

**MINUTES OF THE 23<sup>RD</sup> MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE (EAC) ON ENVIRONMENTAL IMPACT ASSESSMENT (EIA) OF THERMAL POWER PROJECTS HELD ON 7<sup>TH</sup> APRIL, 2022**

The 23<sup>rd</sup> Meeting of the re-constituted EAC (Thermal Power) organized by the Ministry of Environment, Forest & Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi was held on 7<sup>th</sup> April 2022 through video conference under the Chairmanship of Shri Gururaj P. Kundargi. The list of Members participated in the meeting is at **Annexure**.

**Agenda Item No. 23.1:**

**Confirmation of the Minutes of the 22<sup>nd</sup> EAC meeting**

The Minutes of the 22<sup>nd</sup> EAC (Thermal Power Project) meeting held on 14<sup>th</sup> March, 2022 were confirmed.

**Agenda Item No. 23.2:**

**1x660MW Amarkantak Supercritical Thermal Power Project (Expansion) in place of existing Amarkantak Thermal Power Station (Phase – I &II: 290 MW) in area of 90.24ha, Chachai Village, District Anuppur, Madhya Pradesh by M/s M. P. Power Generating Company Ltd. – Environment Clearance (EC) – reg.**

**[Proposal No. IA/MP/THE/10749/2003; F. No. J-13012/07/2019-IA.I (T)]**

**23.2.1** The proposal is for grant of Environment Clearance (EC) to 1x660MW Amarkantak Supercritical Thermal Power Project (Expansion) in place of existing Amarkantak Thermal Power Station (Phase – I &II: 290 MW) in area of 90.24ha, Chachai Village, District Anuppur, Madhya Pradesh by M/s M.P. Power Generating Company Ltd.

**23.2.2** The details of the project submitted by project proponent and ascertained from the document submitted are mentioned below:

- i. M/s Madhya Pradesh Power Generating Company Limited (MPPGCL), proposes to set up a 1x660 MW coal based Supercritical Thermal Power Station (STPS) in place of retired units of (PH-I (1x20 MW + 1x30 MW) & PH-II (2x120 MW)) = 290 MW at Chachai village, Anuppur district, Madhya Pradesh.
- ii. MPPGCL has retained M/S Ramky Enviro Services Private Limited (RESPL) as their environmental consultant. Technical details of the project are taken from Detailed Project Report (DPR) prepared by M/s Desein Private Limited, New Delhi.
- iii. Terms of Reference (TOR) for undertaking detailed EIA Study in accordance with the provisions of the EIA notification by MoEF&CC vide its letter dated 10/10/2019.

- iv. Dismantling of existing units, 4 units of PH-I & PH-II are already decommissioned and dismantling of 2 units (30MW + 20MW) of PH-I are completed. Dismantling of 2x120MW of PH-II is in progress as per Construction and Demolition Waste Management Rules 2016. The details of installed capacity and current status of the power plant are as follows:

Phase	Units	Size (MW)	Commissioning Date	Current Status
PH-I	Unit I	30	1965	Decommissioned on 01/04/2009
	Unit II	20	1965	Decommissioned on 01/04/2009
PH-II	Unit III	120	1977-78	Decommissioned on 13/01/2015
	Unit IV	120	1977-78	Decommissioned on 01/05/2014
<b>Total</b>		<b>290</b>		
PH- III	Unit V	<b>210</b>	09/09/2009	Operating (adjacent)

v. **Project Location:**

Proposed project is planned to be located within existing Amarkantak Thermal Power Station (ATPS) boundary after dismantling PH-I & PH-II units. In addition to the proposed project, 1x210 MW TPP is in operation from year 2009 within ATPS boundary. The project site is located near Chachai village, Anuppur district, Madhya Pradesh. Boundary coordinates of proposed plant and existing ash pond are given below:

ID	Latitude	Longitude	ID	Latitude	Longitude
<b>Proposed plant coordinates:</b>					
A	23° 09' 56.1" N	81° 38' 31.3" E	N	23° 09' 22.1" N	81° 38' 25.1" E
B	23° 09' 50.8" N	81° 38' 24.2" E	O	23° 09' 29.5" N	81° 38' 14.1" E
C	23° 09' 50.0" N	81° 38' 20.2" E	P	23° 09' 49.4" N	81° 38' 10.2" E
D	23° 09' 46.1" N	81° 38' 21.1" E	Q	23° 09' 48.9" N	81° 38' 06.9" E
E	23° 09' 40.7" N	81° 38' 25.3" E	R	23° 09' 52.7" N	81° 38' 06.1" E
F	23° 09' 41.6" N	81° 38' 33.1" E	S	23° 09' 50.8" N	81° 37' 55.9" E
G	23° 09' 44.5" N	81° 38' 42.8" E	T	23° 09' 57.8" N	81° 37' 53.7" E
H	23° 09' 33.9" N	81° 38' 45.8" E	U	23° 09' 58.4" N	81° 37' 57.3" E
I	23° 09' 32.6" N	81° 38' 39.6" E	V	23° 10' 01.1" N	81° 37' 56.6" E
J	23° 09' 30.4" N	81° 38' 38.5" E	W	23° 10' 05.1" N	81° 38' 17.8" E
K	23° 09' 28.5" N	81° 38' 35.1" E	X	23° 10' 06.5" N	81° 38' 17.0" E
L	23° 09' 27.3" N	81° 38' 35.7" E	Y	23° 10' 08.5" N	81° 38' 28.3" E
M	23° 09' 24.3" N	81° 38' 34.3" E			
<b>Existing ash pond coordinates:</b>					
A1	23°10'46.9"N	81°36'45.3"E	A5	23°10'29.6"N	81°37'11.8"E
A2	23°10'43.7"N	81°37'09.2"E	A6	23°10'32.2"N	81°36'54.8"E

