

EXECUTIVE SUMMARY

For

EXPANSION OF PRODUCTION CAPACITY OF SPONGE IRON 315000 TPA; MILD STEEL BILLET 450000 TPA; REROLLED STEEL PRODUCTS 650000 TPA (THROUGH HOT CHARGING 350000 TPA, THROUGH REHEATING FURNACE BASED COAL GASSIFIER 300000 TPA); FERRO ALLOYS 19000 TPA OR PIG IRON 38000 TPA; CAPTIVE POWER 30 MW (16 MW THROUGH WHRB AND 14 MW THROUGH AFBC) FLY ASH BRICK 115500 TPA, ERW PIPE 500000 (NEW ADDITION), GALVANIZING UNIT 100000 TPA (NEW ADDITION), COLD ROLLING MILL (STEEL) 100000 TPA (NEW ADDITION)

At

VILLAGE SARORA, TEHSIL TILDA, DISTRICT RAIPUR,
CHHATTISGARH

Baseline Monitoring Period: post monsoon season (1st October 2020 – 31st December 2020)

PROJECT PROPONENT

M/S. SAMBHV SPONGE POWER PVT. LTD.

501 to 511, Fifth Floor, Harshit Corporate, Amanaka, Raipur,
Chhattisgarh

ENVIRONMENTAL CONSULTANT



M/s Anacon Laboratories Pvt. Ltd., Nagpur

QCI-NABET Accredited EIA Consultant for
Metallurgical Industries (Sector 8) & Thermal Power Plant (Sector 4)

MoEF&CC (GOI) Recognized Laboratory

ISO 9001:2015, ISO 14001:2015, OHSAS 18001:2007

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Report No. ANqr /PD/20A/2021/159

JULY 2021

EXECUTIVE SUMMARY

1.0 INTRODUCTION

M/s. Sambhv Sponge Power Private Limited (hereafter referred as SSPPL) has proposed to expand permitted existing capacity of manufacturing facilities for production of Sponge Iron, MS Billet, Steel Rerolled products, Ferro Alloys, Fly Ash products along with captive power generation plant comprising of Waste Heat Recovery Boilers (WHRB) and Atmospheric Fluidized Bed Combustion (AFBC) Boiler and Steam Turbine & Generator. The company had taken over the unit from Khetan Sponge and Infrastructure Private Limited which was operating the plant based on Previous EC granted to it vide letter number: F. No J-11011/387/2009-IA II (I).

The existing brownfield project will be expanded within in 25.303 Ha. of already existing total land area. It is proposed to expand the existing facilities by implementing manufacturing facilities for production of Sponge Iron (90000 to 315000 TPA), Induction furnace with CCM/PCM (150000 to 450000 TPA), Rolling mill (150000 to 650000 TPA out of which 350000 TPA Hot charge and 300000 TPA through Coal Gasifier based Reheating Furnace), Ferro Alloys plant (30000 TPA reduced to 19000 TPA) and/or Pig Iron 38000 TPA,, Captive power plant total 30 MW (WHRB based 6 MW to 16 MW and AFBC based 9 MW to 14 MW) and Fly Ash Brick plant (115500 TPA- new addition) ERW Black Pipe (500000 TPA – New addition) Galvanized Steel (100000 TPA), Cold Rolled Steel Product (100000 TPA – New addition) as a Brownfield project at Village Sarora, Dist. Raipur.

As per Environmental Impact Assessment Notification dated 14th September, 2006 and subsequent amendment thereof, the overall project falls under Category “A”; Project Activity ‘3(a)’ Metallurgical Industries and ‘1(d)’ Thermal Power Plant and requires Environmental Clearance (EC) to be obtained from EAC, MoEF&CC, New Delhi.

The unit has granted Standard TOR Vide letter No J-11011/387/2009-IA.II(I) on dated 11.11.2020. Subsequently the promoters decided to add new capacity of MS Black Pipe, Cold Rolled MS Steel Strips and Galvanizing unit; hence applied for amendment IA/CG/IND/190777/2020 Dated 31.12.2020 and thus ToR granted for proposed expansion by EAC (Industry – I), MoEFCC, New Delhi vide file no. J-11011/387/2009-IA on dtd. 12th Feb, 2021 for preparation of the draft EIA-EMP report.

Anacon Laboratories Pvt. Ltd., Nagpur, is QCI-NABET accredited in ‘Category A’ environment consultant organization has been assigned to undertake an Environmental Impact Assessment (EIA) study and preparation of Environment Management Plan (EMP) for various environmental components, which may be affected due to the impacts arising out of the proposed project.

The Environmental Impact Assessment (EIA) and Environment Management Plan report is prepared for obtaining Environmental Clearance (EC) from MoEF&CC, New Delhi and the Consent for Establishment from the Chhattisgarh Environment Conservation Board (CECB) for the proposed expansion project.

Anacon Laboratories Pvt. Ltd. has conducted the baseline study for 10 Km radius Study area surrounded to the project site during Post monsoon season (1st October, 2020 to 31st December, 2020) accordingly, EIA study report is prepared.

1.1 IDENTIFICATION OF PROJECT

M/s. SSPPL has proposed to expand the existing facilities by implementing manufacturing facilities for production of Sponge Iron (90000 to 315000 TPA), Induction furnace with CCM/PCM (150000 to 450000 TPA), Rolling mill (150000 to 650000 TPA out of which 350000 TPA Hot charge and 300000 TPA through Coal Gasifier based Reheating Furnace), Ferro Alloys plant (30000 TPA reduced to 19000 TPA) and/or Pig Iron 38000 TPA, Captive power plant total 30 MW (WHRB based 6 MW to 16 MW and AFBC based 9 MW to 14 MW) and Fly Ash Brick plant (115500 TPA- new addition) ERW Black Pipe (500000 TPA – New addition) Galvanized Steel (100000 TPA), Cold Rolled Steel Product (100000 TPA – New addition) as a Brownfield project at Village Sarora, Tehsil Tilda, District Raipur, Chhattisgarh.

1.2 LOCATION OF THE PROJECT

The proposed expansion project is located at Village - Sarora, Tahsil - Tilda, District - Raipur, Chhattisgarh – 493114. The nearest city is Tilda which is around 7 km in south east direction. Nearest airport is Swami Vivekanand Airport, Mana, Raipur, which is around 42.3 km at south direction. The nearest habitation is Sarora Village which is 1.0 km at south direction from the project site. The nearest roadways are NH 200 – 3.7 km in west direction, NH 130 – 6.6 km in North North West direction, NH 12A – 6.3 km in north west direction. The nearest railway station is Tilda Railway Station which is 6.2 km in the south east direction. The study area of 10 km radial distance from the project site is shown in **Figure 1**.

1.3 EIA/EMP REPORT

In line with the approved ToR obtained from EAC (Industry –I), MoEFCC, New Delhi, baseline environmental monitoring was already conducted during Post monsoon season (1st October, 2020 to 31st December, 2020) has been considered for determining the status of ambient air quality, ambient noise levels, surface and groundwater quality, soil quality, status of flora, fauna and eco-sensitive areas and socio- economic status of the villages within 10 km radius study area from the project site (**Figure 1**). The observations of the studies are incorporated in the EIA/EMP report. Impacts of the proposed project activities during construction and operation stages were identified and duly addressed in the EIA- EMP report.

EIA/EMP report alongwith the proposed management plan to control / mitigate the impacts. Environmental Management Plan is suggested to implement the pollution control in the project.

