

**ENVIRONMENTAL IMPACT ASSESSMENT
FOR THE PROPOSED GREENFIELD ZINC SMELTER COMPLEX
(1X0.35 MTPA ZINC SMELTER ALONG WITH FUMER PLANT),
2X90 MW CAPTIVE POWER PLANT AND
35 MW WHRB AT GIDC DOSWADA, TALUKA SONGADH,
DISTRICT TAPI, GUJARAT**

EXECUTIVE SUMMARY

Environmental Consultant:



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(Approved Consultant)

Project Proponent:



April, 2021



1.0 INTRODUCTION

M/s. Hindustan Zinc Limited (HZL) is India's largest and world's second largest zinc-lead miner and engaged in the mining and smelting of zinc, lead and silver metal in India. The Company's operations include five Zinc-Lead mines, four zinc smelters, a lead smelter, a zinc-lead smelter, a silver refinery plant and six captive power plants in the state of Rajasthan. In addition, the Company also has Zinc, Lead, Silver processing and refining facilities in the State of Uttarakhand. HZL also has wind power plants in the States of Rajasthan, Gujarat, Karnataka, Tamil Nadu and Maharashtra. It has a metal production capacity of over one million tons per annum with its key Lead-Zinc mines in Rampura Agucha, Dariba and Zawar, and smelting complexes in Debari, Chanderiya and Dariba, all in the state of Rajasthan.

HZL proposes to setup one of the State of the Art Zinc Smelter Complex with proposed capacity of 1x0.35 MTPA of Zinc Smelter along with Fumer Plant, 2X90 MW of Captive Power Plant (CPP) and 35 MW Waste Heat Recovery Boiler (WHRB) at GIDC Doswada, Taluka Songadh, District Tapi, Gujarat.

As per Environmental Impact Assessment (EIA) Notification dated 14th September 2006, proposed project falls under category-'A' of project activity 3(a) metallurgical industries (ferrous & non-ferrous) and 1(d) thermal power plants and requires prior Environmental Clearance (EC) to be obtained from Ministry of Environment, Forest & Climate Change (MoEF&CC) before the commencement of ground activity.

The application No: IA/GJ/IND/176971/2020 for prior EC (Form-1 and Pre-Feasibility Report) for the proposed project has been submitted to MoEF&CC on 14th December 2020 and same was reviewed by the Expert Appraisal Committee (Industry-I) through the video conferencing meeting held on 30th December 2020 to prescribe specific Terms of Reference (TORs) for the preparation of EIA/EMP report. Standard TOR along with specific TOR has been issued by MoEF&CC vide letter reference F.No. J-11011/288/2020-IA.II(I) dated 22nd December 2020.

2.0 PROJECT DESCRIPTION

The proposed greenfield zinc smelter complex project would produce 350 KTPA of zinc cathode/ingot; 180 MW (2 x 90 MW) of power (from CPP); 664 KTPA of sulphuric acid; 80.5 KTPA of zinc oxide compound; 18.9 KTPA lead-silver compound; 3 KTPA sodium sulphate; 1 KTPA copper (as copper sulphate/chloride); 1.2 KTPA of cadmium metal, 50 TPA of cobalt; 30 TPA of nickel; 44 TPA of calomel; 25 TPA germanium; 750 TPA of sodium chloride and 35 MW power from WHRB etc. within the total land area of about 165.6 ha earmarked with the state of art environment friendly technology.

Considering various process options available such as Pyro-metallurgical ISF route & Hydrometallurgical route, HZL has proposed for a hydro-metallurgical smelter at Doswada GIDC using conventional hydro-metallurgical route of roast-leach-electro-winning operations for the following reasons:

- 1) Higher recovery of Zinc and other by-products; and
- 2) Production of Special High Grade (SHG) quality Zinc.



Also, there is no plant operating in the world following pyro-metallurgical route for capacity more than 0.12 MTPA. To eliminate Jarosite generation, it is also proposed to install fumer plant (pyro metallurgical process) within leaching circuit of zinc smelter.

