

SUMMARY
OF
DRAFT
**ENVIRONMENT IMPACT ASSESSMENT/
ENVIRONMENT MANAGEMENT PLAN**

(As Per EIA Notification No. S.O. 1533(E) dated 14th September 2006

FOR

Proposed Wet Type Coal Washery Project Capacity: 2.4 MTPA

Village: Joki, Tehsil: Sakri, District: Bilaspur (C.G.)

Project Area = 15.90 Acre (6.4345 Ha),

(Project Category 'B1')

Submission for

Public Hearing

to

Chhattisgarh Environment Conservation Board

PROJECT PROPONENT



M/s. SPRN MINERALS Private Limited

Goyal Towers, 1st Floor, Near Vidya Medical, Shankar Nagar, Raipur-492004 (C.G.)

Baseline Monitoring Period : October 2025 to January 2026

EIA Consultant



SRUSHTI SEVA PRIVATE LIMITED

NABET Accredited

EIA Consultant Organization

Certificate No. NABET/EIA/25-28/RA 0423 Valid till 12.05.2028

MARCH 2026

SUMMARY ON EIA-EMP

EX_1. INTRODUCTION:

M/s. SPRN Minerals Pvt. Ltd. is a Private Limited company duly registered under the companies Act. M/s. SPRN Minerals Pvt. Ltd. is engaged mainly in beneficiation and sizing of raw coal for different end users of coal. Mr. Rishabh Goyal oversees the overall management and day-to-day operations of the company. The company is promoted by Shri Rishabh Goyal engaged in various businesses like Coal trading, Linkage, Handling agent, Coal consultancy, Transportation and having good reputation in the market, which was gained with good business experience.

Looking forward in prospects of utilization of washed coal; M/s. SPRN Minerals Pvt. Ltd. propose to install a 2.4 MTPA Coal Washery, near Village: Joki, Tehsil: Sakri, District: Bilaspur of State: Chhattisgarh.

EX_2. IDENTIFICATION OF PROJECT

The proposed project envisages construction of 2.4 MTPA wet type coal washery at Village Joki Tehsil Sakri, District Bilaspur, Chhattisgarh. Already a coal crushing plant is present at site having capacity for Coal Crushing and Sizing (1.2 MTPA) and Storage of Coal (0.05 MT) and consent is granted for the same by Chhattisgarh Environment Conservation Board vide letter no. 1780/R.O/T.S/C.E.C.B./2025 dated 25th July 2025 and valid upto 30th April 2026.

The proponent has made online application along with Form-1, copy of pre-feasibility report and other documents for proposing Terms of Reference (TORs) for undertaking detailed EIA study on 14th August 2025. Accordingly, the SEIAA, Chhattisgarh has prescribed Standard ToRs vide letter OL/TOR/CMIN/Bilaspur/4651dated 02/02/2026 (Refer Annexure 1.1A). As per the EIA Notification and subsequent amendments, the projects having capacity less than 2.5 MTPA (coal washery), hence falls under B1-category. The project cost of the proposed coal washery project is estimated to be Approx. Rs. 29.163 Crore.

EX_3. LOCATION OF THE PROJECT

The proposed coal washery area is located at Village: Joki, Tehsil: Sakri, District: Bilaspur of State: Chhattisgarh. The project area and 10 km radius study area falls in Toposheet no. 64-J/4 and 64-F/16, on R.F. 1:50000. The project falls within Latitude: 22°8'15.05"N to 22°8'23.63"N and Longitudes 82° 5'19.11"E to 82° 5'27.93"E.

EX_4. DRAFT EIA/EMP REPORT

Proposed coal washery project of M/s SPRN Minerals Pvt. Ltd. is classified as "Category B1" as per the EIA notification dated on 14th September, 2006 and subsequent amendments. Baseline environmental monitoring was conducted in line with the ToR during October 2025 to January 2026 for determining the existing 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 of the villages within 10 km radius study area. The observations of the

Summary on Draft EIA/EMP for Proposed 2.4 MTPA Coal Washery
Village: Joki, Tehsil: Sakri, District: Bilaspur, State Chhattisgarh

