Operations***

| Direct Operations | Protected Areas | Key Biodiversity Areas | IUCN Red List Species | High Integrity Ecosystems | Areas of rapid decline in ecosystem integrity | Areas of water stress[12] |
|---|---|---|---|---|---|---|
| **Zawar Mines (ZM)** | 0 | 0 | 10 | 0 | Yes | Critical |
| **Kayad Mines (KM)** | 0 | 0 | 4 | 0 | Yes | Over-Exploited |
| **Rampura Agucha Mines (RAM)** | 0 | 0 | 4 | 0 | Yes | Over-Exploited |
| **Rajpura Dariba Mines (RDM)** | 0 | 0 | 7 | 0 | Yes | Over-Exploited |
| **Sindesar Khurd Mine (SKM)** | 0 | 0 | 7 | 0 | Yes | Over-Exploited |
| **Chanderia Lead Zinc Smelter (CLZS)** | 0 | 0 | 10 | 0 | Yes | Over-Exploited |
| **Dariba Smelting Complex (DSC)** | 0 | 0 | 7 | 0 | Yes | Over-Exploited |
| **Zinc Smelter Debari (ZSD)** | 0 | 0 | 9 | 0 | Yes | Critical |
| **Pantnagar Metal Plant (PMP)** | 0 | 0 | 29 | 0 | No | Safe |

*https://cgwb.gov.in/cgwbpnm/public/uploads/documents/17357169591419696804file.pdf*

# Risk and Impact Management

Businesses of all kinds are either impacting or dependent on the various ecosystem services provided by nature. With declining ecosystem health and loss of ecosystem services, the business can get a hit back very hard. Hence, understanding nature related issues becomes crucial for a company's continued operations, thereby making it a material issue for investors and other relevant stakeholders. The risk and impact management section of this TNFD report aims at disclosing how HZL has identified, assessed, and managed nature related risk and how these are integrated into the enterprise's risk management frameworks.

HZL developed its own Biodiversity Policy for understanding biodiversity risks and developing Biodiversity Management Plans.

HZL leverages Enterprise Risk Management (ERM) framework to identify, assess, monitor, and respond to nature-related risks. The risk management framework is built on Risk Management Standard, Securities and Exchange Board of India (SEBI), ISO 31000 & COSO guidelines that delineates process of risk assessment, compilation of risk registers and associated action plans, mapping of events and its mitigation. The company's risk management framework is well structured and allows to identify, assess, categorize, address, and mitigate both positive opportunities and negative consequences associated with the business. These are regularly monitored, tracked, and reviewed through robust governance and process architecture, with roles and responsibilities clearly defined for each stage. HZL's risk management system is certified as per **ISO 31000:2018.**

## HZL's Biodiversity and Nature Risk Identification and Management Process

HZL has defined a path to understand the risks and biodiversity management to its sites. The stage wise process of biodiversity and ecosystem services looks as follows:

### Stage 1: Biodiversity Risk Screening

Biodiversity risk screening is undertaken for each site by the company, using IBAT. IBAT is a central database of globally recognized biodiversity information that can be used to map out the locations of important biodiversity areas, protected areas, and areas categorized by IUCN as significant for species of plants or animals. IBAT uses global-level data sets that cannot always take into account the details of local conditions at a specific site.

However, in general, the IBAT information provides a good indication of where Critical Habitats are located. Using the IBAT maps, HZL can determine if a site is located in or near an area of biodiversity importance. Based on the results, the company determines the biodiversity risk category for their sites, which are as follows:

- Low Risk: The site is located outside the 10 km radius of any important biodiversity area.
- Medium Risk: The site is located within the 5.1-10 km radius of any important biodiversity area.
- High Risk: The site is located within the 0-5 km radius of any important biodiversity area or critical habitat.



