Welcome to your CDP Climate Change Questionnaire 2023

C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

Hindustan Zinc Limited (HZL) is the largest mining and metal production company in India and world's second largest zinc-lead miner. The company was established in 1966 and is headquartered in Udaipur, Rajasthan, India. HZL has more than 50 years of operational experience and gives highest priority to safety of its people and the conservation of scarce natural resources. The company has a total R&R base of 460.1 MT and an average zinc-lead grade of 7.18%. The average mine life is over 25 years. HZL's fully integrated zinc operations currently hold 80% market share in India's primary zinc industry.

In addition, HZL is the 5th largest silver producer, globally, with an annual production capacity of 800 MT. HZL is a subsidiary of Vedanta Limited, which owns 64.9% stake in the Company while the Government of India retains a 29.5% stake. Currently, HZL's ore production capacity stands at 16.74 million MT per annum. The company is aggressively expanding its mining capacities, with five ongoing major underground mining operations. Our high-quality silver bullion produced at Pantnagar unit has a 99.9% purity and is listed on LBMA Good Delivered List (LGD).

All our units are certified to ISO: 50001 Energy Management System. In FY 2022-23, we produced wind power of 409.26 million units, solar power of 76.16 million units, and Waste Heat Energy of 227.89 million units. With focused efforts and initiatives in expanding our green footprint, we have avoided 8.66 lakh tonnes of CO2 emissions during FY 2022-23, as against 6.13 lakh tonnes in FY 2021-22.

HZL has set an ambitious target of 50% reduction in Scope 1 & Scope 2 GHG emissions, a 25% reduction in Scope 3 GHG emissions by 2030 and achieving net zero by 2050 (currently these targets are under final stage of validation by SBTi). Aligned with these commitments, HZL has entered

long-term group captive renewable power delivery agreement of 200 MW & 250 MW renewable energy, round the clock (RE RTC).. To achieve net zero commitment, HZL has undertaken the following initiatives:

- Procured 100% renewable power at Pantnagar metal plant leading to GHG emission reduction of more than 30,000 tCO2e annually.
- Deployed India's first underground battery electric vehicle in mining operations.
- Business partners deployed 21 electric vehicles in smelting operations (Forklifts & tow trucks).
- Signed 200 MW & 250 MW RE power delivery agreement that will reduce GHG emissions by 2.7 Mn tCO2e by 2026.
- Introduced group electric vehicle policy to incentivise EV use by employees.
- Implementation of energy saving initiatives that helped save 5,81,916 GJ of energy.
- Green company (GreenCo) certifications for all our smelters and a few mining locations by the Confederation of Indian Industries (CII).

In FY 2022-23, HZL achieved several noteworthy climate change-related recognitions, few are as below:

1. Ranked 3rd Globally in Metal & Mining companies and 1st in Asia Pacific in S&P Corporate Sustainability Assessment (DJSI) 2022
2. Won in 'Oriented Category' at the 3rd edition of CII CAP 2.0 Awards 2022
3. Won the "Industry Leadership Award - Base, Precious and Specialty Metals" and "Corporate Social Responsibility" at the prestigious S&P Global Platts Global Metal Awards
4. Noted as amongst the top 5% of most sustainable organizations by S&P, included in Sustainability Yearbook 2023
5. Four mines received 5 Star Rated Mines' award by the Ministry of Mines, Govt. of India
6. Scored 'A' in CDP Climate Change and 'A-'in CDP Water Security

C0.2

(C0.2) State the start and end date of the year for which you are reporting data and indicate whether you will be providing emissions data for past reporting years.

Reporting year

Start date

April 1, 2022

End date

March 31, 2023

Indicate if you are providing emissions data for past reporting years

Yes

Select the number of past reporting years you will be providing Scope 1 emissions data for

5 years

Select the number of past reporting years you will be providing Scope 2 emissions data for

5 years

Select the number of past reporting years you will be providing Scope 3 emissions data for

5 years

C0.3

(C0.3) Select the countries/areas in which you operate.

India

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

INR

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.

Operational control

C-MM0.7

(C-MM0.7) Which part of the metals and mining value chain does your organization operate in?

Row 1

Mining

Zinc

Lead

Processing metals

Silver

Zinc

Lead

C0.8

(C0.8) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, an ISIN code	INE267A01025

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual or committee	Responsibilities for climate-related issues
Chief Executive Officer (CEO)	As the highest decision-maker in the company, the CEO holds ultimate responsibility for addressing climate change related issues. The Sustainability Committee at the executive level, chaired by our CEO, is responsible for formulating our sustainability strategy, and setting the company's long-term goals and targets. The CEO quarterly briefs the board on climate-related matters, including yearly targets and site wise performance, and oversees budget allocation for climate adaptation and mitigation efforts. Our CEO is also a member of Board level Sustainability & ESG committee that meets on a half-yearly basis, where the board is appraised on the progress of decarbonization roadmap. The CEO's responsibilities also encompass overseeing procurement, human resources, finance, research & development, legal, and operations, all of which support the implementation of the company's climate strategy. In FY 2022-23, the following decisions were undertaken under the leadership of CEO: a) Power delivery agreement signed for 450 MW Re-RTC, delivery to begin from 2024 in a phased manner. b) Pantnagar, Uttarakhand refinery adopted 100% green power for its operations leading to emission reduction. c) CEO as a chairman of the International Zinc Association (IZA) is advocating the standardization of scope 3 reporting of the Zinc sector. d) SBTi target re-validation process undertaken for more ambitious targets. e) Participated as a pilot group member of the Science Based Target Network's (SBTN) target validation f) Began working with ICMM on Task Force on Nature related Financial Disclosure (TNFD) piloting. g) First Indian mining company to join the EV revolution, adopting electric vehicles for underground mine operations. The company committed to invest USD 1 billion to convert 900 diesel-run mining vehicles to battery-operated vehicles and low carbon transition. h) India's first underground battery electric vehicle introduced in Sindesar Khurd Mines i) 22 Electric vehicles introduced in our smelting operations by business partners. j) Supplier risk assessment conducted to identify supplier impact on water, biodiversity & Climate using available tools like Water Risk filter, Biodiversity Risk filter, etc.
Board-level committee	The Sustainability and ESG Committee at the Board level forms the Tier-1 of the governance framework to guide the company towards achieving its sustainability goals and Net Zero commitment. It comprises of an independent director, an executive director, and two non-executive nominee directors. The committee, chaired by an Independent Director, is responsible for providing oversight and formulating our sustainability strategy on various issues, including climate change, environment, safety, transparent disclosures, and setting of long-term goals. The committee considers the risks and opportunities associated with climate change to be an integral part of

	their accountability for the long-term stewardship of the organization. The committee plays a key strategic role in business decisions to eliminate potential damage to the environment, enhance our commitment towards stakeholders, achieve our climate goals and maintain the Company's reputation as a leader in the sustainable metal and mining sector. In FY2022-23, the Board-level committee was involved in making following decisions aligned with our 2025 climate goals: a. Approved signing of PDA of 450 MW RE-RTC under group captive scheme. b. Approved policy for electric vehicle incentive for employees. c. Approved materiality assessment conducted during the year 2022-23, wherein climate change is identified as a high-priority material topic. d. Qualified climate change as the key business risk as part of enterprise risk management. e. Approved Zero Liquid Discharge (ZLD) projects at Rampura Agucha and Zawar Mines.

C1.1b

(C1.1b) Provide further details on the board's oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – all meetings	Reviewing and guiding annual budgets Overseeing major capital expenditures Overseeing acquisitions, mergers, and divestitures Overseeing and guiding employee incentives	Role of Board-Level Sustainability and ESG Committee The Committee assists the Board in meeting its responsibilities in relation to Environmental, Social, and Governance (ESG) matters and ensuring strong oversight of sustainability including climate-related issues. The Committee meets twice a year and is responsible for: • Oversight on Sustainability & Net-Zero Strategy, • Review & monitor Sustainability & Net-Zero action plans, • Monitor performance of objectives and oversee progress against goals and targets • Oversee major capital expenditures on implementing Sustainability and Climate Strategy • Continual improvement in Sustainability performance;

	Reviewing and guiding strategy Monitoring the implementation of a transition plan Overseeing the setting of corporate targets Monitoring progress towards corporate targets	• Implementation of appropriate Sustainability related processes and policies across the company, and • Periodically review the Company's stakeholder base and their material interests. Seek updates on the management of climate-related issues from the respective functional and business head. Role of Board-Level Audit and Risk Management Committee To ensure climate considerations are given sufficient attention across the board, the Audit and Risk Management (ARC) Committee oversees the assessment and management of all business risks & opportunities. As climate change is one of the key risks as per the enterprise risk management, it is the primary responsibility of the ARC Committee to provide oversight on Climate-related risks & opportunities, integrate climate change into financial planning and report progress on risk mitigation efforts to the full board on a quarterly basis. The Committee also reviews the potential impacts of production disruptions due to climate-related physical and transition risks that may affect HZL's core business.

C1.1d

(C1.1d) Does your organization have at least one board member with competence on climate-related issues?

	Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues
Row 1	Yes	The Nomination and Remuneration Committee (NRC) establishes standards for assessing the performance of all the Directors, both Independent and non-executive. The NRC examines factors such as knowledge, abilities, professional and functional experience to ensure that proposed candidates possess the necessary qualifications for the board responsibilities. The NRC makes recommendations of the right board composition that allows for informed and differentiated debate as well as objective decision-making on climate issues. Furthermore, to ensure that the board remains sufficiently educated about the relevant climate-related risks and opportunities, company facilitates training programs that assists in enhancing the directors' competencies.

		Our CEO serves as a member of the board-level Sustainability & ESG Committee responsible for overseeing the implementation of our climate change strategy. Our CEO possesses the necessary skills and has represented our company at national and international forums on climate change. He is a Chairman of the International Zinc Association. Our CEO from last three years participating in UNFCCC COP (COP 26, COP 27 and COP 28) business leader working group due to his understanding on this subject. Apart from our CEO, the chairperson of the Audit & Risk Committee has significant expertise in establishing and guiding risk advisory practices, internal control processes, and business transformation. Under their leadership, the Board is well-equipped to make informed decisions regarding climate risks, as well as other enterprise risks. In FY 2022-23, we appointed Deloitte Haskins & Sells LLP (DHS) to conduct third-party performance evaluations for the board members. The results of the performance evaluation were in line with our set criteria related to competency, knowledge, and skills, confirming that our board members are competent in taking decisions related to business strategy including on climate action.

C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Position or committee

Chief Executive Officer (CEO)

Climate-related responsibilities of this position

Managing annual budgets for climate mitigation activities
Managing major capital and/or operational expenditures related to low-carbon products or services (including R&D)
Managing climate-related acquisitions, mergers, and divestitures
Providing climate-related employee incentives
Developing a climate transition plan

Implementing a climate transition plan
Integrating climate-related issues into the strategy
Setting climate-related corporate targets
Monitoring progress against climate-related corporate targets
Managing value chain engagement on climate-related issues
Managing climate-related risks and opportunities

Coverage of responsibilities

Reporting line

Reports to the board directly

Frequency of reporting to the board on climate-related issues via this reporting line

More frequently than quarterly

Please explain

CEO is the highest management position, responsible for taking decisions related to climate change, and is authorized to sanction CAPEX & OPEX budgets and other necessary resources for the implementation of climate adaptation and mitigation actions. The CEO of our company serves on the Board of Directors as well as a member of the Board-level Sustainability & ESG Committee (Tier 1). This Board-level committee offers direction on crucial ESG matters and tracks HZL's advancement towards achieving sustainability goals by 2025.

CEO also chairs Executive Sustainability Committee (Tier 2) that includes CFO, functional heads, plant heads, all ten community chairmen and SBU Directors. The committee meets monthly to discuss the status and progress of sustainability goals and A class projects. The performance against the sustainability goals and way forward are being presented by the management representative of the executive sustainability committee to the Board level Sustainability and ESG committee on six monthly basis.

The Executive Committee under the guidance of our CEO is responsible for sustainability, health and safety, environment, community, and waste management. For instance, HZL has committed to Business Ambition for the 1.5°C campaign of the Science Based Targets initiative (SBTi), a landmark decision taken under the oversight of the CEO to align the company's climate mitigation targets with the most ambitious Paris Agreement.

Position or committee

Other, please specify

Board-level Sustainability & ESG Committee

Climate-related responsibilities of this position

Developing a climate transition plan
Implementing a climate transition plan
Integrating climate-related issues into the strategy
Assessing climate-related risks and opportunities
Managing climate-related risks and opportunities

Coverage of responsibilities

Reporting line

Reports to the board directly

Frequency of reporting to the board on climate-related issues via this reporting line

Half-yearly

Please explain

Sustainability and ESG Committee bears the responsibility of overseeing Climate Action strategies, policy implementation, and setting long-term goals to attain net-zero emissions by 2050, while reinforcing commitment to stakeholders. The Committee also plays a vital role in expediting the company's transition towards 50% renewable energy in its operations, embodying its role as a conscientious corporate citizen dedicated to decarbonizing mining operations. The Committee convenes every six months, with the CEO actively participating as one of its esteemed members.

The Committee is led by an independent director who serves as the chairperson, overseeing its operations. The primary objective of the committee is to support the Board in fulfilling its responsibilities related to Environmental, Social, and Governance (ESG) matters, with a particular focus on climate-related issues. The committee plays a vital role in ensuring robust governance and effective decision-making concerning sustainability initiatives within the organization, emphasizing the company's commitment to responsible practices.

Furthermore, in line with HZL's climate change strategy and policy, both the Audit and Risk Management Committee and the Sustainability and

ESG Committee convene on half yearly basis. This regular meeting frequency ensures effective coordination and collaboration between the committees, enabling them to address climate-related risks and opportunities in a proactive manner. By working together, these committees contribute to a cohesive and comprehensive approach towards managing climate change within the organization.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	ESG Component in Annual Performance Bonus: -Variable annual pay of all employees including CEO, executive members and other senior management is linked to the sustainability performance (10%) which includes climate-related goals and related KPIs. Further, long term incentive plan in the form of Employee Stock option Scheme (ESOS) of parent company rewards employees' performance on pre-determined performance criteria (includes sustainability & climate goals, ESG and carbon footprint) and continued employment with the Company during the vesting period of 36 months from the date of grant. To give prime importance to sustainable business delivery, ESG and Carbon footprint are part of additional parameters to measure business performance under this scheme.

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Entitled to incentive

Chief Executive Officer (CEO)

Type of incentive

Monetary reward

Incentive(s)

Shares

Performance indicator(s)

Board approval of climate transition plan
Achievement of climate transition plan KPI
Progress towards a climate-related target
Achievement of a climate-related target
Implementation of an emissions reduction initiative
Reduction in absolute emissions
Reduction in emissions intensity
Energy efficiency improvement
Increased share of renewable energy in total energy consumption
Reduction in total energy consumption
Increased share of revenue from low-carbon products or services in product or service portfolio
Company performance against a climate-related sustainability index (e.g., DJSI, CDP Climate Change score etc.)

Incentive plan(s) this incentive is linked to

Both Short-Term and Long-Term Incentive Plan

Further details of incentive(s)

The Company offers equity-based and cash-based option plans to its CEO and other employees through its holding Company, Vedanta Limited [Vedanta Limited - Employee Stock Option Scheme (“Vedanta Limited- ESOS”)]. Share- based incentives arrangement under ESOS of Vedanta Limited are provided to the defined management group. The maximum value of shares that can be awarded to members of the defined management group is calculated by reference to the individual fixed salary and share-based remuneration consistent with local market practice. ESOS scheme of Vedanta Limited are both tenure and performance-based share schemes. The awards are indexed to and settled by Parent’s shares (Vedanta Ltd shares as defined in the scheme). The awards have the performance period of as 36 months and is exercisable within a period of six months from the date of vesting beyond which the option lapses. Further, in accordance with the terms of the agreement between the Parent and the Company, the cost recognized towards ESOS scheme is recovered by the Parent from the Company. Vedanta follows performance-based cliff vesting with vesting on 3rd anniversary of grant. To give prime importance to sustainable business delivery, ESG and

Carbon footprint are part of additional parameters to measure business performance. To ensure that we operate sustainably in line with our motto of ‘zero harm, zero waste and zero discharge’, multiplier based on fatalities has also been included as a performance parameter for vesting.

Explain how this incentive contributes to the implementation of your organization’s climate commitments and/or climate transition plan

By incentivizing the CEO to achieve specific sustainability targets and transition goals, HZL ensures that the CEO's goals are aligned with the company's overall targets. This alignment enables the company to work towards Net Zero emission and sustainability in an effective and efficient manner. The incentives offered to the CEO for climate change-related goals provide a focused effort on reducing greenhouse gas emissions, water management, waste management, and energy management. Incentives motivate the CEO to take immediate action and to be more creative in developing and implementing various solutions to meet the targets set.
Overall, incentives for achieving climate-related goals are essential in encouraging and ensuring the effective implementation of the climate transition plan of HZL.

Entitled to incentive

All employees

Type of incentive

Monetary reward

Incentive(s)

Bonus – set figure
Shares

Performance indicator(s)

Reduction in absolute emissions
Reduction in emissions intensity
Reduction in total energy consumption

Incentive plan(s) this incentive is linked to

Both Short-Term and Long-Term Incentive Plan

Further details of incentive(s)

All the employees are entitled to the incentive based on the superior individual performance and business performance.. ESG Component in Annual Performance Bonus: -Variable annual pay of all employees is linked to the sustainability performance (10%) which includes climate-related goals and related KPIs. Further, long term incentive plan in the form of Employee Stock option Scheme (ESOS) of parent company rewards employees' on pre-determined performance criteria (includes ESG and carbon footprint) and continued employment with the Company during the vesting period of 36 months from the date of grant. To give prime importance to sustainable business delivery, ESG and Carbon footprint are part of additional parameters to measure business performance under this scheme.

Furthermore, as part of the yearly competitions, such as Kaizen, HZL acknowledges and rewards employees who actively contribute to HZL's sustainability objectives, thereby minimizing our impact on the environment. The champions who present the most innovative ideas resulting in notable reductions in emissions and energy consumption are duly recognized and rewarded. Furthermore, individual employees or teams who undertake innovative initiatives are also acknowledged and nominated for the prestigious 'Star of the Month' and 'Star Team of the Month' awards. These exceptional individuals and teams are then rewarded by the CEO during a town hall meeting.
For example, in FY2022-23, various projects were rewarded under Energy Conservation category. Few of which are:
• Automation of dewatering pump through ultrasonic level transmitters
•Cell house current rating improvement from 6.79 to 7.1
• Savings of power consumption with replacement of motors from IE-I to IE-III
• Reduction in specific power consumption of Mill-1-23.61 unit per MT to 22.5 unit pet MT

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan

Offering incentives to those employees who actively contribute to the company's sustainability goals, HZL is likely to encourage greater engagement and commitment to these objectives. This can result in employees taking proactive steps to reduce their carbon footprint, improve energy efficiency, and adopt sustainable practices.
Monetary rewards promote more innovation and creativity among employees towards developing greener solutions and processes.
Furthermore, climate change incentives also foster a culture of responsibility and accountability among employees, positively affecting the

company's environmental footprint. This will help the company achieve its climate transition plan by ensuring all employees are equally committed and invested in reducing the company's climate change-related impact.

C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

	From (years)	To (years)	Comment
Short-term	0	10	The climate-related risks and opportunities identified to have an impact on the company's business are categorized under the short-term horizon. At HZL, the business risk assessment is aligned with the climate-related risks and opportunities; hence the timeline remains the same for both.
Medium-term	10	20	Potential climate-related risks and opportunities that may affect the company's business in the near future (10-20 years) are categorized into medium-term.
Long-term	20	30	Long term business risks and opportunities are usually anticipated and identified based on RCP 2.5, 4.5. 6.0, 8.5, IEA Stated Policy Scenario (STEPS) & Announced Pledges Scenario (APS) scenario analysis, and market predictions, etc. Therefore, the climate risks and opportunities identified to have an impact within 20-30 years duration are termed as long term. Our definition for long term coincides with our Net-Zero Goal 2050.