A3	23°10'41.5"N	81°37'11.0"E	A7	23°10'35.8"N	81°36'54.4"E
A4	23°10'40.2"N	81°37'17.6"E	A8	23°10'38.2"N	81°36'41.8"E

vi. **Salient features of the project site:**

<b>Particulars</b>	<b>Details</b>
Location	Chachai village, Anuppur district, Madhya Pradesh (within the existing ATPS complex/ boundary)
Ground elevation	Elevation of proposed site is 477 m to 498 m above MSL.
Land details	223*acres (within ATPS site boundary)
Survey of India (SOI) Toposheet No.	10 km radius : F44D11 & F44D12 10 to 15 km radius : F44D08 & F44D16
Latitude & Longitude	23°9'22.1"N to 23°10'08.5"N & 81°37'53.7"E to 81°38'45.8"E
Nearest Habitation	Chachai village - adjacent (NE)
Nearest town	Amlai – 5.5 km (NW)
Nearest Railway Station	Amlai Railway station – 3.6 km (NW)
Nearest Highway	SH-9A 4.4 km (W), NH -43- 4.3 km(N)
Nearest Air Port	Jabalpur Airport - 160 km (W)
Nearest water body	Suthna reservoir (Chachai lake) – adjacent (E); Sone River: 1.8 km (E)
Reserved/Protected Forest	Burhar RF- Adjacent (N) Mauhar RF 4.8 km (E) Near Mauhari Village RF 5.2 km (S)Lakhanpur RF 6.9 km (S)
Nearest Wildlife Sanctuary / National Park	None
Nearest Historical Places	No archeologically important places exist within 10 km of the project site
Surrounding industries	1x210 MW Plant within ATPS boundary; Orient Paper mill, 3.8 km (NW)-Amlai
Seismicity Zone	Seismic Zone-III as per IS 1893 (Part-1): 2005
# All distances are aerial distances	
* Existing Ash pond ( 67.70 acres) outside plant boundary to be utilized for ash disposal	

vii. **Land requirement:**

Total land requirement for proposed plant is 223 acres. Land for main plant & equipment will be available after dismantling of PH-I & PH-II units within the ATPS site boundary. For

proposed plant, land requirement is about 0.34 acres / MW against 0.35 acres / MW as per Central Electrical Authority (CEA) guidelines September, 2010. Forest area of 6.171 Ha (15.249 Ac) exists within proposed plant area. ATPS has submitted online application for diversion of forest area under Forest (conservation) Act, 1980, in line with the ministry's Office Memorandum dated, 31/03/2011. There is no additional land acquisition and no R&R involved in the project.

The land area breakup of existing & proposed plant with greenbelt and existing ash pond is provided is as follows:

S. No	Description	1x660 (acres)	MW	1x210 (acres)	MW
<b>A. Inside plant boundary</b>					
	Plant area	146.6		109.9	
	Green Belt	76.4		35.1	
	<b>Total</b>	<b>223</b>		<b>145</b>	
<b>B. Outside plant boundary ( Existing ash pond)</b>					
	Pond -1	As per TOR existing ashpond shall be used		32.52	
	Pond- 2			35.18	
	<b>Total</b>			<b>67.70</b>	
<b>C. Existing green belt developed outside plant boundary</b>					
	Green belt along theroad			21	
	<b>Total</b>			<b>21</b>	
<b>Total Green belt developed for 1x210 MW plant (A+C)</b>				<b>56.1</b>	
Note: Additional Green Belt developed in colony is 62.3 acres					

viii. **Fuel requirement:**

Project is based on 100% domestic coal supplied by Sangma & Korba side of South Eastern Coalfields Limited (SECL) with a coal linkage/ LOA of Representative grade G11; Indicative grade G9-G14; Annual coal consumption @85% PLF 4279 TPA/ MW; Normative requirement of 2.542 MTPA @90% as per CEA norms.

**Fuel transportation:** Coal is transported to project site by Indian Railways & own rail system of MPPGCL. Support fuel LDO of about 2730 KL per year @ 0.5 ml/KWh is required for boiler start-up/support and for subsequent low load operations. Support fuel will be transported to plant handling area by road tankers or by railway wagons.

ix. **Water requirement:**

Consumptive water requirement of proposed plant is drawn by dedicated intake from Suthna

reservoir (Chachai Lake)/Sone River water to Suthna reservoir. Proposed plant has a water allocation of 5.15 Million Cubic Meters per year (MCM) by Water Resource Department (WRD), Bhopal.

Plant has envisaged installation of Air-Cooled Condenser (ACC) instead of conventional Water-Cooled Condenser (WCC) technology to save consumptive water. Use of ACC in place of WCC technology has following benefits:

- Cooling Tower (CT) water requirement is reduced from 80,000 m<sup>3</sup> to 4,200 m<sup>3</sup> achieving about 94.8% reduction in water requirement.
- CT make up water requirement is reduced from 1457 m<sup>3</sup> / h to 95 m<sup>3</sup> / h achieving about 93.5% reduction in daily water requirement.
- To further optimize water requirement air cooled condenser is envisaged in place of conventional condenser cooling water system. However, for Auxiliary cooling system Induced Draft Cooling Tower (IDCT) is provided. Cooling water will be pumped to Auxiliary cooling water circuit and thereafter shall be discharged into IDCT having a cooling range of 90°C/100°C maintain a minimum Cycle of Concentration (COC) at 5.
- Water requirement of the plant is reduced from 2.5 m<sup>3</sup> / MWh to < 1 m<sup>3</sup> / MWh

Water requirement of 1x210 MW plant is drawn from Suthna reservoir by dedicated intake. Average fresh water requirement of plant is about 726 m<sup>3</sup> / h that is 3.46 m<sup>3</sup> /MWh (about 3.5 m<sup>3</sup> /MWh).

x. **Ash Handling System (AHS)**

Ash formed due to combustion of pulverized coal in the steam generator will be collected as bottom ash in the bottom ash hopper, coarse ash in economizer, Ash Handling Plant (AHP) and duct hoppers and dry fly ash in ESP and stack hoppers. Bottom ash will be collected in the water impounded bottom ash hopper and conveyed to ash slurry sump through jet pumps and shall be dumped in ash dyke. The dry fly ash collected in silos, shall be transported by rail and road to prospective users/ consumers. The unit has envisaged installation of ACC instead of conventional WCC to save consumptive water.