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### Stage 2: Ecosystem Services Review

Based on the results of stage 1, comprehensive ecosystem services studies were carried out at all the sites. The Ecosystem Services Review (ESR) is an assessment focused on pinpointing the key ecological services and evaluating how HZL operations rely on and affect these natural systems. It aims to analyze the trends, drivers, risks, opportunities and actions that will minimize risks/impacts and maximize ecosystem service benefits. The company follows the Ecosystem Services Review (ESR) methodology developed by the World Resource Institute (WRI) on Corporate Ecosystem Service Review.

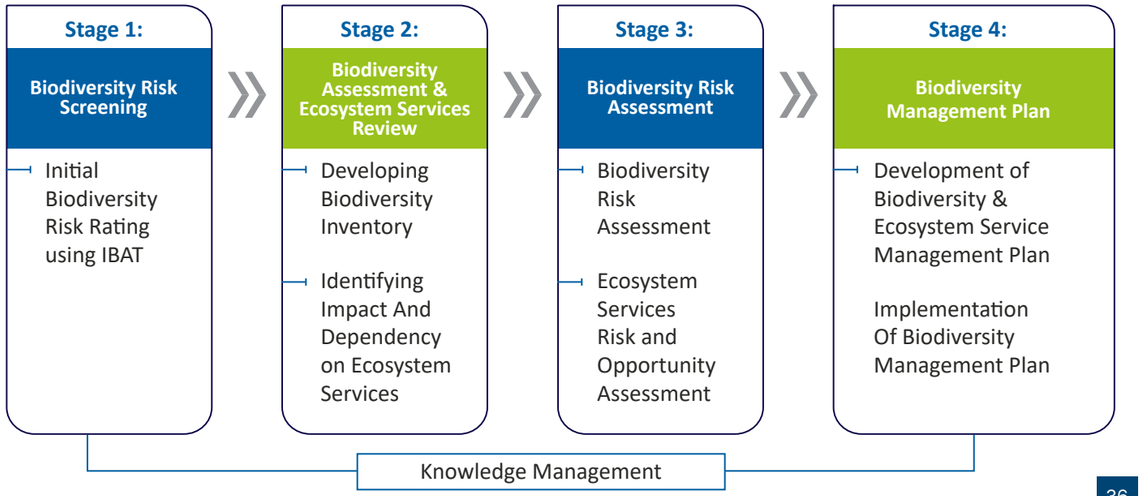
### Stage 3: Biodiversity Risk Assessment

In Stage 3, experts conduct a biodiversity risk assessment, based on the biodiversity and ecosystem services data collected in Stage 2. This assessment process provides more detailed and site-specific biodiversity risk information. The purpose of the biodiversity impact and risk assessment is to identify potential risks to biodiversity in consideration, and the ability to mitigate and categorize them into one of four categories: Critical; High; Medium; Low. With the results obtained from this impact and risk assessment, a mitigation hierarchy table is developed detailing activities to Avoid, Minimize, Restore, and Offset as per No-Net-Loss (NNL) approach. The comprehensive four season biodiversity assessment was conducted at all the operating sites based in Rajasthan by IUCN.

### Stage 4: Development of Biodiversity Management Plan

The Biodiversity Management Plan (BMP) is one complete document which not only covers the existing Environmental Impact Assessment (EIA) compliance (i.e. Physical Environment) but also guides the company's management on initiatives towards Biological Socio-Economic Environment.
Biodiversity Mitigation and Management Plans give priority to biodiversity protection/restoration and enhancement targets, including those related to supporting ecosystem components (e.g. air, water, soil/landscape) targets. Key aspects covered in the Biodiversity Management Plan (BMP) are:

- Biodiversity opportunities with targets.
- Identification of habitats, and categorization of impacts with mitigation measures,
- Specific impact mitigation measures related to species or habitat enhancement,
- Monitoring programmes to assess progress and management effectiveness; and
- Details on how to implement, e.g. assign roles and responsibilities, Annual Action Plan, Budget, Schedules, initiate Monitoring, Adaptive Management and continuous improvement cycle.