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

Climate change-related risks are integrated as key risk in our enterprise risk management and financial planning. We prioritize climate change-related risks by evaluating how frequently they occur or reoccur, as well as their potential impact on revenue and cost, including how they could disrupt our key business operations.

HZL defines the substantive financial or strategic impact on the business when either of the following points is observed:

Financial Impact

· Any issue brings a reduction of targeted EBIDTA by >7.5% in the current financial year;

· Causes > 7.5% reduction of targeted production volume;

· Decline in stock prices of <15% over a sustained period of 2 weeks due to negative media coverage/publicity.

Strategic Impact

Causes long term serious reversible environmental impact (typically 3 months) or may result into Category IV incident;

Major pollutants released into the environment around the local area (*reversible yet long term impac*t) with possibility of prosecution, litigations and financial damage and fines/penalties imposed; Serious impairment of ecosystem; recovery takes between 1 month and 3 months;

Material loss in brand value and perception and major loss of customer confidence;

HZL calculates substantive financial or strategic impact on our business by computing the number of production days lost or the economic cost of the said risk has on our organization during the impact period.

For instance, the tailing dam breach at Zawar in Rajasthan, India, which includes four mines: Mochia, Balaria, Zawar Mala and Baroi can lead to significant irreversible environmental impact or may result into Category IV incident or may result into significant breaches, financial penalties and/or negative media coverage. The tailings slurry generated during beneficiation contains about 40-45% solids and rest water. Heavy precipitation can lead to breach of the tailing dam and impacts may be seen up to an area of 7 Kms. This can significantly impact the land, as well can cause safety incidents for the community, resulting into a fine by the authorities, and a negative media coverage. Remediation measures and fines can cause a loss of upto INR 150 million.

C2.2

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Value chain stage(s) covered

Direct operations

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

HZL has an established Enterprise Risk Management (ERM) framework to help identify the strategic, financial and operational risks. The company's risk management framework has been developed in accordance with ISO 31000 (Risk management guidelines) & COSO guidelines that delineates process of risk assessment, compilation of risk registers and associated action plans, mapping of events and its mitigation. Climate risk is integrated as a key risk in our (ERM) and financial planning. We follow the '5*5' Risk Matrix for risk assessment. The risk score of each risk is calculated based on velocity of occurrence, potential severity of impact and likelihood of occurrence and rated on a 5-point scale. Based on the risk score risks are prioritised and subsequent mitigation plans are prepared.

Governance Framework for assessing and managing climate-related risks and opportunities:
HZL has implemented a three-tiered sustainability governance framework to track, monitor and report progress on climate change related priorities. .
o Tier-1: Risk Management & Audit Committee and Sustainability & ESG Committee of the Board
o Tier-2: Executive-level Sustainability Committee along with Energy and Carbon Community
o Tier-3: Strategic Business Unit (SBU) level ESG committee.

Identification and assessment of climate-related risks
We have a documented enterprise risk management programme, a method to identify new risks as they emerge, and a thorough business

continuity planning strategy. HZL identifies climate change risk through a formal monitoring process at the unit level and at the corporate level, which identifies and categorizes existing and emerging climate-related risks and opportunities with respect to both Physical and Transition risks scenarios. The climate change risk assessments is a critical tool that we use to improve our understanding of the cause/effect of climate change, on the socio-economic and ecological systems within which we operate and how these impacts could affect our business operations. It also assists with identifying risks and opportunities from an interconnectedness perspective, considering how water, energy and climate change impact one another.

Risk Matrix
The impact, likelihood & velocity of topics such as climate change are rated on a 5-point scale and basis the ratings, the risk score is calculated Issues that may cause substantial and financial impact i.e. changes in EBITDA, significant production capacity reductions, fatalities or injuries, lasting environmental impacts, or legal penalties and a risk impact of ±5% to less than equal to 7.5% to the EBITDA corresponds to a very high risk score. Following risk prioritization, a two-dimensional risk matrix is used to map out risks (risk heat map). Mitigation plans are developed, and corporate-level risk owners are assigned who are responsible for progress on risk mitigation. Risk management targets and indicators are incorporated into the risk scorecard, with continual performance evaluations conducted at the management level.

In addition to a continuous risk assessment process, HZL has conducted a specific risk studies to identify the impact of climate change on business.
A. Physical Risk Assessment:
HZL has conducted climate risk assessment for two time periods (2030 & 2050) which includes short, medium and long terms using following four RCP scenarios namely,
o IPCC Emission Scenario 1: RCP 2.6
o IPCC Emission Scenario 2: RCP 4.5
o IPCC Emission Scenario 3: RCP 6.0
o IPCC Emission Scenario 4: RCP 8.5

We used Think Hazard tool of World Bank to identify the potential risk and Network for greening financial systems (NGFS) tool to identify magnitude of potential impact (such as impact on labour productivity, infrastructure). Water Scarcity & Extreme Heat were identified as high risks while cyclone and floods were identified as low to medium risks. Above analysis helped us to infer the potential impacts on raw material supply, operational disruption including impact on infrastructure, market disruption, & impact on the workforce. In FY 2022-23, we assessed
• Change in precipitation pattern

• Extreme Temperature leads to heat stress and decreases the labour productivity

B. Transition Risk Assessment:
Recognizing the uncertainties, we used scenario analysis to assess the impact from energy transition in the short, medium and long term, resulting from changes in policy, technology, markets, and impact on reputation. This process considered a wide range of pertinent factors, such as changes in carbon pricing, energy efficiency, and water management regulations, renewable energy law, insurance premium changes, technology obsolescence or financial viability, changes in the supply and demand for zinc, Lead & Silver, shifts in public perception, and community perceptions. For transitional risks IEA scenarios - Stated Policies Scenario (STEPS), Net Zero Emission (NZE) & Announced Pledges Scenarios (APS) were used.
The following parameters and assumptions were considered:
• We have identified transitional risk, financial impact, and vulnerability for scenarios with global warming exceeding 2 degrees and well below 2 degrees for two-time periods 2030 & 2050.
• Scenarios were built using data available in the public domain, reports by International Energy Agency (IEA).
• Each risk was considered in isolation/independently and trade-offs between risks were not considered.
• Assessed transition risks, i.e., policy and legal, technology, market, and physical risks, i.e., acute, and chronic, in detail for unit locations.

Risk Management Governance
Our Chief Risk officer manages the overall risk management process, provides ongoing guidance, tools, and analytical support to the site teams, and facilitates ongoing communication between the parties, as well as with HZL's Board Committee. The risk management process is coordinated by the Management Assurance (MAS) function and is regularly reviewed by the Company's Audit & Risk Committee, which meets regularly to examine risks and progress against the planned actions. The primary function of the Audit & Risk Management Committee is to review the significant risks identified by the management, along with its mitigation plan, to monitor and review the Company's risk management plan, and to appraise the Board on risk assessment and minimization procedures. The overall internal control environment and risk management program, including financial risk management, is reviewed by the Audit & Risk Committee. Moreover, HZL has a formal digitalized platform to map risks & mitigation plans.

Value chain stage(s) covered

Upstream

Downstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term

Description of process

As part of our risk management framework, we engage annually (more than once) with our key upstream and downstream stakeholders such as, suppliers, regulators, local communities, investors, and consumers to capture their emerging concerns on physical or transition climate change risk & their contribution to mitigating climate change-related impacts.

Customers: We interact with our customers twice a year via stakeholder engagement initiatives and customer feedback programs to comprehend their objectives and priorities regarding climate change. These activities also provide us with an opportunity to explore the potential demand for low-carbon goods among our customers. For instance, after Grade (CGG) zinc alloy was a suitable low-carbon option. By seizing this opportunity, we were able to minimize market demand risks and reduce receiving a request from a customer in the galvanizing industry for a low-carbon product, we discovered that Continuous Galvanizing our carbon footprint and that of our customers. The customer can use CGG directly, eliminating the need for alloy conversion and saving resources, including water, energy, and costs, by up to 5-10%, and enhancing the galvanizing process. As a result, we have established a low-carbon product line, and we recently established a subsidiary, HZAPL, to enhance our value-added product line as part of our go-to-market strategy. Our VAP for FY 2022-23 is 15%, and we aim to increase it to 30% by FY 2024-25.

Supplier due-diligence:
We use our company-specific annual due diligence process to identify ESG risks, including climate change risks, within our supply chain. This helps us to take appropriate measures against key climate-related risks, such as material price increases, resource unavailability, and non-compliance with regulations. Our suppliers are also included in our sustainability strategy, and we work with them to mitigate these risks. To enhance our supply chain's resilience, we are implementing a risk framework in collaboration with a third party. Under this framework, each

vendor is periodically evaluated based on a comprehensive set of ESG parameters such as ethics, labour and employee welfare, health and safety, environment, climate change, and management systems, including when sourcing from CAHRA (Conflict-Affected and High-Risk Area), We use the individual scores to determine which suppliers do not meet our criteria, and we take appropriate corrective actions. Our Sustainable Sourcing Policy forms the basis of our risk identification process. The policy outlines our expectations for suppliers regarding ESG, including their performance on climate change goals. We develop mitigation plans with suppliers who are identified as high risk, including clear performance objectives and qualitative and/or quantitative indicators to measure and promote significant improvements within reasonable timeframes. We measure business partner performance by setting and tracking the performance of our business partner through ARIBA integrated performance module and take corrective actions wherever needed. In FY 2023, following actions were taken:
• 235 suppliers were assessed including 100% of our critical suppliers, of which 4 were identified as high-risk suppliers.
• Conducted supplier assessment for critical suppliers using tools like World Bank Think Hazard, Water Risk Filter & Biodiversity risk filter. The suppliers identified in high-risk areas were further requested to submit their carbon resilience plan.
• In process of implementing ISO 20400 standard for sustainable procurement
• Launched a vendor grievance portal for sharing feedback on ESG risks and other business aspects and fair and unbiased resolution of disputes.
• Identified opportunities for reduction of Scope 3 emissions wherein we can engage with suppliers to reduce their emissions

C2.2a

(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	It is of utmost importance for HZL to ensure adherence to pertinent laws and regulations, as well as to keep abreast of any governmental policy changes that may affect areas such as royalty rates, export incentives, tax structures, mining leases and permits, duty and tax benefits. By doing so, HZL can maintain operational efficiency and facilitate its growth. Being an emissions-intensive industry, HZL is also subject to climate change-related regulations, including Renewable Purchase Obligations (RPOs), Renewable Energy Certificates (RECs), and Perform, Achieve, and Trade (PAT) schemes. Failure to comply with these regulations could lead to severe repercussions, affecting HZL's revenue, operations, and reputation. HZL foresees that in the next two to three years, the enforcement of PAT obligations and renewable energy-related

		requirements will begin to impact its operations. For instance, Rajasthan Electricity Regulatory Commission's Renewable Purchase Obligation (RPO) of 10.2% renewable energy. To fulfill this commitment, HZL made strategic investments in Solar and STG projects. As of now, HZL is completely in line with the RPO requirements. However, failure to comply with the RPO obligation could lead to significant penalties of up to INR 174,000,000 annually. Additionally, HZL has a critical requirement to install Flue Gas Desulfurization (FGD) by 2024, failing which it would face penalties amounting to INR 736,000,000 each year. The estimated Capital Expenditure (Capex) for the installation of FGD is INR 4,800 million.
Emerging regulation	Relevant, always included	Regularly reviewing laws and regulations concerning energy efficiency, carbon emissions, and government policies, as well as monitoring mining leases and permits, is a crucial aspect of HZL's risk assessment process. The impact of climate change is increasingly influencing the likelihood of some risks, such as the significant rise in Coal Cess from INR 50 per tonne to INR 400 per tonne. Moreover, there are indications that the Government of India may implement a carbon tax for businesses in line with its commitment to achieve net-zero emissions by 2070. HZL takes these climate-related changes into account when evaluating risks. To anticipate relevant laws and government policies related to climate, emissions, energy, and potential reductions in export incentives, HZL actively engages with government officials, industry associations, and experts. This proactive engagement assists HZL in identifying, quantifying, forecasting, and effectively managing its exposure to risks associated with emerging regulations. As an illustration, the Government of India has established the Apex Committee for Implementation of Paris Agreement (AIPA), a High-level Ministerial Committee tasked with executing the commitments made under the Paris Agreement. AIPA's primary objective is to phase out coal-based power plants and transition towards cleaner, less carbon-intensive process technologies. This strategic shift in policy aims to fulfill the obligations of the Paris Agreement and curtail greenhouse gas (GHG) emissions associated with fossil fuel-based power generation. Consequently, if this regulation is enforced, HZL may be required to discontinue power generation from thermal power plants. Furthermore, the Government of India has proposed the creation of a National Carbon Market to incentivize corporate and private sector participation in energy conservation and carbon emissions reduction. Last year, the Bureau of Energy

		Efficiency outlined a blueprint document detailing a phased approach to establish the Voluntary Carbon Market (VCM) in India. The proposed blueprint suggested the integration of existing schemes, such as the Perform, Achieve, and Trade (PAT) Scheme and Renewable Energy Certificates (REC) scheme, in addition to a long-term cap and trade system. However, implementing this system could lead to increased operating expenses due to the imposition of a carbon price, potentially resulting in reduced revenue for HZL.
Technology	Relevant, always included	In our climate-related risk assessment, we thoroughly consider the impact of technology on our operations. We recognize that technological advancements offer opportunities to transition towards more sustainable practices, ultimately reducing our environmental impact while enhancing efficiency. For example, as part of our commitment to achieving Net Zero emissions by 2050. We are exploring the feasibility of using hydrogen as a replacement for coke, investing in battery energy storage solutions, implementing carbon capture and storage (CCS) technologies, investigating carbon conversion processes, and adopting electric vehicles. These measures align with our goal of reducing greenhouse gas emissions. Furthermore, we are exploring innovative technological solutions to enhance metal recovery and optimize resource consumption. The utilization of waste in our processes not only improves overall efficiency but also reduces land requirements, both of which contribute to mitigating climate-related risks. By embracing technological advancements, we aim to advance sustainability and minimize our environmental footprint.
Legal	Relevant, always included	Sustainability and environmental management are core components of our business strategy at HZL. Our top priority is to comply with all relevant rules, regulations, and laws related to environmental, water, energy, and operational aspects to minimize our impact on the environment. Failure to comply with these regulations could result in significant consequences for our operations, including reputational risks and potential impediments to our growth. For instance, if we fail to meet our obligation of 10.2% renewable energy under RPO and invest in renewable energy sources, we could face enforcement action, including fines to compensate for any environmental harm caused. Therefore, we remain committed to complying with all applicable laws and regulations to promote sustainable practices and minimize our environmental impact.

Market	Relevant, always included	Mining companies that embrace renewable energy, utilize low emission fleets, and incorporate recycling into their value chains will be better equipped to withstand market changes and increasing demand for low-carbon minerals. Conversely, companies with a high carbon footprint face the risk of reduced demand and losing market share to competitors adopting cleaner and greener production practices. The shift towards a low-carbon economy is advantageous for zinc demand, particularly due to its diverse applications in renewable energy and transportation sectors. Zinc-based applications, like galvanized steel. The government's smart cities initiative also presents a significant potential for galvanized sheets and various zinc alloys, promoting modern real estate development., Zinc ion batteries have the potential to replace lithium-ion and lead-acid batteries, Zinc also offers opportunities in solar plant construction and windmills for renewable energy projects. The International Zinc Association (IZA) predicts that zinc-ion batteries' market share will rise from 1% in 2021 to 5% in 2025 and 20% in 2030 as the economy moves towards a lithium-ion supply chain constrained world. Moreover, the focus on solar energy and regulatory measures, such as anti-dumping policies, to encourage domestic production of solar panels in India will lead to increased demand for Silver, as it is used in Photovoltaic cells. HZL's silver production has already witnessed growth to 714 tons during FY 2022-23. Zinc thermal metallization is recognized as a top-notch method worldwide for preventing corrosion, particularly in sectors like automobile, infrastructure, and construction. The Indian government's emphasis on infrastructure development and railway electrification further augments demand in this sector. For HZL, the focus on Value-Added Products has been fruitful, with sales increasing by 15% during FY 2022-23. By introducing new products like CGG slab, HZDA 5, Zinc aluminium alloys, and silver coins, HZL aims to further boost its share of Value-Added Product sales to 30% by FY 2024-25.
Reputation	Relevant, always included	As part of our assessment of climate-related risks, we always consider the potential for reputational damage. Given our position as the largest zinc producer in India, it is crucial for us to take a proactive approach to managing climate-related risks and opportunities. Failure to do so could result in compliance issues related to emission and green energy obligations, as well as an inability to meet commitments, leading to reputational damage and public and regulatory opposition to our projects and operations. A low score on climate and ESG frameworks could also result in reputational loss, increasing the cost of capital, perceived risk among investors, and potentially resulting in high legal and litigation costs. For instance, we have set Net Zero by 2050 Targets for Hindustan Zinc, however if we are unable to achieve the same, due to reasons like non-availability of relevant technology we will lose on reputation.

Acute physical	Relevant, always included	According to our climate risk scenario analysis based on RCP 2.6, RCP 4.5, RCP 6.0, RCP 8.5, HZL's eight operations in Rajasthan are highly vulnerable to drought and extreme heat waves. These risks have the potential to significantly impact our operations and workers in the medium term 2030 & long term 2050. In addition, sudden weather events such as excessive precipitation, could disrupt operations and impact our logistics, assets, and transportation infrastructure. For instance, drought in FY 2022 led to Chanderiya Lead Zinc Smelter being shut for a week due to non-availability of water.
Chronic physical	Relevant, always included	Our risk assessment has identified physical chronic risks, such as rising temperatures and sea level rise, as significant factors for HZL's operations. We have conducted a two-time period analysis for the years 2030 and 2050, with severe drought being a potential issue in the post-2030 scenario due to operational disruption in the supply of fresh water and STP water shortage. As per our RCP 4.5 assessment, heat wave is the only physical risk that is very high at all sites except Pantnagar till 2039. Beyond 2039, heat wave, drought and high temperature could affect all sites. This could affect our operations in multiple ways, such as decreased employee productivity, increased probability of vector-borne diseases, operational disruptions, increased electricity costs, and faster equipment operating thresholds. To manage these risks, we have implemented the following mitigation measures in the short term: a. Implement heat stress management programmes checking (operational actions) b. Heat stress awareness campaigns and monitoring (informational actions)

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical

Drought

Primary potential financial impact

Increased direct costs

Company-specific description

As per climate-related physical risk assessment under RCP 2.6, RCP 4.5 and RCP 6.0 scenario, drought is identified as the top acute physical risk in medium-term and long-term. More than 90% of HZL's operations are in Rajasthan, one of the water stress zones of the country. Since water is a critical input for our smelting operations, non-availability of water from the captive water sources has the potential to disrupt our operations. To run the operations, we will procure water from alternative sources at a much higher cost, thereby impacting our direct costs.

For instance, as per the WRI Aqueduct study, the Chanderiya Lead Zinc Smelter has an operational risk due to drought, and non-availability of captive water from Gosunda dam, will have an impact on the 234 MW Captive Power Plant (CPP) if water is not sourced from alternative sources. In FY 21-22, HZL had sourced water from Udaipur STP at a higher cost to run its CPP, leading to increase in direct costs.

Time horizon

Short-term

Likelihood

Very likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

390,145,948.8

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

We have estimated the financial impact by calculating the total additional cost of procuring water from alternate sources. We have made the following assumptions to calculate the financial impact.

• Water from alternative sources will be available.
• The production units will not close down in event of drought like situation, thereby having no impact on production & revenue.
• The cost of water from alternative sources is based on current estimates.
• The drought like situation will persist for upto 6 months.