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

SALIENT FEATURES OF THE PROJECT

Sr. No.	Particulars	Details
1.	Location	Village: Joki, Tehsil: Sakri, District: Bilaspur of State: Chhattisgarh
2.	Khasra No.	242/1,242/2,269/1,269/2,270/1,270/2,270/3,271/1,271/2, 266/1,268, 272/2, 273, 245/3, 367,252/1,276/3, 276/1, 274, 272/1,267 & 244
3.	Total area & present land use	15.90 Acre (6.4345 Ha) Private Land Major uncultivated with few patches of single crop
4.	Site elevation	306 to 308 m
5.	SoI Toposheet No.	64-J/4
6.	Nearest highway	NH - 130 (approx. 1.35 km SE)
7.	Nearest railway station	Ghutku (approx. 3.0 km NNE)
8.	Nearest airport	Bilaspur Airport - approx. 16 kms, South
9.	Nearest rivers	Arpa River – 2.7 km/E
10.	District headquarters	Bilaspur 4.0 Km (SE)
11.	Nearest village	Ghana Village ~ 0.6 Km, NW Joki Village ~ 0.90 Km, SW
12.	Archaeological sites	None within 10 km Study Area
13.	Reserved / Protected Forests, Protected areas as per wildlife protection act 1972 (tiger reserves, elephant reserve, biospheres, national parks wildlife sanctuaries, community reserves & conservation reserves)	None within 10 km radius area
14.	Seismicity	Seismic Zone II (Low damage risk)
15.	Other industries in 10 km radius	PHIL Coal Beneficiation Pvt. Ltd.~ 1.60 km, NE Paras Power Coal Beneficiation Ltd.~ 1.80 Km, N PHIL Steel & Power Plant~ 2.15 Km, NE Bhatia Coal &Beneficiation Pvt. Ltd.~0.65 Km, SE CPCBL~ 1.25 Km, SE

EX_5. PROJECT DESCRIPTION

TECHNOLOGY AND PROCESS DESCRIPTION:

- Run-Of-Mine Coal (Size upto 300 mm) from SECL Mines transported by Tipping Trucks shall be received at the Coal Washery site and dumped in the areas adjacent to the Ground Hopper from where the same shall be fed to the Ground Hopper by dozing / Pay loaders.
- From the ground hopper, the raw coal shall be fed to a Rotary Breaker for primary sizing and then to close circuit crushing and screening and finally sized to minus 50 mm. The sized coal shall be taken to a series of storage bunker.
- Sized raw coal, (-) 50 mm, from bunker shall be transported to the washing plant building through belt conveyors.
- Coal water slurry then shall flow through launder to a set of De-sliming Sieve Bend and Screen to remove (-) 1 mm coal fines from the coal.
- De-slimed coal shall go from screen discharge chute to the launder. Magnetite media of required specific gravity shall be added at the back of the launder to get mixed with the coal.
- Coal & magnetite mixture shall be pumped to feed to Heavy Media Cyclones. Clean coal along with magnetite media shall be received as over flow from the cyclone.
- Magnetite media shall be drained through Sieve Bend and first part of the Screen and be collected in the screen's dense catch pan and re-circulated back to the washing system.
- Underflow of cyclone along with magnetite shall also be fed to a sieve bend & Reject screen.
- Clean coal collected from discharge end of clean coal screen shall be dried in centrifuge and transported to clean coal storage shed or directly to clean coal storage bunker.
- Reject collected from the overflow of Reject Screen shall be transported to a reject bunker and from there to reject disposal area.
- Fine coal slurry collected in the fine coal tank shall be pumped into a set of classifying cyclone. The underflow of classifying cyclone shall be dewatered in Hi Frequency screen while the overflow from cyclone shall be fed to a Hi-rate Thickener. Thickened slurry from thickener shall be dewatered in a Multi Roll Belt Press filter.
- The discharge from Hi Frequency screen shall be mixed with washed coal. The discharge of belt press shall be mixed with washed coal after weather drying.
- Effluent from the magnetic separator goes to fine coal tank through wetting launder.
- Plant control shall be achieved by a centralised PLC based control system designed to enable one operator to start-up, monitor, and control and shut down all main equipment, and process functions.

RAW COAL REQUIREMENT, SOURCE & MODE OF TRANSPORT

The annual requirement of raw coal will be 2.4 Million Tonnes. The Raw coal will be obtained through E-auction from SECL mines located in Bilaspur & Korba Area.

The Raw Coal from SECL mines will either be transported by tipping trucks to SPRN Site or via railway to nearest Ghutku railway siding located about 1.4 Km from proposed site. From the railway siding, the coal will be transported upto the raw coal hopper located at about 2.0 km by trucks.

SOLID WASTE GENERATION & MANAGEMENT

It is proposed to process 2.4 MTPA raw coal in the proposed coal washery. About 25% of raw coal i.e. 6,00,000 TPA washery reject coal will be generated from the proposed coal washery. The solid waste i.e. Rejects (0.6 MTPA) generated during the washing process shall be stacked separately in the storage yard and shall be sold to the nearby CFBC power plants.