### Nature-Related Dependencies, Impact, Risk and Opportunity Assessment Process

The Ecosystem Services Review under stage 2 of the company's biodiversity risk assessment and management process is specifically focused on identifying Nature-related dependencies, impacts, risk and opportunities. Hindustan Zinc recognizes the methodology developed by the World Resource Institute (WRI) to carry out corporate ecosystem services review. WRI's Ecosystem Services Review methodology provides a structured approach to evaluate the company's dependence and impact on more than 20 ecosystem services. This evaluation helps in identifying which of these are priority ecosystem services—the ones most likely to be a source of risk or opportunity for the company. The priority ecosystem services are those which have medium/high dependency or medium/high impact from the company.

### Evaluating Company's Dependency and Impact

HZL assesses its dependency on ecosystem services by addressing five key questions related to dependencies and impacts. This assessment covers the company's business operations and extends to a 10 km radius around these areas. The analysis considers components such as the operational area, manpower/employees for dependency, and the operational area, manpower, and nearby communities for impact mapping. The results highlight the dependencies and impacts for each business operation. The questions used to determine these dependencies and impacts are listed in the table below:

**Dependency**

Q1. Does this ecosystem service serve as an input, or does it enable/enhance conditions for successful company performance?

Q2. If the answer to question 1 is 'Yes', does this ecosystem service have a cost-effective substitute?

**Impact**

Q3. Does the company affect the quantity or quality of this ecosystem service?

Q4. If the answer is to question 3 is 'Yes', then is the company's impact positive or negative?

Q5. If the answer to question 3 is 'Yes', then does the company's impact limit or enhance the ability of others to benefit from the ecosystem services?

### Identifying Company's Nature-related Risks

The Nature-related risks are evaluated based on the potential threats posed to HZL that arise from its dependencies and impacts on nature. The risks are categorized into physical risks and transition risks. The description is provided below.



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*Table 15: Physical Risks and Transition Risk Assessment*

| Category | | Description |
|---|---|---|
| Physical Risk | Acute | Occurrence of short term, specific events that change the state of nature. |
| | Chronic | Gradual changes to the state of nature. |
| Transition Risks | Policy | Changes in the policy context due to new (or enforcement of existing) policies to create positive impacts on nature or mitigate negative impacts on nature. |
| | Market | Changing dynamics in overall markets, including changes in consumer preferences, which arise from changing physical, regulatory, technological and reputational conditions and stakeholder dynamics. |
| | Technology | Substitution of products or services with a reduced impact on nature and/or reduced dependency on nature. |
| | Reputational | Changes in perception concerning an organisation's actual or perceived nature impacts, including at the local, economic and societal level. This can result from direct company impacts, industry impacts and/ or impacts of activities upstream and/ or downstream in a value chain. |
| | Liability | Liability risks arise directly or indirectly from legal claims. As laws, regulations and case law related to an organisation's preparedness for nature action evolves, the incident or probability of contingent liabilities arising from an organisation may increase. |

### Identifying Company's Nature-related Opportunities

The nature related opportunities are identified based on activities that HZL can undertake to create positive outcomes for nature or mitigation of negative impacts on nature. The opportunities related to improving the sustainability performance of the company are identified. The description is provided below.

*Table 16: Nature related Opportunities Assessment*

| Category | | Description |
|---|---|---|
| Sustainability performance | Sustainable use of natural resources | Substitution of natural resources by recycled regenerative, renewable and / or ethically responsibly sourced organic inputs |
| | Ecosystem protection, restoration and regeneration | Activities that support the protection, regeneration or restoration of habitats and ecosystems, including areas both within and outside the organization's direct control |

# Metrics and Targets

HZL is at the forefront of initiatives aimed at enhancing the sustainability of its operations. The company is dedicated to integrating sustainability into its core practices by setting ambitious targets across key environmental domains: atmosphere, freshwater, and land. These targets guide the company's efforts to not only minimize its impact on nature but also to improve the natural environments surrounding its operations. Additionally, HZL is committed to aligning its initiatives with the United Nations Sustainable Development Goals (SDGs), demonstrating its dedication to advancing global sustainability and fostering a harmonious relationship with the planet.