The following are the principle objectives considered for the proposed project:

- Adopting environment friendly technology & equipment and working on reduction of pollution load of hazardous solid waste i.e. Jarosite by setting fumer plant;
- Conserving natural resources like water, thermal & electrical energy;
- Waste reduction and recycling options;
- Aiming at waste heat recovery to best possible extent by state of art proven technology;
- Value added by-products; and
- Based on our proven and satisfactory experience, pulverised coal fired Boiler with steam turbine generator has been selected.

➤ Salient Features of the Smelter and CPP

- Double Conversion Double Absorption (DCDA) process with Super Cesium catalyst, followed by Tail Gas Treatment Plant (TGT) results in high SO₂ recovery and low SO₂ emission in sulphuric acid plant
- Recovery of minor metals like Lead, Silver, Copper, Cadmium, Cobalt, Nickel and Germanium, thereby reduction in waste generation
- High efficiency ESPs with 8 nos. of fields, Flue Gas Desulphurization (FGD) and NO_x control solutions in Captive Power Plant
- Integrated utility plant including Integrated effluent treatment plant followed with two stage Reverse Osmosis (RO) plant and Multiple Effect Evaporator (MEE)/Mechanical Vapor Recompression (MVR) plant and RO based Demineralization (DM) plant thereby reducing effluent generation;
- Cement concrete internal roads;
- Industrial sweeper; and
- Truck /tyre wash stations.

The salient features of the proposed plant (zinc smelter, Fumer plant & CPP) of Doswada smelter complex are given in **Table-1**.



**TABLE-1
SALIENT FEATURES OF THE PROPOSED
PROJECT OF DOSWADA SMELTER COMPLEX**

Sr. No.	Particulars	Details
1	Project Location	Zinc Smelter Complex GIDC Doswada, Taluka Songadh, District Tapi, Gujarat
2	Coordinates	Latitude: 21°7'56.10"N to 21°9'4.21"N Longitude: 73°31'4.13"E to 73°31'44.58"E
3	Survey No.	GIDC Doswada, Taluka Songadh, District Tapi, Gujarat
4	Present land use at the site	Industrial (GIDC Land)
5	Elevation above MSL	126 m – 139 m
6	Toposheet No.	F43N12 (46G/12) and F43N8 (46G/8)
7	Climatic conditions - Surat Observatory (Nearest IMD station)	Annual maximum temp: 41.5°C Annual minimum temp: 10.9°C Annual total rainfall: 1195.6 mm Annual predominant wind direction: SW
8	Nearest Highway	NH-6, (0.01 km, N) SH-174 (4.1 km, ESE)
9	Nearest Railway Station	Doswada RS (0.05 km, SSW) Ukai RS (3.0 km, E)
10	Nearest Airport	Surat (80 km, W)
11	Nearest Port	Magdalla (80 km, W) Hazira (90 km, W) Dahej (115.0 km, W)
12	Nearest Village	Kumkua (0.4 Km, E) Pokhran (0.7 km, N)
13	Nearest Town/City	Songadh Town (3.9 km NE)
14	Nearest District Headquarters	Vyara (11.5 km WSW)
15	Hills/Valleys	Nil in 15 km radius
16	Monuments	Nil in 15 km radius
17	Archaeologically important places	Songadh Fort (5.21 Km ENE)
18	Water bodies	Mindhola or Madav River Dam (0.3 km, S) Ukai Dam/Reservoir (9.3 km, NE) Jhankhri Nadi (9.8 km, SSW) Girra Nadi (11.2 km, S) Tapi River (12.4 km, N)
19	Defense installation	Nil in 15 km radius
20	State & National Boundary	Gujarat/Maharashtra state boundary (5.2 km, E)
21	Reserved/Protected forest	RF Near Pokhran Village (0.9 km, N) RF Near Plant Boundary (0.9 km, NW) RF Near Mandal Village (1.8 km, W) RF Near Devalpada Village (3.5 km, SW) RF Near Khanjar Village (3.6 km, S) RF Near Kikakui Village (4.3 km, NW) RF Near Amplipada Village (4.9 km, N) RF Near Chimkua Village (6.8 km, E) RF Near Ghodchit Village (7.3 km, S) RF Near Gunasada Village (7.5 km, NE) RF Near Chachar Bhunda Village (7.7 km, NE) RF Near RF Bhadpada Village (7.8 km, SE) RF Near Navi Ukai Village (7.9 km, NNE) RF Near Bhipua Village (8.1 km, NNE) RF Near Ghodchit Village (8.3 km, S) RF Near Navi Ukai Village (8.5 km, NE) RF Near Godirwala Village (9.4 km, SSE) RF Near Vadpada Village (9.7 km, SE) RF Near Gopalpura Village (9.8 km, SE) RF Near Katiskuva Village (9.9 km, NW) RF Near Moghwan Village (10.3 km, SSW)

