



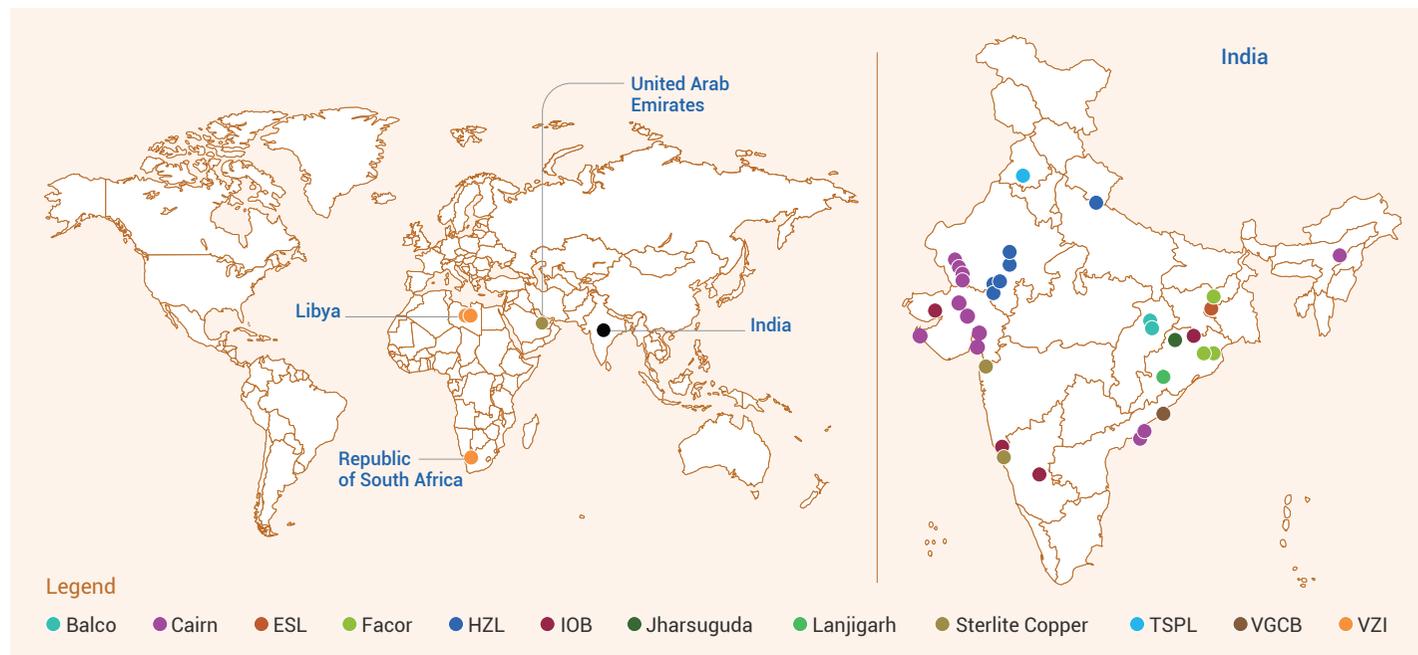
Green Transformation for a Better Tomorrow

Scope and Boundary of the Report

The Taskforce on Nature-related Financial Disclosures (TNFD) framework requires companies to disclose how they manage nature-related risks and opportunities across four pillars: Governance, Strategy, Risk Management, and Metrics & Targets. Companies must detail their governance structures, integrate nature-related considerations into business strategies, describe processes for identifying and managing these risks, and disclose relevant metrics and targets. The TNFD also emphasizes location-specific data, scenario analysis, and the financial impact of nature-related dependencies and impacts, aligning with existing frameworks like the TCFD. This is Vedanta's inaugural TNFD report, reflecting our strong commitment to addressing and managing nature-related risks and opportunities.

The boundary of this report includes 11 Business Units across our direct operations in India and Africa. We aim to include our upstream and downstream value chain in subsequent reporting cycle.

The disclosures under this report are made on a consolidated basis. Vedanta Group comprises of Vedanta Limited, its



Subsidiaries, Associates and Joint Ventures, the details of which are given in point no. 23 of Section A of the Business Responsibility and Sustainability Report (BRSR) and on page 323 of the Integrated Report and Annual Accounts FY 2023-24.

Further, the GHG footprint, Water footprint, and details of the Waste Management for FY 2024 with

respect to the Group's reporting is in accordance with the Taskforce on Climate-related Financial Disclosures (TCFD) Report for FY 2024.

Data: The analyses used data relating to the impact drivers reported annually by the sites forming part of the indicators related to the GRI, SASB, TCFD and ICMM standards, covering the period 2023-2024, relating to the issues of

water, biodiversity, emissions, pollutants, waste, impacts, and recovery and conservation actions. Also used were secondary data available in public databases and tools suggested by the TNFD framework itself.

Tools used: ENCORE, Biodiversity Risk Filter, WRI Aqueduct 3.0, STAR-R

For any queries, concerns or feedback, please contact us at esg@vedanta.co.in

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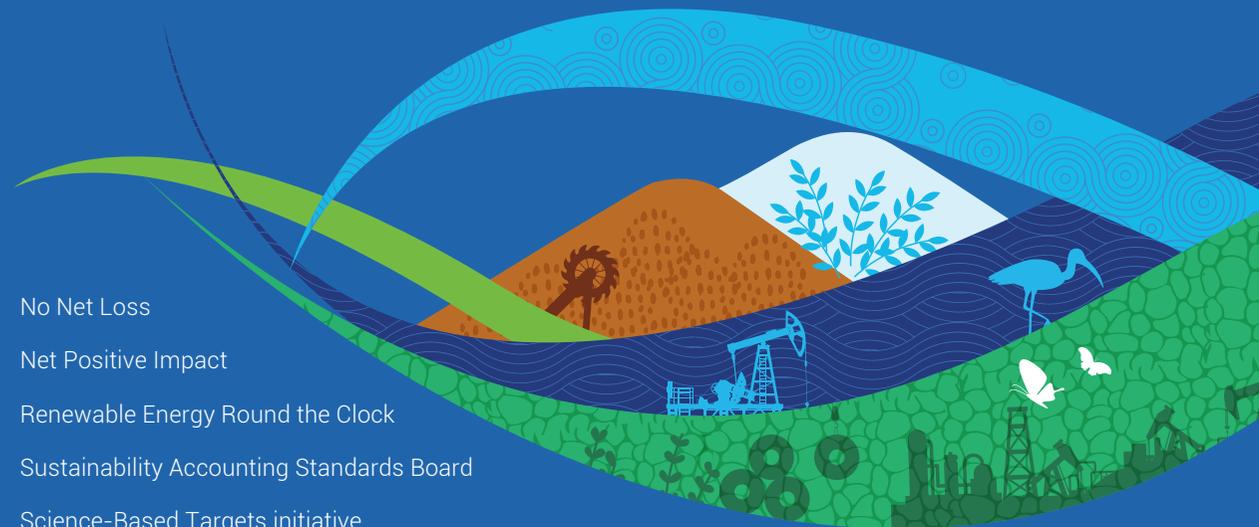
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Acronyms and Abbreviations

AR3T	Avoid, Reduce, Restore & Regenerate
BMM	Black Mountain Mining
BMP	Biodiversity Management Plan
CDP	Carbon Disclosure Project
DJSI	Dow Jones Sustainability Index
ENCORE	Exploring Natural Capital Opportunities, Risks and Exposure
ESG	Environment, Social and Governance
ESIA	Environmental and Social Impact Assessment
FY	Financial Year
GHG	Greenhouse Gas
GRI	Global Reporting Initiative
HSES	Health, Safety, Environment & Sustainability
HZL	Hindustan Zinc Limited
IBAT	Integrated Biodiversity Assessment Tool
ICMM	International Council on Mining and Metals
IFC	International Finance Corporation
LEAP	Locate, Evaluate, Assess and Prepare
MSCI	Morgan Stanley Capital International
NGFS	Network for Greening the Financial System

NNL	No Net Loss
NPI	Net Positive Impact
RE RTC	Renewable Energy Round the Clock
SASB	Sustainability Accounting Standards Board
SBTi	Science-Based Targets initiative
SDG	Sustainable Development Goals
STAR	Species Threat Abatement and Restoration
TCFD	Task Force on Climate-Related Financial Disclosures
TNFD	Taskforce on Nature-related Financial Disclosures
tCO_{2e}	Tonnes of Carbon Dioxide Equivalent
UNGC	UN Global Compact
VAL-L	Vedanta Aluminium- Lanjigarh
VSAP	Vedanta Sustainability Assurance Process
VSF	Vedanta Sustainability Framework
VZI	Vedanta Zinc International
WRI	World Resources Institute
WRMP	Water Resources Management Plan
WWF	World Wide Fund for Nature



Key Fy 2024 Highlights



Climate Change

12% decrease

in GHG Intensity (metals business) from the FY 2021 baseline of 6.45 tCO2e per tonne of metal

GHG Emissions:

65.85 million tCO2e
(Scope 1 & 2)

6.2 million tCO2e
in avoided emissions from FY 2021 baseline

Corporate Commitment

Achieve Net Zero Carbon by 2050 or sooner



Freshwater Use Change & Resource Replenishment

4

of our Business Units are Water Positive* (Water Positivity Ratio > 1)

Water Positivity Ratio:

0.71

Reduced freshwater withdrawals by

2.7%,

saving nearly

4.5 million cubic meters

from FY21 baseline

Corporate Commitment

- Achieve net water positivity (>1 ratio) across all business units by 2030
- Reduce Freshwater consumption by 15% from 2021 baseline by FY 2025



Pollution/Pollution Removal

Water Recycling Rate achieved **30.23%**

92%

utilization of High-Volume Low Toxicity Waste

107%

fly ash utilization

76%

GISTM Compliance

Corporate Commitment

Achieve water recycling rate of 33% by FY 2025



Land Use Change

100% sites

have been re-assessed for potential impacts on biodiversity

Corporate Commitment

- Achieve No-Net Loss at our project operations by implementing the Mitigation Hierarchy.
- Achieve Net Positive Impact for those sites that are designated as Critical Habitats.

*The Energy and Resources Institute (TERI) defines Water Positive Index as: When a project is net water positive, it is where they are creating/returning more water than they are actually using.

Executive Messages

Dear Stakeholders



As India's largest diversified natural resources company, Vedanta is committed to being a responsible steward of the environment. We recognize that our business is dependent on nature, and that we have a duty to minimize our impacts and preserve Earth's biodiversity for future generations. This year, Vedanta is pleased to present our first Taskforce on Nature-related Financial Disclosures (TNFD) report, showcasing our commitment to transparently assess and disclose nature-related risks and opportunities.

Biodiversity conservation is a key priority in our sustainability strategy. We have completed biodiversity screening for all 52 operational sites globally. Using tools like IBAT and STAR, we have expanded risk assessments beyond site boundaries to identify ecologically sensitive areas, important bird habitats, and key biodiversity hotspots near our operations. This has enabled a holistic approach to nature and biodiversity management in alignment with TNFD recommendations. This builds on our foundational work in biodiversity management, updating our plans to achieve No Net Loss and deliver a Net Positive Impact. Following the mitigation hierarchy, we avoid and minimize impacts, restore affected areas, and offset residual impacts with conservation projects. In the Succulent Karoo, South Africa, we've designated

nearly 39,000 hectares as ecologically sensitive and maintain nurseries with over 100,000 plants to preserve native species.

We are committed to managing water responsibly. This year, we increased our water positivity ratio to 0.71 through recycling, reuse, and harvesting initiatives. Four sites are now fully water positive. Since FY2021, we reduced freshwater withdrawals by 2.7%, saving nearly 4.5 million cubic meters. Our efforts earned an improved CDP Water rating of A-, above the industry average of C. Circularity and waste minimization are also vital aspects of our environmental strategy. This year we achieved 100% utilization of fly ash at our power plants and nearly full recycling of high-volume low toxicity waste, demonstrating the growing maturity of our waste-to-wealth programs. We also

completed audits of all our tailings dams, achieving 76% compliance with the Global Industry Standard on Tailings Management, and finalized monitoring and action plans to ensure their safe management - a critical component of our legacy waste management.

Biodiversity and natural capital are the irreplaceable infrastructure that supports all life and economic activity on Earth. As we grow to meet rising demand for metals and minerals, we remain committed to sustainable development. Using a science-based approach, targeted conservation efforts, and efficient water and waste processes, we aim to minimize negative impacts and deliver positive outcomes for nature and communities. This is our mission and duty as a responsible corporate citizen.



Mr. Anil Agarwal
Chairman



Ms. Priya Agarwal Hebbar
Non-Executive Director



Mr. Arun Misra
Executive Director

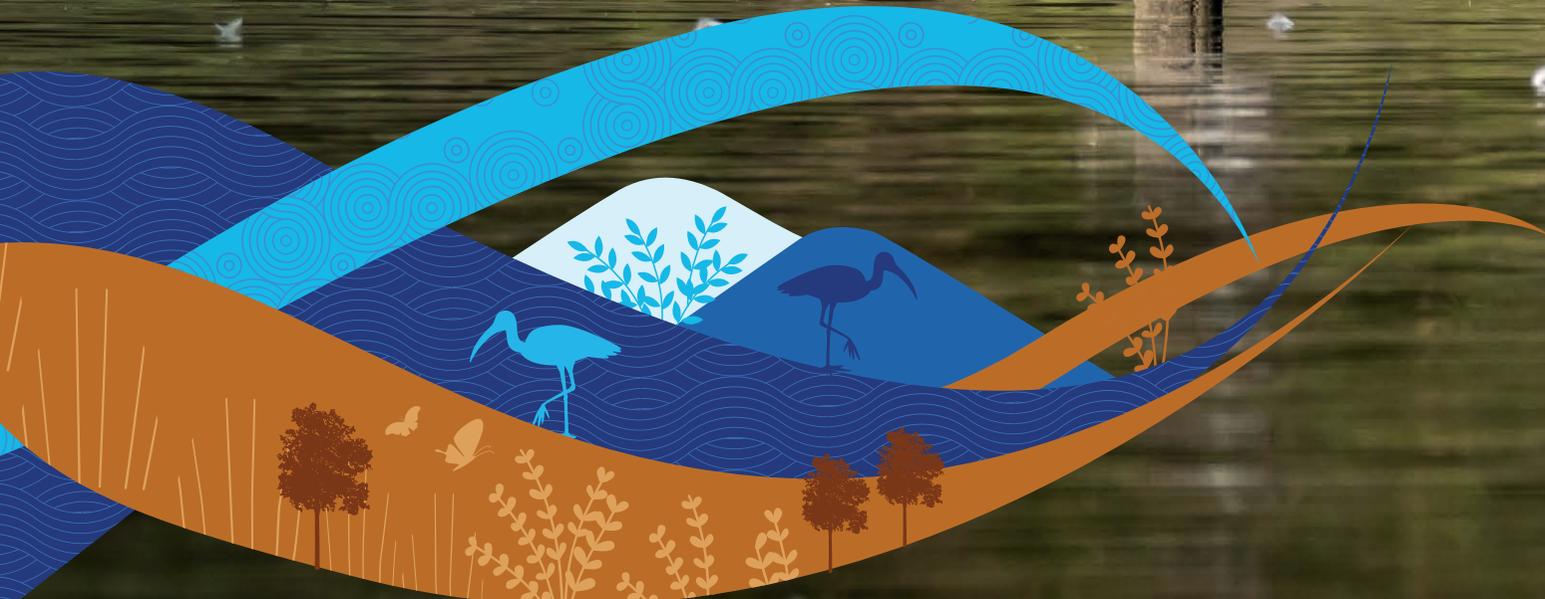


Mr. Rajinder Singh Ahuja
Head – Health, Safety, Environment (HSE) and Sustainability



Mr. Gaurav Sarup
Director - ESG, Carbon, & Social Performance

01. Introduction



About Vedanta

Leveraging our global operational scale, cost leadership, and commitment to operational excellence, we play a pivotal role in providing primary materials in a safe, sustainable, and cost-effective manner, thus promoting resource sufficiency worldwide.

Vedanta Limited, a subsidiary of Vedanta Resources Limited, stands as one of India's largest natural resources conglomerate, with strategic assets located in India, South Africa, and Namibia. Our operations encompass zinc-lead-silver, iron ore, steel, copper, aluminum, power, nickel, and oil and gas, securing a market-leading position across most sectors. Leveraging our global operational scale, cost leadership, and commitment to

operational excellence, we play a pivotal role in providing primary materials in a safe, sustainable, and cost-effective manner, thus promoting resource sufficiency worldwide.

Our value chain encompasses exploration, asset development, extraction, processing, and value addition. We undertake both brownfield and greenfield activities to enhance our Reserves and Resources (R&R), extending the lifespan of our mines and oilfields. With a proven track record of executing projects on time and within budget, we implement targeted measures to develop our resource base, optimize production, and increase resource lifespan. Our operations focus on the exploration and production of metals, extraction of oil and gas across three operating blocks, and power generation. We process and smelt extracted minerals at our facilities in India and Africa, producing refined metals and generating captive power with minimal environmental impact. Additionally, we convert primary metals such as zinc, aluminum, and copper into value-added products like sheets, rods, bars, and rolled products to meet market demand.

Commitment to Nature and Biodiversity

For Vedanta Limited, a leader in natural resources, addressing these nature-related issues is critical for ensuring the long-term sustainability of our operations and the resilience of the communities and ecosystems we impact.

The degradation of nature and actions aimed at conserving, restoring, and sustainably using it presents significant risks and opportunities for business, finance, and society. For Vedanta Limited, a leader in natural resources, addressing these nature-related issues is critical for ensuring the long-term sustainability of our operations and the resilience of the communities and ecosystems we impact.

Our commitment to managing nature-related risks, impacts, dependencies and opportunities is reflected in our approach to materiality and company policies and standards. Our proactive approach to nature-related issues reflects our understanding of the critical interdependence between healthy ecosystems and the prosperity and resilience of our business and the broader economy.



Material Issues

We also conduct a Materiality Assessment periodically, the latest one in which we identified the following environmental material topics for nature-related issues:

Materiality	Topic	Relevant Impact Driver of Nature
Highly material	Climate Change & Decarbonisation	<ul style="list-style-type: none"> Climate Change
	Water Management	<ul style="list-style-type: none"> Resource use replenishment Freshwater Use Change Pollution/Pollution Removal
	Air Emission & Quality	<ul style="list-style-type: none"> Pollution/Pollution Removal
Material	Biodiversity & Ecosystems	<ul style="list-style-type: none"> Land use change State of nature Invasive alien species and others
	Waste Management	<ul style="list-style-type: none"> Pollution/Pollution Removal
	Tailings Management	
Important	Material management and Circularity	

Vedanta’s material topics align closely with the Taskforce on Nature-related Financial Disclosures (TNFD) key drivers of nature change—Climate Change, Freshwater use change, Resource replenishment, Land use change, Pollution removal and State of Nature—underscoring the importance of integrating these factors into its overarching corporate commitments.



Climate Change & Decarbonization

As a major player in energy and carbon-intensive industries, Vedanta recognizes the profound impact of climate change on its operations and stakeholders. It is also a key driver of nature change which makes it crucial to address climate change through proactive mitigation and adaptation measures for long-term sustainability, regulatory compliance, and alignment with India’s 2070 net-zero commitment, which is integral to achieving Vedanta’s target of Net Zero Carbon by 2050 or sooner.



Water Management

Given Vedanta’s large-scale operations in water-stressed regions, efficient water management is crucial for ensuring resource availability and environmental conservation. The commitment to net water positivity (>1 ratio) by 2030 highlights the importance of sustainable water use to mitigate resource depletion and pollution, ensuring compliance with regulations and maintaining social responsibility.



Air Emissions & Quality

Managing air emissions is vital for protecting the health of workers and local communities, and for preserving surrounding ecosystems. Reducing pollutants such as particulate matter, heavy metals, and volatile organic compounds aligns with pollution removal goals, mitigating negative health impacts on the ecosystem and the local communities.



Biodiversity & Ecosystem

Mining activities can significantly disrupt biodiversity and ecosystems. By implementing a roadmap to achieve No-Net-Loss or Net-Positive-Impact by 2030, Vedanta aims to mitigate these impacts through the principles of avoidance, minimization, restoration, and offset. This commitment ensures that economic growth does not come at the expense of ecological integrity and aligns with resource replenishment goals.



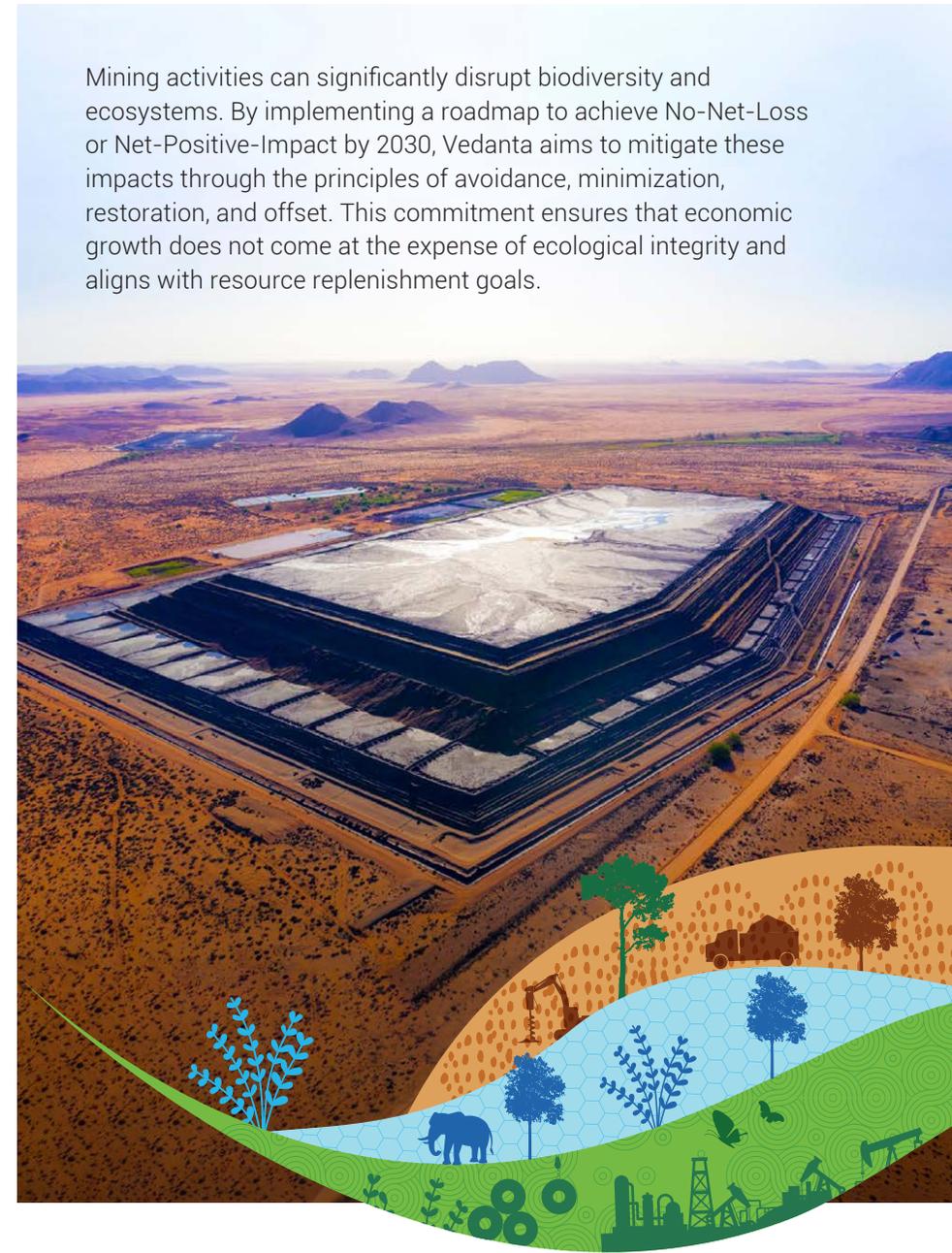
Waste Management & Material Management and Circularity

Efficient waste management, focusing on minimizing hazardous waste and promoting circular economy practices, is essential for reducing environmental contamination and enhancing resource efficiency. This approach supports Vedanta's broader sustainability objectives by ensuring long-term viability and reducing the negative impacts of waste on local communities and ecosystems driving pollution removal for mitigating negative impacts on nature.