## Metrics and Targets to Manage Nature-Related Dependencies, Impacts, Risks and Opportunities

HZL has established targets across three nature realms: atmosphere, freshwater, and land. The company has also identified offset and restoration areas for achieving No-Net-Loss (NNL), compensating for changes made to habitats within its leased boundaries, using a 2020 baseline. The aim is to restore and offset areas equal to or greater than the disturbed areas, following the "Like for Like and Like for Better" approach outlined in the International Finance Corporation (IFC) Performance Standard (PS) 6. These initiatives enable the company to effectively manage its dependencies, impacts, risks, and opportunities. Details are provided in the tables below.

*Table 17: HZL Sustainability Targets for Nature Realms*

| Nature Realms | | | |
|---|---|---|---|
| **Atmosphere** | **Freshwater** | **Land** | **SDG Linkage** |
| **GOAL 2025** | | | |
| **Climate Change**<br>0.5 mn $tCO_2e$ greenhouse gas (GHG) emission savings in our operations from base year 2017<br><br>Reduction in non GHG emissions (SOx and NOx emissions) by 17% | **Water Stewardship**<br>Become 5x water positive company and achieve 25% reduction in freshwater consumption | **Circular Economy**<br>• 3x Increase in gainful utilisation of smelting process waste<br>• Protect and enhance biodiversity throughout the lifecycle 1 million plantation drive<br>• Avoid deforestation and habitat loss in internationally recognised areas such as world heritage sites. IUCN category protected areas, legally designated Protected Areas and Key Biodiversity Areas<br>• 100% responsible sourcing in the supply chain by 2025 |  <br>  <br>  <br>  <br>  <br>  |
| **GOAL 2030** | | | |
| **Climate Change**<br>Accelerate mitigation and adaptation measures and reduction of Scope 1 and 2 emissions by 50% and Scope 3 emissions by 25% from the 2020 baseline.<br>**Responsible Sourcing**<br>Transition to Greener Fuels for advancing Scope 3 emission reduction | **Water Stewardship**<br>• Achieve a 50% reduction in freshwater consumption in operations from the 2020 baseline, thereby contributing to increased freshwater availability for communities within the shared watershed.<br>• Securing 100% low-quality water for smelting operations<br>• Engage with supply chain partners to assess and manage water footprint in water-stressed | **Circular Economy**<br>• Aiming to achieve near to Zero waste to landfill by diverting all smelting process waste away from landfill through reuse, recycling and recovery.<br><br>**Biodiversity Conservation**<br>• Halting and reversing biodiversity loss by 2030 from a 2020 baseline, through measurable gains in the health, abundance, diversity and resilience of species, ecosystems, and natural processes<br>• Plan and stive to achieve No-Net-Loss (NNL) of biodiversity at all mine sites by closure through applying mitigation hierarchy. | |
| **GOAL 2050** | | | |
| **Net Zero Goal: Achieving Net Zero emission by 2050 or sooner.** | | **Biodiversity Conservation**<br>• No Gross Deforestation in Protected Areas and strive to achieve No Net Deforestation in operating sites by 2050 against the baseline of 2020 | |