Sr. No.	Particulars	Details
		RF Near Pervad Village (11.6 km, SSW) RF Near Vadala Village (11.8 km, NNE) RF Near Vajhaphali Village (12.4 km, SE) RF Near Chikhli Village (12.5 km, NW) RF Near Limbi Village (13.0 km, N) RF Near Chinchbordi Village (13.1 km, SSW) RF Near Taparwada Village (13.3 km, SE) RF Near Jamne Village (13.4 km, NE) RF Near Kapadwan Village (14.7 km, SW) RF Near Chachar Nandsal Village (14.9 km, ENE)
22	Protected areas as per Wildlife Protection Act, 1972 (Biospheres, Tiger Reserves, Elephant Reserves, National Parks, Wildlife Sanctuaries, Conservation Reserves, and Community Reserves)	Purna Wildlife Sanctuary ESZ (10.7 km, S) Purna Wildlife Sanctuary boundary (14.2 km, S)
23	List of Industries	Girnar Stone Quarry-Songadh (2.0 km, NE) Vijay Stone Quarry-Songadh (3.1 km, NE) Ukai Thermal Power Station (6.6 km, NE) JK Paper Mills, Songadh (7.4 km, NE)
24	Seismicity	Seismic zone-III as per IS-1893 (Part-1) - 2002

TECHNOLOGY AND PROCESS DESCRIPTION

HZL proposes to install hydro-metallurgical smelter designed to produce 0.35 MTPA of Special High Grade (SHG) zinc annually from zinc concentrate/calcine. The hydro-metallurgical route based on Roast-Leach-Electro-Winning process is widely accepted process for manufacturing Zinc metal.

To eliminate the generation of Jarosite, the Fumer plant is also proposed in this project which will stop producing Jarosite and start producing slag which can be gainfully utilized in cement manufacturing and road construction. This important step is taken after consideration of environmental concerns in whole world to reduce hazardous waste for safer environment for future generation i.e. Sustainability.

Environmental Setting of the Site

The proposed project site is located in latitude 21°7'56.10"N to 21°9'4.21"N and longitude 73°31'4.13"E to 73°31'44.58"E, which is in Gujarat Industrial Development Corporation (GIDC) Doswada, Taluka Songadh, District Tapi, in the state of Gujarat. The total area earmarked for the proposed project is ~165.6 ha, which is under possession of HZL. The proposed site is located in the south-east portion of the Gujarat State near to Maharashtra border which is about 5.2 km (aerial distance) away from the plant boundary towards east direction. The study area map of 10km radius is shown in **Figure-1**.

3.0 DESCRIPTION OF THE ENVIRONMENT

Baseline environmental status has been established for various environmental attributes within a study area of 10 km radius from the project site. The major environmental disciplines covered in the EIA study includes ambient air quality,



water quality, noise levels, soil quality, ecology (terrestrial and aquatic), land use, geology, hydrology and demographic & socio-economic conditions. The baseline studies are carried during 1st October 2020 to 31st December 2020, covering Post-Monsoon and Partly winter season in the various domains of environment.