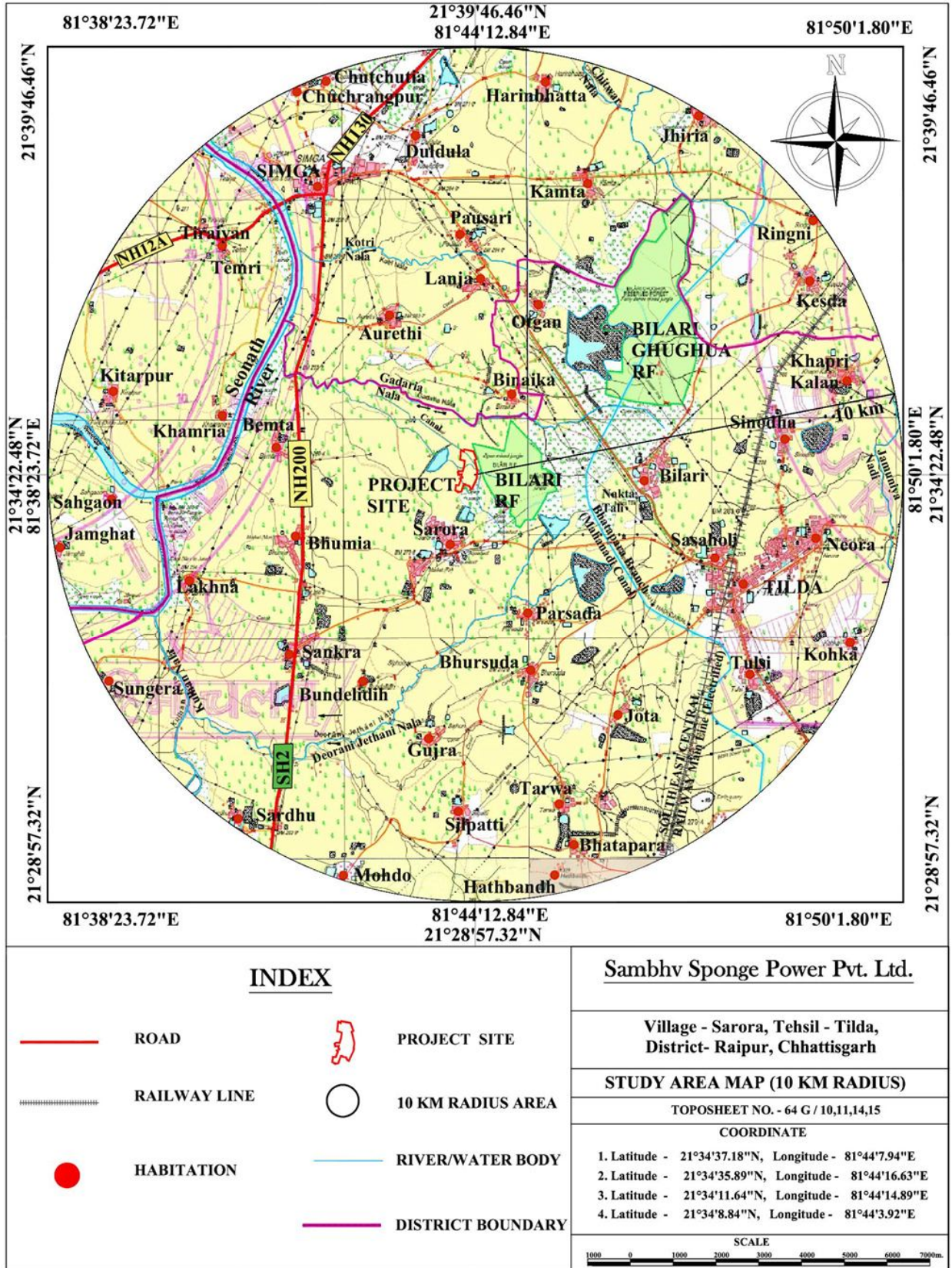


FIGURE 1: STUDY AREA (10 KM RADIAL DISTANCE)

TABLE 1
DETAILS OF ENVIRONMENTAL SETTINGS

Sl.	Particulars	Details										
1.	Project Location	Khasra No. 728/4, 729/5, 729/7, 731/1, 731/3, 734/1, 735, 737, 738/1, 738/2, 739/3, 740/3, 741/6, 741/8, 741/10, 750/2, 752/1, 752/2, 726, 727/2, 727/3, 728/3, 729/4, 729/6, 739/2, 740/2, 741/5, 741/7, 741/9, 741/11, 741/12, 753/1, 753/2, 753/3, 753/4, 753/5, 754/1, 756, 757/2, 757/3, 757/5, 759/1, 759/2, 760, 762, 768/1, 768/3, 770/1, 771/1, 771/3, 771/5, 771/6, 771/7, 771/8, 771/9, 807/3, 807/6, 807/7, 813/2, 814, 815/1, 763, Village - Sarora, Tahsil - Tilda, District - Raipur, Chhattisgarh – 493114.										
	Registered Office	5th Floor, Office No. 501 to 511, Harshit Corporate, Amanaka, Raipur, Chhattisgarh – 490001.										
2.	Geographical Locations	<table border="0"> <tr> <td>Latitude</td> <td>Longitude</td> </tr> <tr> <td>21°34'37.18"N</td> <td>81°44'7.94"E</td> </tr> <tr> <td>21°34'35.89"N</td> <td>81°44'16.63"E</td> </tr> <tr> <td>21°34'11.64"N</td> <td>81°44'14.89"E</td> </tr> <tr> <td>21°34'8.84"N</td> <td>81°44'3.92"E</td> </tr> </table>	Latitude	Longitude	21°34'37.18"N	81°44'7.94"E	21°34'35.89"N	81°44'16.63"E	21°34'11.64"N	81°44'14.89"E	21°34'8.84"N	81°44'3.92"E
Latitude	Longitude											
21°34'37.18"N	81°44'7.94"E											
21°34'35.89"N	81°44'16.63"E											
21°34'11.64"N	81°44'14.89"E											
21°34'8.84"N	81°44'3.92"E											
3.	Toposheet No.	No. 64 G/10,11,14 and 15										
4.	Climatic Conditions	<p>Mean annual rainfall is 1252.8 mm</p> <p>Temperature: Pre monsoon 20.60 C (Min.) 41.70 C (Max.)</p> <p style="padding-left: 40px;">: Winter 13.30 C (Min.) 31.00 C (Max)</p> <p style="padding-left: 40px;">: Post monsoon 17.30 C (Min.) 31.80 C (Max.)</p> <p>Source: IMD, Raipur</p>										
5.	Nearest representative IMD station	IMD Raipur – 40.2 Km, SSW										
6.	Land Form, land Use and Ownership	The land is existing industrial land; total involved land is 25.303 Ha. No additional land proposed to be acquired. Greenbelt area 37% (i.e. 9.30 Ha.) will be kept unchanged. The land already diverted to industrial purpose.										
7.	Site topography	Project site located at min. 268 m, max. 287 m (above MSL)										
8.	Nearest roadway	NH 200 – 3.7 Km, W NH 130 – 6.6 Km, NNW NH 12A – 6.3 Km, NW										
9.	Nearest Railway Station	Tilda railway station – 6.2 Km, SE										
10.	Nearest Air Port	Swami Vivekanand Airport , Mana, Raipur about 42.3 Km, S										
11.	Nearest Port	NA										
12.	Nearest lake	NA										
13.	Nearest State/National Boundaries	Madhya Pradesh – 96.2 Km, WNW										
14.	Nearest major city with 2,00,000 population	Raipur – 40.2 Km, SSW										
15.	Nearest village/major town	Sarora – 1.2 Km, SSW										
16.	Distance for sea coast	Bay of Bengal– 347 km, SE.										
17.	Hills/valleys	NA										
18.	Nearest tourist place	Somnath (Local Tourist Spot) - 7 Km, W										
19.	Nearest Reserved/ Protected forests	Bilari Ghughua RF - 3.3 Km, NE Bilari RF adjacent in E direction										
20.	Nearest water bodies	<p>Seonath River – 5.2 Km, WNW</p> <p>Kulhan Nala – 7.8 Km, SW</p> <p>Deorani Jethani Nala – 2.1 Km, SSE</p> <p>Bhatapara Branch (Mahanadi Kanal) – 2.5 Km, E</p> <p>Gadaria Nala – 0.5 Km, N</p> <p>Kotri Nala – 4.4 Km, N</p> <p>Chitwar Nala – 8.1 Km, NE</p> <p>Jamuniya Nadi – 9.3 Km, E</p> <p>Pond nr. Project Site – Adjacent, W</p> <p>Pond nr. Project Site – 0.18 Km, S</p> <p>Canal – Passing through the project site (no change flow and capacity)</p> <p>Natural seasonal drain passing through project site (no change flow and</p>										

Sl.	Particulars	Details
		capacity)
21.	Nearest Industries	Finex Chemical Industries – 6.7 Km, SW Neel Kamal Rice Industries – 4.3 Km, SW Bharti Rice Industries – 6.9 Km, ESE Amit Chawal Udyog – 7.1 Km, ESE Suresh Industries – 7.6 Km, ENE Ananya Paper Industries – 6.7 Km, SW Agrasen Rice Industries – 4.3 Km, SW Sagar Industries – 7.0 Km, E Hitech Steel and Power Ltd. – 1.9 Km, SE Century Cement Mines – 8.3 Km, SE Century Cement – 9.0 Km, SE Shri Bajrang Power – 8.9 Km, SSE
22.	Areas already subjected to pollution or environmental damage	Project site is not classified or notified as severally or critically polluted area. Siltara Industrial Area – 22 KM Urla Industrial Area – 32 KM
23.	Seismic zone	The project site falls in Zone-II as per IS 1893 (Part-I): 2002. Hence, seismically it is a stable zone.

2.0 PROJECT DESCRIPTION

2.1 PROCESS DESCRIPTION

2.1.1 Manufacturing Process of Sponge Iron (DRI)

- Iron ore, coal, dolomite/limestone is fed in the weighed quantity and the kiln is rotated at a speed of about 0.5 RPM. A temperature between 1000°C to 1050°C is maintained in about 70% of the kiln length towards discharge end side for required reaction.
- After the reaction, the product is taken into an indirect cooling drum cooler. The product is cooled to 100°C and taken for product separation. The product is separated from the coal ash and coal char and then taken for final use.
- The waste gas is taken to an after-burner chamber and the Combustibles are burnt is cooled to about 160°C and taken to ESP for final dust separation, before going to stack via ID Fans.
- The kiln has three functions; heat exchange, chemical reaction in vessel and conveying solids.

2.1.2 Manufacturing process of Steel Melting Shop with CCM

- The manufacturing process installed in the unit is one which is well established and proven technology presently being followed by majority of similar manufacturing units mostly in small or medium scale sector.
- In order to achieve high energy efficiency 4 numbers of Induction Furnaces (each 15 MT capacity) with medium power input capacity of 7.5 to 8 MVA each will be setup with automatic charging facility. Electronic software will be installed to monitor the input power and maintaining power factor to almost unity level.
- The melting process involves taking sample of Sponge Iron & Pig Iron; Iron Powder and mild steel scrap, end cutting from rolling mills or scrap from user units is taken from raw material storage.
- Homogeneous molten mass is poured hydraulically into the ladle.
- **LRF (Ladle Refining Furnace):**

Subsequent to the production of molten steel the production of quality requires refining of the same for which one Ladle Refining Furnace will be set up. The liquid steel containing in the ladle will be brought to LRF and after due processing of the liquid steel the ladle will be transferred to CCM.

- **CCM:**

The ladle containing liquid steel is placed on the Continuous Casting Machine platform and continuous casting of hot billet is carried out in the same.

2.1.3 Power Generation

2.1.3.1 WHRB based Power Generation (16 MW)

The Waste heat Recovery boilers are attached with DRI Kiln. The flue gases released from DRI Kilns will be passed through Waste Heat Recovery Boiler, where waste heat will be recovered and steam will be generated in required temperature and pressure. The source of energy is the heat content in waste flue gases released from DRI Kilns

2.1.3.2 AFBC based Power Generation (14 MW)

Power generation by using Atmosphere Fluidized Bed Combustors (AFBC) boiler.

2.1.4 Manufacturing process of Cold Wire Drawing Unit

The wire-drawing process consists of pointing the rod, threading the pointed end through a die, and attaching the end to a drawing block. Fine wire is made by a multiple-block machine.

2.1.5 Manufacturing process of Ferro Alloys Plant

High Carbon Ferro/Silico Manganese: High Carbon Ferro/Silico Manganese as a finished product produces through a conventional 9 MVA X 4 Nos. Submerged Arc Electric Furnace

2.1.6 Manufacturing process of Pig Iron Plant

Pig Iron is also proposed to produce alternately from the same 9 MVA X 4 Nos. Submerged Arc Furnace by using lower grades Iron ore and Magnetite Iron ores and takes the liquid Iron (Hot Metal) to Induction Furnaces for production of steel.

2.1.7 GI Pipe Manufacturing

Hot-dip galvanizing is a form of galvanization. It is the process of coating iron or steel with a thin zinc layer, by passing the steel through a molten bath of zinc at a temperature of around 860°F (460 °C).

2.2 LAND REQUIREMENT

The total proposed project area is 25.303 Hectare. The land is existing industrial land. No additional land proposed to be acquired. Greenbelt area 37% (i.e. 9.30 Ha.) will be kept unchanged. The land already diverted to industrial purpose. Sufficient flat land, free from major undulations and sparse vegetation is available within the plant premises. The land details are provided as follows:

**TABLE 2
AREA STATEMENT**

Land Use	Proposed Area after expansion	Area in % after expansion
Built Up	114115.329	45%
Road and Paved	31229.600	12%
Green Belt	93080.910	37%
Open Area	14614.249	6%
Total	253039.989	

2.3 RAW MATERIALS REQUIREMENT, SOURCE & MODE OF TRANSPORT

The raw material 2239497 TPA will be transported through truck. It is estimated that approx. 315 trips per day i.e. 630 trucks per day required for transportation of raw materials and finished products of the plant.

2.3.1 Solid and Hazardous waste generation

The details Solid and Hazardous waste generation are given in **Table 3**.

**TABLE 3
SOLID AND HAZARDOUS WASTE GENERATION**

Name of Waste generated	Qty (TPA)	Proposed Disposal Plan
Char Dolochar	94500	Used in own captive power plant
Bottom Flue Dust Ash	63000	Used in Brick making
Kiln Accretion and Refractory waste	2835	Used in Brick making and low-lying areas
Defective Billets	13600	Used as melting/Re Rolling scrap in own plant/Sold out side to Rerolling mills
Mill Scale	27146	Used in own Ferro Alloys as raw material/ sold to Ferro Alloys / Pellet Plants.
Slag from Induction Furnace	81562	Given/ Sold to metal recovery units. And also used in own plant to make Bricks
Refractory and Ramming Mass waste	563	Given to refractory recycling units / used in Fly ash brick making unit / landfill.
Defective and Miss Roll	13147	Reused in own Induction furnace
Coal Ash	46182	To be given to Cement Plants and to Fly Ash Brick making unit
MS Scrap	27316	Internal Transfer/ sold to other industries.
Lead Dross	100	Given to authorized recyclers
Zinc Dross	250	Given to authorized recyclers
Lime Sludge	8250	Given to authorized recyclers
Slag from Ferro Alloys Plant	19000	Used for road making; back filling, and used in own Fly Ash Brick making unit
Fly Ash from FBC	103652	To be given to Cement Plants and Partially Used in own Fly Ash Brick making unit and remaining will be given to outside Fly Ash bricking units.
Fluidized Bed Material	150	Used in own Fly Ash Brick making unit
Total	501253	

2.4 WATER REQUIREMENT & SOURCE

Total water requirement will be 1914 KLD (670825 KLA) out of which 30 KLD required for domestic purpose. Surface water is not available from nearby sources hence ground water was being used. The unit is having NOC form CGWA for 173800 KLA. The area is under Safe Zone as per the guidelines of CGWB. For future expansion the source will be Surface water. Further, the company will obtain sanction for additional requirement 463175 KLA from C.G. State Govt Water Resource Department.

2.5 POWER REQUIREMENT & SUPPLY

Total power requirement – 71 MW. Source: 30 MW will be met through captive power plant and 41 MW will be sourced through State Grid (CSPDCL). In addition to these, total 2 X 3300 kVA DG sets are proposed for emergency backup.

2.6 MANPOWER REQUIREMENT

M/s. SSPPL will provide employment to about 680 (162 existing + 518 additional) peoples which includes total 50 administrative staff (12 existing + 38 proposed) and 630 Production staff (150 existing + 480 proposed). Preference will be given to local people, depending upon their qualification and skill.

2.7 FIRE FIGHTING FACILITIES

In order to combat any occurrence of fire in plant premises, fire protection facilities are envisaged for the various units of the plant. All plant units, office buildings, laboratories, etc. will be provided with adequate number of portable fire extinguishers to be used as first aid fire appliances.

2.8 PROJECT COST

The proposed cost of expansion is estimated as Rs. 24100.00 Lakhs

3.0 EXISTING ENVIRONMENTAL SCENARIO

3.1 BASELINE ENVIRONMENTAL STUDIES

Baseline environmental studies were conducted at project site along with 10 km radial distance from the project site. The baseline environmental quality data for various components of environment, viz. Air, Noise, Water, Land were monitored during **post monsoon season (1st October 2020 – 31st December 2020)** along with secondary data.

3.2 METEOROLOGY & AMBIENT AIR QUALITY

Summary of the Meteorological Data Generated At Site (1st October 2020 – 31st December 2020)

Predominant Wind Direction	Post Monsoon Season
First Predominant Wind Direction	NNE (41.94%)
Second Predominant Wind Direction	N (21.57%)
Calm conditions (%)	0.46
Avg. Wind Speed (m/s)	2.38

The status of ambient air quality within the study area was monitored for post-monsoon season of the year 2020 at 8 locations covering project site. The levels of Respirable Particulate Matter (PM₁₀), Fine Particulates (PM_{2.5}), Sulphur Dioxide (SO₂), Oxides of Nitrogen (NO_x) and carbon monoxide (CO), Ammonia, Ozone, Benzene and BAP were monitored. The details of Ambient Air Quality Monitoring Results are summarized and given in **Table 3 (A)**.

**TABLE 3 A
SUMMARY OF AMBIENT AIR QUALITY MONITORING RESULTS**

Sr. No.	Location		PM ₁₀	PM _{2.5}	SO ₂	NO ₂	CO	Ozone	NH ₃
			µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	µg/m ³
1	Project Site	1. Min	56.8	21.9	10.3	15.9	0.193	7.2	8.4
		2. Max	80.5	30.6	16.3	23.7	0.315	10.4	12.8
		3. Avg	72.1	24.6	12.7	19.8	0.258	8.8	10.3
		4. 98 th	80.4	29.7	16.3	23.1	0.310	10.4	12.8
2	Parsada	1. Min	53.7	18.8	7.8	14.7	0.228	5.8	7.9
		2. Max	72.3	31.5	13.7	21.8	0.329	9.6	11.6
		3. Avg	64.9	23.4	10.4	17.8	0.269	7.2	9.5
		4. 98 th	71.8	29.0	13.1	21.8	0.326	9.4	11.4
3	Lakhna	1. Min	57.3	19.2	10.1	12.6	0.245	4.7	6.4
		2. Max	77.1	32.0	13.4	26.3	0.315	10.0	9.6
		3. Avg	66.4	26.1	12.0	20.6	0.281	7.8	8.2
		4. 98 th	75.9	31.6	13.4	25.8	0.309	9.9	9.6
4	Sarora	1. Min	62.5	24.2	7.8	18.4	0.223	5.6	6.6
		2. Max	85.1	37.4	14.4	24.7	0.283	8.5	9.7
		3. Avg	76.5	29.4	11.3	21.7	0.255	7.3	8.1
		4. 98 th	85.0	36.6	14.3	24.5	0.282	8.3	9.6
5	Bilari	1. Min	53.6	16.9	7.1	15.7	0.210	4.8	6.3
		2. Max	78.7	28.1	11.5	21.7	0.268	9.3	10.4
		3. Avg	67.8	22.7	9.5	18.2	0.244	6.9	8.4

Sr. No.	Location		PM ₁₀	PM _{2.5}	SO ₂	NO ₂	CO	Ozone	NH ₃
			µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	µg/m ³
		4. 98 th	78.5	28.0	11.4	21.5	0.267	9.2	10.3
6	Binaika	1. Min	53.9	17.5	7.5	14.7	0.195	4.5	5.4
		2. Max	78.4	26.1	11.8	20.4	0.272	7.3	9.4
		3. Avg	63.8	22.0	9.2	16.9	0.235	6.2	7.5
		4. 98 th	78.1	25.8	11.4	20.2	0.271	7.3	9.4
7	Bemta	1. Min	63.9	20.8	9.8	19.2	0.306	6.8	8.8
		2. Max	87.5	31.2	12.6	24.8	0.360	10.6	11.6
		3. Avg	78.4	26.7	11.2	22.5	0.332	8.7	10.0
		4. 98 th	87.1	30.9	12.4	24.7	0.359	10.5	11.4
8	Sankara	1. Min	73.5	24.5	10.5	20.4	0.355	7.3	8.6
		2. Max	94.7	34.8	16.2	27.2	0.395	10.2	12.4
		3. Avg	82.1	28.2	13.1	23.5	0.372	8.9	10.5
		4. 98 th	93.8	33.6	15.9	26.8	0.392	10.0	12.3
CPCB Standards			100 (24hr)	60 (24hr)	80 (24hr)	80 (24hr)	2 (8hr)	100 (8hr)	400 (24hr)

From the above results, it is observed that the ambient air quality at all the monitoring locations was within the permissible limits specified by CPCB.

3.3 AMBIENT NOISE LEVELS

Ambient noise level monitoring was carried out at the 08 monitoring locations; The monitoring results are summarized in **Table 4**.

**TABLE 4
SUMMARY OF AMBIENT NOISE LEVEL MONITORING RESULTS**

Sr. No.	Monitoring Locations	Equivalent Noise Level	
		Leq _{Day}	Leq _{Night}
Residential Area			
1.	Bhumia	53.6	42.9
2.	Bemta	54.5	44.7
3.	Bilari	51.7	41.4
CPCB Standards dB(A)		55.0	45.0
Commercial Area			
4.	Sarora	61.8	51.9
5.	Sankara	64.4	54.5
CPCB Standards dB(A)		65.0	55.0
Silence Zone			
6.	Binaika	46.3	36.5
CPCB Standards dB(A)		50.0	40.0
Industrial Area			
7.	Project Site-Gate	63.4	55.7
8.	Project Site-Plant Area	66.2	59.2
CPCB Standards dB(A)		75.0	70.0

Source: Field monitoring and analysis by Anacon Laboratories Pvt. Ltd., Nagpur

3.4 SURFACE AND GROUND WATER RESOURCES & QUALITY

3.4.1 Local Geology

10 km radius study area is mainly comprised of sedimentary rock formations, like stromatolite limestone, argillaceous dolomites, shale. All these formations are of Proterozoic age. There are no major geological structure present in study area as far as concern with construction of buildings and other structure. Study area falls in seismic zone-II i.e., low damage risk zone.

Site specific Geology:

Project area is mostly covered by soil cover which is having thickness of around 0.8-1.2m. Outcrops are very rare in project site.

3.4.2 Hydrogeology

Entire study area is comprises of calcareous sedimentary rock formations of Proterozoic age and belongs to Chattisgarh supergroup. The primary porosity and permeability of these formations is very poor. The ground water in these formations occurs under water table, semi confined and confined conditions. The weathered and the cavernous part of the formation and also the fractured zones constitute the aquifers in the area. The maximum thickness of the weathered formation in the area is around 25m. The cavernous zones are occurring mostly in the depth range of 10 to 70 m.

Depth to water level scenario in the study area:

Pre-monsoon Water levels- 4.5 to 13 m bgl

Post-monsoon water levels: 1 to 3.5 m bgl

3.4.3 Geomorphology

Study area is comprises of gently sloping plains on Proterozoic age. Flood plains are observed along River courses. There are no major geomorphological structures present in study area.

3.4.4 Water Quality

Groundwater and surface water quality was assessed by identifying 8 groundwater (Borewell/ handpump) locations in different villages and 8 surface water samples.

A. Groundwater Quality

The physico-chemical characteristics of groundwater are compared with the IS-10500 standards. The analysis results indicate that the pH ranged between 7.20-7.88. The TDS was ranging from 510-986 mg/l. Total hardness was found to be in the range of 287.78-481.03 mg/l. The fluoride concentration was found in the range of 0.24-0.57 mg/l. The nitrate and sulphate were found in the range of 14.68-39.23 mg/l and 26.32-55.36 mg/l respectively. Heavy metals content (i.e., As, Al, Cd, Cr, Cu, Pb, Mn, Zn and Hg) were found to be below detection limit and within specified standards.

Sr. No.	Locations	WQI	Quality	Remark
1	Project site	63.81	Good	Water quality assessed based upon above physico-chemical parameters and samples were found to be physico-chemically good.
2	Bhumia	86.53	Good	
3	Parsada	97.86	Good	
4	Sarora	89.41	Good	
5	Bilari	96.92	Good	
6	Binaika	62.27	Good	
7	Bemta	63.47	Good	
8	Sankara	65.42	Good	

B. Surface Water Quality

The analysis results indicate that the pH ranged between 7.31-7.87 which is well within the specified standard of 6.5 to 8.5. The pH of water indicates whether the water is acid or alkaline. The TDS was observed to be 390-526 mg/l which is within the permissible limit of 2000 mg/l. The total hardness recorded was in the range of 177.14-197.49 mg/l as CaCO₃ which is also within the permissible limit of 600 mg/l. The levels of chloride and sulphate were found to be in the range of 49.72-142.91 mg/l and 28.14-81.02 mg/l respectively.

Dissolved oxygen (DO) refers to the amount of oxygen (O₂) dissolved in water. Because fish and other aquatic organisms cannot survive without oxygen, DO is one of the most important water quality parameters. The reported value of range of 6.1-6.3 mg/l. Phosphorus (as PO₄) is an important nutrient for plants and algae. Because phosphorus is in short supply in most fresh waters, even a modest increase in phosphorus can cause excessive growth of plants and algae that deplete dissolved oxygen (DO) as they decompose. PO₄ ranges from 0.04-0.41 mg/l.

C. Bacteriological Characteristics

Coliform group of organisms are indicators of faecal contamination in water. All surface water samples were found to be bacteriologically contaminated. Presence of total coliforms in surface water indicates that a contamination pathway exists between any source of bacteria (septic system, animal waste, etc.) and the surface water stream. A defective well can often be the cause when coliform bacteria are found in well water. For surface water, treatment followed by chlorination or disinfection treatment is needed before use for domestic purpose. Groundwater samples were not found to be bacteriologically contaminated.

3.5 LAND USE LAND COVER CLASSIFICATION

The land-use & land cover map of the 10 km radial study area from the periphery of project site has been prepared using Resource SAT-1 (IRS-P6), sensor-LISS-3 having 23.5m spatial resolution and date of pass 15th April 2020 satellite image with reference to Google Earth data. In order to strengthen the baseline information on existing land use pattern, the following data covering 10 km radius is approximate about 21°29'04.11"N to 21°39'31.37"N latitude and 81°38'36.97"E to 81°49'48.42"E longitude and elevation 250 – 290 meter are used as per the project site confined within that area.

The Land Cover classes and their coverage are summarized in **Table 5**.

TABLE 5
LAND COVER CLASSES AND THEIR COVERAGE ARE SUMMARIZED

S.No.	Level-I	Level-II	Area (Sq.Km ²)	Percentage (%)
1	Built-up land	Settlement	52.63	16.76
		Industrial Settlement	48.94	15.59
		Road Infrastructure	9.54	3.04
		Railway Infrastructure	6.85	2.18
2	Agricultural Land	Cropland	124.88	39.77
		Play Ground	2.43	0.77
3	Scrubs/Wastelands	Barren Land	10.86	3.46
		Land with scrub/Open Scrub	30.68	9.77
4	Forest	Dense Forest	10.28	3.27
5	Waterbodies	River/Nala/Stream	9.88	3.15
		Pond/Tank	2.92	0.93
6	Others	Mining/Stone Quarry	1.24	0.39
		Brick Kline area	2.87	0.91
		Total	314	100

3.6 SOIL QUALITY

For studying soil quality of the region, sampling locations were selected to assess the existing soil conditions in and around the proposed project site representing various land use conditions. The physical, chemical properties and heavy metals concentrations were determined. The samples were collected by ramming a core-cutter into the soil up to a depth of 30 cm. Total 8 samples within the study area were collected and analyzed.

Physical Characteristics of Soil

From the analysis results of the soil samples, it was observed, the bulk density of the soil in the study area ranged between 1.53-1.68 g/cc which indicates favorable physical condition for plant growth. The water holding capacity is between 16.48-25.61%. Infiltration rate, in the soil is in the range of 14.14-23.81 mm/hr

Chemical Characteristics of Soil

pH is an important parameter indicative of alkaline or acidic nature of soil. It greatly affects the microbial population as well as solubility of metal ions and regulates nutrient availability. Variation in the pH of

the soil in the study area and it is found to be neutral (6.81-7.81) in reaction. Electrical conductivity, a measure of soluble salts in the soil is in the range of 128.3-400.0 $\mu\text{S/cm}$.

The important soluble cations in the soil are calcium and magnesium whose concentration levels ranged from 250.73-678.4 mg/Kg and 203.10-411.98 mg/Kg respectively. Chloride is in the range of 405.97-918.39 mg/Kg. Organic matter and nitrogen were found in the range of 0.98-2.27% and 114.92-269.29 kg/ha. The soil quality within 10 km radius from the project site was found to be varying from poor to fertile with NPK values ranging as 290.92-369.29 kg/ha, 23.32-43.92 kg/ha and 634.5-846.8 kg/ha, respectively, and organic carbon ranging from 0.57-1.32%.

3.7 BIOLOGICAL ENVIRONMENT

Floral composition in Study Area

Floral characteristics within project site and surrounding areas including various villages were studied during post-monsoon season. Total 171 floral species were observed in the study area. The details about the floral composition are as follows.

- a. **Trees:** Total 80 species were found in the study area
- b. **Shrubs (small trees):** Total 33 species were enumerated from the study area.
- c. **Herbs:** In the study area 14 species were observed.
- d. **Bamboo & Grasses:** 23 species were enlisted from the study area
- e. **Climbers and Twiners:** Total 19 species of climbers/ twiners were recorded in the study area.
- f. **Parasite/epiphytic plant:** Each 2 species enlisted in the area

RET (Rare, Endangered and Threatened species) STATUS

According to IUCN Status report 2013 out of total 171 plant species identified with study area. Among the observed species most of the species belongs to the least concern (LC), Data Deficient (DD) and Not Assessed (NA), as per IUCN status. Thus, none of reported species in study area belongs to Rare, Endangered or Threatened category.

Fauna Details:

As per IUCN RED (2013) list

The IUCN Red List is the world's most comprehensive inventory of the global conservation status of plant and animal species. It uses a set of criteria to evaluate the extinction risk of thousands of species and subspecies. These criteria are relevant to all species and all regions of the world. With its strong scientific base, the IUCN Red List is recognized as the most authoritative guide to the status of biological diversity.

Among the reported animals, all are categorized under least concern category as per IUCN list.

As per Indian Wild Life (Protection) Act, 1972

Wild Life (Protection) Act, 1972, as amended on 17th January 2003, is an Act to provide for the protection of wild animals, birds and plants and for matters connected therewith or ancillary or incidental thereto with a view to ensuring the ecological and environmental security of the country.

Some of the sighted fauna were given protection by the Indian Wild Life (Protection) Act, 1972 by including them in different schedule. Among the Avifauna in the study area, All birds observed in the study area are protected in schedule IV as per Wild life protection Act (1972) and subsequent amendments thereof.

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Among mammals; *Canis aureus* (Jackal), Common Langur, *Herpestes edwardsi* (Common Mongoose), *Vulpes bengalensis* (Indian fox), are protected in schedule –II. whereas, *Lepus nigricollis* (Black-naped hare), *Funambulus pinnati* (Palm squirrel) protected in Schedule IV and Rats protected in Schedule V

Among the Herpetofauna, Indian Cobra (*Naja naja*), and Common Rat Snake (*Ptyas mucosa*) were provided protection as per Schedule-II of Wild life protection act, (1972) and Common Indian Krait (*Bungarus caeruleus*), Indian Toad (*Bufo parietalis*) were provided as per Schedule – IV of Wildlife protection act 1972 and as amended.

Among the Avifauna: All birds were observed in the study are included in schedule IV as per wildlife protection act.

3.8 SOCIO-ECONOMIC ENVIRONMENT

Information on socio-demographic status and the trends of the communities in the 10 km radius was collected through primary social survey and secondary data collection from census 2011 & District Census hand book 2011. Summary of the socio-economic status of the study area is given in Table 6. Details regarding education and infrastructure facilities 2011 are presented in Table 7.

TABLE 6
SUMMARY OF SOCIO-ECONOMIC ENVIRONMENT OF VILLAGES WITHIN 10 KM RADIUS AREA

No. of villages	33
Total households	10501
Total population	54723
Male Population	27441
Female population	27282
SC Population	10792
ST Population	4448
Total literates	33562
Total Illiterates	21161
Total workers	14978
Total main workers	18946
Total marginal workers	7607
Total non-workers	28170

Source: Primary census abstract 2011, state Chhattisgarh.

TABLE 7
INFRASTRUCTURE FACILITIES AVAILABLE IN THE STUDY AREA

Yr. 2011	In percentage (%)									
	Educ ation	Drinki ng water	Road	Powe	Commu nication	Transp ortation	Govt. PHC & SC	Bank & Society	Drainage	Recreation
Avail ability	100	100	96.77	100	74.19	96.77	45.16	12.90	41.94	100

Source: Primary census abstract 2011, State Chhattisgarh.

SALIENT OBSERVATION OF THE SOCIO-ECONOMIC SURVEY

- **House pattern:** Types of housing varied from thatched to pucca (pakka) houses 75% houses were in pucca (pakka) form 15% in semi pakka and 10% houses were observed in kaccha form
- **Employment:** Main occupation in the study area was Labour Work and Agricultural. Other income generation sources of the area, small business; private jobs etc. The labours were getting daily wags in the range of 250-300 Rs, depending on type of work they set
- **Fuel:** The primary sources of cooking fuel were LPG, cow dung etc.
- **Main crops:** The principal crops grown in agricultural Commodities (first) were Paddy sugarcane, Tiwas and Vegetables etc. Manufacture commodities (first) plastic Products and Handicrafts commodities(first) Mat, fishing Net and Second Bamboo During discussion with villagers/farmers it was revealed that crop productivity of the study area is good and two to three times multi crop production was performing in the study area.
- **Migration from other states:** During survey it was found that local population were not migrating for employment purpose, they prefer only local employment
- **Language:** Chhattisgarh the mother tongue of most of the Chhattisgadi population, Along with Chhattisgarh Hindi and English are all official languages. Hindi and English are official languages because they are official languages of India's central government. .
- **Sanitation:** Toilet facility is one of the most basic facilities required in a house. It was observed that more than 85 % of the households were having toilet facilities in their houses. There was no proper drainage line in the villages.
- **Drinking water Facilities:** During the survey it was observed diverse sources of drinking water supply in villages. Major source of drinking water in the study area were hand pumps, tap water and dug wells and canal. During survey people from some villages reported Water Quality are good .
- **Education facilities:** The Primary & secondary data reveals that literacy levels in all the villages is varying from 60 to 80 %. Most of the students in Villages in the study area are going to Tilda for their studies which is Appoximate 10 Kms. from the plant. The schools are also not having proper infrastructure facilities. College facility is available in Tilda & Raipur in the study area.
- **Transportation facility:** For transportation purpose auto, jeep and private bus services were available in the study area; however villagers reported that transportation facilities were not frequently available. Private vehicles like bicycles & motor cycles were also used by villagers for transportation purpose.
- **Communication facilities:** For communication purpose mainly mobile phones, newspapers & post offices were present in the villages
- **Medical facilities:** The Primary & secondary data reveals that there are only 11 nos. of Sub Health Centers & 01 nos. of PHC's in the Study area.
 - During FGD villagers made various issues in health care facilities, such as health facilities available at PHCs, Laboratory testing and Delivery facilities at Government Health Centers, availability of clean toilet and drinking water at PHCs, and distance of the nearest health center from the Village.
 - To control the spread of diseases (Malaria & Dengue cases) and reduce the growing rates of mortality due to lack of adequate health facilities, special attention needs to be given to the health care in rural areas. The key challenges in the healthcare sector are low quality of care, poor accountability, lack of awareness, and limited access to facilities.
 - It is also observed that Malnutrition is the common in most of the villages.

- **Electricity:** All villages were availing electricity facility for domestic and agriculture purposes. Solar Street lights were seen in some of the villages.
- **Market facility:** Study area was predominantly rural. In villages, small shops were available for daily need things. Weekly market facility was available in some villages. Wholesale market was available in some villages. The basic amenities exist at all villages.
- **Recreation facilities:** Television and radio are the main recreation facilities in the study area. Newspaper/ magazine facilities are also used by villagers.

3.8.1 Awareness and opinion of the respondents about the project

Public opinion is the aggregate of individual attitudes or beliefs. It is very important to take opinion of the villagers about the project. The awareness will not only promote community participation but also enable them to understand the importance of the project and encourage them to express their views. To know the awareness and opinion of the villagers about the project, group discussion, meeting with school teachers/village leaders were carried out in the study area.

Almost all respondents were aware about the M/s SSPPL Project area but Some respondents were unaware about the project activity. During the side visit, the affected villages residents demanded to know the details.

- The respondents were happy to know about the project and they opined positively because the activity would definitely contribute development in the study area.
- Main demands of villagers in study area were for Pucca Roads.
- Village leaders asked to give employment opportunities to local people
- They also demanded for Water Spray by panchayat to curb down the effects of air pollution in the area due to the project.
- They Demanded plantation on the both Side of the road to prevent Pollution due to the Proposed Expansion Project.

While giving information about project of M/s SSPPL respondents gave positive opinion and they strongly believe that it will help to develop quality of life in the study area with employment opportunities.

3.8.2 Interpretation

Socioeconomic survey was carried out to know the infrastructural activities amenities available 10 km Radius project Site. The information regarding facilities available and the opinion of the people was sought by floating questionnaires and interaction with the people. This is done for observing the impact due to the project wrt social aspects so that proper actions / measures could be taken up for the benefit of the people (economically and wrt quality of life) and the project.

During the primary survey it was observed that almost pakka road facility is available in all villages 10 km Radius project Site. The sanitation coverage has increased from 60 % in 2011 to 80 % in 2020. Literacy rate of the study region is from 61.63%. On the basis of survey for literacy rate data it is interpreted that there is need to promote educate more and more people. Almost all the villages have more than 55.44 % people as non-workers. It indicates that the problem of unemployment can be solved by providing proper training and education. There is also need to establish more industries so that maximum number of employment can be generated. Basic amenities like Education facilities Health care facilities, water supply, electric power supply, mode of transportation etc. are available in all villages.

The proposed Expansion project shall generate direct/indirect employment and indirect service sector enhancement in the region and would help in the socioeconomic upliftment of the state as well as the local area.

4.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 Air Environment

The implementation of proposed project will have impact on the air quality parameters like PM₁₀, PM_{2.5}, SO₂, NO_x and CO. The raw material handling plant along with proposed Induction Furnaces, steel melting shops and submerged arc furnaces process will emit dust and fumes. Apart from the above, there will be fugitive dust emissions due to transportation, storage and processing of raw materials.

The mathematical Model ISCST-3, was used for predicting the GLCs, which is entirely in line with the requirement of Central Pollution Control Board, New Delhi. The maximum ground level concentrations (GLCs) for particulate matter and gaseous emission of SO₂, NO₂ due to proposed new installations were carried out. The maximum ground level concentrations (GLCs) for particulate matter and gaseous emission of SO₂, NO₂ due to proposed new installations were carried out. The predicted 24 hourly maximum contribution in AAQ concentrations from main process unit facilities for particulate matter, SO₂ and NO₂ are found to be 1.6 µg/m³, 27 µg/m³ and 10.0 µg/m³ (after expansion) occurring at a distance of about 1 km, 4.1km, 1 km respectively in SSW and S direction and emissions from standby DG sets for particulate matter, SO₂ and NO₂ are found to be 0.25 µg/m³, 0.56 µg/m³ and 4.4 µg/m³ occurring at a distance of about 5.3 km each respectively in WSW and SSW direction. No significant incremental concentration was found due to proposed installation activities. The mitigation measures adopted are:

- The primary & secondary emissions from the Induction furnaces, continuous casting machine area and submerged arc furnace area will be extracted and treated in a fume extraction system.
- Adequate capacity dust extraction measures with swivel hood, ID fan shall be provided at different loading, unloading and transfer points in the raw material handling section.
- Fumes will be evacuated directly from induction furnaces through hoods with swiveling mechanism and ducting.
- The duct carrying fumes from Induction furnaces will join in a mixing chamber from where the gases will be led to the bag house by means of ID fan.
- The emission mainly carried out through Induction furnaces. To control air pollution company will be installed Bag Filters with 30 meter stack and ID/FD fan capacity to cater the future requirement to control emission less than 30 mg/Nm³.
- The emission level within 30 mg/Nm³ from SAF will be controlled with 50 m height stack. Submerged Arc Furnace will be provided with Flue gas cooler and Bag filters with central dust collection system.
- Adequate dust suppression system in the form of water sprinklers shall be provided at raw material yard, temporary solid waste dump site and along the vehicular roads.
- There will be dedicated roads for vehicles carrying raw materials and products.
- Stacks will be provided with porthole and working platform so that stack monitoring can be done as per norms of statutory authority.

4.2 Noise Environment:

During the normal operation of manufacturing process noise will be generated due to Induction Furnaces, ID Fan, Blower/air Fan, Cutting/Shearing Machine, SAF process and DG Set, etc. the ambient noise levels are expected to increase significantly with the attributes of the respective

equipment, but this noise will be restricted close to the concerned equipment. The preventive measures are given below:

- Equipment will be standard and equipped with silencer. The equipment will be in good working conditions, properly lubricated and maintained to keep noise within permissible limits.
- High noise zone will be marked and earplugs will be provided to the workmen near high noise producing equipment. The workmen will be made aware of noise and vibration impacts on their health and mandatory use earplugs.
- Proper shifting arrangement will be made to prevent over exposure to noise and vibration.
- Tall trees with broad foliage shall be planted along the boundary of camp / project site / plantation area, which will act as a natural barrier to propagating noise.
- Silent DG sets shall be used at construction camp / project site.
- Speed limits shall be enforced on vehicle.
- Use of horns / sirens will be prohibited.
- Use of loud speakers will be complying with the regulations set forth by CPCB.
- Regular noise monitoring will be carried at construction camp / project site to check compliance with prevailing rules.

4.3 Water Environment:

The implementation of proposed project may have some impact on the water environment. The impact may be on the source of water in the form of depletion of water resources of the area and in the form of deterioration of quality of natural water resources due to discharge of plant effluent.

The various control measures that will be adopted are:

- No pre-treatment of raw water is required. As the water will be used for cooling purpose only.
- No wastewater generation from the process
- Closed circuit cooling system will be implemented.
- Water for Industrial Cooling and domestic purposes will be extracted from ground water.
- Waste water generated through sanitary/toilet activities. This will be treated in STP and treated water will be used for plantation purposes and dust suppression.
- All stock piles will be on pucca flooring to prevent for any ground water contamination.

Vehicular Movement

All the major raw materials and finished products will be transported through trucks by road. All the dry powdery material like Sponge Iron; Ore and Coke/Coal/Charcoal, etc will be transported in covered trucks.

4.4 Biological Environment

There is no ecological sensitive area like national park, sanctuary, biosphere reserve, within 10 km radial distance from the project site. No forest land is involved at project site. Whereas, Billari forest was observed adjacent to project site at east direction which is observed to be in degraded condition. No major trees observed at expansion site, existing ground flora in the form of seasonal shrubs, herbs and grasses only. Thus, no tree cutting involved during construction phase.

The total plant area is 25.303 Ha. The existing plantation at present within plant premises is 19750 nos. and total plantation after expansion will be 23250 nos. within 9.30 Ha. (37%) considering @ 2500 trees/ha. some trees shall be planted along approach road side in proposed project area.

4.5 Socio-economic Impacts:

The land use is not going to be significantly changed as the proposed expansion will be carried out within existing plant premises, thus there will be no issue of involvement of any agriculture land or settlement on the contrary there will be positive impact on the socio economic environment of the area. Increase in direct/indirect job opportunity shall take place. Services in the locality shall be used and accordingly growth in economic structure of the area will take place.

5.0 ENVIRONMENTAL MONITORING PROGRAM

An Environmental Management Cell (EMC) will be established for the proposed expansion project under the control of Board of Directors followed by General Manager. The EMC will be headed by an Environmental Manager having adequate qualification and experience in the field of environmental management. Environmental monitoring of ambient air quality, surface and ground water quality, ambient noise levels, etc. will be carried out through MoEF&CC accredited agencies regularly and reports will be submitted to CECB/MoEF&CC.

6.0 RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

The assessment of risk in the proposed project has been estimated for fire, explosion and toxicity and corresponding mitigation measures are suggested in the EIA/EMP report.

A detailed Disaster Management Plan for facing disasters due to natural effects and human reasons is prepared and incorporated in the EIA/EMP report for ensuring safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities. For effective implementation of Disaster Management Plan, it will be widely circulated and personnel training through rehearsals. Site facilities, procedures, duties and responsibilities, communications, etc. are considered in details in the Disaster Management Plan.

7.0 PROJECT BENEFITS

Proposed Social Welfare Arrangement

The proposed project would provide development of area and consequent indirect and direct job opportunities which would finally result in improvement in the quality of life of people in the central region. M/s. SSPPL will carry community welfare activities in the following areas:

- Community development
- Education
- Health & medical care
- Drainage and sanitation
- Roads

The project proponent will comply with its obligation for CSR as per Company's Act too.

Although the MOEFCC vide its OM dated 30 September 2020 has provided that the CER value for the project would be based on Public Hearing outcome and as per the commitments made by the project promoters during the Public hearing however the provisions for CER are made in the proposal as per TOR which required to consider O.M. dated 01/05/2018 and 30.09.2020 issued by MoEF&CC, New Delhi proposals regarding Corporate Environment Responsibility (C.E.R.). The CER budget along with capital expenses with different heads are given below.

The Additional cost for expansion of the project is Rs. 24100 Lakhs. Thus, 0.75% i.e. 183 lakhs will be made provision and spent towards the improvement of Environment. The action plan along with budgetary provision towards Corporate Environment Responsibility (C.E.R.) is provided in **Table 8**.

**TABLE 8
ACTION PLAN WITH BUDGETARY PROVISIONS TOWARDS CORPORATE ENVIRONMENT
RESPONSIBILITY**

General Head of expense	Year 1	Year 2	Year 3	Amount to be spent for head (in Rs. (Lac))
Education a) Donation of computers, books, furniture to village schools b) Maintenance / Repair of village school buildings c) Donation of stationary, books, scholarships to needy students.	13,00,000	9,00,000	5,00,000	27,00,000
Medical a) Donation of Sanitary Napkin Vending Machines , furniture, necessary equipment to nearby Public Health Centers b) Medical Camps in nearby villages	33,00,000	18,00,000	11,00,000	62,00,000
Drinking water facilities Solar Drinking water structure (Bore well with Motor fitting) including Soak Pit for Water Recharging in villages/schools	9,00,000	5,00,000	4,00,000	18,00,000
Plantation Tree plantations nearby villages	5,00,000	4,00,000	4,00,000	13,00,000
Agricultural a) Donation of seeds, fertilizers, manure to needy farmers b) Financial assistance for Irrigation facilities	11,00,000	7,00,000	4,00,000	22,00,000
Infrastructure a) Strengthening/maintenance of village roads b) Rain water harvesting projects at village Sarora under Rural Infrastructure Development. c) Provision of solar street lights	18,00,000	15,00,000	7,00,000	4,00,000
Total	9,00,00,000	59,00,00,000	35,00,02,000	183,00,00,000

9.0 ENVIRONMENTAL MANAGEMENT PLAN

An Environmental Management Plan comprising following set of mitigation, management, monitoring and institutional measures to be taken during implementation and operation of the project, to eliminate adverse environmental impacts or reduce them to acceptable levels.

- Overall conservation of environment.
- Minimization of natural resources and water.
- Ensure effective operation of all control measures.
- Monitoring of cumulative and longtime impacts.
- Ensure effective operation of all control measures.
- Control of waste generation and pollution.

Judicious use of the environmental management will be implemented with addressing of components of environment, which will be likely affected during construction and operation of the proposed expansion project. The capital cost required to implement the EMP for proposed expansion project is estimated to be Rs. 365 Lakhs. The annual recurring expenses will be Rs. 70 Lakhs has been allocated for implementation of the Environmental Management Plan for proposed project.

10.0 CONCLUSION

The proposed expansion project of M/s. Sambhv Sponge Power Pvt. Ltd. will be beneficial for the overall development of the nearby villages. Some environmental aspects like dust emission, noise, wastewater, traffic density, etc. will have to be controlled better than the permissible norms to avoid impacts on the surrounding environment. Necessary pollution control equipment like ESP, bag house, water sprinklers, enclosures, etc. forms integral part of the plant infrastructure. Additional pollution control measures and environmental conservation measures will be adopted to control/minimize impacts on the environment and socio-economic environment of the area. Measures like development of green belt and plantation in nearby village and along transport road, adoption of rainwater harvesting/recharging in the plant and in nearby villages will be carried out. The proposed CSR/CER activities to be initiated by the industry will be helpful to improve the social, economic and infrastructure availability status of the nearby villages.

Thus, it can be concluded that with the judicious and proper implementation of the pollution control and mitigation measures, the proposed expansion project will not add adverse pollution levels to the environment, moreover, it will be beneficial to the society and will help to reduce the demand-supply gap of steel to some extent and will contribute to the economic development of the region and thereby the country.

11.0 DISCLOSURE OF CONSULTANTS

The Environmental studies for proposed project of M/s Sambhv Sponge Power Pvt. Ltd. are carried out by M/s Anacon Laboratories Pvt. Ltd., Nagpur (M/s ALPL). Anacon established in 1993 as an analytical testing laboratory and now a leading Environmental Consultancy firm backed by testing lab for environment and food in Central India region. M/s ALPL is a group of experienced former Scientists from the Government Institutions and excellent young scientist of brilliant career with subject expertise. It is recognized by Ministry of Environment & Forests, New Delhi for carrying out environmental Studies & accredited by Quality Council of India (QCI) for conducting Environmental studies having Accreditation Certificate No.: NABET/EIA/1922/RA 0150 dtd. 03 Feb 2020 Valid till September 30, 2022.