## Metrics used by HZL to Assess and Manage Dependencies and Impacts on Nature

***Table 18: HZL's disclosure data against TNFD core global disclosure indicators and metrics***

| Metric No. | Driver of nature change | Indicator | Metric | TNFD 2025 Requirements | Connection to GBF Targets |
|---|---|---|---|---|---|
| | Climate change | GHG emissions | Refer to ISSB's IFRS-S2 Climate related Disclosures Standard | Scope 1: 4.46 Million $MTCO_2e$<br>Scope 2: 0.38 Million $MTCO_2e$<br>Scope 3: 1.54 Million MT $CO_2e$ | Target 7 |
| **C1.0** | | Total spatial Footprint ($km^2$) | Total surface area controlled/ managed by the company, where the company has control ($km^2$)<br>A. Total disturbed area ($km^2$)<br>B. Total rehabilitated/ restored area ($km^2$) | 74.76 $km^2$ (7476 hectare) (This number has been reinstated since only mine lease area was considered)<br>A. 1929.9 hectare (19.30$km^2$)<br>B. 1105 hectare (11.50 $km^2$) | (A.2 Extent of natural ecosystems), Target 2, Target 5, Target 11 (B.1 Services provided by ecosystems) |
| **C1.1** | Land/ freshwater/ ocean-use change | Extent of land/ freshwater/ ocean-use change | Extent of land/ freshwater/ ocean ecosystem use change ($km^2$) by : | 3072 hectare (30.72$km^2$) | Target 1 (A.2 Extent of natural ecosystems), Target 2, Target 5, Target 11 (B.1 Services provided by ecosystems) |
| | | | A. Type of ecosystem (When disclosing ecosystem types, refer to the IUCN Global Ecosystem Typology 2.0 https://portals.iucn.org/library/sites/library/files/documents/2020-037-En.pdf) | Details on business operations located in different biomes as per IUCN Biome typology are provided in table 1. | |
| | | | B. Type of business activity. | Mining, Smelter | |
| | | | Extent of land/ freshwater/ ocean ecosystem conserved or restored ($km^2$), split into: | 0.74 Million trees planted as part of commitment to plant 1M trees by 2025- 70,000 trees planted in FY 24-25 | |
| **C2.1** | Pollution/ pollution removal | Wastewater discharged | Volume of water discharged ($m^3$), split into:<br>A. Total<br>B. Freshwater<br>C. Other (Freshwater: (≤1,000 mg/L Total Dissolved Solids). Other: (>1,000 mg/L Total Dissolved Solids). Reference: GRI (2018) GRI 303-4 Water discharge)<br>D. Concentrations of key pollutants in the wastewater discharged, [by type of pollutant, referring to sector-specific guidance for types of pollutants] | Maintaining Zero Liquid Discharge across all sites | Target 7 (7.1 Index of coastal eutrophication potential), Target 11 (B.1 Services provided by ecosystems) |





| Metric No. | Driver of nature change | Indicator | Metric | TNFD 2025 Requirements | Connection to GBF Targets |
|---|---|---|---|---|---|
| **C2.2** | Pollution/ pollution removal | Waste generation and disposal | E. Temperature of water discharged (where relevant) Weight of hazardous and non-hazardous waste generated by type (tonnes), referring to sector-specific guidance for types of waste. | | |
| | | | A. Hazardous Waste | 0.108 Million MT | |
| | | | B. Non Hazardous Waste | 19.65 Million MT | Target 7, Target 11 (B.1 Services provided by ecosystems) |
| | | | Weight of hazardous and non-hazardous waste (tonnes) disposed of, split into: | | |
| | | | A. Waste incinerated (with and without energy recovery). | 0.000392 Million MT | |
| | | | B. Waste sent to landfill; and | 14.01 Million MT | |
| | | | C. Other disposal methods | 0.000071 Million MT | |
| | | | Weight of hazardous and non-hazardous waste (tonnes) diverted from landfill, split into waste: | | |
| | | | A. Recycled/Reused | 5.97 Million MT | |
| | | | B. Other recovery operations | 0.084 Million MT | |
| **C2.4** | Pollution/ pollution removal | Non-GHG air pollutants | Non-GHG air pollutants (tonnes) by type: | | Target 7, Target 11 (B.1 Services provided by ecosystems) |
| | | | A. Particulate matter (PM2.5 and/or PM10); | A. Particulate matter - 1,247 MT | |
| | | | B. Nitrogen oxides ($NO^2$, NO and $NO^3$); | B. Nitrogen oxides -6,606 MT | |
| | | | C. Volatile organic compounds (VOC or NMVOC); | NA | |
| | | | D. Sulphur oxides ($SO^2$, SO, SO3, SOX); and | 26,753 MT | |
| **C3.0** | Resource Use/ Replenish-ment | Water withdrawal and consumption from areas of water scarcity | Water withdrawal and consumption ($m^3$) from areas of water scarcity, including identification of water source: | Total water withdrawal- 27706474 $m^3$ (Excluding from PMP) | Target 11 (B.1 Services provided by ecosystems) |
| | | | A. Surface Water | 15,183,051 $m^3$ | |
| | | | B. Ground Water | 1,856,193.27$m^3$ | |