The costs below are expenses incurred if drought risk materialises:
A: Cost of procuring water from existing captive dam (no drought situation) = INR 2 / m3
B. Cost of procuring water from alternate source= INR 15 / m3
C. Total water procured in Chanderiya (6 months) = 18,48,009.6 m3
D. Increased cost due to procuring water from alternate source= (B-A)*C= INR 24,024,124.8
E: Cost of Treatment of STP water before use (Total cost for 6 months): INR 15,000,000
F: Cost implication for channelizing the water from alternative sources: INR 3,51,121,824
G: Total Extra Cost (D+E+F): INR 390,145,948.8

Cost of response to risk

6,100,000,000

Description of response and explanation of cost calculation

In order to address this risk, we are consistently strengthening the water recycling and reuse across all our operations to minimize the need for freshwater withdrawal. Additionally, we are actively involved in the development of rainwater harvesting structures to replenish our groundwater resources. Our company has set a target to become a 5 Times Water Positive Company by 2025, aiming to reduce freshwater consumption by 25% compared to the base year of 2020. Currently, we are operating as a 2.41 times water positive company.
For instance, as per WRI Aqueduct study, Chanderiya Lead Zinc Smelter (CLZS) is at very high-risk zone and extremely prone to be impacted by droughting t in short, medium and long-term. To ensure ample water supply for the CPP's operations at CLZS, particularly during drought-like conditions, HZL is actively implementing water- conservation projects. One of the water saving initiatives being installation of ZLD Plant (600KLD) in 2021-22.

Therefore, to determine the cost of responding to this risk, we have evaluated the expenses associated with implementing various water recycling and conservation projects in our CLZS:
a. Commissioned ZLD Plant at ZSD (3,000 KLD): INR 460,000,000
b. Commissioned ZLD Plant at CLZS (600 KLD): INR 250,000,000
c. ZLD plant at DSC (3,200 KLD):INR 500,000,000
d. Rainwater Harvesting project at RAM : INR 140,000,000
e. Commissioning of Dry Tailing Plant at RDM/SKM: INR 3,000,000,000
f. Dry Tailing Stack at RA Mines: 1750,000,000
Therefore, Cost of response= INR (460,000,000+250,000,000+500,000,000+140,000,000+3000, 000,000+1750000000)= 6,10,00,00,000

HZL is planning to undertake several measures around improving the water recycling rates as well exploring alternative sources for replacing fresh-water(Zero Liquid Discharge Plant at Rampura Agucha and Zawar, STP water at Chanderiya Lead Zinc Smelter; Dry Tailing across mines and Rain water structures).

Comment

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Opp1

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Energy source

Primary climate-related opportunity driver

Use of lower-emission sources of energy

Primary potential financial impact

Reduced direct costs

Company-specific description

Hindustan Zinc as a part of its net-zero ambition, has committed to increase its dependency on lower-emissionRenewable energy sources as well as abate meet current regulations, Renewable Purchase Obligation (RPO) of 10.2%. In future, we expect obligations to around climate change to increase, with Perform, Achieve, Trade (PAT) Scheme, and Carbon Markets & Energy Conservation Act etc. being implemented.

HZL has 6 captive thermal power plants to run its smelters and mining operations. The cost of power from these CPPs depend upon the availability & cost of coal. In the current market situation, the coal prices have gone up by 30% from last year which has led to increase in the per unit cost of power. The per unit cost of renewable energy sourced as part of the PDA is significantly lower than the cost of thermal power, leading and will lead to reduction in direct costs. Embracing renewable energy does not only reduce the GHG emissions but also has the potential to reduce our expenditure on purchasing fossil fuels and coal, consequently lowering our direct costs.

In line with the same, we have signed Power Delivery Agreement (PDA) of 450 MW renewable energy Round the Clock which will be available for use from 2024. The current agreed costs of renewable energy vs the current cost of power generation through coal is at least lower price. Therefore, HZL recognizes the potential for transitioning to green fuel as an opportunity, especially considering that a significant portion of our operations are situated in Rajasthan, an area with ample opportunities for harnessing solar energy. This presents us with a favourable prospect to explore and derive a substantial portion of our energy needs from renewable sources, particularly as India faces challenges with coal shortages.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

5,913,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The estimated financial opportunity is calculated based on the difference in the cost of renewable power vs. the thermal based power. The estimates are based on the current costs. HZL has planned to reduce GHG emissions footprint by reducing dependency on captive thermal power plants.

a. Average per unit cost of non-renewable energy source (grid & CPP) =6.5 INR /KWH

b. Average per unit cost of low emission energy source= 5 INR /KWH

c. Average cost saving per unit due to use of lower emission energy= 1.5 INR /KWH

D: Power consumed during the year= 3942000000 KWH

E= Cost will be saved due to use of Renewable energy = C * D = 5,913,000,000 INR

Cost to realize opportunity

7,880,000,000

Strategy to realize opportunity and explanation of cost calculation

The cost to achieve opportunity, we have already signed Power Delivery Agreement for supply of 450 MW Renewable Energy Round the Clock (RE-RTC) under group captive scheme. This would meet the power consumption requirement for Dariba Smelting Complex (200MW) and Chanderiya Lead Zinc Smelter (250 MW). Thereby, reducing our dependency on coal and reduce our direct operating costs of these two smelting operations. We will start consuming RE power in phased manner from 2024. This project will be implemented in two phases. Phase 1 is power delivery of 200 MW of RE RTC, for which work has already initiated. This project will come under hybrid (Solar + Wind + pump storage facilities), Work initiated for setting up of installed capacity of solar plant (180 MW) which will start delivery of renewable power by June'24, also initiated setting up of installed capacity of Wind power (350 MW) which will start delivery by Dec'24. Regulatory work initiated for phase-2 (250 MW) also which is expected to give renewable energy by 2026.

Therefore, Cost to Realize opportunity=Cost for setting Renewable Energy Round the Clock (RE-RTC) = INR 7,880,000,000

Comment

C3. Business Strategy

C3.1

(C3.1) Does your organization’s strategy include a climate transition plan that aligns with a 1.5°C world?

Row 1

Climate transition plan

Yes, we have a climate transition plan which aligns with a 1.5°C world

Publicly available climate transition plan

Yes

Mechanism by which feedback is collected from shareholders on your climate transition plan

We have a different feedback mechanism in place

Description of feedback mechanism

HZL presents company’s targets, performance against the targets and its plan to achieve the targets (e.g. Sustainability Goals by 2025, Net-zero target by 2050 and Science-Based Targets Initiative by 2026). The net-zero transition plan is one of the goals to which HZL has committed under 1.5 degree Business ambition plan of SBTi. HZL has also taken the ambitious target of reducing the scope 1 and 2 emission by 50 % by 2030 and 25% reduction in scope 3 by 2030 and overall long-term target to achieve net zero by 2050 which currently under final stage of validation by SBTI. We are expecting final approval announcement by August’23. The strategy was approved by the leadership and is used for strategic and financial planning. These plans and performance are discussed during the quarterly investor calls as well as at the Annual General Meetings, which is attended by all majority and minority shareholders. Shareholders are encouraged to openly share their feedback during the AGMs.

The investors provide feedback for improvement during these calls which is then integrated back into the processes for improving the performance. We have ESG committee at board level which reviews the progress against these targets semi-annually and provides the feedback to leadership on climate transition plan.

Frequency of feedback collection

More frequently than annually

Attach any relevant documents which detail your climate transition plan (optional)

TCFD Hindustan Zinc Limited 2022-23.pdf

C3.2

(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?

	Use of climate-related scenario analysis to inform strategy
Row 1	Yes, qualitative and quantitative

C3.2a

(C3.2a) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Physical climate scenarios RCP 4.5	Company-wide		The climate risk assessment is studied for well below 2-degree IPCC Emission Scenario for the Period 2030 and 2050: RCP 4.5 (medium low emission, global average CO2 concentration about 600 ppm for 100% operational sites (Mining and Smelters). We applied possible futures to our business, to test strategic resilience. Using this assessment, we identified options for increasing our strategic and business resiliency to plausible climate-related risks and opportunities through adjustments to strategic and financial plans.

			Parameters considered for estimation: a. Average Temperature Increase: (Projected Change in Hot Day; Tmax >40 degrees), b. Heat Wave (Heat Index 35, Ensemble Median Range) c. Drought: Ensemble Median Range (Projected change in Annual Mean Drought Index; SPEI d. Severe Drought (Ensemble Median Range (Probability) e. Annual flooding: Projected Change in Days with Rainfall> 50mm
Physical climate scenarios RCP 6.0	Company-wide		HZL has conducted the climate assessment through RCP 6.0 to predict risks arising due to physical risks. The assessment has been conducted for 100% operations in Rajasthan and Uttarakhand considering the two-time frames a. 2030 and b. 2050. During the assessment, we assessed the following parameters to understand the magnitude of climate change impact on our business and operations. The following are the parameters considered: a. Average Temperature Increase: (Projected Change in Hot Day; Tmax >40 degrees), Heat Wave (Heat Index 35, Ensemble Median Range) b. Drought: Ensemble Median Range (Projected change in Annual Mean Drought Index; SPEI c. Severe Drought (Ensemble Median Range (Probability) d. Annual flooding: Projected Change in Days with Rainfall> 50mm e. Extreme Events: Cyclone
Physical climate scenarios RCP 2.6	Company-wide		We have conducted climate risk assessment to understand the relative changes in Wind Speed, Mean Air Temperature and Labour Productivity due to Heat Stress that would play out over time in the province of Rajasthan & Uttarakhand of India at different global warming levels compared to the reference period 1986-2006, based on the RCP 2.6 for two time period a. 2030 and b. 2050.
Physical climate scenarios RCP 8.5	Company-wide		Our climate risk assessment aligned with RCP 8.5 for two time period a. 2030 and b. 2050. This assessment has focused on impacts from extreme weather events including extreme temperature, water stress and heat wave. Extreme weather affects Labour productivity. The baseline scenario in case of NGFS scenario analysis was 1986-2006. Site wise risk was identified using World Bank's Think Hazard Tool.

Transition scenarios IEA APS	Company-wide		HZL has conducted Transition Risk associated with climate change aligned with IEA APS scenario. The assessment considered the following parameters and assumptions: 1. Global Energy demand increases 0.2% to 2030, contributed mainly by energy efficiency. 2. Energy Intensity improve by 3% per year 2021- 2030. 3. Electricity as a part of Total Energy is 24% in 2030 & 39% in 2050. 4. Electricity demand increase by 120% in 2050. 5. Share of Solar PV + Wind 60% in electricity mix by 2050. 6. Coal Consumption decline by 20% to 2030. 7. Coal demand peaks in late 2020s. Coal demand falls by 20% in 2030 & 70% in 2050. In India coal demand increase by just under 15% b/w 2021- 30. 8. In India coal supply increases by just over 500 MTce in 2030. 9. Global coal supply declines by 65% between 2030 and 2050. 10. The increase in coal demand in the industry sector is around half of that seen in STEPS.
Transition scenarios IEA STEPS (previously IEA NPS)	Company-wide		HZL has assessed Transition Risk induced by climate change using the IEA STEPS scenario which conforms to 500 GW of non-fossil-based power generation capacity which is part of India's NDCs. The following parameters and assumptions were considered: 1. Global Energy demand increases 0.8% to 2030. 2. Energy Intensity improve by 2.4% between 2021-2030. 3. Electricity as a part of total Energy is 22% in 2030 & 28% in 2050. 4. Electricity demand increase by 75% in 2050. 5. Share of Solar PV + Wind 45% in electricity mix by 2050. 6. Low-emissions sources now account for around 40% of electricity generation, with 30% coming from renewables and another 10% from nuclear. 7. Coal Consumption decline by 10% to 2030. 8. Coal still meets 1/3rd of energy demand by 2030. India sees a rise in coal demand by 2030. 9. In India coal supply increases to 550 MTce in 2030. 10. Global coal supply falls by about 25% from 2030 to 2050. 11. Coal generated electricity to fall from 75% to 55%. 12. Coal-fired power capacity increases from 240 GW in 2021 to 275 GW in 2030, while there is

			limited use of electric arc furnaces in industry. 13. Around 65% of the coal used globally in 2021 and 40% of the natural gas were for power generation
Transition scenarios IEA NZE 2050	Company-wide		HZL has assessed transition risk induced by climate change using the IEA NZE 2050 scenario which is aligned to 23 Gt in 2030 and to zero in 2050, a trajectory consistent with limiting the temperature increase to less than 1.5 °C in 2100. 1. Global energy demand is 8% less than today in 2050. 2. Energy Intensity improvement averaging 4% to 2030. 3. Electricity as a part of Total Energy is 28% in 2030& 52% in 2050. 4. Electricity demand increase by 150% in 2050. 5. Electricity generation increases 3.2% y-o-y- to 2030 & then by 3.4% per year (2030-2050). 6. Share of Solar PV + Wind, 40% in 2030 & 70% in 2050. Annual Solar PV quadruple from 150 GW in 2021 to 650 GW by 2030. 7. Solar PV equivalent to 35% of global silver production in 2030. 8. Demand for critical materials rises by 200-300% by 2030 compared to 2021 9. Coal Consumption decline by 45% to 2030. 10. End of unabated coal use for electricity generation worldwide by 2040. Unabated coal use drops by 99% b/w 2021 & 2050. 11. The share of unabated coal in global electricity generation falls rapidly from 36% in 2021 to 12% in 2030, and to zero percent by 2040 and beyond.

C3.2b

(C3.2b) Provide details of the focal questions your organization seeks to address by using climate-related scenario analysis, and summarize the results with respect to these questions.

Row 1

Focal questions

a. What is the potential financial impact of physical climate-related risks on HZL's business? Rationale: By understanding the financial impact of physical climate risks on the business strategy as well as to understand how much of our revenues may be at risk due to any extreme weather incidents in our regions of operation.
b. How would climate related emerging regulations impact the company? Rationale: With the growing pressure on resources and global commitments on Net Zero, Government of India is expected to introduce Carbon tax or other financial instruments. HZL needs to understand how will emerging regulations will have an impact on direct costs and revenue.

Results of the climate-related scenario analysis with respect to the focal questions

a. Potential financial Impact of physical climate-related risks on HZL: Rajasthan is likely to experience water stress and increased temperature. This would lead to the following impacts:
o Disruption of operations or downsizing of the same & scarce water resources. (Higher operating costs & plant shutdown)
o Increased electricity cost due to installation of cooling devices (Increased operating costs).
o Supply chain disruptions due to extreme weather-related events.
o Extreme weather events leading to damage to infrastructure (Increased Capital Cost)
For instance, based on our climate change assessment, drought was a risk in Chanderiya. The potential impact on our direct costs due to non-availability of water will have a potential financial impact of INR 393,841,968 at Chanderiya Lead Zinc Smelter (CLZS), situated in Rajasthan. To ensure ample water supply for the CPP's operations at CLZS, particularly during drought-like conditions, HZL is actively implementing water-efficient initiatives. One of the water saving /efficient initiatives being installation of ZLD Plant (600KLD) in 2021-22. Further, HZL has to spend INR 70,00,00,000 implementing various water recycling and conservation projects at CLZS.

b. How would climate related emerging regulations impact the company?
According to IEA STEPS and IEA NZE 2050 scenario analysis, HZL will have a high climate change policy risk. This would have direct impact on direct costs for the company as well as reputation.
Possible policy impacts on direct costs:
o Increase in cost of taxes paid to government per MT of production
o Decreased reputation if not adopted emission reduction measures.
o Barrier to entry due to climate change policies

For instance: To avoid impacts related to policy, HZL has signed long-term signed Power Delivery Agreement (PDA) of 450 MW renewable

energy Round the Clock which would be available for use in phase wise manner from 2024. To set up Renewable Energy Round the Clock (RE-RTC) INR 7,880,000,000 is required. This would help us reduce our dependency on coal consumption and thereby reducing coal cess.

C3.3

(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	Emerging climate regulations are accelerating the transition to low carbon products, which we see as an opportunity. We are noticing that in India, due to Government of India Net Zero commitment, our customers in the automobile sector, infrastructure sectors have started demanding low-carbon zinc, Lead and Silver, which would enable them to fulfil their own climate goals. During our customer engagement, it was realized that the products in current form are leading to higher energy consumption at some of our customers. Hence, value added products and tailor-made propositions were made for the clients. Till date, HZL has produced two Value Added Products (VAP): Continuous Galvanising Grade (CGG) Zinc Alloy and Hindustan Zinc Die Casting Alloy (HZDA). For example, following requests from customers in the galvanizing industry for a product with a lower carbon footprint, we identified CGG zinc alloy as a suitable solution. This allowed us to take advantage of the opportunity while also reducing our and our customers' climate impact and mitigating market demand risk. CGG can be used directly by customers without the need for conversion into an alloy, resulting in resource savings of up to 5-10% in terms of water, energy, and cost, as well as improved bath management during galvanizing. HZL has successfully developed a low-carbon product portfolio, and recently established HZAPL as a subsidiary to further enhance our VAP offerings as part of our go-to-market strategy. In FY 2022-23, our VAP constituted 15% of our total revenue.
Supply chain and/or value chain	Yes	Climate-related risks and opportunities have a significant impact on HZL's supply chain. HZL recognizes that its supply chain plays a critical role in achieving its sustainability goals and transitioning towards a circular economy. As such, HZL has implemented several measures to address climate-related risks and capitalize on opportunities in its supply chain. For instance, we have integrated ESG

		considerations into our supply chain process to help in better assessment of business risks and opportunities. Through collaboration, empowerment and engagement with our business partners, we have: • Conducted supplier assessment for critical suppliers using tools like World Bank Think Hazard, Water Risk Filter & Biodiversity risk filter. The suppliers identified in high-risk areas were further requested to submit their carbon resilience plan. • 235 suppliers were identified as critical to business through a robust screening process. The nature risks associated with the critical suppliers were identified. Three types of risks were assessed: Climate, Water and Biodiversity risks. • The Climate Risk assessment of critical suppliers was carried out using the World Bank's Climate Change Knowledge Portal and Think Hazard tool • In process of implementing ISO 20400 standard for sustainable procurement • Launched a vendor grievance portal for sharing feedback on ESG risks and other business aspects and fair and unbiased resolution of disputes. • Identified opportunities for reduction of Scope 3 emissions wherein we can engage with suppliers to reduce their emissions • Identified the key ESG, HSE and quality criteria in supply chain, and working closely with our supply chain partners on risk mitigation. • Implemented a structured framework for integration of ESG performance of supply chain partners in procurement decision-making. • Developed a framework that supports various policies, procedures and guidelines - from pre-check assessment till vendor performance evaluation. Furthermore, HZL prioritizes suppliers that have a strong commitment to sustainability and climate action and incorporates sustainability criteria into its procurement processes. This ensures that HZL's supply chain is aligned with its sustainability goals and helps to mitigate climate-related risks.
Investment in R&D	Yes	HZL recognizes that developing innovative sustainable technologies is essential for transitioning towards a low-carbon economy and achieving its net-zero target. During FY 2022-23, HZL has invested 118.4 million INR to address ESG risks including climate-related risks and capitalize on opportunities.

		One of the key areas of focus for HZL's R&D efforts is developing low-carbon and sustainable technologies. In FY 2023, HZL has invested INR 3,200,000 in the development of innovative solutions that reduce greenhouse gas emissions, increase energy efficiency, and support the circular economy. HZL has been granted US patents for two of our sustainability technologies. The two patents have been received for manufacturing Paver Blocks from process waste; and for the method of production of Potassium Antimony Tartrate (PAT) by utilizing Antimony bearing residues – were developed in-house by HZL's state-of-the-art research and development centre – ZnTech (formerly known as Central Research and Development Laboratory). Therefore, by incorporating climate-related risks and opportunities into our R&D investment strategy, HZL is able to develop innovative sustainable technologies that not only reduce its environmental impact but also provide long-term financial benefits.
Operations	Yes	Based on our climate-related assessment of physical risks, 90% of HZL's operations are situated in Rajasthan, where there is a high likelihood of drought and extreme heat waves. Given that water is a crucial input for our smelting operations, these conditions could potentially increase our direct costs. To mitigate these risks, we are implementing measures to maximize the recycling and reuse of water across all our operations, as well as developing rainwater-harvesting systems to replenish groundwater sources. As part of our commitment to sustainability, we have set a target to become a 5 times water-positive company from a baseline of 2.41 times and reduce our water consumption by 25% from the base year of 2020 by 2025.

