

**SUMMARY ON
ENVIRONMENTAL IMPACT ASSESSMENT
REPORT**

OF

Hira Steels Limited

[Expansion of Steel Plant – New Induction Furnace with Rolling Mill (Hot Charging) (Structural Steel & Rolled products 3,00,000 TPA), Rolling Mill with Gasifier (Structural Steel & Rolled products -1,20,000 TPA to 2,40,000 TPA), Wire Drawing (60,000 TPA to 1,20,000 TPA and New Binding Wire Unit (50,000 TPA)]

at

Rawabhata Industrial Area,
Tehsil & District: Raipur, Chhattisgarh

Submitted to

**CHHATTISGARH ENVIRONMENT CONSERVATION BOARD
Chhattisgarh**

1.0 PROJECT DESCRIPTION

Hira Steels Ltd. is an existing Steels Plant located at Rawabhata Industrial Area, Raipur Tehsil & District, Chhattisgarh. Existing plant has obtained Consent To Establishment (CTE) prior to EIA notification 14th September 2006. Hence Environment Clearance is not applicable for existing plant. Accordingly obtained Consent to Operate (CTO) for 1,20,000 TPA Rolling Mill vide letter no. 1211 & 1213/TS/CECB/2016 dt. 26/05/2016 valid till 31/12/2020. from the Chhattisgarh Environment Conservation Board (CECB) and for H.B. Wire drawing unit vide letter no. 7958 & 7959/RO/TS/CECB/2018 dt. 26/03/2018 valid till 28/02/2023.

Now company proposed for establishment of New Induction Furnace with Rolling Mill (Hot Charging) (Structural Steel & Rolled products 3,00,000 TPA), Rolling Mill with Gasifier (Structural Steel & Rolled products -1,20,000 TPA to 2,40,000 TPA), Wire Drawing (60,000 TPA to 1,20,000 TPA and New Binding Wire Unit (50,000 TPA) in the existing plant premises only. Existing plant is located in 10.222 Ha. of land. Proposed expansion will be taken up in the Existing plant premises only. Hence, no alternate site has been selected.

As per the Ministry of Environment, Forest & Climate Change, New Delhi, EIA notification dated 14th September, 2006 & its subsequent amendments, all the non –toxic secondary metallurgical processing industries are falling under Sl. No. 3 (a), classified as Category ‘B’ for the grant of Environmental Clearance at State Level. State level Expert Appraisal Committee, Chhattisgarh has issued TOR letter vide letter No. 341/SEAC-CG/RO and Ind./Raipur/664 Atal Nagar dt. 6th December 2018.

Pioneer Enviro Laboratories & Consultants Private Limited, Hyderabad, which is accredited by NABET, Quality Council of India, vide certificate No. NABET/ EIA/ 1619/ RA 026, for preparing EIA report for Metallurgical Unit, have prepared Draft Environmental Impact Assessment (EIA) report for the proposed expansion project by incorporating the TOR approved by Ministry of Environment, Forests & Climate Change, New Delhi. The report contains detailed description of the following:

- Characterization of status of environment with in an area of 10 km radius from the plant for major environmental components including air, water, noise, soil, flora, fauna and socio-economic environment.
- Assessment of air emissions, liquid waste and solid waste from the proposed expansion project along with the noise level assessment.

- Environmental Management Plan comprising of emission control measures proposed to be adopted in the proposed expansion project, solid waste management, Greenbelt development.
- Post Project Environmental Monitoring & Budget for Environmental Protection Measures.

1.1 ENVIRONMENTAL SETTING WITHIN 10 Km. RADIUS OF THE PLANT SITE

The following is the environmental setting within the 10 Km. radius of the Plant site:

S.No.	Salient Features / Environmental features	Distance w.r.t. site / Remarks
1.	Type of Land (for Expansion)	The plant is situated in Rawabhata Industrial Area. The expansion project will be taken up in the existing plant premises only.
2.	Type of Land (Study Area)	As per LULC the land use within 10 Km. is as follows: Settlements/School/GSI/RS –14.1 %; Industrial Area- 8.6 %; Tank/River/Major Canal – 6.4 %; Single crop – 54.3 %; Double Crop – 5.4%; Plantation – 1.2%; Land with scrub – 4.7 %; Land without scrub – 3.2 % & Land for Plotting – 2.1 %.
3.	National Park/ Wild life sanctuary / Biosphere reserve / Tiger Reserve / Elephant Corridor / migratory routes for Birds	Nil
4.	Historical places / Places of Tourist importance / Archeological sites	Nil
5.	Industrial areas / cluster (MoEF&CC office memorandum dated 13 th January 2010)	Nil, however proposed project area falls within 10 Kms. radius of Siltara Industrial Area & Raipur area which are Critically polluted area as categorized by CPCB with CEPI of 79.94 & 70.77 respectively.
6.	Defence Installations	Nil
7.	Nearest village	Rawabhata village is the Nearest habitation - 0.75 Kms.
8.	No. of Villages in the Study Area	41 Nos.
9.	Reserved forests	Nil
10.	Water body	Kharun River (6.2 Kms.) & Chokra Nallah (0.7 Kms.) exists within 10 Km. radius of the plant site.
11.	Nearest Railway station	Urkura RS (4.5 Kms. – By road)
12.	Nearest Highway	NH # 200 (0.7 Kms. – By road)
13.	Nearest Port facility	Nil
14.	Nearest Airport	Nil (Raipur Airport – 17.0 Kms.)
15.	Nearest Interstate Boundary	No interstate boundary within 10 Km radius of the plant site.

S.No.	Salient Features / Environmental features	Distance w.r.t. site / Remarks
16.	Seismic zone as per IS-1893	Seismic zone – II
17.	R & R	There is no rehabilitation and resettlement issue, as the existing land & additional land acquired is Industrial land.
18.	Litigation / court case is pending against the proposed project / proposed site and or any direction passed by the court of law against the project	Nil

1.2 Plant Configuration and Production Capacity

The proposed Steel Plant envisages manufacturing of the following products:

S.No.	Unit	Existing (TPA)	Proposed Expansion (TPA)	After Expansion (TPA)
1.	Rolling Mill with Gasifier	120000	120000	240000
2.	Wire Drawing	60000	60000	120000
3.	Induction Furnace with Rolling Mill (Hot Charging)	--	300000 (6 x 15 T & 1 x 10 T)	300000
4.	Galvanizing Unit *	--	50000	50000
5.	Binding Wire	--	50000	50000

** Note: TOR has been obtained for Galvanizing unit also along with other units, however it is proposed to drop now*

1.3 Raw Materials

The following will be the raw material requirement for the proposed expansion project:

S.No.	Raw Material / Fuel	Quantity	Sources	Mode of Transport
1.	For Induction Furnace – 3,00,000 TPA			
a)	Sponge Iron	2,50,000 TPA	Raipur	By road (through covered trucks)
b)	Scrap	1,07,000 TPA	Raipur	By road (through covered trucks)
c)	Ferro alloys	4,500 TPA	Raipur	By road (through covered trucks)
2.	For Rolling Mill (TMT bars & Structural Steel) – 2,40,000 TPA			
a)	Hot Metal / Billets	3,00,000 TPA (out of which 2,60,000 TPA of Hot metal will be sent to IF and	Own generation	----

		remaining 40,000 TPA of billets will be sold outside)		
b)	Furnace Oil	40 KLD	Raipur	Through tanker

1.4 Manufacturing Process

Manufacturing of Hot Metal through Induction Furnace

In Steel Melting Shop (SMS), Sponge Iron will be melted along with melting scrap and fluxes to make pure liquid steel and then to mould it in required size billets. The SMS will consist of Induction furnace, Ladles, Cranes & Continuous Casting Machine (CCM). There will be 6 x15 MT Induction furnaces to manufacture Hot Metal. The Hot Metal produced will be directly sent to Rolling Mill without using Re-heating Furnace through Hot charging method.

Manufacturing of Rolled products through Rolling Mill

The Hot Metal produced from Induction Furnaces will be directly sent to Rolling Mill to produce Rolled Products.