Tailings Management

Proper management of tailings is critical to preventing environmental contamination, biodiversity in the vicinity and ensuring the safety of workers and surrounding communities. By adopting robust risk management procedures and collaborating with stakeholders, Vedanta can mitigate the risks associated with tailings, aligning with goals of pollution removal and resource replenishment. And decreasing their negative impacts and additional land use change.



Mining activities can significantly disrupt biodiversity and ecosystems. By implementing a roadmap to achieve No-Net-Loss or Net-Positive-Impact by 2030, Vedanta aims to mitigate these impacts through the principles of avoidance, minimization, restoration, and offset. This commitment ensures that economic growth does not come at the expense of ecological integrity and aligns with resource replenishment goals.

Policies and Standards

Nature-related issues pose substantial risks to our business, impacting supply chains, regulatory compliance, and our social license to operate. The interconnectedness of climate, water, and biodiversity issues highlights the importance of integrated environmental strategies. Disruptions in one area can have cascading effects on the others, affecting ecosystem health and resilience. Recognizing these challenges, Vedanta has integrated comprehensive environmental strategies into our business model.

We implement site-specific Biodiversity Management Plans (BMPs) as well as Water Management Plans that align with international best practices such as the International Council on Mining and Metals (ICMM). We are also members of United Nations Global Compact (UNGC) and ensure adherence to the International Finance Corporation's (IFC) Performance Standard 6 for Biodiversity management.

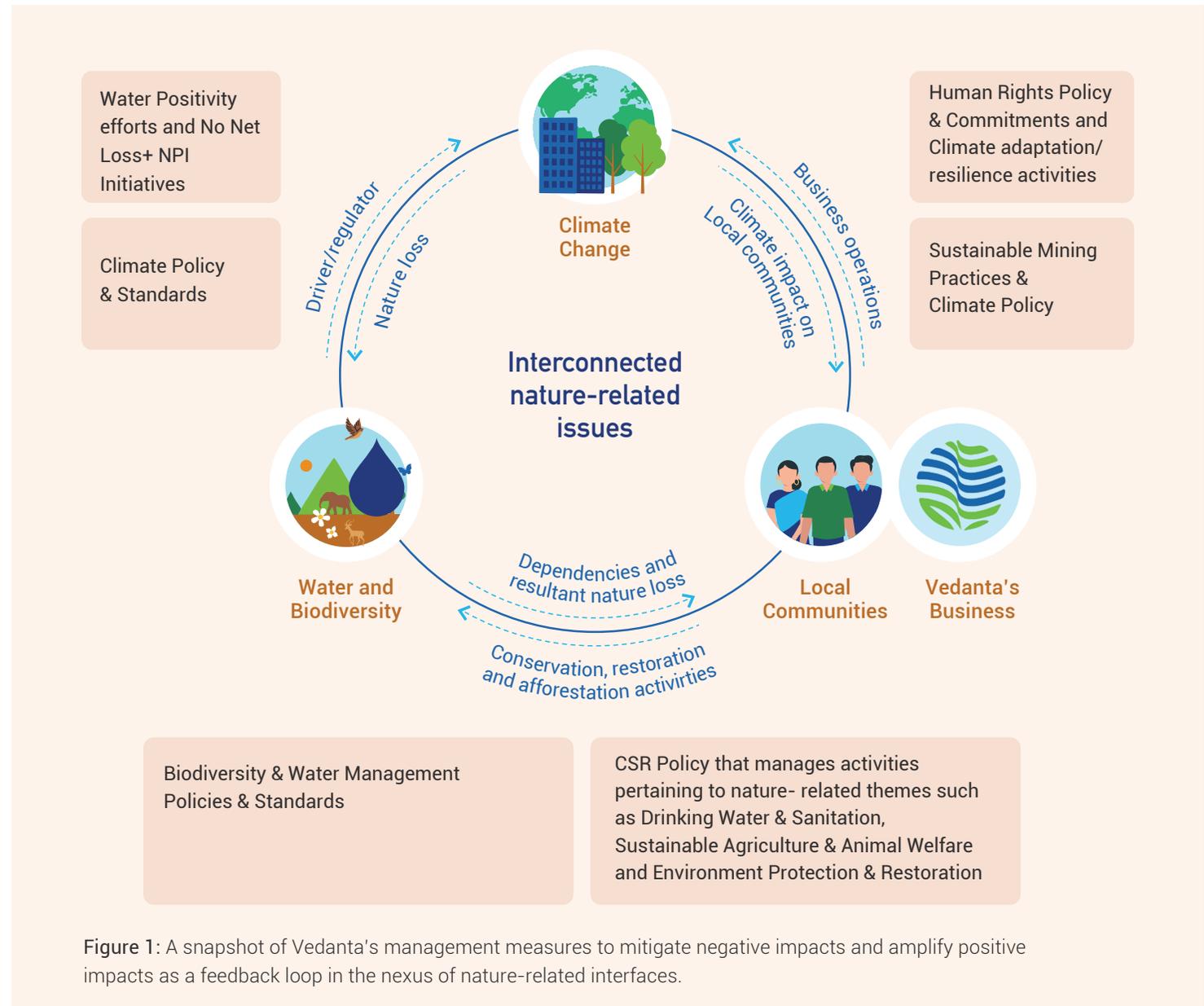


Figure 1: A snapshot of Vedanta's management measures to mitigate negative impacts and amplify positive impacts as a feedback loop in the nexus of nature-related interfaces.

Our approach reflects an evolved understanding of the climate-water-biodiversity nexus, ensuring that our policies and management practices contribute to the overall health and sustainability of ecosystems, reflected in our comprehensive policies and standards, which include:

Biodiversity

Policies and Standards outline Vedanta's approach to preventing, minimizing, and mitigating biodiversity risks, aiming for No Net Loss at our project sites through the implementation of the mitigation hierarchy and offsetting residual impacts. We also created and adhere to:

- **Biodiversity Policy**

- **Biodiversity Management Plans (BMPs) for each of our sites**

- **Biodiversity Management Technical Standard incorporating elements from the International Finance Corporation's (IFC) Performance Standard 6**

Water Management

The following policy and standards focus on water resource management, stewardship and achieving water positivity by enhancing water management practices and improving water use efficiency:

- **Water Management Policy**

- **Water Management Technical Standard**

- **External Stakeholder Engagement Standards**

- **Water Resource Management Plans (Site level)**

The Water Management Technical Standard provide detailed guidance to business units across Vedanta on managing water resources at operational sites.

Climate

The following policies and standards aim to reduce greenhouse gas emissions and drive the transition to a low-carbon economy crucial to achieve Net Zero Goal by 2050:

- **Energy & Climate Change policy**

- **Energy and Carbon Management Technical Standard**

- **Energy and Carbon Management Performance Standard**

Waste Management

An overarching Environmental Policy and Tailings Management Policy, as well as, Resource Use and Waste Technical Standard, Environmental Management Technical Standard, Contaminated Site Technical Standard, ESIA Standard and Acid Rock Drainage Standard provide detailed guidance on best practices and standards to adhere to, on effective topic management of respective topic on-site.

Vedanta aligns with and reports to several ESG and sustainability frameworks, including GRI, DJSI, CDP, TNFD, MSCI, TCFD, and Sustainalytics. These frameworks guide Vedanta in systematically identifying, monitoring, and mitigating its environmental impacts, shaping its policies and procedures to address critical areas like water and forest management, biodiversity conservation, and broader environmental impacts. It enhances Vedanta's environmental stewardship and supports global sustainability goals, such as those in the Kunming-Montreal Global Biodiversity Framework and the UN's SDGs. By adhering to these standards, Vedanta maintains high levels of accountability and transparency, crucial for stakeholders' trust and the company's long-term sustainability strategy.



Human Rights Practices and Engagement Activities

To ensure responsible resource use, ecological integrity preservation, and creation of post-closure resources, Vedanta's Human Rights Policy aligns with international standards, mentioned below. Continuous evaluation, monitoring, and stakeholder collaboration enhance environmental management practices and foster long-term community resilience.

Our human rights practices adhere to international standards such as the:

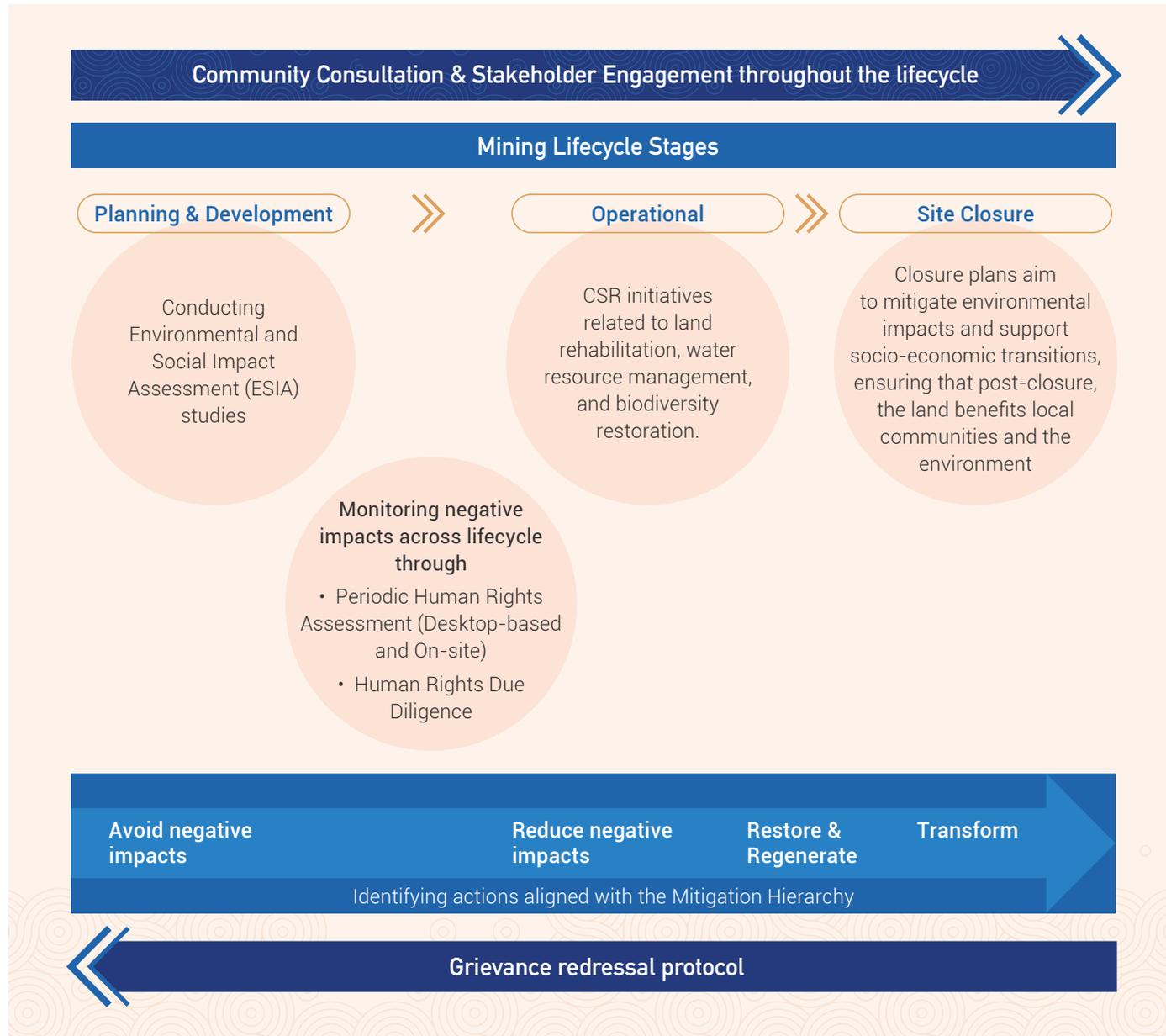
- [United Nations Declaration on Human Rights](#)
- [UN Guiding Principles on Business and Human Rights](#),
- [UN Declaration on the Rights of Indigenous Peoples](#), and
- [ILO Convention 169](#)
- [Universal Declaration of Human Rights \(UDHR\)](#)
- [International Covenant on Civil and Political Rights \(ICCPR\)](#)
- [International Covenant on Economic, Social, and Cultural Rights \(ICESCR\)](#)
- [International Bill of Rights](#)

These commitments are integrated into Vedanta's strategy for managing nature-related dependencies, impacts, risks, and opportunities throughout the mining lifecycle.



Vedanta's engagement with Indigenous Peoples is based on Free, Prior, and Informed Consent (FPIC). The company supports local communities through benefit-sharing initiatives like local employment, procurement, and community development and environmental protection activities, ensuring responsible use of our shared natural resources. Our Transforming Communities Pillar, our CSR Policy, Supplier Code of Conduct for local procurement, play a pivotal role in our engagement with the local communities, including Indigenous people and making sure we're not infringing their rights to the local natural resources





Monitoring and Management

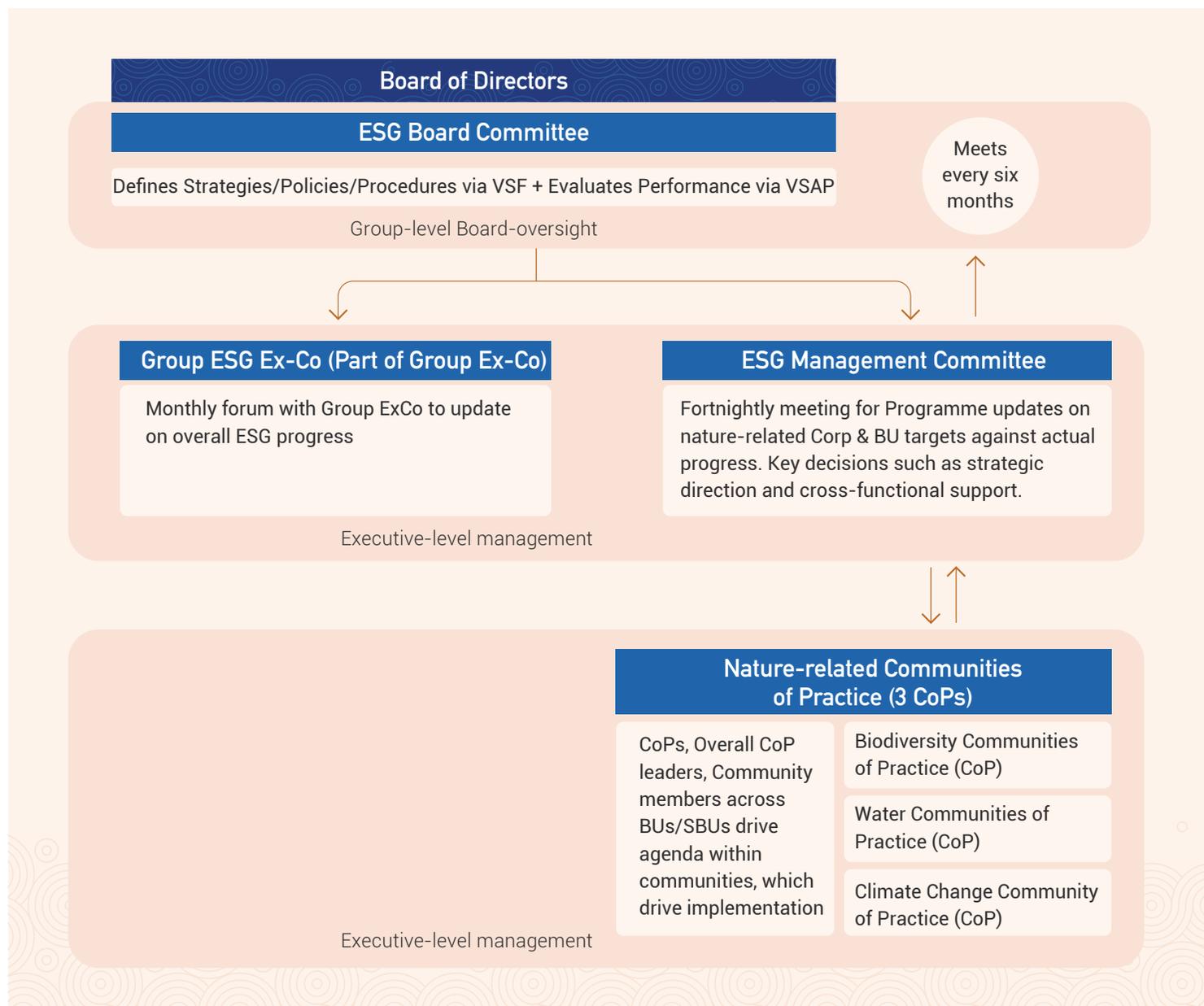
Vedanta employs a robust monitoring framework that includes the Human Rights Policy, Code of Business Conduct, and Human Rights Assessment. Site-specific grievance redressal cells and the internal audit, monitored by the Group Executive Committee, ensure compliance

The Australian Government defines the Mitigation Hierarchy- The mitigation hierarchy is a tool that is used to limit the amount of damage an action, such as a development, will have on the environment.

02. Governance



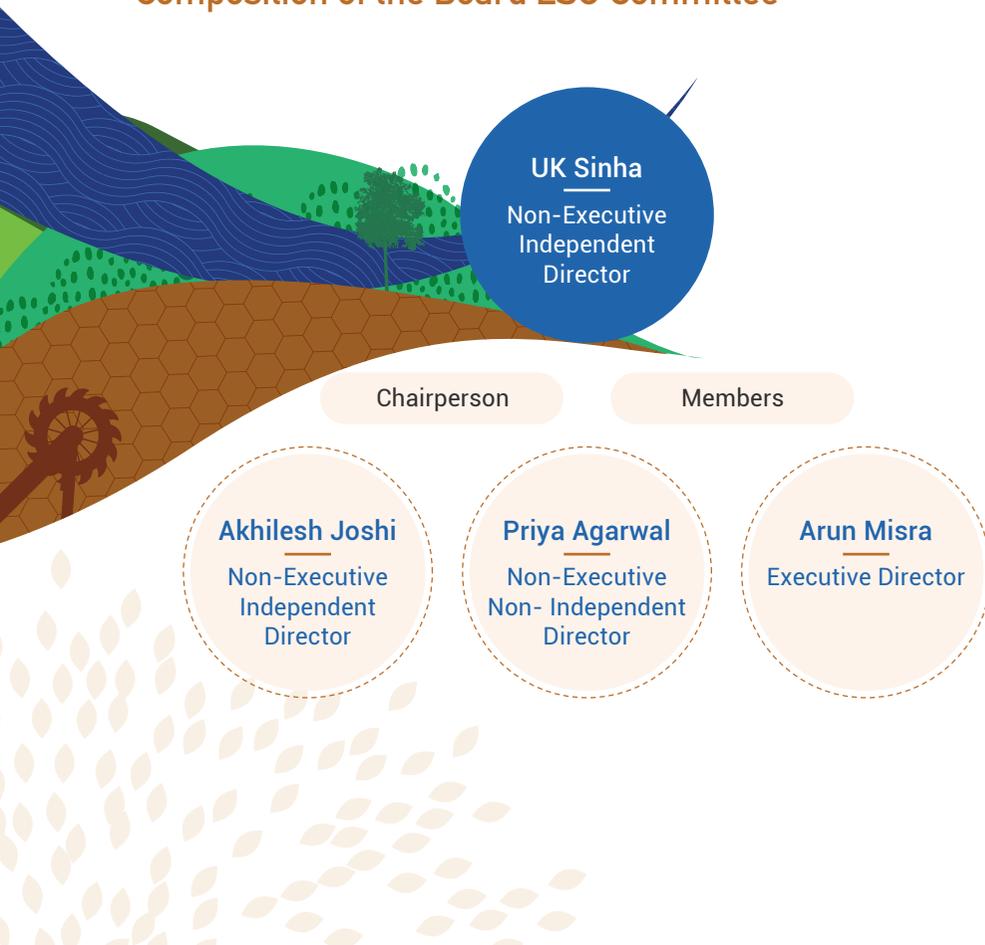
Vedanta's Board of Directors, through the ESG Committee chaired by an independent director, provides crucial oversight of climate change, water management, and biodiversity issues. and drives the Group's ESG agenda. It also oversees strategy monitoring and implementation at the Group level. Supported by the Group ESG-Executive Committee (ESG-ExCo) and ESG Management Committee (Man-Com), along with the energy and carbon community of practice (CoP), the committee ensures the effective implementation of Vedanta's carbon mitigation, water and biodiversity management strategies.



Board Oversight of Nature-related Risks and Opportunities

Board-Level Oversight

Composition of the Board ESG Committee



Board's Role	Responsibilities of the Board ESG Committee
<p>The Board ESG committee manages nature-related risks and makes informed decisions on nature-related targets and commitments as mandated by the Vedanta Board.</p>	<ul style="list-style-type: none"> ■ Review and recommend improvements to governance structures for water, carbon and biodiversity management. ■ Advise the Board on sustainability policies and management systems. ■ Oversee the company's sustainability performance based on the "Vedanta Sustainability Framework," which constitutes the nature-related policies and standards ■ Ensure effective implementation of governance, advocacy, and public relation mechanisms related to ESG, Climate change and Biodiversity. ■ Outline initiatives to establish a sustainability culture involving employees at all levels. ■ Evaluate emerging sustainability, nature and climate risks and guide management on avoidance strategies for sustained growth. ■ Advise the Board on fulfilling responsibilities according to law and international standards

Management's Role in Assessing and Managing Nature-related issues

Vedanta has established a comprehensive management framework to ensure effective implementation and oversight of nature-related responsibilities. Key responsibilities are assigned to management-level positions that report directly to the Board ESG Committee, ensuring a clear line of accountability. The Group CEO, Group Executive Committee (ExCo) and the ESG Management Committee (ManCom) hold the highest managerial level of responsibility and accountability for nature policies, commitments, and targets.