3.1 Land Use

The land use pattern of the study area indicates that 63.7 % of the study area is under agricultural lands followed by water bodies of about 4.8 %. Percentage of built-up area and forest area is about 7.5 % and 10.0 % respectively. Wastelands is about 14 % of study area.

3.2 Soil Quality

As per the physical data, soils are of fine texture having low bulk density, imperatively high water holding capacity and moderately slow permeability. As per physical characters' soils are rated as moderate to good for agriculture.

It has been observed that the pH of the soil in the study area ranged from 7.16 to 8.16. The electrical conductivity was observed to be in the range of 330 $\mu\text{S}/\text{cm}$ to 520 $\mu\text{S}/\text{cm}$. The available nitrogen values range between 102 kg/ha to 147 kg/ha. The available phosphorus values range between 34.6 kg/ha to 44.3 kg/ha. The available potassium values range between 309 kg/ha to 465 kg/ha kg/ha. Soluble chlorides in the region varied from 37.8 kg/ha to 122.4 kg/ha. Organic matter concentrations ranged from 0.72% to 1.41 %. Organic carbon concentrations ranged from 0.42% to 0.82%.

3.3 Climatology and Meteorology

The recorded temperature at site during study period ranges between 12.3°C to 37.2°C and relative humidity ranges in between 40% to 70%. Predominant winds are mostly from NW and NE followed by SW directions were observed during the study period.

3.4 Ambient Air Quality

To establish the baseline status of the ambient air quality in the study area, the air quality was monitored at ten locations during post monsoon and part of winter season in 2020. The $\text{PM}_{2.5}$ and PM_{10} are observed to vary from 17.8 $\mu\text{g}/\text{m}^3$ to 38.3 $\mu\text{g}/\text{m}^3$ and 31.9 $\mu\text{g}/\text{m}^3$ to 63.4 $\mu\text{g}/\text{m}^3$ respectively. The SO_2 and NO_x are observed to vary from 8.9 $\mu\text{g}/\text{m}^3$ to 19.6 $\mu\text{g}/\text{m}^3$ and 10.2 $\mu\text{g}/\text{m}^3$ to 24.3 $\mu\text{g}/\text{m}^3$ respectively. The CO is observed to vary from 162 $\mu\text{g}/\text{m}^3$ to 382 $\mu\text{g}/\text{m}^3$ respectively. The O_3 is observed to vary from 3.2 $\mu\text{g}/\text{m}^3$ to 9.2 $\mu\text{g}/\text{m}^3$ respectively. The remaining parameters as per 16th November 2009 CPCB Notification are observed to be within permissible limits.



Environmental Impact Assessment for the Proposed Greenfield Zinc Smelter Complex (1x0.35 MTPA Zinc Smelter along with Fumer Plant), 2x90 MW Captive Power Plant and 35 MW WHRB at GIDC Doswada, Taluka Songadh, District Tapi, Gujarat