C3.4

(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning elements that have been influenced	Description of influence
Row 1	Direct costs Capital expenditures	HZL has incorporated climate risks as key risks into its Enterprise Risk Management (ERM) and financial planning processes. To address these climate-related risks and opportunities, HZL has developed a separate budget allocation

	Capital allocation	and improved financial cost estimates, with approval from the Board. This has led to a clear direction for allocating capital expenditures, increasing CAPEX and direct costs towards low-carbon solutions, renewable energy, and mine installations. We involve sustainability, functional heads, plant heads, and finance departments to ensure cross-functional insights on climate-related investments, including Opex, Capex, and other investments. This approach helps HZL to understand the types of investments needed to achieve climate goals and transition towards a NetZero. Additionally, it allows senior management to anticipate which investments are viable and prioritize areas requiring short-term, medium-term, and long-term investments. HZL has committed to investing $1 billion over the next few years to decarbonize operations and mitigate climate change risks. Moreover, HZL has implemented a carbon pricing mechanism as part of its capital allocation strategy for addressing climate-related risks and opportunities. This involves assigning a monetary value to the carbon emissions associated with its operations, products, and supply chain, which is then factored into investment decision-making processes. By incorporating carbon pricing, HZL is able to better assess the financial implications of its climate-related investments and prioritize low-carbon solutions and renewable energy projects. This approach also supports HZL's commitment to reducing its carbon footprint and achieving its net-zero target. The internal carbon price considered for estimation of IRR is INR 1,204.086 (15 USD)

C3.5

(C3.5) In your organization’s financial accounting, do you identify spending/revenue that is aligned with your organization’s climate transition?

	Identification of spending/revenue that is aligned with your organization’s climate transition
Row 1	Yes, we identify alignment with our climate transition plan

C3.5a

(C3.5a) Quantify the percentage share of your spending/revenue that is aligned with your organization’s climate transition.

Financial Metric

CAPEX

Type of alignment being reported for this financial metric

Alignment with our climate transition plan

Taxonomy under which information is being reported

Objective under which alignment is being reported

Amount of selected financial metric that is aligned in the reporting year (unit currency as selected in C0.4)

3,885,333,836

Percentage share of selected financial metric aligned in the reporting year (%)

3.29

Percentage share of selected financial metric planned to align in 2025 (%)

28

Percentage share of selected financial metric planned to align in 2030 (%)

44

Describe the methodology used to identify spending/revenue that is aligned

HZL operates in India where there is no regulation on sustainability Taxonomy. However, to align itself with global norms, HZL has aligned its revenues and spending as per its Net-Zero transition plan 2050.

As part of our net zero strategy (2050 plan) we have defined a year wise plan with clear short and mid-term milestones. The capex investments required to implement the solutions are being considered for calculation of percentage. We have committed to invest $1 billion in a phased-

manner for our decarbonisation journey-($ 0.5 billion by 2025 and remaining $ 0.5 billion by 2030). The reported percentage is CAPEX used/to be used for achieving NetZero milestones / CAPEX (Sustenance + Growth + Mines + Smelters)

In FY 2022-23, we have invested INR 3,885,333,836 for decarbonisation activities including ZLD, Turbine revamping, biomass utilization, EV, waste heat recovery boiler, 100% green power for Pantnager Metal Plant, and climate change initiatives etc. Percentage CAPEX in FY 22-23 aligned with 1.5 degree= 3.29%

Percentage share of selected financial metric planned to align with a 1.5°C world in 2025:
Estimated CAPEX on Decarbonisation by 2025= INR 3750,00,00,000 or $ 0.5 Billion
Estimated CAPEX on Business growth from current 967 KT to 1200 KT by FY2025 = 13, 513,00,00,000
Percentage share in FY 2025= (3750,00,00,000 / 13, 513,00,00,000) * 100 = 28%
Expected activities: 25% RE, electrification of LMVs and mining vehicles, energy efficiency measures and other mitigation and adaptation measures etc.

Percentage share of selected financial metric planned to align with a 1.5°C world in 2030:
Estimated CAPEX on Decarbonisation by 2030= (3750,00,00,000 + 3750,00,00,000) = 7500,00,00,000 or $ 1 Billion
Estimated CAPEX on Business growth from current 967 KT to 1500 KT by FY2030= 16, 891,00,00,000
Percentage share in FY 2030 = (7500,00,00,000 / 16, 891,00,00,000) * 100 = 44%
Expected activities: 50% RE, 100% electrification of LMVs fleet, energy efficiency measures etc.

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?

Absolute target

C4.1a

(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.

Target reference number

Abs 1

Is this a science-based target?

Yes, and this target has been approved by the Science Based Targets initiative

Target ambition

Well-below 2°C aligned

Year target was set

2018

Target coverage

Company-wide

Scope(s)

Scope 1

Scope 2

Scope 2 accounting method

Location-based

Scope 3 category(ies)

Base year

2016

Base year Scope 1 emissions covered by target (metric tons CO2e)

4,288,645

Base year Scope 2 emissions covered by target (metric tons CO2e)

114,246

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 2: Capital goods emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 4: Upstream transportation and distribution emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 6: Business travel emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 7: Employee commuting emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 10: Processing of sold products emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 11: Use of sold products emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 14: Franchises emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 15: Investments emissions covered by target (metric tons CO2e)

Base year Scope 3, Other (upstream) emissions covered by target (metric tons CO2e)

Base year Scope 3, Other (downstream) emissions covered by target (metric tons CO2e)

Base year total Scope 3 emissions covered by target (metric tons CO2e)

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)

4,402,891

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1

97

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2

3

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target as % of total base year emissions in Scope 3, Category 1: Purchased goods and services (metric tons CO2e)

Base year Scope 3, Category 2: Capital goods emissions covered by target as % of total base year emissions in Scope 3, Category 2: Capital goods (metric tons CO2e)

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target as % of total base year emissions in Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

Base year Scope 3, Category 4: Upstream transportation and distribution covered by target as % of total base year emissions in Scope 3, Category 4: Upstream transportation and distribution (metric tons CO2e)

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target as % of total base year emissions in Scope 3, Category 5: Waste generated in operations (metric tons CO2e)

Base year Scope 3, Category 6: Business travel emissions covered by target as % of total base year emissions in Scope 3, Category 6: Business travel (metric tons CO2e)

Base year Scope 3, Category 7: Employee commuting covered by target as % of total base year emissions in Scope 3, Category 7: Employee commuting (metric tons CO2e)

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 8: Upstream leased assets (metric tons CO2e)

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target as % of total base year emissions in Scope 3, Category 9: Downstream transportation and distribution (metric tons CO2e)

Base year Scope 3, Category 10: Processing of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 10: Processing of sold products (metric tons CO2e)

Base year Scope 3, Category 11: Use of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 11: Use of sold products (metric tons CO2e)

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO2e)

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 13: Downstream leased assets (metric tons CO2e)

Base year Scope 3, Category 14: Franchises emissions covered by target as % of total base year emissions in Scope 3, Category 14: Franchises (metric tons CO2e)

Base year Scope 3, Category 15: Investments emissions covered by target as % of total base year emissions in Scope 3, Category 15: Investments (metric tons CO2e)

Base year Scope 3, Other (upstream) emissions covered by target as % of total base year emissions in Scope 3, Other (upstream) (metric tons CO2e)

Base year Scope 3, Other (downstream) emissions covered by target as % of total base year emissions in Scope 3, Other (downstream) (metric tons CO2e)

Base year total Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes

100

Target year

2026

Targeted reduction from base year (%)

14

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]

3,786,486.26

Scope 1 emissions in reporting year covered by target (metric tons CO2e)

3,444,672

Scope 2 emissions in reporting year covered by target (metric tons CO2e)

1,135,622

Scope 3, Category 1: Purchased goods and services emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 2: Capital goods emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 4: Upstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 5: Waste generated in operations emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 6: Business travel emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 7: Employee commuting emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 8: Upstream leased assets emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 9: Downstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 10: Processing of sold products emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 11: Use of sold products emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 12: End-of-life treatment of sold products emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 13: Downstream leased assets emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 14: Franchises emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 15: Investments emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Other (upstream) emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Other (downstream) emissions in reporting year covered by target (metric tons CO2e)

Total Scope 3 emissions in reporting year covered by target (metric tons CO2e)

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)

4,580,294

Does this target cover any land-related emissions?

No, it does not cover any land-related emissions (e.g. non-FLAG SBT)

% of target achieved relative to base year [auto-calculated]

-28.7802783606

Target status in reporting year

Underway

Please explain target coverage and identify any exclusions

HZL has made a firm commitment to decrease its overall Scope 1 and 2 greenhouse gas (GHG) emissions by 14% by 2026 compared to a base-year of 2016. This target is company-wide extending to 100% of our scope 1 and 2 emissions from our operations. The target has been validated by the Science Based Targets Initiative (SBTi), is in line with a pathway that aims to keep global warming well below 2 degrees Celsius. The base year of 2016 refers to the fiscal year 2016-17, and this same timeframe applies to the current year as well. The SBTi approved these goals in September 2018, encompassing all mines and smelters of HZL.

Furthermore, as a part of our ambition to become net zero by 2050 and commitment under 1.5degree Business ambition under SBTi initiative, we have submitted our more ambitious targets to Science Based Target initiatives (SBTi) to reduce our Scope 1 & Scope 2 GHG emissions by 50% & Scope 3 emissions by 25% by 2030 & Net Zero by 2050. Presently, these targets are under final stages of re-validation. We are expecting final validation by SBTi to happen by August 2023.

Plan for achieving target, and progress made to the end of the reporting year

To achieve our target: 14% reduction of Scope 1+ Scope 2 emissions by 2026, HZL has implemented several emission reduction initiatives.
a) Long-term group captive renewable power development plan of 200 MW & 250 MW round the clock renewable energy
b) Electrification of 20% of LMV fleet by 2026 - 22 no.s Electric LMVs deployed.
c) India's 1st Underground Battery Electric Vehicle launched in Sindesar Khurd Mines.
c) 5% biomass used as alternative fuel leading to 89,896 tCO2e reduction
d) 0.27 million tCo2e Reduction in GHG Emissions through Energy Efficiency measures- 100% target achieved through Turbine Revamping of 6 CPPs leading to reduction in Scope 1 emissions

List the emissions reduction initiatives which contributed most to achieving this target

Target reference number

Abs 2

Is this a science-based target?

Yes, and this target has been approved by the Science Based Targets initiative

Target ambition

Well-below 2°C aligned

Year target was set

2018

Target coverage

Company-wide

Scope(s)

Scope 3

Scope 2 accounting method

Scope 3 category(ies)

Category 1: Purchased goods and services
Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2)
Category 4: Upstream transportation and distribution
Category 5: Waste generated in operations
Category 6: Business travel
Category 7: Employee commuting
Category 8: Upstream leased assets
Category 9: Downstream transportation and distribution
Category 10: Processing of sold products
Category 12: End-of-life treatment of sold products

Base year

2016

Base year Scope 1 emissions covered by target (metric tons CO2e)

Base year Scope 2 emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target (metric tons CO2e)

158,655

Base year Scope 3, Category 2: Capital goods emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target (metric tons CO2e)

395,932

Base year Scope 3, Category 4: Upstream transportation and distribution emissions covered by target (metric tons CO2e)

1,540

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target (metric tons CO2e)

442,272.68

Base year Scope 3, Category 6: Business travel emissions covered by target (metric tons CO2e)

803

Base year Scope 3, Category 7: Employee commuting emissions covered by target (metric tons CO2e)

2,296

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target (metric tons CO2e)

36

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target (metric tons CO2e)

16,735

Base year Scope 3, Category 10: Processing of sold products emissions covered by target (metric tons CO2e)

0

Base year Scope 3, Category 11: Use of sold products emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target (metric tons CO2e)

1,758,639

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 14: Franchises emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 15: Investments emissions covered by target (metric tons CO2e)

Base year Scope 3, Other (upstream) emissions covered by target (metric tons CO2e)

Base year Scope 3, Other (downstream) emissions covered by target (metric tons CO2e)

Base year total Scope 3 emissions covered by target (metric tons CO2e)

2,776,909

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)

2,776,909

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target as % of total base year emissions in Scope 3, Category 1: Purchased goods and services (metric tons CO2e)

5.71

Base year Scope 3, Category 2: Capital goods emissions covered by target as % of total base year emissions in Scope 3, Category 2: Capital goods (metric tons CO2e)

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target as % of total base year emissions in Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

14.26

Base year Scope 3, Category 4: Upstream transportation and distribution covered by target as % of total base year emissions in Scope 3, Category 4: Upstream transportation and distribution (metric tons CO2e)

0.06

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target as % of total base year emissions in Scope 3, Category 5: Waste generated in operations (metric tons CO2e)

15.93

Base year Scope 3, Category 6: Business travel emissions covered by target as % of total base year emissions in Scope 3, Category 6: Business travel (metric tons CO2e)

0.03

Base year Scope 3, Category 7: Employee commuting covered by target as % of total base year emissions in Scope 3, Category 7: Employee commuting (metric tons CO2e)

0.08

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 8: Upstream leased assets (metric tons CO2e)

0.001

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target as % of total base year emissions in Scope 3, Category 9: Downstream transportation and distribution (metric tons CO2e)

0.6

Base year Scope 3, Category 10: Processing of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 10: Processing of sold products (metric tons CO2e)

0

Base year Scope 3, Category 11: Use of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 11: Use of sold products (metric tons CO2e)

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO2e)

63.33

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 13: Downstream leased assets (metric tons CO2e)

Base year Scope 3, Category 14: Franchises emissions covered by target as % of total base year emissions in Scope 3, Category 14: Franchises (metric tons CO2e)

Base year Scope 3, Category 15: Investments emissions covered by target as % of total base year emissions in Scope 3, Category 15: Investments (metric tons CO2e)

Base year Scope 3, Other (upstream) emissions covered by target as % of total base year emissions in Scope 3, Other (upstream) (metric tons CO2e)

Base year Scope 3, Other (downstream) emissions covered by target as % of total base year emissions in Scope 3, Other (downstream) (metric tons CO2e)

Base year total Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)

100

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes

100

Target year

2026

Targeted reduction from base year (%)

20

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]

2,221,527.2

Scope 1 emissions in reporting year covered by target (metric tons CO2e)

Scope 2 emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 1: Purchased goods and services emissions in reporting year covered by target (metric tons CO2e)

369,654

Scope 3, Category 2: Capital goods emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions in reporting year covered by target (metric tons CO2e)

464,128

Scope 3, Category 4: Upstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)

9,899

Scope 3, Category 5: Waste generated in operations emissions in reporting year covered by target (metric tons CO2e)

0

Scope 3, Category 6: Business travel emissions in reporting year covered by target (metric tons CO2e)

630

Scope 3, Category 7: Employee commuting emissions in reporting year covered by target (metric tons CO2e)

1,252

Scope 3, Category 8: Upstream leased assets emissions in reporting year covered by target (metric tons CO2e)

66

Scope 3, Category 9: Downstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)

46,553

Scope 3, Category 10: Processing of sold products emissions in reporting year covered by target (metric tons CO2e)

222,527

Scope 3, Category 11: Use of sold products emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 12: End-of-life treatment of sold products emissions in reporting year covered by target (metric tons CO2e)

3,047,478

Scope 3, Category 13: Downstream leased assets emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 14: Franchises emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 15: Investments emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Other (upstream) emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Other (downstream) emissions in reporting year covered by target (metric tons CO2e)

Total Scope 3 emissions in reporting year covered by target (metric tons CO2e)

4,162,188

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)

4,162,188

Does this target cover any land-related emissions?

No, it does not cover any land-related emissions (e.g. non-FLAG SBT)

% of target achieved relative to base year [auto-calculated]

-249.4282311736

Target status in reporting year

Underway

Please explain target coverage and identify any exclusions

HZL has made a firm commitment to decrease its total Scope 3 GHG emissions by 20% from a 2016 baseline by 2026. These emissions include those associated with purchased goods like cement, lime, soda ash, coal, and inter-organization transportation of materials, as well as business travel and upstream and downstream transportation and distribution. The base year 2016 refers to the financial year 2016-2017, and the same applies to the start year. These targets, approved by the Science Based Targets initiative (SBTi) in September 2018, encompass all mines and smelters owned by HZL.

In the target setting year we identified category 10 emission as relevant to us, but the methodology was not there to calculate the relevant emission, later we have started reporting on category 10, similarly for category 12 also we have included more products in calculation. We have changed our calculation methodology in FY 21-22 where it was observed that methane emission from generated waste is not significant. Therefore, no GHG emissions are considered from our generated waste.

Under the SBTI 1.5-degree business ambition we are committed to Net Zero and submitted more ambitious target (25% reduction in scope 3) for approval to SBTI which are currently under final stage of validation, and we are expecting approved target announcement by August'23. During the process we have evaluated the entire Scope 3 emission category and materiality, we are anticipating changes in our scope 3 reporting from next year onwards in alignment with new approved targets.

Plan for achieving target, and progress made to the end of the reporting year

HZL has integrated the following initiatives to reduce scope 3 emission by 20% from the base year of 2026 by 2026:
a. Category 1: Purchased goods and services: As per our supplier Code of Conduct and sustainable sourcing policy, Our Procurement team is reviewing metrics and evaluation processes regarding energy efficiency and estimated GHG emissions for evaluating the suppliers during the request for proposal (RFP) selection process. We are also focusing on environment-friendly/green product sourcing. We are also conducting various research to use the waste or recovering the metal from waste so that we can minimize our purchase of goods and associated emission.
b. Category 3: Fuel-and-energy-related activities: Most of our upstream transportation is through railways which has significantly reduced our emissions and, we have also been awarded rail green points (Carbon saving by transportation by rail), an initiative by Indian railways. We will further increase our transportation of concentrate by rail freight. As we have signed 450 MW RE RTC PDA, coal requirement will reduce significantly by FY 2026
c. Category 4: Upstream transportation and distribution: Increased local sourcing to reduce scope 3 emissions related to upstream transportation. Initiated movement of concentrate though EV vehicles from mines to smelter.
d. Category 6: Business travel: HZL is focusing on maximum virtual meetings & minimum in-person meetings to avoid business travels.
e. Category 7: Employee commuting: Monetary Incentives are provided to employees under group electric vehicle policy to adopt electric

vehicles. Replacement of passenger vehicles with EVs, introduction of battery-operated EVs for employee commuting have already started & going forward this will increase.
f. Category 9: Downstream transportation and distribution: We are exploring alternate fuel vehicles and in-line with same have introduced LNG vehicles for transport of finished goods to reduce emissions.
g. Category 10: Processing of sold products: We are producing HZDA, a die-casting alloy which is a premix of Zn, Al, Mg/Cu in certain ratio to get best output of end product. Readily available premix saves the energy, time and cost to the customers. Thus, customer does not need to re-melt the zinc ingot to make an alloy, they can directly use the premix for their end product. The supply of alloy has resulted in reduced emission in our downstream. This will reduce our emissions from processing of sold goods.

List the emissions reduction initiatives which contributed most to achieving this target

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?

Net-zero target(s)

C4.2c

(C4.2c) Provide details of your net-zero target(s).

Target reference number

NZ1

Target coverage

Company-wide

Absolute/intensity emission target(s) linked to this net-zero target

Abs1

Target year for achieving net zero

2050

Is this a science-based target?

Yes, we consider this a science-based target, and the target is currently being reviewed by the Science Based Targets initiative

Please explain target coverage and identify any exclusions

We have submitted our more ambitious targets to Science Based Target initiatives (SBTi) to reduce our Scope 1 & Scope 2 GHG emissions by 50% & Scope 3 emissions by 25% by 2030 & Net Zero by 2050 across 100% of our operations. Presently, these targets are under final stage of validation. We are expecting final approval on these targets from SBTi by August 2023.

We recognize that progress requires not just a bold goal but a detailed plan. As described below, we are launching an aggressive program to minimize our carbon emissions, both for our direct emissions and for our entire supply and value chain. Our program is staged in 4 phases which are categorized into various time horizons such as, 2026-Transition to Clean Energy, 2030- In line with NDC, 2040- Scaling Up, and 2050- Delivering Commitment. All these plans would be achieved through Firm RE, H2, CCUS, Efforts on Scope 3 and Circular Economy.