**Ash utilization:**

To achieve ash utilization of at least 50% of ash generated within 1 year, 70% within 2 years, 90% within 3 years and 100% within 4 years from commissioning of the units (as per MoEF&CC notification dated 3rd November, 2009) ATPS shall make:

- Identity prospective cement, brick & tiles manufactures and construction companies within 100 km radius and place allocation order for lifting fly ash from the project site.
- Initiate correspondence with all district collectors, concerned state and central government agencies to help enhance utilization of fly ash as per 2009 notification for purposes such as embankment of roads, various construction works etc.

- Initiate correspondence with all identified underground and opencast mines within 40 km radius for placing allocation order for bulk lifting of from the plant. Ash can be utilized as a stowing material.

xi. **Baseline Environment Status:**

Field investigations were undertaken in the study area for collecting existing baseline data during pre-monsoon season (April to June 2019). During field investigations existing baseline data for Land Use Land Cover (LULC), air, water, noise, soil, hydrogeological & geological, ecological and socio-economic conditions were collected.

**a. Land Use Land Cover (LULC)**

LULC features of study area was collected by analyzing Survey of India (SOI) topo sheets, satellite imageries supplied by NRSC and ground validation for interpretation of False Color Composite (FCC) imageries through site visits. Land use pattern of study area mainly falls under following categories: Built-up: 11.17%; Agriculture: 63.03%; Forest: 11.76%; Waste land: 10.53%; Water bodies: 3.27% and others: 0.24%.

**b. Meteorology (Climate)**

Metrological data is collected from nearest IMD station at Pendra road and also at project site with the help of automatic weather monitoring station. Predominant wind direction recorded during monitoring period is NNW to SSE followed by N to S with average wind speed of 2.1 m/s and calm condition recorded is 13.71 %.

**c. Ambient Air Quality (AAQ):**

AAQ was monitored at 11 locations within study area. Monitoring locations were identified w.r.t upwind; cross wind and downwind direction of project site. Air pollutants monitored are Particulate Matter (PM<sub>2.5</sub> & PM<sub>10</sub>), Sulphur Dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>), Ozone(O<sub>3</sub>), Carbon Monoxide (CO) and Mercury(Hg) as per MoEF&CC guidelines and results were compared with NAAQ 2009 CPCB standards. The PM<sub>10</sub> concentration levels (98th Percentile) recorded are in range of 54.5 to 68.6 µg/m<sup>3</sup> against a standard of 100 µg/m<sup>3</sup>. The PM<sub>2.5</sub> concentration levels (98th Percentile) are in range of 34.9 to 45.9 µg/m<sup>3</sup> against a standard of 60 µg/m<sup>3</sup>. Hence PM<sub>10</sub> & PM<sub>2.5</sub> concentration levels observed in study area are well within standards for industrial, residential, rural & other areas. The SO<sub>2</sub> and NO<sub>x</sub> 24 hr concentration levels (98th Percentile) observed are in the range of 11.4 to 17.1 µg/m<sup>3</sup> and 18.9 to 26.3 µg/m<sup>3</sup> respectively against a standard of 80 µg/m<sup>3</sup>. The observed SO<sub>2</sub> and NO<sub>x</sub> concentration levels in the study area are well within the standards for industrial, residential, rural and other areas. The NH<sub>3</sub> concentration levels (98th Percentile) recorded are in the range of 15.9 to 24.4 µg/m<sup>3</sup> against a standard of 400 µg/m<sup>3</sup>. The O<sub>3</sub> concentration levels (98th Percentile) recorded are in the range of 16.4 to 40.2 µg/m<sup>3</sup> against a standard of 100

$\mu\text{g}/\text{m}^3$ . The CO concentration levels (98th Percentile) recorded are in the range of 660 to 940  $\mu\text{g}/\text{m}^3$  against a standard of 2000  $\mu\text{g}/\text{m}^3$ . The observed NH<sub>3</sub>, O<sub>3</sub> and CO concentration levels in the study area are well within the standards for industrial, residential, rural and other areas. The Hg concentration levels recorded are below detectable levels (less than 0.001  $\mu\text{g}/\text{m}^3$ ).

**d. Noise monitoring**

Noise levels were monitored at 10 locations within study area of project site. Locations were identified for assessment of existing noise level status (keeping in view land use pattern, Industrial: 4 nos.; Residential: 2 nos.; Commercial: 2 nos.; Silence: 2 nos.). Day equivalent noise levels for industrial area are in range 53.3 to 63.3 dB(A) against a standard of 75 dB(A); Commercial area is 53.9 to 56.1 dB(A) against a standard of 65 dB(A); Residential area is 53.8 to 53.9 dB(A) against a standard of 55 dB(A); Silence zone is 49.5 to 49.9 dB(A) against a standard of 50 dB(A). Night equivalent noise levels for Industrial area are in range 42.6 to 47.9 dB(A) against a standard of 70 dB(A); Commercial area is 43.3 to 43.4 dB(A) against a standard of 55 dB(A); Residential area is 42.5 to 43.9 dB(A) against a standard of 45 dB(A);

**e. Traffic survey**

Traffic survey was carried out at 2 locations (Approach road to ATPS entrance & near Amlai village to NH-43 (Kotma road)). Two roads are 2 lane 2 way road with 7 m width. At approach road to ATPS entrance the maximum hourly PCU's/ h of 224 was calculated during 9 a.m to 10 a.m. As per IRC guidelines, Level of Service of this road falls under category "B" (Very good performance). At NH-43 (Kotma road), the maximum hourly PCU's/ h of 358 was calculated during 10 a.m to 11 a.m. As per IRC guidelines Level of service of this road falls under category "B" (Very good performance)

**f. Water quality monitoring**

10 samples of ground water and 3 samples of surface water were collected from different sources and analyzed for all important physico-chemical and biological parameters to establish quality of water prevailing in the study area. Ground water samples were collected from hand pumps and bore wells. Surface water samples were collected from Chachai lake & Sone River (upstream and downstream).