1.5 Water Requirement

Water required in the existing plant is 110 KLD. Water required for the proposed expansion project will be 250 KLD and same will be sourced from Ground Water and also will be supplied by Chhattisgarh State Industrial Development Corporation (CSIDC). Water drawl permission will be obtained from CGWA and water supply letter from CSIDC.

The following is the break-up of the water requirement for entire project.

Break-up of Water requirement

S.No.	Unit	Quantity in KLD		
		Existing Plant	Proposed Expansion	Total after Expansion
1.	Rolling Mill with Gasifier	100	100	200
2.	Wire Drawing	--	--	--
3.	Induction Furnace with Rolling Mill (Hot Charging)	--	140	140
4.	Binding Wire	--	--	--
5.	Domestic	10	10	20
	Total	110	250	360

1.6 Waste Water Generation

In the proposed project, the wastewater generated from the proposed unit will be sent to Settling pond after it will be recycled again as closed-circuit cooling system is provided. Scrubber blowdown will be recycled back. Oil & grease traps will be provided, to treat if water is getting mixed with oil, grease and cleaning agents. Sanitary waste water generation due to expansion will be 8 KLD and will be treated in septic tank followed by subsurface dispersion.

1.7 Wastewater Characteristics

Parameter	Sanitary waste water untreated
pH	7.0 – 8.5
BOD (mg/l)	200 – 250
COD (mg/l)	300 – 400
TDS (mg/l)	800 – 900

2.0 DESCRIPTION OF ENVIRONMENT

Base line data has been collected on ambient air quality, water quality, noise levels, soil quality, flora and fauna and socio-economic details of people within 10 km radius of the plant.

2.1 Ambient air quality

Ambient air quality was monitored for PM_{2.5}, PM₁₀, SO₂, NO_x & CO at 8 stations including project site during March 2019 to May 2019. The following are the concentrations of various parameters at the monitoring stations:

Parameter		Concentration
PM _{2.5}	:	21.8 to 49.8 µg/m ³
PM ₁₀	:	38.4 to 87.8 µg/m ³
SO ₂	:	7.4 to 15.5 µg/m ³
NO _x	:	9.1 to 28.5 µg/m ³
CO	:	518 to 1458 µg/m ³

2.2 Water Quality

2.2.1 Surface Water Quality

2 no. of Samples have been collected 60 m Upstream & 60 m Downstream of Kharun River. 1 no. of sample have been collected from Chokra Nallahand analyzed for various parameters to assess surface water quality. The analysis of samples shows that all the parameters are in accordance with BIS-2296 specifications.

2.2.2 Ground Water Quality

8 No. of ground water samples from open wells / bore wells were collected from the nearby villages to assess ground water quality impacts and analyzed for various Physico-Chemical parameters. The analysis of samples shows that all the parameters are in accordance with BIS: 10500 specifications.

2.3 Noise Levels

Noise levels were measured at 8 locations during day time & Night time. The noise levels at the monitoring stations are ranging from 44.00 dBA to 70.89 dBA.

3.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

3.1 Prediction of impacts on air quality

The likely emissions from the proposed expansion project are PM₁₀, NO_x & CO. The predictions of Ground level concentrations have been carried out using Industrial Source Complex (ISC-3) model. Meteorological data such as wind direction, wind speed, max. and min. temperatures collected at the site have been used as input data to run the model.

The predicted max. Incremental PM₁₀ concentrations (24 hourly) due to the proposed expansion project will be 1.52 µg/M³ at a distance of 800 m from the stack in the down wind direction over the baseline concentrations. The predicted incremental rise in Particulate Matter concentration due to the Vehicular emission will be 0.17 µg/m³. Total incremental rise in PM will be 1.69 µg/m³.

The predicted max incremental SO₂ concentrations (24 hourly) due to the proposed expansion project will be 6.6 µg/m³ at a distance of 800 m from the stack in the down wind direction over the baseline concentrations.

The predicted max incremental NO_x concentrations (24 hourly) due to the proposed expansion project will be 9.2 µg/m³ at a distance of 800 m from the stack in the down wind direction over the baseline concentrations. The predicted incremental rise in NO_x concentration due to the Vehicular emissions will be 1.3 µg/m³. Total incremental rise in NO_x will be 10.5 µg/m³.

