

EXPANSION SUMMARY ENVIRONMENTAL  
IMPACT ASSESSMENT REPORT

EXPANSION OF COAL WASHERY

From 0.95 Million Tons Per Annum to  
2.48 Million Tons Per Annum

At

Village – Bhelai Unit-I , Tehsil - Baloda

District – Janjgir-Champa,  
Chhattisgarh

By

M/s Mahavir Coal Washeries Pvt  
Ltd

# Summary Environmental Impact Assessment Report

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## 1.0 PROJECT DESCRIPTION

M/s Mahavir Coal Washeries Pvt Ltd proposes to increase the coal washing capacity from 0.95 Million Tons Per Annum (MTPA) to 2.48 MTPA at villages Bhelai, tehsil Baloda, district Janjgir-Champa. Chhattisgarh. Raw will be brought to the washery from nearby coal mines located in Korba area. Raw coal will be unloaded and washed. Clean coal and rejects will be loaded into trucks and sent to the respective consumers. The project cost is Rs. 17 Crores.

The proposed coal washery project falls under schedule 2 (a) Category B of the EIA Notification 14-9-2006. The site is located 17 km north of Akaltara railway station. The nearest village is Baloda, about 2.44 km away in west direction. Bhelai village is located about 1.0 km away in the east direction. National park, wildlife sanctuary, biosphere reserve, and migratory corridors of wild animals are not present within 10 km radius of the site. The site is bounded by coordinates 22°09'33.10" N and 82°29'47.30" E ..

The washery will be established on 15.13 acres land owned by MCWPL. 33 % of the land (4.99 Acres) will be used for greenbelt development.

The requirement of make-up water shall be around 410 KLD. Groundwater shall be taken after obtaining permission from CGWA. The plant shall be provided with RCC water reservoir of around 500 cum. storage capacity. Alternately, huge volume of water has been accumulated in an artificial pond, just at the eastern boundary of the project site.

1500 MVA electricity will be required for the coal washery, which will be supplied by the Chhattisgarh State Electricity Board. 500 KVA DG set will be installed to meet emergency electricity requirement during power failure.

The washery site can be approachable from two sides; east and west. On the east side the seepat (Bilaspur)-Baloda - Bhelai – road is being widened and strengthened (12 m to 16 m wide). Bhelai village is connected to this road by asphalted, 3.5 m wide, 3 km road. This road crosses the Akaltara Railway station about 17 Km. The project site can be also approached from the Khargahni -. Bhelai village is connected to this highway NH-130A by 2.0 km, NW .

MCWPL obtained Environment Clearance from SEIAA vide letter No. 400/SEAC-EC/Coal Washery/B/58/09 Raipur Dated 27/11/2009

MCWPL obtained Consent to Establish from CECB vide letter No. 8465/TS/CECB/2010 Raipur, Dated 10/03/2010

MCWPL obtained Consent to Operate from CECB vide letter No. 1134/TS/CECB/2019 Nawa Raipur, Atal Nagar, Dated 1/06/2019 (valid till 30-04-2024)

MCWPL submitted application for obtaining Environmental Clearance of 2.48 MTPA expansion on 26/02/2023 SEAC prescribed the Terms of Reference vide letter dated 22/06/2023 for conducting the EIA Study and submit the draft EIA report to Chhattisgarh Environment Conservation Board for conducting Public Hearing. The summary EIA in English and Hindi and the draft EIA report is submitted for conducting Public Hearing. The comments and suggestions received during the public consultation process will be incorporated in the final EIA Report. Final EIA Report will be submitted to SEAC for appraisal and grant of Environmental Clearance.

Heavy media cyclone technology has been selected for the coal washery project. Coal washery comprises unloading of raw coal, storing, handling, crushing, screening and coal washing in washery building (using water mixed with magnetite). The water after washing is treated in Effluent Treatment Plant. The treated water is recycled for coal washing. The washery will operate in 3 shifts. 8000 tons per day of raw coal will be

washed. 6000 tons per day (80%) of clean coal and 2000 tons per day (20%) of rejects will be generated. No wastewater will be discharged outside the boundary of coal washery. Rejects will be sold to power plants located in nearby areas. Dust pollution will be controlled using water sprinkling and Bag Filters.

## 2.0 DESCRIPTION OF BASELINE ENVIRONMENT

Baseline data was generated during post-monsoon season from 1<sup>st</sup> October 2022 to 15<sup>th</sup> January 2023 by M/s Noida Testing Laboratories. 10 km area around the site was considered as study area. Data was generated by following the standard procedures of the Ministry of Environment Forests and Climate Change and the Central Pollution Control Board.

Meteorological data on wind speed, wind direction, relative humidity and temperature was generated in the study area. Ambient air, noise, groundwater, soil and surface water samples were collected from 8 locations and analysed. List of plants and animals present in the study area were collected from Forest Department. Data on demography, occupation pattern, cropping pattern, infrastructure facilities of study area were collected from District Statistics Handbook and the Census records.

The predominant wind direction is from northwest direction towards southeast direction. Annual rainfall is high, about 1164 mm. Calm periods are more during night. The minimum and maximum level of PM<sub>2.5</sub> recorded within the study area was in the range of 16.64 µg/m<sup>3</sup> to 32.12 µg/m<sup>3</sup> with the 98<sup>th</sup> percentile ranging between 30.75 µg/m<sup>3</sup> to 20.1 µg/m<sup>3</sup>.

The minimum and maximum level of PM<sub>10</sub> recorded within the study area was in the range of 46.23 to 69.56 µg/m<sup>3</sup> with the 98<sup>th</sup> percentile ranging between 55.86 µg/m<sup>3</sup> to 69.10 µg/m<sup>3a</sup>

Day time noise level was found between 50.1 to 52.2 dB(A). Night time noise levels was found between 41.2 to 42.8 dB (A). The noise level meeting the national standards in all the eight locations.

Analysis results of ground water reveal the following:-

- ✓ The pH limit fixed for drinking water samples as per IS-10500 Standards is 6.5 to 8.5 beyond this range the water will affect the mucus membrane or water supply system. During the study period, the pH was varying for ground waters from 7.16 to 7.49. The pH values for all the samples collected in the study area during study period were found to be within the limits.
- ✓ The desirable limit for total dissolved solids as per IS-10500 Standards is 500 mg/l whereas the permissible limit in absence of alternate source is 2000mg/l. In ground water samples collected from the study area, the total dissolved solids are varying from 269 mg/l to 344mg/l.
- ✓ Hardness of ground water varies from 102 mg/l to 161 mg/l. The desirable limit for Hardness is 200 mg/l whereas the permissible limit is 600mg/l.

The groundwater quality meets the acceptable drinking water quality limit.

Analysis results of surface water reveal the following:-

- ✓ The analysis results indicate that the pH ranges between 7.13 and 7.51.
- ✓ Dissolved Oxygen (DO) was observed in the range of 5.2 to 6.4 mg/l against the minimum requirement of 4 mg/l.
- ✓ BOD values were observed to be in the range of 6.9 to 7.4 mg/l.
- ✓ The chlorides was found to be in the range of 55 to 63 mg/l
- ✓ Total Coliform examination of surface water samples revealed the presence of total coliform in range of 627 MPN/100 ml to 1435 MPN/100 ml .

The surface water quality meets the 'C Class Best Designated Use' of CPCB, which is fit for drinking after conventional treatment.

Soils of study area are sandy loam by nature. Specific Conductivity and pH is in normal range. Organic matter content is sufficient. The concentration of Nitrogen, Phosphorus and Potassium were medium. The soils of study area are fit for paddy cultivation.

No national park or wildlife sanctuary or biosphere reserve is present in the study area. No endangered species of flora and fauna is found in the study area. No migratory corridor of wild animals is present in the study area.

The study area is mostly rural. Baloda is the major city located on the South side. The literacy rate is good. Most of the people are engaged in agriculture. The infrastructure facilities (roads, railway, schools, community centres and hospitals) of the study area is satisfactory.

### 3.0 ANTICIPATED ENVIRONMENTAL IMPACT & MITIGATION MEASURES

Coal Dust is generated during coal handling, crushing and screening. Water sprinklers will be used to reduce dust generation. The crusher unit will be provided with dust extraction system and Bag Filter. All belt conveyors will be covered. Internal roads shall be concreted. Mechanical road sweeping machines will be deployed for daily cleaning of all internal roads. Rain gun will be deployed near the coal unloading area. Boundary wall of 3 m height will be developed around the coal washery and stock yards. Nylon screen of 3 m height will be provided over the boundary wall to minimize the spread of fugitive dust.

Entire wastewater generated after coal washing will be treated in Effluent Treatment Plant. The water after treatment will be recycled for coal washing. Domestic wastewater from washroom, toilets and canteen will be treated in Sewage Treatment Plant. Treated water will be used for gardening purpose.

Low noise emitting plant and machinery will be selected. 33% land area (4.99 Acres) will be developed as greenbelt. The noise level at plant boundary will be maintained below 70 dBA.

Coal washing will produce rejects which will be sold to power plants in nearby areas.

The daily truck movement will be 423 trucks (30 tons capacity). Parking place has been provided inside the plant. Appropriate traffic management plan will be implemented in consultation with the transport authorities, so that smooth traffic flow happens after the project.

Rainwater harvesting will be done inside plant premises and the water will be used for coal washing during the rainy days.

Greenbelt will be developed in 4.99 Acres land (33% of the total area). 20 m wide green belt will be developed on three side. Three tier greenbelt will be developed, tall trees in last row, short trees in middle rows and ground hugging shrubs in first row. Tree density will be 1000 trees per acre. Locally available plant species has been selected pongamia, peltaforum, kadamba, semal, alstonia, kaner, amaltas, gulmohor, hibiscus, chandni, mango, neem, amla, ficus, ashok, kachnar, jacaranda, etc.

#### 4.0 ENVIRONMENTAL MONITORING PROGRAM

Environmental Management Cell (EMC) will be set up to undertake routine environmental monitoring. Monitoring will be done to ensure compliance with the prescribed discharge standards. The Head of EMC will report to the GM (Plant Head). Qualified staff will be recruited in EMC. Environmental monitoring of ambient air, stack emission, fugitive dust emission, noise levels, groundwater quality and soils will be carried out as per norms. EMC will be responsible for the following functions:-

### Regular monitoring of:-

Measuring fugitive coal dust emissions upwind and downwind direction of crusher and measuring PM10 in work environment. It will report any abnormalities for initiating corrective and preventive actions.

Measuring the ambient air quality inside plant and at upwind and downwind direction of plant (3 locations in nearby villages like bhelai, hardi, Birgahni

Checking the wastewater quality (inlet and outlet water ETP and STP).

Checking the ground water quality inside the plant.

Water quality at upstream and downstream of site and village ponds.

Noise monitoring at plant boundary, nearest habitation, near highway, and work areas.

Development and maintenance of greenbelt and greenery within the plant boundary.

### 5.0 ADDITIONAL STUDIES

Fire protection measures like fixed water sprinklers connected to water reservoir with pump will be provided around the coal yard. Mobile rain gun will be deployed. Disaster Management Plan will be prepared to take care during any accident.

Adequate funds will be earmarked for Corporate Environment Responsibility. This amount will be spent for skill development of local people, developing infrastructure

facilities in schools, community centres and hospitals of surrounding villages and rainwater harvesting. The details will be provided in final EIA report after obtaining the comments of the Public during Public Hearing.

## 6.0 PROJECT BENEFITS

The coal mined from Korba coalfields is of poor grade coal. Coal washing improves the quality of poor grade coal to higher grade coal. During washing, the waste materials like shale, dust and stones are removed. High grade coal is required for steel making and cement making. Use of high grade coal in thermal power plants improves the efficiency of power plant.

The demand for coal washery is growing due to following reasons:

- Depletion of good quality coal mines in India.

- Mechanized mining increases impurities in raw coal.

- Higher transportation cost makes it uneconomical to transport high ash coal.

- Meeting strict pollution control standards (by steel, power and cement plants).

About 100 persons will be employed for 6-12 months during the construction period. 100 people will be directly employed during the operation of coal washery. About 25 people will get indirect employment. The company will employ local people for plant construction and operation.

## 7.0 ENVIRONMENTAL MANAGEMENT PLAN

Environmental Management Plan for effective implementation and management of pollution mitigation measures has been provided. In order to implement the recommended mitigation measures and EMP, budgetary provision of Rs.14 lakhs as capital expenditure and Rs.10 lakhs as annual expenditure has been provided.

Environment Management Cell (EMC) will ensure that all air pollution control device, effluent treatment plant, sewage treatment plant and water re-circulating systems function effectively. EMC will also supervise disposal of spent oil and lubricants and used batteries to the authorized vendors. Plantation will be started during the construction phase by following the guidelines issued by the Central Pollution Control Board. Schemes for resource conservation (raw materials, water, etc), rainwater harvesting, groundwater recharge and social forestry development will be taken up by EMC. Regular environmental awareness programs for the employees will be conducted.

Workers will be periodically subjected to health check-up as per standard norms. The management will ensure cleanliness and hygiene in the plant. EMC in association with the safety department will undertake full review of the potential hazard scenarios during plant commissioning. The management will ensure enforcement of the proposed safeguards for pollution abatement, resource conservation, accident prevention and waste minimization.