Welcome to your CDP Water Security Questionnaire 2022

W0. Introduction

W0.1

(W0.1) Give a general description of and introduction to your organization.

Hindustan Zinc is one of the world's largest integrated producers of zinc and are among the leading global lead and silver producers. We are one of the lowest-cost producers in the world and are well placed to serve the growing demand of Asian countries. We are a subsidiary of Vedanta Limited which owns a 64.9% stake in the Company while the Government of India retains a 29.5% stake. We are listed on the NSE and BSE.

Our core business comprises mining and smelting of zinc and lead along with captive power generation. We have a metal production capacity of over one million tonnes per annum with our key lead-zinc mines in Rampura Agucha and Sindesar Khurd; and key modern smelting complexes in Chanderia and Dariba, all in the state of Rajasthan in India. We are focused on operational excellence and long-term sustainability on the back of our high-quality assets, long mine life of over 25 years, and low-cost base.

As of March 2022, we have reserves and resources of 447.9 Mt and mineral capacity of 1.2 Mt (per annum), our exploration program is integral to our growth and future expansions. Successful exploration and subsequent development of mineral assets underline our mission and business strategy. We are renowned globally for the high-purity refined metals that we supply. Marketed under various brand names, our product line also includes LME-registered Special High Grade (SHG) zinc and lead. Our business entails mines, smelters, and refineries. Our operations are now becoming increasingly digitalized and we are automating processes to reduce the level of human intervention. Ours is a transformational business, fueled by data-driven decision-making and a holistic approach to value creation. Our constant focus is on making our operations safer, utilizing our natural resources prudently, and enhancing our sustainability quotient constantly.

We have total power capacity of 860.09 MW including 505.5 MW from Captive Power Plant. Rest 354.59 MW is from our environment-friendly power generation which includes 273.5 MW of wind energy, 40.42 MW of Solar power, and 40.67 MW from waste heat generation. Solar power projects have been installed on waste dumping yards, tailing dams, Jarosite ponds, and wasteland, and this land can't be used for any other purpose. We have saved valuable land this has showcased our commitment to creating a positive impact on the environment. HZL is putting efforts to make mitigation strategies towards water management:

· We are 2.41 times certified water positive company and have committed to be 5 times water positive by 2025from base year 2020

· We have taken a target to reduce our dependence on the fresh water by 25% by 2025 from base year 2020
· We have committed to the UN Global Compact Water Action Platform (CEO Water Mandate) for adoption and implementation of the mandate's strategic framework and its six core elements for water management
· We are committed to making 100% of the core villages (villages in the vicinity of HZL operations) to be water sufficient by 2025.
· We are committed to Zero Liquid Discharge and have upgraded all our existing water treatment facilities at smelters with MEE/MVR technology to ensure maximum water recycling rate.
· We are also setting up water recycling facilities at our mine locations to recycle produced water
To manage our water impacts efficiently, in FY 21-22, we conducted a detailed water risk assessment across Hindustan Zinc, covering 100% of our operational sites including mines and smelters, using 3 tools - WRI Aqueduct Water Risk Atlas, Water Risk Monetizer, WWF Water Risk Filter.
The objective of this study was to conduct a sensitivity analysis and stress testing for water-related risks in 2030 and 2050 scenario and define a water pricing structure for the Company.
In this reporting year, to enhance focus on sustainability and ESG, separate Sustainability & ESG Committee was formed at the Board level and its charter was also approved by the Board. Committee is responsible for structuring Sustainability Strategy and long-term goals & targets related to water management, also will play a key strategic role in all business decisions to ensure workplace safety, eliminating any potential damage to the environment, enhancing a commitment towards stakeholders, and maintaining HZL' reputation as one of leading sustainable Metal & Mining company.
Awards received for Water Stewardship and Sustainable operations are
·Dariba Smelting Complex wins Prestigious CII-National Awards for Excellence in Water Management
·"Outstanding Accomplishment in Corporate Excellence" and "Dariba smelter recognized for Excellence in Environment Management" at the 16th CII-ITC Sustainability Awards
·Sustainable Business of the Year,' 'Sustainable Water Management Award'
·Most Innovative Environmental Project Award' for its Chanderiya Lead Zinc Smelter (CLZS)

W-MM0.1a

(W-MM0.1a) Which activities in the metals and mining sector does your organization engage in?

Activity	Details of activity
Mining	Zinc Lead
Processing	Silver Zinc Lead

Sensitivity: Internal (C3)

W0.2

(W0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date
Reporting year	April 1, 2021	March 31, 2022

W0.3

(W0.3) Select the countries/areas in which you operate.

India

W0.4

(W0.4) Select the currency used for all financial information disclosed throughout your response.

INR

W0.5

(W0.5) Select the option that best describes the reporting boundary for companies, entities, or groups for which water impacts on your business are being reported.

Companies, entities or groups over which operational control is exercised

W0.6

(W0.6) Within this boundary, are there any geographies, facilities, water aspects, or other exclusions from your disclosure?

Yes

W0.6a

(W0.6a) Please report the exclusions.

Exclusion	Please explain
Marketing offices	We have excluded marketing offices where we consider our water footprint to be 0.34% and risks to be very small and they do not have a direct association with an operation

W0.7

(W0.7) 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

Sensitivity: Internal (C3)

W1. Current state

W1.1

(W1.1) Rate the importance (current and future) of water quality and water quantity to the success of your business.

	Direct use importance rating	Indirect use importance rating	Please explain
Sufficient amounts of good quality freshwater available for use	Vital	Important	Direct: Sufficient amount of good quality freshwater is vital for use at our operations drilling, mining & beneficiation process, smelting and refining process, dust suppression, sanitation and hygiene, and cooling activities. Good Quality freshwater plays a key role in the beneficiation plants as it leads to higher metal recovery, whereas, a bad quality water results in higher O&M costs in plants as the equipment corrodes due to the presence of high chloride content in the water. Unavailability of water- both in quantity and quality could compromise the future production, and can affect the finances in the locations of our production processes. Quality of water directly influences the treatment costs. Good quality freshwater is also required for drinking purposes in our offices and at sites. Hence, HZL identifies its importance to be 'vital'. Indirect: Communities surrounding our operations, relationship with whom guarantees our license to operate, use freshwater for meeting their domestic, agricultural and sanitation needs. Sufficient amounts of good quality freshwater available for use for local communities and other stakeholders is important for us to maintain the relationship and prevent reputation risks. Future: As per the water risk assessment study, 100% of our operations are likely to get impacted by the unavailability of water- both in quantity & quality in 2030 & 2050 scenario. We are taking measures to reduce our dependency on freshwater in direct operations. HZL adopted a multipronged approach to manage water

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			resources and consumption: • Setting ambitious target of being 5X water positive and reducing Freshwater consumption by 25% by 2025 • Implementing technologies such as by MVR at all Smelters for improved water recovery. • Dry tailing, rain water harvesting Example: We have commissioned a 3,000 KLD RO-ZLD plant at Zinc Smelter Debari, in October 2021 which gave an annual freshwater saving of 415.25 ML (47% reduction)
Sufficient amounts of recycled, brackish and/or produced water available for use	Vital	Important	Direct: 100% of HZL's operations are in water stressed regions, accentuating the importance of relying on lower quality water. A significant amount of lower quality water is used in some of our operational activities such as for dust suppression, power generation, ore processing. Thus, use of recycled and produced water is 'vital' to maintain the water security at our operations and reduce our dependency on freshwater. Increased water conservation, demand management and use of third-party grey water as opposed to fresh or potable water use is key to our strategy. Indirect: Communities surrounding our operations, relationship with whom guarantees our license to operate, use freshwater for meeting their domestic, agricultural and sanitation needs. Availability of recycled water for indirect use is therefore, rated as "not so important". Future: As per the water risk assessment study, 100% of our operations are likely to get impacted by the unavailability of water- both in quantity & quality in 2030 & 2050 scenario. However, we are taking measures to increase our dependency on recycled water in direct operations. To achieve this, HZL has adopted a multipronged approach to manage water resources and consumption - Use municipal STP treated water across the 5 districts where we are operating. - Set up water recycling facilities at our mine locations to recycle produced water.

			- Establish Dry Tailing Plants across the smelters Example: We have established Udaipur STP with a capacity to treat 60 MLD sewage and ~40 MLD of treated water is being utilized at our operational units as alternative water resource instead of fresh water. This year overall 'other' water withdrawal increased by 32% from previous year.

W1.2

(W1.2) Across all your operations, what proportion of the following water aspects are regularly measured and monitored?

	% of sites/facilities/operations	Please explain
Water withdrawals – total volumes	100%	Boundary- Our response covers all mines owned by HZL (100%), The term "sites" refers to all HZLs' mines. HZL measures and monitors entrained water. Monitoring & Measurement- HZL's sites are certified to ISO 14001 and use Vedanta Sustainability Framework (Water Management Technical Standard) for managing water. The performance is reported to the Executive Sustainability Committee which is chaired by the CEO on a monthly basis. Water meters are installed at all points of source to capture the accurate water withdrawal quantities on a daily basis through metered reporting. Water audit- For assessing the effectiveness of water management procedures, we conduct a quarterly third-party assessment. In addition, HZL conducts internal and external environmental audits based on ISO14001 standard. Internal audit- which covers the aspect of water withdrawals, is conducted by our water managers semi-annually. We conduct external water assurance annually on GRI standards and VSAP.
Water withdrawals – volumes by source	100%	Our response covers all operations owned by HZL (100%),The term "operations" refers to all HZLs' CPPs (6 units), mines(5 in no.), Refinery(1 in no.) and smelters(3 in no.). The

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		total water withdrawal estimates also include the quantity that we withdraw for non-operational use (water supplied to Community and township), though community and township is not included in the operational boundary. Water meters are installed at all 'points of source', to capture the accurate water withdrawal quantities. Water Audit: For assessing the effectiveness of water management procedures, we conduct a quarterly third-party assessment. In addition, HZL conducts internal and external environmental audits based on ISO14001 standard. Internal audit- which covers the aspect of water withdrawals, is conducted by our water managers semi-annually. We also conduct external water assurance annually on GRI standards and VSAP.
Entrained water associated with your metals & mining sector activities - total volumes [only metals and mining sector]	100%	Our response covers all mines owned by HZL (100%), The term "sites" refers to all HZLs' mines. HZL measures and monitors entrained water. Monitoring & Measurement-HZL's sites are certified to ISO 14001 and use Vedanta Sustainability Framework (Water Management Technical Standard) for managing water. The performance is reported to the Executive Sustainability Committee which is chaired by the CEO on a monthly basis. Water meters are installed at all 'points of source', to capture the accurate water withdrawal quantities. HZL measures, monitors and reports the total volume of Mine water / produced water daily and quarterly monitoring by third party. Water audit- We conduct a quarterly third-party assessment. HZL conducts internal and external environmental audits based on ISO14001 standard. Internal audit- which covers the aspect of water withdrawals, is conducted by our water managers semi-annually. We also conduct external water assurance

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		annually on GRI standards and VSAP program
Water withdrawals quality	100%	Our response covers all operations owned by HZL. To ensure that the water quality meets the standards for domestic use and operational requirements, HZL analyses and tests the water quality, TDS, PH and other quality parameters. For Mines – Surface water /source water- metered daily, electromagnetic flow meter are installed for input and output measuring, monthly monitoring of quality of water by third party, flow meter calibration done annually by third party. Mine water / produced water – quarterly monitoring by third party For Smelters, Source water – metered daily, tested daily, flow meter are installed for input and output measuring, flow meter calibration done annually by third party. For assessing the effectiveness of water management procedures, we conduct a quarterly third-party assessment. In addition, HZL conducts internal and external environmental audits based on ISO14001 standard. Internal audit- which covers the aspect of water withdrawals semi-annually.
Water discharges – total volumes	100%	Boundary- Our response covers all operations owned by HZL (100%). The term “operations” refers to all HZLs’ CPPs, mines and smelters. Monitoring & Measurement- The Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, is dependent upon our ability to maintain zero discharge status from the premises, meaning no trade effluent shall be discharged outside operations. To comply with these requirements, we strictly monitor our water balance parameters. We also conduct a quarterly third-party assessment of our sites to ensure the proper management of controls. All our processing sites have Zero Liquid

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		Discharge (ZLD) plants with no liquid effluent discharge into surface water, groundwater, or third parties, completely eliminating the environmental pollution. Water Audit- Pan-tilt-zoom (PTZ) camera and flow meters are installed at the plant outlets to prevent accidental discharge. We track the process water which is recycled after undergoing treatment.
Water discharges – volumes by destination	100%	Boundary- Our response covers all operations owned by HZL (100%). The term “operations” refers to all HZLs’ CPPs, mines and smelters. Monitoring & Measurement- The Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, is dependent upon our ability to maintain zero discharge status from the premises, meaning no trade effluent shall be discharged outside operations. To comply with these requirements, we strictly monitor our water balance parameters. We also conduct a quarterly third-party assessment of our sites to ensure the proper management of controls. All our processing sites have Zero Liquid Discharge (ZLD) plants with no liquid effluent discharge into surface water, groundwater, or third parties, completely eliminating the environmental pollution. Water Audit- Pan-tilt-zoom (PTZ) camera and flow meters are installed at the plant outlets to prevent accidental discharge. We track the process water which is recycled after undergoing treatment.
Water discharges – volumes by treatment method	100%	Boundary- Our response covers all operations owned by HZL (100%). The term “operations” refers to all HZLs’ CPPs, mines and smelters. Monitoring & Measurement- The Consent to Operate under section 21(4) of Prevention &

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		Control of Pollution Act, 1981, is dependent upon our ability to maintain zero discharge status from the premises, meaning no trade effluent shall be discharged outside operations. To comply with these requirements, we strictly monitor our water balance parameters. We also conduct a quarterly third-party assessment of our sites to ensure the proper management of controls. All our processing sites have Zero Liquid Discharge (ZLD) plants with no liquid effluent discharge into surface water, groundwater, or third parties, completely eliminating the environmental pollution. Water Audit- Pan-tilt-zoom (PTZ) camera and flow meters are installed at the plant outlets to prevent accidental discharge. We track the process water which is recycled after undergoing treatment.
Water discharge quality – by standard effluent parameters	100%	Boundary- Our response covers all operations owned by HZL (100%). The term “operations” refers to all HZLs’ CPPs, mines and smelters. Monitoring & Measurement- The Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, is dependent upon our ability to maintain zero discharge status from the premises, meaning no trade effluent shall be discharged outside operations. To comply with these requirements, we strictly monitor our water balance parameters. We also conduct a quarterly third-party assessment of our sites to ensure the proper management of controls. All our processing sites have Zero Liquid Discharge (ZLD) plants with no liquid effluent discharge into surface water, groundwater, or third parties, completely eliminating the environmental pollution. Water Audit- Pan-tilt-zoom (PTZ) camera and flow meters are installed at the plant outlets to prevent accidental discharge. We

		track the process water which is recycled after undergoing treatment.
Water discharge quality – temperature	100%	Boundary- Our response covers all operations owned by HZL (100%). The term “operations” refers to all HZLs’ CPPs, mines and smelters. Monitoring & Measurement- The Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, is dependent upon our ability to maintain zero discharge status from the premises, meaning no trade effluent shall be discharged outside operations. To comply with these requirements, we strictly monitor our water balance parameters. We also conduct a quarterly third-party assessment of our sites to ensure the proper management of controls. All our processing sites have Zero Liquid Discharge (ZLD) plants with no liquid effluent discharge into surface water, groundwater, or third parties, completely eliminating the environmental pollution. Water Audit- Pan-tilt-zoom (PTZ) camera and flow meters are installed at the plant outlets to prevent accidental discharge. We track the process water which is recycled after undergoing treatment.
Water consumption – total volume	100%	Boundary- Our response covers all operations owned by HZL (100%), The term “operations” refers to all HZLs’ CPPs, mines , Refinery and smelters. Monitoring & Measurement- HZL’s sites use Water Management Technical Standard for managing water. Total water withdrawals from each source are measured, treated and tested on a daily basis. Mines – Surface water /source water- metered daily, electromagnetic flow meter are installed for input and output measuring, monthly monitoring of quality of water by third party For Smelters, Source water – metered daily, tested daily,

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		flow meter are installed for input and output measuring. Water audit- For assessing the effectiveness of water management procedures, we conduct a quarterly third-party assessment. In addition, HZL conducts internal and external environmental audits based on ISO 14001 standard. Internal audit- which covers the aspect of water withdrawals, is conducted semi-annually on GRI standards and VSAP.
Water recycled/reused	100%	Boundary- Our response covers all operations owned by HZL (100%), The term “operations” refers to all HZLs’ CPPs, mines , Refinery and smelters. Monitoring & Measurement- HZL’s sites use Water Management Technical Standard for managing water. For ETP, Outlet water – Daily limited parameter (Ph, TDS, COD, BOD etc.) in lab, detailed analysis by third party for ETP water quarterly. PTZ camera at discharge point, ETP – online monitoring of TSS and PH- connected with CPCB server. Water audit- For assessing the effectiveness of water management procedures, we conduct a quarterly third-party assessment. In addition, HZL conducts internal and external environmental audits based on ISO 14001 standard. Internal audit- which covers the aspect of water withdrawals, is conducted semi-annually.
The provision of fully-functioning, safely managed WASH services to all workers	100%	Boundary- Our response covers employees and workers working within the boundary of our operations owned by HZL. The term “operations” refers to all HZLs’ CPPs, mines and smelters. Measurement & Monitoring- HZL implements an Industrial Hygiene procedure to provide a fully-functioning, safely managed WASH services to all workers at each of its operations (100%). As part of the regular audit of the Mine’s Act, done quarterly, HZL

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		monitors the effectiveness of these measures. In addition, HZL conducted close to 900 qualitative exposure assessments on Industrial Hygiene across nine sites . Consequently, exposure monitoring plans were developed based on these assessments

W1.2b

(W1.2b) What are the total volumes of water withdrawn, discharged, and consumed across all your operations, and how do these volumes compare to the previous reporting year?

	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Total withdrawals	26,300	Much lower	Our response covers 100% operations owned by HZL. Here “operations” refers to all HZLs’ CPPs, mines and smelters. The total water withdrawal includes the water withdraw for distribution to community, distribution in township and pipeline losses, and waste water sourced from Udaipur STP. The withdrawal quantity for our operations also includes the quantity of water that we withdraw to supply to our stakeholders such as community and township who are not part of the operational boundary.. We account for these numbers in our total withdrawal, since the water after being withdrawn from the source is stored inside our fence and then supplied via water tankers to the stakeholders. For this reason, our water balance doesn’t align with the definition of Water Withdrawal-Water Discharge= Water Consumption. In FY 2021-22 our water withdrawal was 26,300 ML as against 28,073.42 ML in FY 2020-21. The water withdrawal is 6.31% lower than last year due to implementation of water saving initiatives. Our ZLD projects and dry tailing plants helped us scale our water recycling by 44% in FY 2021-22 from 39% in the previous fiscal year. Threshold Definition: Lower (Reduction within 1-5% compared to previous year); Much Lower (>= 5% compared to previous year)

Sensitivity: Internal (C3)

			About the same= +- 0-1% compared to previous year Higher (Increase within 1-5% compared to previous year); Much Higher(>=5% compared to previous year) Future: Our future withdrawals may increase due to increase in production and expansion activities, however the increase in withdrawal will not be in proportion to the production increase. This is primarily because of the number of conservation initiatives undertaken. Future water withdrawal is expected to reduce by 25% by 2025 as we aim to further improve our recycling processes and avoid evaporation losses through installing Multiple Effective Evaporator /Mechanical Vapour Recompression, and installing dry tailing plant across the mines.
Total discharges	0	About the same	Our response covers all operations owned by HZL(100%). The term “operations” refers to all HZLs’ CPPs, mines and smelters. Our Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, is dependent upon our ability to maintain zero discharge status from the premises, meaning no trade effluent shall be discharged outside our premises. To comply by these requirements, we strictly monitor our water balance parameters. All our sites are Zero Liquid Discharge (ZLD) plants with no liquid effluent discharge into surface water, groundwater, or third parties. To ensure to maintain this process, monitoring systems along with flow meters and PTZ camera are installed at the plant outlets for all smelters and captive power plants All measures are in place to ensure that no effluent is discharged out of the premise. Threshold Definition: Lower (Reduction within 1-5% compared to previous year); Much Lower (>= 5% compared to previous year) About the same= +- 0-1% compared to previous year Higher (Increase within 1-5% compared to previous year); Much Higher(>=5% compared

Sensitivity: Internal (C3)

			to previous year) We expect total discharges to remain zero in the future as well. We have maintained the zero discharge so far, and shall continue to maintain our compliances.
Total consumption	24,701.06	Lower	Our response covers all operations owned by HZL (100%). The term “operations” refers to all HZLs’ CPPs, mines and smelters. Definition: The water consumption quantity only includes water that we use to manufacture our products and use in operational process including consumption in township and pipeline losses. While the water consumption numbers take into account water consumed only for running operations and some sanitation needs within the premise, water withdrawal quantity includes water that we withdraw to supply to our stakeholders (community) outside the fence. For this reason, our water balance doesn’t align with the definition of Water Withdrawal-Water Discharge= Water Consumption. We use an aggregation of site specific consumption details to quantify our total consumption details. Comparison: The water consumption for the FY 2021-22 was 24,701.06 ML, while the previous year the value was 25,844.96 ML- a reduction of 4.42% from previous year. Threshold Definition: Lower (Reduction within 1-5% compared to previous year); Much Lower (>= 5% compared to previous year) About the same= +- 0-1% compared to previous year Higher (Increase within 1-5% compared to previous year); Much Higher(>=5% compared to previous year) To tackle excess water consumption, we have put in place a real-time water mapping system to ensure timely corrective action in case of excess water consumption and we are using the system

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			to also ensure appropriate action for reducing water loss. From this action, in FY 2021-22 there was reduction in water loss to the tune of ~10 to 30 m3/day and on-time corrective action and nearly 15 m3/ day reduction in water loss. Future- Our future consumption may increase due to increase in production and expansion activities, however the increase in consumption will not be in proportion to the production increase. This is primarily because of the number of conservation initiatives undertaken.

W1.2d

(W1.2d) Indicate whether water is withdrawn from areas with water stress and provide the proportion.

	Withdrawals are from areas with water stress	% withdrawn from areas with water stress	Comparison with previous reporting year	Identification tool	Please explain
Row 1	Yes	100%	Much lower	WRI Aqueduct	Assessment- Baseline water risk assessment has been conducted using the WRI Aqueduct Water Risk Atlas and the identified business units have been classified as per their overall water risk. The Aqueduct tool provides an interactive online map which presents the baseline value percentage that is calculated using the ratio of total water withdrawals to available renewable surface and groundwater supplies of that region further reflecting the category of water stress. The future water stress changes relative to the baseline are included in our assessment, wherein we have looked into parameters such as water stress, supply stress, demand stress and seasonal variability. Some baseline indicators for

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					example, physical risks-quantity and quality as well as regulatory and reputational risk were also analysed. As per the results of the assessment, it was observed that 100% of our locations fall under 'extremely high' water stress regions. Above 80% of baseline value is classified as extremely high water stress region. We continue to improve our approach so as to balance the possible increase in production against the water withdrawals further ensuring to improve efficiency and decrease the water intensity. Change in water withdrawn from water stressed regions: - Water Withdrawn in FY 20-21= 28,073 m3 - Water Withdrawn in FY 21-22= 26,300m3 % Change from previous year- {(28,703 m3 - 26,300 m3) / 28,073} *100= 6.31% which is much lower. Water withdrawal percentages have declined from the previous year, primarily due to implementation of water conservation initiatives. Threshold Definition: Lower (Reduction within 1-5% compared to previous year); Much Lower (>= 5% compared to previous year) About the same= +- 0-1% compared to previous year Higher (Increase within 1-5% compared to previous year); Much Higher(>=5% compared to previous year)

Sensitivity: Internal (C3)

W1.2h

(W1.2h) Provide total water withdrawal data by source.

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water, including rainwater, water from wetlands, rivers, and lakes	Relevant	13,728.92	Much lower	Fresh surface water from dams and rainwater harvested in ponds are relevant as 52% of our water needs are met from these sources. All operations except Rampura Agucha Mines and Kayad Mines have a captive dam which makes withdrawal from surface water sources relevant. Total water withdrawals from each source are measured, tested and treated daily. Metered monitoring ensures optimized water usage. Our total water withdrawal estimates include water withdrawn by our community and township. Change in water withdrawal: A. Freshwater withdrawal in FY 20-21= 17, 508.71 ML/year B. Freshwater withdrawal in FY 21-22= 13,728.92 ML/year Total Change in water Withdrawal from previous year= (A-B)/A)*100= ((17,508.71-13,728.92) /17,508.71) *100= 21.6%, reduction from the previous year. This is due to implementation of several water conservation initiatives Future dependency on freshwater in direct operations will reduce as we implement

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				initiatives to meet our 2025 freshwater reduction targets.
Brackish surface water/Seawater	Not relevant			This water parameter is not relevant because no brackish surface water/seawater volumes are withdrawn by any of HZL's operations. This trend is expected to continue in the future.
Groundwater – renewable	Relevant	2,408.95	Lower	Relevance of the Groundwater-renewable: The major source of water at Rampura Agucha Mine (RAM) is ground water as there is no other alternative captive dam/ surface water source or Common Sewage Treatment Plant (CSTP) nearby. Also, our Kayad Mines (KM) do not have a beneficiation plant and the ore produced at KM is treated at RAM, making RAM a strategic location for us. Therefore, groundwater withdrawal at these location is relevant for us. Change in water withdrawal from previous year: A. Freshwater withdrawal in FY 20-21= 2, 909.54 ML/year B. Freshwater withdrawal in FY 21-22= 2,408.95 ML/year Total Change in water Withdrawal from previous year= (A-B)/A)*100= ((2,909.54-2,408.95) /2,909.54) *100= 17.20 %, reduction from the previous year. This is due to implementation of several water conservation initiatives, one of which is: Future: Future dependency on groundwater in direct

Sensitivity: Internal (C3)

				operations will reduce as we implement initiatives to meet our 2025 freshwater reduction targets.
Groundwater – non-renewable	Not relevant			This water parameter is not relevant because no non-renewable groundwater volumes are withdrawn by any of HZL's operations. This trend is expected to continue in the future as it also is against our water policy.
Produced/Entrained water	Relevant	639.13	Much higher	We work below the ground water table, dewatering of mine intersection water becomes essential to run the operations. HZL measures and monitors entrained water. As HZL, has all underground mines, dewatering of mine intersection water becomes essential to run the operations. HZL measures and monitors entrained water on quarterly basis by third-party Assessment. We have a metered monitoring system to monitor the total water withdrawals by source. Change in water withdrawal from previous year: A. Produced/Entrained water in FY 20-21= 467.54 ML / year B. Produced/Entrained water in FY 2021-22 = 639.13 ML/ year C. Change in Produced/Entrained water= ((B-A)/A)*100= (467.54-639.13)/467.54)*100= increased by 36.7% from last year. This is due to increase in our mine-ore production by 6% from the last year. Future: Produced/Entrained water will

				increase in future as we go for expansion or mine deeper. We are implementing initiatives to recycle 100 % of the water.
Third party sources	Relevant	9,522.98	Higher	Third party water is relevant for our operations as we depend upon wastewater of other industries. Treated Water from Udaipur STP makes upto 25% of total water withdrawal. Third party water includes water supplied by municipality and the wastewater utilized by the company from other sources. Water withdrawals from each source are measured, tested and treated daily to ensure water standards are met. Change in water withdrawal from previous year: A. Third party water in FY 20-21= 7,187.39 ML / year B. Third party water in FY 2021-22 = 9,522.98 ML/ year C. Change in Third party water= ((B-A)/A)*100= (7187.39 -9522.98)/7187.39)*100= increased by 32.91% We increased the water sourced from Udaipur STP. The STP water is used at RDM, DZS and DSC. We reduced dependency on municipal water which accounted for 1.7 ML i.e. 0.01% of total water withdrawal. Future dependency on third party in direct operations will increase as we reduce our dependency on freshwater.

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W1.2i

(W1.2i) Provide total water discharge data by destination.

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water	Not relevant			Our Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, is dependent upon our ability to maintain zero discharge status from the premises, meaning no trade effluent shall be discharged outside operations. To comply by these requirements, we strictly monitor our water balance parameters. All our sites are Zero Liquid Discharge (ZLD) plants with no liquid effluent into surface water, groundwater, or third parties, completely eliminating the environmental pollution associated with the water discharge. To ensure to maintain this process, real time monitoring systems along with flow meters and PTZ camera are installed at the plant outlets for all smelters and captive power plants. All measures are in place to ensure that no effluent is discharged out of the premise. We expect total discharges to remain zero in the future as well.
Brackish surface water/seawater	Not relevant			Our Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, is dependent upon our ability to maintain zero discharge status from the premises, meaning no trade effluent Our Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, is dependent upon our

Sensitivity: Internal (C3)

				ability to maintain zero discharge status from the premises, meaning no trade effluent shall be discharged outside operations. To comply by these requirements, we strictly monitor our water balance parameters. All our sites are Zero Liquid Discharge (ZLD) plants with no liquid effluent into surface water, groundwater, or third parties, completely eliminating the environmental pollution associated with the water discharge. A real time monitoring systems along with flow meters and PTZ camera are installed at the plant outlets for all smelters and captive power plants. All measures are in place to ensure that no effluent is discharged out of the premise.
Groundwater	Relevant	0	About the same	Our Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, is dependent upon our ability to maintain zero discharge status from the premises, meaning no trade effluent shall be discharged outside operations. To comply by these requirements, we strictly monitor our water balance parameters. All our sites are Zero Liquid Discharge (ZLD) plants with no liquid effluent into surface water, groundwater, or third parties, completely eliminating the environmental pollution associated with the water discharge. To ensure to maintain this process, real time monitoring systems along with flow meters and PTZ camera are installed at the plant outlets for all smelters and captive power plants. All measures are in place to ensure that no effluent is discharged out

Sensitivity: Internal (C3)

				of the premise. We expect total discharges to remain zero in the future as well.
Third-party destinations	Not relevant			Our Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, is dependent upon our ability to maintain zero discharge status from the premises, meaning no trade effluent shall be discharged outside operations. To comply by these requirements, we strictly monitor our water balance parameters. All our sites are Zero Liquid Discharge (ZLD) plants with no liquid effluent into surface water, groundwater, or third parties, completely eliminating the environmental pollution associated with the water discharge. To ensure to maintain this process, real time monitoring systems along with flow meters and PTZ camera are installed at the plant outlets for all smelters and captive power plants. All measures are in place to ensure that no effluent is discharged out of the premise. We expect total discharges to remain zero in the future as well.

W1.2j

(W1.2j) Within your direct operations, indicate the highest level(s) to which you treat your discharge.