Executive Summary

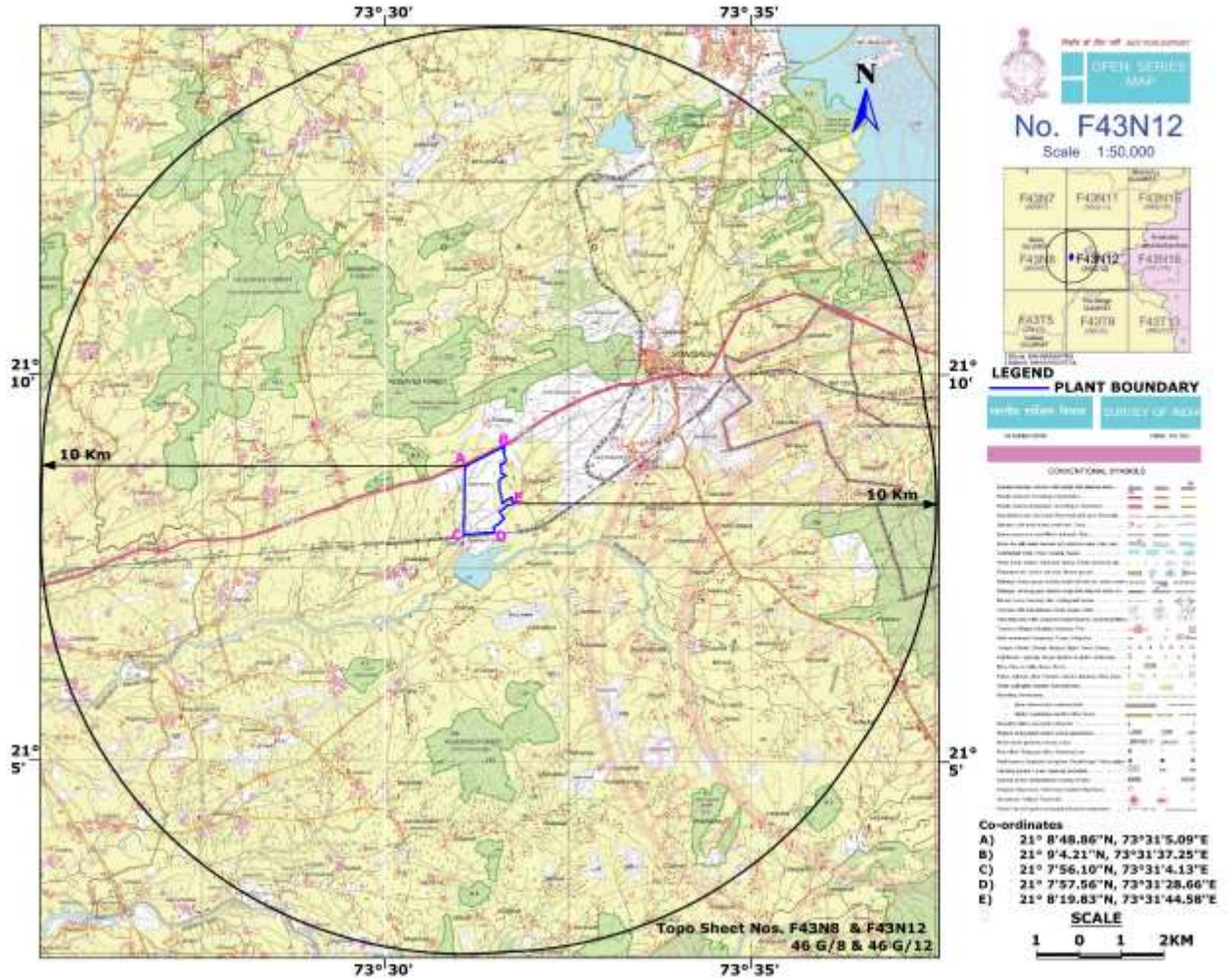


FIGURE-1
STUDY AREA MAP



3.5 Water Quality

To assess the physical and chemical properties of water in the region, water samples from Eight ground water and five surface water locations were collected and analyzed from various water sources around the project site. The water quality results are discussed below:

- **Surface Water Quality**

The analysis results indicate that pH is found to be 6.98 to 7.33, which is well within the specified standard 6.5-8.5. The TDS was observed to be 382 mg/l to 456 mg/l. Dissolved oxygen was observed to be 5.6 mg/l to 6.2 mg/l. The chlorides and sulphates were found to be 64.2 mg/l to 96.8 mg/l and 43.8 mg/l to 62.8 mg/l respectively. Bacteriological studies reveal the 580 MPN/100ML to 910 MPN/100ML.

- **Ground Water Quality**

The analysis results indicate that the pH ranges in between 7.16 to 7.61, which is well within the specified standard of 6.5 to 8.5. Total hardness was observed to be ranging from 145.8 to 324.3 mg/l.

Chlorides at all the locations were ranging in between 31.2 to 82.3 mg/l. Fluorides were observed to be ranging in between 0.5 to 1.0 mg/l and are found to be within the permissible limit. Nitrates are found to be in range of 4.7 to 12.6 mg/l. Bacteriological studies reveal that no coliform bacteria are present in the samples. The heavy metal contents were observed to be in well within the limits.

3.6 Noise Level Survey

The noise monitoring has been conducted in the study area. Day time, night time noise levels were found to be varying from 43.9 dB(A) to 73.8 dB(A) and 40.8 dB(A) to 69.2 dB(A) respectively in the study area. The noise levels in general found within the acceptable levels as per standards prescribed by Central Pollution Control Board (CPCB).

3.7 Ecological Studies

There are no Schedule-1 species present in the study area.

The rest of other fauna are represented by Schedule-II, Schedule-IV and Schedule-V of the Indian Wildlife (Protection), Act, 1972.

Incidentally there is no presence of endangered botanical flora in the study area, as per the records of Botanical Survey of India. The study area does not comprise of any rare or threatened species of fish or insects.

3.8 Social Environment

The information on socio-economic aspects of the study area has been compiled from secondary sources, which mainly include census data of 2011. The salient features of the demography and socio-economic profile are as follows:



- Total population is 1,45,425;
- The scheduled castes (SC) are 0.77% and scheduled tribes (ST) are 81.84%;
- Overall literacy rate in the study area according to 2011 census is 70.19%, out of which male literacy is 54.80% while female literacy is 45.20%; and

The percentage of main workers and marginal workers are 69.74% and 30.26% respectively.

4.0 Anticipated Environmental Impacts and Mitigation Measures

The potential environmental impacts due to the proposed project have been assessed in detail. These include impact on air quality, noise level, water quality, solid waste, ecology and socio economics, etc. The modelling and analysis of the data indicate that the predicted impacts are minimal and are within the prescribed norms and standards. Comprehensive mitigation measures have been incorporated in the environment management plan to ensure that the environmental quality is protected and enhanced.

The summary of anticipated environmental impacts due to the proposed Zinc smelter, Fumer & CPP during operation phase and mitigation measures are given in the following **Table-.2**

**TABLE-2
SUMMARY OF ANTICIPATED IMPACTS DURING OPERATION PHASE**

Sr. No.	Impacts on	Type of Impacts	Remark
1	Land use	Irreversible impact	The proposed project of zinc smelter will be implemented within 165.60 ha of Industrial Area of GIDC Land which is already under industrial land use category. The area is also having good vegetation in the form of greenbelt around the project area which is added an aesthetic view to that area.
2	Ambient Air Quality	Irreversible impact	The air quality will be affected due to gaseous emissions from the stacks and fugitive emissions from the raw material handling areas. The predicted incremental Ground Level Concentrations (GLC's) and the resultant concentrations were observed to be below NAAQ standards applicable for rural and residential areas. The project site is located within GIDC land and the ambient air quality survey indicates that the area is already having other industries and stone quarries. Further, various mitigation measures like state-of-the art air pollution control devices like Double Conversion Double Absorption (DCDA) based Sulphuric Acid Plant followed by Tail Gas Treatment (TGT) Plant, Eight Field ESP, Flue Gas Desulphurization (FGD) and NOx Control Solutions in Captive Power Plant, bag filters and providing stacks of adequate height, development of greenbelt around the project area helps to minimize the extent of adverse impact of the Doswada smelter complex.