**Ground water samples:** The pH values are in the range of 6.8 to 7.8 indicating values within acceptable limits; TDS levels between 214 mg/l to 762 mg/l indicating values within permissible limits; Chloride concentrations between 22 mg/l to 158 mg/l indicating values within acceptable limits; Hardness observed between 132 mg/l to 528 mg/l indicating values within permissible limits; Fluoride concentrations below 0.5 mg/l indicating values within acceptable limits. All the groundwater samples collected are within acceptable limits or permissible limits of IS 10500: 2012 Drinking Water

## Specifications

**Surface water sample:** Physico-chemical parameters of surface water samples collected were analysed for comparing with water quality criteria standards of CPCB, updated on 11 Sep, 2017 to identify their designated best use. Characteristics of Chachai lake water samples collected are: pH values are in the range of 7.4 to 7.8; Electrical conductivity (EC) values are in the range of 295 ( $\mu\text{S}/\text{cm}$ ) to 395 ( $\mu\text{S}/\text{cm}$ ); Dissolved oxygen values are in the range of 4.2 mg/l to 4.9 mg/l; BOD values are less than 3 mg/l; SAR values are in the range of 0.24 to 0.44; Boron values are less than 1 mg/l; Total coliform values are in the range of 140 to 350 (MPN/100ml). Designated-Best-Use of water is drinking water source after conventional treatment and disinfection (Class of water C). Water is also suitable for Propagation of Wild life and Fisheries (Class of water D) and Irrigation, Industrial Cooling, Controlled waste disposal (Class of water E).

Characteristics of Sone river (Location: upstream of plant) water samples collected are pH is 7.3; Electrical conductivity (EC) is 278 ( $\mu\text{S}/\text{cm}$ ), Dissolved oxygen is 4.2 mg/l, BOD is <3 mg/l, Boron <0.1 mg/l and Total coliforms (MPN/100ml) is 140; Based on above values Designated-Best-Use of water is drinking water source after conventional treatment and disinfection (Class of water C). Water is also suitable for Propagation of Wild life and Fisheries (Class of water D) and Irrigation, Industrial Cooling, Controlled waste disposal (Class of water E).

Characteristics of Sone river (Location: downstream of plant) water samples collected are pH is 7.8; Electrical conductivity (EC) is 2220 ( $\mu\text{S}/\text{cm}$ ), Dissolved oxygen is 2.8 mg/l, BOD is 18 mg/l, Boron <0.1 mg/l and Total coliforms (MPN/100ml) is 350; Based on above values Designated-Best-Use of water are suitable for Irrigation, Industrial Cooling, Controlled waste disposal (Class of water E).

### **g. Soil quality**

Soil samples were collected from 10 locations within study area. Locations were selected to assess the existing soil conditions representing various land use conditions and geological features. The important physical & chemical parameter concentrations were determined and compared with Standards of Indian Council of Agriculture Research, New Delhi.

The pH values is in the range of 6.4 to 7.4 indicating all soil samples fall under normal category (Neutral pH range). Electrical conductivity values are in the range of 73  $\mu\text{S}/\text{cm}$  to 211  $\mu\text{S}/\text{cm}$  indicating all soil samples fall under normal category. Organic carbon values are in the range of 0.13 % to 2.30 %. Soil samples collected from barren land at Deori village and Chachai village have low organic carbon content, Anuppur village sample has medium organic carbon content and rest of the sample have high organic carbon content.



Other important nutrients known as major elements used for characterization of soil for irrigation are primary nutrients: Nitrogen, Phosphorus and Potassium popularly known as NPK and secondary nutrients are Calcium, Magnesium and Sulphur.

- Available Nitrogen value of soil samples range from 249 to 325 kg/ha. Six samples have low nitrogen content and the remaining four samples have medium nitrogen content.
- Available Phosphorus value of soil samples collected range from 10.8 to 24.6 kg/ha indicating all samples have medium phosphorus content.
- Available Potassium value of soil samples range from 60 to 161 kg/ha. Six samples have low potassium content and remaining four have medium potassium content.

NPK values of soil samples collected are in low to medium category indicating need for fertilizers with high NPK values for agriculture and horticulture activities

#### **h. Ecological environment**

A detailed analysis was done in the study area which includes compilation of secondary data from published literature of Forest Division and Primary data generation through systematic studies. Primary data was collected through visual observation of species. There are no National Parks, Wildlife Sanctuaries, Biosphere Reserves and Important Bird Areas (IBA) within study area. There are no reports of occurrence of any rare or endangered or endemic or threatened (REET) fauna in study area. None of species reported or recorded from the study area are placed in Schedule I of the Indian Wildlife (Protection) Act, 1972.

#### **i. Socio-Economic environment**

Total population in study area as per 2011 census study is 149076 people with sex ratio of 943. In study area 36.7% of people belong to scheduled category, of which 26.2% belongs to Scheduled Tribes (ST) and 10.5% to Scheduled Castes (SC). Main workers & marginal workers constitute 22.7 & 11% respectively. Most of villagers surveyed are benefited by government schemes and are aware of welfare schemes and programs of government. Youth in area are devoid of employment opportunities & are potential source of workforce.

#### **xii. Impacts during operation phase**

##### **a. Impact on air quality**

Major source of pollution are flue gas emissions from stack (Dust particulates, SO<sub>2</sub> and NO<sub>x</sub>), fugitive dust emissions from coal handling & material transfer points, fly ash dust particles from ash silos & ash disposal area and fly ash vented out during the unloading of

fly ash from ESP hoppers to silos

GLC of air pollutants released from 100 m height stack were estimated using study state dispersion model based on Gaussian Plume (AERMOD Version 7.0.3) software. Emission rates from stack for PM, SO<sub>2</sub> and NO<sub>x</sub> with ESP, FGD and Advanced combustion technology with low NO<sub>x</sub> burners shall be within 30 mg/Nm<sup>3</sup> , 100 mg/Nm<sup>3</sup> and 100 mg/Nm<sup>3</sup> respectively. With the above values, it can be concluded that the flue gas emissions from stack are within the prescribed outlet emission standards.