WATER REQUIREMENT AND SOURCE

About 682 KLD make up water will be required in the proposed coal washery. Make up water will be sourced from Borewells existing within plant premises. Necessary prior permission from CGWA will be obtained for withdrawal of Ground water.

MANPOWER REQUIREMENT

During the construction phase employment will be generated for skilled, semiskilled and unskilled labors. Technical persons will be recruited during the operation phase. It is estimated to directly employ 75 nos. and indirect employment of 150 nos. people of various skills.

SITE INFRASTRUCTURE

The coal washery is proposed in Joki village, Sakri Tehsil, Bilaspur District, Chhattisgarh. Preference in employment will be given to local people. Hence, there is no need for provision of township. For efficient plant operation, infrastructure facilities like office, store, rest area, drinking water facilities, urinals, latrines, canteen, first aid center, etc. will be provided within the plant premises. Internal black topped roads will be developed. An ambulance facility will be kept ready to attend medical emergency.

EX_6. EXISTING ENVIRONMENTAL SCENARIO

BASELINE ENVIRONMENTAL STUDIES

Baseline environmental studies were conducted in the proposed coal washery area and in the area within 10 km radius from the proposed coal washery area to assess the existing environmental scenario in the area. For the purpose of EIA studies, applied coal washery area was considered as the core zone and area outside the applied coal washery area upto 10 km radius from the applied area boundary was considered as buffer zone. Core zone and buffer zone together formed study area for the project. The baseline environmental quality data for various components of environment, viz. Air, Noise, Water, Land were monitored during post monsoon season i.e. October 2025 to January 2026 in the study area covering 10 km around the proposed coal washery area.

METEOROLOGY AND AMBIENT AIR QUALITY

Summary of the Meteorological Data (October 2025 to January 2026)

Temperature (°C)	10°C to 30°C
Relative Humidity (%)	10% to 96%
Wind Direction	NE (35.4%)
Average wind speed	2.25 m/s
Calm wind %	1.06%

AMBIENT AIR QUALITY STATUS

The status of ambient air quality within the study area was monitored for post-monsoon season during October 2025 to January 2026 at 8 locations including the proposed coal washery area and in nearby villages. Total 8 sampling locations were selected based on the meteorological conditions considering upwind and downwind directions. The levels of Respirable Particulate Matter (PM10), Fine Particulates (PM2.5), Sulphur Dioxide (SO₂,) and Oxides of Nitrogen (NO_x) were monitored. The minimum and maximum values of monitoring results are summarized in Table given below.

Summary of Ambient Air Quality Monitoring Results

Station code	Location	Description	PM10, (µg/m ³)	PM2.5, (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)
A1	Core Zone	Minimum	51.6	29.3	10.3	21.5
		Maximum	72.5	48.5	13.9	26.8
A2	Sakri	Minimum	33.2	15.3	7.4	10.2
		Maximum	54.2	29.3	11.6	16.7
A3	Joki	Minimum	39.6	16.8	8.4	11.3
		Maximum	58.7	30.7	12.4	18.9
A4	Senduri	Minimum	40.2	19.5	9.1	12.3
		Maximum	61.2	33.3	11.9	17.9
A5	Ghutku	Minimum	33.8	16.2	7.5	10.8
		Maximum	58.7	30.7	12.4	18.6
A6	Pendri	Minimum	40.8	20.8	8.1	13.7
		Maximum	71.2	36.1	10.1	17.6
A7	Padipar	Minimum	46.2	20.7	6.9	13.3
		Maximum	65.8	34.2	10	16.5
A8	Mangla	Minimum	43.6	20.8	8.5	12.9
		Maximum	66.3	35.7	12.8	18.2
CPCB Standard			100 (24 hrs)	60 (24 hrs)	80 (24 hrs)	80 (24 hrs)

From the above results, it is observed that the ambient air quality with respect to PM10, PM2.5, SO₂, NO_x and CO at all the monitoring locations was within the permissible limits specified by CPCB. The Heavy Metals were observed to be below detectable limit.