<p>Executive-level management</p>	<p>Group CEO</p>	<ul style="list-style-type: none"> ■ Develop and oversee the implementation of water management, water security, climate change mitigation and resilience measures as well as ESG measures related to biodiversity and forests across group companies. ■ Oversee the development of long-term water-related, GHG reduction and biodiversity-related targets. ■ Implement high-investment water security, decarbonization and biodiversity projects. ■ Chair the Group ESG ManCom and the Group ESG-Executive Committee (ESG-ExCo).
	<p>Group Executive Committee (ExCo)</p>	<p>General ESG</p> <ul style="list-style-type: none"> ■ Operate as a high-level decision-making body in conjunction with the ESG ManCom. ■ Provide guidance to the Board ESG Committee on all ESG initiatives. ■ Ensure alignment and consolidation of efforts across geographical business scopes led by Business CEOs and functional leadership at the Executive Board level. ■ Engage in discussions on vital Key Performance Indicators (KPIs) including water consumption, water withdrawal, water discharge, GHG emissions, metals intensity, integration of renewable energy into operations, new product launches, and research and development (R&D) initiatives. ■ Report monthly on progress and updates to the full Executive Board. <p>Water, Climate, and Biodiversity</p> <ul style="list-style-type: none"> ■ Develop and monitor KPIs related to water consumption, withdrawal, discharge, GHG emissions, and biodiversity parameters, ensuring alignment and consolidation of efforts across the organization. ■ Oversee the implementation of water management initiatives, high-investment water security projects, climate change mitigation and resilience measures, and biodiversity initiatives and long-term targets. ■ Engage in discussions on metals intensity, new product launches, and integration of renewable energy into operations, ensuring that climate-related considerations are integrated.

	<p>Group Head-HSE&S</p>	<ul style="list-style-type: none"> ▪ Provide oversight for all matters related to sustainability, including biodiversity and forests. ▪ Ensure compliance with environmental metrics through a robust management system. ▪ Update the Board Committee on progress made on action items from past committee meetings. ▪ Oversee the de-risking of tailing facilities to ensure safety and environmental protection. ▪ Develop and implement plans to improve the Group's ESG ratings.
	<p>Director - ESG, Carbon, Social Performance</p>	<p>Board Engagement</p> <ul style="list-style-type: none"> ▪ Update the Board ESG Committee on the progress of the Group's decarbonization plan. ▪ Appraise the Board Committee on future plans and emerging risks impacting the Group's Net Zero carbon commitments. <p>Decarbonization Efforts</p> <ul style="list-style-type: none"> ▪ Oversee the deployment of renewable energy across the Group's businesses. ▪ Detail the net-zero roadmap for the business, emphasizing mid-term targets for 2030. ▪ Implement key programs to drive decarbonization across businesses. <p>Reporting and Disclosure</p> <ul style="list-style-type: none"> ▪ Provide updates related to the Task Force on Climate-Related Financial Disclosures (TCFD). ▪ Oversee the preparation and disclosure of the Sustainability Report and Business Responsibility and Sustainability Report (BRSR).
	<p>ESG Management Committee (ManCom) with the help of Water, Climate Change and Biodiversity Communities of Practice (CoPs)</p>	<p>The committee provides governance, strategic leadership, and execution support, overseeing the implementation of Vedanta's sustainability strategy, including the execution of the 2050 net zero roadmap, to ensure a clear focus and alignment. CEO and supported by the Group Environment, Health, and Safety (EHS) Head, the committee meets fortnightly to drive progress and make informed decisions.</p>
<p>BU/SBU-Level Implementation</p>	<p>Water, Climate Change and Biodiversity Communities of Practice (CoPs)</p>	<p>Oversees implementation of policies, standards and monitors performance against targets and BMPs as well as WRMPs</p>

Performance-Based Incentives

The performance-based incentives for nature-related issues are linked to direct (water management) and indirect material issues (such as Climate Change & Decarbonization). This is because the impacts, dependencies, risks and opportunities under the purview of these issues directly or indirectly affect the dynamics within the nature-climate-anthropogenic nexus, illustrated in the Policies section. For short-term incentives, performance is measured through compliance on VSAP. Water management and Carbon footprint are integrated into long-term incentive schemes, where carbon footprint accounts for 15% of the Business Performance evaluation (40% of total weightage).

Short-term incentives	Board-Level Directors	Linked to achieving sustainability parameters, including water savings, adoption of energy efficient technologies, and compliance with the Vedanta Sustainability Assurance Process (VSAP)
	Executive Compensation	Tied to VSAP audit results, focusing on sustainability factors like water security actions and waste management improvements as well as ESG ratings
	Employee Compensation	Driven by performance in emissions reduction, energy efficiency, and adoption of low-carbon technologies across all operational levels.
Long-term incentives	Board-Level Directors	Include performance on water management, carbon footprint reduction, and biodiversity initiatives, integrated into the Business Performance evaluation. Tied to sustained performance on business outcomes and ESG goals over a 3-year period, integrating water management and carbon footprint metrics.
	Executive Compensation	Rewards executives for delivering on financial and non-financial parameters, emphasizing sustainable business practices and operational safety, over 3 years, incorporating ESG and carbon footprint metrics to align with company goals of 'zero harm, zero waste, and zero discharge'.
	Employee Compensation	Linked to achieving targets in biodiversity enhancement, water and soil quality improvements, and reducing pollution incidents, promoting sustainable practices throughout the workforce

03. Strategy



Our ESG Strategy

Vedanta's ESG strategy is rooted in our 'Transforming for Good' initiative, which integrates environmental, social, and governance aspects into our decision-making process. Our strategy is built around three pillars: Transforming Communities, **Transforming the Planet**, and Transforming the Workplace. Transforming the Planet Pillar is supported by specific aims that drive our commitment to nature and biodiversity:



Aim 1

Keep community welfare as the guiding principle for our business decisions

Aim 2

Empower 2.5 million individuals with enhanced skillsets

Aim 3

Uplift 100 million women and children via social welfare interventions



Aim 4

Net Zero Carbon by 2050 or sooner

Aim 5

Achieving net water positivity by 2030

Aim 6

Enhance our business model by incorporating innovative green practices



Aim 7

Prioritise the safety and health of our workforce

Aim 8

Promote gender parity, diversity and inclusivity

Aim 9

Align with global standards of corporate governance

Nature-related Dependencies, Impacts, Risks, And Opportunities

(Covering Interactions with Low Integrity Ecosystems, High Importance Ecosystems, and Water Stress Areas)

Vedanta is committed to understanding and addressing how our operations impact and depend on nature. This awareness is shaping our approach to managing risks and seizing opportunities. By focusing on climate action, biodiversity, and water management, we're actively developing strategies that enhance our sustainability. Our ongoing efforts to integrate these insights into our decision-making process ensure we remain resilient and responsible, driving positive change and balancing operational success with environmental stewardship.

The LEAP (Locate, Evaluate, Assess, Prepare) approach was adopted to systematically address nature-related impacts, dependencies, risks, and opportunities¹. This structured process allows for meticulous identification and assessment of critical environmental factors that influence business sustainability and resilience. By following the LEAP framework, Vedanta ensures a comprehensive understanding of these factors, thereby guiding informed decision-making.



¹The TNFD (Taskforce on Nature-related Financial Disclosures) recommends the LEAP approach for its comprehensive and systematic methodology, which aids organizations in effectively managing nature-related risks and opportunities

The key parameters covered in each phase of the LEAP framework, along with Vedanta's specific approach, are outlined henceforth:

LEAP Parameters	Approach adopted by Vedanta
Locate	
L1: Span of the business model	For the current leap assessment, three business sectors comprising 11 business units and 35 assets have been scoped.
L2: Dependency and impact screening	The ENCORE tool, as recommended by TNFD, was used to identify sector-level impacts and dependencies for the three sectors.
L3: Interface with Nature	Global environmental datasets (e.g., Global Forest Watch, Ecoregion Intactness Index, WWF Risk Filter, IBAT) and local datasets (e.g., ENVIS, Bhuvan, Ground Water Resource Assessment, 2022) were used to understand direct operations' relationships with biodiversity values, ecosystem integrity, and water risks in the respective geographies.
L4: Interface with sensitive locations	Based on initial prioritization, detailed evaluations using BMPs were conducted to analyze natural habitat conversion, critical habitats, overlaps with protected areas, and business footprint. The result of the exercise was a list of priority sites. The top three sites were prioritized for in-depth impact and dependency analysis. Similar methodologies will be applied to the remaining sites in subsequent reports.
Evaluate (Impact and Dependencies)	
E1: Identification of environmental Assets, ecosystem services and impact drivers	ENCORE ratings guided the identification of material ecosystem services and impact drivers. Site-specific assessments utilized spatial data, disclosure reports, and biodiversity management plans to evaluate the severity, frequency, and mitigation of impacts, as well as the positive outcomes.
E2: Identification of dependencies and impacts	Dependencies and impacts were identified at the sector level for the three sectors using ENCORE.
E3: Identification of dependencies and impacts	<p>Impacts at the prioritized sites were assessed based on likelihood of occurrence and severity of identified impacts. The likelihood of occurrence is classified as almost certain, possible, unlikely, based on the robustness of management systems and evidence of occurrence. The severity of impacts is categorized as major, moderate, or minor, considering the magnitude, scale, duration, and sensitivity of affected receptors.</p> <p>Dependencies identified from the ENCORE tool were analyzed to determine their importance, potential substitutes, and future availability. This included a two-step process with WRI's Corporate Ecosystem Service Review for a comprehensive evaluation.</p>
E4: Impact Materiality Assessment	The materiality of impacts was determined by combining impact significance with likelihood. Dependencies were categorized as high, medium, or low based on their importance and the availability of substitutes.

LEAP Parameters **Approach adopted by Vedanta**

Assess (Risk and Opportunities)

<p>A1: Risk and Opportunity Identification</p>	<p>Risks and opportunities linked with impacts and dependencies were identified and categorized by sector using WWF’s Biodiversity and Water Risk Filter for risks and review of additional business and sustainability performance actions for opportunities.</p>
<p>A2: Adjustment of existing risk mitigation and risk and opportunity management</p>	<p>Reviewed existing risk management practices and included additional recommendations to manage risks and opportunities in the risk-management process as part of the Risk and Impact Management Pillar. Key considerations such as integrating dependencies and opportunities into the risk framework and considering upcoming regulatory policies will be addressed in subsequent internal assessments. Ecological thresholds, tipping points, and location-specificity will also be taken into account.</p>
<p>A3: Risk and opportunity measurement and prioritization</p>	<p>Risks and opportunities were prioritized based on internal understanding on relevance to Vedanta, current risk mitigation effectiveness, and speed of onset (short-term, medium-term, or long-term)</p>
<p>A4: Risk and opportunity materiality assessment</p>	<p>Risks and opportunities identified in A1 were reviewed for their materiality (in relation to the material issues identified earlier) for further management and reporting.</p>

Prepare

<p>P1: Strategy and Resource Allocation Plans</p>	<p>Overview of current strategy on management of nature-related issues have been included, with linkage to the nature-related materiality issues and risks. Based on the findings of the LEAP exercise, Vedanta will further review internal strategy, management and monitoring to align with national and global goals on addressing nature loss and degradation.</p>
<p>P2: Target setting and performance management</p>	<p>Existing targets on management of nature and biodiversity have been included, providing linkages with identified risks and opportunities. Additional targets, as applicable, will be further reviewed based on sectoral, and performance based on materiality of risks and Vedanta’s strategic goals.</p>
<p>P3: Reporting</p>	<p>Vedanta continues to disclose and report on our material nature-related issues through the BRSR and Integrated Report. Our Sustainability Report includes information on waste, water and GHG footprints. Starting with this first report on TNFD, Vedanta will further align its disclosure and reporting on assessment results, details of improvements, actions taken, and additional metrics scoped to align with TNFD. These reports will cover nature-related risks and opportunities as identified and prioritized through periodic assessments and monitoring.</p>
<p>P4: Presentation</p>	<p>Nature-related risks and opportunities will be continuously disclosed in accordance with TNFD recommendations</p>

Limitations

Vedanta's TNFD report presents a preliminary assessment of our nature-related impacts and dependencies using global and sector-specific data. To initiate a deeper understanding, we've prioritized three sites for detailed evaluations this cycle, with a broader assessment planned for future cycles.

It's important to emphasize that the initial impact, dependency, and risk ratings are estimates based on high-level data, often drawing on global, sectoral/industry and regional data. To ensure accurate and site-specific insights, Vedanta intends to refine these assessments for considering locations in addition to the three prioritized sites.

This report serves as a foundational step towards effective management of nature and biodiversity issues aligning with global frameworks. It outlines our strategic direction and commitment to implementing site-specific action plans for material issues. We recognize the need for ongoing refinement and invite stakeholder engagement as we progress. By combining corporate-level analysis with detailed site evaluations, Vedanta aims to adopt best practices and standards on managing nature and biodiversity, and the broader aspects of environmental sustainability.

Locating Interface with Nature

The most critical entry points for the Vedanta Group, in the context of conducting a nature-related risk and opportunity assessment for the cost of Vedanta India operations, encompass the specific sectors and geographic regions in which they invest and operate.

The availability of asset-specific location information enables Vedanta to efficiently assess how its assets interact with natural environments. This detailed information is essential for understanding the direct and indirect impacts of their operations on biodiversity and ecosystem services. Furthermore, a sector- and geography-focused approach is considered more appropriate due to Vedanta's extensive operations in the metals and mining, oil and gas, and energy sectors. Each of these sectors has unique interactions with nature, necessitating tailored assessments to accurately capture the risks and opportunities associated with their environmental interfaces.

The TNFD guidelines characterize a priority location as one where an organization faces material nature-related issues in its direct operations or value chains, or where its assets or activities intersect with areas meeting specific criteria:



For this assessment the focus was sensitive locations. Briefly, sensitive locations were identified based on criteria such as biodiversity importance, ecosystem integrity, water risks, and critical ecosystem services. The assessment had two phases: an initial evaluation using global environmental datasets to prioritize sites, followed by a detailed analysis of these sites using biodiversity management plans to assess business importance, habitat conversion, critical habitat triggers, and overlaps with protected areas.

For this initial disclosure cycle, we have focused our detailed assessment on the top three most sensitive sites, which represent approximately 10% of our total considered locations. These sites are, VZI's Black Mountain and Gamsberg mines in Namakwa district, Northern Cape, South Africa; Vedanta's aluminum refinery facility in Lanjigarh, Odisha, India; and Hindustan Zinc Ltd.'s Chanderiya lead-zinc smelter in Chittorgarh district, Rajasthan, India.

The selection of these sites for our first TNFD disclosure demonstrates our commitment to

addressing our most significant nature-related risks and opportunities starting with the most sensitive locations. This phased approach would allow us to develop and refine our assessment and reporting processes on our most sensitive sites before expanding to our entire portfolio in future disclosures cycles.

A snapshot of the percentage of sites meeting thresholds across various datasets—focusing on biodiversity values, ecosystem integrity, and water risk—is provided.

	Total Sites	Important Biodiversity Values				Ecosystem Integrity		Water Stress	
		Presence of Protected Areas and Key Biodiversity Areas	Likely Critical Habitat	Potential high impact on freshwater biodiversity	Potential high impact on terrestrial biodiversity	Natural Habitat Converted	High Ecosystem Intactness	Emerging Hotspots	High water risk*
 <p>Oil and Gas</p>	7	0%	0%	71%	0%	0%	0%	0%	100%
 <p>Power</p>	1	0%	0%	0%	0%	0%	0%	0%	100%

	Total Sites	Important Biodiversity Values				Ecosystem Integrity		Water Stress	
Metals and Mining		Presence of Protected Areas and Key Biodiversity Areas	Likely Critical Habitat	Potential high impact on freshwater biodiversity	Potential high impact on terrestrial biodiversity	Natural Habitat Converted	High Ecosystem Intactness	Emerging Hotspots	High water risk*
 <p>Aluminium</p>	3	67%	67%	0%	100%	67%	0%	33%	33%
 <p>Iron and Steel</p>	9	11%	22%	0%	44%	56%	0%	0%	33%
 <p>Copper</p>	4	0%	25%	0%	0%	0%	0%	0%	25%
 <p>Zinc</p>	11	18%	36%	0%	55%	18%	18%	0%	100%

*Note: Vedanta conducted a water risk assessment across their assets and BUs. The water risk rating corroborates with the findings of the report.

Note: To prioritize sites, we used datasets with specific thresholds: STAR/IBAT for high to very high species threat levels, proximity to Legally Protected Areas and Key Biodiversity Areas within 5km, and WWF Water Risk Filter for very high freshwater biodiversity impacts. We assessed biodiversity significance through Global Forest Watch (high significance), ecosystem integrity with the Ecoregion Intactness Index (high), and water stress using WWF and Ground Water Resource Assessment (very high risk, over-exploited). These criteria helped prioritize sites based on biodiversity values, ecosystem health, and water risks

Note: These are potential impacts based on global datasets. However, Cairn depends on saline water abstraction to meet its water requirements at majority of its operational sites & is also Net Water Positive with 1.15 in FY 23-24.

The company's robust Biodiversity Policy aims for No-Net Loss by preventing, minimizing, and offsetting impacts on biodiversity, ensuring compliance with environmental regulations, and focusing on high-priority conservation areas.

The assessment reveals that Vedanta's operations face diverse and sector-specific environmental risks. The oil and gas sector is highly susceptible to water stress, with all sites experiencing significant water-related challenges, emphasizing the need for robust water management strategies. In the metals and mining sector, aluminum operations exhibit notable biodiversity concerns, with certain sites located in areas with important biodiversity values and high potential for terrestrial biodiversity impacts. Iron and steel operations show moderate biodiversity impacts but also face considerable water stress. Copper sites, while having fewer biodiversity impacts, still deal with water stress issues. Zinc operations present a mix of biodiversity impacts, with some sites in critical habitats and facing high water stress.

Vedanta is enhancing its operations through a robust Biodiversity Policy that integrates conservation efforts into all phases of its projects. This policy aims for No-Net Loss by preventing, minimizing, and offsetting impacts on biodiversity, ensuring compliance with environmental regulations, and focusing on high-priority conservation areas. With Biodiversity Management Plans in place for about 80% of its sites the company is actively adopting recommendations, developing monitoring plans, and committing to continuous improvement to effectively address and manage any impacts. The risk identification and management is further detailed in Chapter 4.

Evaluating Impacts and Dependencies

Vedanta utilized the ENCORE tool to assess the materiality of nature-related impacts and dependencies across its diverse sectors, including metals and mining (zinc, aluminum, lead, silver, iron, copper, nickel), oil & gas, iron & steel, and power generation. ENCORE, a tool recommended by TNFD, evaluates both impacts—drivers of nature loss such as resource use/replenishment, climate change—and dependencies—reliance on ecosystem services like

ENCORE, a tool recommended by TNFD, evaluates both impacts - drivers of nature loss such as resource use/replenishment, climate change - and dependencies - reliance on ecosystem services like water use and climate regulation etc.

water use and climate regulation etc. The drivers of environmental change are largely based on the International Union for the Conservation of Nature's threat classification and are further grouped according to IPBES.

ENCORE assigns ratings from Very High (VH) to Very Low (VL) to indicate the significance of these nature-related impacts and dependencies. However, it's important to note that the potential impacts identified by ENCORE may differ from actual materiality based on factors such as geography, resource use, and existing risk management practices. The actual materiality of impacts and dependencies can vary and is analyzed specifically for each site.

Heatmap of Exposure to Nature-related Impacts

Drivers of Nature Change (IPBES)	Resources Use/ Replenishment	Land, Freshwater and ocean use change			Climate Change	Pollution/ Pollution removal					
		Water Use	Terrestrial Ecosystem Use	Freshwater Ecosystem Use		Marine Ecosystem Use	GHG Emissions	Non-GHG Pollutants	Water Pollutants	Soil Pollutants	Solid Waste
Oil and Gas	Very High	High	High	High	High	High	High	High	High	High	High
Power	Very High	Very High	High	Very Low	High	High	High	High	High	High	High
Metals and Mining	Very High	Very High	High	Very Low	High	High	High	High	High	High	High

Heatmap of Exposure to Nature-related Dependencies

Business Sector	Direct Physical Input		Enables Production Process		Protection from Disruption	
	Ground Water	Surface Water	Water Flow Maintenance	Climate regulation	Water Flow Maintenance	
Power	High	High	High	High	Medium	
Metals and Mining	High	High	Medium	Medium	Medium	
Business Sector	Direct Physical Input		Mitigates Direct Impacts		Protection from Disruption	
	Ground Water	Surface Water	Bioremediation	Filtration	Climate regulation	Flood and Storm Protection
Oil and Gas	Very Low	Very Low	Very Low	Medium	Medium	Low

Very High High Medium Low Very Low

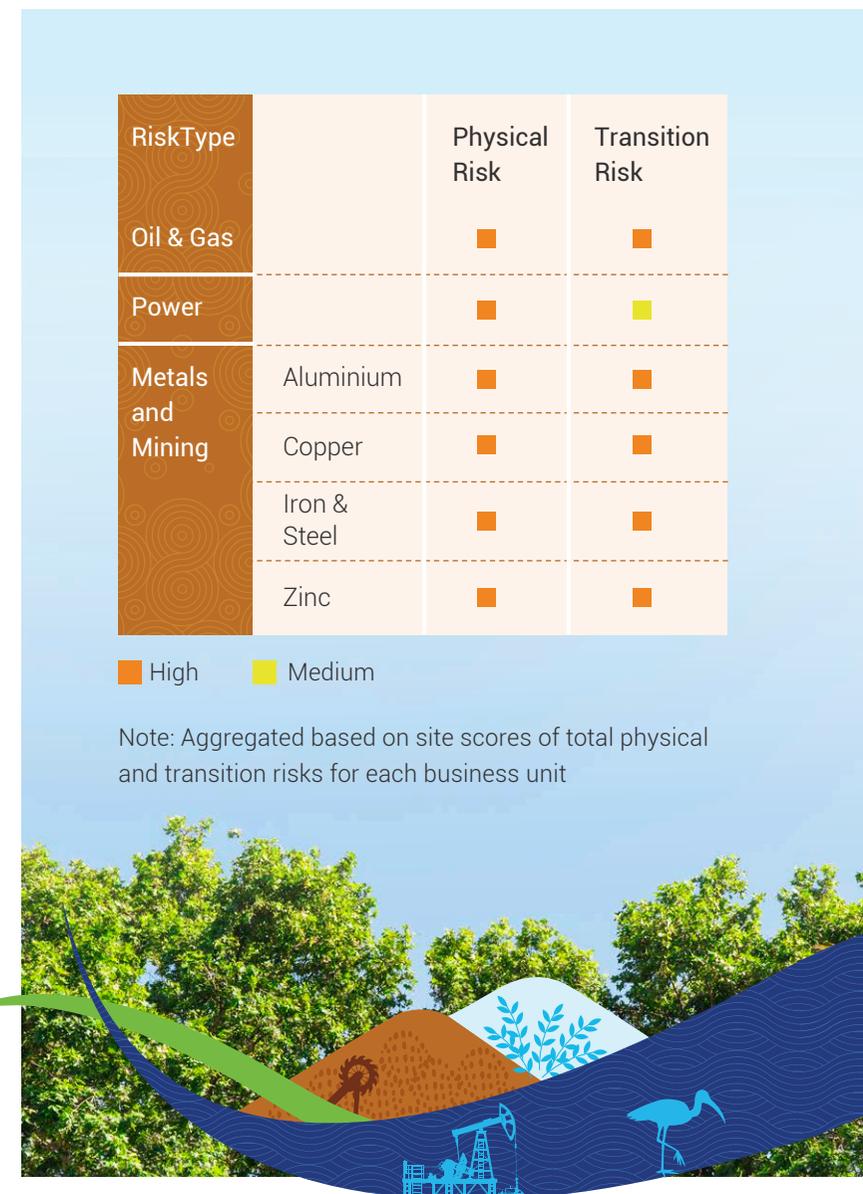
The table offers a global perspective on the environmental impacts and dependencies of the Oil and Gas, Power, and Metals and Mining sectors. It reveals that all three sectors exhibit high levels of impact across various environmental aspects, including water use, disruption to terrestrial and freshwater ecosystems, and pollution. While the oil and gas sector is rated high across all these areas, the power and metals and mining sectors also show significant impacts, albeit with some variations. The degree of reliance on natural resources differs: the power sector is highly dependent on ground and surface water, water flow maintenance, and climate regulation, and has moderate protection from disruptions. Metals and mining also rely on these resources but with medium protection levels, whereas the oil and gas sector demonstrates lower dependency and protection in areas such as groundwater and bioremediation.