The predicted incremental rise in CO concentration due to the Vehicular emission will be $0.83\mu\text{g}/\text{m}^3$.

The net resultant concentrations (Maximum baseline conc. + predicted incremental rise in conc.) of PM, NO_x & CO are shown in Table below by considering the emissions from other industries in the area will be well within the National Ambient Air Quality Standards (NAAQS) when the expansion project commences the operation. Hence there will not be any adverse impact on air environment due to the proposed expansion.

Net Resultant maximum concentrations due to the proposed expansion project

Item	PM ₁₀ (~g/m ³)	SO ₂ (~g/m ³)	NO _x (~g/m ³)	CO (~g/m ³)
Maximum baseline conc. in the study area	87.8	15.5	28.5	1458
Maximum predicted incremental rise in concentration due to proposed expansion project (Point Sources)	1.52	6.6	9.2	Nil
Maximum predicted incremental rise in concentration due to proposed expansion project (Vehicular emissions)	0.17	Nil	1.3	0.83
Net resultant concentrations during operation of the expansion project	89.49	22.1	39.0	1458.83
National Ambient Air Quality Standards	100	80	80	2000

3.2 Prediction of impacts on noise quality

The major noise generating sources are Furnace & DG set. Silencer will be provided to the DG Set. The ambient noise levels will be within the standards prescribed by MoEF&CC i.e. the noise levels will be less than 75 dBA during day time and less than 70 dBA during night time. 9.0 acres (3.642 Ha.) of extensive greenbelt will be developed covering more than 1/3rd of the total area helping further attenuating the noise levels. Hence there will not be any adverse impact due to noise on population in surrounding areas due to the proposed expansion project.

3.3 Prediction of impacts on Water Environment

In the proposed project, the wastewater generated from the proposed unit will be sent to Settling pond after it will be recycled again as closed-circuit cooling system is provided. Scrubber blowdown will be recycled back. Oil & grease traps will be provided, to treat if water is getting mixed with oil, grease and cleaning agents. Sanitary waste water generation due to expansion will be 8 KLD and will be treated in septic tank followed by subsurface dispersion.

3.4 Prediction of Impacts on Land Environment

Zero effluent discharge will be adopted. All the required air pollution control systems will be provided to comply with CPCB / CECB norms. All solid wastes will be disposed / utilized as per CPCB / SPCB norms. 7.00 acres (2.833 Ha.) of greenbelt has already been developed as per guidelines. Hence there will not be any adverse impact on land environment due to the proposed expansion project.

3.5 Prediction of Impacts on Biological Environment

- There are no National Parks, Wild life Sanctuaries and Bird Sanctuaries within 10 Km. radius of the plant site.
- All the required Air emissions control systems in the expansion project will be installed and operated to comply with MoEF&CC/CPCB/CECB norms.
- Zero liquid effluent discharge is being maintained in the existing plant and similar practice will be maintained after expansion also.
- All solid waste disposal will be in accordance with the norms.
- Extensive Greenbelt of 7.00 acres (2.833 Ha.) will be maintained in the plant premises.

When all norms are complied and with proper implementation of Environment Management Plan, there will not be any adverse impact on flora & Fauna due to the proposed expansion.

3.6 Socio - Economic Environment

There will be lot of opportunities in employment to local people during construction as well as in operation phase. There will be further upliftment in Socio Economic status of the people in the area. Hence there will be further development of the area due to the proposed expansion project.

4.0 ENVIRONMENTAL MONITORING PROGRAMME

Post project monitoring will be conducted as per the guidelines of CECB and MoEF&CC are tabulated below:

MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

S.No.	Particulars	Frequency of Monitoring	Duration of sampling	Parameters required to be monitored
1. Water & Waste water quality				
A.	Water quality in the area	Monitored on quarterly basis.	Grab sampling	As per IS: 10500
B.	Sanitary waste water	Once in a month	Grab sampling	As per EPA Rules 1996
2. Air Quality				
A.	Stack Monitoring	Online monitors Once in a month		PM PM, SO ₂ & NO _x
B.	Ambient Air quality	Once in a month	24 hours continuously	PM _{2.5} , PM ₁₀ , NO _x & CO
C.	Fugitive emissions	Quarterly basis	8 hours	PM
3. Meteorological Data				
	Meteorological data to be monitored at the plant.	Daily	Continuous monitoring	Temperature, Relative Humidity, Rainfall, wind direction & wind speed
4. Noise level monitoring				
	Ambient Noise levels	Twice in a year	Continuous for 24 hours with 1-hour interval	Noise levels

5.0 ADDITIONAL STUDIES

No rehabilitation and resettlement is required as the plant is located in Rawabhata Industrial Area and proposed expansion will be taken up in the existing plant premises.

6.0 PROJECT BENEFITS

With the establishment of the proposed expansion project employment potential will increase. Land prices in the area will increase. The economic status of the people in the area will improve due to the proposed project. Top priority will be given to locals in employment. A separate budget will be allocated for CER activities which will be implemented in the nearby villages. These activities will help in contributing to the development of villages in the nearby areas.

7.0 ENVIRONMENT MANAGEMENT PLAN

7.1 Air Environment

The following are air emission control systems proposed in the expansion project:

S.No.	Stack attached to	No. of Stacks	Control Equipment	Particulate emission at the outlet
1.	2 x 15 T Induction Furnaces	1 no.	Fume extraction system followed by Bag filter	< 30 mg/Nm ³
2.	2 x 15 T Induction Furnaces	1 no.	Fume extraction system followed by Bag filter	< 30 mg/Nm ³
3.	2 x 15 T Induction Furnaces	1 no.	Fume extraction system followed by Bag filter	< 30 mg/Nm ³
4.	1 x 10 T Induction Furnace	1 no.	Fume extraction system followed by Bag filter	< 30 mg/Nm ³
5.	Rolling Mill (1 x 400 TPD)	Existing stack will be adequate		< 30 mg/Nm ³

- All conveyors will be completely covered with G.I. sheets to control fugitive dust.
- All bins will be totally packed and covered so that there will not be any chance for dust leakage.
- All discharge points and feed points, wherever the possibility of dust generation is there a de-dusting suction point will be provided to collect the dust.

7.2 Water Environment

In the proposed project, the wastewater generated from the proposed unit will be sent to Settling pond after it will be recycled again as closed-circuit cooling system is provided. Scrubber blow-down will be recycled back. Oil & grease traps will be provided, to treat if water is getting mixed with oil, grease and cleaning agents. Sanitary waste water generation due to expansion will be 8 KLD and will be treated in septic tank followed by subsurface dispersion.

7.3 Noise Environment

The major sources of noise generation in the proposed expansion project will be Furnace & DG set, etc. Silencer will be provided to D.G. set. All the machinery will be manufactured in accordance with MoEF&CC norms on Noise levels. The employees working near the noise generating sources will be provided with earplugs. The extensive greenbelt will be developed within the plant premises and will help in attenuating the noise levels further.

7.4 Land Environment

There will be no effluent discharge from the manufacturing process as a closed circuit cooling system will be adopted. Sanitary waste water will be treated in septic tank followed by sub-surface dispersion.

Solid wastes will be disposed off as per norms. Extensive greenbelt will be developed in the plant premises. Hence there will not be any impact due to the proposed expansion project.

Solid waste generation and disposal

Following will be the solid waste generation & proposed method of disposal:

S.No.	Solid Waste / By product	Proposed Expansion (TPA)	Method of Disposal
Induction Furnace			
1.	Slag	30,000	Slag from SMS will be crushed and iron will be recovered & remaining non-magnetic material being inert by nature will be used as sub base material in road construction / will be given to brick manufacturers.
Rolling Mill			
2.	Mill scales	2,880	Mill scales will be given to nearby Ferro alloys manufacturing units or casting units.
3.	End Cuttings	9,120	Recycled back as raw material in own induction Furnaces

7.5 Greenbelt Development

Extensive Greenbelt of 7.0 acres (2.833 Ha.) will be developed in the existing plant premises covering more than 1/3rd of the total area.

Capital cost for environment protection for the total project is : Rs. 7.2 Crores

Recurring Cost per annum for Environmental protection : Rs.50 Lakhs/annum