

EXECUTIVE SUMMARY

1.0 PROJECT DESCRIPTION

1.1 INTRODUCTION

M/s. Korba West Power Company Limited has obtained Environmental clearance for 1 x 600 MW coal based TPP (Phase 1) in villages–Bade Bhandar, Chhote Bhandar, Sarwani and Amali Bhauna, Tehsil – Pussore, Distt. – Raigarh, Chhattisgarh from Ministry of Environment and Forest, New Delhi in 2010 Vide F.No J - 13012/57/2008 - IA.II (T) letter dated 20th May, 2010. The project is under advanced construction phase.

Now, considering the power scenario in the State of Chhattisgarh & Western Region, M/s Korba West Power Company Limited (KWPC) has proposed further Expansion by installation of additional 1X600 MW coal based TPP (Phase - 2) in villages–Bade Bhandar, Chote Bhandar, Sarwani and Amali Bhauna, Tehsil – Pussore, Distt. – Raigarh, Chhattisgarh.

The project was considered before the Expert Appraisal Committee (T) for First technical presentation (ToR) on 18th Oct. 2010. The EAC has suggested Terms of References (ToR) for preparation of Draft EIA/EMP Report vide its MoEF Letter No. J-13012/87/2010 - IA. II (T), dated 8th December, 2010.

1.2 DETAILS OF THE PROJECT AREA

TABLE - 1

SALIENT FEATURES OF THE PROJECT

S.NO.	PARTICULARS	DETAILS
1.	Project Name	Expansion by addition of 1X600 MW Coal based TPP (Phase-2)
2.	Location	
	Villages	Bade Bhandar, Chhote Bhandar, Sarwani and Amali Bhauna

	Tehsil	Pussore
	District	Raigarh
	State	Chhattisgarh
	Latitude	21° 44' 00" to 21° 44' 42" N
	Longitude	83°16' 30" to 83°17'18 "E
	Toposheet No.	64 O/1, 64 O/2 64 O/5, 64 O/6
3.	Environmental Settings of the area	
	National Highway	NH-216 (~600m in E direction)
	Nearest Railway Station	Kirodimal Nagar (~23 km in N direction)
	Nearest Airport	Raipur, (~250 km in SW direction)
	Nearest Village	Bade Bhandar, ~ 1.0 km in N direction)
	Nearest Town	Raigarh, ~ 21 km in NE direction)
	Nearest Water Bodies	Mand River, (~ 3.0 km, SW direction) Mahanadi River, (~ 5.0 km, S direction)
	Eco sensitive Zone (National Park, Wildlife Sanctuary, Biosphere reserve, wildlife corridors etc.) Within 10 km radius of the project site.	No Eco sensitive Zone viz. National Park, Wildlife Sanctuary, Biosphere reserve, wildlife corridors, R.F./P.F. falling with the 10 km radius of the project site.
	Historical & Archeological Important Place	No Historical & Archeological site falling within 10 km radius of the project site
4.	Project Requirement	
	Land Requirement	Land requirement for Phase 1: 486.96 acre Land requirement for Phase 2: *398.17 acre Total Land requirement: 885.12 acre * 60.17 acre Forest land (Chhote Bade Jhar Ke Jangle) is involved in Phase 2. Application for diversion of the same is under process with the Forest Department.
	Green Belt Development	The green belt will be developed on 133 Area (i.e., 33 % of the total project area).

Project Cost Details	Project cost for Phase 1: Rs. 2900 Crore Project cost for Phase 2: Rs. 2926 Crore Total Project cost: Rs. 5826 Crore		
Cost for EMP	Phase-1	Phase-2	Total
Capital Cost for EMP	125.35 Crore	131.62 Crore	256.79 Crore
Recurring Cost/ annum	13.90 Crore	14.60 Crore	28.5 Crore
Water Requirement	<ul style="list-style-type: none"> ➤ Water requirement for Phase 1: 18.2 MCM/annum ➤ Water requirement for Phase 2: 16.8 MCM/annum ➤ Total Water requirement: 35.0 MCM/annum <p>Source: Mahanadi River</p> <ul style="list-style-type: none"> ➤ Permission for 20 MCM/annum has been obtained from Department of Water Resources, Raipur (Chhattisgarh) vide letter no. 1628/AF 4-66/31/S-2/OJPRE/07, Raipur - dated 20.03.08. ➤ Permission for 15 MCM has also obtained from Department of Water Resources, Raipur (Chhattisgarh) vide letter no. 1151/AF-4-66/31/OJPRE/S – 2/07– dated 10.02.11. 		
Manpower Requirement	<ul style="list-style-type: none"> ➤ Manpower requirement for Phase 1: 300 Persons ➤ Manpower requirement for Phase 2: 150 Persons ➤ Total Manpower requirement: 450 Persons 		
Coal Requirement	<ul style="list-style-type: none"> ➤ Coal requirement for Phase 1: 3.15 MTPA ➤ Coal requirement for Phase 2: 3.15 MTPA ➤ Total Coal requirement: 6.30 MTPA <p>Source:</p> <ul style="list-style-type: none"> ➤ SECL mines & MCL mines 		