| Metric No. | Driver of nature change | Indicator | Metric | TNFD 2025 Requirements | Connection to GBF Targets |
|---|---|---|---|---|---|
| | | | C. Rainwater | 10,014 $m^3$ | |
| | | | D. Mine Intersection/ Produced Water | 1,965,778.24$m^3$ | |
| | | | E. Third Party Water (Water Supply including treated water) | 8,741,697 $m^3$ | |
| | | | D. Sea Water | Not applicable | |
| **C3.1** | Resource use/ replenish-ment | Quantity of high-risk natural commodities sourced from land/ocean/ freshwater | Quantity of high-risk natural commodities (tonnes) sourced from land/ocean/ freshwater, split into types, including proportion of total natural commodities. | 16.64 Million MT | Target 5 (5.1 Proportion of fish stocks within biologically sustainable levels), Target 9, Target 11 (B.1 Services provided by ecosystems) |





# Way Forward

HZL is committed to accelerating its efforts to protect, conserve, and enhance biodiversity and nature around its operations, aiming to contribute meaningfully to the global goal of achieving Nature-Positive outcomes. Operating within the mining and metal processing industry, the company acknowledges the impact its activities have on biodiversity and ecosystems throughout the mining lifecycle, from exploration to closure. As a responsible mining company, HZL complies with biodiversity regulations at local, national, and international levels and adheres to best practices in biodiversity management, following international voluntary standards such as those set by the International Finance Corporation (IFC).

Protecting and enhancing biodiversity is an integral part of HZL's commitment to sustainable development. The company has integrated nature and biodiversity management into the core of its sustainability initiatives. HZL's has a dedicated Biodiversity Policy and is committed to mitigating risks to nature and biodiversity throughout its business operations. Based on the TNFD recommended disclosures from last year (2024), the company has identified six guiding objectives: planning for no net loss, developing freshwater ecosystems and grasslands, eradicating invasive species within leased areas and a 10 km buffer zone, developing biodiversity offsets, and conducting location-specific nature risk assessments for upstream suppliers.

In light of last year's TNFD recommendations and moving forward, HZL has prepared site-specific Biodiversity Management Plans and conducted proximity and sensitivity analyses for its upstream value chain. Over the past year, studies have been conducted to improve nature and biodiversity in and around HZL's business operations. This year, the company is focusing on the following initiatives:

- Implementing the recommendations provided in the Biodiversity Management Plans to improve site-specific habitats.
- Identifying and beginning the process of offsetting areas degraded within leased boundaries, using the 2020 baseline year as a reference.
- Undertaking location-specific nature risk assessments for the downstream value chain identified as very high and high risk, with actions to be taken in subsequent years.
- Conducting location-specific dependency and impact assessments for upstream suppliers located near key biodiversity areas.

Among these initiatives, the last two will be completed this year and disclosed in the next TNFD report. The first two are long-term initiatives, and any progress made will also be reported in the next TNFD report.