Our reductions in CO2 emissions between now and 2040 will come from currently available technologies. We have developed a pathway to Net Zero in spite the abatement for us is challenging. Our intent to becoming Net Zero reflect our action towards mitigating the impact of climate change. Our GHG emissions can be set to Zero by transitioning to RE 100- 100% Renewable Energy (by 2040) as about 90% of emission is due to electricity. As the company expands, organically and inorganically we will harness the opportunity presented by the growth of energy storage and PV panels, the Firm RE availability and shift will be a critical consideration. The last 8-10% of emissions, we can address by using Green Hydrogen for reduction post 2040.

Do you intend to neutralize any unabated emissions with permanent carbon removals at the target year?

Yes

Planned milestones and/or near-term investments for neutralization at target year

HZL has committed to the Business Ambition for 1.5°C campaign of the Science Based Targets initiative (SBTi) to align company's climate mitigation targets with the most ambitious Paris Agreement- reach net-zero global emissions by 2050 at the latest in order to limit global warming to 1.5°. We have signed power delivery agreement of 450 MW Renewable Energy- Round the Clock (RE-RTC), and our Pantnagar

Metal plant has started sourcing 100% green power. The move is in line with our strategic purpose of reducing dependence on thermal power by scaling up our renewable energy to cover 50% of our energy requirement by 2030 and reduce the GHG emissions from our operations.

Planned actions to mitigate emissions beyond your value chain (optional)

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	0	0
To be implemented*	50	2,790,147
Implementation commenced*	0	0
Implemented*	51	198,620.99
Not to be implemented	0	0

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative category & Initiative type

Energy efficiency in production processes

Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

91,729.99

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

1,141,825,801

Investment required (unit currency – as specified in C0.4)

11,113,000

Payback period

1-3 years

Estimated lifetime of the initiative

Ongoing

Comment

1. Optimising lighting power by LED lights, timers, Automation and circuit segregation.
2. Optimisation of LT power by consistant operation and rated throughput. Avoid idle running of equipment.
3. Optimization of Mist evaporator system.
4. Optimization of Boiler fan running hours at lower PLF.
5. ESP heater running time optimization

6. CT fans operation to be optimised during single unit/ low load operation.
7. Reduce pressure set point and optimse loading of 1084 instrument air compressors for reducing no load power loss by installing VFD
8. Reduction in lighting load in surface workshops & mine office
9. ZE cooler motor rating reduction from 22 to 15 kw
10. 300D Pump motor size reduction from 55KW to 5.5KW
11. Compressor Load Reduction.
12. Replacement of LTPCC Panel at Surface Substation
13. 2. Interlocking of measuring bin with conveyor operation
14. 3. Reduction in compressor power
15. Reduction in dual pump operation of Zn Cleaner-1 pumps in stream-2
16. Reduce Zn Dust Production Norms from 465 to 450 Units/MT
17. Reduce Zn Dust Production Norms from 460 to 450 Units/MT
18. Reduce pressure set point and optimise loading of 1084 instrument air compressors for reducing no load power loss by installing VFD
19. Replace inefficient pumps with energy efficient pump and stop double running of pumps and many more.

Initiative category & Initiative type

Energy efficiency in production processes

Other, please specify

Reduced energy consumption

Estimated annual CO2e savings (metric tonnes CO2e)

19,053

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

227,292,881

Investment required (unit currency – as specified in C0.4)

19,390,000

Payback period

1-3 years

Estimated lifetime of the initiative

Ongoing

Comment

1. Reduction in specific power consumption of Balaria Mine
2. Reduction in specific power consumption of Mill-1- 23.61 unit/Mt to 22.5 unit/Mt, Mill2-27.88 unit/Mt to 27.38 Unit/Mt
3. Reduction of power consumption in 1. auxilary ventilation and 2. Reduction in compressed air usage
4. Reduction in 5% consumption of PNG in Silver Process
5. Reduction in average Incremental power norms of CGG from 81 KVAH/MT to 75 KVAH/MT
6. Zinc dust Specific Energy Consumption reduction from 503KWh/MT to 490Kwh/MT
7. Reduction of Met coke consumption from 140 kg/MT of Slag to 135kg/MT of Slag
8. Reduction in MAC Specific Power consumption from 383 to 345 KW/MT of oxygen generation
9. Reduction of Specific Oil Consumption from 40Kg/T bullion consumption to 35kg/T bullion consumption
10. Reduce Power Consumption by 2% in Zn Conveying Compressor.
11. Reduction in lighting load in surface workshops & mine office.
12. Operate 2 blower with inlet valve automation and inter link blow-off valve with threshold limit of inlet valve opening.
13. Cellhouse Current rating improvement from 6.79 to 7.1
14. Re-designing of reactor agitator from 75 to 37 KW motor 27 & 28
15. Savings of Power Consumption with replacement of motor from IE1 to IE3.
16. Installation of no material sensor on 1340 Conveyor to avoid idle running of conveyors
17. Installation of level sensor in sump to avoid idle running of dewatering pump
18. Replacement of High masts MH type lamps 900W with LED lights 175 W

Initiative category & Initiative type

Energy efficiency in production processes

Other, please specify

Alternatives for power generation

Estimated annual CO2e savings (metric tonnes CO2e)

87,838

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

278,344,290

Investment required (unit currency – as specified in C0.4)

462,562,640

Payback period

1-3 years

Estimated lifetime of the initiative

3-5 years

Comment

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Dedicated budget for energy efficiency	At HZL, energy efficiency is a top priority, driven mainly by the cost savings associated with it. At the start of each financial year, we plan and identify a range of energy conservation projects for the year, and allocate budgets accordingly. However, we also provide additional funding for initiatives identified throughout the year, such as technological retrofit and replacement projects, which can lead to significant reductions in energy consumption. We recognize the importance of sustainable practices in reducing energy costs and minimizing our impact on the environment. Our commitment to energy efficiency extends beyond mere cost savings. We strive to identify and implement initiatives that align with our values and contribute to a more sustainable future.
Dedicated budget for other emissions reduction activities	At HZL, we are dedicated to reducing the environmental impact and carbon footprint of our products and manufacturing operations, with a particular focus on GHG emissions. To achieve this commitment, we prioritize technological innovation and other initiatives aimed at reducing emissions. To ensure that we meet our corporate emission reduction targets, each unit at HZL has its own set of identified goals. We then allocate budgets and identify specific activities to implement to reach these targets. This approach enables us to stay focused and accountable in our efforts to minimize our environmental impact and reduce GHG emissions. We understand the importance of environmental sustainability and are committed to making a positive impact through our operations. We believe that by working together and taking responsibility for our actions, we can achieve a more sustainable future for generations to come.
Compliance with regulatory requirements/standards	At HZL, compliance with regulatory requirements and standards is an essential component of our operations. Our commitment to sustainability extends beyond emission reduction to include efficient water usage and waste management. We prioritize research and development efforts to improve our processes in these areas. To meet our obligations for RPO, we are investing significantly in renewable energy generation. Furthermore, we adhere to the highest level of safety standards and comply with International Finance Corporation (IFC) norms to ensure the safety of our employees and the communities we operate in. We believe that adherence to regulatory requirements and standards is crucial for sustainable business practices. At

	HZL, we are dedicated to meeting and exceeding these requirements while continually improving our processes to minimize our environmental impact and contribute to a more sustainable future.
Internal price on carbon	The Internal Carbon Price (ICP) plays a crucial role in the decision-making process concerning climate change impacts, risks, and opportunities. It is determined based on the Shadow Price on Carbon and is calculated using the abatement cost method. This method involves assessing the price required to avoid emitting one tonne of CO2e through the implementation of various energy efficiency, fuel switch, waste heat recovery, CCUS, and renewable energy measures, along with the necessary investments. Currently, HZL's calculated Internal Carbon Price stands at INR 1,204.086 per 15 USD tonnes of CO2 equivalent. The purpose of establishing a carbon shadow price is to ensure that climate impact is factored into project, plan, and policy decisions. By formalizing this framework, organizations can guide their investment choices towards low-carbon alternatives. It enables a consistent approach to quantify the actual or modelled costs associated with projects and operational decisions that result in carbon emissions. This, in turn, helps organizations identify the tangible benefits of adopting renewable energy, which can reduce product costs. Additionally, it sheds light on how emissions can drive project costs higher, subsequently impacting the Internal Rate of Return (IRR) and Net Present Value (NPV). Incorporating the carbon price in financial decision-making becomes possible through these insights. As an example, for the upcoming Roaster at Debari that will have an STG (Steam Turbine Generator), post Waste Heat provided by STG, an additional 1.5 MW of residue will be required. The original IRR, when the ICP is not considered in the calculations, is 22.07%, and the payback period is 3.90 years. However, depending on the source of 1.5 MW (Conventional or Renewable), Internal Rate of return will change basis implementing Internal Carbon Price. If we use renewable energy, it IRR will increase and Payback period decrease, however the IRR decreases, and payback period increases when we source 1.5 MW from conventional source of energy. This is identified basis 15$/TCO2e Internal Carbon Pricing.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products.

Level of aggregation

Product or service

Taxonomy used to classify product(s) or service(s) as low-carbon

No taxonomy used to classify product(s) or service(s) as low carbon

Type of product(s) or service(s)

Power

Onshore wind

Description of product(s) or service(s)

The Company has 273.5 MW wind farms in five states across India which are registered under Clean Development Mechanism (CDM) program by United Nations Framework Convention on Climate Change (UNFCCC) as well as under Gold Standard. Wind power of 409.26 million units leading to a reduction of 3,73,562 MT of CO2 through green power.

Currently, Indian regulations do not mandate Indian companies to align their revenue, CAPEX, and OPEX with any sustainability taxonomy. As HZL, operates within India, it falls outside the purview of a sustainability taxonomy.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)

Yes

Methodology used to calculate avoided emissions

Other, please specify

United Nations Framework Convention on Climate Change (UNFCCC) and Gold Standard

Life cycle stage(s) covered for the low-carbon product(s) or services(s)

Cradle-to-gate

Functional unit used

Wind power of 409.26 million units leading to avoidance of 3,73,562 MT of CO2 of GHG emissions

Reference product/service or baseline scenario used

Power generated by captive power plant based on fossil fuel.

Life cycle stage(s) covered for the reference product/service or baseline scenario

Cradle-to-gate

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario

373,562

Explain your calculation of avoided emissions, including any assumptions

The Company operates 273.5 MW wind farms spread across five states in India, all registered under the Clean Development Mechanism (CDM) program by the United Nations Framework Convention on Climate Change (UNFCCC) and the Gold Standard. These wind farms have collectively generated 409.26 million units of wind power, resulting in an impressive reduction of 373,562 metric tons of CO2 emissions.

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year

0.5

C5. Emissions methodology

C5.1

(C5.1) Is this your first year of reporting emissions data to CDP?

No

C5.1a

(C5.1a) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?

Row 1

Has there been a structural change?

No

C5.1b

(C5.1b) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?

	Change(s) in methodology, boundary, and/or reporting year definition?
Row 1	No

C5.2

(C5.2) Provide your base year and base year emissions.

Scope 1

Base year start

April 1, 2016

Base year end

March 31, 2017

Base year emissions (metric tons CO2e)

4,288,645

Comment

The year 2016 in SBTI means FY 2016-17

Scope 2 (location-based)

Base year start

April 1, 2016

Base year end

March 31, 2017

Base year emissions (metric tons CO2e)

114,246

Comment

The year 2016 in SBTi means FY 2016-17

Scope 2 (market-based)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

We source electricity from State Grid and hence use average emission factors to calculate Scope 2 emissions. We don’t have access to supplier specific electricity emission factors or residual emissions factors. Hence, we are unable to report a Scope 2, market-based figure.

Scope 3 category 1: Purchased goods and services

Base year start

April 1, 2016

Base year end

March 31, 2017

Base year emissions (metric tons CO2e)

158,655

Comment

Scope 3 category 2: Capital goods

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Not Relevant

This pertains to our capital equipment purchase. These are one-time expanse and need base. Due to the nature of operation, HZL's value chain is largely comprises of service providers for transportation, contractors etc. with whom HZL interacts on a regular basis. HZL does not work with capital goods suppliers in its' current strategy of engagement. Capital procurement is need based on not regular and thus not considered as a material topic

Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)

Base year start

April 1, 2016

Base year end

March 31, 2017

Base year emissions (metric tons CO2e)

395,932

Comment

Scope 3 category 4: Upstream transportation and distribution

Base year start

April 1, 2016

Base year end

March 31, 2017

Base year emissions (metric tons CO2e)

1,540

Comment

Scope 3 category 5: Waste generated in operations

Base year start

April 1, 2016

Base year end

March 31, 2017

Base year emissions (metric tons CO2e)

442,272.68

Comment

Scope 3 category 6: Business travel

Base year start

April 1, 2016

Base year end

March 31, 2017

Base year emissions (metric tons CO2e)

803

Comment

Scope 3 category 7: Employee commuting

Base year start

April 1, 2016

Base year end

March 31, 2017

Base year emissions (metric tons CO2e)

2,296

Comment

Scope 3 category 8: Upstream leased assets

Base year start

April 1, 2016

Base year end

March 31, 2017

Base year emissions (metric tons CO2e)

36

Comment

Scope 3 category 9: Downstream transportation and distribution

Base year start

April 1, 2016

Base year end

March 31, 2017

Base year emissions (metric tons CO2e)

16,735

Comment

Scope 3 category 10: Processing of sold products

Base year start

April 1, 2016

Base year end

March 31, 2017

Base year emissions (metric tons CO2e)

0

Comment

HZL's product, zinc and lead, are largely used in galvanization and batteries manufacturing process respectively. The process of galvanizing in steel industry consumes approximately 3% to 4% of total energy of the steel making process and thus, emission from processing of zinc for galvanizing has been considered to be minimal.
However, at the time of target setting it was said that HZL is going to implement the process of calculating and assess the absolute emission from processing of sold product in the near future. After that we have started calculating this category also.

Scope 3 category 11: Use of sold products

Base year start

April 1, 2016

Base year end

March 31, 2017

Base year emissions (metric tons CO2e)

0

Comment

The emissions in the category was not calculated in the base year calculations, hence the emissions are reported as 0.

Scope 3 category 12: End of life treatment of sold products

Base year start

April 1, 2016

Base year end

March 31, 2017

Base year emissions (metric tons CO2e)

1,758,639

Comment

Scope 3 category 13: Downstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Not Relevant

HZL does not have any leased assets and thus, this is not applicable.

Scope 3 category 14: Franchises

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Not Relevant

HZL does not have franchises and thus, no emission from this is applicable.

Scope 3 category 15: Investments

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Not Relevant

HZL has not done any major investment or acquisition which are not the part of scope 1 and scope 2 emissions. Thus, scope 3 emission from the investment has been considered as zero and neglected

Scope 3: Other (upstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Not relevant

Scope 3: Other (downstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Not relevant

C5.3

(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

IPCC Guidelines for National Greenhouse Gas Inventories, 2006

ISO 14064-1

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)

3,444,672

Start date

April 1, 2022

End date

March 31, 2023

Comment

In FY 2022-23, Scope 1 emissions decreased by 20.27% from FY 2021-22 due to reduction in use of power from Captive Power plants and increase in purchased power from state grid. This is due to non-availability of coal and increase in coal prices. However, there was reduction in Scope 1 & Scope 2 emission, in spite of increase in production by 6.61%, due to implementation of energy conservation projects.

Past year 1

Gross global Scope 1 emissions (metric tons CO2e)

4,320,182

Start date

April 1, 2021

End date

March 31, 2022

Comment

FY 21-22, our Scope 1 emissions decreased by 3.77% in from past year (FY 20-21) due to temporary shutdown of captive power plants. During this time, power was sourced from State Grid.

Past year 2

Gross global Scope 1 emissions (metric tons CO2e)

4,489,443

Start date

April 1, 2020

End date

March 31, 2021

Comment

Scope 1 GHG emissions in FY20-21 increased by 0.19 % from FY 2019-20. Increase in GHG Emissions is due to increase in production by 7%. We had witnessed higher production of 15.5 MT. We also delivered the annual silver production of 706 tons.
However, due to concerted efforts to reduce emissions through- (use of PNG, renewable energy sources and energy saving projects), the overall increase in emissions from FY 2019-20 is insignificant.

Past year 3

Gross global Scope 1 emissions (metric tons CO2e)

4,480,887

Start date

April 1, 2019

End date

March 31, 2020

Comment

In FY 19-20, our scope 1 GHG emissions decreased by 4.756% in comparison to FY 18-19. Our gross scope 1 emission in FY 18-19 was 4704635 metric tons CO2e. This decrease was as a result of various low-carbon and less-emission technologies, increased renewable energy capacity, etc.

Past year 4

Gross global Scope 1 emissions (metric tons CO2e)

4,704,635

Start date

April 1, 2018

End date

March 31, 2019

Comment

In FY 18-19, our scope 1 GHG emissions decreased by 2.6 % in comparison to FY 17-18. Our gross scope 1 emission in FY 17-18 was 4.83 million metric tons CO2e.

Past year 5

Gross global Scope 1 emissions (metric tons CO2e)

4,830,000

Start date

April 1, 2017

End date

March 31, 2018

Comment

C6.2

(C6.2) Describe your organization’s approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We have no operations where we are able to access electricity supplier emission factors or residual emissions factors and are unable to report a Scope 2, market-based figure

Comment

We use average emission factors to calculate Scope 2 emissions as we source electricity from State Grid. We do not have access to supplier-specific electricity emission factors or residual emissions factors. Therefore, scope 2 market based is not relevant to our operations as of now.

C6.3

(C6.3) What were your organization’s gross global Scope 2 emissions in metric tons CO2e?

Reporting year

Scope 2, location-based

1,135,622

Start date

April 1, 2022

End date

March 31, 2023

Comment

In FY 2022-23, our scope 2 emissions have increased by 131% from the previous year due to increase in purchased power from state grid and reduced power consumption from own captive power plant due to non-availability of coal and increase in coal prices. This is also due to increase in production by 6.61% from FY2021-22. It is in line with our commitment of Net Zero that no new Captive Thermal Power plants will be inducted, however due to increase in production we had to procure power from state grid.

Past year 1

Scope 2, location-based

491,403

Start date

April 1, 2021

End date

March 31, 2022

Comment

Our scope 2 in FY 21-22, increased by 58% due to increase in our production by 4% from past year. Moreover, due to temporary shutdown of our CPP, our power demands were sourced through grid electricity.

Past year 2

Scope 2, location-based

307,068

Start date

April 1, 2020

End date

March 31, 2021

Comment

Scope 2 emission for FY 20-21 increased over FY 19-20 by 21.01 %. Location based scope 2 emission for FY 19-20 was 253756 tCO2e. The overall increase is attributed to the usage of state grid energy for increased mine development activities. Hence, increase in GHG Emissions is due to the increase in production by 7%. We witnessed the highest ever ore production of 15.5 MT, and we also delivered the highest ever annual silver production of 706 tons.

Past year 3

Scope 2, location-based

253,756

Start date

April 1, 2019

End date

March 31, 2020

Comment

Scope 2 emission for FY 19-20 increased over FY 18-19 by 47 %. Location based scope 2 emission for FY 18-19 was 167,239 tCO2e.

Past year 4

Scope 2, location-based

167,239

Start date

April 1, 2018

End date

March 31, 2019

Comment

In FY 18-19, our scope 2 GHG emissions increased by about 11.5% in comparison to FY 17-18. Our scope 2 emission in FY 17-18 was 150,000 metric tons CO2e.

Past year 5

Scope 2, location-based

150,000

Start date

April 1, 2017

End date

March 31, 2018

Comment

During FY 2017-18, scope 2 emissions had increased by 26.66% from FY 2016-17.

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1, Scope 2 or Scope 3 emissions that are within your selected reporting boundary which are not included in your disclosure?

No

C6.5

(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

369,654

Emissions calculation methodology

Spend-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

Calculations for emissions from Purchased goods and services have been carried out in accordance with the 2006 IPCC guidelines. The emissions resulting from purchased goods, such as cement, lime, and soda ash, have been factored in. For soda ash and lime, the relevant emission factor has been sourced from the 2006 IPCC. Meanwhile, calculations for cement emissions have been performed according to both the GHG protocol and IPCC guidelines.

Capital goods

Evaluation status

Not relevant, explanation provided

Please explain

Given the nature of our operations, our value chain primarily consists of service providers for transportation, contractors, and other such entities with whom we interact on a regular basis. As part of our present business model, we are not working with our capital goods suppliers. Since capital procurement is need-based and not a regular occurrence, it is not considered a material topic. However, we plan to include any additional plausible emissions resulting from this category in our next disclosure.

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

464,128

Emissions calculation methodology

Fuel-based method
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

The calculations have been performed in accordance with the IPCC guidelines and GHG protocol. The relevant emission factor has been factored in to determine the total emissions resulting from the quantity of coal consumed. The emissions resulting from the transportation of coal have been calculated by multiplying the distance travelled by the appropriate emission factor for sea or road transport, depending on the mode of transport used. This category includes emissions resulting from both the production and transportation of coal, with calculations performed in accordance with the 2006 IPCC guidelines for coal production. Upstream transportation of coal considers both ship and road transportation, with emissions resulting from international sea transportation calculated according to DEFRA guidelines, taking into consideration the ton-KM and corresponding emission factor. For road transportation within India, emissions have been calculated as per the India GHG program guidelines, with distance travelled provided by the supplier.

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

9,899

Emissions calculation methodology

Average data method
Fuel-based method
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

The emissions resulting from road transportation have been calculated by multiplying the distance travelled by the appropriate emission factor. Similarly, for ship transportation, emissions have been calculated by factoring in the quantity of material transported, distance travelled, and relevant emission factor. The emission factors used for these calculations have been sourced from the India GHG program and DEFRA. Upstream transportation, which includes both ship and road transportation, has been considered. For international sea transportation, emissions have been calculated according to the DEFRA guidelines, taking into consideration the ton-KM and corresponding emission factor. For domestic road transportation, emissions have been calculated following the guidelines and emission factors provided by the India GHG program. Our operations involve the transportation of various materials, including concentrates, lime, cement, soda ash, calcine, ore etc. between HZL's operational sites and from suppliers to HZL sites. Transportation is carried out via road for all these materials, except for cathode, which is transported by rail. The emission factors used for these calculations have been sourced from the India GHG program.

Waste generated in operations

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

0

Emissions calculation methodology

Average data method

Franchise-specific method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

0

Please explain

During base year scope 3 calculation Methane emission from generated waste was calculated. During FY 2021-22, we found that there was no methane emission from the waste generated. Hence, since 2021-22 we are reporting 0 in this category as there is no methane emission from our waste generation.

Business travel

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

630

Emissions calculation methodology

Average data method

Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

To determine the total emissions resulting from business travel by air at HZL, the passenger kilometers travelled were multiplied by the appropriate emission factor. It should be noted that business travel at HZL primarily involves air travel, with minimal road travel that has been deemed negligible and excluded from the calculation. The emissions resulting from business travel by air have been calculated separately for both domestic and international travel during the reporting year. The emission factor used for domestic travel was sourced from the India GHG program, while for long, medium, and short-haul flights, emission factors were obtained from the US-EPA database.

Employee commuting

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

1,252

Emissions calculation methodology

Fuel-based method

Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

The amount and type of fuel consumed by the bus and SUV utilized for employee transportation have been taken into consideration, using the appropriate emission factors provided by the GHG protocol and India GHG program for road transportation. To determine the total fuel consumed by the bus, the distance travelled was multiplied by the average bus mileage. The emission factor for the bus fuel was sourced from the GHG protocol's cross-sector tool for transport fuel use, while the emission factor for the SUV fuel was obtained from the India GHG program for road transportation.

Upstream leased assets

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

66

Emissions calculation methodology

Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

We have calculated the emissions from Upstream leased assets by multiplying Total electricity consumption with India grid emission factor.

Downstream transportation and distribution

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

46,553

Emissions calculation methodology

Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

The total distance covered by our vehicles has been multiplied by their respective emission factors to determine emissions. Specifically, we have considered the total kilometers covered by our freight transportation vehicles during the reporting year. The relevant emission factor has been sourced from the India GHG program. Our calculations consider finished goods transportation by road. However, we plan to include any additional plausible emissions resulting from sea or rail transportation in our next disclosure.

Processing of sold products

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

222,527

Emissions calculation methodology

Average product method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

We have calculated emissions based on the amount of product sold to different customers, such as those in the galvanization and battery manufacturing industries. To determine the relevant emission factor for each organization, we use GABI software. Our products, zinc and lead, are primarily used in galvanization and battery manufacturing processes, respectively. As the process of galvanizing in the steel industry

accounts for only 3% to 4% of the total energy consumed during steel production, emissions resulting from the processing of zinc for galvanization are minimal and have been factored in accordingly.

Use of sold products

Evaluation status

Not relevant, explanation provided

Please explain

Since our product is metal, zinc, lead and silver, the usage of metal does not have any significant CO2 emission.

End of life treatment of sold products

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

3,047,478

Emissions calculation methodology

Average product method

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Please explain

The emission calculation for recycling has been performed by multiplying the quantity of each product sold during the reporting year with the relevant emission factor. As all our products, zinc, lead, and silver, are metals, we consider end-of-life treatment as recycling. For zinc and lead, IPCC 2006 guidelines have been used to calculate emissions, and for silver, the recycling emission factor has been sourced from DEFRA.

However, we anticipate changes in this category emission reporting from next year based on discussion with SBTi while validation of new targets which are under approval.

Also, we are working with ICMM and IZA on Scope 3 GHG emissions reporting guidance for zinc producers: Increasingly, companies must report on their company carbon footprint to comply with regulations and meet expectations from the financial sector and customers. This involves the so-called Scope 3 GHG emissions according to the GHG Protocol's standard. Together with its member companies, IZA developing guidance for zinc producers to report on their Scope 3 emissions in a credible, transparent, and harmonized was. HZL actively supports this project e.g., by sharing information and participating in IZA's surveys and interviews.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

HZL does not have any asset given on lease. Thus, no emission from downstream leased assets is applicable to us.

Franchises

Evaluation status

Not relevant, explanation provided

Please explain

HZL does not have franchises. Thus, no emission from this is applicable to us.

Investments

Evaluation status

Not relevant, explanation provided

Please explain

HZL has not done any major investment or acquisition which are not the part of scope 1 and scope 2 emissions. Thus, scope 3 emission from the investment has been considered as zero and neglected.

Other (upstream)

Evaluation status

Not relevant, explanation provided

Please explain

Our upstream emissions are from transportation and distribution and upstream leased assets which are been covered under the said scope 3 parameters.

Other (downstream)

Evaluation status

Not relevant, explanation provided

Please explain

Our downstream emissions are from transportation and distribution and downstream leased assets which are been covered under the said scope 3 parameters.

C6.5a

(C6.5a) Disclose or restate your Scope 3 emissions data for previous years.

Past year 1

Start date

April 1, 2021

End date

March 31, 2022

Scope 3: Purchased goods and services (metric tons CO2e)

369,317

Scope 3: Capital goods (metric tons CO2e)

0

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

404,006

Scope 3: Upstream transportation and distribution (metric tons CO2e)

9,727

Scope 3: Waste generated in operations (metric tons CO2e)

0

Scope 3: Business travel (metric tons CO2e)

155

Scope 3: Employee commuting (metric tons CO2e)

1,827

Scope 3: Upstream leased assets (metric tons CO2e)

40.977

Scope 3: Downstream transportation and distribution (metric tons CO2e)

26,060

Scope 3: Processing of sold products (metric tons CO2e)

319,263

Scope 3: Use of sold products (metric tons CO2e)

0

Scope 3: End of life treatment of sold products (metric tons CO2e)

2,881,698

Scope 3: Downstream leased assets (metric tons CO2e)

0

Scope 3: Franchises (metric tons CO2e)

0

Scope 3: Investments (metric tons CO2e)

0

Scope 3: Other (upstream) (metric tons CO2e)

0

Scope 3: Other (downstream) (metric tons CO2e)

0

Comment

In FY 2021-22, total scope 3 emissions were decreased by 6.31% from FY 2020-21.

Past year 2

Start date

April 1, 2020

End date

March 31, 2021

Scope 3: Purchased goods and services (metric tons CO2e)

314,837

Scope 3: Capital goods (metric tons CO2e)

0

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

510,536

Scope 3: Upstream transportation and distribution (metric tons CO2e)

19,041

Scope 3: Waste generated in operations (metric tons CO2e)

420,393

Scope 3: Business travel (metric tons CO2e)

1,257

Scope 3: Employee commuting (metric tons CO2e)

1,947

Scope 3: Upstream leased assets (metric tons CO2e)

0

Scope 3: Downstream transportation and distribution (metric tons CO2e)

19,135

Scope 3: Processing of sold products (metric tons CO2e)

305,326

Scope 3: Use of sold products (metric tons CO2e)

0

Scope 3: End of life treatment of sold products (metric tons CO2e)

2,692,971

Scope 3: Downstream leased assets (metric tons CO2e)

0

Scope 3: Franchises (metric tons CO2e)

0

Scope 3: Investments (metric tons CO2e)

0

Scope 3: Other (upstream) (metric tons CO2e)

0

Scope 3: Other (downstream) (metric tons CO2e)

0

Comment

In FY 2020-21, total scope 3 emission was 42,85,442 metric tons CO2e resulting in an increase of 2.45% when compared to previous year i.e., FY 2019-2020 during which our scope 3 emission stood at 41,82,831 metric tons CO2e. The increased emissions were a result of rise in production by 7%, and subsequent increase in downstream transportation & distribution, processing of sold goods, and end of life treatment related emissions.

Past year 3

Start date

April 1, 2019

End date

March 31, 2020

Scope 3: Purchased goods and services (metric tons CO2e)

363,986

Scope 3: Capital goods (metric tons CO2e)

0

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

526,490

Scope 3: Upstream transportation and distribution (metric tons CO2e)

27,145

Scope 3: Waste generated in operations (metric tons CO2e)

426,001

Scope 3: Business travel (metric tons CO2e)

1,560

Scope 3: Employee commuting (metric tons CO2e)

2,370

Scope 3: Upstream leased assets (metric tons CO2e)

0

Scope 3: Downstream transportation and distribution (metric tons CO2e)

17,105

Scope 3: Processing of sold products (metric tons CO2e)

280,765

Scope 3: Use of sold products (metric tons CO2e)

0

Scope 3: End of life treatment of sold products (metric tons CO2e)

2,537,409

Scope 3: Downstream leased assets (metric tons CO2e)

0

Scope 3: Franchises (metric tons CO2e)

0

Scope 3: Investments (metric tons CO2e)

0

Scope 3: Other (upstream) (metric tons CO2e)

0

Scope 3: Other (downstream) (metric tons CO2e)

0

Comment

Our total scope 3 emission in FY 2019-20 was 41,82,831 metric tons CO2e resulting in decrease of 1.45 % when compared to previous year i.e., FY 2018-2019 during which our scope 3 emission stood at 42,44,587 metric tons CO2e.

Past year 4

Start date

April 1, 2018

End date

March 31, 2019

Scope 3: Purchased goods and services (metric tons CO2e)

307,409

Scope 3: Capital goods (metric tons CO2e)

0

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

533,211

Scope 3: Upstream transportation and distribution (metric tons CO2e)

25,471

Scope 3: Waste generated in operations (metric tons CO2e)

427,676

Scope 3: Business travel (metric tons CO2e)

1,441

Scope 3: Employee commuting (metric tons CO2e)

2,374

Scope 3: Upstream leased assets (metric tons CO2e)

51

Scope 3: Downstream transportation and distribution (metric tons CO2e)

30,713

Scope 3: Processing of sold products (metric tons CO2e)

338,109

Scope 3: Use of sold products (metric tons CO2e)

0

Scope 3: End of life treatment of sold products (metric tons CO2e)

2,578,134

Scope 3: Downstream leased assets (metric tons CO2e)

0

Scope 3: Franchises (metric tons CO2e)

0

Scope 3: Investments (metric tons CO2e)

0

Scope 3: Other (upstream) (metric tons CO2e)

0

Scope 3: Other (downstream) (metric tons CO2e)

0

Comment

During FY 2018-19, our total scope 3 emission was 42,44,587 metric tons CO2e resulting in 4.48 % reduction in comparison to previous year i.e., FY 2017-2018 during which our scope 3 emission stood at 44,43,747 metric tons CO2e.

Past year 5

Start date

April 1, 2017

End date

March 31, 2018

Scope 3: Purchased goods and services (metric tons CO2e)

194,311

Scope 3: Capital goods (metric tons CO2e)

0

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

544,758

Scope 3: Upstream transportation and distribution (metric tons CO2e)

28,088

Scope 3: Waste generated in operations (metric tons CO2e)

443,758

Scope 3: Business travel (metric tons CO2e)

1,119

Scope 3: Employee commuting (metric tons CO2e)

1,995

Scope 3: Upstream leased assets (metric tons CO2e)

52

Scope 3: Downstream transportation and distribution (metric tons CO2e)

22,298

Scope 3: Processing of sold products (metric tons CO2e)

267,757

Scope 3: Use of sold products (metric tons CO2e)

0

Scope 3: End of life treatment of sold products (metric tons CO2e)

2,939,611

Scope 3: Downstream leased assets (metric tons CO2e)

0

Scope 3: Franchises (metric tons CO2e)

0

Scope 3: Investments (metric tons CO2e)

0

Scope 3: Other (upstream) (metric tons CO2e)

0

Scope 3: Other (downstream) (metric tons CO2e)

0

Comment

C6.7

(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?

No

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

0.0000134

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

4,580,294

Metric denominator

unit total revenue

Metric denominator: Unit total

340,978,600,000

Scope 2 figure used

Location-based

% change from previous year

17.54

Direction of change

Decreased

Reason(s) for change

Change in renewable energy consumption
Other emissions reduction activities

Please explain

1. Energy Efficiency measures undertaken with increase in production.
2. 100% Green Power for Pant Nagar Metal Plant.
3. Technological interventions like turbine revamping in captive power plants increased energy efficiency and helped reduce emissions.
4. In FY 2022-23, there was an increase in electricity consumption from the state grid (low emission factor) due to unavailability and high price of coal.

Intensity figure

4.44

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

4,580,294

Metric denominator

unit of production

Metric denominator: Unit total

1,031,600

Scope 2 figure used

Location-based

% change from previous year

10.61

Direction of change

Decreased

Reason(s) for change

Change in renewable energy consumption
Other emissions reduction activities

Please explain

1. Increase in production
2. 100% Green Power for Pant Nagar Metal Plant.
3. Technological interventions like turbine revamping in captive power plants increased energy efficiency and helped reduce emissions.
4. India's 1st Battery Electric vehicle introduced in Sindesar Khurd mine (SKM).
5. 21 Electric vehicles (forklifts and tow trucks) introduced in smelting operations
6. In FY 2022-23, there was an increase in electricity consumption from the state grid (low emission factor) due to unavailability and high price of coal.

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?

Yes

C7.1a

(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	3,444,672	Other, please specify IPCC 2006

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/area/region.

Country/area/region	Scope 1 emissions (metric tons CO2e)
India [1]	3,444,672

[1] All our operations are based in India only

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By facility

C7.3b

(C7.3b) Break down your total gross global Scope 1 emissions by business facility.

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
Chanderiya Lead Zinc Smelter with CPP	1,746,634	24.83	74.82
Dariba Smelting Complex with CPP	1,042,509	24.95	74.13
Debari Zinc Smelter	4,837	24.6	73.83
Rampura Agucha Mine	64,766	25.83	74.74
Rajpura Dariba Mine	8,805	24.95	74.13

Sindesar Khurd Mine	35,300	25	74.16
Zawar Mine Complex with CPP	531,402	24.35	73.71
Pantnagar Metal Plant	4,400	29.04	79.4
Kayad Mines	6,019	26.53	74.69
Head Office, Udaipur	0	24.57	73.69
Central Research Development Laboratory	0	24.95	74.13

C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4

(C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO2e.

	Gross Scope 1 emissions, metric tons CO2e	Comment
Metals and mining production activities	3,444,672	Emissions from mining activities in metric tons CO2e: Mines= 646,293 Smelter= 27,93,979

C7.5

(C7.5) Break down your total gross global Scope 2 emissions by country/area/region.

Country/area/region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
India [1]	1,135,622	

[1] All our operations are based in India Only.
We source all our power from state grid and therefore, use average emission factors to calculate Scope 2 Emissions. We will report Market-based emissions when we will source power from dedicated grid/utility

C7.6

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By facility

C7.6b

(C7.6b) Break down your total gross global Scope 2 emissions by business facility.

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Chanderiya Smelting Complex	392,620	
Dariba Smelting Complex	414,375	
Debari Zinc Smelter	193,642	
Pantanagar Metal Plant	0	
Rampura Agucha Mines	119,142	
Rajpura Dariba Mine	0	
Sindesar Khurd Mine	0	
Zawar Mine Complex	7,879	
Kayad Mine	7,254	
Head Office	211	
Central Research Development Laboratory	499	

C7.7

(C7.7) Is your organization able to break down your emissions data for any of the subsidiaries included in your CDP response?

Yes

C7.7a

(C7.7a) Break down your gross Scope 1 and Scope 2 emissions by subsidiary.

Subsidiary name

Vedanta Zinc Football and Sports Foundation

Primary activity

Recreation & entertainment facilities

Select the unique identifier(s) you are able to provide for this subsidiary

Another unique identifier, please specify

CIN

ISIN code – bond

ISIN code – equity

CUSIP number

Ticker symbol

SEDOL code

LEI number

Other unique identifier

U92412RJ2021NPL078767

Scope 1 emissions (metric tons CO2e)

0

Scope 2, location-based emissions (metric tons CO2e)

178.28

Scope 2, market-based emissions (metric tons CO2e)

0

Comment

This is an unlisted entity aligned with our CSR activities.

Subsidiary name

Zinc India Foundation

Primary activity

Waste water management

Select the unique identifier(s) you are able to provide for this subsidiary

Another unique identifier, please specify

CIN

ISIN code – bond

ISIN code – equity

CUSIP number

Ticker symbol

SEDOL code

LEI number

Other unique identifier

U85300RJ2022NPL083038

Scope 1 emissions (metric tons CO2e)

0

Scope 2, location-based emissions (metric tons CO2e)

4,965.372

Scope 2, market-based emissions (metric tons CO2e)

0

Comment

This is an unlisted entity.

C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7

(C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7) Break down your organization’s total gross global Scope 2 emissions by sector production activity in metric tons CO2e.

	Scope 2, location-based, metric tons CO2e	Scope 2, market-based (if applicable), metric tons CO2e	Comment
Metals and mining production activities	1,134,912		The calculation has excluded emissions from: a. Head Office: 211 Tco2e b. Central Research Development Laboratory: 499 TCo2e.