With control measures result of dispersion modeling shows increase in maximum Ground Level Concentration (GLC) is expected at a distance of 1.3 km from the stack. The maximum predicted / estimated increment in GLC for PM is 0.42 µg/m<sup>3</sup> , SO<sub>2</sub> is 1.3 µg/m<sup>3</sup> and NO<sub>x</sub> is 1.3 µg/m<sup>3</sup> . The post project AAQ of PM, SO<sub>2</sub> and NO<sub>x</sub> levels at monitoring station within in study area are within the NAAQ standards.

The proposed mitigation measures are:

- Dust suppression/extraction facilities will be provided to mitigate the dust generated at coal transfer points and coal stockyard.
- Dust collection system will be provided in coal bunkers to evacuate dust and hazardous gases like methane from the coal bunkers.
- To reduce the dust nuisance while loading the ash into the trucks from fly ash silos, the fly ash would be conditioned with water spray
- To control PM, SO<sub>2</sub> and NO<sub>x</sub> in flue gas with the standards, ESP, FGD and Advanced combustion technology with low NO<sub>x</sub> burners will be provided.

#### **b. Impact on water quality**

Waste water generated from plant operations like DM plant, cooling system blow down, runoff from coal pile area, service water sections and clarifier sludge. Proposed wastewater management system shall essentially involve collection, treatment and re-circulation of wastewater generated by proposed plant. Wastewater generated within plant is transferred through pumps to proposed Effluent Treatment Plant (ETP) for treatment. The treated water is reused for ash slurry generation, greenbelt and dust suspension within the plant. Domestic wastewater generated within the proposed plant shall be treated at Sewage Treatment Plant (STP) of capacity 10 KLD located within the plant. Treated water from STP shall be reused for greenbelt development thereby maintains Zero Liquid Discharge (ZLD).

#### **c. Impact on noise levels**

Main noise generating areas within plant boundary are coal handling, boiler & turbine generator, cooling system, ID & FD Fans, ESP & FGD, ETP & STP, ash silos, diesel generator set etc. The noise levels generated in these areas varies from 65 to 100 dB (A).

By implementing proposed protective and mitigative measures the impact will be minimal and within Noise pollution rules, 2000.

**d. Solid and hazardous wastes**

Plant being coal-fired would generate coarse (bottom ash) & fly ash. Ash management plan will be developed for 100% utilization of fly ash (will be sent to needy vendors) within time period prescribed by MoEF&CC. The unused ash, till such time, would be disposed in the existing ash pond.

Sludge generated from oil storage tank will be collected & stored in a safe and covered place to be disposed as per CPCB/SPCB/Hazardous wastes rules. Used lube oil & used oil from transformer will be sold to authorized re-processor registered with SPCB/ CPCB.

**e. Occupational safety and health**

Major noise generating sources at the project will be provided with noise mitigation measures through proper design precautions wherever possible such as acoustic enclosures for turbine generators, silencers to other equipment etc. It is proposed that all major noise sources will be restricted to 85 dB (A) at 1.5 m distance. The noise generated during operation phase would be at source itself. Different measures such as inspection, operation & maintenance at regular intervals; lubrication etc. will be followed strictly to control the noise impacts on work force. The occupational noise exposure to workers in the form of 8 hourly times weighted average will be maintained well within Occupational Safety and Health Administration (OSHA) stipulated noise levels of up to 90 dB(A). Adequate environment pollution control measures will be implemented at proposed plant as per regulatory standards. The environmental management and emergency preparedness plans are proposed to ensure that the probability of undesired events and consequences are greatly reduced and adequate mitigation are proposed in case of an emergency. The overall impact on human health would be insignificant during operation of the plant.

**xiii. Environmental monitoring program**

Environmental monitoring is systematic collection of samples of environmental parameters like air, water, soil, noise etc. to observe and study environmental changes if any due to project activity. Monitoring program will help project to maintain standards as per conditions specified in Environmental Clearance (EC), CPCB and SPCB. Monitoring will be carried out by either in-house laboratory or third party MoEF&CC approved laboratory. Monitoring program also gives an action plan for how to maintain standards for each parameter. Results of monitoring will be reviewed, analyzed statistically and submitted to concerned authorities. For implementation of EMP and periodic monitoring, a well-organized Environmental Management Group (EMG) consisting of competent workforce headed by senior level executive has been established by proponent to deal with various environmental and ash

utilization aspects. The activities of EMP include- follow up with SPCB, regional office of MoEF&CC and CPCB as well as to interact with inter-disciplinary groups responsible for maintenance and operation of pollution control equipment. Plant level environmental protection measures like dust suppression, treatment and recycling of wastewater, plantation and noise control in the plant premises, housekeeping, implementation of EMP and EC conditions will be monitored by the plant authorities in accordance with compliance to EC/CTE/CTO.

#### xiv. **Air pollution control equipment**

**Stack:** For dispersion of pollutants, single stack of 100 m height with top diameter of 4 m (inner) & 4.5 m (outer) and bottom diameter of 8.5 m (inner) & 9.2 m (outer) will be provided. Stack will have elevator, staircase inside windshield and pollution measuring apparatuses.

**Electrostatic Precipitator (ESP):** ESP is proposed to reduce Particulate Matter (PM) emissions from stack. ESP will be designed to limit PM outlet emissions from stack to less than 30 mg/ Nm<sup>3</sup> as per standards.

**Flue Gas Desulfurization (FGD):** To reduce Sulfur Dioxides (SO<sub>2</sub>) emissions from stack FGD is proposed. FGD will be designed to limit SO<sub>2</sub> outlet emissions from stack to less than 100 mg/ Nm<sup>3</sup> as per standards.

**Selective Catalytic Reduction (SCR):** Primary control measure to reduce Oxides of Nitrogen (NO<sub>x</sub>) emissions from stack by modification of boiler is proposed. It is also proposed to install SCR system to limit NO<sub>x</sub> outlet emissions from stack to less than 100 mg/ Nm<sup>3</sup> as per standards.