AMBIENT NOISE LEVELS

Ambient noise level monitoring was carried out at the 8 monitoring locations; those were selected for ambient air quality monitoring. The monitoring results are summarized in Table given below:

Summary of Ambient Noise Level Monitoring Results

	Project Site	Devari Village	Joki Village	Karhipara Village	Turkadih Village	Parsada Village	Ghana Village	Bhami Village
Min	40.7	36.4	35.9	35.2	36.1	34.7	34.2	35.7
Max	67.2	59.3	57.4	55.3	59.4	56.2	52.7	53.2
Ld	55.3	50.7	50.6	48	50.3	49.6	48.2	46.5
Ln	44.3	40.1	39.9	38.6	40.2	38.9	38.1	38.2

SURFACE AND GROUND WATER RESOURCES & QUALITY

WATER RESOURCES

The 10 km radius study area around the project site is almost flat with elevation varying from 306 m to 308 m MSL. The general slope of the area is towards East. The overall drainage of Bilaspur district is dominated by the Arpa River and its tributaries. Arpa is the principal river system in the district, flowing across much of the area and draining rainfall runoff. Originates in the Khodri-Khongsara hills of neighboring areas and flows generally south and southeast across Bilaspur district.

The applied coal washery area is located in upper part of Sakri Taluka, Bilaspur District. The lithology in 10 km study area mainly consists of Unclassified shale, limestone of Raipur group which forms part of Chhattisgarh Super Group of Meso to Neo Proterozoic age of sedimentary rock types, shale and limestone of Raipur group are grey in colour and medium to fine grained hard in nature and lineament is also present towards SE direction in the project area.

The elevation of the ground is between 306 m to 308 m in the plant area. The depth to water level in the area in pre monsoon varies between 6.35 m to 8.90 m bgl average being 7.47 m bgl. The depth to water level in post monsoon period varies between 2.38 m to 5.19 m bgl average being 3.68 m m bgl. Annual water level fluctuation pre & post monsoon varies between 2.16 m to 5.46 m. The average being 3.68m bgl.

WATER QUALITY

The existing status of groundwater and surface water quality was assessed by identifying 8 ground water (Bore wells) locations in different villages and 6 surface water samples.

GROUND WATER QUALITY

The pH of the water samples collected ranged from 7.2 to 7.6 and within the acceptable limit of 6.5 to 8.5. The total dissolved solids were found in the range of 389 - 644 mg/l in all samples. The total hardness varied between 198 - 356 mg/l for all samples collected at 8 locations.

In all samples, iron content varied in between <0.01 - 0.18 mg/l, Nitrate in between 1.8 - 7.2 mg/l, fluoride varied between 0.4 - 0.9 mg/l, chloride 56.3 – 105.4 mg/l, Sulphate 40.2 – 72.8 mg/l, alkalinity 203 - 391 mg/l, calcium 52.1 – 96.1 mg/l and magnesium in between 11.2 – 37.4 mg/l. The overall ground water quality was found to be mineralized with respect to TDS, hardness, chloride, sulphate with moderate buffering capacity. The levels of heavy metals content were found to be within permissible limits.

SURFACE WATER QUALITY

The pH of the surface water samples collected was 6.9 to 7.9 and within the acceptable limit of 6.5-8.5. The total dissolved solids were found to be 182 - 376 mg/l. Total hardness was observed between 128- 195 mg/l. Iron content in all samples was found in the range of 0.09- 0.16 mg/l, concentration of nitrate was 1.2 – 7.28 mg/l. The fluoride concentration was found to be 0.3 to 0.7 mg/l and chloride concentration was varied between 25.3 – 70.5 mg/l. The sulphate content in all samples was in the range of 11.4 – 42.7 mg/l. The variation in alkalinity recorded was in the range of 84 - 159 mg/l, magnesium was found to be in the range of 11.7

to 20.6 mg/l in all samples. It was observed from the analysis that, the physico-chemical characteristics of the surface water samples are within the permissible limits of drinking water standards.

BACTERIOLOGICAL CHARACTERISTICS

Coliform group of organisms are indicators of faecal contamination in water. Water samples were analysed for total and faecal coliform by membrane filtration technique. In groundwater samples, total coliform & faecal coliform were absent in all the samples. Whereas surface water was found to be contaminated by coliform bacteria.

From the results, it was observed that, groundwater is suitable for drinking and domestic uses in absence of alternate drinking water source whereas surface water was not suitable for drinking uses without treatment.

LAND USE AND LAND COVER CHARACTERISTICS

The land use pattern of the study area (10 km radius around the project site) has been estimated by using satellite image. The Land Cover classes and their coverage are summarized in Table given below:

LU/LC Classification System				
S.No.	Level-I	Level-II	Area (Sq. Km)	Percentage (%)
1	Built-up land	Settlement	28.82	9.17
		Industrial Settlement	18.40	5.86
		Road Infrastructure	7.45	2.37
		Railway Line Area	2.05	0.65
2	Agricultural Land/ Crop Land	Single Crop	105.78	33.67
		Double Crop	92.42	29.42
3	Open Scrubs/Wastelands	Open Scrub	20.86	6.64
		Wasteland	12.43	3.96
4	Waterbodies	River/Nala/Stream/Canal	10.42	3.32
		Pond/Lake	15.56	4.95
		Total	314.19	100.00

SOIL QUALITY

For studying soil profile 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 15-20 cm. Total 8 samples within the study area were collected and analyzed.

