ENVIRONMENTAL IMPACT ASSESSMENT

FOR

THE PROPOSED COAL WASHERY OF 0.99 MTPA CAPACITY AT VILLAGE BHELAI, TEHSIL – BALODA, DISTRICT BILASPUR, CHHATTISGARH STATE

EXECUTIVE SUMMARY

Project Proponent :

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

M/s Inspire Industries Private Limited proposes coal washery of 0.99 MTPA capacity at Bhelai village, Baloda tehsil, Janjgir-Champa district, Chhattisgarh state. The estimated cost of the proposed project is about Rs. 23 Crores.

2.0 Justification of the Project

The wide gap assessed between the projected requirement of beneficiated non-coking coal and the existing total capacity, clearly indicates that there is enough scope for building up of capacity to beneficiate non-coking coal in the private sector. Further, it may not be consistently feasible to operate washeries at their 100% capacity. Therefore, provision for another 40-50 Mt capacity addition may have to be considered in subsequent phase.

3.0 Environmental Setting

The study area covers 10 km radius around the proposed coal washery plant. The environmental setting of the proposed plant site is as follows:

- Geographical Co-ordinates: Latitude: 22°09'22.21" N" and Longitude: 82°29'40.10" E;
- Water bodies:- Lilagar Nadi – 4.9 km, NW, Hasdo Right bank Canal – 3.4 km, ESE, Hasdo River – 14.3 km, E;
- Project site is fairly flat land;
- The nearest airport is at Raipur, 165 km by road from the project site. The National Highway–130 & 130A are about 6.0 & 8.0 km from the project site;
- Nearest railway station – Akaltara (12 km);
- No forests and ecological sensitive areas within 10 km radius;
- There are no wildlife sanctuaries, national parks, biosphere reserves, migratory corridors of any sensitive species in the study area.

3.1 Project Description

The salient features of proposed coal washery are given below in the **Table-1**.

TABLE-1
SALIENT FEATURES OF THE PROPOSED COAL WASHERY PLANT

Sr. No	Parameter	Description
1	Capacity/annual through put	200 TPH
2	Washing technology	Heavy Media Cyclone technology
3	Processing rate	1 X 200 TPH
4	Process	Wet process - comprising crushing, screening, washing and handling
5	Source of coal	Kusmunda, Gevra and Dipka mines of SECL mines–raw coal will be lifted on behalf of the clients. Also purchase through e-auction

Sr. No	Parameter	Description
6	Coal Ash content	
	a Input raw coal	39% (approx.)
	b Throughput (washed coal)	34%
	c Rejects	60%
7	Land requirement	20.83 acres
8	Water Requirement & Source	250 KLD, will be met from ground water source. Application will be filed with CGWB for approval of water abstraction.
9	Water Treatment	
	a) Wastewater Generation and Wastewater Treatment	There will be no industrial waste water discharge as the plant will be designed on zero effluent discharge principle
10	a Power Requirement	820 KVA from Chhattisgarh State Electricity Board 33 LVA Sub-station
	b Source	Chhattisgarh Electricity Board (CSEB)
11	Coal Transportation	ROM coal from SECL mines will be transported by road. Movement of coal by road will be through covered truck, which are environmentally compliant
12	Manpower Requirement	Construction-40-50 nos; Operation–50 nos
13	Operating hours	3 shifts daily of 5.5 hours each (Effective 16.5 hrs a day) 300 days in a year
14	Project Cost	Rs.23 Crores (excluding EMP, land & railway siding cost)

Source: Project Report, IIPL

4.0 Baseline Environmental Status

The baseline data monitoring studies have been carried out from 1st February 2019 to 30th April 2019, covering partly winter and partly pre-monsoon season.

4.1 Land use

The revenue forest land under the study area consists 1743.54 ha (7.55%) of the total geographic area. Altogether 14468.53 ha cultivable land (irrigated, un-irrigated and Land Under miscellaneous tree crops etc.) was observed in the study area. The land not available for cultivation is (4146.31 Ha) 17.95% of the total study area, which includes area of land with scrub, land without scrub, Permanent Pastures, quarry, mining area, rocky/ stony and barren area.

This includes all land which was taken up for cultivation but is temporarily out of Cultivation for a period of not less than one year and not more than five years. The fallows land is (311.25 Ha) 1.35% in the study area. The current fallows land is (264.78 Ha) 1.15% in the total study area. The study area comprises about (371.66 Ha) 1.61% cultivable wastelands. The urban area under the study area consists 1783.10 ha (7.72%) of the total geographic area.