It is important to note that these ratings reflect potential impacts and dependencies rather than actual conditions for the respective sectors as these ratings are globally generic and may not capture local specifics; thus, site-specific validation is essential. They served as a preliminary screening tool for Vedanta, followed by more detailed, site-specific assessments. Spatially explicit and company-specific assessments were conducted for the three

prioritized sites to come up with site specific materiality ratings for impacts and dependencies. Site-specific assessments were conducted using spatial data, disclosure reports, and biodiversity management plans to address the severity, frequency, and mitigation of impacts, as well as to gauge positive outcomes and gather stakeholder insights. The actual materiality of impacts and dependencies is shown in the analysis of the different sites, reflecting the unique conditions and management practices at each location.

Identification of Key Risks

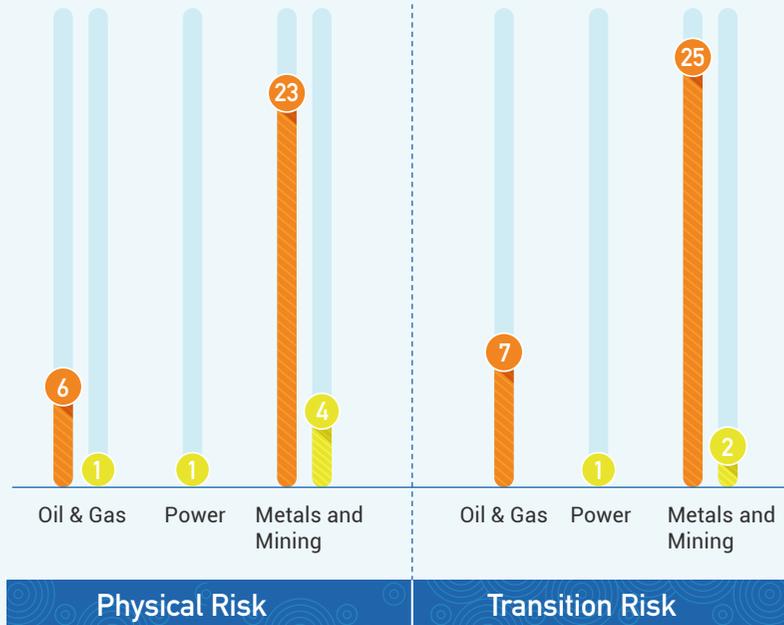
The WWF Biodiversity Risk Filter (BRF)² is used to evaluate nature-related risks across our key sectors: oil & gas, power, and metals and mining. The assessment reveals that both physical and transition risks are prominent, with significant threats such as extreme heat, tropical cyclones, and land use changes affecting multiple sites. Considering these findings, Vedanta is implementing comprehensive risk management strategies to enhance resilience to environmental challenges and address critical issues like water scarcity. Our sustainability initiatives are focused on mitigating these risks and ensuring our operations align with our environmental stewardship goals.



²The WWF Biodiversity Risk Filter is a free online tool that helps companies and financial institutions understand, assess, and respond to biodiversity risks, enhancing business resilience. It prioritizes actions by screening risks at corporate and portfolio levels, focusing on dependencies and impacts on biodiversity, physical and reputational risks, and assessing risks across operations and value chains. Physical risks stem from declining ecosystem services and dependency on these services, while reputational risks arise from perceptions of unsustainable practices. WWF Biodiversity Risk Filter

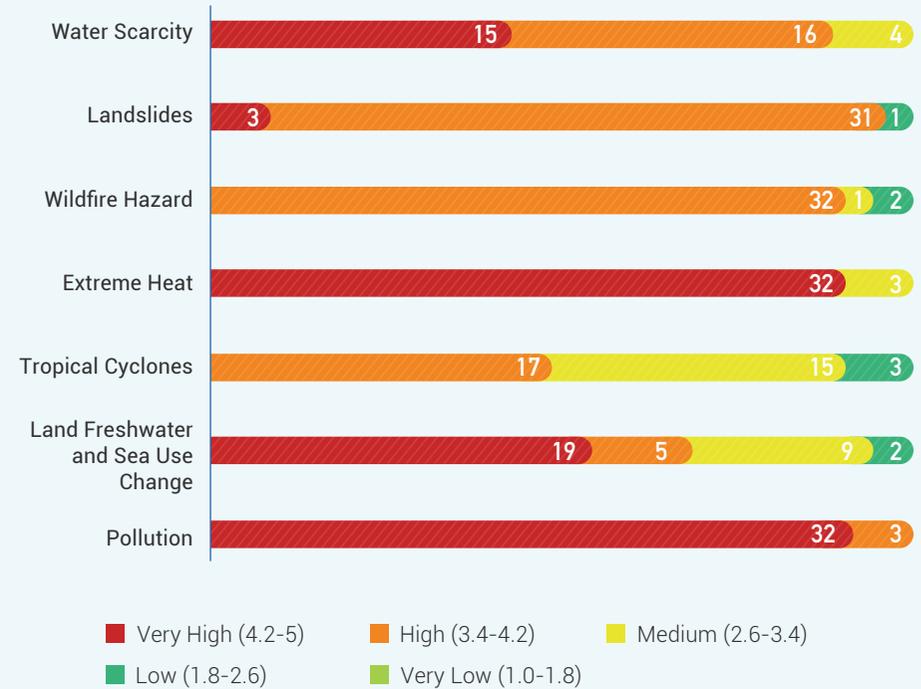
Vedanta's operations are exposed to significant physical and transition risks across its sectors. Several sites face very high-risk levels, underscoring the potential for substantial operational disruptions and increased costs due to environmental and regulatory challenges. This highlights how important comprehensive risk management strategies are in mitigating these vulnerabilities.

Number of Sites Across Sectors by risk levels



■ Very High (4.2-5) ■ High (3.4-4.2) ■ Medium (2.6-3.4)
■ Low (1.8-2.6) ■ Very Low (1.0-1.8)

Distribution of Sites by Physical Risk Types and Levels of Risk



■ Very High (4.2-5) ■ High (3.4-4.2) ■ Medium (2.6-3.4)
■ Low (1.8-2.6) ■ Very Low (1.0-1.8)

Data across business units and sites indicates that pollution and extreme heat are the most prevalent physical risks, affecting 32 of Vedanta's sites at very high levels. This suggests that a significant portion of Vedanta's operations could be exposed to disruptions due to rapid environmental changes and anthropogenic pressures. Water scarcity emerges as a critical risk, with 15 sites categorized as very high risk and 16 at high risk. Given Vedanta's water-intensive mining operations, this highlights substantial vulnerability to water shortages, potentially leading to operational challenges, increased costs, and reputational risks.

Additional significant physical risks include landslides and fire hazards, affecting multiple sites at high levels. This underscores the diverse range of environmental challenges Vedanta may face across its operations.

Furthermore, the climate risk assessment exercise conducted separately for Vedanta operations has identified an additional risk that may have implications for various business units: the risk of excessive and erratic rainfall. This could lead to potential business disruptions during incidents of heavy rainfall and waterlogging.

WWF risk filter only considers reputational risks in this version and regulatory risks will be added in the subsequent updates of the tool. Based on the current data, reputational risks of media scrutiny and labour and human rights have emerged as the top risks for Vedanta with most of the sites falling under

the very high to high-risk rating. Media scrutiny is associated with how a company's actions impact biodiversity and the environment. For companies like Vedanta, this could relate to the impacts on local ecosystems due to their operations. With 33 sites scoring 4 and above, the analysis presents high susceptibility to media scrutiny for Vedanta.

Labor/Human Rights risks includes issues related to working conditions, fair wages, and the right to safe and healthy working environments. Considering the natural context, this risk extends beyond traditional workplace issues to include the impact of a company's operations on local communities and ecosystems. For Vedanta, this might involve operations which can affect local biodiversity, or the disposal of soil and hazardous waste, which can harm both the environment and human health.

Additionally, and impacts on key-biodiversity areas are found to be high risks, it is important to implement compliance measures to mitigate the impact of operations to meet evolving biodiversity protection laws and standards and avoid negative publicity.

Following our overview of priority risks and their descriptions, we present a detailed table outlining how these risks could impact our operations, local communities, and financial performance. This table provides insights into each risk's relevance to our business units and highlights the potential consequences and financial implications. For an in-depth look at how we manage these risks, please see Chapter 4: Risk and Impact Management





Resource use/ replenishment

Description

Impact on Operations

Water scarcity poses risks to production, worker health, and infrastructure integrity across industries such as Balco, Cairn, ESL, HZL, TSPL, and VAL, potentially disrupting operations.

Impact on Community

Water stress could escalate conflicts within local communities across all sites.

Potential financial impact

CapEx: > Increase due to investments in water infrastructure, upgrades to equipment and processes, and research and development.

OpEx: > Increase due to rising costs for water, energy, maintenance and repairs, as well as regulatory and compliance expenses.

Risk

Water Scarcity

Risk applicability to Business Units

Balco, Cairn, ESL, HZL, Iron Ore, TSPL, VAL, SC, VZI

Type

Chronic

Timeframe³

Medium to Long term



Climate change

Description

Impact on Operations

Over time, landslides can damage infrastructure such as roads, railway lines, sewage systems, and power transmission lines. This damage may lead to disconnections or disruptions in internet and phone services and result in electricity outages, causing operational interruptions.

Impact on Health and Safety

Landslides can create hazardous conditions that may necessitate site evacuations due to safety concerns.

Impact on the Supply Chain

Landslides may damage roads and other transportation routes, disrupting supply chain logistics and access to affected sites.

Potential financial impact

CapEx: > Increase due to investments in resilient infrastructure, landslide mitigation systems, technological upgrades, and emergency response systems.

OpEx: > Increase due to higher operational costs, routine maintenance, increased insurance premiums, and rehabilitation expenses.

Risk

Landslides

Risk applicability to Business Units

Balco, Cairn, ESL, HZL, Iron Ore, TSPL, VAL, SC, VZI

Type

Acute

Timeframe

Short term

Acute Risk: Shocks, event-driven risks such as increased severity of cyclones, floods and other extreme weather events.

Chronic Risk: Stresses, longer-term shifts in climate patterns that may cause sea level rise, increased frequency of heatwaves and changes in rainfall patterns.

³Short-term horizon (1 - 3 years), Medium term horizon (3 - 10 years), and Long-term horizon (10 - 25 years)



Climate change

Description

Impact on Operations

Wildfires can severely disrupt operations by damaging infrastructure, equipment, and facilities. The intense heat and flames can destroy critical assets, impairing operational capabilities and causing significant downtime. Smoke and particulate matter from wildfires can affect air quality, leading to health issues among workers and potential slowdowns. The need for emergency response and recovery efforts can further increase operational costs and impact project timelines.

Potential financial impact

CapEx: > Increase due to investments in wildfire prevention measures, such as fire-resistant infrastructure, and enhanced emergency response systems.

OpEx: > Increase due to higher costs for firefighting and recovery efforts, increased insurance premiums, and potential operational disruptions from smoke and fire damage.

Risk

Wildfire Hazard

Risk applicability to Business Units

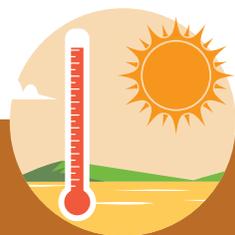
Balco, Cairn, ESL, HZL, Iron Ore, TSPL, VAL, SC, VZI

Type

Acute

Timeframe

Short to Medium term



Climate change

Description

Impact on Operations

Extreme temperatures can significantly disrupt equipment efficiency and worker safety over time. Elevated temperatures pose risks to BU infrastructure, causing metal joints to expand, substructure damage, and asphalt deterioration. These effects lead to increased operational and maintenance costs, including expenses for repairs and protective measures to preserve infrastructure integrity.

Impact on Local Communities and Health and Safety

Prolonged exposure to heat can diminish staff productivity, particularly in open areas. Heat waves, which are major contributors to weather-related illnesses and fatalities, will adversely impact the health of both employees and nearby communities.

Potential financial impact

CapEx: > Increase due to investments in cooling systems, building and structural modifications, and technological upgrades.

OpEx: > Increase due to higher maintenance costs, energy expenses, health and safety measures, and increased water usage.

Risk

Extreme Heat

Risk applicability to Business Units

Balco, Cairn, ESL, HZL, Iron Ore, TSPL, VAL, SC, VZI

Type

Acute/ Chronic

Timeframe

Medium to Long Term



Climate change

Description

Impact on Operations

Long-term heavy rainfall can lead to disruptions in internet and phone services, electricity outages affecting operations, and interruptions in product transport and supply due to road closures.

Impact on Health and Safety

Flooding may increase the risk of disease outbreaks at BU sites, either from water stagnation or pollution of existing water sources.

Impact on the Supply Chain

Excessive flooding can potentially cut off road access to affected business unit sites, disrupting vehicle access and supply chains.

Potential financial impact

CapEx: > Increase due to infrastructure repair and maintenance, investment in flood mitigation measures, and facility upgrades.

OpEx: > Increase due to higher maintenance costs, supply chain disruptions, and operational interruptions.

Risk

Erratic Rainfall/
Flooding

Risk applicability to Business Units

Balco, Cairn,
ESL, HZL,
Iron Ore, TSPL,
VAL, SC, VZI

Type

Acute/ Chronic

Timeframe

Short to
Medium term



Climate change

Description

Impact on Operations

Over time, cyclones can damage infrastructure such as roads, railway lines, sewage systems, and power transmission lines. This can lead to disconnections or disruptions in internet and phone services and cause electricity outages, resulting in operational disruptions.

Impact on the Supply Chain

Heavy winds from cyclones may necessitate site evacuations due to safety concerns.

Potential financial impact

CapEx: > Increase due to investments in resilient infrastructure, flood control systems, technological upgrades, and emergency systems.

OpEx: > Increase due to higher operational costs, routine maintenance, increased insurance premiums, and rehabilitation expenses.

Risk

Tropical Cyclones

Risk applicability to Business Units

Balco, Cairn,
ESL, HZL,
Iron Ore, TSPL,
VAL, SC, VZI

Type

Acute

Timeframe

Short to
Long-term



Land/freshwater/ ocean-use change

Description

Impact on Operations

Large-scale changes in land use, freshwater resources, and sea use can significantly disrupt operations by increasing resource competition and causing irreversible impacts on ecosystem services vital for operations. Alterations in land use may lead to conflicts over land access and use, affecting project development and operational stability. Changes in freshwater availability can disrupt industrial processes reliant on water, while sea use changes can damage coastal infrastructure and impact operations. These disruptions can result in increased operational costs, project delays, and the need for additional resources to adapt to evolving conditions.

Impact on Health and Safety

Changes in land, freshwater, and sea use can affect local communities by altering access to essential resources, leading to potential conflicts and reduced quality of life. Disruptions to freshwater sources can impact drinking water and agriculture, while land use changes may lead to displacement or loss of livelihoods. Coastal communities may face challenges from sea use changes affecting fisheries and coastal protection. These impacts can lead to social tensions and affect the company's social license to operate.

Potential financial impact

CapEx: > Increase due to infrastructure repair and maintenance, investment in flood mitigation measures, and facility upgrades.

OpEx: > Increase due to higher maintenance costs, supply chain disruptions, and operational interruptions.

Risk

Land, Freshwater and Sea Use Change

Risk applicability to Business Units

Balco, Cairn, ESL, HZL, Iron Ore, TSPL, VAL, SC, VZI

Type

Chronic

Timeframe

Medium to Long term



Pollution/Pollution Removal

Description

Impact on Operations

Pollution can disrupt operations by contaminating essential resources—air, water, and soil. Contaminated water may impair industrial processes and machinery, air pollution can cause worker health issues and reduce productivity and soil contamination can damage infrastructure and materials. Additionally, increasing regulatory requirements for pollution control may result in higher compliance costs and necessitate investments in advanced technologies. Non-compliance can lead to fines and legal penalties, while reputational risks from perceived environmental negligence can harm public image and stakeholder trust.

Impact on the Supply Chain

Pollution-related health issues can significantly affect the social license to operate by eroding community support and trust. Persistent health problems, such as respiratory conditions and other pollution-related diseases, may lead to heightened local conflicts and resistance against the company's operations affecting long term viability of operations.

Potential financial impact

CapEx: > Increase due to investments in pollution control technologies, infrastructure upgrades to manage contamination, and compliance with regulatory standards.

OpEx: > Increase due to higher costs for pollution management, health and safety measures, and regulatory compliance.

Risk

Pollution

Risk applicability to Business Units

Balco, Cairn, ESL, HZL, Iron Ore, TSPL, VAL, SC, VZI

Type

Acute

Timeframe

Short term

Accessing Transition Drivers on the Business Units of Vedanta

Transition Drivers	Risks	Implications on business Operations
<p>Policy</p>	<p>The global focus on combating climate change and biodiversity loss has intensified international pressure on governments and industries, resulting in shifts in the policy landscape. This includes the introduction of new regulations, such as the EU Green Deal, and the stricter enforcement of existing policies. This includes the introduction of new regulations, such as India's updated National Biodiversity Strategy and Action Plan (NBSAP) and the African Mining Vision, as well as stricter enforcement of existing policies like the Mines and Minerals (Development and Regulation) Act in India.</p>	<p>Metals and Mining</p> <p>Stricter environmental regulations and carbon taxes can increase operational costs and require significant investments in cleaner technologies and sustainable practices. Potential restrictions on mining activities in biodiversity-rich areas could limit expansion opportunities.</p> <p>Oil and Gas</p> <p>Policies aimed at reducing carbon emissions and promoting renewable energy sources can lead to a decline in demand for fossil fuels, affecting revenues and necessitating a transition to alternative energy investments. Need for more rigorous environmental impact assessments focusing on biodiversity, potentially slowing project approvals.</p> <p>Power</p> <p>Regulations promoting renewable energy adoption can drive a shift from coal-based power generation to renewable sources, increasing costs and necessitating infrastructure upgrades.</p>
<p>Market</p>	<p>Changing dynamics in overall markets, including shifts in consumer preferences due to regulatory, technological, and reputational conditions.</p> <p>Substitution of products or services with reduced impacts on nature or reduced dependency on nature.</p>	<p>Metals and Mining</p> <p>Increased demand for sustainable and low-carbon products requires companies to innovate and invest in greener production methods to maintain market competitiveness.</p> <p>Oil and Gas</p> <p>A decline in demand for traditional fossil fuels can lead to reduced market share and profitability. Companies may need to diversify their portfolios to include renewable energy and low-carbon technologies.</p> <p>Power</p> <p>Market shifts towards renewable energy sources and energy efficiency solutions can pressure traditional power companies to invest in new technologies and modify their business models to remain relevant.</p>

Transition Drivers	Risks	Implications on business Operations
<p>Technology</p>	<p>Substitution of products or services with reduced impacts on nature or reduced dependency on nature.</p>	<p>Metals and Mining Adoption of new mining technologies that reduce environmental impacts, such as more efficient water usage and waste management systems, can lead to initial high capital expenditures but long-term operational savings and compliance with environmental standards.</p> <p>Oil and Gas Transitioning to biofuels, hydrogen, and other low-carbon technologies can be costly but necessary to meet regulatory requirements and market demands for cleaner energy.</p> <p>Power Integration of renewable energy technologies, such as solar and wind, requires substantial investments in grid infrastructure and storage solutions to ensure reliability and efficiency.</p>
<p>Reputation</p>	<p>Changes in the perception of an organization’s environmental impacts—whether real or perceived—can significantly affect its reputation. Key reputational risks include a loss of social license to operate due to negative views on environmental practices, which can erode stakeholder trust and community support. Additionally, a slow transition to greener practices may result in reputational damage and competitive disadvantages as industry standards evolve.</p>	<p>Metals and Mining Companies with poor environmental records may face increased scrutiny from stakeholders, potentially leading to loss of social license to operate and difficulties in securing financing. This is important for areas with past controversies in particular (such as Tuticorin) to maintain its social license to operate and future growth.</p> <p>Oil and Gas Negative perceptions related to environmental impacts can lead to divestment by investors, pressure from activists, and increased regulatory oversight. This includes the need for reducing water usage in water-stressed regions like Rajasthan, to mitigate reputational risks.</p> <p>Power Companies perceived as lagging in the transition to renewable energy may face reputational damage, leading to loss of customers and investor confidence. Enhanced community development programs and transparency in sustainability efforts can mitigate these risks.</p>

In response, Vedanta has undertaken several initiatives to mitigate these risks and leverage potential opportunities. The company has implemented comprehensive water management programs, including recycling and reuse of water, rainwater harvesting, and investments in water-efficient technologies. To combat pollution and extreme heat, Vedanta is enhancing its environmental management systems and adopting renewable energy sources to reduce greenhouse gas emissions. Moreover, Vedanta is investing in reforestation and land rehabilitation projects to enhance forest productivity and reduce the risk of landslides and fire hazards.