From the analysis results of the soil samples, it was observed that the soil was low to medium fertile and having low productivity. The soil in the study area needs additional fertilizers for improving the fertility status and increase in crop productivity. The concentration of heavy metals in the water extract of soil was found to be low with a negligible concentration level of cadmium, chromium, lead, cobalt and selenium. This also indicates the poor level of micro-

nutrient. The organic matter was found in the range of 0.36 to 1.71 gm/100 indicating moderate organic content in the soil. Overall, the soil quality in the area was found to poor to medium fertile with moderate productivity.

BIOLOGICAL ENVIRONMENT

FLORA IN THE CORE AND BUFFER ZONE

Proposed site of the 2.4 MTPA coal washery comprise of major uncultivated with few patches of single crop land surrounded by few agricultures land. There were few trees observed in the project site dominated, by *Acacia nilotica*, *Butia monosperma*, *Azadirachta indica* and *Karai*. No eco-sensitive area like forest, large water bodies and wetlands exist within close proximity of the project site.

The land use pattern of this region was predominated by agricultural land/fallow land followed by settlements / Habitation area. Arpa River (2.7 Km E) is the major river passing through the study area. No forest observed within study area, natural habitats has confined to very limited area. Trees in the study area are restricted to homestead/ farmland/ pond side /village side road side plantation. This sort of tree cover is termed by Forest Survey of India (FSI) as 'Trees Outside Forests" (TOF), in the form of small woodlots and block plantations as trees along linear features, such as roads, canals bunds, etc. and scattered trees on farmlands, homesteads, community lands and urban areas.

- **Farm forestry:** Dominant trees observed along the *Acacia nilotica*, *Butia monosperma*, *Azadirachta indica* and *Ailanthus excelsa*.
- **Roadside plantation:** Predominant tree observed along road side is *Acacia nilotica*, *Butia monosperma*, *Peltophorum pterocarpum*, etc.
- **Village woodlot:** *Tactona grandis*, *Syzizium cumini*, *Mangifera indica* (Aam), *Bauhinia racemosa* (Asta), *Embllica officinalis* (Aawla), *Ailanthus excels* (Maharukh), *Anona squamosa* (Sitafal), *Tamarindus indica* (Emali) and *Delbergia sissoo* (Sisam).
- **Pond side plantation:** similar trend of growing trees like *Acacia nilotica*, *Butia monosperma*, *Azadirachta indica* and *Zizyphus xylopyra* (Ghont) were observed.
- **Railway side plantation:** *Acacia nilotica*, *Pongamia pinnata*, *Butia monosperma*, *Delbergia sissoo* (Sisam), *Zizyphus mauritiana* (Ber), *Ailanthus excelsa* (Maharukh) and *Acacia leucophloea* (Hivar), etc.

Majority of the villages comprise in study area are cultivating rice as dominant crop, while few villagers are cultivating wheat crops. The study area is also remarkable due to the very less *Prosopis juliflora* intrusion and was observed only few patches along the river Arpa side and majority of area comprises of open scrub lands of the study area. No endemic or endangered flora specie observed within the study area.

Fauna in the core & Buffer zone

The wild mammals observed in the core zone are Five striped squirrel, Field rat and Common house rat. The mammals observed in the study area includes Hanuman Langoor, , Palm squirrel, Field rat, Common house rat and Black-naped hare. The reptiles observed in the study area include Common Garden lizard, Common rat snake, House Gecko, and Common Indian Krait. Birds observed in the study area includes Common Swift, Cattle Egret, Indian Pond-Heron, Small Indian/pariah kite, Red-wattled Lapwing, Indian Cormorant, Red-naped Ibis, Rock Pigeon, Common Kingfisher, Indian Roller, Little Green Bee-eater, Asian Koel, Grey Francolin, Common moorhen, Black Drongo, House Crow,

Indian Robin, Purple Sunbird, House Sparrow, Red-whiskered Bulbul, Bank Myna, Brahminy starling, Common Babbler, Common Tailorbird, Rose-ringed Parakeet, Spotted Owlet and Eurasian Hoopoe, etc. There is no schedule I fauna observed in the study area of the project.

For studying soil profile of the region, sampling locations were selected to assess the existing soil conditions in and around The land use pattern of the study area (10 km radius around the project site) has been estimated by using satellite image. The Land Cover classes and their coverage are summarized in Table given below;

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 from census 2011 & village directory. The area selected for the study constitutes 58 inhabited villages. Summary of the socio-economic status of the study area is given in Table given below:

Summary of Socio-economic Environment of villages within 10 km radius area

No. of villages	58
Total households	42806
Total population	203490
Male Population	104874
Female population	98616
SC Population	57145
ST Population	20187
Total literates	129656
Total main workers	65691
Total marginal workers	16460
Total non-workers	121339

EX_7. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES **IDENTIFIED IMPACTS DURING CONSTRUCTION PHASE AND PROPOSED MITIGATION MEASURES**

AMBIENT AIR QUALITY

During construction phase, dust will be the main pollutant, which will be generated from the site development activities and vehicular movement on the road. Further, concentration of NO_x and SO₂ may also slightly increase due to increased vehicular traffic. Sprinkling of water at regular intervals preferably using truck-mounted sprinklers along the roads and work zone areas will be carried out to control fugitive dust emissions.

WATER RESOURCES AND QUALITY

There will not be any process wastewater generation during the construction phase. The surface run-off during rainy season from the broken up areas containing silt wash off may be carried to the seasonal streams flowing outside the project area. Wastewater generation during the construction period will be from domestic effluent from the sanitation facilities provided for the workers. The earth work (cutting and filling) will be avoided during rainy season. In-plant roads will be concreted. Soil binding and fast-growing vegetation will be

grown within the plant premises to arrest the soil erosion. Septic tanks and soak pits will be constructed for disposal of domestic effluent.

AMBIENT NOISE LEVELS

The major sources of noise during the construction phase are vehicular traffic, construction equipment like dozers, scrapers, concrete mixers, cranes, pumps, compressors, pneumatic tools, saws, vibrators etc. Equipment will be maintained appropriately to keep the noise level within 85 dB(A). Wherever possible, equipment will be provided with silencers and mufflers. Acoustic enclosures will be provided to stationary machines like DG Sets, wherever possible. High noise generating construction activities will be restricted to day time only. Greenbelt will be developed from construction stage.

ECOLOGY & LAND ENVIRONMENT

Proposed site of the 2.4 MTPA coal washery is located at uncultivated land surrounded by some agriculture fields and road. The majority of local vegetation in project site is of seasonal shrubs, herbs and grasses and naturally grown local tree species. No tree cutting is planned. Plant design is made such that the existing trees will be protected as it is. Development of green belt around the periphery of the project site and along the approach road will be taken up during construction phase.

IDENTIFIED IMPACTS DURING OPERATION PHASE AND PROPOSED MITIGATION MEASURES

AMBIENT AIR QUALITY

IMPACTS ON AIR QUALITY

Emissions from the coal washery project includes emissions from unloading of raw coal, coal transport from railway siding to ground hopper, coal crushing and screening, stacking of raw coal, washed coal and rejects, loading of washed coal in railway wagons/trucks, transportation of raw coal, washed coal and rejects by 20 tonne capacity trucks (occasional), use of DG sets, in case of failure of electricity grid, etc. Ambient air quality modeling was carried out to assess the cumulative impacts on air quality due to proposed 2.4 MTPA coal washery. ISCST3 Dispersion Model was used for assessing air pollution load from washery operations.

The predicted maximum incremental GLC (24-hour average) of PM10 due to operations at proposed coal washery, as predicted by Air modelling, was observed as 2.6 $\mu\text{g}/\text{m}^3$ at project site of the coal washery area.

From the observations of modeling results, it is observed that the cumulative concentrations of PM10 in the study area will remain within the permissible limits after establishment of the proposed coal washery.

AIR POLLUTION CONTROL MEASURES

- Provision of fixed water sprinklers at loading / unloading site within the plant.
- Concreting/blacktopping of internal roads to avoid generation of dust.
- Plantation will be developed around coal stock yard to act as dust control measure.
- Provision of bag filters of adequate capacity for coal crushers.
- Use of covered conveyors for internal transport of coal.
- Provision of dust extraction / water sprinkling arrangement at all transfer points.

- Thick green belt will be developed around the plant boundary as a wind screen and dust arrestor.
- Plantation in the plant premises will cover more than 33% of the plant area.

AMBIENT NOISE LEVELS

For predicting the impacts on ambient noise levels, mathematical modelling was carried out. From the modeling results, it is observed that the incremental noise levels at a distance of 1.0 km and above from center of coal washery would be less than 28 dB (A) and high noise levels will be conformed to work zone areas only. It can be seen that noise levels get diffused rapidly with distance. The increment noise levels are between 30 dB (A) to 38 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.

PROPOSED NOISE CONTROL MEASURES

- Design and layout of building to minimize transmission of noise, segregation of particular items of plant and to avoid reverberant areas;
- Use of lagging with attenuation properties on plant components / installation of sound attenuation panels around the equipment;
- Periodic maintenance of equipments and machinery;
- Provision of acoustic enclosures to stationary equipments;
- Provision of sound proof cabins to wheel loaders & other HEMMs;
- Provision of ear muffs/ear plugs to workers exposed to high noise generating areas;
- Development of thick green belt around plant boundary and within plant premises;
- Periodical monitoring of noise in the plant premises and in nearby villages;

WATER RESOURCES & QUALITY

IMPACT ON WATER RESOURCES & QUALITY

There is no surface water stream flowing within the proposed project site. About 682 KLD make up water is required for industrial purposes during the operation phase of the proposed coal washery project. The water is proposed to be obtained from Borewells located within Plant premises. Necessary prior permission will be obtained from CGWA.

PROPOSED WATER CONSERVATION & WATER POLLUTION CONTROL MEASURES

- M/s SPRN Minerals Private Limited will implement water recovery system involving high speed thickener coupled with belt press for maximum recovery of water and recirculation of the recovered water in process, thereby making the plant a zero-discharge unit. This will drastically reduce the fresh water requirement in the plant and will also protect the water quality of surface water resources flowing outside the plant area.
- Apart from this, M/s SPRN Minerals Private Limited will also implement rainwater harvesting measures in the plant premises. This will involve collection of the storm water run-off from the plant premises to a settling tank and use of the properly settled water in coal washing process, dust suppression and plantation in the plant premises.

Summary on Draft EIA/EMP for Proposed 2.4 MTPA Coal Washery

Village: Joki, Tehsil: Sakri, District: Bilaspur, State Chhattisgarh

- For domestic waste water treatment, package type of STP is proposed. This will reduce the fresh water requirement in the plant and will also protect the water quality of surface water resources flowing outside the plant area.
- Storm water run-off from the plant area and parking premises will be collected in a series of settling tanks and will be utilized for coal washing, dust suppression and plantation.
- Wash water from workshop will be treated in oil & grease trap and treated water will be used for sprinkling at coal stack yard.

LAND USE PATTERN

The proposed coal washery project will be located in 15.90 Acre (6.4345 Ha) area. Out of total 15.90 Acre, 7.59 Acre of Land has been acquired by M/s SPRN Minerals Private Limited and remaining 8.31 Acre of Land is under process of acquisition. The Land comprises of major uncultivated land with few patches of single crop. The proposed land utilization pattern of the coal washery project is given in Table given below.

Proposed Land Use of Coal Washery Area

Sr. No.	Particular's	Area (acre)	Area (%)
1	Coal Washery Plant	2.25	14.16
2	Raw Coal, Stock Yard, Clean Coal & Reject	4.11	25.85
3	Other Facilities (Internal Roads, Lab Room, Qr. Etc.)	2.15	13.52
4	Green Belt Development/Plantation Area	5.24	32.95
5	Water Reservoir & Rainwater Harvesting Area	1.00	6.29
6	Vacant Land	1.15	7.23
Total		15.90	100%

MEASURES TO AVOID IMPACT ON LAND USE PATTERN

- Development of thick green belt in 5.24 Acre area within plant premises;
- Aesthetic landscaping of plant and maintaining natural gradient;
- Stacking of raw coal, washed coal and coal rejects will be carried out at designated areas within the plant premises.
- Regular maintenance of internal roads and public roads used for coal transport.
- Plantation along the village roads used for coal transport.
- Adoption of suitable air pollution control measures to control dust emission.
- Adoption of Zero Effluent Discharge Practice.

SOLID WASTE GENERATION & MANAGEMENT

- About 6,00,000 Tonnes per annum washery rejects will be generated, which will be supplied to CFBC based thermal power plants.
- Sludge from thickener will be mixed with washery rejects and will be supplied to user industries.
- Spent oil & grease will be separately collected and stored in leak proof containers and will be sold to the CPCB/CECB authorised recycling vendors.

- Damaged / worn out parts of the machines will be collected and stored in shed on concrete flooring. These parts will be returned to the manufacturing company or will be sold to the authorized recycling vendors.
- The food waste from canteen will be dumped in a composting pit provided in plantation area and the compost will be used as manure for plantation in green belt area.