Sr. No.	Impacts on	Type of Impacts	Remark
3	Water Resources	No major impact	Fresh water requirement of 35 MLD will be met from Ukai Dam through pipeline.
4	Water Quality	Insignificant impact	All the effluents generated in the project will be treated and reused in the process and greenbelt. The plant will operate on zero effluent discharge principle. Therefore, no impact on the ground or surface water quality is envisaged.
5	Socio-economic Status	Beneficial significant impact	The investment in the new Zinc Smelter Plant project will accelerate the economic and industrial development of the state and generating direct and indirect employment to the tune of 5000 people. The project will help in setting up any ancillary facilities in and around it which will provide the spin of benefits to the economy and will help livelihood around 50, 000 people. The works like transportation, greenbelt development, housekeeping etc. are out sourced and local eligible population is given the preference in awarding the job. The project contributes in improvement of economic status of the people in the area.
6	Infrastructure	Beneficial significant impact	The road network in the area is developed and strengthened. The infrastructure in the schools, medical facilities, training facilities like computer training, industrial training to the eligible youths etc. will be developed as part of CSR policy of the project.
7	Greenbelt Development	Beneficial significant impact	Greenbelt/Green areas will be developed in about 55 ha which is earmarked as per GPCB norms. Greenbelt will be developed in set of rows in such a way that they form an effective barrier between the plant and the surroundings.

5.0 ENVIRONMENTAL MONITORING PROGRAM

The environmental monitoring program is important in terms of evaluating the performance of pollution control equipments installed in the project. During operational phase monitoring locations of ambient air, water and noise will be chosen in such a way that baseline environmental status will be monitored in all the directions as required. Further, HZL-Doswada will discuss with CPCB/GPCB regarding any additional monitoring locations to be monitored and will comply with CPCB/GPCB suggestions.

The total project cost for the proposed project is about Rs.5,000 Crores, which may further escalate depending upon the project execution period. Out of this, estimated capital investment of EMP budget is about Rs. 740.80 Crores and will be spent on environmental protection.

6.0 ADDITIONAL STUDIES

Risk Assessment and Disaster Management Plan

Risk assessment has been carried out to quantify the extent of damage and suggest recommendations for safety improvement for the proposed zinc smelter

complex. Risk mitigation measures based on MCA analysis and engineering judgments are incorporated in order to improve overall system safety and mitigate the effects of major accidents.

An effective Disaster Management Plan (DMP) to mitigate the risks involved will be prepared for proposed Doswada smelter complex. This plan defines the responsibilities and resources available to respond to the different types of emergencies envisaged. Training exercises will be held to ensure that all personnel are familiar with their responsibilities and that communication links are functioning effectively.

7.0 **PROJECT BENEFITS**

The beneficial impact of proposed project on the civic amenities will be substantial after the commencement of project activities. The basic requirement of the community needs will be strengthened by extending healthcare, educational facilities to the community, building/strengthening of existing roads in the area. HZL will provide above amenities and would further strengthen the activities either by providing or by improving the facilities in the area, which will help in uplifting the living standards of local communities.

HZL believes that an effective growth policy must also take into account the fulfillment of basic needs of the masses, especially of those living in rural areas. HZL will participate in various CSR activities in the areas like infrastructure development, education, medical facilities, sanitation, community development and awareness programmes, vocational training in and around the project site. A detailed SIA report was prepared and needs were identified based on the needs as per first phase of the project cost RS. 5,000 Crores @ 2.5% of the Enterprise Social Commitment (ESC) budget Rs. 125 Crores was prepared in sector wise. The proposed corporate environment responsibility budget is given in **Table-3**.

TABLE-3
PROPOSED CORPORATE ENVIRONMENT
RESPONSIBILITY BUDGET

Sr. No.	Sectors	Proposed Budget (Rs. in Crores)
1	Tribal Welfare	20
2	Health and Hygiene	15
3	Education	15
4	Skill Development & Self Employment	12
5	Drinking Water	12
6	Infrastructure Development	19
7	Agriculture and Animal Husbandry	10
8	Environment Protection and Others	10
9	Women Welfare	12
	Total	125