# Annexure

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## INDEPENDENT PRACTITIONER'S LIMITED ASSURANCE REPORT ON SELECT NON-FINANCIAL INDICATORS CONTAINED IN HINDUSTAN ZINC LIMITED'S TNFD REPORT

**The Management and Board of Directors**
**Hindustan Zinc Limited**
**Yashad Bhawan,**
**Udaipur-313004**
**Rajasthan, India**

**Scope**
We have been engaged by Hindustan Zinc Limited (hereafter "Hindustan Zinc") to perform a 'Limited assurance engagement,' as defined by International Standards on Assurance Engagements 3000 (Revised), here after referred to as the engagement, to report on select non-financial indicators as per Annexure 1 (the "Subject Matter") contained in Hindustan Zinc's (the "Company's") TNFD Report **as of July 18,2025 for the year ended March 31, 2025 and for the period from April 01, 2024 to March 31, 2025** (the "Report").

Other than as described in the preceding paragraph, which sets out the scope of our engagement, we did not perform assurance procedures on the remaining information included in the Report, and accordingly, we do not express a conclusion on this information.

**Criteria applied by Hindustan Zinc**
In preparing the **Subject Matter**, Hindustan Zinc applied the "Taskforce on Nature-related Financial Disclosures (TNFD) Recommendations" (the "Criteria") as stated in Annexure 1.; As a result, the Subject Matter information may not be suitable for another purpose.

**Hindustan Zinc's responsibilities**
**Hindustan Zinc**'s management is responsible for selecting the Criteria, and for presenting the **Subject Matter** in accordance with that Criteria, in all material respects. This responsibility includes establishing and maintaining internal controls, maintaining adequate records and making estimates that are relevant to the preparation of the Subject Matter, such that it is free from material misstatement, whether due to fraud or error.

**Our responsibilities**
Our responsibility is to express a conclusion on the presentation of the Subject Matter based on the evidence we have obtained.

We conducted our engagement in accordance with the *International Standard for Assurance Engagements Other Than Audits or Reviews of Historical Financial Information* ('ISAE 3000 (Revised)'), and the terms of reference for this engagement as agreed with Hindustan Zinc on March 04, 2025.Those standards require that we plan and perform our engagement to express a conclusion on whether we are aware of any material modifications that need to be made to the Subject Matter in order for it to be in accordance with the Criteria, and to issue a report. The nature, timing, and extent of the procedures selected depend on our judgment, including an assessment of the risk of material misstatement, whether due to fraud or error.

We believe that the evidence obtained is sufficient and appropriate to provide a basis for our limited assurance conclusions.

**Our independence and quality management**
We have maintained our independence and confirm that we have met the requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, and have the required competencies and experience to conduct this assurance engagement.

We also apply International Standard on Quality Management 1, *Quality Management for Firms that Perform Audits or Reviews of Financial Statements, or Other Assurance or Related Services engagements*, which requires that we design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

**Description of procedures performed**
Procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Our procedures were designed to obtain a limited level of assurance on which to base our conclusion and do not provide all the evidence that would be required to provide a reasonable level of assurance.

Although we considered the effectiveness of management's internal controls when determining the nature and extent of our procedures, our assurance engagement was not designed to provide assurance on internal controls. Our procedures did not include testing controls or performing procedures relating to checking aggregation or calculation of data within IT systems.

A limited assurance engagement consists of making enquiries, primarily of persons responsible for preparing the **Subject Matter** and related information, and applying analytical and other appropriate procedures.

Our procedures included:

- Assessing the suitability of the criteria used by the entity in preparing the subject matter
- Conducting interview of select representatives of Company's management to understand the reporting process, including management's processes to identify Hindustan Zinc's material nature-related risks and opportunities;
- Obtained an understanding of the control environment, processes and information systems relevant to the preparation of the information subject to limited assurance, but did not evaluate the design of particular control activities or test their operating effectiveness;
- Inspected, at the following sites, a limited number of samples as appropriate to check the accuracy of the data:
    - Chanderia Lead Zinc Smelter
    - Dariba Smelting Complex
    - Zawar Mines
    - Rampura Agucha Mine
    - Rajpura Dariba Mine
    - Sindesar Khurd Mine









    - Kayad Mine
    - Debari Zinc Smelter
    - Pantnagar Metal Plant

- Conducted analytical procedures, as appropriate; and made inquiries of management to obtain explanations for any differences we identified
- Evaluated the overall presentation of the subject matter to determine whether it is consistent with the criteria and in line with our overall knowledge of, and experience with, the entity's operations.