4.2 Meteorology

The maximum temperature was observed to 41.8^{0}C during April, 2019 and minimum temperature was observed to be 22.9^{0}C during February, 2019 respectively. Relative Humidity was observed to be a maximum of 55% for the month of March 2019 and a minimum of 31% was observed for the month of April, 2019. Predominant winds are mostly from W (16.4%), followed by N (12.4%)

4.3 Ambient Air Quality

Ambient Air Quality Monitoring (AAQM) was carried out at ten locations with a frequency of two days per week. The minimum and maximum values of PM_{10}, $PM_{2.5}$, SO_2, NO_2 and CO were given in below **Table-2**. The results indicate that the concentrations of PM_{10}, $PM_{2.5}$, SO_2, NO_2 and CO in the ambient air are well within the National Ambient Air Quality (NAAQ) standards for Residential and Rural areas.

TABLE-2
AMBIENT AIR QUALITY LEVELS

Season / Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO
Winter & partly pre-Monsoon (2019)	**24.6-48.6**	**14.2-32.5**	**8.4-15.5**	**11.4-18.4**	**196-458**
NAAQS 2009	**100**	**60**	**80**	**80**	**2000**

All values are given in µg/m^3

4.4 Water Quality

To assess the physical and chemical properties of water in the region, water samples from ten ground water and three surface water locations were collected and analyzed from various water sources around the project site.

- ***Ground Water***

The pH value varied from 6.45 to 7.62. The total hardness was observed to be in the range of 155.1-421.07 mg/l. Chlorides and sulphates are found to be in the range of 120.53-392.5 mg/l and 21.6-64.2 mg/l respectively and found to be within the maximum permissible limits of IS-10500. Nitrates and fluorides are found to be in the range of 7.8-24.5 mg/l and 0.4-0.9 mg/l respectively and found to be within the IS-10500 drinking water limits. Heavy metal contents are found to be below the detection limit. The E.Coli are found to be absent.

- ***Surface Water***

The pH and conductivity varies from 6.89–7.08 and 106.7-631.0 µs/cm respectively. The total dissolved solids ranged from 425.0-72.8 mg/l. Chlorides and sulphates were found to be in the range of 24.6-109.5 mg/l and 5.2-18.5 mg/l respectively. The heavy metal content has been found to be well within the limit. The coliform organisms were found to be within the limits.

4.5 Soil Quality

Eight soil samples were collected and analyzed in and around the proposed coal washery area to assess the present soil quality of the region. It has been observed that the pH of the soil in the study area ranged from 6.87 to 7.92. The electrical conductivity was observed to be in the range of 125 to 315 µmhos/cm. The nitrogen values range between 21.6 to 110.2 kg/ha. The phosphorus values range between 44.3 to 105.3 kg/ha, indicating that the phosphorus content in the study area falls in medium to more than sufficient category. The potassium values range between 111.0 to 262.9 kg/ha. The chlorides were found to be in the range of 95.5 to 169.9 mg/kg of soil. It shows the soil falls under average sufficient to more than sufficient category.

4.6 Noise Levels

Ambient noise levels were measured at ten locations around the project site.

a) Day Time Noise Levels (L_{day})

The day time noise levels at all the locations were ranged in between 44.2 to 47.1 dB(A).It is observed that the day time noise levels are in accordance to the prescribed limit of 55 dB (A) for residential areas.

b) Night Time Noise Levels (L_{night})

The night time noise levels were ranged in between 40.6 to 43.5 dB (A). It has been found that the night time noise levels are in accordance with prescribed limit of 45 dB (A) for residential areas.

4.7 Ecological Environment

From the primary survey and as per the Forest Department records and review of literature, there are no sanctuaries, national park, biosphere reserves in the study area. There are no endangered flora and fauna in the study area. The study area has the presence of Schedule-II, III and IV and V, mammals, birds, reptiles and insects as per the Indian Wildlife (Protection) Act, 1972. As per the records there are no endangered plants found in the study area as per the records of the Botanical Survey of India.

4.8 Social Environment

As per 2011 census the study area consisted of 91278 persons inhabited in study area. The configuration of male and female indicates that the males constitute to about 50.57 % and females to 49.43%. 29.46 % of the population belongs to Scheduled Castes (SC) and 13.36% to Scheduled Tribes (ST). The data of study area reveals that literacy rate of 85.71 as per 2011 census. Total work participation in the project study areas is 52.50 % and the non-workers constitute 47.50 % of the total population respectively.

5.0 Anticipated Environmental Impacts and Mitigation Measures

5.1 Topography

The proposed site for the coal washery unit is fairly flat. There will be minimum leveling during the construction of the plant. This will not cause any significant topographical changes in the area. Similarly, there will not be any micro or macro climatic changes as there will not be any thermal imbalance. It can be concluded that the coal washery unit will have no adverse impacts on the topography and climate due to its operation.

5.2 Air Environment

The main of emissions from the proposed unit will be of particulate matter. Fugitive emissions will also arise during the transport of coal, unloading of coal, conveying and coal storage. ROM coal from SECL mines will be transported by road. Movement of coal by road will be through covered trucks. Air pollution modeling has been carried out considering the point source emissions, fugitive / area source emissions and line source emissions. The maximum incremental concentrations of PM_{10} and $PM_{2.5}$ have been predicted as 25.4 $\mu g/m^3$ and 7.2 respectively. The resultant concentrations of PM_{10} after will remain within the NAAQ Standards for industrial/ rural/residential and other areas.

The project is unlikely to have any significant impacts on local or regional air quality or adversely affect human health or vegetation by the implementation of environmental protection measures.

5.3 Water Environment

The quantity of water required for the proposed plant including domestic use is 250 KLD which will be met from borewell. The operation of the coal washery unit envisages 100% process wastewater reused coal washing circuit. The domestic wastewater generation from the plant will be treated in septic tank/soak pit. Zero discharge status will be maintained as there is no discharge of water outside the plant premises.

5.4 Solid Waste Management and Land Use

40 TPH coal rejects will be generated from the proposed coal washery plant which will be sold to prospective buyers. Efforts will also be made to supply rejects to brick kiln manufactures in the region. Solid waste in the form of sludge is generated from septic tank connected with series of soak pits. This waste will be used as manure for greenbelt development.

The coal rejects will be transported in covered trucks. Insignificant impact is likely to occurs, when the Environment Management Plan is followed. Spent oil and lubricants will be collected in leak proof drums and stored in earmarked area, which will be sold to authorised vendors.

5.5 Noise Environment

The most common noise generating sources are screens, crushers, blowers and dryers. These noise sources are generating noise continuously as well as intermittently. Workers exposed to high noise levels will be provided with earplugs/ear muffs.

The increment noise levels are between 30 dB (A) to 35 dB (A) at plant boundary as well as surrounding habitations. It is seen from the simulation results that the incremental noise levels are confined to factory premises only and do not contribute to violation of CPCB standards. Hence, the impact of noise on the human habitation and surrounding environment is likely to be insignificant.

5.6 Flora and Fauna and Greenbelt Development

An ecological survey in the study area was conducted to assess the existing floristic structure and to record the biological resources. No endangered or endemic plant species have been recorded in the area. Fauna in the buffer zone is typical of the region. The proposed coal washery unit area is about 8.43 ha. The plantation proposed will be about 3.50 ha (say 44.3%) Adequate attention will be paid to the plantation of trees, their maintenance and protection.

5.7 Socio-Economics

The major economic impacts, which will accrue to the region, during the construction phase and operation of the washery, will be an increased availability of direct and indirect employment. Local people will be benefited after commissioning of the proposed project in terms of petty to major contractual jobs and associated business establishments. IIPL will take steps for development of education, health and sanitation, community infrastructure development, sports and women empowerment in the nearby villages under CSR activities.

It is proposed to invest a sum equivalent to 2% of the net profit, whichever is higher annually for various social welfare and community development activities in the region.

5.8 Health and Safety Monitoring Plan

All the potential occupational hazardous work places such as fuel storage area, coal handling area shall be monitored regularly. Occupational safety and health is very closely related to productivity and good employer-employee relationship. The main factors of occupational health are fugitive dust and noise. Safety of employee during operation, maintenance and handling of coal will be taken care of as per company regulations. PPEs such as Dust masks, ear plugs/earmuffs will be provided to workmen. Hence, no significant impact on health of workmen is envisaged.

6.0 Conclusion

The proposed project will have marginal impacts on the local environment with proper mitigation measures and effective implementation of the environment

management measures as suggested in the EIA/EMP report and as may be recommended by MoEF&CC and the State Pollution Control Board. The negative impacts will be minimized to a great extent. However, development of this project has beneficial impact/effects in terms of growth in regional economy, transform the region's economy from predominantly agricultural to significantly industrial, increase Government earnings and revenues and accelerate the pace of industrial development in the region.

The proposed project will provide direct employment to a large number of personnel. This project will also generate indirect employment to a considerable number of families, who will render their services for the employees of the project.

The project will also encourage ancillary industries in the region, which will not only increase the employment potential but also the economic base of the region will be further strengthened.

Beneficiation of low grade non-coking coal is an important area both from the economic and the environment point of view. Thus, in view of considerable benefits from the project, the proposed project is most advantageous to the region as well as to the nation.