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Decreased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO2e)	Direction of change in emissions	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	9,600	Decreased	0.2	The gross emissions (Scope 1 + 2) of company for this reporting year are 45,80,294-metric tons of CO2e. Its gross emissions for the previous reporting year were 48,11,584 metric tons of CO2e. This means that the total change in emissions is 2,31,291 metric tons of CO2e, equal to a 4.81% decrease, according to the formula in the explanation of terms, above: (2,31,291/4811584) * 100 = 4.81%. The change from 48,11,584 to 45,80,293 metric tonnes is attributed to three reasons: 1) Procuring more power from state Grid and 2) an estimated reduction of 109843.9 metric tonnes of CO 2e achieved due to emissions reduction activities. 3)

				PMP sourcing 100% green power reducing 30,000 TCO2e GHG emissions. The emissions value (percentage) for each of these two individual factors can also be calculated using the same formula described in the guidance, above. In this example, the percentage change in emissions due to Change in Renewable energy consumption is: (- 9600/48,11,584) * 100 = 0.20%. This represents a 0.20% decrease in emissions due to increase in Renewable energy consumption
Other emissions reduction activities	109,843.9	Decreased	2.28	The gross emissions (Scope 1 + 2) of company for this reporting year are 45,80,293-metric tons of CO2e. Its gross emissions for the previous reporting year were 48,11,584 metric tons of CO2e. This means that the total change in emissions is 2,31,291 metric tons of CO2e, equal to a 4.75% decrease, according to the formula in the explanation of terms, above: (2,31,291/4811584) * 100 = 4.81%. The change from 48,11,584 to 45,82,841 metric tonnes is attributed to two reasons: 1) Procuring more power from state Grid and 2) an estimated reduction of 109843.9 metric tonnes of CO 2e achieved due to emissions reduction activities. 3) PMP sourcing 100% green power reducing 30,000 TCO2e GHG emissions. The emissions value (percentage) for each of these two individual factors can also be calculated using the same formula described in the guidance, above. In this example, the percentage change in emissions due to emissions reduction activities is: (109843.9 /48,11,584) * 100 = 2.28%. This represents a 2.28% decrease in emissions due to emissions reduction activities.
Divestment	0	No change	0	Not Applicable
Acquisitions	0	No change	0	Not Applicable
Mergers	0	No change	0	Not Applicable
Change in output	228,743	Increased	4.75	The gross emissions (Scope 1 + 2) of company for this reporting year are 45,80,293-metric tons of CO2e. Its gross emissions for the previous reporting year

				were 48,11,584 metric tons of CO2e. This means that the total change in emissions is 2,31,291 metric tons of CO2e, equal to a 4.75% decrease, according to the formula in the explanation of terms, above: (2,31,291/4811584) * 100 = 4.81%. The change from 48,11,584 to 45,82,841 metric tonnes is attributed to two reasons: 1) Procuring more power from state Grid and 2) an estimated reduction of 109843.9 metric tonnes of CO 2e achieved due to emissions reduction activities. 3) PMP sourcing 100% green power reducing 30,000 TCO2e GHG emissions. The emissions value (percentage) for each of these two individual factors can also be calculated using the same formula described in the guidance, above. In this example, the percentage change in emissions due to emissions reduction activities is: (2,28,743/48,11,584) * 100 = 4.75%. This represents a 4.75% increase in emissions due to increase in production.
Change in methodology	0	No change	0	Not Applicable
Change in boundary	0	No change	0	Not Applicable
Change in physical operating conditions	0	No change	0	Not Applicable
Unidentified	0	No change	0	Not Applicable
Other	644,223	Increased	131	Scope 2 emission for FY 2022-23 is 11,35,622 tons of CO2e which has increased over FY 22 by 131 %. Location based scope 2 emission for FY 2021-22 was 491403. The increase is due to the use of state grid energy due to increased production. We had to procure more power from grid due to our commitment to no new thermal power plant induction and due to non-availability & increase in

				coal/power prices. We witnessed the highest ever metal production of 1031.6 kt this is 6.61% rise from previous year.

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 60% but less than or equal to 65%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	258,539	3,937,965	4,196,504
Consumption of purchased or acquired electricity		43,201	1,682,279	1,725,480
Consumption of self-generated non-fuel renewable energy		293,495		293,495
Total energy consumption		595,234	5,620,244	6,215,479

C-MM8.2a

(C-MM8.2a) Report your organization's energy consumption totals (excluding feedstocks) for metals and mining production activities in MWh.

	Heating value	Total MWh
Consumption of fuel (excluding feedstocks)	LHV (lower heating value)	4,196,504
Consumption of purchased or acquired electricity		1,725,480
Consumption of self-generated non-fuel renewable energy		293,495
Total energy consumption		6,215,479

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Sustainable biomass

Heating value

LHV

Total fuel MWh consumed by the organization

258,539

MWh fuel consumed for self-generation of electricity

258,539

MWh fuel consumed for self-generation of heat

0

Comment

We have calculated fuel consumption following 2006 IPCC Guidelines for national Greenhouse Gas Inventories.

Other biomass

Heating value

LHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Comment

Other renewable fuels (e.g. renewable hydrogen)

Heating value

LHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Comment

HZL does not use other renewable fuels in its operation. However, as part of its NetZero strategy HZL plans to transit to hydrogen-based energy solutions and is exploring use of hydrogen to substitute Coke in Reduction

Coal

Heating value

LHV

Total fuel MWh consumed by the organization

2,737,461

MWh fuel consumed for self-generation of electricity

2,737,461

MWh fuel consumed for self-generation of heat

0

Comment

We have calculated fuel consumption following 2006 IPCC Guidelines for national Greenhouse Gas Inventories

Oil

Heating value

LHV

Total fuel MWh consumed by the organization

1,042,371

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

1,042,371

Comment

We have calculated fuel consumption for diesel HSD and light diesel oil (LDO) under oil following 2006 IPCC Guidelines for national Greenhouse Gas Inventories.

Gas

Heating value

LHV

Total fuel MWh consumed by the organization

158,133

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

158,133

Comment

We have considered PNG, LPG and Propane in this calculation.
Calculation methodology: 2006 IPCC Guidelines for national Greenhouse Gas Inventories.

Other non-renewable fuels (e.g. non-renewable hydrogen)

Heating value

LHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

Comment

HZL does not use other non-renewable fuels in its operation.

Total fuel

Heating value

LHV

Total fuel MWh consumed by the organization

4,196,504

MWh fuel consumed for self-generation of electricity

2,996,000

MWh fuel consumed for self-generation of heat

1,200,504

Comment

Our program is staged in 4 phases which are categorized into various time horizons such as, 2026-Transition to Clean Energy, 2030- In line with NDC, 2040- Scaling Up, and 2050- Delivering Commitment. All these plans would be achieved through Firm RE, H2, CCUS, Efforts on Scope 3 and Circular Economy

Our reductions in CO2 emissions between now and 2040 will come from currently available technologies. We have developed a pathway to Net Zero in spite the abatement for us is challenging. Our intent to becoming Net Zero reflect our action towards mitigating the impact of climate change. Our GHG emissions can be set to Zero by transitioning to RE 100- 100% Renewable Energy (by 2040) as about 90% of emission is due to electricity. As the company expands, organically and inorganically we will harness the opportunity presented by the growth of energy storage and PV panels, the Firm RE availability and shift will be a critical consideration. The last 8-10% of emissions, we can address by using Green Hydrogen for reduction post 2040.

C8.2d

(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	3,709,310	3,289,495	971,849	552,033
Heat	1,200,504	1,200,504	0	0
Steam	0	0	0	0
Cooling	0	0	0	0

C-MM8.2d

(C-MM8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed for metals and mining production activities.

	Total gross generation (MWh) inside metals and mining sector boundary	Generation that is consumed (MWh) inside metals and mining sector boundary
Electricity	3,709,310	3,289,495
Heat	1,200,504	1,200,504
Steam	0	0
Cooling	0	0

C8.2g

(C8.2g) Provide a breakdown by country/area of your non-fuel energy consumption in the reporting year.

Country/area

India

Consumption of purchased electricity (MWh)

1,725,480

Consumption of self-generated electricity (MWh)

3,289,495

Consumption of purchased heat, steam, and cooling (MWh)

0

Consumption of self-generated heat, steam, and cooling (MWh)

1,200,504

Total non-fuel energy consumption (MWh) [Auto-calculated]

6,215,479

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

Description

Other, please specify

GHG Intensity (Scope 1+2)

Metric value

4.44

Metric numerator

4580294

Metric denominator (intensity metric only)

1031600

% change from previous year

10.66

Direction of change

Decreased

Please explain

Emission intensity reduced due to our energy conservation best practices and commitment to move towards renewable energy.

1. Increase in production by 6.61%.
2. Energy efficiency measures lead to saving of 413160 TCO2e.
3. Pant Nagar Metal plant run on 100% green energy. Introduction of Electric vehicles in smelting and mining operations further contributed to emission reduction.
4. Reduction in coal consumption.

Description

Other, please specify

Specific Energy Consumption

Metric value

41.53

Metric numerator

4,28,37,219

Metric denominator (intensity metric only)

1031600

% change from previous year

14.31

Direction of change

Decreased

Please explain

Energy efficiency measures lead to saving of 5,81,915.85 GJ couples with increase in production by 6.61% lead to decrease in energy Intensity.

C-MM9.3a

(C-MM9.3a) Provide details on the commodities relevant to the mining production activities of your organization.

Output product

Zinc

Capacity, metric tons

2,801,831

Production, metric tons

839,051

Production, copper-equivalent units (metric tons)

335,620,400

Scope 1 emissions

510,571

Scope 2 emissions

106,077

Scope 2 emissions approach

Location-based

Pricing methodology for copper-equivalent figure

The source is Transition Pathway Initiative publication on Carbon Performance Assessment in the Diversified Mining Sector (May, 2020). The Discussion Paper contains the price factor for copper-equivalent calculations. So, we have taken the price factor of 0.4 for Zinc, 0.4 for Lead and 93.1 for Silver. (https://www.transitionpathwayinitiative.org/publications/57.pdf?type=Publication), Page No. 17

Comment

Output product

Lead

Capacity, metric tons

2,498,169

Production, metric tons

223,038

Production, copper-equivalent units (metric tons)

89,215,200

Scope 1 emissions

135,720.92

Scope 2 emissions

28,197.65

Scope 2 emissions approach

Location-based

Pricing methodology for copper-equivalent figure

The source is Transition Pathway Initiative publication on Carbon Performance Assessment in the Diversified Mining Sector (May, 2020). The Discussion Paper contains the price factor for copper-equivalent calculations. So, we have taken the price factor of 0.4 for Zinc, 0.4 for Lead and 93.1 for Silver. (https://www.transitionpathwayinitiative.org/publications/57.pdf?type=Publication), Page No. 17

Comment

C-MM9.3b

(C-MM9.3b) Provide details on the commodities relevant to the metals production activities of your organization.

Output product

Zinc

Capacity (metric tons)

913,000

Production (metric tons)

820,898

Annual production in copper-equivalent units (thousand tons)

328,359,200

Scope 1 emissions (metric tons CO2e)

2,225,303

Scope 2 emissions (metric tons CO2e)

796,282

Scope 2 emissions approach

Location-based

Pricing methodology for-copper equivalent figure

The source is Transition Pathway Initiative publication on Carbon Performance Assessment in the Diversified Mining Sector (May, 2020). The Discussion Paper contains the price factor for copper-equivalent calculations. So, we have taken the price factor of 0.4 for Zinc, 0.4 for Lead and 93.1 for Silver. (https://www.transitionpathwayinitiative.org/publications/57.pdf?type=Publication), Page No. 17

Comment

Output product

Lead

Capacity (metric tons)

210,000

Production (metric tons)

210,690

Annual production in copper-equivalent units (thousand tons)

84,276,000

Scope 1 emissions (metric tons CO2e)

135,720.92

Scope 2 emissions (metric tons CO2e)

28,197.65

Scope 2 emissions approach

Location-based

Pricing methodology for-copper equivalent figure

The source is Transition Pathway Initiative publication on Carbon Performance Assessment in the Diversified Mining Sector (May, 2020). The Discussion Paper contains the price factor for copper-equivalent calculations. So, we have taken the price factor of 0.4 for Zinc, 0.4 for Lead and 93.1 for Silver. (https://www.transitionpathwayinitiative.org/publications/57.pdf?type=Publication), Page No. 17

Comment

Output product

Silver

Capacity (metric tons)

800

Production (metric tons)

714

Annual production in copper-equivalent units (thousand tons)

66,470

Scope 1 emissions (metric tons CO2e)

1,935.52

Scope 2 emissions (metric tons CO2e)

692.58

Scope 2 emissions approach

Location-based

Pricing methodology for-copper equivalent figure

The source is Transition Pathway Initiative publication on Carbon Performance Assessment in the Diversified Mining Sector (May, 2020). The Discussion Paper contains the price factor for copper-equivalent calculations. So, we have taken the price factor of 0.4 for Zinc, 0.4 for Lead and 93.1 for Silver. (https://www.transitionpathwayinitiative.org/publications/57.pdf?type=Publication), Page No. 17

Comment

C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6

(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

	Investment in low-carbon R&D	Comment
Row 1	Yes	Exploring Accelerated Carbonation technology to produce aggregate from Jarosite/Jarofix that is iron waste generated from zinc smelter. Utilization of grinded blast furnace slag as a binder in paste fill plant.

C-MM9.6a

(C-MM9.6a) Provide details of your organization's investments in low-carbon R&D for metals and mining production activities over the last three years.

Technology area

Other, please specify

Waste reprocessing

Stage of development in the reporting year

Full/commercial-scale demonstration

Average % of total R&D investment over the last 3 years

20

R&D investment figure in the reporting year (unit currency as selected in C0.4) (optional)

3,000,000

Average % of total R&D investment planned over the next 5 years

20

Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan

Waste reprocessing strategies

 Metal recovery & Value-added product.

 Waste reduction

 Resourceful product (Completely)

 Convert into a processing material (Other process).

The ETP cake contains metals such as Zn, Cd and Ca, which are being reprocessed in the Wealz Kiln. Zn and Cd evaporate during thermal reduction and collect the crude oxide product in the bag house. The slag (waste) obtained from the rotary kiln is cementitious in nature, so it is used for the production of clinker in the cement plant and eliminate the waste completely.

Technology area

Other, please specify

Waste Utilization

Stage of development in the reporting year

Pilot demonstration

Average % of total R&D investment over the last 3 years

20

R&D investment figure in the reporting year (unit currency as selected in C0.4) (optional)

200,000

Average % of total R&D investment planned over the next 5 years

20

Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan

Mine back filling
Cement Manufacture
Road construction & Civil Applications
The zinc electrowinning process, in addition to zinc metal deposition, also produces anode mud and cell sludge (Mn bearing materials), which are partially used and disposed of at the SLF. In R&D, a process has been developed to treat this Mn bearing material and convert it into the value-added Mn product ,$MnSO_4$ crystal. The residue obtained by this process is rich in Pb metal content and it is sent to Pb smelter for metal recovery. thereby reducing waste disposal in a safe landfill.

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status

Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

EY_Assurance Statement_HZL_CDP Climate Report 2023_260723.pdf

Page/ section reference

All

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

Scope 2 approach

Scope 2 location-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

EY_Assurance Statement_HZL_CDP Climate Report 2023_260723.pdf

Page/ section reference

All

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

C10.1c

(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.

Scope 3 category

Scope 3: Purchased goods and services
Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)
Scope 3: Upstream transportation and distribution
Scope 3: Waste generated in operations
Scope 3: Business travel
Scope 3: Employee commuting
Scope 3: Upstream leased assets
Scope 3: Downstream transportation and distribution
Scope 3: Processing of sold products
Scope 3: Use of sold products
Scope 3: End-of-life treatment of sold products

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

EY_Assurance Statement_HZL_CDP Climate Report 2023_260723.pdf

Page/section reference

All

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?

Yes

C10.2a

(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C4. Targets and performance	Year on year change in emissions (Scope 1 and 2)	ISAE3000	ISAE 3000 is an annual organization-wide verification process encompassing questions from C4.1 to C4.5a, which validate the figures provided. This verification, conducted as part of Scope 1&2, ensures the accuracy and reliability of the data. The assurance statement is then incorporated into the Sustainability Disclosure, providing further credibility to the organization's sustainability efforts.

			1
C4. Targets and performance	Progress against emissions reduction target	ISAE3000	ISAE 3410 is an annual organization-wide verification process encompassing questions from C4.1 to C4.5a, which validate the figures provided. This verification, conducted as part of Scope 1&2, ensures the accuracy and reliability of the data. The assurance statement is then incorporated into the Sustainability Disclosure, providing further credibility to the organization's sustainability efforts. 1
C8. Energy	Energy consumption	ISAE 3000	ISAE 3000 is an annual organization-wide verification process encompassing questions related to C.8.2a, C8.2c, and C8.2d. This verification, conducted as part of Scope 1&2, ensures the accuracy and reliability of the verified data. The resulting assurance statement is then included in the Sustainability Disclosure, providing added credibility to the organization's sustainability efforts. 1

1EY_Assurance Statement_HZL_CDP Climate Report 2023_260723.pdf

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?

No, but we anticipate being regulated in the next three years

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

Presently, HZL is not regulated by any regulatory carbon pricing systems. However, we anticipate a future applicability of such schemes in the next three years

To prepare for the applicability possible future regulations on carbon pricing, shadow pricing has been implemented. Shadow pricing is used when we want to embed climate change impact of a particular project into its investment-related decisions. A theoretical price is finalized for per tonne of CO2 emissions. This theoretical CO2 price (also known as ‘carbon price’ or ‘Internal Carbon Price’) is applicable to 100% of BUs covering scope 1 and 2 emissions. , the internal carbon price is INR 1,204.086/tCo2e.

C11.2

(C11.2) Has your organization canceled any project-based carbon credits within the reporting year?

No

C11.3

(C11.3) Does your organization use an internal price on carbon?

Yes

C11.3a

(C11.3a) Provide details of how your organization uses an internal price on carbon.

Type of internal carbon price

Shadow price

How the price is determined

Cost of required measures to achieve emissions reduction targets

Objective(s) for implementing this internal carbon price

Change internal behavior
Drive energy efficiency
Drive low-carbon investment

Navigate GHG regulations
Stakeholder expectations
Stress test investments
Reduce supply chain emissions

Scope(s) covered

Scope 1
Scope 2

Pricing approach used – spatial variance

Uniform

Pricing approach used – temporal variance

Evolutionary

Indicate how you expect the price to change over time

Currently, there are no regulations in India concerning the Internal Carbon Price; however, in line with our goal to achieve net zero emissions by 2050, significant steps have been taken. Notably, the recent signing of the Power Delivery agreement for 450 MW Renewable Energy Round the Clock (RE-RTC) and the successful operation of the Pantnagar Metal plant entirely powered by green energy have led to a decrease in the Internal Carbon Price (also known as Shadow Price) attributed to carbon.

Actual price(s) used – minimum (currency as specified in C0.4 per metric ton CO2e)

1,204.08

Actual price(s) used – maximum (currency as specified in C0.4 per metric ton CO2e)

1,204.08

Business decision-making processes this internal carbon price is applied to

Capital expenditure
Operations
Procurement
Product and R&D

Mandatory enforcement of this internal carbon price within these business decision-making processes

Yes, for some decision-making processes, please specify

Applies to capex evaluations for BUs covering S1 & 2 emissions. Criteria: CAPEX(excl. admin,security, IT,digital,pre-operative expenses)>INR5Cr by Vedanta & subsidiaries. Also applies to projects increasing GHG emission by 500000MT regardless of cost

Explain how this internal carbon price has contributed to the implementation of your organization's climate commitments and/or climate transition plan

HZL is committed to achieving its sustainability goals, and one way we are doing this is using an internal carbon price. We aim to reduce 14% of our Scope 1+2 (absolute) by 2026-27 from a 2016 base-year.

Setting a price on carbon allows us to evaluate the profitability of various projects in different scenarios and make informed decisions to future-proof our business. This approach can also stimulate innovation and encourage the allocation of capital towards low-carbon solutions that deliver higher returns.

To support emissions-efficient procurement, capital expenditure, investment in R&D decision-making, we use shadow carbon pricing of INR 1,204.086/TCO2e. This method adds a notional surcharge to the cost of procurement based on the degree of carbon emissions, rather than just being price competitive. This approach will help us to assess procurement decisions more accurately and prioritize emissions-efficient options.

The goal of a carbon shadow price is to include climate impact when making decisions about projects, plans, and policies. It accomplishes this by formalizing a framework that steers organizational investment decisions in the direction of low-carbon alternatives. it helps create a consistent mechanism to quantify actual or modelled costs associated with select projects and operational decisions that produce carbon emissions. This is also helping the organisation to identify the tangible benefits of renewable energy which help reduce cost of product and also highlight the impact of emissions in driving the cost of project upwards and reducing the Internal rate of return and Net Present value, thus helping the organisation incorporate carbon price in financial decision making.

As an example, for the upcoming Roaster at Debari that will have an STG (Steam Turbine Generator), post Waste Heat provided by STG, an additional 1.5 MW of residue will be required. The original IRR, when the ICP is not considered in the calculations, is 22.07%, and the payback period is 3.90 years. However, depending on the source of 1.5 MW (Conventional or Renewable), Internal Rate of return will change basis implementing Internal Carbon Price. If we use renewable energy, it IRR will increase and Payback period decrease, however the IRR decreases and payback period increases when we source 1.5 MW from conventional source of energy. This is identified basis 15$/TCO2e Internal Carbon Pricing.