**Mercury (Hg) abatement as co-benefit of reduction of NO<sub>x</sub>, SO<sub>2</sub> and dust:** Average mercury content in coal found in India is about 0.272 ppm as per CPCB. A typical power plant emits 90% of its mercury into air and 10% to land. The main reason for such high rate of emissions is that mercury boils at operating temperatures of power plant. Mercury exists in three forms in coal fired thermal power plants flue gas:

- Particle bound Hg (P): this fraction is relatively easy to remove from flue gas by ESP
- Oxidized Hg (2+): is water soluble and therefore a relatively high percentage can be captured by wet FGD system
- Elemental Hg (O): proposed SCR will promote oxidation of Hg(O) to Hg (2+) and enhance Hg capture in downstream FGD

**Dust control at CHP:** Dust suppression/extraction facilities as detailed below will be provided to restrict dust generated at coal conveying area, transfer points, stockyard, crusher house and bunkers

- Dry fog type DS/plain water type DS system will be installed for dust control. For coal stockpiles, plain water spray system via sprinklers is envisaged. Mobile dust suppression system is envisaged for stacker cum declaimer machine.
- At crusher house & coal bunkers, dust extraction (dry type) system with bag filter units provided at transfer points of vibrating screening feeder/ crusher discharge points etc.
- Fresh dry filtered air supply system with exhaust system is envisaged for ventilation of underground tunnels/underground portion of transfer towers & reclaim hopper.

xv. **Public Hearing (PH)**

PH was conducted by MPPCB, Shahdol on 17th December, 2020 at 11:30 am at Govt. high school premises, gram panchayat Kelhouri, tehsil & district – Anuppur (about 2 Km from project site). Information regarding public hearing was published 30 days before the scheduled date in the national level/ local level newspapers Times of India Jabalpur edition and Raj Express respectively distributed in the Amarkantak Thermal Power Station area. In addition to this publicity was made through announcement via public loud speakers/banners.

In the public hearing on dated 17.12.2020, Additional collector (ADM) Shri Sarodhan Singh as the representative of Collector/District magistrate Anuppur and Shri Sanjeev Mehra Regional Officer, Regional Office, MPPCB, Shahdol were present on the public hearing panel. Representatives of industry management and resident citizens and media representatives of the proposed project area were present.

xvi. **Project benefits:**

Contribution of the power plant on local social infrastructure is expected to be significant. The proposed power plant will stimulate the growth of industrial and commercial activities in and around the district, by improving the availability of the power. This Project will provide a significant amount of direct and indirect employment opportunities to the local people with different skills and trades.

The physical infrastructure and socio-economic status of the surrounding areas will be benefited as follows:

- Improvement in existing road & rail connectivity, educational, housing, banking, postal, medical, communication and recreation facilities.
- Improvement in power supply, water supply and sanitation.
- Improvement in the socio-economic status.
- Improvement in economic conditions and recreation facilities
- Training will be given to local people to improve employment potential
- Increase in revenue to State from taxes & duties from development of local businesses

xvii. **Environmental management plan**

Environmental Management Plan (EMP) is required to ensure a sustainable development of plant and surrounding areas. EMP will be integrated in all major activities of the project with clearly defined policies to ensure that the ecological balance of area is maintained and adverse effects are minimized. EMP requires multi-disciplinary approach with mitigation, management, monitoring and institutional measures taken during implementation and operation phases to eliminate adverse impacts or reduce them to acceptable levels. The mitigation measures are planned for construction and operation phases and the overall management plan helps to improve the supportive capacity of the receiving bodies. The EMP aims to control pollution at the source level to the possible extent with the available and affordable technologies followed by the standard treatments before getting discharged. The recommended mitigation measures will synchronize the economic development of the study area with the environmental protection of the region.

Estimated cost towards environmental mitigation measures for 1x660 MW unit is given below:

Attribute	Particulars	Cost (in Rs. Crores)	
		Capital	Recurring
Air	Chimney and chimney elevator	16.50	39.03
	Electrostatic precipitators (ESP)	120.00	
	Flue-Gas Desulfurization (FGD)	231.00	
	Selective Nitrogen Catalytic Reduction (SNCR)	279.00	
	Dust extraction / dust suppression system	4.00	
Water	Raw water treatment – Clariflocculator & DM plant	15.00	2.94
	Cooling tower – ACC & aux. (Aux. CT) ACC: 21	21.00	
	Effluent Treatment Plant (ETP)	7.00	
	Drainage, sanitary , sewage system (STP)	5.00	
	Roof top rain water harvesting system	1.00	
Ash	Ash handling plant	55.00	3.90
	Ash water recycling	10.00	
Others	Pollution monitoring equipment	2.50	0.26
	Greenbelt development, afforestation, etc.	1.75	
	<b>Total</b>	<b>768.75</b>	<b>46.13</b>
EMP costs are indicative costs for proposed mitigative measures. They can vary based on quality, make & procurement process, year of finalization etc			

xviii. **Project Cost:**

Total estimate cost of the project is Rs. 4665.87 Crores and EMP cost (Capital Cost): Rs. 768.75 Crores

xix. **Employment:**

Manpower required for project during construction phase shall be mostly sourced from neighboring villages. During operation phase existing manpower of decommissioned units shall be employed. Additional requirement of about 150 people will be taken from neighboring villages. Details of manpower required during construction & operation period is as follows:

S. No	Phase	Number of Employees		
		Permanent	On-Contract	Total
1	Construction Phase	100	3000	3100
2	Operation Phase	200	200	400*
* Additional manpower requirement will be about 150 people out of 400 required				

xx. **Corporate Environmental Responsibility (CER)**

Proposed project is a brown field project. Fund for CER activities are provided as per MOEF&CC OM dated 30.09.2020. Cost are based on the concerns/request received during PH & interaction with local communities and shall update as suggested by EAC/ SEAC.