8.0 ENVIRONMENT MANAGEMENT PLAN

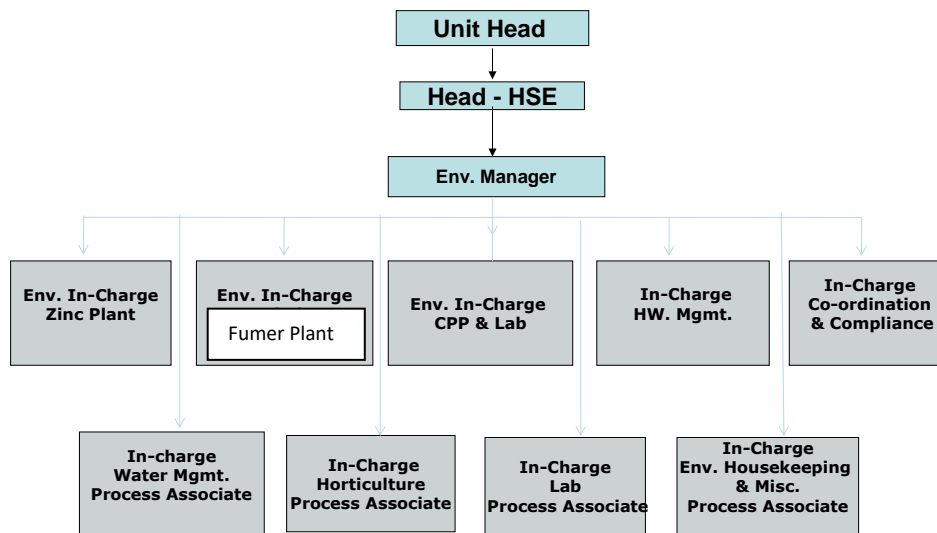
The project will be supervised and controlled by a Unit head supported by adequate team of technically and statutorily qualified personnel apart from the operating staff of skilled, semi-skilled, unskilled and other categories.

Implementation of the Environment Management Plan (EMP) will be the responsibility of the environment department consisting of well-qualified professionals who are reporting directly to the Unit Head.

The environment department will supervise the monitoring of environmental pollution levels viz. ambient air quality, water and effluent quality, noise level either departmentally or by appointing external agencies.

A Senior Manager (Env) will be in-charge of the Environment Management cell supported by engineers and chemists and horticulturist along with other technicians.

- Organizational Structure for Environment Management:**



- Budgetary Allocation for Environmental Protection**

About Rs. 740.80 Crores is allocated on pollution control, treatment and monitoring systems for proposed zinc smelter complex. The break-up of the investment is given in the following **Table-4**.

**TABLE-4
COST PROVISION FOR ENVIRONMENTAL MEASURES**

Sr. No.	Particulars	Capital cost (Rs. in Lakhs)	Recurring cost (Rs. in Lakhs/ annum)
1	Effluent Treatment Plant (ETP) including RO & MEE/MVR	5400	1610
2	Acid Plant/ Gas Cleaning Plant/ TGT	25000	2575
3	FGD & ESP (CPP)	30000	800
4	Cyclone & Bag filters	350	110
5	Sewage Treatment Plant (STP) & Sewerage System	200	30
6	Plantation/ Greenbelt	600	150
7	Secured Landfill (SLF)/ Slag Yard & Ash Storage Yard	2900	500
8	CEMS/CAAQMS Etc.	580	60
9	Environmental Lab	250	36
10	Coal & Ash Handling System	8000	50
11	Rainwater Harvesting/ Storm Water Pond	800	18
	Total EMP Cost	74080	5829

9.0 CONCLUSIONS

HZL believes that the proposed project would add significant value to Indian economy. The project will not only help ensure our country by becoming self-sufficient in terms of zinc, but will also drive macro-economic growth.

The proposed project would have adverse impacts on the environment. However, with proper and judicious implementation of the mitigation and environment management measures, the impacts can be further minimized and can be maintained well within the permissible limits specified by the regulatory authorities.

Thus, it can be concluded that with the strict implementation of the pollution control and mitigation measures, with proper environment management system in place the proposed expansion project will be beneficial to the society and will contribute to the economic development of the state in particular and the country in general.