	Relevance of treatment level to discharge	Volume (megaliters/year)	Comparison of treated volume with previous reporting year	% of your sites/facilities/operations this volume applies to	Please explain
Tertiary treatment	Relevant	0	About the same	100%	We have an integrated water

Sensitivity: Internal (C3)

					treatment system that treats process water originating from smelting operations. The ZLD System incorporates a mechanical vapor compression seeded brine concentrator and a mechanical vapor compressor driven forced circulation crystallizer system. The effluent is pumped to a cascade tower and reaction tanks to precipitate heavy metals. Effluents from the Hydro plant, Ausmelt and Pyro plant are the main source of fluoride ion with high suspended solids contents. The effluent and precipitated solids are pumped to SRT. After

Sensitivity: Internal (C3)

					pre-treatment the feed enters into the RO-1 & RO-2. Reject is collected into RO reject tank. The raw and required final treated water quality determines the chemical storage and feed equipment needed for coagulation, pH and flocculation. Reject of RO goes into MVR system. Since ours is an integrated system, we don't monitor different input and output values at each filtration stage. There was no effluent/water that has been discharged from our premises. We have a quarterly third-party assessment to monitor our water discharged

					from the operations aligned with the required standards and no discharge is going out of our premises. This trend has been incorporated for several years, now. Future: In future we anticipate more effluents to be treated as the production will rise. This also means that we would recycle more water as ours is a ZLD plant and ensures no discharge outside our premises.
Secondary treatment	Relevant	0	About the same	100%	Since We have an integrated system, we don't monitor different input and output values at each filtration stage. Our Consent to Operate under section 21(4) of Prevention &

Sensitivity: Internal (C3)

					Control of Pollution Act, 1981, is dependent upon our ability to maintain zero liquid discharge status from the premises, meaning no trade effluent shall be discharged outside Mine premises. no water is discharged from any operation. The water does not go out of the HZL's premises. To comply by these requirements, we strictly have a quarterly third-party assessment to check our water balance parameters that come out during operating procedures and goes back to the system for recycling. There has been no

Sensitivity: Internal (C3)

					discharge from HZL's operations as ZLD is incorporated in our system for several years now.
Primary treatment only	Relevant	0	About the same	100%	This includes the water reclaimed from tailing dam and recovered with Dry tailing plant. Only sedimentation is required to again reuse this water in beneficiation plant. Hence considered as Primary treatment only. We have an integrated water treatment system that treats process water originating from smelting operations. Therefore, we do not have a separate primary treatment. As all our operations are aligned with

Sensitivity: Internal (C3)

					Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, no water is discharged outside our operations. To comply by these requirements, we strictly have a quarterly third-party assessment to check our water balance parameters that come out during operating procedures and goes back to the system for recycling. This ensures that we maintain compliance with Zero Liquid Discharge. FUTURE: In future we anticipate more effluents to be treated as the production will rise. This also means that

					we would recycle more water with commissionin g of Dry tailing plant across the mines
Discharge to the natural environmen t without treatment	Not relevant				Our Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, is dependent upon our ability to maintain zero liquid discharge status from the premises, meaning no trade effluent shall be discharged outside Mine premises. To comply by these requirements, we strictly monitor our water balance parameters. Therefore, this parameter is not applicable to us as all our sites are zero liquid discharge facilities. We do not discharge any

					effluent to the natural environment.
Discharge to a third party without treatment	Relevant	0	About the same	100%	Our Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, is dependent upon our ability to maintain zero liquid discharge status from the premises, meaning no trade effluent shall be discharged outside Mine premises. To comply by these requirements, we strictly monitor our water balance parameters. Therefore, this parameter is not applicable to us as all our sites are zero liquid discharge facilities. We do not discharge any effluent to the natural environment.

Sensitivity: Internal (C3)

Other	Not relevant				Our Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, is dependent upon our ability to maintain zero liquid discharge status from the premises, meaning no trade effluent shall be discharged outside Mine premises. To comply by these requirements, we strictly monitor our water balance parameters. Therefore, this parameter is not applicable to us as all our sites are zero liquid discharge facilities. We do not discharge any effluent to the natural environment.

W1.3

(W1.3) Provide a figure for your organization's total water withdrawal efficiency.

Sensitivity: Internal (C3)

	Revenue	Total water withdrawal volume (megaliters)	Total water withdrawal efficiency	Anticipated forward trend
Row 1	294,400,000,000	26,300	11,193,916.3498099	We anticipate that the total water withdrawal efficiency will decrease in future, as we are integrating water reduction initiatives in our operations. We would withdraw less litres of water per INR of revenue generated. HZL has set a target to become 5 times water positive by 2025 and reducing the fresh water consumption by 25% by 2025 from base year 2020. Presently, we are at 2.41 times water positive certified company.

W-MM1.3

(W-MM1.3) Do you calculate water intensity information for your metals and mining activities?

Yes

W-MM1.3a

(W-MM1.3a) For your top 5 products by revenue, provide the following intensity information associated with your metals and mining activities.

Product	Numerator: Water aspect	Denominator	Comparison with previous reporting year	Please explain
Zinc	Total water consumption	Ton of final product	Lower	In the pyro-metallurgical process, ore concentrate, zinc is processed to yield lead, zinc and silver metals. Since the ore processing happens together, it is difficult for us to segregate water consumed for these products, and hence we report our water consumption as water consumed for production of zinc – this includes water consumed for production of lead and silver as well.

Sensitivity: Internal (C3)

				Change in water consumption per ton of final product from the previous year A. Production in FY 20-21= 715445 MT (76.88%) of Zinc, 214399 MT (23.04%) of Lead and 706(0.08%) MT of Silver from a composite zinc ore. B. Total Water consumption per ton of final product in FY 20-21= 13.92 m3/ Metric tonne of metal produced C. Production in FY 21-22 = 776,000 MT of Zinc (80.19 %), 191000 MT (19.73%) of Lead and 647(0.06%) MT of Silver D. Total Water consumption per ton of final product in FY 21-22= 25.52 m3/ Metric tonne of metal produced Therefore, the water intensity has decreased by 8.1% compared to the previous year due to integration of water efficiency initiatives in our operations. Overall water saving was 2317ML during this reporting year. This has led to 9% reduction in our total freshwater withdrawal. In FY 21, we revised our accounting methodology while estimating water intensity. The revised water intensity includes water consumption in our CPPs. We are implementing several initiatives to reduce our dependence on freshwater such as recycling from tailing Storage Facility, operating dry tailing plant, installation of ETP, RO and MEE process. All these initiatives have resulted in a reduction in the amount of fresh water thereby balancing the water intensity despite increase in 4% production. These metrics are used internally to set water related targets and long term goals. Future: HZL will continue to contribute towards water security and efficiency. We would remain focused to include increased

				efficiency in water use and also explore less water intensive technologies.

W1.4

(W1.4) Do you engage with your value chain on water-related issues?

Yes, our suppliers

Yes, our customers or other value chain partners

W1.4a

(W1.4a) What proportion of suppliers do you request to report on their water use, risks and/or management information and what proportion of your procurement spend does this represent?

Row 1

% of suppliers by number

76-100

% of total procurement spend

76-100

Rationale for this coverage

As a mining company with operations in Rajasthan & Uttrakhand in India, a significant proportion of our supply chain is also located in these regions for ease of supply. Ours is an integrated business model with mines and smelters being owned and managed by us. Primary raw material for the smelters are sourced from our own captive mines however for the other raw materials like chemicals, cements , fuel, mining equipments etc. we are dependent on external suppliers HZL has a Responsible Sourcing Policy which delineates the expectations that it has from suppliers on ESG including performance on our climate change goals.

First stage (Self-assessment): We undertake pre-qualification of all potential business partners through obtaining and monitoring evidence to ensure that a potential partner meets or exceeds our standards, as a pre-condition to be engaged for the supply of products and services to Hindustan Zinc.
Second Stage (Process Alignment): In order to maintain key supplier status within our procurement strategy, we require all suppliers to report on their compliance with ISO 14001. This screening is done through a pre-qualification questionnaire (PQ) where various topics related to environmental, social and governance issues are covered. The pre-screening criteria is applicable to 100% of our suppliers.

Reporting on these parameters is a basic requisite for suppliers to be considered for on-boarding.

Impact of the engagement and measures of success

Impact and Outcome: The engagement with suppliers helps HZL to mitigate risks by identifying red flag suppliers, fulfil their commitment, and build a strong relationship. From the information provided in the screening we identify potential risky suppliers. Success measurement: The success of the engagement is measured using the supplier's adherence to ISO 14001 where water is one of the criteria's. Adherence to international standard is a proxy method to understand supplier's governance, processes & practices to manage adverse environmental impacts. Hence, these criteria must be followed to attain the certification. The success of due diligence process is measured by the identification of high risk, medium risk and low risk suppliers.

Comment

We encourage our suppliers to not just comply by the relevant national & international standards, but ensure on-going improvement in their own standards through regular exchange of knowledge and training. Our supply chain management strategy incorporates to upskill and empower suppliers to share responsibility for integrating sustainability and human rights by building their own management systems and internal controls.

W1.4b

(W1.4b) Provide details of any other water-related supplier engagement activity.

Type of engagement

Incentivizing for improved water management and stewardship

Details of engagement

Water management and stewardship action is integrated into your supplier evaluation

% of suppliers by number

1-25

% of total procurement spend

76-100

Rationale for the coverage of your engagement

As a mining company with operations in Rajasthan & Uttrakhand in India, a significant proportion of our supply chain is also located in these regions for ease of supply. Ours is an integrated business model with mines and smelters being owned and managed by us. Primary raw material for the smelters are sourced from our own captive mines however for the other raw materials like chemicals, cements, fuel, mining equipment etc. we are dependent on external suppliers. We expect our critical suppliers-(high-volume suppliers, suppliers of critical components and non-substitutable suppliers) - to water use, risks and/or management information. These suppliers' 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

Sensitivity: Internal (C3)

resources, making replacement or substitution highly difficult without a detailed plan and a significant replacement process. Therefore, we have included critical Tier 1 suppliers in our engagement.

(Direct Engagement): HZL conducts site visits and audits to verify compliance to the code of Conduct including compliance with the Responsible Sourcing Standard. For our critical suppliers, we ensure that any potential and emerging risks are identified through site visits (as a part of due diligence and audits), interviews and information collection. Engagement is as below:
• Ensure operational efficiency through timely supplies & logistical efficiency
• Vital to our goals of sustainability and responsible sourcing
• Safety of workers and workplace

We assessed 100% of our critical suppliers(243) who make upto 20 % of our total supplier base and 76% of procurement spend.

Impact of the engagement and measures of success

We conduct regular risk assessments as a part our supplier sustainability and engagement to ensure that our suppliers have sustainability processes in place. The function of the assessment is to segment the supplier based on a formal approach; to assess sustainability risks associated with existing supplier base and to incorporate necessary procedures to mitigate risks through continuous monitoring.
For our critical suppliers, we ensure that any potential and emerging risks are identified through site visits, interviews and information collection. The risk is measured through weighted risk-assessment questionnaire. A supplier will be marked as red-flag if it scores a Risk Score of 50 or below, and that supplier will be monitored for score changes. A Risk Score of over 50 and up to 80 will be categorized as Amber supplier. These flagged suppliers may be classified either as sustainability high-risk or as critical high-risk. Both, red and amber-flagged, suppliers will be monitored annually to track their score changes. We conduct due diligence and risk assessment as an ongoing activity is done progressively over a period of 3 years. HZL has assessed 100 % critical suppliers (243) during this reporting year.
Beneficial outcome:
By understanding the management of water at our supplier’s operations, we de-risk our operations and protect ourselves from physical and transition risks in our supply chain. Desktop analysis and Site Visit reports capture the assessment, and enable allocation of a risk score for the business partner. Monthly payments are linked with performance and safety score for partners having long-term agreements.

The success of due diligence process is measured by the identification of high risk, medium risk and low risk suppliers.
We identified as high-risk suppliers:
- non-compliance with the requirements of the ‘Responsible Sourcing Standard for Suppliers’,
- Operating in a high-risk industry.
- Identified as contributing to or being associated with other ESG risks following the risks assessment.

Sensitivity: Internal (C3)

The identified suppliers are in a process of implementing action plans and improve their processes in line with the Responsible Sourcing Standard. Every 12 months, on-site quality audit will be done to re-assess the risk level of the suppliers and track progress on the action plan. If during the audit, it is found that the supplier has improved performance in line with an audit plan, they are reclassified as a low-risk/medium risk suppliers.

Comment

W1.4c

(W1.4c) What is your organization's rationale and strategy for prioritizing engagements with customers or other partners in its value chain?

Customers- We biannually engage with our customers to understand their goals and priorities related to water. In response to demand from Galvanizing industry, CGG zinc alloy was identified as a low–carbon product that helped us to capitalize on the opportunity, while mitigating the market demand risk and reducing ours and customers sustainability impact including water. CGG can be used directly by the customer without the need to convert it into alloy, thereby saving water, energy, and cost by upto 5-10% and improving bath management during galvanizing. HZL has developed a low-carbon product portfolio. Also, Zinc in Jumbo size JSHG helps to minimize the zinc wastage, cost efficiency, saves water. Value added Product share increased to 20.0% in FY 2021-22 from 15.5% in FY 20.

Success is measured by – a) development of new products; b) Water Intensity Reduction in products; c)No. of repeat orders from the customer d) Customer rewards/recognition
Community-. HZL strives to ensure that the community in Rajasthan has adequate access to clean drinking water and therefore has revised its approach from temporary water solutions to community-owned sustainable water management. Social License to operate is a key business objective, as it enables us to prevent reputational risks, stakeholder conflicts, while contributing positively to the society. Water being a shared resource, engagement with community is critical. We are guided by our Stakeholder Engagement Standards to identify and prioritize stakeholders.
In FY 21, potable water supply RO/ATM covering 52 villages, benefitted 30,000+ villagers, enhancing ground water recharge through rainwater harvesting projects, we created a recharge potential of 8.7 million m3 per annum of rainwater. Through 358 recharge structures, we will increase e the availability of good-quality groundwater, resulting in sustainable water availability for various purposes, besides securing the livelihood of villagers.

W2. Business impacts

W2.1

(W2.1) Has your organization experienced any detrimental water-related impacts?

No

Sensitivity: Internal (C3)

W2.2

(W2.2) In the reporting year, was your organization subject to any fines, enforcement orders, and/or other penalties for water-related regulatory violations?

No

W3. Procedures

W-MM3.2

(W-MM3.2) By river basin, what number of active and inactive tailings dams are within your control?

Country/Area & River basin

India

Mahi River

Number of tailings dams in operation

1

Number of inactive tailings dams

0

Comment

This tailing storage Facility is part of our Zawar mining and beneficiation process. Dry tailing disposal plant at Zawar mill ensures recirculation of more than 80% of the process water present in tailings, near elimination of water losses through seepage and evaporation, virtual stoppage of any probability of groundwater contamination through seepage and significant safety improvement, promotes faster rehabilitation and restoration of storage site at mine closure, and ensures re-availability of water for further use thus reducing the risk of a catastrophic dam failure. It is now possible to extract excess water (recirculation for mill operation) from tailings by introduction of this filtration plants to transform solid fractions into cake containing only 16% moisture. This makes the system a highly efficient technology to treat tailing while also conserving water. We installed an additional pump, line system, and constructed a new 5000 m3 of water reclamation storage facility at our tailing storage facility.

Country/Area & River basin

India

Other, please specify

Luni River Basin

Sensitivity: Internal (C3)

Number of tailings dams in operation

1

Number of inactive tailings dams

0

Comment

This tailing Storage Facility is part of our RAM mining and beneficiation process. We erected a water collection reservoir to store excess water accumulating at our Rampura Agucha tailing Storage Facility. In order to eliminate the need for physical inspections, we commissioned the installation of vibrating wire type piezometers and location-based inclinometers within the embankment. These instrumentation systems provide real-time monitoring information, which boosts overall surveillance. We also have a structured Tailing Storage Facility (TSF) organogram at each site wherein periodic reviews are carried out. In FY2021 Hindustan Zinc had introduced a novel, satellite based InSAR (Interferometric Synthetic Aperture Radar) monitoring technique to provide early warning of surface ground movements This technique allows mapping deformation using radar images of the ground surface that are collected from orbiting satellites. It enables high precision surface displacement monitoring at a mine scale. InSAR monitoring is carried out at 13 sites, including Rampura Agucha open pit, all tailings dams and selected waste dumps. InSAR monitoring augments existing stability monitoring systems and provides greater safety and management assurance.

W-MM3.2a

(W-MM3.2a) Do you evaluate and classify the tailings dams under your control according to the consequences of their failure to human health and ecosystems?

Row 1

Evaluation of the consequences of tailings dam failure

Yes, we evaluate the consequences of tailings dam failure

Evaluation/Classification guideline(s)

Australian National Committee on Large Dams (ANCOLD)
Canadian Dam Association (CDA)
Other, please specify
International Commission on Large dams (ICOLD)

Tailings dams have been classified as 'hazardous' or 'highly hazardous'

Yes, tailings dams have been classified as 'hazardous' or 'highly hazardous' (or equivalent)

Please explain

HZL conducted a dam break assessment for all its three tailing storage facilities at the time of dam construction. The consequence category is determined using international guidance on managing large dams- ICOLD, CDA and ANCOLD. Every dam is rated based on the risk associated with potential dam failure and categorized based on the definition of the severity of damage and loss in relation to a number of assets. Factors

such as population at risk, potential loss of life, environment and cultural values, infrastructure and economics determine basis of the classification. The rating is expressed using seven Consequence Categories: Very low – dam failure is considered negligible; Low, Significant, High- A, B and C; and Extreme –dam failure is considered severe. Design, monitoring and surveillance requirements are then specified as per the designated consequence category. The CCS rating is evaluated independently once in three years from the probability of an unwanted event-taking place. The higher the CCS rating, the more stringent the requirements. Facilities classified as 'High' are regarded as 'hazardous' and 'Major' as 'highly hazardous'. HZL follows Vedanta Tailing Management Facility Standard which is aligned with other international standards. This standard is developed to focus on the full life-cycle of the tailings process. It is applicable.to all the existing and future tailing facilities in mining operations. HZL also has a dedicated policy.

W-MM3.2b

(W-MM3.2b) Provide details for all dams classified as 'hazardous' or 'highly hazardous'.

Tailings dam name/identifier

Rampura Agucha Mines Tailing Dam

Country/Area & River basin

India

Other, please specify

Luni Basin

Latitude

25.5

Longitude

74.44

Hazard classification

ICOLD 'IV': Extreme and ANCOLD: Extreme

Guideline(s) used

Australian National Committee on Large Dams (ANCOLD)

Other, please specify

International Commission on Large dams (ICOLD)

Tailings dam's activity

Active

Current tailings storage impoundment volume (Mm3)

56

Planned tailings storage impoundment volume in 5 years (Mm3)

Sensitivity: Internal (C3)

7

Please explain

We undertook dam break modelling in 2019 at the Agucha TSF to assist in understanding the risk posed to stakeholders downstream of the TSF. The results of the model determine the arrival times and maximum flow depths of the breach flood wave produced by a hypothetical breach of containment. The results were used to prepare inundation maps. Evaluated the Agucha TSF against the ICOLD hazard rating and determined that the TSF has a rating level of 'IV (Extreme)'. This was mainly due to the high population at risk (PAR) and was consistent for all modeled cases. The hazard rating was also evaluated against the ANCOLD Guidelines and determined that the TSF has a Consequence Category of 'Extreme'. This was mainly due to the high PAR and was consistent for all modeled cases. Recommended designing and constructing mitigation structures to reduce PAR exposure, demarcate safe areas for evacuation in the case of a flood event and demarcate risk zones to prevent new settlements in these areas.

Tailings dam name/identifier

Rajpura Dariba Complex Tailing Dam

Country/Area & River basin

India

Other, please specify

Banas Basin

Latitude

24.57

Longitude

74.08

Hazard classification

ANCOLD (2012a,b) Guidelines: Category of High A CDA (2013) Guidelines: Category of Very High.

Guideline(s) used

Australian National Committee on Large Dams (ANCOLD)

Canadian Dam Association (CDA)

Tailings dam's activity

Active

Current tailings storage impoundment volume (Mm3)

39

Planned tailings storage impoundment volume in 5 years (Mm3)

11.25

Sensitivity: Internal (C3)

Please explain

Dam failure impact assessment of the TSF at Rajpura Dariba location was conducted in 2019-20. Overtopping and piping failure modes were considered for each of the selected breach locations. A Consequence Category Assessment was carried out for the TSF based on both the ANCOLD and CDA guidelines. Based on the ANCOLD guidelines, the TSF has a consequence category of High A and based on the CDA guidelines, the TSF has a consequence category of Very High. Mitigation options have been considered in this assessment for the reduction of impacts resulting from a breach of the Dariba TSF, in terms of impacts to surrounding populations. Engineered levees in the form of protection or diversion berms, placed along the inundated perimeter of the settlements could serve to reduce the potential flood impacts to the predicted inundated areas of the settlements. Further studies are recommended for proper planning, design, modelling, and installation of warning system.

Tailings dam name/identifier

Zawar Tailing Storage Facility

Country/Area & River basin

India
Mahi River

Latitude

24.2

Longitude

73.42

Hazard classification

"Very high" dam classification according to Canadian Dam Association (CDA) guidelines.

Guideline(s) used

Canadian Dam Association (CDA)

Tailings dam's activity

Active

Current tailings storage impoundment volume (Mm3)

26.77

Planned tailings storage impoundment volume in 5 years (Mm3)

13.1

Please explain

Dam Break analysis study of Zawar Tailings Storage Facility Failure was conducted in February 2021. To assess the potential damages associated with the hypothetical failure of the main dams at Zawar TSF. The structure's current consequential risk has been classified as "Very Extremes. Given the significant community downstream and

Sensitivity: Internal (C3)

short warning time, these assumptions would place the facility within the “Very high Extremes” dam classification according to CDA guidelines. The results from this report will serve to facilitate the path for an Emergency Response Plan so that future design requirements are adjusted. Dry stacking 12 million MT.

W-MM3.2c

(W-MM3.2c) To manage the potential impacts to human health or water ecosystems associated with the tailings dams in your control, what procedures are in place for all of your dams?

Procedure	Detail of the procedure	Please explain
Acceptable risk levels	Establishment of site-level guidance and standards for acceptable risk levels based on an evaluation of potential chemical and physical risks Establishment of site-level guidance and standards for acceptable risk levels for third party safety in consultation with potentially affected communities, employees and relevant government bodies Establishment of site-level guidance and standards for acceptable risk levels across all life stages, including post-closure Establishment of company-wide standards for acceptable risk levels that folllow a company policy to eliminate or minimize water-related risks associated with tailings dams	1) The potential impacts of HZL’s TSFs on human health and ecosystems are managed through use of the Tailing Management Facility Standard (TMFs). This extends to HZL’s mine practices as well, to manage all TSFs uniformly. TMF Policy and Standard are updated every two years or as and when necessary to ensure it remains relevant. 2) All TSF waste was managed by (i) minimising the quantity of material stored to limit the extent of the footprint of land disturbed, (ii) ensuring storage sites are physically and chemically safe and well-engineered, and (iii) undertaking progressive rehabilitation – returning affected land to productive use after mining. The TSF stipulates a suggested closing methodology which HZL uses to inform their site-specific closing strategy, such to maintain acceptable risk levels in the closure of their mines. This closing methodology is reviewed annually to ensure that it remains current, applicable, and compliant with country-specific legislation. 3) HZL’s quantification of acceptable risk levels form part of the TSF, which is used as a framework for each of HZL’s tailings storage facility to detail the individual Closure Plans. Quarterly, and annual reports are compiled based off the status while monthly inspections are conducted. The reports are submitted to HZL’s board, the operating team. Similarly, the site-specific operating procedures are reviewed annually to maintain applicability and legislative compliance. 3) Daily inspections, to facilitate proactive management, are conducted on TSFs to ensure that all TSFs are in adequate condition

		and to minimise risks associated with spillages or flooding of a TSF, HZ's team sets out the framework to manage the mine deposits, even after mine closure. All HZL mines make use of this guidance as a means through which to ensure basic adherence to the HSE standards. The safety of mine employees & others affected by the deposits is of key priority to HZL. 4) All our tailings storage facilities are in good standing and have been verified by a certified agency. 4) We take extensive measures for construction, operation, maintenance and closure of facilities that mitigate risks of tailing dam failure. Wherever possible, we repurpose tailings materials and waste rock as backfill to stabilize our underground mining operations. Remaining tailings are then placed in a specially designed tailings storage to minimize the ESG risks. We are building dry tailing dam.
Operating plan	An operating plan that is aligned with your established acceptable risk levels and critical controls framework An operating plan that includes the operating constraints of the dam and its construction method An operating plan that considers the consequences of breaching the operating constraints of the dam An operating plan that includes periodic review of the foundations and slope materials An operating plan that evaluates the effectiveness of the risk management measures and whether performance objectives are being met	1) We take extensive measures for construction, operation, maintenance and closure of facilities that mitigate risks of tailing dam failure. Wherever possible, we repurpose tailings materials and waste rock as backfill to stabilize our underground mining operations. Remaining tailings are then placed in a specially designed tailings storage to minimize the environmental, social, and economic risks. 2) The potential impacts of HZLs tailings dam facilities on human health and water ecosystems are managed through use of the Tailing Management Facility Standard. HZL uses the TMF across its operations in India, to develop their individual site-level operating plans, which consider all applicable design limitations, assumptions, and principles regarding TSFs. HZL operates within the design limits of the dam, continuously referring to the TMF as a framework for each TSF and considering the health and safety of mine employees and any other affected persons in the process of developing site-based operating plans. Each operating plan is reviewed on an annual basis to remain current, applicable, and compliant with legislation.

Sensitivity: Internal (C3)

		3) As some aspects of our operations particularly tailings deposition, entail altering the physical landscape permanently it is our aim to rehabilitate the land concurrently (where it is possible) to effective and appropriate post-mining land use once mining has ceased. HZL's TSFs were constructed with specific volume constraints which have been maintained and revitalised from time to time. The design specifications of each dam stipulates the constraints of that dam, as well as the construction methodologies used. To ensure that Harmony can manage their impact on human health and water ecosystems, Harmony must adhere to the design specifications. The company monitors its TSFs frequently and reports on their tailings capacity used, annually. In FY21, none of HZL's TSFs were operated beyond the design threshold. Tailing Storage Facility (TSF) committee is constituted with experts from various functions. As a proactive measure, we will be install dry tailing facilities to de-risk the dam failures. Dry tailing technology helps us to eliminate land requirement for landfills and water recovery. Last year, dry tailing plant was commissioned at Zawar Mine to reduce fresh water consumption by enhancing recovery of process water over 80%, improving tailing dam structural stability and reducing water footprint.
Life of facility plan	A life of facility plan that identifies minimum specifications and performance objectives for the operating and closure phases A life of facility plan that includes an identification of potential chemical and physical risks from the design and construction phases A life of facility plan that considers post-closure land and water use	A tailing management plan is in place to manage tailings and waste facilities ensuring to protect the health of our employees, community and the natural environment throughout its lifecycle. This plan is developed in accordance with the tailing management and EHS policy s. In addition to this, we are also guided by the tailing management standard, which provides approach and methodology on tailings management at different stages. With the commissioning of the Backfill plant at ZM, enhanced use tailings in backfilling has increased the life and stability of the tailing dam and de-risked the operations and provided opportunity to mine left-out high-grade ore in pillars. In regards to the past high impact failures of

		tailing dams at other peers companies, as a proactive measure, we have decided to build all our future tailing Storage Facility as dry tailing to de-risk from dam failures. Dry tailing technology also helps us to eliminate land requirement for landfills and water recovery. Last year, India's first dry tailing plant was commissioned at Zawar Mine to reduce fresh water consumption by enhancing recovery of process water over 80%, improving tailing dam structural stability and reducing water footprint. We are in process to commissioning dry tailing plant at Rajpura Dariba Mine, due in Q2 2022.
Assurance program	An assurance program for each phase of the facilities' life that includes the scope of the various levels of inspections, audits and reviews An assurance program that includes an external audit covering the life of facility or the operating plans	We conduct stability tests for all our tailing storage facility with the help of global experts. In addition, comprehensive internal audits by cross-functional teams are conducted and further the recommendations from these are addressed on a priority basis. Independent assessment by Golder Associates/ ATC Williams, global experts, also conducted to review the integrity/ stability of our storage facilities and their associated management practices.
Approval	A policy to eliminate or minimize water-related risks associated with tailings dams is approved by a C-suite officer The operating plan and the life of facility plan are approved by the EHS manager The results of the assurance program and the change management process are approved by the EHS manager The results of the assurance program and the change management process are approved by a C-suite officer	We conduct stability tests for all our three tailing storage facility with the help of global experts. In addition, comprehensive internal audits by cross-functional teams are conducted and further the recommendations from these are addressed on a priority basis. Independent assessment by Golder Associates/ ATC Williams, global experts, also conducted to review the integrity/ stability of our storage facilities and their associated management practices. While the implementation of plans are managed by the COO (C-suite officer), HZL manages the potential impacts to human health or water ecosystems associated with tailings dams through the Environmental Management Programmes (EMS). This is an over-arching document for management of the TSFs under HZL's control. The CoP for MRD is compiled by a multi-sectoral team including representatives from Harmony, national and regional authorities, labour unions and tailings storage facility specialists. This assurance programme document and associated

Sensitivity: Internal (C3)

		procedures are signed off by HZL's Executive sustainability Committee. The principle objectives of this document include: • To set out plan to manage all applicable design assumptions and principles during the life of the deposits; and • The protection of health and safety of mine employees and any other person affected by the deposits. This document covers all operations and is used as a framework for each tailings storage facility to details site-specific Closure plans. Quarterly, and annual reports compiled based on the TMF and Closure Plans, while daily monitoring also occurs. The reports are submitted to both HZL's operating team. The policy, operating plans and procedures, closure methodology and assurance programs are reviewed on an annual basis, to ensure they are current, applicable and compliant with legislation.
Change management process	Inclusion of a formal change management process for the construction phase of the facility Inclusion of a formal change management process for the operating phase of the facility Inclusion of a formal change management process for the closure and decommissioning phase of the facility Inclusion of a change management process in the assurance program Inclusion of the results from external audits of operating plans or life of facility plans into the change management process	At HZL, we have three active tailing storage facilities and all sites have a dedicated TSF manager and a TSF committee. The committee consists of team members from the design, operations, construction and environmental departments. All TSFs, as well as associated pipeline and pumping infrastructure, are subjected to a regular audit and inspection.

W3.3

(W3.3) Does your organization undertake a water-related risk assessment?

Yes, water-related risks are assessed

W3.3a

(W3.3a) Select the options that best describe your procedures for identifying and assessing water-related risks.

Sensitivity: Internal (C3)

Value chain stage

Direct operations

Coverage

Full

Risk assessment procedure

Water risks are assessed as part of an established enterprise risk management framework

Frequency of assessment

More than once a year

How far into the future are risks considered?

More than 6 years

Type of tools and methods used

Tools on the market
Enterprise risk management
International methodologies and standards
Databases

Tools and methods used

WRI Aqueduct
Enterprise Risk Management
IPCC Climate Change Projections
Regional government databases

Contextual issues considered

Water availability at a basin/catchment level
Water quality at a basin/catchment level
Stakeholder conflicts concerning water resources at a basin/catchment level
Implications of water on your key commodities/raw materials
Water regulatory frameworks
Status of ecosystems and habitats

Stakeholders considered

Local communities
Regulators
Water utilities at a local level

Comment

HZL identifies and assesses strategic & financial impacts 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 Transitions risks. These risks are prioritized based on frequency of its occurrence or recurrence and on the degree of its impact on revenue & cost including its ability to disrupt our primary operations. To assess the water related risks we have a

Sensitivity: Internal (C3)

robust ERM system in place. In FY 21-22, we conducted Water Risk scenario assessment, where drought and extreme rainfall were identified as top risks. A risk review committee is present at all sites and quarterly reviews the identified risks and mitigation measures. Water risk analysis and calculation of risks for current and future trends were conducted for 100% operational sites of HZL. The assessment took in account internal site surveys, external data sets and third party expertise to predict future water risks (upto 2060).
All HZL's operations adopt a Water Management Strategy. This strategy details the risk assessment procedure that each operation is required to undertake. The risk assessment procedure followed includes:
1) Hydrological and geo-hydrological investigations;
2) Identification of the sources, pathways;
3) An evaluation of impacts on the operation's catchment (basin) resource; and,
4) The assessment of local water-related legislation and permitting
The Baseline Water Risk Analysis was conducted using the WRI Aqueduct Water Risk Atlas and Aqueduct. The Internal Risk Assessment conducted for the identified business units in order to identify and compare the Incoming Risk Likelihood Score obtained from the Internal Assessment with the results from the Water Risk Monitizer tool. The basin-level value chain water risk assessments helped to quantify inherent water risks and as well as local/operational assessments to quantify residual water risks. The results were combination of basin and operation risk data to identify the highest risk facilities, residual risk and prioritise shared water challenges. In addition, in FY 21-22, HZL undertook a climate assessment Scenario analysis as per RCP 4.5, 6.0 and NDCs and conducted stress testing to better understand the effects of climate change on our operations across the units. and to develop a longer-term strategy for climate change risks and opportunities.

Value chain stage

Supply chain

Coverage

Full

Risk assessment procedure

Water risks are assessed as part of other company-wide risk assessment system

Frequency of assessment

Annually

How far into the future are risks considered?

3 to 6 years

Type of tools and methods used

Tools on the market
International methodologies and standards
Databases

Sensitivity: Internal (C3)

Tools and methods used

WRI Aqueduct
Environmental Impact Assessment
IPCC Climate Change Projections
Regional government databases

Contextual issues considered

Water availability at a basin/catchment level
Water quality at a basin/catchment level
Water regulatory frameworks
Status of ecosystems and habitats

Stakeholders considered

Suppliers

Comment

We continuously engage with our supply chain partners to reduce their impact on water stress. We consider the feedback of our supply chain partners through stakeholder engagement process during materiality analysis stage as water is one of our material issues. As part of the water risk assessment study done using the WRI Aqueduct Water Risk Atlas and Aqueduct, as well as Water Risk Monitizer tool the risk assessment procedure that each operation is required to undertake. The risk assessment procedure followed included: 1) hydrological and geo-hydrological investigations; 2) an identification of the sources, pathways; 3) an evaluation of impacts on the operation's catchment resource; 4) the assessment of local water-related legislation and permitting. The completion of the necessary steps outlined by the water risk assessment strategy and procedure gave rise to the identification of each operation's top water risks.
In addition, an annual due diligence exercise is conducted for critical suppliers as part of our Supplier & Contractor Management Standard, to understand the key operational risks including water risk, being faced by the suppliers that would have a potential impact on our operations as well as impact our reputation. The risks are categorised as high, medium, and low based on the severity and likelihood. Water was identified as a key risk for our suppliers as about 80% of or procurement spend is in Rajasthan which is a high water risk zone.
Basis this, we developed a Water Management Strategy, which is applicable to both supply chain partners as well as operations

W3.3b

(W3.3b) Describe your organization's process for identifying, assessing, and responding to water-related risks within your direct operations and other stages of your value chain.

HZL's process for identifying, assessing, and responding to water-related risks is based on their engagement between management and the board regarding their direct operations, and between the company and stakeholders regarding other stages of their value chain. Through maintaining transparent and healthy relationships with all relevant stakeholders, HZL can

Sensitivity: Internal (C3)

adequately manage the risks and uncertainties surrounding their operations. The Sustainability & ESG committee and the Audit and Risk committee have quarterly meetings where they discuss water risks and changes in the responses to these risks. HZL's operations are critically dependent on water. Thus, water-related risks are earmarked as key in HZL's risk assessment process. Climate change impacts on water, results in risks and opportunities to HZL's operations, assets, and social considerations. These risks will impact on HZL's operating costs, business infrastructure, general operations, host communities and their supply chain. HZL makes use of the WRI Aqueduct Water Risk Atlas and Aqueduct, as well as Water Risk Monitizer tool, to pre-empt water-related risks which could impact on their business operations, value chain and other relevant stakeholders. HZL also makes use of continuous water monitoring processes to track their water consumption, to improve their management methods. HZL's use of the WRI Aqueduct tool in conjunction with their monitored consumption values to drive water recycling initiatives. During 2021, Harmony produced their second report in accordance with the TCFD. An increase in rainfall patterns and drought were highlighted as physical risks in the disclosures. In conjunction with use of the WRI Aqueduct Tool, HZL's process to identify key water-related risks and opportunities is driven by: 1) identifying and understanding the key water-related risks affecting their water strategy and the opportunities to achieve their business goals. 2) Input from key stakeholders. 3) Facilitating engagements with stakeholders to ensure risks are addressed systematically. 4) Ensuring that identified water risks/ opportunities consider challenges faced by the mine sector. 5) Adherence to national and international water commitments to identify emerging risks/ opportunities. The outcomes of the above-mentioned risk assessment process inform Harmony's internal decision-making structure. This decision making is done through Harmony's evaluation of their risk appetite and tolerance levels, which contextualises the group's overall risk. HZL recognises the potential impacts of water risk leading to a substantive financial impact for their business. Impacts include safety incidents (e.g., WASH aspects); regulatory changes (e.g., increasingly stringent water use licencing requirements) and major infrastructure incidents (e.g., flood damages). HZL defines substantive financial impact as the revenue losses incurred if one month of operations was lost at one site, resulting in around INR 967.5 million amount losses(Production loss i.e. (5000 MT/month * 2500 Dollars = INR 967.5 million). These models determine tactical methods of combating the negative impacts of climate change and the water impacts for HZL's operations.

Conversations on outcomes of these models take place daily, weekly, and monthly amongst environment managers at HZL's operations. HZL has a comprehensive water conservation strategy. The strategy consists of the several main initiatives, including: 1) Ground water management, focused on reducing wastage and optimising water demand by monitoring water storage, quality, demand, and supply in real-time 2) Surface water management, which aims to improving the management of water between different mining operations through focusing on developing a water balance. The system allows personnel to report and log water leaks from anywhere in the mine. After the water leak is logged, the relevant employee is notified.

Sensitivity: Internal (C3)

W4. Risks and opportunities

W4.1

(W4.1) Have you identified any inherent water-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes, both in direct operations and the rest of our value chain

W4.1a

(W4.1a) How does your organization define substantive financial or strategic impact on your business?

We have a robust monitoring methodology to evaluate and analyse strategic and financial consequences of the identified climate-related risks/opportunities. At HZL, we identify and categorise emerging/present company-specific climate-related risks and opportunities under Physical or Transitional. These risks are prioritized based on the frequency of its occurrence or recurrence and on the degree of its impact on revenue & cost including its ability to disrupt our primary operations.

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

i. Any issue brings a change of ±5% to the EBITDA in the current financial year;

ii. Causes > 15% production capacity ramp down in major product category,

iii. Results into Fatality or serious and/or irreversible injury,

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

v. Results into significant breaches, financial penalties & prosecution of staff /stoppage of business, negative media coverage.

vi. In the expansion projects above 250 million USD, cost overrun by > 10% and Time overrun of > 12 months.

HZL calculates substantive financial or strategic impact on our business by computing the number of production days lost or the economic cost 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 serious reversible environmental impact or may result into Category IV incident or may result into significant breaches, financial penalties and/or negative media coverage. HZL operates zinc concentrators with combined capacity of about 4 MTPA at Zawar. The tailings slurry generated during beneficiation contains about 40-45% solids and 50% water. A breach at the dam during heavy precipitation can lead to breach of the tailing dam upto 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 150 million INR.

Sensitivity: Internal (C3)

W4.1b

(W4.1b) What is the total number of facilities exposed to water risks with the potential to have a substantive financial or strategic impact on your business, and what proportion of your company-wide facilities does this represent?

	Total number of facilities exposed to water risk	% company-wide facilities this represents	Comment
Row 1	9	100	All our sites fall under water stressed region of the country according to our water risk assessment conducted in FY 21-22. We have responded appropriately for risk mitigation at these sites so that none of these facilities is exposed to the water risks with the potential to have a substantive financial or strategic impact on our business. Water in Rajasthan (India) is considered a scare resource, particularly in the regions in which HZL's operations are situated. A shortage of water supply poses a significant threat to the operational continuity of HZL's mines, smelters and power plants as well as to the profitability of the business (since stoppages lead to large financial implications). Water is essential to HZL's operations. It is consumed in the development and growth of HZL's assets and is used throughout all of the mining processes – from ore processing to dust suppressions and slurry transport. HZL's eight operations are situated in water-stressed areas and one in region prone to flooding, thus all its facilities are exposed to water risks that could generate a substantive change to operations. As per the Water Risk Filter tool, the Indian facilities with 'very high' basin risk include Rampura Agucha mines, Kayad Mines, Dariba Mines, Sindesar khurd mines, Zawar Mines, Chanderiya Lead Zinc Smelter, Dariba Smelting Complex, Debari Zinc Smelter, Pantnagar metal plant. the Indian facilities with medium operational risk include Zawar Mines, Chanderiya Lead Zinc Smelter and Rampura Agucha mines. Rest of the locations are in low operational risk. HZL always focuses on taking preventive policy measures to manage its water related risks. The Company has undertaken several water conservation and harvesting initiatives for reducing fresh water intake and maintaining zero discharge. Installation of ETP, two staged RO plant and a MEE and some of the initiatives taken to recycling and

Sensitivity: Internal (C3)

			reuse water at the facility.

W4.1c

(W4.1c) By river basin, what is the number and proportion of facilities exposed to water risks that could have a substantive financial or strategic impact on your business, and what is the potential business impact associated with those facilities?

Country/Area & River basin

India

Mahi River

Number of facilities exposed to water risk

1

% company-wide facilities this represents

1-25

Production value for the metals & mining activities associated with these facilities

27,490,000,000

% company's total global revenue that could be affected

1-10

Comment

The production value considered is the revenue figures from the facility/(ies).

Country/Area & River basin

India

Other, please specify

Banas Basin

Number of facilities exposed to water risk

5

% company-wide facilities this represents

51-75

Production value for the metals & mining activities associated with these facilities

158,530,000,000

% company's total global revenue that could be affected

51-60

Sensitivity: Internal (C3)

Comment

The production value considered is the revenue figures from the facility/(ies).

Country/Area & River basin

India

Other, please specify

Luni Basin

Number of facilities exposed to water risk

2

% company-wide facilities this represents

1-25

Production value for the metals & mining activities associated with these facilities

108,370,000,000

% company's total global revenue that could be affected

31-40

Comment

The production value considered is the revenue figures from the facility/(ies).

Country/Area & River basin

India

Other, please specify

Ganga Basin

Number of facilities exposed to water risk

1

% company-wide facilities this represents

1-25

Production value for the metals & mining activities associated with these facilities

0

% company's total global revenue that could be affected

1-10

Comment

The production value considered is the revenue figures from the facility/(ies).
The facility at Pantnagar is a metal refinery for the smelters at Chanderia, Debari and Dariba. Therefore, the revenue associated with the facility is accounted for in these

Sensitivity: Internal (C3)

locations

W4.2

(W4.2) Provide details of identified risks in your direct operations with the potential to have a substantive financial or strategic impact on your business, and your response to those risks.

Country/Area & River basin

India

Other, please specify

Rajasthan based operations considered

Type of risk & Primary risk driver

Acute physical

Drought

Primary potential impact

Increased operating costs

Company-specific description

Water is a critical resource in HZL's operations both for mining and smelting operations. Water in India is considered a scarce resource, particularly in the regions in which our operations are situated. As such drought in India poses a significant risk to HZL's operations specifically considering their continuity and profitability.

According to our Baseline Water Risk Analysis conducted using the WRI Aqueduct Water Risk Atlas and Aqueduct WRI Aqueduct tool in FY 2021-22. All our mining operations fall under exposed to 'Extremely High' water stressed physical risk.

Droughts can produce the following risks for HZL's operations:
1. Reduced mining and or processing activities
2. Stakeholder Conflicts with the local communities
3. Increased operating costs for sourcing water from other alternative sources

Significant amounts of water are used in all of HZL's operations and development practices. In FY21, HZL used 24,701.06 million m3 of water for primary activities (down from 25,844.96 million m3 in FY20). For HZL's operations, water is not drawn directly from captive surface water sources (except for Kayad, and Rampura Agucha which draws from an aquifer). Bulk water service providers supply HZL with most of the water that they consume. Other water sources for HZL includes water that enters underground operations (produced/entrained water), and, recycled water.
Unavailability of water may lead to shut down our operations leading to huge hamper our business growth and revenue. We have adopted several mitigation measures such as utilizing STP water, implementing water efficiency and saving initiatives projects to

reduce our dependency on fresh water. This has resulted in our costs in our direct operations.
For example, in FY 20-21 we faced drought like situation in Chanderia, Rajasthan, where one of our zinc-lead smelters is situated. Withdrawal of water from the captive surface water source (Gosunda Dam) was restricted to 5,000 m3 /day as against to the 30,000 m3 / day allowance, by the authorities. This resulted into:
i. Increase in cost to channelize water from alternative sources such as the Chittorgarh City Sewage Plant, Udaipur STP.
ii. Temporary shut-down of our 1 CPP leading to increasing our dependence upon grid electricity for powering our operations, due to limited availability of water

Timeframe

1-3 years

Magnitude of potential impact

Medium

Likelihood

Likely

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

291,110,000

Potential financial impact figure - minimum (currency)

Potential financial impact figure - maximum (currency)

Explanation of financial impact

The potential financial impact figure considers the cost of channelizing water from alternative sources as well as cost of sourcing electricity from grid due to temporary shutdown of 1 CPP.
There is a substantial impact on the cost if the stress continues for a month, leading to complete shutdown of 1 CPP.
A: Power Requirement= 61,000,000 Kwh
B: Cost of generating per unit power through CPP= INR 4.24 /KwH
C: Cost of purchasing power per unit from grid= INR 6.75/KwH
D: Difference in power cost per unit from external sources and self-generated = (C-B) = INR 2.51/KwH
E: Total additional Cost of sourcing power from grid (Cost of closure of 1 CPP per month)= D*A= 153,110,000
F: Cost of purchasing water from external sources per month = INR 138,000,000
G: Total financial impact due to water risk= (E+F)= INR 291,110,000

Primary response to risk

Adopt water efficiency, water reuse, recycling and conservation practices

Sensitivity: Internal (C3)

Description of response

To mitigate this risk, we are continuously maximizing recycling and reuse of water at all our operations to reduce freshwater withdrawal, developing rainwater harvesting systems to replenish ground water sources, and build a second STP project at 40 MLD by FY 2025. The Company has set a goal to be 5 Times Water Positive Company and reducing the water consumption by 25% by 2025 from base year 2020. Presently, we have achieved to be 2.41 times water positive company.

a. Commissioned ZLD Plant at ZSD (3,000 KLD): INR 460 million
b. Commissioned ZLD Plant at CLZS (600 KLD): INR 250 million
c. ZLD plant at DSC (3,200 KLD):INR 500 million
d. Construction of Storm-water Pond 5 at DSC: INR 65 million
e. Rainwater Harvesting project at RAM : INR 140 million
f. Commissioning of Dry Tailing Plant at RDM/SKM: INR 3,000 million

Cost of response

4,415,000,000

Explanation of cost of response

To mitigate this risk, we are continuously maximizing recycling and reuse of water at all our operations to reduce freshwater withdrawal. We are developing rainwater harvesting systems to replenish ground water sources. The Company has set a goal to be 5 Times Water Positive Company and reducing the fresh water consumption by 25% by 2025 from base year 2020. Presently, we are 2.41 times water positive company.

We have calculated cost of response to risk by considering the cost for installation of all water recycling and conservation projects in FY 21-22 across 90% of HZL locations (Rajasthan).

 Commissioned ZLD Plant at ZSD (3,000 KLD): INR 460 million
 Commissioned ZLD Plant at CLZS (600 KLD): INR 250 million
 ZLD plant at DSC (3,200 KLD):INR 500 million
 Construction of Storm-water Pond 5 at DSC: INR 65 million
 Rainwater Harvesting project at RAM : INR 140 million
 Commissioning of Dry Tailing Plant at RDM/SKM: INR 3,000 million

Therefore, Cost of response= INR (460,000,000+250,000,000+500,000,000+140,000,000+65,000,000+3000, 000,000) = INR 4415,000,000 or INR 4415 million

For Example: As per WRI Aqueduct study, Debari in Rajasthan is a ‘high risk’ zone and has a potential to be impacted by drought. Currently, the water withdrawal at Debari is 1.41 million m3. We have commissioned a 3,000 KLD RO-ZLD plant at Zinc Smelter Debari, in October 2021 which resulted in an annual freshwater saving of 0.42 million m3. (Contributed to 47% reduction in overall freshwater withdrawal at location). The cost of implementing this project was INR 460 million.

Sensitivity: Internal (C3)

In order to meet the goal to be 5 Times Water Positive Company and reducing the 25% fresh water consumption by 2025 from base year 2020, the company 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).

W4.2a

(W4.2a) Provide details of risks identified within your value chain (beyond direct operations) with the potential to have a substantive financial or strategic impact on your business, and your response to those risks.

Country/Area & River basin

India

Other, please specify

Rajasthan based operations considered

Stage of value chain

Supply chain

Type of risk & Primary risk driver

Acute physical

Drought

Primary potential impact

Increased operating costs

Company-specific description

Raw material suppliers which have their source from the region near water scare area may get affected. Gap in raw material supply may lead to direct operational threats for our company. For e.g. our raw material like cement, coal, etc. require water for their processing and in worst scenario. Non-availability of cement due to non-availability of water at the supplier end can impact our paste fill plant operation, backfilling and mine rock strengthening process. In the similar way, unavailability of coal may impact our captive power plant process which can result in purchasing electricity on a higher cost from state grid.

Timeframe

More than 6 years

Magnitude of potential impact

Low

Likelihood

Unlikely

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

153,110,000

Potential financial impact figure - minimum (currency)

Potential financial impact figure - maximum (currency)

Explanation of financial impact

Unavailability of coal will directly impact our CPP operations. In worst scenario we will have to shut down the CPP operation and will take the electricity directly from state grid and this will lead to direct cost implication of 2.32 crore per day (total electricity cost generated from CPP 4.5 INR/kwh and total electricity cost of state grid is 6.3 INR/ kwh. The current cost estimates include the net difference in cost on power multiplied by the total % of power.

A: Power Requirement= 61,000,000 Kwh

B: Cost of generating per unit power through CPP= INR 4.24 /KwH

C: Cost of purchasing power per unit from grid= INR 6.75/KwH

D: Difference in power cost per unit from external sources and self-generated = (C-B) = INR 2.51/KwH

E: Total additional Cost of sourcing power from grid (Cost of closure of 1 CPP per month) = D*A= 153,110,000

Primary response to risk

Upstream

Map supplier water risk

Description of response

We have identified regions where supply gaps may arise due to water scarcity issue for our suppliers A mitigation plan to avoid such risks comprises: 1. continuous mapping of supplier water risks 2. Engagement with suppliers to carry out capacity building sessions 3. Incentivizing top suppliers for improved ESG performance in the next three years. In FY 2021-22, we have included critical Tier 1 suppliers in our engagement. This year HZL had total tier 1 suppliers 1,226 out of which 243 suppliers fall under critical tier 1 which included:

• High-volume business partners,

• Business partners of critical components and

• Non-substitutable business partners (e.g. Original Equipment Manufacturers)

Cost of response

335,100,000

Explanation of cost of response

In order to de-risk our risks in the supply chain, catapulted by external factors such as drought and/or excessive flooding, we responded as a team to through meticulous

Sensitivity: Internal (C3)

planning: a) Entered long to medium term contracts at the right time to ensure material security b) Ensured continuous tracking and monitoring of the situations; c) Implemented alternative sourcing and usage of alternative products, while delivering operational efficiency, d) Adequately stocked inputs at our plants and effectively managed working capital to serve both internal and external customers, delivering our best-ever performance; e) Continuous communication with Business Partners to mitigate risks during the disruption in supply chain

For mitigating the water-related risks in upstream operations, we are reducing our dependency on suppliers either by getting into long term contracts (securing our material source) and changing the raw material inputs/source and replacing it with materials with lesser impact due to water related stress.
For example, coal is our most critical input and is highest also in terms of spend. Our Climate strategy supports the transition towards renewable energy adoption which will minimize our dependency on coal suppliers. By 2030, our need for coal will drastically come down as we move to renewable energy.
For the cost of response calculation, we have considered the cost to manage the suppliers; the cost to develop other raw material sources
• Cost Expenditure of towards conducting due-diligence with the suppliers= INR 0.5 million
• Cost Expenditure of renewable energy plant setup= 230 million
• Cost of Biomass as a substitute for coal= INR 104.6 million
• Total cost of response= 0.5 million + 230 million + 104.6 million= 335.1 millio

W4.3

(W4.3) Have you identified any water-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes, we have identified opportunities, and some/all are being realized

W4.3a

(W4.3a) Provide details of opportunities currently being realized that could have a substantive financial or strategic impact on your business.

Type of opportunity

Efficiency

Primary water-related opportunity

Improved water efficiency in operations

Company-specific description & strategy to realize opportunity

As HZL's most operations are at water-stressed region and water is very critical to our mining operations, we are implementing several water savings initiatives to decrease our water withdrawal and business growth without any hindrance. Currently, HZL is 2.41

Sensitivity: Internal (C3)

water positive company and aims to become 5 times water positive by 2025. We also have a target to reduce the water consumption by 25% by 2025 from base year 2020. We see this has an opportunity as this will also decrease our operating costs as well as increase our brand value. We have implemented initiatives in FY 21-22 to increase our water savings.

 Sindesar Khurd Mines has initiated a project where the paste fill running hours to 10,800 hours from 9,154 hours to save 722 m3 water every day. Therefore, resulted to annual water saving of 263360m3
 In FY 21-22, Zawar Mine has started recycling mine water for the usage at mine operations and no fresh water is going to UG. HEMM washing facilities has been arranged in UG workshop so that no fresh water is used for washing. This year we have saved 73000m3 of water through this initiative.
 We have implemented FIP project to reduce the SWC at Zawar CPP 24200 m3

There are several more water conservation initiatives which led to 16% decrease in water withdraw from freshwater sources from FY 2019-20.

Estimated timeframe for realization

1 to 3 years

Magnitude of potential financial impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

6,904,834.8

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact

We have calculated the potential financial impact of these initiatives in terms of cost savings due to reduced water withdrawal or consumption. Presently, the price of water paid by the organisation varies across the locations. The average weighted price is: INR 2.98 per m3. By saving water through our initiatives, we reduce the total cost of procuring water. Therefore, in FY2021-22, financial impact of opportunity is:
A. Per unit cost of water procurement= INR 2.98 per m3
B. Total Water Savings through initiatives: 2,317,058.66 m3
C. Total Cost of Savings: [A*B] = [2.98*2317058.66] = INR 6,904,834.80

Sensitivity: Internal (C3)

W5. Facility-level water accounting

W5.1

(W5.1) For each facility referenced in W4.1c, provide coordinates, water accounting data, and a comparison with the previous reporting year.

Facility reference number

Facility 1

Facility name (optional)

Chanderiya Lead and Zinc Smelter

Country/Area & River basin

India

Other, please specify

Banas Basin

Latitude

24.83

Longitude

74.82

Located in area with water stress

Yes

Total water withdrawals at this facility (megaliters/year)

9,047.75

Comparison of total withdrawals with previous reporting year

Lower

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

6,933.03

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

0

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

0

Sensitivity: Internal (C3)

Withdrawals from third party sources

2,114.72

Total water discharges at this facility (megaliters/year)

0

Comparison of total discharges with previous reporting year

About the same

Discharges to fresh surface water

0

Discharges to brackish surface water/seawater

0

Discharges to groundwater

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

8,895.27

Comparison of total consumption with previous reporting year

Lower

Please explain

At Chanderia Lead Zinc Smelter our water consumption has decreased by 12.54% from previous year due to increase in recycling rate and temporary shutdown of CPP . Our Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, is dependent upon our ability to maintain zero discharge status from the premises, meaning no trade effluent shall be discharged inside/outside operational premises. To comply by these requirements, we strictly monitor our water balance parameters. Therefore, discharge parameter is not applicable to us as all our sites are zero liquid discharge facilities.

Facility reference number

Facility 2

Facility name (optional)

Dariba Smelting Complex

Country/Area & River basin

India

Other, please specify

Banas Basin

Latitude

Sensitivity: Internal (C3)

24.95

Longitude

74.13

Located in area with water stress

Yes

Total water withdrawals at this facility (megaliters/year)

6,850.22

Comparison of total withdrawals with previous reporting year

Lower

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

940.61

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

0

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

0

Withdrawals from third party sources

5,909.61

Total water discharges at this facility (megaliters/year)

0

Comparison of total discharges with previous reporting year

About the same

Discharges to fresh surface water

0

Discharges to brackish surface water/seawater

0

Discharges to groundwater

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

Sensitivity: Internal (C3)

6,167.65

Comparison of total consumption with previous reporting year

Lower

Please explain

Water withdrawal levels have decreased by 6% as compared to the previous year due to increase in water recycling rate. Our Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, is dependent upon our ability to maintain zero discharge status from the premises, meaning no trade effluent shall be discharged inside/outside operational premises. To comply by these requirements, we strictly monitor our water balance parameters. Therefore, discharge parameter is not applicable to us as all our sites are zero liquid discharge facilities.

Facility reference number

Facility 3

Facility name (optional)

Debari Zinc smelter

Country/Area & River basin

India

Other, please specify

Banas Basin

Latitude

24.6

Longitude

73.83

Located in area with water stress

Yes

Total water withdrawals at this facility (megaliters/year)

1,410.68

Comparison of total withdrawals with previous reporting year

Lower

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

522.55

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

0

Sensitivity: Internal (C3)

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

0

Withdrawals from third party sources

888.13

Total water discharges at this facility (megaliters/year)

0

Comparison of total discharges with previous reporting year

About the same

Discharges to fresh surface water

0

Discharges to brackish surface water/seawater

0

Discharges to groundwater

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

1,410.68

Comparison of total consumption with previous reporting year

Lower

Please explain

Water consumption has reduced as compared to the previous year by 19%, during the year for DZS due to increased recycling rate from the RO ZLD plant and recovery of water from Jarosite has further reduced the dependencies on fresh water. Our Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, is dependent upon our ability to maintain zero discharge status from the premises, meaning no trade effluent shall be discharged inside/outside operational premises. To comply by these requirements, we strictly monitor our water balance parameters. Therefore, discharge parameter is not applicable to us as all our sites are zero liquid discharge facilities.

Facility reference number

Facility 4

Facility name (optional)

Rampura Agucha Mine

Sensitivity: Internal (C3)

Country/Area & River basin

India

Other, please specify

Banas Basin

Latitude

25.83

Longitude

74.74

Located in area with water stress

Yes

Total water withdrawals at this facility (megaliters/year)

2,455.85

Comparison of total withdrawals with previous reporting year

Lower

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

0

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

0

Withdrawals from groundwater - non-renewable

2,377.065

Withdrawals from produced/entrained water

78.78

Withdrawals from third party sources

0

Total water discharges at this facility (megaliters/year)

0

Comparison of total discharges with previous reporting year

About the same

Discharges to fresh surface water

0

Discharges to brackish surface water/seawater

0

Discharges to groundwater

Sensitivity: Internal (C3)

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

2,563.77

Comparison of total consumption with previous reporting year

Lower

Please explain

There is decrease in Water consumption by 6% due to improved recycling rate. There is also a decrease in water withdrawal due to increase in extra addition of Tailing Dam reclaim water (76k m3) quantity in Mill fresh water in compare of last year for mill operation as a substitute of fresh water. Our Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, is dependent upon our ability to maintain zero discharge status from the premises, meaning no trade effluent shall be discharged inside/outside operational premises. To comply by these requirements, we strictly monitor our water balance parameters. Therefore, discharge parameter is not applicable to us as all our sites are zero liquid discharge facilities.

Facility reference number

Facility 5

Facility name (optional)

Rajpura Dariba Mine

Country/Area & River basin

India

Other, please specify

Banas Basin

Latitude

24.95

Longitude

74.13

Located in area with water stress

Yes

Total water withdrawals at this facility (megaliters/year)

1,272.89

Comparison of total withdrawals with previous reporting year

Higher

Sensitivity: Internal (C3)

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

932.73

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

0

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

340.16

Withdrawals from third party sources

0

Total water discharges at this facility (megaliters/year)

0

Comparison of total discharges with previous reporting year

About the same

Discharges to fresh surface water

0

Discharges to brackish surface water/seawater

0

Discharges to groundwater

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

598.92

Comparison of total consumption with previous reporting year

Higher

Please explain

There is 8% increase in Water withdrawal by due to increase in availability of entrained water (increase by 109%) while the surface water withdrawal has gone down. In order to keep mining from the locations, it is important to remove the entrained water. As we dig deeper, there is a substantial increase in available entrained water which needs to be removed. Hence, our water withdrawal has increased.
Our Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, is dependent upon our ability to maintain zero discharge status from the premises,

Sensitivity: Internal (C3)

meaning no trade effluent shall be discharged inside/outside operational premises. To comply by these requirements, we strictly monitor our water balance parameters. Therefore, discharge parameter is not applicable to us as all our sites are zero liquid discharge facilities.

Facility reference number

Facility 6

Facility name (optional)

Sindesar Khurd Mine

Country/Area & River basin

India

Other, please specify

Banas Basin

Latitude

25

Longitude

74.16

Located in area with water stress

Yes

Total water withdrawals at this facility (megaliters/year)

782.68

Comparison of total withdrawals with previous reporting year

Higher

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

131.05

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

0

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

42.81

Withdrawals from third party sources

608.82

Sensitivity: Internal (C3)

Total water discharges at this facility (megaliters/year)

0

Comparison of total discharges with previous reporting year

About the same

Discharges to fresh surface water

0

Discharges to brackish surface water/seawater

0

Discharges to groundwater

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

782.68

Comparison of total consumption with previous reporting year

Higher

Please explain

Our total water consumption has increased by 17% due to increase in production by 4%.There is an increase in water reclamation from tailing dam from 32 lacs cum to 34 lac cum. Our Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, is dependent upon our ability to maintain zero discharge status from the premises, meaning no trade effluent shall be discharged inside/outside operational premises. To comply by these requirements, we strictly monitor our water balance parameters. Therefore, discharge parameter is not applicable to us as all our sites are zero liquid discharge facilities.

Facility reference number

Facility 7

Facility name (optional)

Zawar Mines complex

Country/Area & River basin

India

Other, please specify

Mahi Basin

Latitude

24.35

Longitude

Sensitivity: Internal (C3)

73.71

Located in area with water stress

Yes

Total water withdrawals at this facility (megaliters/year)

4,289.3

Comparison of total withdrawals with previous reporting year

Higher

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

4,156.43

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

0

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

132.87

Withdrawals from third party sources

0

Total water discharges at this facility (megaliters/year)

0

Comparison of total discharges with previous reporting year

About the same

Discharges to fresh surface water

0

Discharges to brackish surface water/seawater

0

Discharges to groundwater

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

4,156.42

Comparison of total consumption with previous reporting year

Sensitivity: Internal (C3)

Higher

Please explain

Water consumption increased by 14% due to increase in production. Water withdrawal increased by 13% due to increase in entrained water. In order to keep mining from the locations, it is important to remove the entrained water. As we dig deeper, there is a substantial increase in available entrained water which needs to be removed. Hence, our water withdrawal has increased. Our Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, is dependent upon our ability to maintain zero discharge status from the premises, meaning no trade effluent shall be discharged inside/outside operational premises . To comply by these requirements, we strictly monitor our water balance parameters. Therefore, discharge parameter is not applicable to us as all our sites are zero liquid discharge facilities.

Facility reference number

Facility 8

Facility name (optional)

Kayad Mine

Country/Area & River basin

India

Other, please specify

Luni Basin

Latitude

29.96

Longitude

78.06

Located in area with water stress

Yes

Total water withdrawals at this facility (megaliters/year)

46.19

Comparison of total withdrawals with previous reporting year

Higher

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

0

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

0

Sensitivity: Internal (C3)

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

44.49

Withdrawals from third party sources

1.7

Total water discharges at this facility (megaliters/year)

0

Comparison of total discharges with previous reporting year

About the same

Discharges to fresh surface water

0

Discharges to brackish surface water/seawater

0

Discharges to groundwater

0

Discharges to third party destinations

0

Total water consumption at this facility (megaliters/year)

36.53

Comparison of total consumption with previous reporting year

Lower

Please explain

Water Consumption has reduced by 13% due to improved recycling rate. Our Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, is dependent upon our ability to maintain zero discharge status from the premises, meaning no trade effluent shall be discharged inside/outside operational premises. To comply by these requirements, we strictly monitor our water balance parameters. Therefore, discharge parameter is not applicable to us as all our sites are zero liquid discharge facilities.

Facility reference number

Facility 9

Facility name (optional)

Pantnagar

Country/Area & River basin

India

Sensitivity: Internal (C3)

Ganges - Brahmaputra

Latitude

29.2

Longitude

79.24

Located in area with water stress

Yes

Total water withdrawals at this facility (megaliters/year)

79.24

Comparison of total withdrawals with previous reporting year

Lower

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

23.17

Withdrawals from brackish surface water/seawater

0

Withdrawals from groundwater - renewable

31.89

Withdrawals from groundwater - non-renewable

0

Withdrawals from produced/entrained water

0

Withdrawals from third party sources

0

Total water discharges at this facility (megaliters/year)

0

Comparison of total discharges with previous reporting year

About the same

Discharges to fresh surface water

0

Discharges to brackish surface water/seawater

0

Discharges to groundwater

0

Discharges to third party destinations

Sensitivity: Internal (C3)

0

Total water consumption at this facility (megaliters/year)

54.84

Comparison of total consumption with previous reporting year

Lower

Please explain

Water Consumption has reduced by 17% due to improved recycling rate. Our Consent to Operate under section 21(4) of Prevention & Control of Pollution Act, 1981, is dependent upon our ability to maintain zero discharge status from the premises, meaning no trade effluent shall be discharged inside/outside operational premises. To comply by these requirements, we strictly monitor our water balance parameters. Therefore, discharge parameter is not applicable to us as all our sites are zero liquid discharge facilities.

W5.1a

(W5.1a) For the facilities referenced in W5.1, what proportion of water accounting data has been third party verified?

Water withdrawals – total volumes

% verified

76-100

Verification standard used

This is reported as per ISAE3000

Water withdrawals – volume by source

% verified

76-100

Verification standard used

This is reported as per IAS3000

Water withdrawals – quality by standard water quality parameters

% verified

76-100

Verification standard used

This is reported as per ISAE3000

Water discharges – total volumes

Sensitivity: Internal (C3)

% verified

76-100

Verification standard used

This is reported as per ISAE3000

Water discharges – volume by destination

% verified

76-100

Verification standard used

This is reported as per ISAE3000

Water discharges – volume by final treatment level

% verified

76-100

Verification standard used

This is reported as per ISAE3000

Water discharges – quality by standard water quality parameters

% verified

76-100

Verification standard used

This is reported as per ISAE3000

Water consumption – total volume

% verified

76-100

Verification standard used

This is reported as per ISAE3000

W6. Governance

W6.1

(W6.1) Does your organization have a water policy?

Sensitivity: Internal (C3)

Yes, we have a documented water policy that is publicly available

W6.1a

(W6.1a) Select the options that best describe the scope and content of your water policy.

	Scope	Content	Please explain
Row 1	Company-wide	Description of business dependency on water Description of business impact on water Description of water-related performance standards for direct operations Reference to international standards and widely-recognized water initiatives Company water targets and goals Commitment to align with public policy initiatives, such as the SDGs Commitment to water-related innovation Commitment to stakeholder awareness and education Commitment to water stewardship and/or collective action Other, please specify Work with communitites and communicate with all our stakeholders on the progress and performance of water conservation and water management	We recognize the social, economic and environmental value of water and increasing global concern of water scarcity. As water is significant to our operations, we have extended the policy to all our operations, staff, contractors, and relevant business partners. It follows the Water Management Standard (TS-14) of Vedanta Sustainability Framework which is aligned to international IFC performance standards, Water Quality Standards in India (IS 2296:1992 and Drinking Water Specifications (IS 10,500:1991)) and reflects our commitment towards global water security, efficiency, and stewardship. We have outlined our policy in order to effectively communicate our intent and goal of water conservation across all our operations, staff, contractors, and relevant business partners. The intent we communicate is to be a global leader in water reuse and recycling, as well as work with communities and communicate with all our stakeholders on the progress and performance of water conservation and water management. The aspects that are covered in our water policy include compliance with national, regional and local Identification and implementation of water saving projects, reduction in water consumption, avoid water pollution, maintain zero discharge, help communities for sustainable water resources by rain water harvesting, participate in water catchment planning activities , monitoring and transparent communication of water consumption performance. This includes our 2025 water targets (5 times water positive from current 2.41 times water positive). Our water stewardship targets are focused on completing actions that align with Sustainable Development Goal 6 which is about “Clean water and sanitation for all”. We are also committed for UN Global Compact Water Action Platform (CEO Water Mandate), a commitment to

Sensitivity: Internal (C3)

			adopt and implement the mandate's strategic framework and its six core elements for water management Stakeholders, and innovation & implementation of water efficient practices. The policy is reviewed and updated from time to time based on the internal procedures. 1

[1]water-management-policy-English.pdf

W6.2

(W6.2) Is there board level oversight of water-related issues within your organization?

Yes

W6.2a

(W6.2a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for water-related issues.

Position of individual	Please explain
Chief Executive Officer (CEO)	CEO has the ultimate responsibility for water-related issues and has the highest decision-making authority within the company. Our CEO is one of the members of HZL's Board of Directors and is part of the Board Level Sustainability & ESG Committee which plays a role in providing overall guidance on all identified key ESG issues and reviews the company's progress towards sustainability goals 2025. The board is briefed on various water related issues, yearly targets, site's performance, and progress of targets by our CEO. CEO is also authorized to sanction CAPEX & OPEX budgets and other necessary resources for the implementation of water strategy, water conservation measures, and climate adaptation and mitigation actions. Our CEO's responsibilities also include taking decisions related to Procurement, Human Resources, Finance, Legal, and operations which supports implementation of our Water & Climate strategy. Examples of water-related initiatives taken by our CEO towards increasing the water efficiency are: a) HZL is certified as 2.41 water positive at present and target to be 5times water positive by reducing 25% of fresh water consumption b) In FY 2021-22, HZL has conducted its first Baseline Water Risk Analysis using the WRI Aqueduct Water Risk Atlas and Aqueduct. c) During the year, the Debari zinc smelter successfully commissioned a 3,000 kilolitre per day (KLD) zero liquid discharge ZLD plant. The move is aligned with our vision of 'Zero Harm – Zero Waste – Zero Discharge'. By 2025, in line with our larger water goals, we would be implementing ZLD at all our mining locations as well as rainwater harvesting projects at our operational locations.

Sensitivity: Internal (C3)

	An investment of 3000 million has been allocated towards the water conservation initiatives.
Director on board	The formation of our Board Level Sustainability and ESG Committee during FY 2021-22 is aligned with our water stewardship commitment and facilitates our efforts towards the accomplishment of our 2025 goals and Environmental, Social and Governance priorities. The Committee is responsible for providing oversight on our aim to be 5 times water positive by 2025 and 25% reduction in our freshwater reduction by 2025. The committee is led by an independent director as the chairperson of the committee. The role of the Sustainability and ESG Committee is to assist the Board in meeting its responsibilities in ESG matters including water-related issues and to ensure strong governance on sustainability matters. It is also responsible for providing guidance on ensuring continual improvement of our water-related performance and implementation of appropriate processes and policies across the Company. The committee is responsible for providing oversight on sustainability strategy, and setting long-term goals and targets.

W6.2b

(W6.2b) Provide further details on the board's oversight of water-related issues.

	Frequency that water-related issues are a scheduled agenda item	Governance mechanisms into which water-related issues are integrated	Please explain
Row 1	Scheduled - all meetings	Monitoring implementation and performance Overseeing acquisitions and divestiture Overseeing major capital expenditures Reviewing and guiding annual budgets Reviewing and guiding business plans Reviewing and guiding major plans of action	Role of Board-Level Sustainability and ESG Committee The Committee assists the Board in meeting its responsibilities in relation to the Environmental, Social and Governance (ESG) matters and ensuring strong oversight on sustainability including climate-related issues. The Committee meets twice a year and is responsible for: • oversight on Sustainability & Water Strategy, • Review & monitor Sustainability & Water management strategy, • 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; • Implementation of appropriate Sustainability related processes and policies across the company, and

Sensitivity: Internal (C3)

		Reviewing and guiding risk management policies Reviewing and guiding strategy Reviewing and guiding corporate responsibility strategy Reviewing innovation/R&D priorities Setting performance objectives	• Periodically review the Company's stakeholder base and their material interests. Seek updates on the management of water-related issues from the respective functional and business head. Role of Board-Level Audit and Risk Management Committee Audit and Risk Management Committee oversees the water-related risks and opportunities. As climate risks including water risks is integrated as emerging risk in our enterprise risk management and financial planning, it is the primary responsibility of ARC Committee to provide oversight on Water related risks & Opportunities, and report progress on risk mitigation efforts to the Board on a quarterly basis. The Committee also reviews potential impacts to production disruptions due to climate-related physical and transition risks that may impact HZL's core business. For example: In FY 2021-22, the Baseline Water Risk Analysis conducted using the WRI Aqueduct Water Risk Atlas and Water Risk Filter. The identified business units were classified as per their overall water risk. The Internal Risk Assessment conducted for the identified business units in order to identify and compare the Incoming Risk Likelihood Score obtained from the Internal Assessment with the results from the Water Risk Monitizer tool. HZL has also established a Water Management Community under the Executive Sustainability Committee, chaired by a senior leader, at the corporate level, to ensure strong governance for water conservation, water risk assessment, formulation of mitigation strategies, continual improvement and innovation in water management processes. The community is comprised of water experts from each site. The community meets on monthly basis and appraise the Chairman of Executive Sustainability Committee on the various Water Management projects' progress and seek guidance as and when required.

Sensitivity: Internal (C3)

W6.2d

(W6.2d) Does your organization have at least one board member with competence on water-related issues?

	Board member(s) have competence on water-related issues	Criteria used to assess competence of board member(s) on water-related issues
Row 1	Yes	The Nomination and Remuneration Committee devised criteria for evaluation of the performance of the Directors including the Independent Directors. The Committee (NRC) evaluates the knowledge, skill, professional & functional expertise and ensures that the potential candidates possess the requisite qualifications before appointment. In addition, NRC also facilitates competency building of the directors through dedicated familiarization programs on key themes relevant for the company. For example, our Whole-Time Director & CEO who is a member of the Sustainability & ESG Committee which oversees the implementation of Water Management Strategy. The CEO has requisite skillsets and has even represented HZL on various national & international forums of Climate change. Similarly, the head of the Water Management & Community has an extensive experience in management of water-related risk and ensure that the company is taking appropriate measures to undertake and implement actions to further accelerate its ESG vision and ambitions. The Committee under his leadership is equipped with relevant skills to take decisions related to Climate risks & opportunities in addition to other enterprise risks. During the year, Company engaged Deloitte Haskins & Sells LLP (DHS) was appointed to carry out the performance evaluation of all the Board members. The results of the performance evaluation were in line with our set criteria's related to competency, knowledge and skills, confirming that our board members our competent in taking decisions related to business strategy including climate action.

W6.3

(W6.3) Provide the highest management-level position(s) or committee(s) with responsibility for water-related issues (do not include the names of individuals).

Name of the position(s) and/or committee(s)

Sensitivity: Internal (C3)

Chief Executive Officer (CEO)

Responsibility

Assessing future trends in water demand
Assessing water-related risks and opportunities
Managing water-related risks and opportunities

Frequency of reporting to the board on water-related issues

More frequently than quarterly

Please explain

CEO has the ultimate responsibility for water-related issues including and has the highest decision-making authority within the company. Our CEO is one of the members of HZL's Board of Directors and is part of the Board Level Sustainability & ESG Committee which plays a role in providing overall guidance on all identified key ESG issues and reviews the company's progress towards sustainability goals 2025. The board is briefed on various water related issues, yearly targets, site's performance, and progress of targets by our CEO. CEO is also authorized to sanction CAPEX & OPEX budgets and other necessary resources for the implementation of water strategy, water conservation measures, and climate adaptation and mitigation actions. Our CEO's responsibilities also include taking decisions related to Procurement, Human Resources, Finance, Legal, and operations which supports implementation of our Water & Climate strategy.

W6.4

(W6.4) Do you provide incentives to C-suite employees or board members for the management of water-related issues?

	Provide incentives for management of water-related issues	Comment
Row 1	Yes	

W6.4a

(W6.4a) What incentives are provided to C-suite employees or board members for the management of water-related issues (do not include the names of individuals)?

	Role(s) entitled to incentive	Performance indicator	Please explain
Monetary reward	Chief Executive Officer (CEO)	Reduction of water withdrawals Reduction in consumption volumes Improvements in efficiency - direct operations	CEO, whose role also focuses on leading the company's Sustainable Strategy including water related goals, is incentivized based on his performance against the targets set in the specific year. CEO is eligible for our short-term incentive plan is held accountable for the Company's sustainability performance through HZL's performance- based

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		Improvements in waste water quality - direct operations Improvements in waste water quality - product-use Implementation of water-related community project	compensation structure. The CEO has business as well as personal objectives aligned with organisational goals, Sustainability performance, and People Metrics. Sustainability which includes Water makes up 10% of the overall compensation criteria. Stock-based long-term performance incentives represent the largest component of executive pay to encourage sustained performance for 3 years aligned with shareholder interests. Performance on ESG & Carbon Footprint makes up to 6% of the overall criteria for computing the long term bonus share allotment. Relative water aligned Incentive Metrics for FY 22-Sustainability strategy. - Reduce freshwater consumption by 25% and being 5X water positive through our operational & community led initiatives. - Our long-term strategy is to reduce risks related to drought and flooding by making systemic investments in water conversation infrastructure. The indicators (reduction in water withdrawals and consumption, improved efficiency in direct operations, improvement in waste water quality and community programs) for incentivized performance are thus directly linked to these Water targets.
Non-monetary reward	Chief Executive Officer (CEO) Chief Financial Officer (CFO) Chief Operating Officer (COO)	Reduction of water withdrawals Reduction in consumption volumes Improvements in efficiency - direct operations Improvements in efficiency - supply chain Improvements in efficiency - product-use	Performance indicators chosen: Water is a shared resource and HZL acknowledges the need to conserve and optimally manage it. HZL has an ambitious target to reduce freshwater consumption by 25% by 2025. Rationale: These indicators (reduction in water withdrawals and consumption, improved efficiency in direct operations, supply chain and product use) are selected in line with the water policy and the goals that HZL aims to achieve. Being a water intrinsic company, HZL understands the significance to conserve, manage and re-use so as to provide a greater access of freshwater to the community. At HZL responsible water stewardship is practiced right from the top level. Water related focus areas are identified at the board meetings and responsibility of management of each focus area is given to board

			level members. At the subsequent board meetings progress under each of the issue is discussed and for good performance/ targets achievements, the aspect owners are recognized with non-monetary awards such as recognition in external forums, giving Advancement Opportunity –work on more meaningful and challenging projects etc

W6.5

(W6.5) Do you engage in activities that could either directly or indirectly influence public policy on water through any of the following?

Yes, trade associations

W6.5a

(W6.5a) What processes do you have in place to ensure that all of your direct and indirect activities seeking to influence policy are consistent with your water policy/water commitments?

HZL adopts a company-wide water management strategy which provides a consistent approach and operations baseline for use across the company. Engage in the policy discussions through trade associations whenever the industry opinion is sought after by the government and policy regulators and voice industry opinion in terms of water related policy decisions in India and globally. We remain consistent of our company's water commitments and ensure that responsible water usage practices are encouraged through changes in the policy framework. Our water policy is framed in consultation of all relevant stakeholders & is reviewed on a continuous basis in line with the evolving water related scenarios.

The engagement strategy sets out HZL's objectives related to water conservation, efficient water use and the necessities surrounding water in the context of its host communities. This includes: · Integrating water management and efficiencies · Acknowledging water in respect to climate change · Recognizing water as critical resource for local communities. To ensure the successful implementation of the Water Strategy in the overall context, a framework for monitoring progress, integrating initiatives and communicating progress was developed. The well-defined communication Strategy facilitates policy implementation and reporting, for all stakeholders. Internal communication, including training, encourages buy-in and behavioral change to water conservation.

W6.6

(W6.6) Did your organization include information about its response to water-related risks in its most recent mainstream financial report?

Yes (you may attach the report - this is optional)

Integrated-Annual-Report-2021-22.pdf

Sensitivity: Internal (C3)

TCFD water risk report 22.pdf

W7. Business strategy

W7.1

(W7.1) Are water-related issues integrated into any aspects of your long-term strategic business plan, and if so how?

	Are water-related issues integrated?	Long-term time horizon (years)	Please explain
Long-term business objectives	Yes, water-related issues are integrated	21-30	One of the key business priorities for HZL is Transitioning to Circular Economy (HZL's innovation & technology led approach to lower rates of extraction, reduce use of natural resources for resource efficiency and efficient management of sustainable materials. Water is one of the goals within the long-term business strategy with the specific objective of being able to operate in water-scare catchments and create a shared value for all stakeholders. HZL's Water Management Strategy thus aims to direct water management efforts, promote conservation and demand management with a uniform Group-wide approach. HZL integrates relevant water issues into their long term objectives, to ensure its operation remain feasible and sustainable. The water issues that are integrated into the business objectives include: The strategy is modelled to deliver valuable outcomes for the stakeholders by achieving 8 strategic goals such as water stewardship, responsible sourcing etc. Specific issues integrated into the long term strategy include long-term efficiency, recycling, usage, community water needs as well as water-related risks & opportunities. All plans are reviewed monthly for Executive sustainability committee and six monthly by Board level sustainability committee . All the identified water issues get reflected in our water policy to further ensure consistency in approach and action. . Sufficient availability of water for the communities ensures our social license to operate.

Sensitivity: Internal (C3)

Strategy for achieving long-term objectives	Yes, water-related issues are integrated	21-30	Specific Water related issues such as reduction of water withdrawal; reuse and recycling; water use efficiency; addressing local community water needs; mine dewatering and discharge prevention are integrated into our strategy. Our long term water related goal is to become a 5 times water positive company and achieve a reduction of 25% in fresh water consumption. In addition, In FY 21-22, we conducted water risk assessment across HZL, at 100% of our sites, using 3 tools - WRI Aqueduct Water Risk Atlas, Water Risk Monetizer, and WWF Water Risk Filter. Objective- A sensitivity analysis and stress testing for water-related risks in 2030 and 2050 scenario and define a water pricing. To achieve this, we develop water strategies. These strategies include using more water efficient methods of production and consumption, using alternative sources of water to reduce dependency on fresh water, and replenish water within local watersheds through rainwater harvesting. We also strategize for any social or reputational risks that may arise due to water consumption while simultaneously managing regulatory risks and physical climate change risks. Our water goal is line with our business strategy to maintain long life of 25+ years, we have prepared 5 year plans to execute our strategy. We recognize that company's growth and business objectives can be affected considerably in case of shut downs due to unavailability of water, water related legal actions, regulations or reputation loss.
Financial planning	Yes, water-related issues are integrated	5-10	In FY 21-22, we conducted water risk assessment across HZL, at 100% of our sites, using 3 tools - WRI Aqueduct Water Risk Atlas, Water Risk Monetizer, and WWF Water Risk Filter. Objective- A sensitivity analysis and stress testing for water-related risks in 2030 and 2050 scenario and define a water pricing. All our operations fall under water stressed areas, water poses a physical threat for HZL operations that may have direct financial implications on our business. Strategy for using alternate sources of water in operations in water stressed areas forms a part of financial planning. Future financial plans consider the need to have sufficient availability of water at each facility. Our water

Sensitivity: Internal (C3)

			strategy is embedded in our business plan and considers water demand by all users and potential supply. For instance, we have projected our water demand to increase by 15% year on year. The existing water resources can only help meet 80% of our demand. We partner with stakeholders to improve water security for our operations and to help meet the needs of communities. Our financial planning includes projected estimate to manage the long-term risks of flooding & drought; cost of response for building infrastructure for communities, low quality water acquisition, water conservation initiatives, dry tailing dam construction etc. While our water goal is line with our business strategy to maintain long life of 25+ years, we have prepared 5-year financial plans to execute our strategy.

W7.2

(W7.2) What is the trend in your organization's water-related capital expenditure (CAPEX) and operating expenditure (OPEX) for the reporting year, and the anticipated trend for the next reporting year?

Row 1

Water-related CAPEX (+/- % change)

83

Anticipated forward trend for CAPEX (+/- % change)

20

Water-related OPEX (+/- % change)

5.6

Anticipated forward trend for OPEX (+/- % change)

10

Please explain

The Increase in CAPEX is primarily due to the implementation of major projects which were undertaken in the reporting year such as the ZLD Projects at ZSD and DSC, RAM Rain water harvesting project, dry tailing project at RDM etc. Last year, the total expenditure on environmental projects was INR 1680000000, this number has increased to INR 3075000000 in this reporting year.

Water related OPEX has increased by 5.6% due to operational and maintenance cost of

5 MLD STP Plant and ZLD plant. Last year, the operational expenditure of environmental projects was INR 980 million. This number has increased to INR 1035 million in this reporting year.

W7.3

(W7.3) Does your organization use scenario analysis to inform its business strategy?

	Use of scenario analysis	Comment
Row 1	Yes	HZL conducted water risk assessment across 100% of our sites, using 3 tools - WRI Aqueduct Water Risk Atlas, Water Risk Monetizer, and WWF Water Risk Filter. Objective- A sensitivity analysis and stress testing for water-related risks in 2030 and 2050 scenario and define water pricing. Projections of physical water risks such as water scarcity, flooding, water quality, and ecosystem services, as well as regulatory and reputational water risks were identified. For all parameters, the tool provides three scenario pathways based on: OPTIMISTIC: Sustainable socio- economic development (SSP1) and moderate reductions in GHG emissions (RCP 2.6/4.5) leading to approx. 1.5°C CURRENT TREND: Current socio- economic (SSP2) trends and intermediate GHG emission (RCP 4.5/6.0) levels leading to approx. 2°C PESSIMISTIC: Unequal and unstable socio-economic development (SSP3) and high GHG emission (RCP 6.0/8.5) levels leading to approx. 3.5°C

W7.3a

(W7.3a) Provide details of the scenario analysis, what water-related outcomes were identified, and how they have influenced your organization's business strategy.

	Type of scenario analysis used	Parameters, assumptions, analytical choices	Description of possible water-related outcomes	Influence on business strategy
Row 1	Water-related Climate-related	In FY 21-22, we conducted water risk assessment across HZL, at 100% of our sites, using 3 tools - WRI Aqueduct Water Risk Atlas, Water Risk Monetizer, and WWF Water Risk Filter. Objective- A sensitivity analysis and stress	The WRI Aqueduct Water Risk Assessment demonstrated all our nine mining sites fall under 'Extremely High' 'Overall Water Risk'. It is observed that the most of locations fall under water stress regions.	Physical acute risks like drought would cause impact on revenues, direct costs thereby having potential impact of INR 292

Sensitivity: Internal (C3)

		testing for water-related risks in 2030 and 2050 scenario and define a water pricing. The basin-level value chain water risk assessments helped to quantify inherent water risks and as well as local/operational assessments to quantify residual water risks. We results were combination of basin and operation risk data to identify the highest risk facilities, residual risk and prioritize shared water challenges. The climate risk assessment is studied as per IPCC Emission Scenario RCP 4.5 (medium low emission, global average CO2 concentration about 600 ppm) for all 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 water-related risks and opportunities through adjustments to strategic and financial plans. Two time frames considered: a. 2020-2039 b. 2040-59 Parameters Considered: • Inter-annual variability • Seasonal variability • Groundwater table decline • Riverine flood risk • Coastal flood risk • Regulatory and reputational	In order to understand the behaviour of water level on long-term basis, a comparison of water level for each measurement period was made with the decadal 10 year 2030 -2040 average of water levels for the same period. On long term basis, it is observed that, pre-monsoon water level shown decline whereas other periods shown rise in water levels. In the assessment we have defined the following risk as: • WATER STRESS - Baseline water stress measures the ratio of total water withdrawals to available renewable surface and groundwater supplies. Water withdrawals include domestic, industrial, irrigation, and livestock consumptive and no consumptive uses. Available renewable water supplies include the impact of upstream consumptive water users and large dams on downstream water availability. Higher values indicate more competition among users	million. In FY 2021-22, we assessed that INR 5,254 million is required to implement the following strategies to mitigate risks medium-term time frame: •Use of evaporation retardants chemicals for minimizing evaporation in Surface Water Reservoirs Operational actions (OPEX) • Exploring alternate sources of water and ensuring more recycling of water (Informational actions) HZL has become 2.41 times water positive company aligned to water consumption to combat water availability issues in the future. • Setting up of Udaipur STP installation cost

Sensitivity: Internal (C3)

		risk • Key Performance Indicators- • Incoming Risk • Incoming water bill • Incoming risk premium (quantity and quality) • The incoming risk premium • Outgoing Risk • Outgoing water bill • Outgoing risk premium (quality) • Physical risk quantity • Water Stress • Water Depletion b. Water Availability: i. Drought (Ensemble Median Range(Projected change in Annual Mean Drought Index; SPEI)) c. Flooding i. Annual flooding (Projected Change in Days with Rainfall> 50mm) d. Extreme Events i. Cyclone		

W7.4

(W7.4) Does your company use an internal price on water?

Row 1

Does your company use an internal price on water?

Yes

Please explain

Internal price of water to be used by the organisation for decision making is: INR 329.20 /m3. We followed the procedure as below:
1. Determined the water targets considering the water resource availability in the region in view of increase in demand while maintaining minimum state to support ecosystem.
2. Identified all interventions to replenish water, treat & recycle water and reduce water consumption and computed cost (capital and operations cost) per m3 and the quantum of water replenish/reuse/reduce opportunity

Sensitivity: Internal (C3)

3. All such opportunities are arranged in ascending order of cost per m3 and determined the price of water (INR/m3) to be applied in decision making to achieve the set targets.

Going forward, HZL will use INR 329.20 per m3 as the price for water, in evaluating various capital investments and technology/equipment choices. It will be used in the calculation of Internal Rate of Return (IRR) or Pay Back Period for project evaluations.

W7.5

(W7.5) Do you classify any of your current products and/or services as low water impact?

	Products and/or services classified as low water impact	Definition used to classify low water impact	Please explain
Row 1	Yes	We define water positive ratio by analysing Water Credit to Debit Ratio which indicates plants' dependency on the fresh water sources compared to other water sources. Higher the index, lower is the dependence on fresh water sources and vice versa.	Hindustan Zinc Limited is 2.41 times water positive, which means that we have reduced our dependence on freshwater sources. This we have done by sourcing municipal waste water from Udaipur STP, by improving recycling rate, rainwater harvesting structures, and by establishing ZLD plants across our smelting operations. This means that 100% of the products have a low water impact and hence, can be classified as low water impact products. For example, at Dariba Smelter (products Zinc, Lead & Water), we consume 86% of the water from Udaipur STP (Sewage treated water) and rest 14% is sourced through fresh water sources. In a business as usual scenario, the freshwater intensity at Dariba would have been 18.81 m3 /tonne of metal produced. With utilization of STP water at Dariba, the freshwater intensity at Dariba is 2.57 m3 /tonne of metal produced

Sensitivity: Internal (C3)

W8. Targets

W8.1

(W8.1) Describe your approach to setting and monitoring water-related targets and/or goals.

	Levels for targets and/or goals	Monitoring at corporate level	Approach to setting and monitoring targets and/or goals
Row 1	Company-wide targets and goals Activity level specific targets and/or goals Site/facility specific targets and/or goals	Targets are monitored at the corporate level Goals are monitored at the corporate level	HZL has set Sustainability Goals for 2025 as its vision and committed to Zero discharge facility. One of the water-related sustainability goals is to be 5X Water positive company & achieve 25% reduction in freshwater by 2025. Site level water saving targets are defined annually and water conservation initiatives and projects are set. Site specific water conservations initiatives and projects are briefed to the board as a part of target setting. These targets setting, initiatives, policies are finalized on the basis global scenario, local/regional regulations requirements and accordingly decides on any long-term changes needed in its water management strategy and shares them as goals and targets. HZL takes annual water saving targets and maps its achievements along those targets. In FY 21-22, we have identified more than 40 water saving projects at our locations and saved about 2317 megalitres of water from these initiatives. Specific water consumption has also reduced to 25.52 m3/ton in FY22 of metal from 27.78 M3/ ton of metal in FY 21.

W8.1a

(W8.1a) Provide details of your water targets that are monitored at the corporate level, and the progress made.

Target reference number

Target 1

Category of target

Sensitivity: Internal (C3)

Other, please specify

Reduce Fresh Water Consumption by 25% and 5 times Water Positive by 2025

Level

Company-wide

Primary motivation

Risk mitigation

Description of target

Freshwater consumption target is for 100% of our operations based in India. We have taken a target to reduce our freshwater consumption by using alternative sources of water.

Quantitative metric

Other, please specify

million cubic meter

Baseline year

2020

Start year

2020

Target year

2025

% of target achieved

63.8

Please explain

We have reduced freshwater consumption by 3.19 million m3 as against the target of 5 million m3 reduction by 2025

- Freshwater consumption in Base year (2019-20) = 19.97 million m3
- Freshwater consumption in Reporting Year (2021-22) = 16.78 million m3
- Expected Freshwater consumption in Target Year (204-25) = 14.97 million m3
- Target Achieved- 63.8 %

W8.1b

(W8.1b) Provide details of your water goal(s) that are monitored at the corporate level and the progress made.

Goal

Engaging with local community

Level

Basin level

Sensitivity: Internal (C3)

Motivation

Shared value

Description of goal

Aim- Focused water initiative to make the earmarked villages water sufficient.
1. Assessment on “rainwater harvesting and water resource development” was undertaken across 57 operational villages of Hindustan Zinc of which initially 3 villages of Dariba, Rajsamand district were identified for pilot intervention, wherein more than 72,000 CuM water storage capacity was increased in Sindesar Khurd, Makhanpuriya & Anjana villages .
2. 200 bighas land converted into multicrop irrigated agricultural land through community Lift Irrigation, of which 50 bigha barren land converted to agricultural land in Anwalheda village.
3. 28 water infrastructure strengthening projects were executed in 20 villages through construction of overhead tank, open well, canal & Panghat work
4. Potable water supply through RO/ATM continued through 13 RO & 39 ATMs, covering 52 villages, benefiting 30,000+ villagers
5. Water supplied in 39 villages, yearly 2 lacs+ KL water supplied

Baseline year

2021

Start year

2022

End year

2025

Progress

Outreach across 75 villages covering 2,00,000+ villagers

W9. Verification

W9.1

(W9.1) Do you verify any other water information reported in your CDP disclosure (not already covered by W5.1a)?

Yes

EY_HZL Limited_CDP Water Report 2022_Assurance Statement.pdf

W9.1a

(W9.1a) Which data points within your CDP disclosure have been verified, and which standards were used?

Disclosure module	Data verified	Verification standard	Please explain

Sensitivity: Internal (C3)

W1 Current state	Water withdrawal , discharge, recycle and consumption verified	ISAE 3000	Water withdrawal, discharge, recycle and consumption verified for all units covered in this boundary. water disclosure assurance for FY 2021-22 has been attached in W-F1
W8 Targets	water saving target verified as part of SD report verification	ISAE 3000	Water saving target verified as part of SD report verification. Water disclosure assurance for FY 2021-22 has been attached in W-F1
W1 Current state	Water withdrawal , discharge, recycle and consumption verified	ISAE 3000	Also all the water credit and debit details verified by DNV and HZL certified as 2.41 times water positive company. Assurance letter attached in W-F1 for 2021-22

W10. Sign off

W-FI

(W-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.

W10.1

(W10.1) Provide details for the person that has signed off (approved) your CDP water response.

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

W10.2

(W10.2) Please indicate whether your organization agrees for CDP to transfer your publicly disclosed data on your impact and risk response strategies to the CEO Water Mandate's Water Action Hub [applies only to W2.1a (response to impacts), W4.2 and W4.2a (response to risks)].

Yes

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

Sensitivity: Internal (C3)

	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

Sensitivity: Internal (C3)