CER funds will be utilized over a period of three years. Proposed CER activities and budget allocation are given below:

Activities	Details	Frequency	Yearly allocation			Total amount
			1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	
Health checkups & Medical facilities	Health checkup at nearby villages & distribution of medicines to needy	Once a quarter in villages in core zone & needy villages in other zones	0.9	0.9	0.9	2.7
Rainwater harvesting pits	Technical & financial assistance for rain water harvesting pits in villages	Need based	0.5	0.5	0.5	1.5
Installation of hand pumps	Hand pump & community water filter units in nearby villages	Need based	0.5	0.5	0.5	1.5
Installation of solar lights	Solar street lights will be installed in project area villages	Need based	0.5	0.5	0.5	1.5
Infrastructure development	Modernization of class rooms,	Need based				

of schools	provision of potable drinking water and improving sanitation, distribution of school dress and stationary in local Government schools		0.8	0.8	0.9	2.5
Plantation drives	Identified blocks of degraded forests, schools and community building in the project area	Once in six months in project area	0.5	0.5	0.5	1.5
Construction of community toilets	A total of 5 toilets will be constructed for the community use in the needy villages	5 villages will be targeted in the project area. SBM-Rural funding of Rs. 65,000/- for each community toilet will be mobilized. O&M will be provided for first 3 years	0.5	0.5	0.5	1.5
Vocational education training program	Identified youth for nearby villages to be trained in job oriented courses	Half yearly one batch	0.5	0.5	0.5	1.5
Strengthening agriculture	Enhancement of infrastructure in local mandis / markets	Once in a quarter/ Need based	0.5	0.5	0.5	1.5
	<b>Total</b>	<b>5.2</b>	<b>5.2</b>	<b>5.3</b>	<b>15.7</b>	



### **23.2.3 The EAC during deliberations noted the following:**

The EAC in the present meeting (23<sup>rd</sup> meeting) deliberated on the additional information submitted by PP and noted that proposal is for grant of Environment Clearance (EC) to 1x660MW Amarkantak Supercritical Thermal Power Project (Expansion) in place of existing Amarkantak Thermal Power Station (Phase – I & II: 290 MW) in area of 90.24ha, Chachai Village, District Anuppur, Madhya Pradesh by M/s M. P. Power Generating Company Ltd.

Further, the Member secretary informed to the EAC that EIA consultant appointed by the PP is M/s Ramky Enviro Services Private Limited which has been debarred by the MoEF&CC vide letter no. J-110015/72/2016-IA.II (M) dated 09<sup>th</sup> March, 2022. Therefore, consultant was not present for presenting the proposal.

It was noted by the EAC that through kml it has been observed that project boundary is encroaching the water body i.e. Chachai lake, it was not cleared by the PP that Chachai lake belongs to Government of Madhya Pradesh or PP. Further, water is allocated from M. P. Govt. is from Sone River.

Further it was noted that the legacy ash is 32 LMT in the existing ash pond. Also, ash utilization in 2020-21 was 64.81% and 2021-22 (Upto Jan 22) 37.97% has been achieved. Further, it was also noted that there is no periphery/ boundary plantation done. Bottom ash will be collected in the water impounded bottom ash hopper and conveyed to ash slurry sump through jet pumps and shall be dumped in ash dyke. The dry fly ash collected in silos, shall be transported by rail and road to prospective users/ consumers.

It was also noted that 6.171 ha forest land is to be acquired by the PP and approx. 580 trees would be cut down for Combined Heat and Power (CHP) Systems for proposed project in particular forest area. Accordingly, the EAC suggested PP to avoid forest area and located different location for CHP systems.

**23.2.4** *The EAC after detailed deliberations on information submitted by the project proponent deferred the proposal seeking additional information from the project proponent:*

- i. Re-orient CHP system location to avoid forest area and felling of trees due to proposed expansion.*
- ii. PP need to submit document from the State Government stating that PP is not encroaching the lake area.*
- iii. Status of green belt across the periphery of the project boundary shall be provided (including video using drone and photographs), along with action plan for future plantation.*
- iv. MoU signed with State Water Resource Department is about supply of water to TPP from Son River; therefore, necessary clarification/permission about drawing of water from Chachai lake be submitted.*
- v. Time bound action plan along with the financial allocation for lake rejuvenation and proportion of tourism.*
- vi. Justification for observed non-compliance regarding use of coal with high Sulphur*

*contents.*

*The project was **deferred** on above points.*

**Agenda Item No. 23.3:**

**Discussion on issues regarding location of Neyveli Lignite Corporation Limited (NLCIL) Thermal Power Project related to Appeal No. 02/2021 in the matter of Prafulla Samantaray vs Union of India & Others before Hon'ble National Green Tribunal, Kolkata – reg.**

**23.3.1** The Member Secretary informed the EAC that :

1. Ministry has granted Environmental Clearance to the 3x800 MW NLC Talabira Thermal Power Project (NTTTP) at Kumbhari & Tareikela Villages in Jharsuguda, Odisha by M/s NLC India Ltd vide letter dated 02.02.2021 under the provision of Environmental Impact Assessment Notification, 2006, as amended subject to compliance of certain environmental safeguards.
2. Further, Environmental Clearance dated 02.02.2021 was challenged under Appeal No. 02/2021 in the matter of Prafulla Samantaray vs Union of India & Others before Hon'ble National Green Tribunal, Kolkata.
3. During examination of the issues raised by the petitioner in the aforesaid appeal, the Ministry has observed the following:
  - i. The project proponent vide proposal no. IA/OR/THE/67938/2017 applied for grant of EC wherein it informed under Form No. 2 at S.no. 23.1 regarding 'Details of Ecological Sensitivity' that "IB Valley which is 4 km away from the project site falls under SPAs".
  - ii. The EAC during appraisal of the proposal in its meeting held on 10.04.2020 observed that "Project is part of IB valley and Jharsuguda critically polluted area. The additional precautionary measures to be proposed to prevent pollution load in the region".
  - iii. Further, the EAC during its meeting held on 28.07.2020 mentioned that "Polluted areas stipulated 40% greenbelt instead of 33%. As the project is in IB valley critically polluted area, the extent of the greenbelt needs to be increased in line with the OM".
  - iv. However, during the EAC meeting held on 17.11.2020, it was observed that "After reducing the ash pond area from 340 acres to 175 acres, the total project area is about 1282 acres (1447 acres- 165 acres). The proponent had earlier proposed greenbelt development in an area of 252 acres. In line with the Ministry's OM dated 31.10.2019, greenbelt shall be developed in an area of 40% of the total project area instead of 33% as the project is located near Ib valley critically polluted area. As proposed, the additional area is to be acquired for meeting the target of 40% greenbelt of the total project area.
  - v. "The State Pollution Control Board (SPCB) and Central Pollution Control Board (CPCB), Odisha vide email dated 10.02.2022 and 24.02.2022 subsequently has