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our suppliers

Yes, our customers/clients

Yes, other partners in the value chain

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement

Information collection (understanding supplier behavior)

Details of engagement

Collect targets information at least annually from suppliers

Other, please specify

Included climate change in supplier selection / management mechanism Code of conduct featuring climate change KPIs Climate change is integrated into supplier evaluation processes

% of suppliers by number

100

% total procurement spend (direct and indirect)

70.45

% of supplier-related Scope 3 emissions as reported in C6.5

100

Rationale for the coverage of your engagement

Our focus is to sensitize the supply chain partners, on the need to adhere with sustainable business practices and inculcate the same culture in their own supply chain. We are integrating ESG expectations, including expectations related to managing climate related risks, reducing GHG emissions in our procurement process.

We engage with all critical suppliers, including those with substantive impact to stress importance of ESG practices & ensure compliance with regulations. Our engagement process includes collecting information on environmental policy and procedure from our suppliers.

We engage specifically on ESG matters including climate change with our critical tier 1 suppliers who have the potential to impact our businesses. We are encouraging our critical suppliers to commit to Net Zero. Therefore, in FY 2023, we engaged with 100% of our 235 critical tier 1 suppliers which represent 70.45% of our procurement spend.

Rationale for engaging with our critical tier 1 suppliers:
a. High-volume suppliers, suppliers of critical components and non-substitutable suppliers.
b. Goods or services have significant impact upon HZL operations and/or sustainability, as well as a large footprint in one or more of our operations in terms of allocated personnel, equipment and resources, making replacement or substitution highly difficult.
c. non-substitutable business partners (e.g., Original Equipment Manufacturers)

HZL's supplier engagement process includes,
•Screening: We undertake pre-qualification of all potential business partners and require our potential partner to meet or exceed our standards. This is used as a pre-condition for becoming a vendor of Hindustan Zinc. In order to maintain key supplier status, we require all suppliers to report on their compliance with ISO 14001.
•ESG Technical qualification: We request critical suppliers to provide information related to ESG aspects which is required for technical qualification.
•Performance Evaluation: We conduct site visits and audits to verify compliance to the code of Conduct and key ESG parameters. For our critical suppliers, we assess ESG risks including climate risks during site visits, interviews and information collection.
•Engagement & Development: We require our critical suppliers to prepare corrective action plans to improve ESG performance.

Impact of engagement, including measures of success

This year we conducted supplier ESG risk assessment with total 235 critical tier 1 suppliers. We measure the success of our engagement with our suppliers based on the improvement on KPIs agreed with them.

For all the critical suppliers we have set expectations on environmental compliances including climate data. For example, we encourage our suppliers to be.
a) "certified to ISO 14001". Our measurement of success is " % of engaged suppliers certified to ISO 14001"; 100% per year.
b) "energy consumption". Our measurement of success is "% of engaged suppliers providing reporting energy consumption data", 50% per year.
c) "Commitment to Net zero". Our measurement of success is "% of engaged suppliers with Net-zero commitment", 5% per year.

The engagement with our suppliers helps them to manage the identified risk, reduce their impact. HZL creates a learning environment for its suppliers by sharing expertise, supporting in technology transfer, and encouraging process innovations. HZL also developed strong rewards and recognition program to encourage and motivate business partners to come up with innovative solutions. Because of the engagement, HZL was able to reduce the risk

Comment

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement & Details of engagement

Collaboration & innovation
Run a campaign to encourage innovation to reduce climate change impacts

% of customers by number

100

% of customer - related Scope 3 emissions as reported in C6.5

Please explain the rationale for selecting this group of customers and scope of engagement

We believe in constant endeavour to scale up customer engagement initiatives and deliver a par-excellence experience to all our customers at every stage of their journey with HZL. Our approach is centred around our goal to reduce Scope 3 emissions by 2025 by 2026 as well as to meet changing customer demand for low carbon products.

We engaged with 100% of our customers that make around 90% of our revenues on climate issues as it is important for us to understand their product requirements. We also engage with our customers to understand their commitment towards climate change and their changing demands for our low carbon products. For example, we engaged with our steel sector clients who require low carbon zinc to meet their Carbon Border Tax requirements applicable from 2026. This engagement helps us in reducing our own environmental footprint (climate-related impacts of our products) while supporting customers to meet their Sustainability Goals.

Customer engagements:
• Intuitive Moglix platform for continuous engagement & feedback
• Periodic connects with key customers by senior executives & top management
• Biennial customer satisfaction survey to collect the feedback
• Seminar and Educational Programme to enhance awareness about use of zinc in infrastructure and sustainability of Smart Cities projects
• Forum for quick customer query resolution.

Scope of engagement aligned with climate matters:
a) HZL's climate targets and Net Zero plan
b) Reduction in environmental & social impacts of products
c) Low carbon products & design

We have realised that our current product design results in higher energy consumption, mainly because the product needs to be melted before it can be used. In response to this, we are modifying the design features of our 'Value Added Products (VAP)' to align with the preferences of our customers. HZL is strengthening technical and support services to raise awareness about VAP.
Given the ongoing energy transition, we actively engage with our customers to explore opportunities for low carbon products and are assessing

the potential demand for such products. Furthermore, HZL has established a partnership with the Indian chapter of the International Zinc Association to drive zinc consumption growth in the domestic market. This collaboration involves implementing an active market development program to promote the use of zinc.

Impact of engagement, including measures of success

We evaluate the effectiveness of our customer engagements by utilizing key indicators such as energy conservation, customer satisfaction ratings, and qualitative feedback.

As a result of engagement, HZL has developed two Value-Added Products (VAP) to meet the customer's expectations:
a. Continuous Galvanizing Grade (CGG): In response to the demand from the galvanizing industry for a low-carbon product, we identified CGG zinc alloy as a suitable solution. This allowed us to seize the opportunity while mitigating market demand risks and reducing our and our customers' climate impact. CGG can be directly used by the customers without the need for conversion into an alloy.
b. Hindustan Zinc Die Casting Alloy (HZDA): Developed to meet the specific requirements of the die casting industry.

Outcome:
To further enhance our VAP portfolio, we have established a subsidiary called Hindustan Zinc Alloys Private Limited (HZAPL). Our VAP contribution for FY 2022-23 is 15%, and we aim to increase it to 30% by FY2024-25.

Metric of success:
20% customers opting for low carbon products.

Examples of success:
i. CGG can save resource use- water, energy, and cost by upto 5-10% by improving bath management during galvanizing.
ii. Net Zero Initiatives: Pantnagar Metal Plant (PMP), has transitioned to 100% green power, thereby reducing 37,936 MTCO2e. This will enable us to support the development of sustainable, eco-friendly products.
ii. Sustainable Packaging: We are producing products that are packaged in 100% recyclable packaging. Our packaging is certified by our packaging partner, highlighting our commitment to reducing waste and environmental impact.
iii. REACH Certification: In October'22, we achieved REACH certification for our SHG Zinc, which has opened up opportunities for us in the European market. REACH is an EU regulation designed to enhance the protection of human health and the environment. Compliance with this

regulation requires companies to identify and manage risks associated with substances they manufacture and market in the EU. By complying with all regulations, we can serve our European customers.

C12.1d

(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.

Employee: FY 2022-23, HZL provided human rights training to its employees to make them aware about human rights issues, compliances, and best practices. Since September 2021, a group-wide campaign called the 'ESG Theme of the Month' has been initiated. Each month, a different ESG theme such as decarbonization, water conservation, and waste management is celebrated. In December 2022, HZL observed the 'Decarbonization in Operations' month and also marked the National Energy Conservation Day on 14th December. On that day, HZL observed a 'No-Vehicle Day' where almost half of the employees and business partners opted for eco-friendly modes of transportation, resulting in a reduction of approximately 2209TCO2e in GHG emissions.

Online plantation platform called 'Zinc eco-buddies' encourages people to plant trees online by registering and completing a few simple steps to celebrate their special occasions.

Communities: We are focused on interventions through our CSR activities to enhance community resiliency to address susceptibility and increase adaptation to risks brought on by climate change, in addition to lowering our emissions and taking efforts to lessen the impact of climate change on our company and operations. Through a variety of programmes and related activities, we use CSR projects as a tool to reduce the negative effects of climate change on our communities. To achieve dual outcomes in terms of climate action, environmental, and social sustainability, the mitigation & adaptation measures are linked with the community development goals.

Hindustan Zinc's primary CSR initiative, Samadhan, uses agricultural interventions to reach 30,000+ farmers. To help the agricultural community become resilient to climate-related problems including water shortages and drought, HZL implemented the following measures as part of this project.

Government: Government of India owns 29.54% of shares in HZL, which has a direct impact on our operations as we must adhere to their rules and regulations. We engage with the government through various channels, including advocacy through trade and industry bodies, regular engagement with regulators, local administration, and inspection bodies to ensure regulatory and legal compliance. We focus on topics such as climate change and energy and collaborate with industry and government on projects like the forest department's plantation drives and rainwater harvesting initiatives with State Governments. Additionally, we collaborated with the government to conduct webinars on silver industry and MSME-related topics. To promote a circular economy, we have received approval from the RSPCB to use our Jarofix waste in road construction. We are also committed to obtaining the Green Company rating launched by the CII-RSPCB Partnership for all our units and received gold and silver ratings for our DSC and DZS units, respectively.

Shareholders/ Investors: We maintain regular communication with our shareholders/investors through various channels, such as quarterly financial results declaration, Annual General Shareholder's meetings, Investor Relations events, and one-on-one meetings. Our approach includes actively monitoring complaints, grievances, and key issues/ expectations and ensuring timely and fair assessments, as well as maintaining proper disclosure, ratings, and support from capital markets. HZL conducts an Annual General Meeting where we present our KPIs, net-zero strategy, and future plan towards achieve climate-related targets. In addition, this year we initiated a senior management Q&A session during quarterly earnings calls.
Industry Association: We are committed to collaborating with trade associations to establish guidelines that facilitate smooth transition towards a low-emission and climate-resilient future. We are committed to promoting good practices, sharing knowledge, and contributing to development of relevant industry standards. We have recently joined TNFD Observer group and supporting the launch of TNFD. Also, partnered with COP26, 27, 28 Business Leaders and Confederation of Indian Industry Working Group on Driving Accelerated Climate Action, and member of Task force on climate change. We are also dedicated to raising awareness among large- and small-scale businesses on important initiatives such as Race to Zero and Race to Resilience. Furthermore, we have organized 4th Global Zinc Summit, along with IZA, in February 2023 and are working closely on developing new markets for zinc and spreading awareness on the applications and safety uses of zinc and its alloy products.

C12.2

(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization’s purchasing process?

Yes, suppliers have to meet climate-related requirements, but they are not included in our supplier contracts

C12.2a

(C12.2a) Provide details of the climate-related requirements that suppliers have to meet as part of your organization’s purchasing process and the compliance mechanisms in place.

Climate-related requirement

Implementation of emissions reduction initiatives

Description of this climate related requirement

At Hindustan Zinc, we have integrated ESG criteria in procurement process using ARIBA platform & require our suppliers to have meet the requirements as per ISO14001. Suppliers assess their performance using a score card which is used to develop a corrective action plan. ESG

integration helps in assessing risk and opportunity for our business. We identify key ESG, HSE, Quality criteria in supply chain and collaborate with partners for risk mitigation. Integration of ESG performance of business partners in procurement decision-making have been implemented through structured framework supporting various policy, procedures, guidelines starting from Pre-check assessment till the vendor performance evaluation.

Moreover, our Sustainable Supply Chain Questionnaire serves as the selection criterion for our key business partners. This questionnaire covers social and environmental aspects, and when necessary, we ask our partners to set reduction targets and encourage them to share targets on GHG emissions and improving resource utilization efficiency. HZL collaborates with potential business partners to explore carbon-positive solutions that benefit both the business and the environment.

Additionally, we evaluate our business partners' performance against various compliance and ESG criteria. Vendor payments are released only if compliance criteria, particularly climate-related, are met. In FY22-23, we have covered 100 % of Critical Business partners through third-party risk assessment.

% suppliers by procurement spend that have to comply with this climate-related requirement

70.45

% suppliers by procurement spend in compliance with this climate-related requirement

70.45

Mechanisms for monitoring compliance with this climate-related requirement

Off-site third-party verification

On-site third-party verification

Grievance mechanism/Whistleblowing hotline

Supplier scorecard or rating

Response to supplier non-compliance with this climate-related requirement

Retain and engage

C12.3

(C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?

Row 1

External engagement activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

Yes, our membership of/engagement with trade associations could influence policy, law, or regulation that may impact the climate

Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?

Yes

Attach commitment or position statement(s)

Business Commitment CII.pdf

UNGC-Accenture-CEO-Study-Sustainability-2021-FINAL.pdf

Describe the process(es) your organization has in place to ensure that your external engagement activities are consistent with your climate commitments and/or climate transition plan

• Partnered with CII on promoting RACE TO ZERO through various run-up events to COP26. Furthermore, HZL partnered with CII's Working Group on Driving Accelerated Climate Action by Indian Businesses and actively participated in COP 27 Business Working Group. We are also member of CII Working Group on Driving Accelerated Climate Action by Indian Businesses and are actively participating with other Indian Company CEO's on shaping the agenda for the upcoming COP28.

• Joined International Zinc Association (IZA) Climate Change Task Force: We are actively participating in characterizing the carbon footprint of recycled content in SHG zinc production, and the societal benefits of increased resource recovery in a circular economy.

• Task Force on nature-related financial disclosure (TNFD): We are keen to contribute to shaping the reporting framework that can guide business in considering nature and its services in business decisions and future investments.

• Global Mining Guideline Group: We have partnered with GMG to support industrywide initiatives to align, advance and innovate the global mining industry from digital technology perspective, with key focus on emerging digital technology and innovation.

C12.3b

(C12.3b) Provide details of the trade associations your organization is a member of, or engages with, which are likely to take a position on any policy, law or regulation that may impact the climate.

Trade association

Confederation of Indian Industries (CII)

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

CII works to create and sustain an environment conducive to the development of India, partnering industry, Government and civil society, through advisory and consultative processes. HZL is a member of CII Working Group on Driving Accelerated Climate Action by Indian Businesses. As a member of the working group, we acknowledge our responsibility and urgency to address climate change risks and our role in accelerating action on climate change. Five specific sessions on EP 100, SME Climate Hub, RE 100, EV 100, Technology Transfer, and one session with CEOs of top Indian companies on their views on Race to Zero have been conducted in 2022 in association with HZL.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

100

Describe the aim of your organization's funding

Membership fee, fund award, recognition programmes

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

C12.4

(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Publication

In mainstream reports

Status

Complete

Attach the document

Hindustan Zinc Limited BRSR 2022-23.pdf

Page/Section reference

All

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

Publication

In mainstream reports, incorporating the TCFD recommendations

Status

Complete

Attach the document

TCFD Hindustan Zinc Limited 2022-23.pdf

Page/Section reference

All

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

Publication

In voluntary sustainability report

Status

Underway – previous year attached

Attach the document

Sustainability-Review-Report-2021-22.pdf

Page/Section reference

1-38

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

C12.5

(C12.5) Indicate the collaborative frameworks, initiatives and/or commitments related to environmental issues for which you are a signatory/member.

	Environmental collaborative framework, initiative and/or commitment	Describe your organization's role within each framework, initiative and/or commitment

Row 1	Task Force on Climate-related Financial Disclosures (TCFD) Task Force on Nature-related Financial Disclosures (TNFD) UN Global Compact	• UN Global Compact: We are a signatory member of UN Global Compact. Keeping in view the ten principles of UNGC, we have developed a performance matrix which was incorporated in all our strategic business functions and regularly reviewed from shop floor to board room level. • Task Force on Climate-related Financial Disclosures (TCFD): We have embraced the TCFD framework as part of our commitment to sustainability. We have strategically decided to align our reporting process with the global best practices for climate reporting. By adopting the TCFD framework, we aim to effectively manage climate change risks and identify opportunities that contribute to our sustainability objectives. • Task Force on Nature-related Financial Disclosures (TNFD): We have collaborated with TNFD members to establish a market-driven framework that enables organizations to disclose and address emerging nature-related risks. Our aim is to facilitate a transition in global financial investments, redirecting them from activities that harm nature to those that have positive impacts on nature. We are the only one in India and only metal and mining company amongst the member companies to become piloting member for Science Based Target for Nature target setting. Moreover, we have submitted Taskforce on Nature-related Financial Disclosure (TNFD) piloting for LEAP approach in collaboration with ICMM.

C15. Biodiversity

C15.1

(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related issues within your organization?

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity

Row 1	Yes, both board-level oversight and executive management-level responsibility	Our primary objective is to ensure that there is no net loss of biodiversity and to achieve a net positive gain of biodiversity across all our operations. At HZL, we have a biodiversity policy in place that undergoes regular reviews to ensure ongoing management of biodiversity. Our Sustainability and ESG Committee at the board level oversees the progress on our Sustainability Goals for 2025. As a Tier 2 organization, we have an Executive level Sustainability Committee led by our CEO, which convenes monthly. This committee examines the biodiversity conservation initiatives presented by the Biodiversity Community. The Biodiversity Community is dedicated to enhancing and safeguarding biodiversity throughout all stages of our operations. To further our commitment to biodiversity conservation and awareness, we have engaged in a three-year partnership with the International Union for Conservation of Nature (IUCN). This partnership focuses on developing a comprehensive Biodiversity Management Plan, revising our Biodiversity Policy, establishing Technical Standards and Guidance notes, and formulating protocols for site-specific biodiversity and ecosystem services management. Our mission is to achieve a state where there is no net loss of biodiversity. In line with our dedication to biodiversity conservation, we are now proud members of the IUCN's 'Leader for Nature India' initiative. This affiliation showcases our commitment to actively contribute to biodiversity conservation efforts.

C15.2

(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments	Initiatives endorsed
Row 1	Yes, we have made public commitments and publicly endorsed initiatives related to biodiversity	Commitment to Net Positive Gain Commitment to No Net Loss Adoption of the mitigation hierarchy approach	CBD – Global Biodiversity Framework SDG Other, please specify Member to Task force for Nature related Financial Disclosures (TNFD) Member to IBBI (Indian Business

		Commitment to not explore or develop in legally designated protected areas Commitment to respect legally designated protected areas Commitment to avoidance of negative impacts on threatened and protected species Commitment to no conversion of High Conservation Value areas Commitment to secure Free, Prior and Informed Consent (FPIC) of Indigenous Peoples Other, please specify Commitment to no net deforestation, Nature-Based Solutions" approach in the business decision making.	Biodiversity Initiative) Member to IUCN Leader's for Nature India Initiative

C15.3

(C15.3) Does your organization assess the impacts and dependencies of its value chain on biodiversity?

Impacts on biodiversity

Indicate whether your organization undertakes this type of assessment

Yes

Value chain stage(s) covered

Direct operations

Tools and methods to assess impacts and/or dependencies on biodiversity

IBAT – Integrated Biodiversity Assessment Tool

Please explain how the tools and methods are implemented and provide an indication of the associated outcome(s)

We carry out risk screening for each site initially through the Integrated Biodiversity Assessment Tool (IBAT). As per our IBAT assessment, no Protected Areas, National
Parks, Wildlife Sanctuaries, Biosphere Reserves, Wildlife Corridors, IUCN Category I-IV protected areas, important bird areas and key biodiversity hot
spots, etc. are situated in core/buffer zone (10 km area) of any of our operating sites.

Dependencies on biodiversity

Indicate whether your organization undertakes this type of assessment

No, but we plan to within the next two years

C15.4

(C15.4) Does your organization have activities located in or near to biodiversity- sensitive areas in the reporting year?

No

C15.5

(C15.5) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity- related commitments
Row 1	Yes, we are taking actions to progress our biodiversity-related commitments	Land/water protection Land/water management Species management Education & awareness Law & policy

C15.6

(C15.6) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	Yes, we use indicators	State and benefit indicators

C15.7

(C15.7) Have you published information about your organization's response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
In voluntary sustainability report or other voluntary communications	Content of biodiversity-related policies or commitments Governance Impacts on biodiversity Details on biodiversity indicators Risks and opportunities Biodiversity strategy	35 to 38 [1]

[1] Sustainability-Review-Report-2021-22.pdf

C16. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

C16.1

(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	CEO	Chief Executive Officer (CEO)

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options	Yes	Public

Please confirm below

I have read and accept the applicable Terms