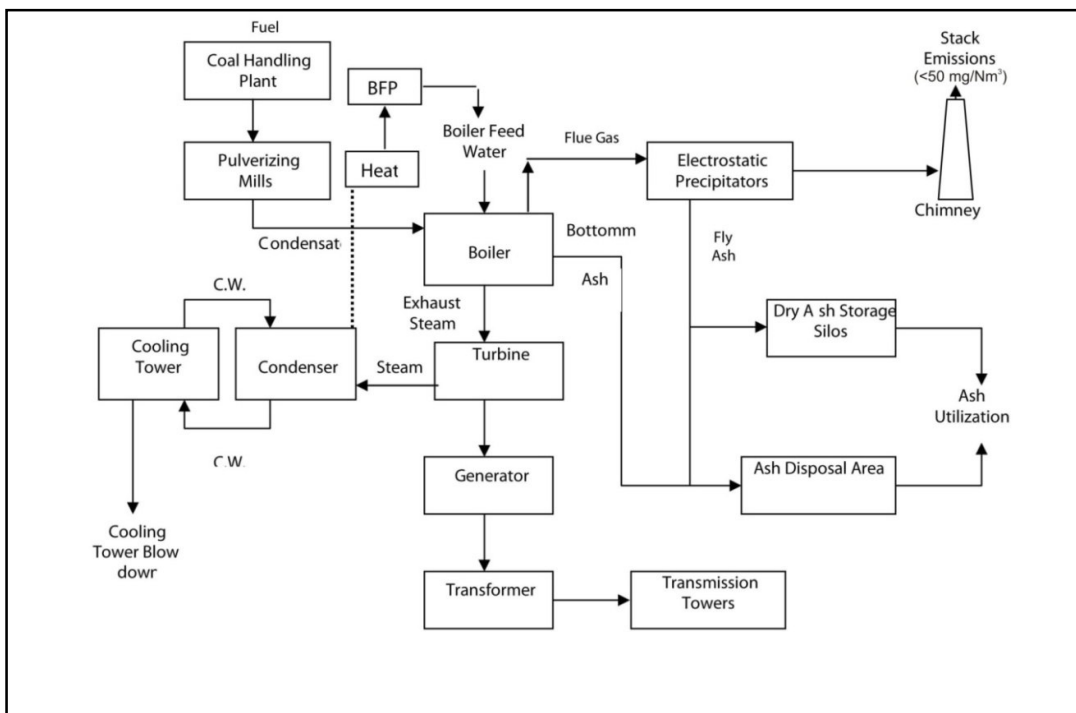
1.2.1 Location Map



Figure 1.2.1 (Location Map of the Project site)

1.3 PROCESS DESCRIPTION

1.3.1 Flow Chart of Manufacturing Process



2.0 DESCRIPTION OF ENVIRONMENT

Baseline study of the study area (i.e. 10 km radius from the project boundary) was conducted during Winter Season (20th October 2010 to 19th January 2011). Baseline study included for ambient air quality, ambient noise levels, water quality, soil quality, land use pattern, demography, flora & fauna found separately in the core & buffer zone etc.

The concentration for all the 10 AAQM stations for PM₁₀ ranges between 33.20 to 92.40 µg/m³, PM_{2.5} ranges between 19.3 to 51.34 µg/m³, SO₂ ranges between 6.0 to 16.46 µg/m³ and NO_x ranges between 7.1 to 22.40 µg/m³.

The ground water analysis for all the 8 sampling stations shows that pH varies from 7.22 to 8.05 total hardness varies from 208.32 & 390.10 mg/l & total dissolved solids varies from 354 to 578 mg/l.

The analysis results for soil shows that pH value ranges from 7.02 to 8.08 & is Silty loam in texture. The concentration of Nitrogen, Phosphorus & Potassium has been found to be in good amount in the soil samples.

2.1 SOCIO-ECONOMIC ENVIRONMENT

The population as per 2001 Census records is 70289 (for 10 km radius buffer zone). Scheduled Caste fraction of the population of the study area (10 km) is 10.99% and Scheduled Tribe is 27.20% Literacy rate is 63.68%. Total no. of households are 14565.

3.0 ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

- During construction phase, dust will be the main pollutant, which will be generated from the site development activities and vehicular movement on the road. During operation phase, SO₂, NO₂, PM & CO will be generated from the power generation process.
- Industrial Waste water will be generated from Cooling tower blow down, DM plant, Filter backwash water, Boiler blow down and sanitary wash. The same will be treated properly & will be recycled back to the process. The sanitary waste water generated from plant & colony will be treated in STP and will be reused for plantation purpose. The unit will be Zero Discharge Unit". Rainwater harvesting measures will be adopted within the Plant/ colony area.
- Ash is the main solid waste generated in the coal based thermal power plant, which will consist of 80% fly ash and 20% bottom ash.
- During construction phase impact of noise in the area will be temporary in nature. Ear muffs and Plugs will be provided to workers, which shall further reduce impact of noise. During operation phase the source of noise will be various components of Turbine unit, D. G. Sets, Air compressors, Transformer and Boilers. PPE will be provide to worker working in the noisy area to reduce the impact.
- The construction activities will result in loss of topsoil to some extent within the plant area & waste disposal area. The topsoil requires

proper handling like separate stacking so that it can be used for green belt development. No significant adverse impact on soil in the surrounding area is anticipated, only temporary impact will be observed due to the construction activities.

- No Eco sensitive Zone viz. National Park, Wildlife Sanctuary, Biosphere reserve wildlife corridors falling with the 10 km radius of the project site.

4.0 ENVIRONMENTAL MONITORING PROGRAM

Table: 4.0

Environmental Monitoring Program

S. No.	DESCRIPTION	FREQUENCY OF MONITORING
1.	Meteorological Data	Daily
2.	Ambient Air Quality at Plant/mine site	Quarterly/ Half Yearly
3.	Stack monitoring	Quarterly/ Half Yearly
4.	Water Quality	Quarterly/ Half Yearly
5.	Noise Level Monitoring	Quarterly/ Half Yearly
6.	Soil Quality	Half Yearly/yearly

Ambient air quality monitoring. Stack monitoring, water quality (Ground water and surface water monitoring will be conducted at site as per guideline presented by the state pollution control board. Quality of soil of the surrounding area and Noise inside the plant premises will also monitored as per SPCB Guideline.

4.1 ADDITIONAL STUDIES

The Additional Studies conducted as per the additional Terms of References vide MoEF letter no. - J-13012/87/2010 - IA. II (T) & Letter dated 8th December, 2010 are Risk Assessment, Disaster Management Plan, Hydro-geological Study & Rain water Harvesting Plan.

6.0 PROJECT BENEFITS

- Korba west Power Co. Ltd. will lead to the increase in the standard of living of the population surrounding the project area by various socio-economic developmental activities like health education training programmes, tribal development, livelihood and Infrastructure development.
- The project will help in generation of significant direct and indirect employment. This will have positive socio-economic development in the region.

7.0 ENVIRONMENTAL MANAGEMENT PLAN

7.1 WATER POLLUTION MANAGEMENT

- Waste water will be generated from cooling tower blow down, DM plant, Filter back wash water, Boiler blow down and sanitary wash.
- The alkaline boiler blow down water will be diluted and neutralized with slightly rinsed acidic water from DM Plant and cooling tower blow down will be diluted to bring all the pollutant levels within permissible limits.
- The treated effluents from all streams shall be stored in a guard pond and used for dust suppression and greenbelt development.
- Cycle of Concentration (COC) will be maintained at level 5.
- The sanitary waste water will be treated in packaged STP and used for plantation.
- Zero effluent discharge shall be practiced by recycling the waste water for dust suppression, plantation etc.
- Rain Water harvesting system will be implemented

7.2 AIR POLLUTION MANAGEMENT

The following measures will be adopted:

- ELECTROSTATIC PRECIPITATOR will be attached to Boiler to maintain the emission concentration less than 50 mg/ Nm³.
- Further, a stack (twin flue) of 275 m height will be provided for adequate dispersion.
- Emission of NO_x will be controlled by using advanced coal burners in

the boiler.

- All the internal roads shall be concreted / asphalted to reduce the fugitive dust due to vehicular movement;
- The emissions from the stacks shall be continuously monitored.

7.3 NOISE POLLUTION MANAGEMENT

- All equipments shall be designed for noise levels not exceeding 90 dBA.
- Proper encasement of noise generating sources will be done to control the noise levels below 75 dB(A).
- Machines shall be housed in building & provided with acoustic enclosures as required to maintain noise levels within limits.
- The operator's cabins (control rooms) shall be properly (acoustically) insulated with special doors and observation windows.
- The silencers and mufflers of the individual machines shall be regularly checked.

7.4 SOLID WASTE MANAGEMENT

- Dry Fly ash will be collected in Silos and sent for use in manufacturing of building material
- Bottom Ash will be disposed to ash pond in semi dry form.
- Un-utilised fly ash will be disposed to ash pond adopting high Concentration Slurry Disposal System.
- The used oil will be given to authorized recyclers.

7.5 OCCUPATIONAL HEALTH & SAFETY MEASURES

- In order to ensure good health of workers, periodic health check-up camps for workers would be organized.
- Occupational health surveillance programme would be taken as a regular exercise for all the employees.
- All required safety items would be provided to workers and employees while on duty.

- Regular checking and maintenance of various equipments will be done to ensure their proper service.
- An elaborate fire hydrant system covering all the building including the coal stockyard would be provided.

7.6 GREEN BELT DEVELOPMENT

- Green belt development in and around the project site will help attenuate the pollution level. Out of the total area of 885 acra plantation would be done in 295 (33%) acres area as per control pollution board norms.
- The density of trees will be kept approx. 2500 trees per hectare
- The tree species selected for green belt will include the native species

8.0 CONCLUSION

As discussed, it is safe to say that the project is not likely to cause any significant impact on the ecology of the area, as adequate preventive measures will be adopted to contain the various pollutants within permissible limits. Green belt development around the area would also be taken up as an effective pollution mitigative technique, as well as to control the pollutants released from the premises of KWPCCL.