confirmed that M/s Neyveli Lignite Corporation Ltd. (NLCIL) fall in Jharsuguda Industrial area.

4. Keeping in view the aforementioned inconsistent statements, the Ministry has decided to relook the facts in this regard in consultation with EAC/CPCB/SPCB, so as to submit an appropriate factual position before the Hon'ble Tribunal against the concerns raised by the Appellant.
5. Along with the EAC members and project proponent (PP) following members were present during the discussion:
  - i. Shri Bijaya Kumar Behera Additional Chief Environmental Engineer, State Pollution Control Board, Odisha
  - ii. Shri Ajay Aggarwal Scientist F, Central Pollution Control Board

#### **23.3.2 EAC during deliberation noted the following:**

i. **Issue raised by the appellant in Appeal No. 02/2021:**

*“ix. That the site of expansion of the Thermal Power Station i.e. Talabira area is already critically polluted and operation of the TPP in question would have detrimental environmental effects as emissions from industries, mines, vehicular emissions and transportation activities.”*

ii. **Background of the Case:**

- a. The Project envisages construction of Thermal Power Plant namely, M/s Neyveli Lignite Corporation Limited (NLCIL) having capacity of 3X800 MW in the area of Talaibira which is located in Jharsuguda district of Odisha
- b. The project in question was granted Terms of Reference (hereinafter referred to as “ToR”) on 27.12.2017 for preparation of EIA and EMP Report. Thereafter, the project proponent submitted an online proposal on 19.02.2020 for a grant of EC. The said proposal for grant of EC was deliberated by the Expert Appraisal Committee (EAC) for Thermal Sector in its meetings held on 10.04.2020, 28.07.2020 & 17.11.2020.
- c. The Ministry has granted Environmental Clearance to the project on 02.02.2021 as per the provision of Environmental Impact Assessment Notification, 2006 as amended subject to the strict compliance of the environmental safeguards provided in the above said environmental clearance.

- iii. **Prayers made by the Petitioner:** That the present Appeal seeks to quash the Environmental Clearance (hereinafter referred to as ‘EC’) dated 02.02.2021 granted by the the MoEF&CC.

- iv. Project Proponent (PP) informed the EAC that the project site is located in Jharsuguda Polluted Industrial Areas (PIA) which is near to IB valley PIA and the project boundary does not fall inside the IB valley PIA.
- v. The Representative form SPCB, Odisha informed that earlier in the year 2020, the SPCB, Odisha vide letter no. 7393/IND-II-(Misc)-1792 dated 17.08.2020 communicated to CPCB that the location of IB valley PIA and Jharsuguda PIA has been demarcated.
- vi. Further, as per decision in the EAC the SPCB, Odisha vide letter no. 6021/Ind-II-Misc-1762 dated 08.04.2022 submitted the kml file showing the demarcation of Jharsuguda PIA and Ib Valley PIA. It was also informed that “Ib Valley and Jharsuguda area have been identified by the Ministry of Environment, Forest & Climate Change, Govt. of India as two separate polluted industrial areas vide Office Memorandum No. J-11013/5/2010-IA.II (I) dated 13.01.2010. Physically these two areas are adjoining to each other and is divided by river Ib. flowing from North to South. The area on the Western side of river Ib is the Ib Valley area, and the area on the Eastern side of the river is Jharsuguda area. At the time of notification in the year 2010, the CEPI Score of Ib Valley and Jharsuguda were 74 and 73.34 respectively. The last CEPI score monitoring was done by Central Pollution Control Board in the year 2018 and the score for Ib Valley and Jharsuguda were 66.35 and 35.02 respectively.
- vii. The Representative form CPCB informed the EAC that the coordinates of the project location (as mentioned in EIA report) were sent to SPCB, Odisha to confirm the project location whether it is falling in Jharsuuda PIA or Ib Valley PIA. The SPCB, Odisha has confirmed that the project location is falling in Jharsuguda PIA. It was further informed that after fresh assessment done in the year 2018, the IB valley PIA falls under ‘Severally Polluted Area’ and Jharsuguda PIA is identified as ‘Other Polluted Area’ meaning thereby it falls neither under the category of ‘Severely Polluted Area’ nor in ‘Critically Polluted Area’.
- viii. It was noted by the EAC that when Terms of Reference was granted by MoEF&CC in 27<sup>th</sup> December, 2017 then Jharsuguda PIA was under ‘Critically Polluted Area’ Category as per assessment done of CEPI Score in 2008. However, at the time of consideration of the proposal for grant of EC, the CPCB has conducted fresh CEPI monitoring of Identified Polluted Areas across the country in year 2018 and according to that IB valley PIA falls under ‘Severally Polluted Area’ and Jharsuguda PIA is identified as ‘Other Polluted Area’.

**23.3.3** *The EAC after detailed deliberations, based on revised document of CEPI score in 2018 and demarcated area by SPCB, it is noted that project boundary of 3x800 MW NLC Talabira Thermal Power Project (NTTTP) at Kumbhari & Tareikela Villages in Jharsuguda, Odisha by M/s NLC India Ltd. is located in Jharsuguda PIA which is neither a Critically Polluted Area nor ