EXECUTIVE SUMMARY

FOR

IMPLEMENTATION OF PRODUCT FACILITIES FOR SPONGE IRON (245000 TPA); MILD STEEL BILLET (179550 TPA); REROLLED STEEL PRODUCTS THROUGH HOT CHARGING (131970 TPA); REROLLED STEEL PRODUCT THROUGH REHEATING FURNACE (42194 TPA); FERRO ALLOYS (75000 TPA) AND/OR PIG IRON (150000 TPA), CAPTIVE POWER 56 MW (16 MW THROUGH WHRB AND 40 MW THROUGH AFBC) AND FLY ASH BRICK (150000 TPA) PLUS GRAIN BASED BIO ETHANOL 35000 KLA (100KLD); ANIMAL FEED GRADE PROTEIN 28000 TPA DDG, BIO CNG 3000TPA AND CO2-17500 TPA, POWER (COAL BASED CO- GENERATION) 3 MW CO-GENERATION AS A GREENFIELD PROJECT

Terms of Reference No. IA-J-11011/64/2021-IA-II(I), dated 4th May, 2021
Category A, Distilleries (Sector 22, 5(g))
Baseline period: Post Monsoon Season (1st October 2020 – 31st December 2020)

PROJECT PROPONENT

M/S. KUSUM SMELTERS PVT. LTD.

AT

VILLAGE - DHAMNI, TAHSIL - PATHARIA, DISTRICT - MUNGELI, PINCODE- 495224 (CG).

ENVIRONMENTAL CONSULTANT

M/s Anacon Laboratories Pvt. Ltd., Nagpur

QCI-NABET Accredited EIA Consultant for Distilleries (Sector 22 5(9))
MoEF&CC (GOI) Recognized Laboratory
ISO 9001:2015, ISO 14001:2015, OHSAS 18001:2007
Lab. & Consultancy: FP-34, 35, Food Park,
MIDC, Butibori, Nagpur – 441122
Mob.: +91-9372960077
Email: *info@anacon.in*, *ngp@anacon.in*
Website: *www.anaconlaboratories.com*

Report No. ANqr /PD/20A/2021/153

MAY 20

1.0 INTRODUCTION

M/s. Kusum Smelters Private Limited (hereafter referred as KSPL) has proposed to implement greenfield project involving Grain based Bio-Ethanol Plant with Co-generation and Bio CNG. Proposed Greenfield project will be established in 8 Ha. of total land area. The land will be diverted for industrial purpose.

A Bio Fermenter with required distillation facilities and 3 MW Co-generation plant is proposed to produce 35000 KLA (100 KLD) Bio Ethanol. During the process 28000 TPA DDG as well as 3000 TPA Bio CNG and 17500 TPA CO_2 will be produced as by-products.

In the same premises over additional 10.69 hectare land, new manufacturing facilities for production of Sponge Iron (245000 TPA), MS Billet (179550 TPA), Steel Rerolled products (174163 TPA), Ferro Alloys (75000), Fly Ash products (150000 TPA) along with captive power generation plant comprising of Waste Heat Recovery Boilers (WHRB) (16 MW) and Atmospheric Fluidized Bed Combustion (AFBC) Boiler (40 MW) and Steam Turbine & Generator is proposed to be implemented.

As per Environmental Impact Assessment Notification dated 14th September, 2006 and subsequent amendment thereof, all Cane juice/non-molasses based distilleries fall under S. No. **5(g).**

As per EIA Notification dated 14 th Sept. 2006 & as amended; this project falls under Category A; Project Activity 3(a) Metallurgical Industries and 1(d) Thermal Power Plant. Considered as Category A and Project activity under 5(g) although being less than 200 KLD based on All Cane juice/non-molasses based distilleries would qualify for Category B1 project being a part of Category A it is considered as Category A. The overall project activity is categorized as Category “A” and requires Environmental Clearance (EC) to be obtained from EAC Ind. 2 MoEF&CC, New Delhi.

The Industrial unit will have two divisions in its complex firstly steel division and secondly Bio Ethanol Division.

The online application prior to Environmental Clearance (Form-1) for proposed Grain Based Bio Ethanol Plant with Co-Generation and Bio CNG project was submitted to EAC, MoEF&CC, New Delhi vide Online Proposal No. IA/CG/IND2/198531/2021 on 15th March 2021 and accepted by Member secretary on 16th March 2021. The proposal was considered during 33rd Meeting of the Expert Appraisal Committee [EAC] (Industry -2 sector) on 7th April 2021 and ToR was granted vide file no. IA-J-11011/64/2021-IA-II(I) on dated 4th May 2021. For preparation of the draft EIA-EMP report. Approved ToR letter enclosed as **Annexure I** and ToR compliance with cross referencing is provided in the beginning of the chapter scheme.

A separate TOR application has been submitted for the steel division of the plant to Re-constituted EAC (Industry – I) vide online application prior to Environmental Clearance (Form-1) for proposed metallurgical project was submitted to EAC, MoEF&CC, New Delhi vide Online Proposal No. IA/CG/IND/171131/2020 on 4th Sept. 2020 and accepted by Member secretary on 18thSeptember 2020. The proposal was considered during 23rd Meeting of the Re-Constituted Expert Appraisal Committee [EAC] (Industry I) on 28th September, 2020 and ToR was granted vide file no. J-11011/197/2020-IA.II(I) on 22 October, 2020. Online application with Proposal No. IA/CG/IND/190436/2020; File No. J-11011/197/2020-IAII(I)] submitted on 30.12.2020 along with Form 3 and sought for amendment in TOR. The proposal was considered during 28th Meeting of the Re-Constituted Expert Appraisal Committee [EAC] (Industry I) on 19th January, 2021 and ToR was granted vide file no. J-11011/197/2020-IA.II (I) on 8th February, 2021 (**Annexure II**).

This EIA Contain cumulative pollution load for steel division and distillery industry and also cover individual risk, cumulative risk and societal risk referring to both the industry for complying additional TOR recommendation by EAC Ind 2.

This EIA report is prepared for the Bio-Ethanol Division as per the TOR Granted by Ind-2 vide above referred TOR.

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 for the proposed project.

Anacon Laboratories Pvt. Ltd. had conducted the baseline study for 10 Km radius Study area surrounded to the project site during Post Monsoon Season **(1st October 2020 – 31st December 2020)** accordingly, EIA study report is prepared and submitted for Public Hearing for the same. This EIA report is prepared based on the ToR conditions along with amended ToR recommended by EAC (Industry – II), New Delhi and project related technical details provided by M/s. KSPL.

1.1 IDENTIFICATION OF PROJECT

M/s. KSPL has proposed implementation of Bio Fermenter with required distillation facilities and 3 MW Co-generation plant is proposed to produce 100 KLD Bio Ethanol. During the process 28000 MTPA DDG as well as 3000 MTPA Bio CNG and 17500 MTPA CO_2 will be produced as by-products. The proposed project is a Greenfield project located at Khasra No. 123/1, 123/2, 126/1, 126/3, 127, 128/1, 128/2, 128/3, 157/1, 157/2, 157/4, 159/2,163/1, 163/2, 163/3, 164, 165, 166, 175, 177 at Village - Dhamni, Tahsil - Patharia, District - Mungeli, Pincode - 495224 (CG).

1.2 LOCATION OF THE PROJECT

The proposed plant is located at Khasra No. 123/1, 123/2, 126/1, 126/3, 127, 128/1, 128/2, 128/3, 157/1, 157/2, 157/4, 159/2,163/1, 163/2, 163/3, 164, 165, 166, 175, 177, Village - Dhamni, Tahsil - Patharia, District - Mungeli, Pincode - 495224 (CG). The nearest city is Bilaspur which is around 22.3 km in North East direction. Nearest airport is Bilaspur which is around 14.6 km at North East direction. The nearest habitation is Kamhardih which is 1.4 km at south east direction from the project site. The nearest roadway is National Highway 130 (NH-130) which is 3.0 km in south east direction and State Highway 2 (SH-2) which is 3.0 km in south east direction. The nearest railway station is Dagori which is 9.7 km in the ESE direction. The details of environmental setting are given in **Table 1.2** and the index map showing plant location and study area of 10 km radius are given in **Figure 1.1** and **Figure 1.2** respectively. **Plate 1.1** shows the proposed site photographs.

1.3 EIA/EMP REPORT

In line with the approved ToR obtained from EAC (Industry –II), MoEF&CC, New Delhi, baseline environmental monitoring was conducted during **post monsoon season (1st October 2020 – 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 draft EIA/EMP report. Impacts of

the proposed project activities during construction and operation stages were identified and duly addressed in the draft.

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

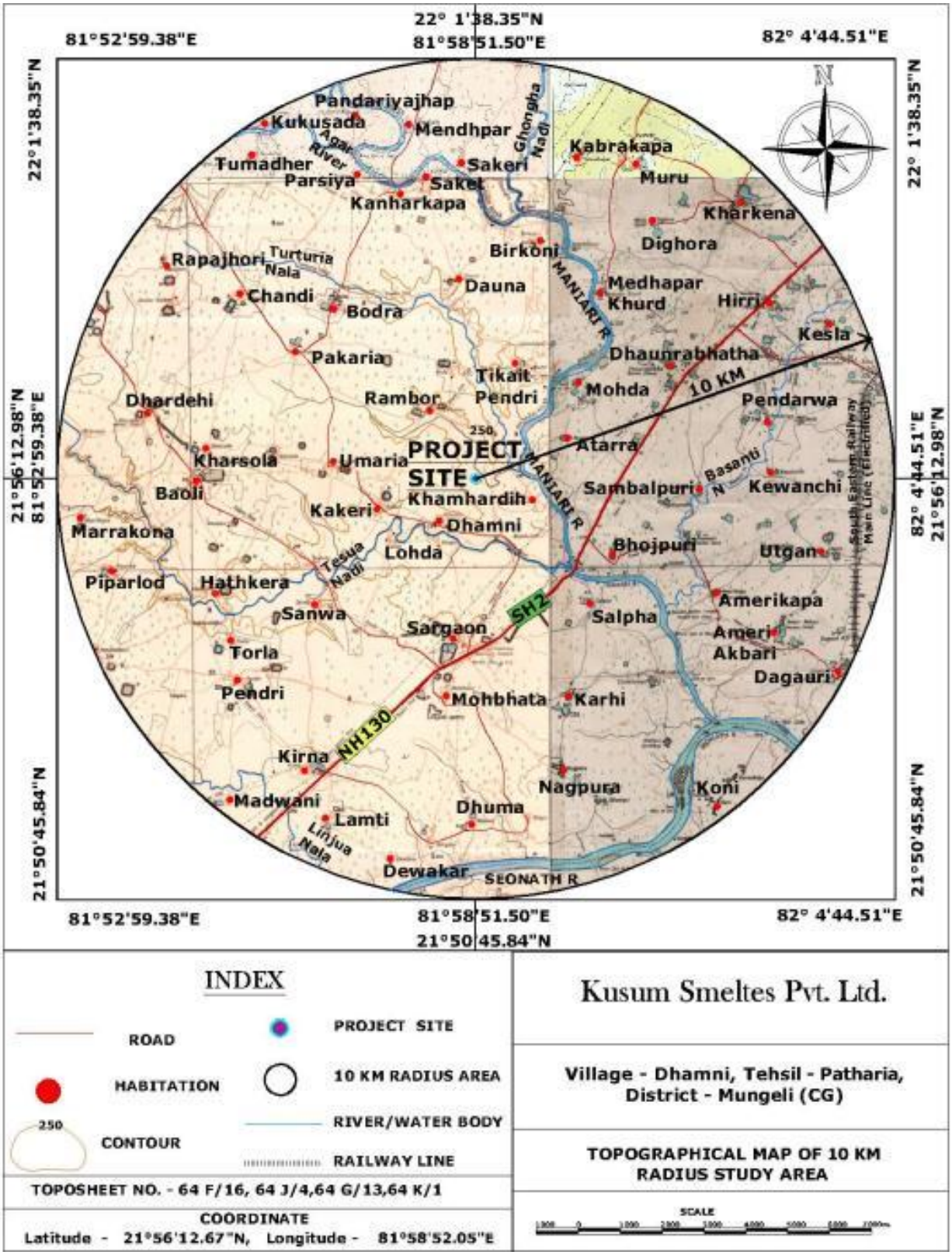

FIGURE 1: STUDY AREA (10 KM RADIAL DISTANCE)

TABLE 1
DETAILS OF ENVIRONMENTAL SETTINGS

Sl.	Particulars	Details
1.	Project Location	Khasra No. 123/1, 123/2, 126/1, 126/3, 127, 128/1, 128/2, 128/3, 157/1, 157/2, 157/4, 159/2,163/1, 163/2, 163/3, 164, 165, 166, 175, 177 at Village - Dhamni, Tahsil - Patharia, District - Mungeli, Pincode - 495224 (CG).
2.	Geographical Locations	Latitude : 21^0 56'12.67'' N Longitude : 81^0 58'52.05'' E
3.	Toposheet No.	64 F/16,64 J/4,64 G/13, 64 K/1
4.	Climatic Conditions	Mean annual rainfall is 1252.8 mm Temperature: Pre monsoon 20.6^0 C (Min.) 41.7^0 C (Max.) : Winter 13.3^0 C (Min.) 31.0^0 C (Max) : Post monsoon 17.3^0 C (Min.) 31.8^0 C (Max.) Source: IMD, Raipur
5.	Nearest IMD station	IMD Raipur – 86.9 Km, SSW
6.	Land Form, land Use and Ownership	• Total involved land is 8 Hectare and at present land belongs to the directors' family (i.e. Mr. Aditya Agrawal, Mr. Sandeep Agrawal, and Mr. Arjun Lal Agrawal) of the company and they have agreed to transfer it to company's name. • The land is located at 123/1, 123/2, 126/1, 126/3, 127, 128/1, 128/2, 128/3, 157/1, 157/2, 157/4, 159/2,163/1, 163/2, 163/3, 164, 165, 166, 175, 177 at Village- Dhamni, Tahsil- Patharia and District- Mungeli (CG). • Total 33% area (2.64 Ha.) is being developed as greenbelt. • The land will be diverted to industrial purpose.
7.	Site topography	Project site located at 245 m (above MSL)
8.	Nearest roadway	NH 130 – 3.0 km, SE and SH 2 – 3.0 km, SE
9.	Nearest Railway Station	Dagori – 9.7 km, ESE
10.	Nearest Air Port	Bilaspur – 14.6km, NE
11.	Nearest Port	NA
12.	Nearest lake	NA
13.	Nearest State/National Boundaries	Madhya Pradesh – 90.0 km, NW
14.	Nearest major city with 2,00,000 population	Bilaspur – 22.3 km, NE
15.	Nearest village/major town	Kamhardih – 1.4 km, SE
16.	Distance for sea coast	Bay of Bengal– >425 km, SE.
17.	Hills/valleys	NA
18.	Nearest Reserved/ Protected forests	NA
19.	Nearest water bodies (in km)	Seonath River – 8.4, SE; Agar Nadi – 8.5, NW; Manjari River – 1.0, E Tesua Nadi – 1.5, SW; Linjua Nala – 8.6, SW; Basanti N – 5.5, SE Ghongha Nadi – 6.5, N; Turturia N – 0.8, NE; Stream – 0.2, ENE
20.	Nearest industries (in km)	R Real Power Private Limited – 0.8, NE; Tanushree Rollng Mill – 8.2, EES; G.K.Industries – 4.4, SSW Basudev Trade Link – 8.2, NE; Nova Iron and Steel Ltd. – 9.6, NNE; Saraswati Agro Industries – 7.9, NE

Sl.	Particulars	Details
		Mangal Sponge and Steel Private Limited – 9.9, NNE Laxman Cement Ltd. – 9.7, NNE Kanha Industries – 8.6, NE And various small rice mills and other small industries
21.	Areas already subjected to pollution or environmental damage	None
22.	Seismic zone	The proposed 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

The project will use various starch containing grains as feedstock to produce value added products namely Fuel Ethanol, Animal Feed protein, Bio-CNG & CO_2 (Carbon Di-oxide) on "Heterogeneous-Process" to process the feed stock with low starch material.

Manufacturing Process of Fuel Ethanol

The fuel grade Bio Ethanol production process has a number of steps that enable us to differentiate among the various types of spirits and subsequently alter the quality. The main steps in grains processing are as under:-

1. Cleaning and fractionation of grain
2. Milling & Degermination
3. Cooking, liquefaction and starching
4. Fermentation
5. Distillation & Dehydration
6. Evaporation
7. Separation & Drying, &
8. Bio-Methantion

In the first step starch containing raw materials is cleaned, fractionated & milled. The milled grain must be liquefied so that dextrin's fermentable sugars can be obtained. Grain based Raw materials are mixed with required enzyme to decrease the viscosity and liquefy the starch to be available for further processing. After liquefaction the mash is filtered in High G force centrifuge and washed with hot water during process. The filtered starch slurry is sent for pre-scarification whereas the solid is further treated to remove the starch and to concentrate the protein in the mash.

This "Yeast" microorganism, the world's most heavily used microbe, converts sugars to ethanol and carbon dioxide. The ethanol content, which can be as much as 16% but in practice is 10-13%, is then concentrated.

Coal Based Power Co-Generation Plant

- **Mechanism of FBC**

If the sand, in a Fluidized state is heated to the ignition temperature of the fuel and fuel is injected continuously into the bed, the fuel will burn rapidly and the bed attains a uniform temperature due to effective mixing.

While it is essential that the temperature of the bed should be at least equal to the injection temperature of the fuel, it must never be allowed to approach adiabatic combustion temperature to avoid melting of ash. The combustion must be carried out essentially at a temperature below ash fusion temperature. This is achieved by extracting heat from the bed through heat transfer tubes immersed in the bed.

If the gas velocity becomes too high, the particles are entrained in the gas system. Hence, to sustain stable operation of the bed, it must be ensured that, gas velocity is maintained between minimum fluidization velocity and particle entrainment velocity.

2.2 LAND REQUIREMENT

Total involved land is 8 Hectare and at present land belongs to the directors' family (i.e. Mr. Aditya Agrawal, Mr. Sandeep Agrawal, and Mr. Arjun Lal Agrawal) of the company and they have agreed to transfer it to company's name. The land details are provided as follows:

TABLE 2
AREA STATEMENT

S. No.	Particulars	Area (n Ha.)	Percentages in proposed area
1.	Built Up	3.93	49.125%
2.	Road and Paved	0.48	6%
3.	Green Belt	2.64	33%
4.	Open Area	0.95	11.875%
	Total	**8.00**	**100%**

2.3 RAW MATERIALS REQUIREMENT, SOURCE & MODE OF TRANSPORT

The raw material will be transported through truck. It is estimated that approx. 31 trucks/day required for transportation of raw materials and finished products of the plant.

2.3.1 Solid and Hazardous waste generation

Total Solid wastes generation through process is estimated to be about 19331.00 TPA which includes Coal Ash with Waste Media 17690.00 TPA, Bio Methane sludge 953.00 TPA, ETP sludge from water treatment plant 673.00 TPA, STP Sludge from Human Sewage treatment and Food waste 15.00 TPA, spent oils (lubricants and transformer oil), will be 5 KL/Yr which are classified as hazardous waste. The generated used oil and waste oil estimated to be around 2 KL/year will be given to authorized recycler having authorization from competent authority. Maximum generated solid wasted will be reused in the process except slag will be given to landfill and road making.

2.4 WATER REQUIREMENT & SOURCE

The daily makeup water requirement in peak situation at 100% capacity utilization is estimated to be 1000 KLD out of which 30 KLD will be used for domestic purpose. The water purifier will be provided for the purpose. Water will be source from Maniyari River, 1 km, east.

2.5 POWER REQUIREMENT & SUPPLY

The project is a power intensive, total power requirement will be 3 MW 3 MW will be met through co-generation based captive power plant. In addition two DG sets, each of 1000 kVA as backup power supply arrangement and Grid power supply will be obtained.

2.6 MANPOWER REQUIREMENT

M/s. KSPL will provide employment to about 105 peoples (15 admin staffs and 90 production staffs).

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 the project is Rs. **11610.00** 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**)**

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 for at 8 locations covering project site at Kakeri, Umaria, Dhamani, Attara, Baoli, Pendri, Khapri. All these 8 sampling locations were selected based on the meteorological conditions considering upwind and downwind, cross wind directions and reference point. The levels of Respirable Particulate Matter (PM_{10}), Fine Particulates ($PM_{2.5}$), Sulphur Dioxide (SO_2,), Oxides of Nitrogen (NO_X) and carbon monoxide (CO), Ammonia, Ozone, Benzene and BAP were monitored.

It has been observed that minimum and maximum concentration of PM10 is ranged between 43-89.3 µg/m^3. The concentrations of PM2.5 vary from 15-33.8 µg/m^3. SO_2 concentration level ranged from 13-25.2µg/m^3 and NO_2 concentration ranged from 13.5-29.4 µg/m^3 in the study area. CO concentration was found to be 0.222-0.356mg/m^3. Ozone in the range between 4.9-14.4 µg/m^3 and NH3 concentration was found to be 5.2-16.0 µg/m^3.

Pb 0.032-0.056 µg/m^3, As and Ni in PM_{10} were found below detectable limits.

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; those were selected for ambient air quality monitoring. The monitoring results are summarized in **Table 3.**

TABLE 3
SUMMARY OF AMBIENT NOISE LEVEL MONITORING RESULTS

Sr. No.	Monitoring Locations	Equivalent Noise Level	
		Leq_{Day}	Leq_{Night}
Residential Area			
1.	Khamhardih	51.9	41.6
2.	Rambor	53.4	42.2
3.	Sargaon	50.9	38.9
CPCB Standards dB(A)		**55.0**	**45.0**
Commercial Area			
4.	Umaria	57.4	50.3
5.	Sambalpuri	54.6	43.7
CPCB Standards dB(A)		**65.0**	**55.0**
Silence Zone			
6.	Dhamni	46.2	38.1
7.	Dauna	48.6	37.3
CPCB Standards dB(A)		**50.0**	**40.0**
Industrial Area			
8.	Project Site –Plant area	66.4	59.5
9.	Project Site-Gate	62.4	51.9
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

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.

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 30 m. 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- 7 to 13 m bgl

Post-monsoon water levels: 3 to 6 m bgl

Geomorphology:

Study area is comprises of gently sloping plains on Proterozoic age. In northern most part of study area flood plains are observed. 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 pH ranged between 7.08-7.85. The TDS was ranging from 546-972 mg/l. Total hardness was found to be in the range of 273.21-671.87 mg/l. The fluoride concentration was found in the range of 0.32-0.58 mg/l. The nitrate and sulphate were found in the range of 11.46-32.64 mg/l and 23.63-54.81 mg/l respectively. The reported value of Dissolved oxygen (DO) range of 4.7-5.8 mg/l. Total Suspended solid (TSS) is found to be below detection limit, The levels of chloride and Fluoride were found to be in the range of 119.62-228.69 mg/l and 0.32-0.58 mg/l respectively.

Heavy metals content (i.e. As, Cd, Cr, Cu, Pb, Fe, Mn, Zn and Co) studied and Co, Cd, As, Pb, Ni, Cr were found to be below detection limit and within specified standards.

Other heavy metals were found to be in the range Fe: 0.05-0.42 mg/l, Cu: 0.04-0.08mg/l, Mn: 0.04-0.09 mg/l, Zn: 0.11 – 0.21 mg/l.

Sr. No.	Locations	WQI	Quality	Remark
1	Project Site	62.93	Good	**Water quality assessed based upon above physico-chemical parameters and samples were found to be physico-chemically good**
2	Kakeri	85.58	Good	
3	Umaria	99.92	Good	
4	Dhamani	85.79	Good	
5	Attara	84.07	Good	
6	Rambor	60.47	Good	
7	Sargaon	65.30	Good	
8	Khamhardih	66.93	Good	

B. Surface Water Quality

The analysis results indicate that the pH ranged between 7.23-7.76 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 456-486 mg/l which is within the permissible limit of 2000 mg/l.The total hardness recorded was in the range of 166.61-197.77 mg/l as $CaCO_3$ 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 63.22-146.22 mg/l and 27.36-39.89 mg/l respectively.

The reported value of Dissolved oxygen (DO) range of 6.0-6.3 mg/l. PO_4 ranges from 0.06-0.39 mg/l. The reported value of COD found to be in the range of 13.64-35.88 mg/l. BOD ranges from 4.83-12.61 mg/l.

Heavy metals content (i.e. Co, Cd, As, Pb) were found to be below detectable limit and Fe: 0.12 to 0.42 mg/l, Cu: 0.03 – 0.07 mg/l, Mn: 0.03-0.09 mg/l, Zn: 0.08-0.22 mg/l, Ni: BDL to 0.02 mg/l, Cr: BDL to 0.05 mg/l. very low and within specified standards.

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 Sentinel-2 Earth Observation Mission, sensor-Sentinel-2 having 10 m spatial resolution and date of pass 15th March 2021 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°50'50.97"N to 22°01'14.19"N latitude and 81°53'11.30"E to 82°04'29.08"E longitude and elevation 250 – 320 meter are used as per the project site confined within that area.

The Land Cover classes and their coverage are summarized in **Table 4.**

TABLE 4
LU/LC CLASSIFICATION SYSTEM

S.No.	Level-I	Level-II	Area (Sq.Km)	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
4	Scrubs/Wastelands	Barren Land	10.86	3.46
		Land with scrub/Open Scrub	40.96	13.04
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	**314.00**	**100.00**

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 1.423-1.628 g/cc which indicates favourable physical condition for plant growth. The water holding capacity is between 19.17-32.96%. Infiltration rate, in the soil is in the range of 15.63-25.84 mm/hr.

pH of the soil in the study area is found to be ranging from slightly acidic to basic (5.41-8.20) in reaction. Electrical conductivity, a measure of soluble salts in the soil is in the range of 134.1-349.9 µS/cm.

The important soluble cations in the soil are calcium and magnesium whose concentration levels ranged from 156.81-259.30 mg/Kg and 53.28-708.75 mg/Kg respectively. Chloride is in the range of 161.99-682.09 mg/Kg.

Organic matter and nitrogen were found in the range of 1.31-3.41% and 152.29-532.93 kg/ha. The nutrient status in terms of NPK value is found to be in the range of Nitrogen: 152.29-532.93 kg/ha, Phosphorus: 5.32-50.36 kg/ha and Potassium: 39.36-1013.8 kg/ha respectively.

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 106 floral species were observed in the study area. The details about the floral composition are as follows.

a. **Trees:** Total 55 species were found in the study area
b. **Shrubs (small trees):** Total 16 species were enumerated from the study area.
c. **Herbs:** In the study area 7 species were observed.
d. **Bamboo & Grasses: 15** species were enlisted from the study area
e. **Climbers and Twiners:** Total 12 species of climbers/ twiners were recorded in the study area.
f. **Parasite :** Each 1 species enlisted in the area

Fauna Details:

For the assessment of the faunal biodiversity of the study area with respect to Mammals, Reptiles, Birds, Butterfly and Fishes species, a baseline survey was conducted during **post monsoon Season – 2020.** The availability of fauna depends upon the distribution of natural vegetation. No forest land available in the study area, natural vegetation observed all along the River Maniyari and River Shivnath. Natural vegetation is also observed in the form of scrub land in the patches within study area. The wild fauna reported in the study area are black napped hare, Jackal and wild boar other common mammalian species were, monkey, squirrel, rat, mongoose and bat etc. were a commonly inhabitant within the study area.

A baseline survey was conducted in order to document the faunal biodiversity of the study area with respect to birds, reptiles, amphibians and butterfly species.

Rare and Endangered fauna of the study area

As per Indian Wild Life (Protection) Act, 1972

Among mammals; Jackal (*Canis aureus*), Indian Fox (*Vulpus beghalensis)*, Common Langur (*Presbytis entellus*), *Herpestes edwardsi* (Common Mongoose), are protected under schedule –II, Indian wildboar (*Sus scrofa)* are categorized under schedule – III, Indian hare (*Lepus nigricollis*), squirrel (*Funambulus pennanti*), are protected under Schedule IV, whereas Common house rat (*Rattus rattus*) is scheduled under V as per Wildlife Protection Act, 1972 & subsequent amendments.

Among the reptiles, Indian Cobra (*Naja naja*), Common Rat Snake (*Ptyas mucosus*) and Russell's viper (*Daboia russelli*) are categories under Schedule-II and Common Indian Krait (*Bungarus caeruleus*) under, Schedule – IV of Wildlife protection act.

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

- **As per IUCN RED (2013) list**

Among the reported animals, all wild fauna including avifauna catogorised as least concerned. None of endangered, vulnerable or threatened species were observed within 10 km radial distance from the project site as per IUCN category.

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 8. Details regarding education and infrastructure facilities 2011 are presented in Table 8 respectively

TABLE 5
SUMMARY OF SOCIO-ECONOMIC ENVIRONMENT OF VILLAGES WITHIN 10 KM RADIUS AREA

No. of villages	42
Total households	11637
Total population	56341
Male Population	28526
Female population	27815
SC Population	12564
ST Population	5780
Total literates	30260
Total Illiterates	26081
Total workers	28271
Total main workers	19177
Total marginal workers	9094
Total non-workers	28070

Source: Primary census abstract 2011, District Mungeli, State Chhattisgarh.

TABLE 6
INFRASTRUCTURE FACILITIES AVAILABLE IN THE STUDY AREA

Yr. 2011	In percentage (%)									
	Education	Drinking water	Road	Power	Communication	Transportation	Govt. PHC & SC	Bank	Drainage	Recreation
Availability	97.62	100	100	100	97.62	100	16.67	7.14	42.86	85.71

Source: District census handbook, 2011, District Mungeli, State Chhattisgarh

Interpretation

Socioeconomic survey was carried out to know the infrastructural activities amenities available within 10 km radius from 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 within 10 km radius. Literacy rate of the study region is from 53.71%. 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 49.82% 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.

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 PM_{10}, $PM_{2.5}$, SO_2, NO_X and CO. The raw material handling plant along with proposed Distillery plant and Co-gen Power Plant 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 stack details viz, height, diameter, temperature, velocity, volumetric flow and emission rates are presented in **Table 4.2.** Proposed 3 stacks for bioethanol plant FBC CO-GEN power 3 MW & DG sets, and Proposed 9 stacks (7 process plant and 2 for standby DG sets) for steel plant also considered for modelling.

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 SO_2, NO_2 due to proposed new installations were carried out. The predicted 24 hourly maximum contribution in AAQ concentrations from standby DG sets for particulate matter, SO_2 and NO_2 are found to be 0.48 µg/m^3, 0.0125 µg/m^3 and 9.7 µg/m^3 occurring at a distance of about 3.1 km each respectively in SSW and S direction. No significant incremental concentration was found due to proposed installation activities.

TABLE 7
RESULTANT CONCENTRATIONS DUE TO PROPOSED PROJECT WITH PROCESS UNIT

Pollutant	Maximum Baseline Concentration in nearest location (µg/m^3)	Incremental Conc. (µg/m^3)	Resultant Conc. (µg/m^3)	Limits (Industrial/ Residential, Rural) Concentration (µg/m^3)
Particulate Matter	89.3	0.75	90.05	100
PM2.5	28.9	0.24	29.14	60
SO_2	23.2	0.75	23.95	80
NO_2	24.5	0.23	24.73	80

Note: Maximum GLC considered during operation with production of steel and bio ethanol plant, maximum baseline considered at Khapri which is in downwind direction 1.8 km.

The resultant concentration levels (Ambient + proposed incremental) revealed that the concentration levels for particulate matter, SO_2 and NO_2 likely to be encountered in the operation of the project are well within the NAAQS levels prescribed by CPCB. Hence it is inferred that considering cumulative concentration levels, the pollution load exerted due to proposed project will be insignificant.

The mitigation measures adopted are:

1. The main pollutants discharged from the plant will be particulate matter.

2. In case of power failure DG set will be used and emissions generated from DG set operation will be PM, SO_2 and NO_x. Other gaseous emissions due to ferro alloy plant which is considered maximum consumption of raw material i.e. worst condition considered but all the predicted values well within the standard.
3. Water spraying will be carried out in order to control fugitive emissions in the internal open storage yards.
4. 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.
5. There will be dedicated roads for vehicles carrying raw materials and products.
6. Stacks will be provided with porthole and working platform so that stack monitoring can be done as per norms of statutory authority.
7. Distillery Plant with Material Handling will be provided with Dust extraction system, ESP with Chimney; Bag Filters for Grain house and end & transfer points to keep PM emission level to 30 mg/Nm³.
8. AFBC based co-generation power plant will be provided with ESP with chimney and 2 Nos. bag filters at coal conveyors to keep PM, SO_2, NO_X, Hg emission level to 30, 100, 100, 0.03 mg/Nm³, respectively.

- 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.

4.2 NOISE ENVIRONMENT:

During the normal operation of manufacturing process noise will be generated due to smelter plant, milling unit, Fermentation Unit, Distillation & Decantation Unit, Dryer Unit, Bottling Plant, ETP and DG Sets, 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.

DG sets are likely to be used during power failure. Predictions have been made taking into account even DG set in operation and thus reflecting the worst case scenario. The maximum predicted noise level within the plant boundary (0.2 km radius) is 55.7 dB (A).

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:

Effluent treatment system has been designed on two principles,

- Effluent with high BOD & COD- Bio-Methanation.
- Effluent with Low BOD but high on TDS & Chemical content.

Hence Two Different Effluent Treatment plant has been constructed as below;

(1) Biological Effluent Treatment Plant-Bio-Methanation

(2) Waste Water Effluent Treatment Plant

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. Overall **1877091.66 TPA and 228455.5 TPA** materials will be transported through road (considering 350 working days) for the plant. Thus, around **256 and 31 trucks per day** will be required to transport the materials by road with the capacity of each truck 21 Tons is being considered.

4.4 BIOLOGICAL ENVIRONMENT

There is no ecological sensitive area like national park, sanctuary, biosphere reserve, wetland, forest, etc. within 10 km radial distance from the project site.

Surrounding Pollution Aspects

The increase concentration levels of particulate matter, SO_2, NO_x, in the atmosphere could, lead to decline the rate of photosynthesis, thus retarding the growth of plant. However, air quality modelling outputs study revealed that, the resultant concentrations of particulate matter, sulphur di-oxide and oxides of nitrogen are well within the prescribed limits. The impact due to proposed project would be

minimal as project activity will be carried out within the plant boundary limit with proper control measures.

The proposed project does not involve destruction of habitat as there is no forest land exists in the project site. Project activity will be confined within the already acquired non-forest land.

Greenbelt development

- The land will be diverted to industrial purpose.
- Total area 18.69 ha.(10.69 ha. Steel division **+ 8 ha. Bio-Ethanol division**).
- Steel Division: The land is located at Kh. No.131, 132, 133, 134, 135, 136, 137, 138, 145, 146, 148, 150, 156, 157, 158, 160 at Village- Dhamni, Tahsil- Patharia and District- Mungeli (CG).
- Bio-Ethanol Division: The land is located at Kh. No. 123/1, 123/2, 126/1, 126/3, 127, 128/1, 128/2, 128/3, 157/1, 157/2157/4,159/2,163/1, 163/2, 163/3, 164, 165, 166, 175, 177 at Village- Dhamni, Tahsil- Patharia and District- Mungeli (CG).
- The total plant area is 8.0 Ha. Greenbelt area of 2.64 Ha. (33%) will be provided with local species with broad leaves and higher canopy and fast growing tree species. The ever green plants will be selected for the purposed of green belt. Greenbelt will be maintained with regular sprinkling of water.
- 6.17 ha. (33%) area will be green belt out of which 3.53 ha. in steel division (**5295 Sapling)** and 2.64 ha. in Bio-Ethanol division **(3960 Sapling)**. Total sapling for M/s KSPL will be 9255 nos. This will help in arresting the air pollutants and attenuation of noise levels.

Socio-economic Impacts:

The present land use is change. Moreover, proposed implantation of project will be carried out within Industrial complex, 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 ANALYSIS OF ALTERNATIVES (SITE AND TECHNOLOGY)

5.1 ALTERNATIVE SITES

A few sites were offered from land bank of CSIDC at Risda Janjgir Champa, Sarhar Janjgir Champa and Selar at Belha Bilspur. But land in single patch not available in those areas. Inadequate availability of required water supply along with road connectivity issues for transportation of raw and finished product.

The company did not considered the sites in Raigarh; Bilaspur districts due to the logistic problems to transport Iron Ore from NMDC to these areas.

Since the family members of the directors have the ownership of this land at Village Dhamni as well as it is just 30 kilometer away from Bilaspur city and also Bilha siding can be used for the Railway transport. Already a few sponge iron plants are in operation in the 10 kilometers radius of this site and villagers welcome the industrialization in this area. So looking at the water availability as well as infrastructure availability this land was selected.

5.2 SELECTION OF ALTERNATIVE TECHNOLOGY

The entire project related activities is already discussed in Chapter 2. The following aspects of the project are dealing with the study of alternative technology in brief involved in each of the proposed products and choice of the technology based on environmental applicability, technical and financial viability. The selected technology is most energy efficient and least polluting as it is not based on any fossil fuel but it is based on electrical energy mainly.

6.0 ENVIRONMENTAL MONITORING PROGRAM

An Environmental Management Cell (EMC) will be established for the proposed project under the control of Executive Director followed by General Manager. The EMC will be headed by an Environmental Officer 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**.** A provision of Rs. 15.00 lakhs will be made available towards recurring cost for environmental monitoring programme.

7.0 ADDITIONAL STUDIES

7.1 PUBLIC CONSULTATION

The Draft EIA-EMP report for proposed Grain based bio-ethanol 35000 KLA (100 KLD), Animal feed grade protein 28000 TPA, Bio-CNG 3000 TPA, CO2-17500 TPA, Power Plant (coal based cogeneration) 3 MW plus Implementation of product facilities for Sponge Iron (245000 TPA); Mild Steel Billet (179550 TPA); Rerolled Steel products through Hot Charging (131970 TPA); Rerolled Steel product through Reheating Furnace (42194 TPA); Ferro Alloys (75000 TPA) and/or Pig Iron (150000 TPA), Captive Power 56 MW (16 MW through WHRB and 40 MW through AFBC) and Fly Ash Brick (150000 TPA) at Khasra no. Steel Division: 131, 132, 133, 134, 135, 136, 137, 138, 145, 146, 148, 150, 156, 157, 158, 160 and Bio-Ethanol Division: 123/1, 123/2, 126/1, 126/3, 127, 128/1, 128/2, 128/3, 157/1, 157/2157/4,159/2,163/1, 163/2, 163/3, 164, 165, 166, 175, 177 Village-Dhamni, Tahsil- Pathariya, District- Mungeli (Chhattisgarh) Pincode 495224 is prepared as per the TOR issued by EAC (Industry –I & II), MoEF&CC, New Delhi and the report is submitted for public consultation process as per the provisions of EIA Notification 2006 and amendments thereof.

After completing the public consultation process, the points raised and commitment of project proponent during the public hearing will be incorporated in the final EIA/EMP report for final submission to Environmental Clearance.

7.2 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 draft 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.

8.0 PROJECT BENEFITS

8.1 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. KSPL 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 30th 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 as per O.M. dated 01/05/2018 issued by MoEF&CC, New Delhi proposals regarding Corporate Environment Responsibility (C.E.R.). The CER budget along with capital expanses with different heads are given below.

The proposed cost of the Bio Ethanol project is estimated to Rs. 11610.0 Lakhs. Thus, as per latest circular dated 20.10.2020 & 25.2.21 of MOEF the expenses on CER is to be made based on Public response and no fixed limit is imposed at the present. However the management has proposed to keep a provision of maximum 1.0% i.e. 116.0 lakhs Rs towards CER for this project. Which will be spent towards the Improvement of Environment in the surrounding area. The final heads of expenditure and amount will be decided as per Public consultation and requirement of the region to improve and strengthen surrounding environment which may be slightly impacted due to implementation of the proposed project activity. The following budget provisions are provisional.

TABLE 8
ACTION PLAN WITH BUDGETARY PROVISIONS TOWARDS CORPORATE ENVIRONMENT RESPONSIBILITY

General Head of expense	Amount to be spent for head (in percentage)	Amount to be spent for head (in Rs. (Lakhs))
Economic Development activities	15%	17.42
Education facility	25%	29.00
Solar Power facility	10%	11.61
Medical development	15%	17.42
Plantation in Community areas	10%	11.61
Soild Waste Management area	12%	13.93
Women empowerment	0.13	15.01
Total	**100%**	**116.0**

9.0 ENVIRONMENTAL COST BENEFIT ANALYSIS

The environmental cost for the project includes cost for controlling adverse impacts on ambient environmental components like air quality, noise levels, water resources and quality, land environment, socio-economic environment, etc. M/s. KSPL will incur the environmental cost by adopting the pollution control measures to minimize impacts on the environmental parameters.

10.0 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.
- It is observed that total recharge potential of Rain Water is 52981.25 KL of rainfall run-off can be harvested annually within the premises of M/s. Kusum Smelters Pvt. Ltd. RWH Structure with Bore-well: Total no. of Structures required: 6 Nos.

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 project. The capital cost required to implement the EMP for proposed project is estimated to be Rs. 350 Lakhs. The annual recurring expenses will be Rs. 100 Lakhs has been allocated for implementation of the Environmental Management Plan for proposed project.

11.0 CONCLUSION

The proposed project of M/s. KSPL 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 bag house, water sprinklers, enclosures, etc. form 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 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 bio-fuel to some extent and will contribute to the economic development of the region and thereby the country.

12.0 DISCLOSURE OF CONSULTANTS

The Environmental studies for proposed project of M/s KSPL 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.