BIOLOGICAL ENVIRONMENT

There is no Forest land, National Park, Wildlife Sanctuary and Biosphere Reserve within 10 km radius of the project site. No rare, endemic & endangered species are reported in the buffer zone. Dust deposition on leaf lamina will take place on nearby local plant species along the transport road which may result in decline the rate of photosynthesis and retards the plant growth. Agricultural crops can be injured when exposed to high concentrations of various air pollutants especially particulate matter (dust) & SO₂. Injury ranges from visible markings on the foliage, to reduced growth and yield, to premature death of the plant.

PROPOSED BIOLOGICAL ENVIRONMENT CONSERVATION MEASURES

- Development of thick green belt is 5.24 Acre area within the plant premises.
- Preference for high canopy covers plants with local varieties
- Perennial and evergreen plants will be preferred.

CONTROL MEASURES TO AVOID IMPACTS ON AGRICULTURE CROPS:

- Periodic maintenance of coal transport road in collaboration with PWD
- Regular sprinkling of water through mobile tanker on coal transport road.
- Covered Transport system
- Plantation along the transportation route

SOCIO-ECONOMIC ENVIRONMENT

- Most of the Land for the proposed coal washery is already owned by M/s SPRN Minerals Private Limited. There is no rehabilitation and resettlement involved in the project.
- The proposed coal washery will require about 75 workers as direct employees and 150 workers as indirect employee. This will provide employment opportunities to the local people as most of the workers will be recruited from nearby villages.
- Due to coal washery activities, vehicle movement will increase on nearby village road.
- The establishment of coal washery will also result in improvement in the existing infrastructure facilities like roads, electricity, communication facilities, etc.
- Under the Corporate Social Responsibility of the company, M/s SPRN Minerals Private Limited will take up various socio-economic development programmes in the nearby villages, which will improve socio-economic status of the nearby villages.

EX_8. ENVIRONMENTAL MONITORING PROGRAMME:

An Environmental Management Cell (EMC) will be established for the proposed coal washery project under the control of G.M. (Coal washery). 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 accredited agencies regularly and reports will be submitted to CECB/MoEF.

EX_9. RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

The assessment of risk in the proposed coal washery project has been estimated for fire, explosion and toxicity and corresponding mitigation measures are suggested in the Draft 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 detail in the Disaster Management Plan.

EX_10. PROJECT BENEFIT

The proposed project of coal washery at Joki village 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 and especially in the area around the coal washery site. In line with this CSR policy, M/s SPRN Minerals Private Limited will carry community welfare activities in the following areas:

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

A budget of Rs. 33.0 Lakh as Capital cost and Rs. 29.1 Lakh per annum as recurring expenses has been proposed for implementation of Socio-economic welfare activities in the nearby villages.

EX_11. ENVIRONMENT MANAGEMENT PLAN

An Environmental Management Plan comprise of 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.
- Safety, welfare and good health of the work force and populace.
- Ensure effective operation of all control measures.
- Vigilance against probable disasters and accidents.
- 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 plan addresses the components of environment, which are likely to be affected by the different operations in the project. A

budget of Rs. 275.0 Lakh as capital cost and Rs. 118.0 Lakh as recurring expenses has been allocated for implementation of the Environmental Management Plan.

EX_12. CONCLUSION

The proposed 2.4 MTPA coal washery project of M/s. SPRN Minerals Pvt. Ltd. will be beneficial for the overall development of the nearby villages. Some environmental aspects like dust emission, noise, wastewater generation, traffic density, etc will have to be controlled within the permissible norms to avoid impacts on the surrounding environment. Necessary pollution control equipment like bag house, water sprinklers, enclosures, thickener, etc., will 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 thick green belt and plantation within plant premises and along transport road, adoption of rainwater harvesting in the plant and in nearby villages, etc will be implemented. The CSR measures proposed to be adopted by the company will improve the social, economic and infrastructure availability status of the nearby villages.

The overall impacts of the proposed coal washery will be positive and will result in overall socio-economic growth of nearby villages.

EX_13. DISCLOSURE OF CONSULTANTS

The Environmental studies for proposed 2.4 MTPA Coal washery project of M/s SPRN Minerals Private Limited is conducted by M/s SRUSHTI SEVA PRIVATE LIMITED (SrSPL), Nagpur. Srushti Seva Private Limited has been accredited under EIA consultants Organization by NABET vide letter no. NABET/EIA/25-28/RA 0423, Valid upto 12.05.2028.

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