Vedanta is actively undertaking climate, water, supply chain, and biodiversity risk assessments to identify and understand specific risks and potential opportunities across its portfolios. The details of risk and impact management are in section



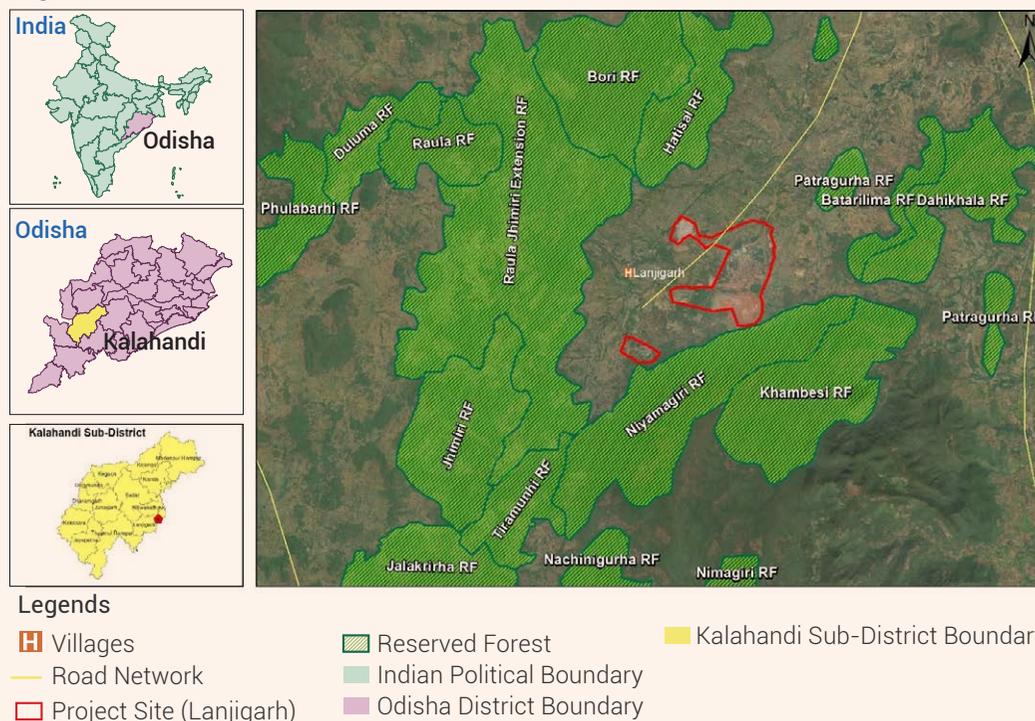
Priority Site Assessments

Vedanta Aluminium Alumina Refinery Facility, Lanjigarh, Kalahandi District, Odisha, India

Vedanta Aluminium Limited (VAL), Lanjigarh comprising alumina and associated facilities are located at Lanjigarh, Kalahandi District, Odisha. The following section provides impact assessment for the site. The areas in proximity to the project site shares contiguous habitat

with the proposed South Odisha Elephant Corridor. The proposed elephant corridor, not included in the Right of Passage (2017), from Sargiguda RF to Singari RF is located in the Kalahandi South Division of the Odisha Forest Department.

Figure 1 Location of the site



Overview of Nature-related Risks and Management Strategies at Vedanta's Lanjigarh Aluminium Refinery

Ecosystem Degradation



Impact materiality - High

Risk timeframe - Short to medium term

Description of risk

- Diversion of 26.24 hectares of revenue forest land and proximity to ecologically sensitive areas.
- Indirect dependence on ecosystem services for climate regulation and natural hazard protection.

Potential business impact

- Potential reputational risk from negative environmental impact
- Potential regulatory challenges, including legal liabilities, potential restrictions on expansion
- Increased costs for biodiversity conservation and offsets

Risk management / Opportunities

- Implement biodiversity management plan and apply mitigation hierarchy in all operations and expansion plans
- Strengthen conservation initiatives and enhance community engagement
- Develop and monitor key biodiversity performance indicators to track progress and demonstrate commitment

Air Pollution



Impact materiality - High

Risk timeframe - Short term

Description of risk

- Emissions of PM10, PM2.5, NOx, and occasional SO2 pose risks to local air quality and nearby ecosystems.
- The facility's proximity to sensitive areas amplifies the potential environmental and health impacts

Potential business impact

- Potential regulatory penalties and fines in case of non-compliance with air quality standards
- Increased operational costs and upgrades to pollution control systems

Risk management / Opportunities

- Install and maintain Air Pollution Control Devices (APCDs)
- Implement real-time monitoring systems (OCEMS, CAAQMS)
- Invest in advanced emission control technologies
- Develop stricter internal emission standards

Water Stress



Impact materiality - Medium

Risk timeframe - Medium to long term

Description of risk

- High water scarcity risk with dependency on freshwater from Tel River.
- Despite high regional water stress, the facility maintains a medium dependency on surface water for production, highlighting the need for continued water management practices.

Potential business impact

- Operational disruptions due to water shortages, potentially leading to production delays and revenue losses
- Increased regulatory scrutiny and potential for stricter water use regulations, resulting in compliance costs
- Higher operational costs from water procurement and treatment
- Escalated community tensions over water resources

Risk management / Opportunities

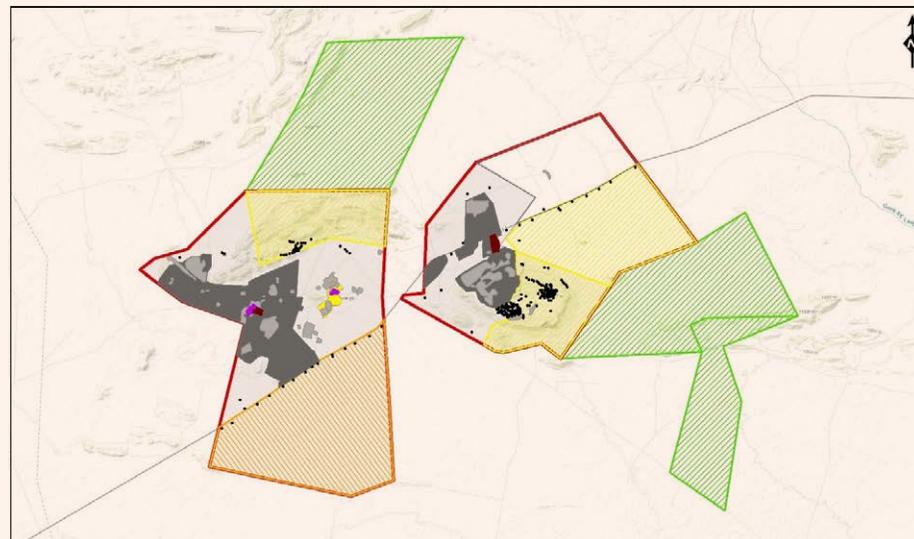
- Implement and continually improve zero-discharge system with 100% water recycling
- Achieve and maintain 50% reduction in water abstraction through process optimizations
- Explore and invest in cost-effective water substitutes and advanced water-efficient technologies
- Engage with local communities on water management initiatives

VZI's Black Mountain and Gamsberg Mines in Namakwa District, Northern Cape

Black Mountain Mining (Pty) Ltd. is a subsidiary of Vedanta Zinc International which operates the Black Mountain Complex. The mining complex comprises the underground Black Mountain Mines, Deeps and Swartberg, and the opencast Gamsberg Zinc Mine. The mine site is located in the ecologically sensitive Bushmanland Inselberg Region, which, in turn is located on the north-eastern margin of the Succulent Karoo and

includes all the large, quartzite-sized inselbergs located in the northern Bushmanland plains. The isolation of plant populations on the inselbergs has led to higher speciation rates, which has resulted in diversification of the dwarf succulent floral components. The Aggeneysberg, along with the other mountains of Bushmanland Inselberg Region, occur within the Gariiep Centre of Endemism.

Figure 2 Location of the site



- Legends**
- BMM Landholding
 - Mining
 - Industrial
 - Commercial
 - Set Aside
 - Mining Right
 - Residential
 - Game Camp
 - Commercial
 - Gamesberg Nature Reserve Protected Area
 - Parent Farms
 - Commercial
 - Commercial



Overview of Nature-related Risks and Management Strategies at VZI's Black Mountain and Gamsberg Mines

Ecosystem Degradation



Impact materiality - High
Risk timeframe - Medium to Long term

Description of risk

- The facility is located in the Bushmanland Inselberg Region, covering 39,382 ha, with an actual impacted area of 1,749 ha. The BMM operation occurs within a Critical Biodiversity Area (CBA) with numerous IUCN, endemic and protected species present. Impacts on these unique habitats are significant.
- Indirect dependence on ecosystem services for climate regulation and water flow maintenance.

Potential business impact

- Potential reputational damage from negative environmental impact.
- Increased costs for biodiversity conservation and offsets

Risk management / Opportunities

- Implement the developed biodiversity management plan and no net loss plan.
- Continue securing nearby properties as nature reserves under the Protected Areas Act.
- Strengthen conservation initiatives and enhance community engagement.
- Develop and monitor key biodiversity performance indicators to track progress and demonstrate commitment

Water Stress



Impact materiality - High
Risk timeframe - Medium to Long term

Description of risk

- High water scarcity risk with dependency on freshwater from the Orange River in a water-stressed area.
- Despite high regional water stress, the facility maintains a significant dependency on surface water for production, highlighting the need for continued water management practices.

Potential business impact

- Operational disruptions due to water shortages, potentially leading to production delays and revenue losses
- Increased regulatory scrutiny and potential for stricter water use regulations, resulting in compliance costs
- Higher operational costs from water procurement and treatment
- Potential community tensions over water resources

Risk management / Opportunities

- Implement and continually improve Water Management Programme with regular assessments and mitigation strategies.
- Achieve and maintain 100% water recycling.
- Explore and invest in cost-effective water substitutes and advanced water-efficient technologies
- Engage with local communities on water management initiatives to address potential conflicts

Pollution (Water and Soil)



Impact materiality - High
Risk timeframe - Short to Medium term

Description of risk

- Potential risks from accidents related to slurry deposition and waste management could impact groundwater and soil quality, reducing land capability for future use.
- Potential soil environment impacts may arise from overgrazing, road drainage issues, land clearing, and infrastructure activities.

Potential business impact

- Environmental cleanup costs
- Potential regulatory actions including fines, mandated remediation, and long-term liabilities related to soil and groundwater contamination
- Operational disruptions due to cleanup efforts and implementation of new containment measures
- Increased reputational risk

Risk management / Opportunities

- Maintain zero-discharge policy and regular monitoring of run-off and effluents
- Implement Soil Management Programme as part of the CAMP (2022) to address soil erosion and manage impacts
- Explore further enhancements to monitoring systems and pollutant control measures
- Emergency response and remediation plans for potential incidents

Waste Management



Impact materiality - High
Risk timeframe - Medium to long term

Description of risk

- The need for effective waste management practices to minimize environmental impacts and engage local industries for by-product utilization.

Potential business impact

- Potential community tensions and reputational damage over waste disposal practices

Risk management / Opportunities

- Engage local industries for the utilization of by-products
- Explore innovative techniques for waste management and recycling
- Collaborate with local communities and stakeholders to enhance waste management strategies and address concerns

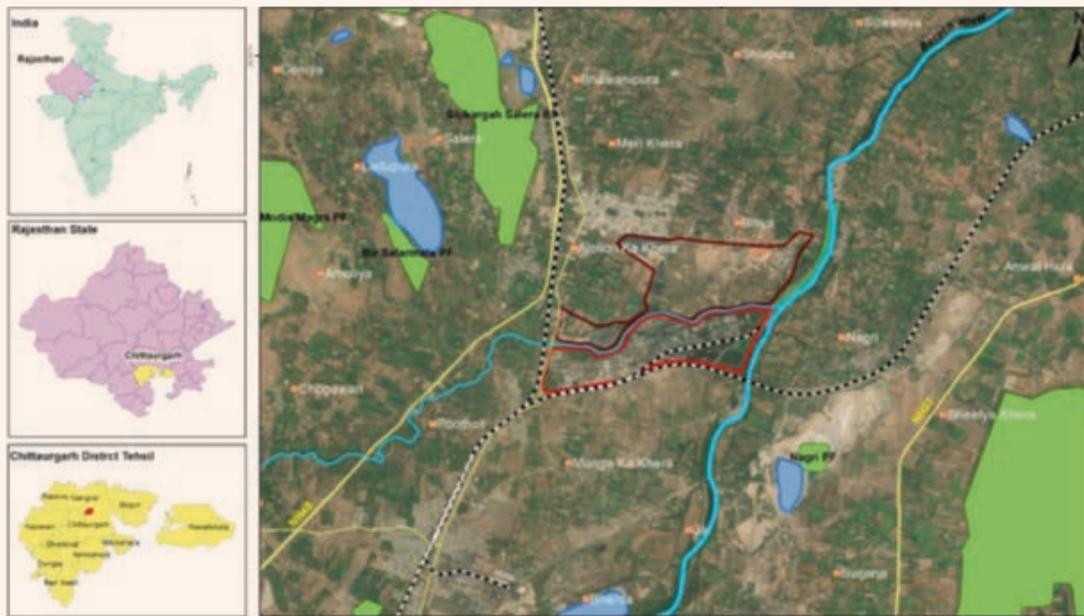
Hindustan Zinc Ltd., Chanderiya Lead Zinc Smelter, District Chittorgarh, Rajasthan

Chanderiya Lead-Zinc Smelter (CLZS) is among the largest zinc-lead smelting complexes globally, with a current metal production capacity of 675,000 MT per annum, including zinc, lead, and a 290 MW Captive Power Plant. The CLZS facility is situated in a modified agricultural landscape, where certain areas have historically included scrub patches. Covering

437.34 hectares, the project does not involve loss of any natural habitat. Biodiversity assessments have classified the surrounding areas as critical habitat for vulture species, specifically the critically endangered Indian Vulture (*Gyps indicus*) and the endangered Egyptian Vulture (*Neophron percnopterus*). The majority of sightings have been documented from the

Chittorgarh Fort and the adjoining reserve forests, located approximately 5 to 10 kms from the project site footprint. HZL is fully aware of these considerations and has implemented targeted management practices designed to ensure no net loss, with the goal of achieving net gains.

Figure 3 Location of the site



Legends

- Villages
- Road Network
- Railway Track
- River Stream
- Forest Land
- Waterbodies
- Chanderiya Complex-1
- Chanderiya Complex-2
- Chanderiya Total Boundary



Overview of Nature-related Risks and Management Strategies at Chanderiya Lead Zinc Smelter, District Chittorgarh, Rajasthan

Ecosystem Degradation



Impact materiality - Medium

Risk timeframe - Short to medium term

Description of risk

- The Chanderiya site is situated within a broader area of high conservation value, important for the Indian Vulture and Egyptian Vulture. Although no natural habitat loss has occurred, potential habitat degradation due to air, water, noise, and soil quality impacts has the potential to pose a risk to the species and their habitat connectivity. The site's location within a larger ecological area of analysis is acknowledged, and HZL monitors the potential impacts in its mitigation strategy.
- Indirect dependence on ecosystem services for climate regulation and natural hazard protection.

Potential business impact

- Potential reputational damage from negative environmental impact
- Increased costs for biodiversity conservation and offsets

Risk management / Opportunities

- Implement biodiversity management plan and apply mitigation hierarchy in all operations and expansion plans
- Strengthen conservation initiatives and enhance community engagement
- Develop and monitor key biodiversity performance indicators to track progress and demonstrate commitment

Water Stress



Impact materiality - Medium

Risk timeframe - Medium to Long term

Description of risk

- Moderate water scarcity risk with dependency on freshwater from Gosunda Dam.
- The facility is located in a water stress region. It has dependency on surface water resources for production, highlighting the need for continued water management practices.

Potential business impact

- Operational disruptions due to water shortages, potentially leading to production delays and revenue losses
- Increased regulatory scrutiny and potential for stricter water use regulations, resulting in compliance costs
- Higher operational costs from water procurement and treatment
- Potential community tensions over water resources

Risk management / Opportunities

- Implement and continually improve zero-discharge system with 100% water recycling
- Explore and invest in cost-effective water substitutes and advanced water-efficient technologies
- Engage with local communities on water management initiatives

Impact on Business, Strategy, and Financial Planning

In an era marked by increasing environmental challenges, Vedanta faces significant nature-related risks impacting its business operations, strategy, and financial planning. These risks are primarily related to climate change, water scarcity, and biodiversity loss. By evaluating these risks and implementing strategic responses, Vedanta aims to mitigate potential financial impacts and align with global sustainability standards. This chapter explores the nature-related risks categorized into climate, water, biodiversity and waste, and outlines Vedanta's strategic approach to addressing these challenges.



Climate-related risks

Key Indicators

- **EBITDA Impact:** Vedanta has designated EBITDA as a critical performance indicator. A 2.5% impact on EBITDA is considered substantial.
- **Capital Expenditure:** Significant investments are made in low-carbon solutions, emission reduction technologies, and renewable energy integration.

Impact on Business

Climate-related risks are critical considerations for Vedanta's financial planning and strategy. These include both physical risks, such as extreme weather events, and transition risks, related to the shift towards a low-carbon economy. The company employs IPCC and NGFS scenarios to evaluate these impacts and prioritize risks across its business units.

Strategic Response

- **Capital Investments:** Vedanta is committed to investing in innovative technologies to reduce carbon emissions and improve energy efficiency.
- **Operational Adjustments:** Adjustments in capital expenditures are made to incorporate emission reduction targets and renewable energy sources.

Sector-specific responses

Metals & Mining: Focus on reducing greenhouse gas emissions and integrating renewable energy sources.

Oil & Gas: Emphasis on transitioning to low-carbon technologies and exploring alternative energy sources.



Biodiversity-related risks

Key Indicators

- **Community Engagement:** Failure to engage with local communities can lead to mistrust, protests, and project delays.
- **Restoration Initiatives:** Vedanta invests in environmental preservation initiatives, including planting saplings, managing greenbelts, and constructing water conservation structures for preservation of natural habitats.

Impact on Business

Biodiversity loss poses significant reputational and operational risks. Engagement with local communities and the preservation of natural habitats are crucial for maintaining stakeholder trust and ensuring smooth operations.

Strategic Response

- **Biodiversity Management:** Implementation of biodiversity management plans to mitigate impacts on local ecosystems.
- **Community CSR Programs:** Active participation in community-based environmental conservation programs.

Sector-specific responses

Metals & Mining: Focus on managing the environmental impact of mining operations through rehabilitation and restoration efforts.

Oil & Gas: Emphasis on minimizing the ecological footprint of exploration and production activities.



Water-related risks

Key Indicators

- **Water-stressed areas:** Vedanta's operations in the Banas basin, which represents 22% of the company's revenue, face high water risk due to potential drought conditions.
- **Water Consumption:** HZL operations consume 26.16 million m³ for the Year 23-24, with potential financial impacts estimated at INR 25 billion in case of drought.

Impact on Business

Water scarcity and management are critical for Vedanta, particularly in regions where water stress is high. The company conducts water risk assessments using tools such as WRI Aqueduct and WRF Water Risk Filter to understand and mitigate these risks.

Strategic Response

- **Water Efficiency:** Implementation of water recycling, reuse, and conservation practices across operations.
- **Water Positivity Goals:** Vedanta aims to achieve net water positivity by 2030, with HZL targeting to become 5 times water positive by 2025.
- **Internal Water Pricing:** Vedanta has an implicit price for water to help reduce costs and regulate its water usage.

Sector-specific responses

Metals & Mining: Focus on water recycling, rainwater harvesting, and reducing freshwater consumption.

Oil & Gas: Emphasis on water-efficient technologies and managing water use in drilling and extraction processes.



Pollution-related risks

Key Indicators

- **Fines and Penalties:** Costs associated with non-compliance and legal settlements.
- **Operational Disruptions:** Losses due to shutdowns or reduced capacity utilization.
- **Increased Operational Costs:** Higher costs for water procurement in water-stressed areas and waste management.

Impact on Business

Vedanta's operations generate multiple types of pollution, each posing distinct risks to the business. Air quality management is crucial, with emissions of particulate matter (PM), sulphur oxides (SO_x), nitrogen oxides (NO_x), lead, and polycyclic aromatic hydrocarbons (PAHs) from various operations. Non-compliance with air emissions regulations could result in significant fines, legal repercussions, and damage to the company's reputation. Water pollution is another major concern, particularly in water-stressed and flood-prone areas, affecting businesses such as BALCO, Hindustan Zinc Ltd., and Cairn Oil & Gas. Water-related conflicts with stakeholders and increased operational costs are potential risks. Hazardous and non-hazardous waste management is essential to prevent soil and water contamination and minimize the risks associated with tailings and other waste byproducts. Overall, these pollution-related risks necessitate robust management strategies to avoid productivity losses, legal conflicts, and higher financial burdens.

Strategic Response

Vedanta adopts multiple strategies to mitigate the impact of pollution from its operations:

- **Air Quality Control:** Implementation of continuous air quality monitoring systems and advanced emission control technologies to ensure compliance with regulatory standards and mitigate health hazards.
- **Wastewater Management:** Investment in water treatment technologies, strict no-discharge policies for freshwater sources, and initiatives to reduce water consumption and recycle wastewater.
- **Waste Management:** Adoption of the Waste to Wealth philosophy, focusing on minimizing waste generation, maximizing recycling, and implementing safe disposal practices for hazardous and non-hazardous waste. Initiatives include utilizing fly ash and red mud in construction and cement industries and developing innovative technologies for waste treatment.

Sector-specific responses

Metals & Mining: Implementing advanced air and water pollution control measures, strict waste management protocols, and promoting resource efficiency and circularity to reduce environmental impact.

Oil & Gas: Enhancing water treatment facilities, adopting stringent air quality monitoring, and collaborating with certified third-party agencies for hazardous waste disposal.