We also performed such other procedures as we considered necessary in the circumstances.

**Other Information**

- The Company's management is responsible for the other information. The other information comprises the information included within the TNFD Report other than Subject Matter and our independent assurance report dated July 18, 2025, thereon.

- Our conclusion on the Subject Matter does not cover the other information and we do not express any form of assurance thereon. In connection with our assurance engagement of the Subject Matter, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the Subject Matter or otherwise appears to be materially misstated. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

**Exclusions**

- Data and information outside the defined reporting period: April 01, 2024 – March 31, 2025;
- Data and information on economic and financial performance of the Company;
- Data, statements and claims already available in the public domain through Annual Report, or other sources;
- The Company's statements that describe the expression of opinion, belief, inference, aspiration, expectation, aim or future intention;
- The Company's compliance with regulations, acts, guidelines with respect to various regulatory agencies and other legal matters.

**Conclusion**
Based on our procedures and the evidence obtained, we are not aware of any material modifications that should be made to **the Subject Matter as of July 18, 2025 for the year ended** March 31, 2025 and **for the period from** April 01,2024 to March 31,2025, in order for it to be in accordance with the Criteria.

**Restricted use**
Our Limited Assurance report has been prepared and addressed to the Management and Board of Directors of Hindustan Zinc Limited at the request of the Company solely, to assist the Company in reporting on its nature related performance and activities. Accordingly, we accept no liability to anyone other than the Company. Our Limited Assurance Report should not be used for any other purpose or by any person other than the addressees of our report. We neither accept

S.R. BATLIBOI & CO. LLP
Chartered Accountants

nor assume any duty of care or liability for any other purpose or to any other party to whom our report is shown or into whose hands it may come without our prior consent in writing.

For **S.R. Batliboi & CO. LLP**
Chartered Accountants
Firm's Registration No.: 301003E/E300005

Amit Chugh
Digitally signed by Amit Chugh
DN: cn=Amit Chugh, o=Personal, email=amit.chugh@srb.in
Date: 2025.07.18 21:34:41 +05'30'

Amit Chugh
Partner
Membership No.: 505224
UDIN:25505224BMLADS7177
Place of Signature: Gurugram
Date: 18 July 2025

**Annexure-1**

| Metric | Indicator |
|---|---|
| C1.0 | Total surface area controlled/managed by the organisation, where the organisation has control ($km^2$);<br>Total disturbed area ($km^2$);<br>Total rehabilitated/restored area ($km^2$). |
| C1.1 | Extent of land/ freshwater/ ocean ecosystem use change (km2) by<br>• Type of ecosystem (When disclosing ecosystem types, refer to the IUCN Global Ecosystem Typology 2.0<br>• Type of business activity<br>Extent of land/ freshwater/ocean ecosystem conserved or restored (km2), split into |
| C2.1 | Volume of water discharged ($m^3$), split into:<br>• Total;<br>• Freshwater;<br>• Other freshwater<br>Concentrations of key pollutants in the wastewater discharged |
| C2.2 | Weight of hazardous and non-hazardous waste generated by type (Metric Ton)<br>Weight of hazardous and non-hazardous waste (Metric Ton) disposed of, split into:<br>• Waste incinerated (with and without energy recovery);<br>• Waste sent to landfill; and<br>• Other disposal methods.<br>Weight of hazardous and non-hazardous waste (tonnes) diverted from landfill, split into waste:<br>• Recycled/reused<br>• Other recovery options |
| C2.4 | Non-GHG air pollutants (Metric Ton) |
| C3.0 | Water withdrawal and consumption ($m^3$) from areas of water scarcity |
| C3.1 | Quantity of high-risk Natural commodities sourced from land/ocean/ freshwater |





HINDUSTAN ZINC
Zinc & Silver of India

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