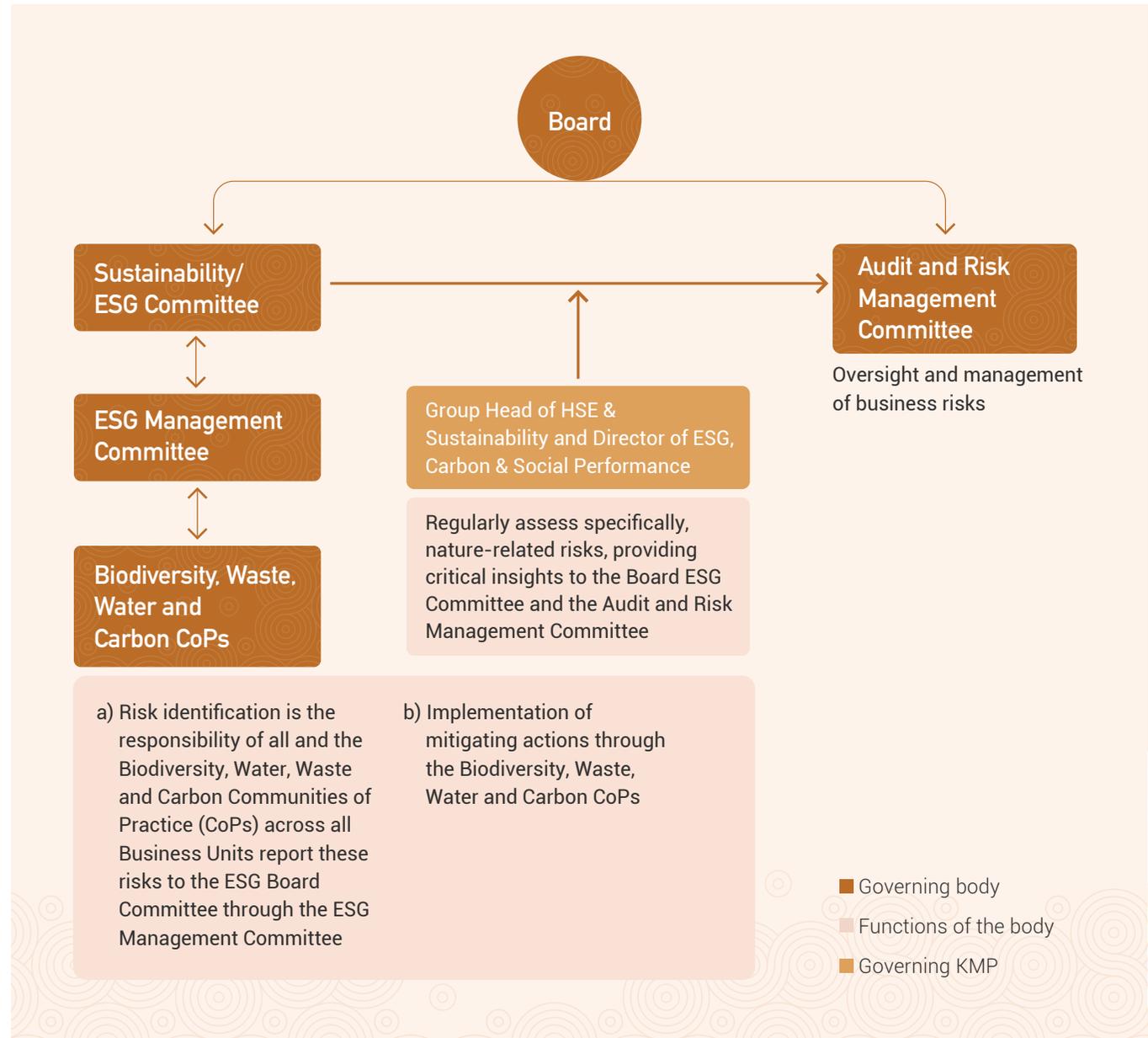


04 Risk and Impact Management



Risk Framework and Monitoring Mechanisms

The Board, with the assistance of the management, conducts periodic and robust assessments of principal risks and uncertainties of the Group, and tests the financial plans associated with each. Climate change is a principal risk on Vedanta's risk register, driven by its potential to cause large-scale environmental damage and environmental regulations worldwide. Recognizing that water scarcity and biodiversity loss are key drivers of climate change, Vedanta also considers these factors as significant risks and has implemented effective mitigation measures, across all operations. The Board reviews significant risks and mitigating actions, ensuring the effectiveness of internal control systems, and making necessary adjustments to strengthen control measures. And evaluates emerging climate risks, guiding management on avoidance strategies. The Audit and Risk management committee along with the ESG committee reviews nature-related risks systems and makes necessary adjustments to strengthen control measures.



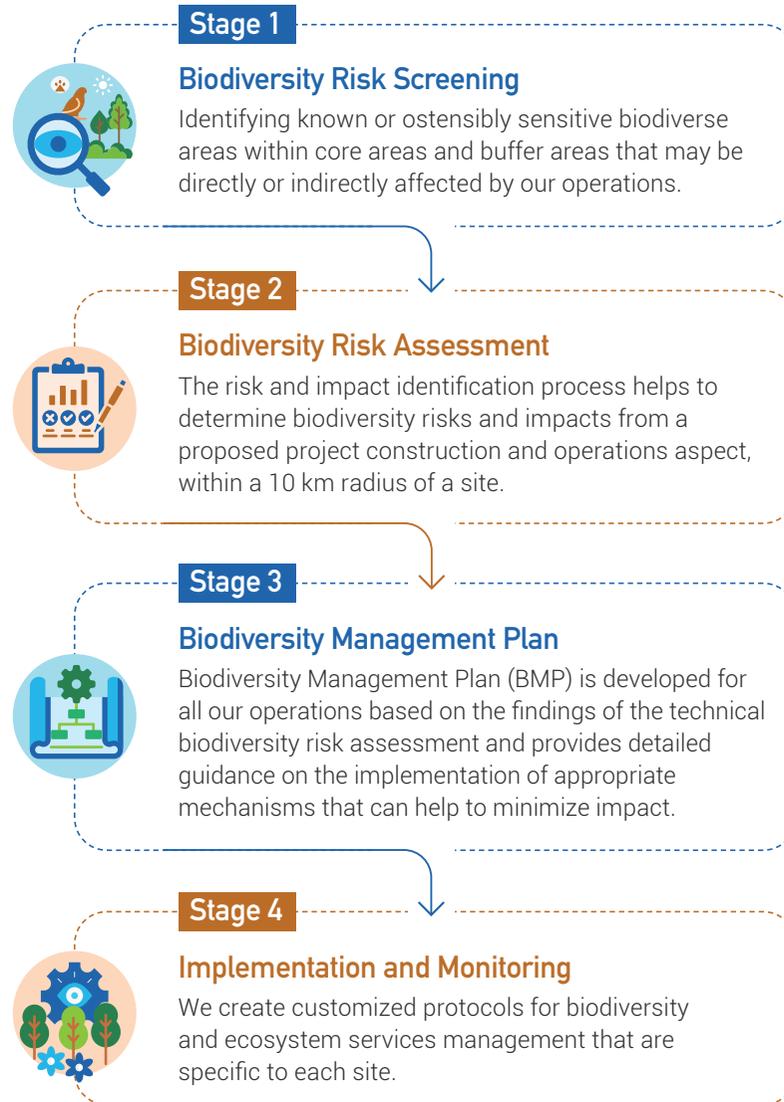
Processes for Identifying and Assessing Nature-Related Risks

At Vedanta, we recognize the critical importance of identifying and assessing nature-related risks to ensure sustainable operations and responsible stewardship of natural resources. Our comprehensive approach encompasses biodiversity, climate, and water risks, integrating advanced tools, stakeholder consultations, and stringent guidelines to mitigate negative impacts and enhance our positive contributions to the environment and society.



Biodiversity Risks

Our Risk Management Process



Biodiversity Risk Screening

Vedanta conducts thorough biodiversity risk screenings for all operational assets to identify potential impacts on habitats and species. This involves assessing biodiversity within a 10 km radius of project sites and screening Key Biodiversity Areas (KBAs) and Protected Areas (PAs) within a 50 km radius using tools like the Integrated Biodiversity Assessment Tool (IBAT). The screening process adheres to both regulatory requirements and international standards, including Environmental and Social Impact Assessments, Biodiversity Management Plans, and Critical Habitat Studies.

Project Initiation

- Preliminary evaluation of impact on biodiversity at the project premises and proximate areas
- Based on Vedanta's Technical Standard on Biodiversity Management

Threat Evaluation

- Use of the IBAT and/or STAR tool
- Identification of highly biodiverse areas through IBAT
- Identification of areas and species under threat by the STAR tool

Restoration initiatives

STAR-T and STAR-R provide guidance on locations where threat abatement and restoration activities can help reduce species extinction risk and promote conservation goals

Risk and Impact Identification Process

Our process for identifying biodiversity risks involves extensive stakeholder consultations to capture localized perspectives and unique socio-economic, geographic, or climatic dynamics. Post-evaluation, sites are categorized by risk, and conservation actions are determined to achieve No Net Loss (NNL) goals. This includes reviewing the interaction of biodiversity with operations and conducting ecosystem dependency and impact assessments. Specific activities at this stage include:

- Assessing the status of biodiversity.
- Evaluating the interaction of biodiversity with project operations.
- Reviewing existing biodiversity conservation approaches.

Post-Evaluation Outcomes and Actions

Based on the risk categorization, Vedanta implements necessary biodiversity management practices and measures to achieve the NNL goal. For sites near biodiversity-rich areas, priority ecosystem impacts are reviewed, focusing on ecosystems most likely to be impacted by daily operations and those on which our operations depend. This includes conducting ecosystem dependency and impact assessments to identify critical ecosystem services.

Water Risks

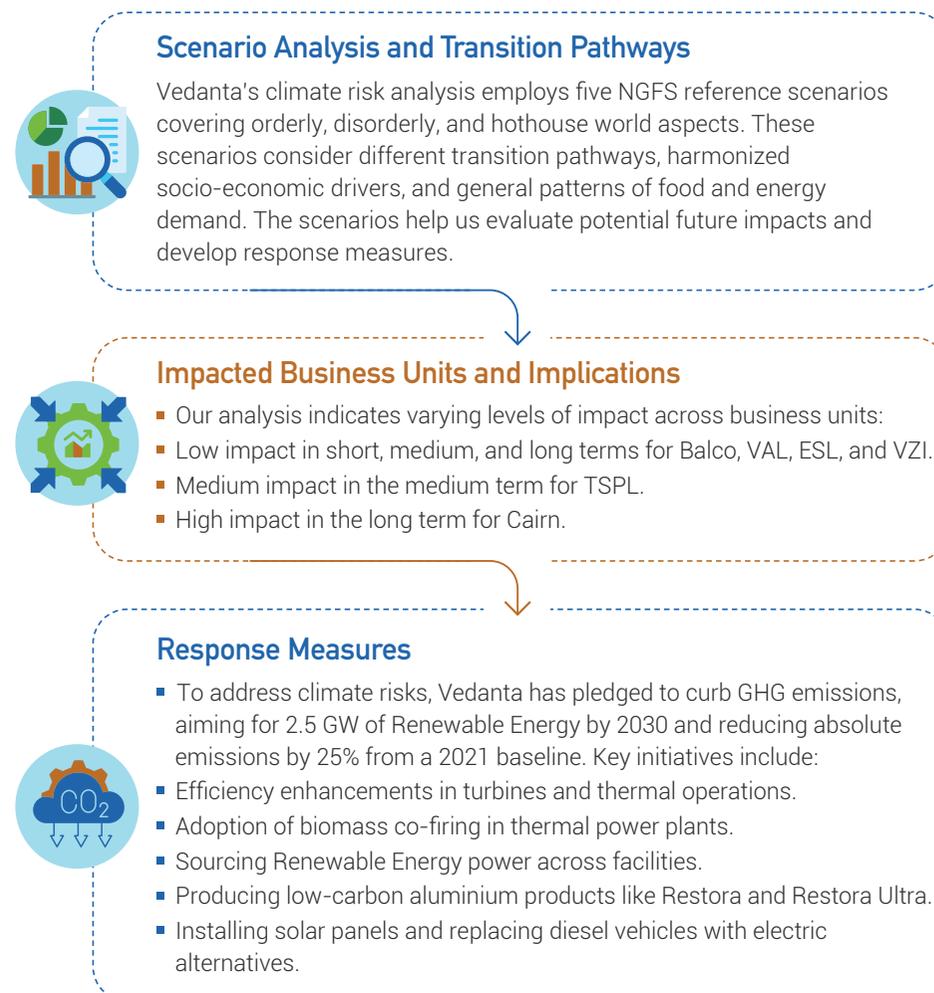
To mitigate regulatory risk and reputational damage, Vedanta also regularly maps its dependencies and impacts across operational geographies.

Vedanta conducts water risk assessments across business units, ensuring the sustainable use of water resources, which is crucial for business continuity and securing the social license to operate. Almost 2/3rd of our operations are in water stressed regions. The likelihood of water shortage is thus considered on a medium- to long-term basis. To mitigate regulatory risk and reputational damage, Vedanta also regularly maps its dependencies and impacts across operational geographies. The annual business risk assessment incorporates external forces such as the physical environment and the evolving social and regulatory context. The water risk assessment considers several dimensions, including dependency and impact-related water risks, projected future water quantities, future water quality, local stakeholder impacts, and potential future regulatory changes. Below are the 2 assessments carried out that are used to identify and assess water-related risks.

Assessment		Basin Risk Assessment	Operational Risk Assessment
Risks Considered	Physical Risks	Evaluate water scarcity, flooding, water quality, and ecosystem services.	Similar to basin physical risk but focused on operational activities.
	Regulatory Risks	Assess enabling environment, governance, management instruments, infrastructure, and finance.	Reviews compliance with local and international water regulations.
	Reputational Risks	Consider cultural and biodiversity importance, media scrutiny, and conflict potential.	Monitors perceptions of stakeholders regarding water use practices.
Tools used		<ul style="list-style-type: none"> ▪ WWF Water Risk Filter Assesses both basin and operational water risks, integrating climate and socio-economic scenarios. ▪ India Water Tool (IWT) Identifies water risks and plans interventions in India, combining datasets from key authorities. ▪ WRI Aqueduct Provides a composite index of water-related risks through hydrological modeling and remote sensing. 	<ul style="list-style-type: none"> ▪ For Reputational Risk Vedanta has developed guiding tools like internal water policies and management standards to capture any deviations and take course corrective action in due time. ▪ For Compliance Risk We independently assess and measure water tariffs, withdrawal restrictions, discharge standards, discharge tariffs are to identify the extent and likelihood of their impact upon business and compliance requirements.

Climate Risks

Given that Vedanta considers Climate Change as a highly material topic, the process for identifying risks is essential. Below is a summary of the process followed. A detailed explanation of the same can be found in the company's TCFD Report.



Vedanta's structured approach to identifying and assessing nature-related risks ensures that we mitigate negative impacts and enhance our positive contributions to biodiversity, climate, and water resources. By integrating advanced tools, conducting thorough assessments, and implementing targeted response measures, we are committed to sustainable and responsible operations that safeguard the environment and support local communities.

Pollution-related risks

Vedanta ensures that contamination of land and water from its activities is prevented. This includes assessing the risk of contamination, considering contaminants, receptors, and exposure pathways. Historical land use assessments are conducted during new projects or construction/demolition activities to identify potential hazardous materials.



Risk	Identification & Assessment processes
<p>Air emissions & quality</p>	<ol style="list-style-type: none"> 1. Environmental and Social Impact Assessments (ESIA) <ul style="list-style-type: none"> Conduct comprehensive ESIA's for all projects and operations to identify potential sources and impacts of air pollution. This also evaluates existing environmental conditions and potential project-related changes. Incorporate air quality baseline studies to understand current air quality levels and predict future scenarios based on project activities. 2. Regulatory Compliance <ul style="list-style-type: none"> Identify and comply with all applicable local, national, and international air quality regulations and standards. Regularly update compliance requirements to reflect changes in legislation and best practices
<p>Waste Management</p>	<ol style="list-style-type: none"> 1. Risk Assessments: <ul style="list-style-type: none"> Conduct risk assessments to evaluate the environmental and health impacts of waste generation and disposal practices. Identify high-risk waste streams and prioritize them for management and mitigation efforts 2. Regulatory Framework: <ul style="list-style-type: none"> Identify and comply with waste management regulations, including those related to the handling, storage, transportation, and disposal of hazardous and non-hazardous waste. Update waste management practices to align with evolving regulatory requirements and industry standards 3. Lifecycle Assessments <ul style="list-style-type: none"> Perform lifecycle assessments to assess the long-term environmental impacts of waste from generation through disposal. Use the results to inform waste reduction strategies and improve resource efficiency

Risk	Identification & Assessment processes
<p>Tailings Management</p>	<ol style="list-style-type: none"> 1. Site Selection and Design <ul style="list-style-type: none"> Conduct thorough site assessments to select appropriate locations for tailings storage facilities (TSFs), considering geological, hydrological, and environmental factors. Design TSFs to minimize environmental impact and enhance structural stability. 2. Regulatory Compliance and Best Practices <ul style="list-style-type: none"> Identify and adhere to national regulations and international best practices, such as the Global Industry Standard on Tailings Management (GISTM). Regularly review and update compliance practices to reflect advancements in tailings management 3. Stability Assessments <ul style="list-style-type: none"> Perform regular stability assessments of TSFs, including geotechnical evaluations and safety factor calculations. Monitor and report any anomalies or potential risks to ensure timely intervention

Processes for Managing Nature-Related Risks



Ecosystem degradation

Implementation and Monitoring Mechanisms

Biodiversity Management Plans

Vedanta's Biodiversity Management Plans (BMPs) are based on comprehensive biodiversity risk assessments and provide detailed guidance to minimize environmental impacts and achieve No Net Loss (NNL) outcomes. BMPs include:

- Due diligence for supply chain entities in biodiversity-rich areas, extending risk screening to upstream operations to avoid disturbing Protected Areas or Key Biodiversity Areas (KBAs).
- Site-specific protocols align with global best practices and are continuously refined, focusing on neutralizing net biodiversity impacts.
- Performance indicators are established based on corporate and legal requirements, and monitoring involves collecting and recording data on implementation, results, and impacts.
- These biodiversity risks are integrated into Vedanta's overall risk management framework to ensure a holistic approach to resource utilization and conservation.

Mitigating Actions

Avoid

- Follow No Discharge policy to prevent pollution of water bodies
- Conduct due diligence to avoid/restrict procurement from Critical Habitats
- Form SOPs to prevent introduction of invasive species during movement of vehicles and goods

Reduce

- Develop Environmental Management Plan (EMP) to minimize air, noise, water, soil pollution
- Regulation of and defining routes for vehicular movements
- Improved monitoring of habitats

Restore & Regenerate

- Soil and moisture conservation activities
- Planting native and endangered species
- Removal or control of invasive species
- Introduction of aquatic vegetation
- Restoration of water bodies
- Expansion of vegetative cover in barren/degraded lands
- Restoration of wildlife habitats and corridors
- Restoration of coastal ecosystems, including wetlands and mangroves

Transform

- Conservation of endangered fauna
- Make conservation centers for endangered plants
- Wildlife rescue support
- Support in prevention of forest fires



Water stress, Water pollution

Implementation and Monitoring Mechanisms

Vedanta's water management mechanisms involve regular monitoring of water consumption and groundwater withdrawals.

Internal & External Audits

Key performance indicators (KPIs) are tracked and monitored through internal and external audits, including ISO 14001:2004, GRI, and VSAP compliance. Business units gather daily data to prepare metrics and meet corporate and legal standards. The Water Community of Practice reports water extraction, release, and consumption metrics to senior management, identifying opportunities for water efficiency.

Water Resource Management Plans (WRMP) and Water Efficiency Improvement Plans

At site level, these focus on managing identified water risks

Mitigating Actions

Water Reuse

- Capture, condensation and reuse of cooling tower blow down and demineralized regenerated water has the potential for reducing freshwater withdrawal by 21,600 m³ of water. Of this, 16,740 m³ has already been achieved.
- Re-use of boiler blow down water for injector.
- Use a Produced Water ReInjection (PWRI) system where the Induced Gas Flootation (IGF) unit treats produced water for injection. Re-injection rate is 91%, converting more produced water and reducing groundwater consumption by 26,400 m³/year.

Water Replenishment

- Rainwater harvesting project initiated for Vedanta Copper. Will create annual freshwater credit of 14,000 m³ at a capex cost of INR 1.5 million.
- Constructed 69 community-based rainwater harvesting structure in Barmer having RWH potential of 0.78 million KL annually.
- Constructed 38 check dams, 7 settling ponds and de-silted 2 nearby village ponds increasing their rainwater harvesting potential by 20,000 m³ / annum.



Pollution

Implementation and Monitoring Mechanisms

Air Quality & Emissions

Air Quality Monitoring

- Implement continuous air quality monitoring systems and ambient air quality at strategic locations to measure key pollutants (e.g., particulate matter, sulfur dioxide, nitrogen oxides).
- Use the data collected to assess compliance with regulatory limits and identify trends or exceedances that require intervention

Waste Management

Waste Audits

- Perform regular waste audits to identify the types, quantities, and sources of waste generated by operations. Classify waste streams into hazardous, non-hazardous, and recyclable categories

Mitigating Actions

Waste Reduction & Reuse

- Deploy emission control technologies such as electrostatic precipitators, bag filters, and scrubbers, to reduce the release of airborne pollutants and retrofit existing equipment with updated technologies to enhance pollution control capabilities.
- Transition to cleaner energy sources, including renewable energy, to reduce emissions from fossil fuel combustion. Implement energy efficiency measures to decrease overall energy consumption and associated air pollution.
- Implement targeted programs to reduce emissions, such as switching to low-sulfur fuels and optimizing combustion processes. Promote the adoption of best practices in operational procedures to minimize pollutant generation.
- Fly ash utilization in the innovation of a fast setting geopolymers concrete along with Red Mud

Implementation and Monitoring Mechanisms

Waste Audits

- Develop and maintain waste tracking systems to monitor the generation, transportation, and disposal of waste. Use electronic databases to ensure accurate record-keeping and compliance with regulatory requirements

Tailings Management

Geotechnical Monitoring

- Deploy geotechnical monitoring systems, including piezometers, inclinometers, and settlement gauges, to continuously monitor the stability of TSFs. Analyze monitoring data to detect any signs of instability or structural weaknesses and take immediate corrective actions.

Environmental Monitoring

- Conduct regular environmental monitoring of soil, water, and air quality around TSFs to detect any potential contamination. Use the monitoring results to assess the effectiveness of containment measures and adjust management practices as needed

Mitigating Actions

Source Reduction

- Implement initiatives to reduce waste generation at the source, such as process optimization and material substitution. Promote circular economy practices by reusing and repurposing waste materials wherever possible
- Provide ongoing education and training to employees and contractors on best practices for waste management and pollution prevention. Raise awareness about the environmental impact of waste and the importance of proper waste handling

Reuse

- High Volume Low-toxicity waste utilization program
- Red Mud utilization

Recycle

- Waste Segregation and Recycling: Establish comprehensive waste segregation programs to separate recyclable and non-recyclable waste at the source.

Disposal

- Partner with certified recycling facilities to process recyclable materials, reducing the volume of waste sent to landfills
- Implement strict protocols for the handling, storage, and disposal of hazardous waste to prevent environmental contamination. Use specially designed containment systems to store hazardous waste securely until it can be treated or disposed of safely

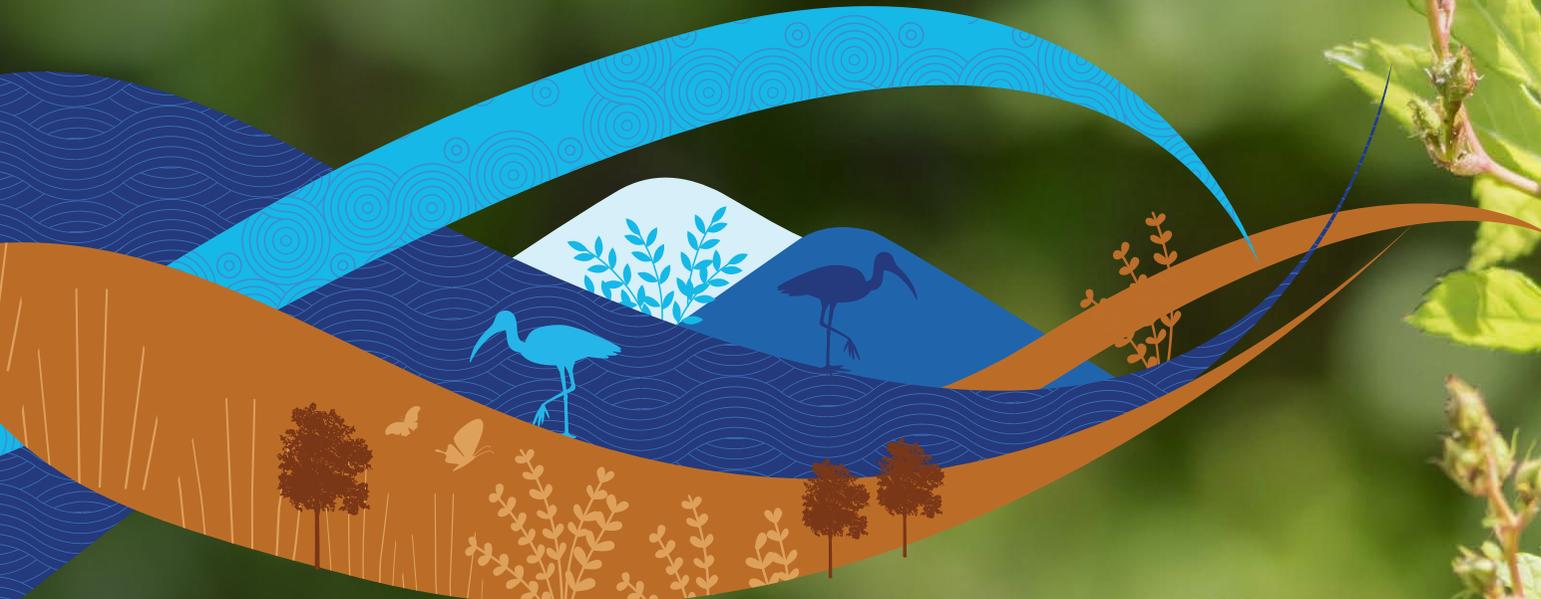
Prepare

- Utilize robust construction materials and techniques to enhance the structural integrity and safety of TSFs
- Implement operational controls to manage the deposition and compaction of tailings, reducing the risk of dam failure. Regularly inspect and maintain TSFs to ensure ongoing safety and compliance with design specifications
- Develop and maintain comprehensive emergency response plans to address potential TSF failures or breaches. Conduct regular emergency drills and training sessions to ensure preparedness and effective response in case of an incident. There have been zero TSF failures this year.

Remediation and Rehabilitation

- Implement remediation and rehabilitation programs to restore areas affected by tailings spills or contamination.
- Use appropriate technologies and methods to clean up contaminated sites and rehabilitate ecosystems

05. Metrics and Targets



Metrics Used to Assess Nature-Related IDRO*

TNFD recommends disclosing metrics and core global indicators relevant to nature-related issues. These are provided below.

-

Impact driver
Climate Change



Indicator
GHG emissions

Disclosures for FY 23-24
Total GHG emissions
(Scope 1,2 & 3):
65.85 million tCO₂e
(Scope 1 & 2)

C1.0

Impact driver
Land/ freshwater/
ocean-use change



Indicator
Total spatial Footprint (km²)

Disclosures for FY 23-24
Leased Area
64.04 km² (6404.20 Ha)

Owned Area
588.53 km² (58,853.16 Ha)

Partially Owned/Leased Area
2.68 km² (268.70 Ha)

Total Disturbed area
85.088 km² (8508.80 Ha)

*Includes for all- metals & mining, oil & gas and power businesses and offices, core operational sites and other facilities

C1.0

Impact driver
Land/ freshwater/
ocean-use change



Indicator
Total spatial Footprint (km²)

Disclosures for FY 23-24
Total Terrestrial Area disturbed
83.01 km² (8301.28 Ha)

Total Maritime Ecosystem Area disturbed
1.35 km² (135.38 Ha)

Total Freshwater Ecosystem Area disturbed
0.728 km² (72.84 Ha)

*Total Terrestrial Area disturbed also includes offices and other facilities

C2.1

Impact driver
Pollution
pollution removal



Indicator
Wastewater discharged

Disclosures for FY 23-24
Total wastewater discharged with treatment
3,199,708 kL

C2.2

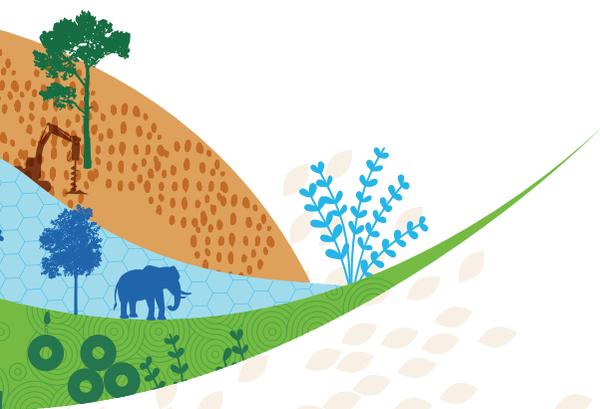
Impact driver
Pollution/
pollution removal



Indicator
Waste generation and disposal

Disclosures for FY 23-24
Total waste generated
62,454,226 metric tonnes

Total waste disposed
14,303,795 metric tonnes



IDRO- Impacts, Dependencies, Risks and Opportunities

Note- A detailed breakdown of these metrics and others can be found in our Integrated Annual Report FY 24 as a part of Business Responsibility and Sustainability Report

C2.3

Impact driver
Pollution/pollution removal



Indicator
Plastic pollution

Disclosures for FY 23-24
Total plastic waste generated
275 metric tonnes

C2.4

Impact driver
Pollution/pollution removal



Indicator
Non-GHG air pollutants

Disclosures for FY 23-24

NOx	102,945.87 MT
SOx	399,278.60 MT
Particulate Matter (PM)	17,008.32 MT
Volatile organic compounds (VOC)	3.42 MT
Hazardous air pollutants (HAP)	234 MT

Total non-GHG emissions **519,469.59 MT**

C3.0

Impact driver
Resource use/ replenishment



Indicator
Water withdrawal and consumption from areas of water scarcity

Disclosures for FY 23-24
Total water withdrawal from water-stressed areas
69,302,990 kL

Total water consumption from water-stressed areas
67,861,111 kL

C3.0

Impact driver
Resource use/ replenishment



Indicator
Total water consumption and withdrawal

Disclosures for FY 23-24
Total water withdrawal
212,498,148 kL

Total water consumption
195,000,000 kL

A3.2

Impact driver
Resource use/ replenishment



Indicator
Water reduced, reused or recycled

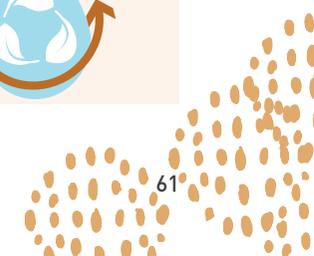
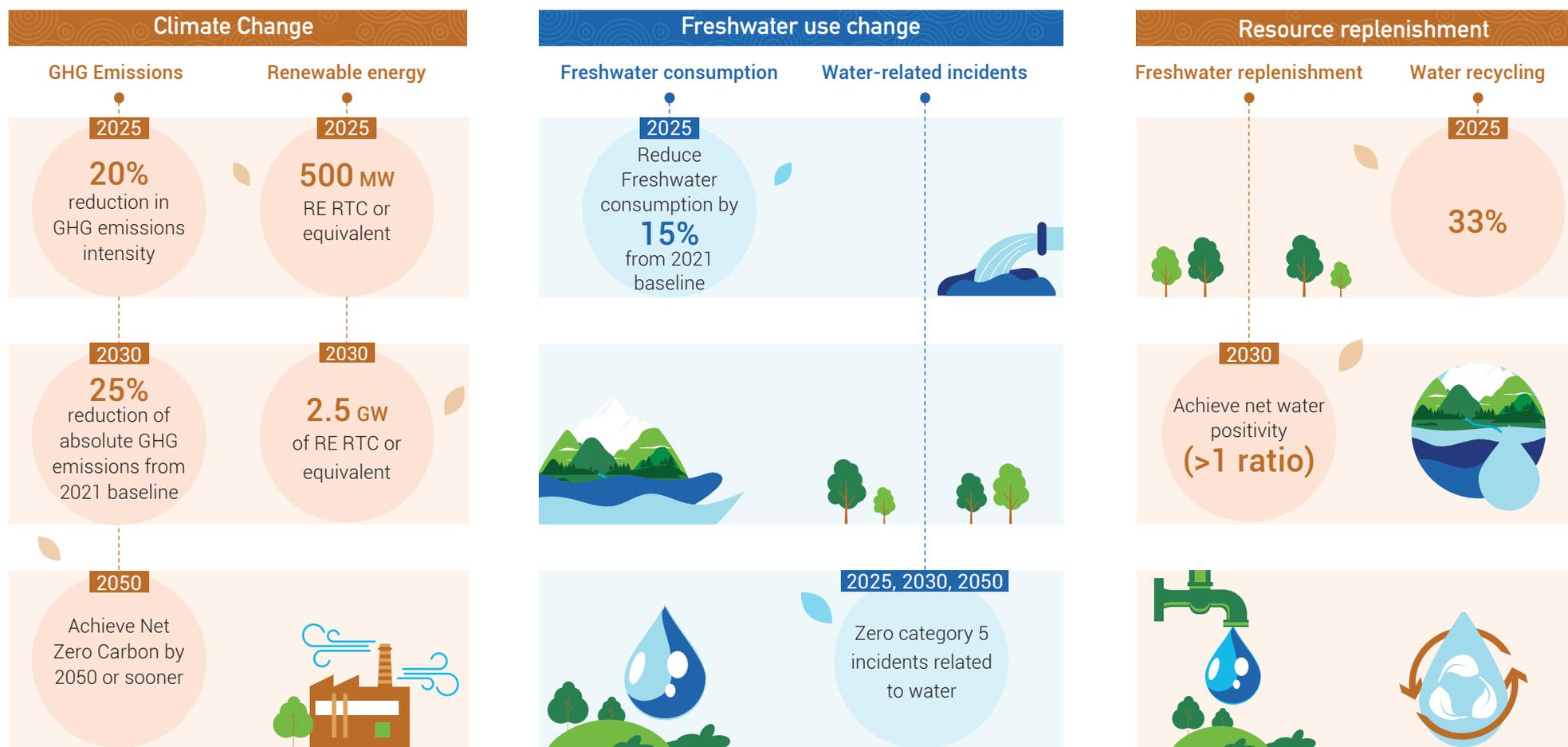
Disclosures for FY 23-24
Total water recycled as a percentage of consumption
30.23%

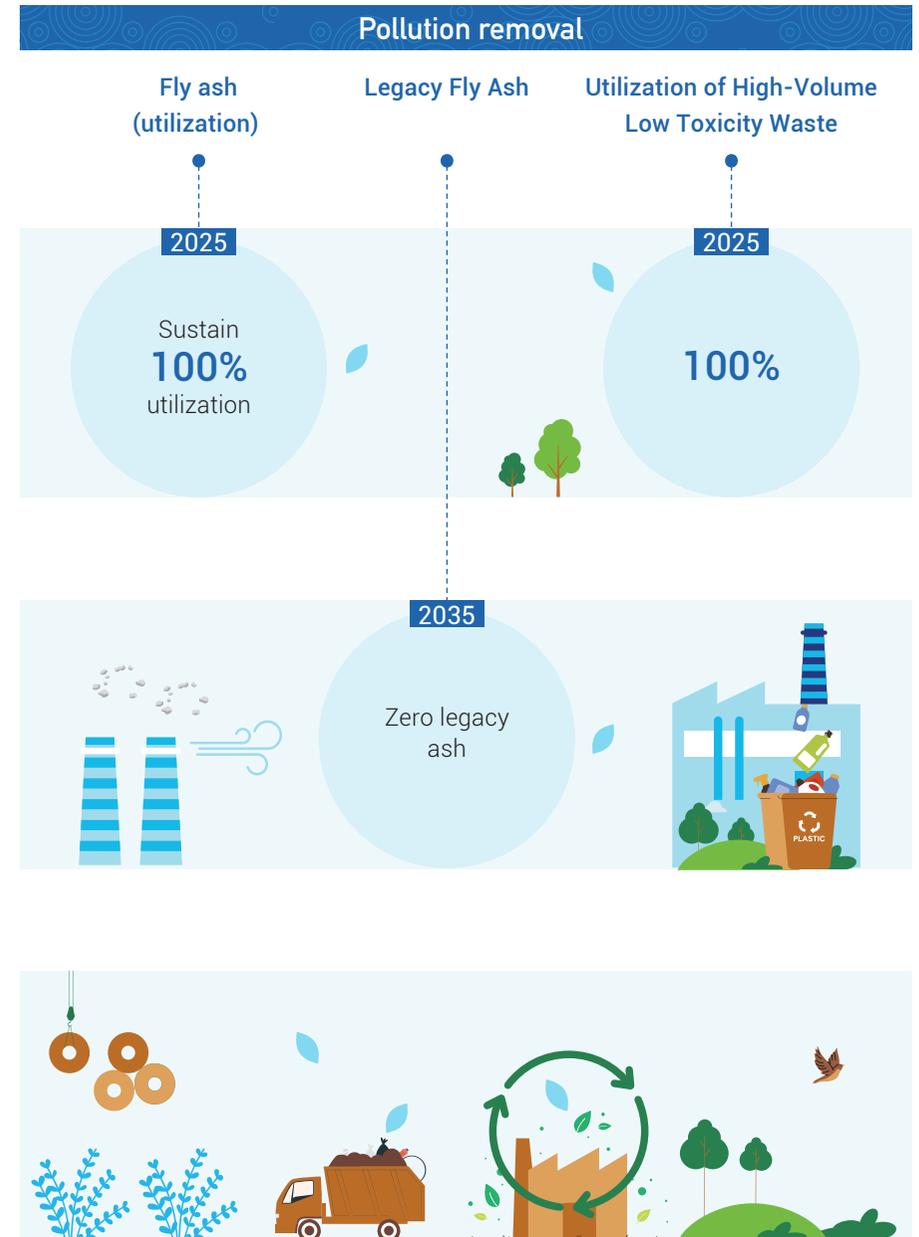
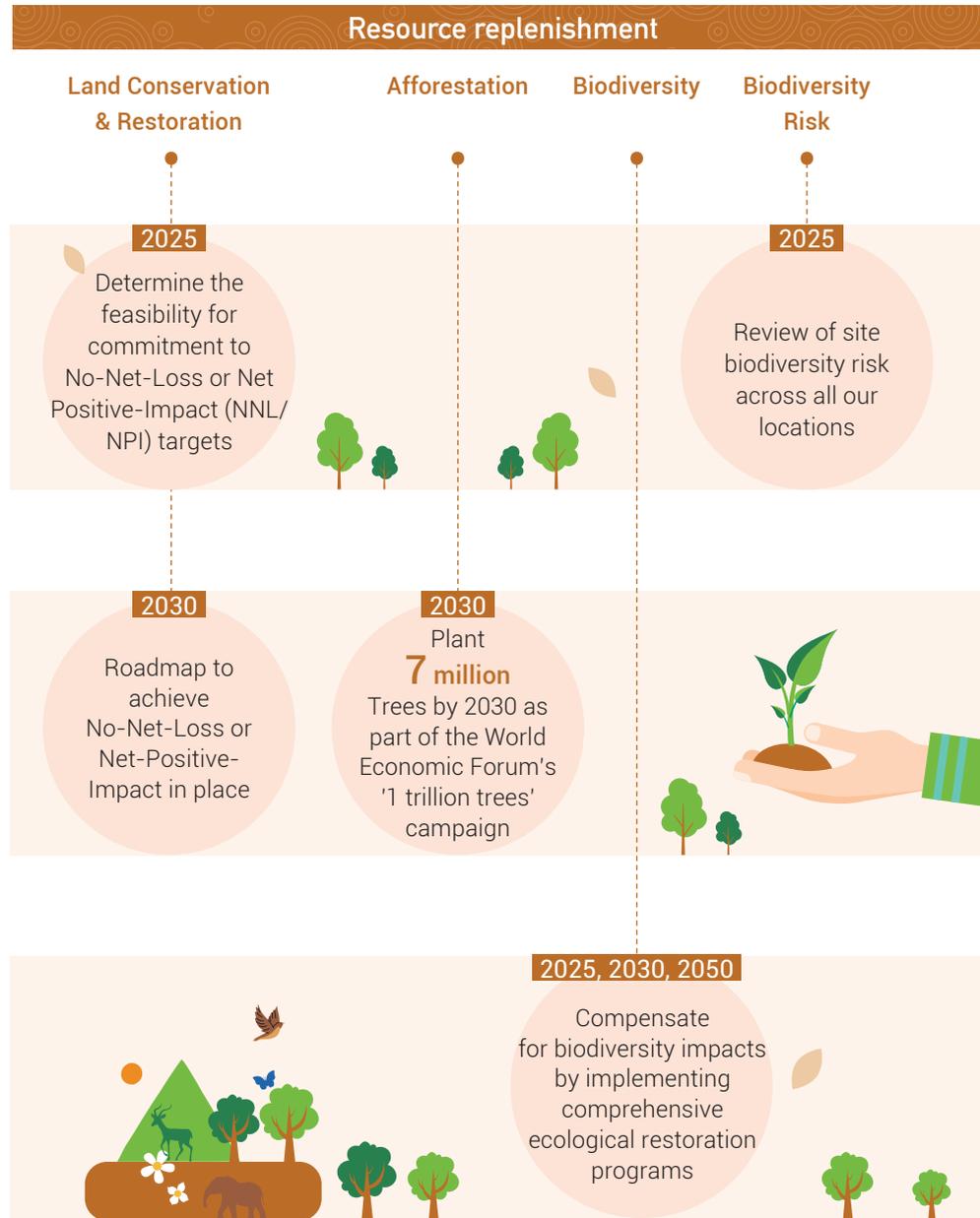
*The above metric also includes saline water, which is a management practice to reduce freshwater impacts



Targets for Managing Nature-Related Issues and Performance Against Targets

Vedanta has corporate environmental targets under its Transforming the Planet Pillar. These are metrics that are reported annually across Vedanta's Integrated Annual Report and Sustainability Report. Below is an alignment of these targets with TNFD's Drivers of Nature Change.





06 Outlook and Next Steps



Vision for Enhancing Nature-related Strategies

We strive to align our strategies with the Kunming-Montreal Protocol and Global Biodiversity Framework to positively contribute to global biodiversity targets

Recognizing climate change as both a challenge and an opportunity, we see the metals and mining sector- particularly aluminum, nickel, copper, and zinc- as crucial for renewable energy, while our oil and gas business faces risks. We strive to align our strategies with the Kunming-Montreal Protocol and Global Biodiversity Framework to positively contribute to global biodiversity targets, positioning Vedanta to leverage the demand for sustainable metals while mitigating negative environmental impacts.

Below are some of our nature commitments and our aims to enhance our reporting suite as well as our subsequent TNFD report:

Our Commitments



Key disclosure commitments for subsequent reporting cycles:

- Y-O-Y TNFD reporting
- GISTM disclosure for tailings
- Consider our impacts, dependencies, risks and opportunities across our upstream value chain
- Consider impacts, dependencies, risks and opportunities at site-level
- Consider all core metrics and indicators for nature-related issues as defined by TNFD

Our Nature Journey

Across Vedanta's business units, there are several nature-related projects and initiatives. Some highlights of the same are given below, followed by some case studies on pivotal projects.

Key Highlights of FY 2024



HZL to set the **1st Science Based Targets** for nature and publish TNFD report



Vedanta Zinc International implementing a biodiversity offset agreement for **12,900 hectares** and has completed our Second Independent Audit (SIA) for the agreement



Total Water Consumption: **195 million m³** in FY 2024 with reduction targets of 10% increase in water recycling and 15% reduction in freshwater consumption from a FY 2021 baseline for FY 2025



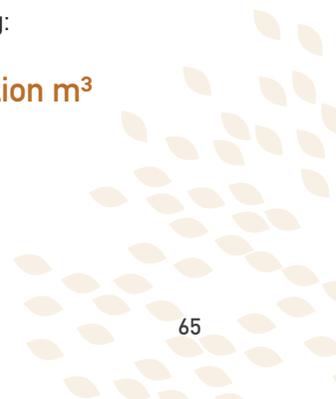
Water Positivity Ratio: **0.71** in FY 2024, with a goal of **>1** by 2030



8.5+ lakh trees were planted in FY 2024



Water Recycling: **84.7 million m³** in FY 2024



Business Unit Projects



Hindustan Zinc Limited (HZL)

Science-Based Targets for Nature (SBTN) and LEAP Assessment

- HZL is the only Indian company selected among 17 global companies for setting the first Science-Based Targets for Nature as part of the SBTN initial target validation pilot. The company will use SBTN methodologies to assess and prioritize environmental impacts, reduce material freshwater and land-related pressures, and increase positive outcomes for nature and people. These targets will be submitted to SBTN for validation to ensure they are robust, accurate, and credible.
- HZL has invested INR 25 lakh to identify impacts, dependencies, risks, and opportunities related to nature through a LEAP assessment and has published its first TNFD report.



Vedanta Zinc International

Biodiversity Offset Agreement

- Vedanta Zinc International has initiated a biodiversity offset agreement with the Northern Cape Department of Environment and Nature Conservation. This involves purchasing and managing 12,500 hectares of intact land for 10 years to offset the impact of land disturbed by Gamsberg's development.
- The Black Mountain Mine complex is within the Succulent Karroo Biome, a global biodiversity hotspot, and the Bushmanland Centre of Endemism. The biodiversity offset ensures an equivalent or better biodiversity outcome compared to the impacted sites, improving long-term protection and ecological sustainability.



Vedanta Aluminium Lanjigarh

Avian Habitat Improvement

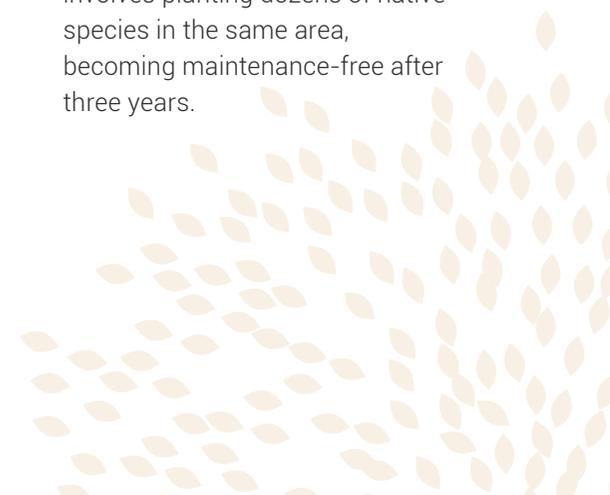
- At the Lanjigarh plant, an avian arena has been developed, and a green belt assessment was conducted to identify species, count, age, and mortality rate of existing flora.
- 50 bird boxes and 5 bird baths were installed to provide safer habitats for birds, aiding in the rehabilitation of avian fauna and attracting more bird species to the area. This also prevents birds from nesting in inappropriate places.



Vedanta Sesa Goa Iron Ore

Afforestation Drive Using Miyawaki Technology

- An afforestation drive using Miyawaki technology has been initiated. This technique builds dense, native forests, ensuring 10 times faster plant growth and 30 times denser plantations compared to usual methods. It involves planting dozens of native species in the same area, becoming maintenance-free after three years.



Case Studies

Biodiversity

VZI Biodiversity Offset Project

Risks Managed

- Regulatory Compliance
- Reputation Enhancement

Business and Sustainability Performance Opportunities

- Ecosystem protection, restoration and regeneration
- Sustainable use of natural resources
- Reputational capital



How is this land use change beneficial?

Following the Environmental Impact Assessment (EIA) for the Gamsberg Zinc Mine, specialist studies identified the need for a Biodiversity Offset to mitigate residual impacts, particularly due to its location in Aggeneys within the Succulent Karoo, an international biodiversity hotspot. The offset aims to ensure equivalent biodiversity outcomes, improve long-term protection and viability of biodiversity and habitats, and ensure ecological sustainability. Considering the socio-economic benefits, the Northern Cape Department of Agriculture, Environmental Affairs, Rural Development, and Land Reform (DAERL) granted Environmental Authorization (EA) on 12 August 2013, supported by a Biodiversity Offset Agreement (BOA) signed on 16 October 2014 between Black Mountain Mining (Pty) Ltd (BMM) and DAERL.

Management

The GBNR is managed by DAERL with an Integrated Management Plan (IMP) aligned to the BOA conservation objectives. Management oversight is provided through a Steering and Liaison Committee, which meets quarterly and comprises members from both BMM and DAERL.

Conditions and requirements

Conditions 50 to 60 of the EA (Amendment 2) mandate BMM to secure seven properties under the National Environmental Management Protected Areas Act, 2003. These properties must include

- 3,700 ha of Aggeneys Gravel Vygieveld
- 3,200 ha of Bushmanland Inselberg Shrubland
- 4,000 ha of Bushmanland Arid Grassland
- 2,000 ha of Azonal vegetation types

These lands are to be declared as a nature reserve or protected environment. Currently, four properties have been declared as the Gamsberg Nature Reserve (GBNR), with a fifth in process, covering 27,549 ha and protecting 21,590 ha of sensitive vegetation. Additional requirements include biodiversity and ecological function protection, annual financial fees for GBNR management, perimeter fencing installation, and removal of inner livestock fences.



Oversight and Audits

Since 2014, the International Union for Conservation of Nature (IUCN) has provided oversight, advice, and management of the Independent Audit (IA) process for the BOA. The BOA has undergone two IAs to inform stakeholders and recommend improvements in compliance. The second IA, conducted from October 2022 to February 2023, assessed 61 BOA clauses, achieving 98% compliance.

Notable Biodiversity Conservation Activities

- Ex-situ Conservation of Threatened Plants:** Involves search, rescue, and translocation, with a dedicated nursery housing 153 species and 164,000 plants for rehabilitation. Supported by the South African National Biodiversity Institute (SANBI) and the Millennium Seed Bank Programme (MSBP), which assist in training the nursery team.
- Combatting Illegal Trade in Succulents:** Funding of a network of 16 surveillance cameras with license plate recognition linked to national crime databases.
- Biodiversity Management Plan (BMP):** Includes policy, strategic biodiversity approaches, objectives, and roles, reviewed every five years by DAERL. The BMP is supported by monitoring protocols and a Conservation Area Management Plan (CAMP), addressing issues like erosion control, invasive species, vegetation and wildlife management, and restoration efforts.

Conservation & Afforestation to Develop Carbon Sink- Cairn

Risks Managed

- Business Reputation
- Long-Term Sustainability of our operations
- Offsetting our carbon footprint

Business and Sustainability Performance Opportunities

- Ecosystem protection, restoration and regeneration
- Reputational capital



How is this land use change beneficial?

Forests and grasslands are widely recognized as carbon sinks. While this means that they can sequester carbon, with today's rapid degradation of these habitats due to urbanization and development, they also release the GHG emissions back into the atmosphere upon deforestation. Hence, restoration is integral.

Afforestation through mangrove plantation can be an effective carbon sequestration measure as, as per US NOAA's factsheet, mangroves annually **sequester carbon at a rate ten times greater than mature tropical forests**. They also store **three to five times more carbon per equivalent area than tropical forests**.



What does the project do?

Cairn is seeding plantations and mangroves and afforesting degraded land located close to its operational sites in Andhra Pradesh, Gujarat and Rajasthan. This helps to address Vedanta's twin objectives of building carbon offsets and promoting biodiversity and environmental conservation.

Our collective impact

Seeding plantations and mangroves and afforesting degraded land located close to its operational sites in Andhra Pradesh, Gujarat and Rajasthan

How is it being implemented?

Cairn has signed separate Memoranda of Understanding (MoU) with the Forest Departments of the states of Andhra Pradesh, Gujarat and Rajasthan for the plantation and subsequent maintenance of nearly 2 million trees/ saplings. These plantation and afforestation initiatives serve very different intents across the different regions. While in some areas, afforestation is being done of fruit bearing trees like mangoes, in others the purpose is to provide animal fodder in arid areas, while in yet another area the ambitious intent is to increase the spread of mangroves and create conducive habitats for endangered flora and fauna to thrive. In Rajasthan, the target is to have 700 Ha

of plantation across several phases, with native species being planted for habitat restoration, including grasses with high nutritional value such as Sewan grass - *Lasiurus scindicus* and Dhamana grass - *Cenchrus ciliaris* that can act as cattle fodder. In Ravva, Andhra Pradesh, Cairn wants to continue extending its path-breaking man-made mangrove project where a 56-acre mangrove already exists within its 225-acre onshore processing terminal. These manmade mangroves are home to a vast variety of birds, amphibians and marine animals, and serve as a testing ground for migratory species. A similar project is being planned in Gujarat's Porbandar region which sits in the peninsular part of the Arabian Sea. Third party baseline studies for soil and vegetation profiling have been completed and the site finalization stage is underway. Plans involve creating 1000 Ha of mangrove plantation in Gujarat.

The MoU arrangement with the state-level forest departments reflects the lifecycle approach that Vedanta takes towards these biodiversity assets and plantations that Cairn is helping to create. With nearly 3,70,000 saplings already planted, there is quarterly monitoring of their health. Once the plants grow bigger, their ongoing habitat protection and care becomes the responsibility of the respective State Forest departments. Cairn also collaborates in training of Forest Officers for plantation monitoring and care, with the goal of capacity building. For as plantation and biodiversity initiatives keep growing, large numbers of trained manpower will be necessary to sustain them.

Long-term vision & inter-linked impacts

- Baseline studies and monitoring through third party allows for progress checks and balances related to soil health and plantation quality and ecosystem impacts of plantations.
- Training provided to Forest Officers to maintain the afforested land after the project is complete.
- Helps farmers grow grasses with high nutritional value for cattle.
- Helps revive native & climate resilient pastoral species.
- Restore grasslands for the host communities.

Progress

Conservation

- **Rajasthan:** 400 Ha plantation completed in Barmer District, Rajasthan, half of the targeted 700 Ha. 200,000 trees of mixed native species planted, boosting habitat restoration and biodiversity.
- Total 3,70,000 saplings planted across the impact areas which includes within & outside fence, with 250,000 in Rajasthan, 90,000 in Gujarat and 30,000 in Andhra Pradesh.
- **400 Ha** of land restored with a variety of native species.

Afforestation

- **Gujarat**
 130 Ha of mangroves planted, out of planned 190 Ha. **85,000 mangroves** contribute to coastal ecosystem conservation and biodiversity enhancement.

- **Andhra Pradesh**
 Ongoing plantation planned for Ravva across 360 Ha. Total **30,000** saplings planted, signalling commitment to afforestation and biodiversity conservation.

- **490 Ha Mangroves afforested.**

- Cairn has completed plantation in **247.95 Ha** in and around its operational area.

RJ North + RJ South:

- Midstream: 57.2 Ha
- Ravva: 103 Ha
- Suvali: 55.9 Ha
- Hazarigaon: 0.6 Ha

Total figure: 464 Ha

Future targets

Discussion is going on with Forest Dept. Gujarat for 1000 Ha of Mangrove plantation near Porbandar. Areas already identified.

Which is equivalent to 1000th the size of the Sundarban forest or as large as 24 Vatican Cities



Water



Integrated Watershed and Livelihood Project at Vedanta Aluminium Lanjigarh

Risks Managed

- Climate Risk Mitigation
- Reduced Water Costs
- Operational Continuity
- Enhanced Reputation

Business and Sustainability Performance Opportunities

- Sustainable use of natural resources
- Reputational capital
- Markets
- Resource Efficiency
- Capital Flow And Financing



Why undertake this Resource Replenishment project?

The Lanjigarh block, primarily inhabited by tribal communities, faces significant challenges in agricultural productivity due to hilly land, small farms, and primitive agricultural practices. The region also suffers from erratic rainfall patterns, leading to droughts and floods, further affecting agricultural growth and food security. The lack of adequate market infrastructure, post-harvest management practices, and poor extension services contribute to the vulnerability of the farming communities.

The project aims to create a sustainable framework for improving the agricultural and livelihood conditions of the vulnerable communities in the Lanjigarh block. By focusing on water resource management, climate-resilient agriculture, and the development of producer groups, the project addresses the core issues of low agricultural productivity, erratic rainfall, and market connectivity. Additionally, the establishment of a Centre of Excellence (CoE) will provide a hub for training and demonstrating best practices in agriculture, livestock, and livelihood development, ensuring long-term sustainability and capacity building for the local communities.

Our Impact Footprint

- Aim to become a water positive business and water storage capacity of 34.5 lakh cubic metres
- 23,000 beneficiaries in over 15000 acres of land
- Enhanced potential of minimum of 40% additional income after 3 years of project implementation
- The project is expected to be fully functional by 2027 and is likely to generate 57.37% of the water credit required for achieving water positivity once it reaches maximum water storage capacity (of 34.5 lakh cu. meters).
- 41 business important village focused developmental plan

How does it create value?

The integrated watershed and livelihood project, initiated by Vedanta Aluminium Limited (VAL) in partnership with AFPRO, aims to:

- Augment groundwater through artificial recharge and rainwater harvesting using a watershed approach.
- Promote climate-resilient agricultural practices to sustainably increase farm productivity and income.

- Develop climate-adaptive and resilient livelihood systems through crop diversification, technology adoption, and natural resource management.
- Enhance the socio-economic conditions of the rural community by providing livelihood enhancement opportunities

Key Investments

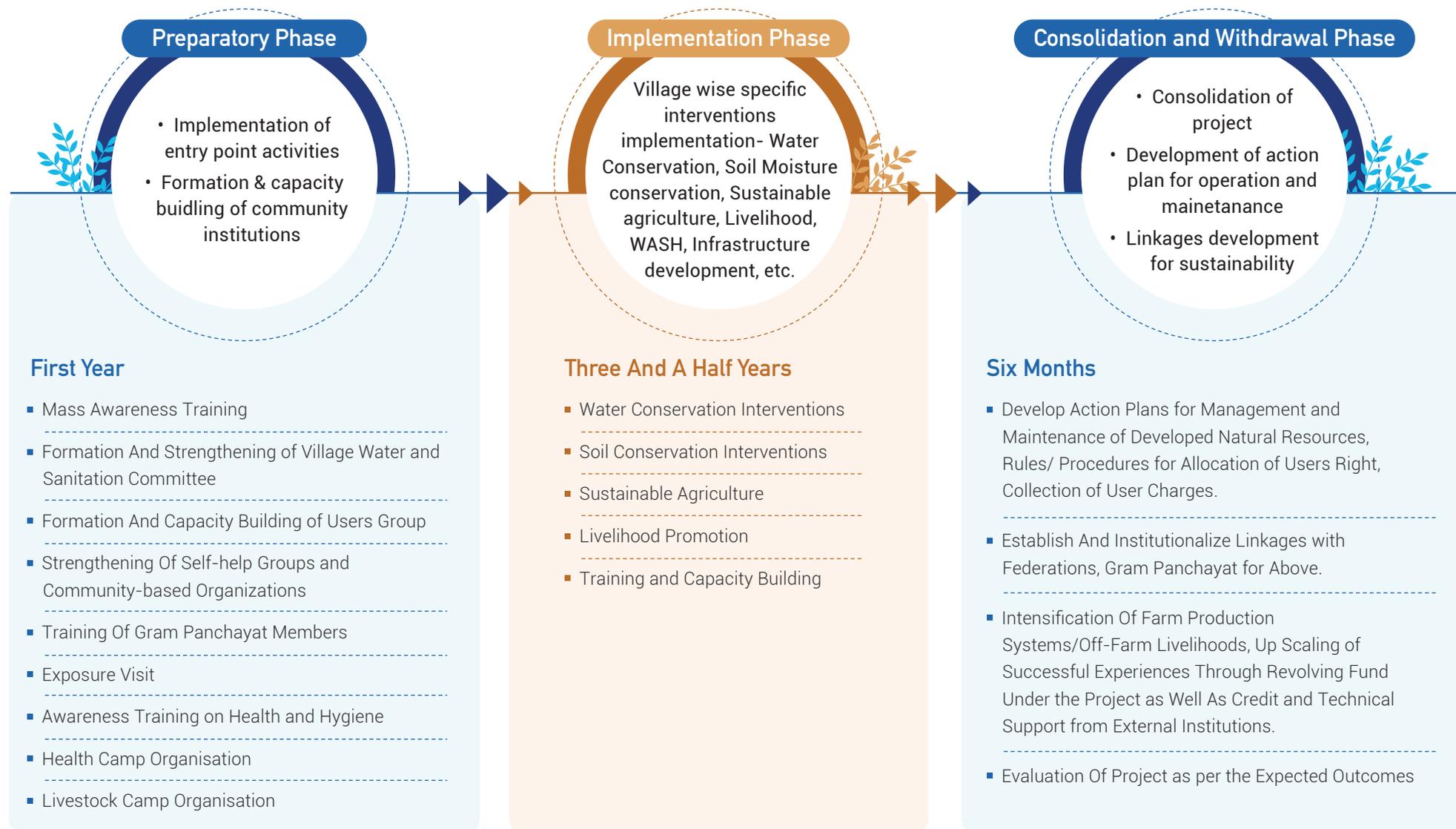
A total capital allocation of **INR 29.64 crores**

Progress in FY 2024

- A pre-project study identifying a significant gap between existing water harvesting capacity of 39.72 lakh cu. meter and the desired requirement of 67.19 lakh cu. meter.
- Initial field surveys and community engagement activities completed
- Formation and training of community groups in progress
- Ongoing development of the Centre of Excellence (CoE) with detailed planning for infrastructure and training programs

Our five-year vision

The project is designed to be implemented over five years with a comprehensive action plan that includes:





Mine-water management at HZL's Zawar mines through Zero Liquid Discharge treatment

Risks Managed

- Reduced operational Costs
- Increased operational efficiency
- Minimised risks related to water scarcity and conflicts
- Regulatory Compliance
- Business Reputation
- Long-Term Sustainability

Business and Sustainability Performance Opportunities

- Resource efficiency
- Reputational capital
- Sustainable use of natural resources
- Capital flow and financing



How this project contributes to Pollution prevention?

Rajasthan is the most water-scarce state in India and out of 142 desert blocks, 85 blocks are a part of the state. The use of freshwater for mining operations makes it further water stressed. Thus, treating effluent water from mines is imperative to reducing potential contamination of drinking water sources and agricultural lands of the host communities. It also allows for resource recovery, enabling the reuse of water for operations, allowing decreased freshwater withdrawals. Addressing mine effluent through treatment demonstrates responsible use of water resources, enhances community relations, and fosters trust, leading to a positive impact on local communities' quality of life.

What does the project do?

Reduces daily freshwater intake from Tidi Dam and reduce potential for stakeholder conflicts

How is it being implemented?

HZL's Zawar mines near Udaipur in Rajasthan generates wastewater from its mining complex, consisting of 4 subsidiary mines. A 4,000 m³/day capacity Zero Liquid Discharge (ZLD) treatment facility was set up to enable effluent treatment and wastewater

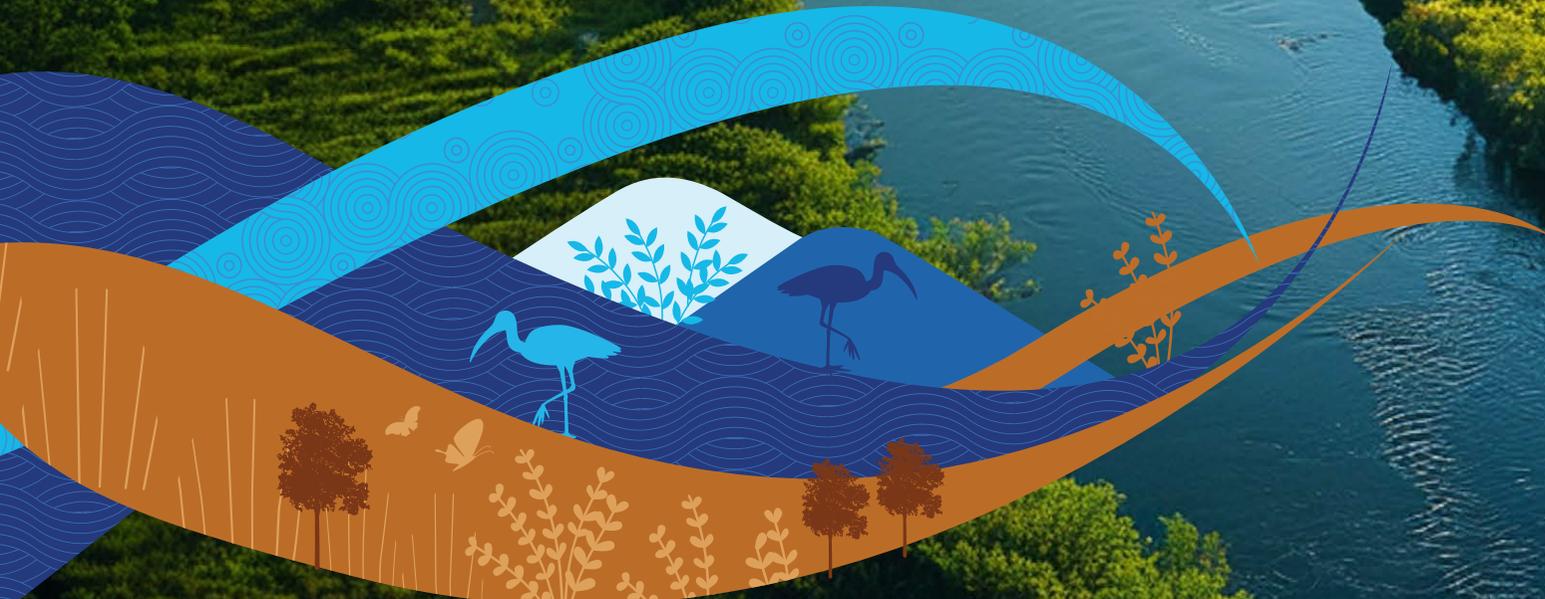
recycling. The larger objective was to restrict freshwater withdrawals from the Tidi dam – the nearest source of freshwater supply – to the minimum. Rajasthan has varying degrees of water stress, and this region was no different. For water security and continuity of operations at Zawar, a reliable alternate source had to be found for the freshwater option, as else there would be great strain on the supplies to nearby communities. The ZLD facility helped to replace > 3800 m³/day of freshwater with treated mine water which could now be reused for a variety of purposes.

Progress

As a result of an investment of **INR 430 million**, **8.76 million m³** water recycled



05. Annexures



TNFD Content Index

TNFD Pillars	TNFD Recommendations	Page No.
<p>Governance</p>	<p>A. Describe the board's oversight of nature-related dependencies, impacts, risks and opportunities</p> <p>B. Describe management's role in assessing and managing nature-related dependencies, impacts, risks and opportunities</p> <p>C. Describe the organisation's human rights policies and engagement activities, and oversight by the board and management, with respect to Indigenous Peoples, Local Communities, affected and other stakeholders, in the organisation's assessment of, and response to, nature-related dependencies, impacts, risks and opportunities</p>	<p>Pg 16-20</p>
<p>Strategy</p>	<p>A. Describe the nature-related dependencies, impacts, risks and opportunities the organisation has identified over the short, medium and long term</p> <p>B. Describe the effect nature-related dependencies, impacts, risks and opportunities have had on the organisation's business model, value chain, strategy and financial planning, as well as any transition plans or analysis in place</p> <p>C. Describe the resilience of the organisation's strategy to nature-related risks and opportunities, taking into consideration different scenarios</p> <p>D. Disclose the locations of assets and/or activities in the organisation's direct operations and, where possible, upstream and downstream value chain(s) that meet the criteria for priority locations</p>	<p>Pg 22-46</p>
<p>Risk and Impact Management</p>	<p>A(i) Describe the organisation's processes for identifying, assessing and prioritising nature-related dependencies, impacts, risks and opportunities in its direct operations.</p> <p>A(ii) Describe the organisation's processes for identifying, assessing and prioritising nature-related dependencies, impacts, risks and opportunities in its upstream and downstream value chain(s)</p> <p>B. Describe the organisation's processes for managing nature-related dependencies, impacts, risks and opportunities</p> <p>C. Describe how processes for identifying, assessing, prioritising and monitoring nature-related risks are integrated into and inform the organisation's overall risk management processes</p>	<p>Pg 48-55</p>
<p>Metrics & Targets</p>	<p>A. Disclose the metrics used by the organisation to assess and manage material nature-related risks and opportunities in line with its strategy and risk management process</p> <p>B. Disclose the metrics used by the organisation to assess and manage dependencies and impacts on nature</p> <p>C. Describe the targets and goals used by the organisation to manage nature-related dependencies, impacts, risks and opportunities and its performance against these</p>	<p>Pg 57-60</p>



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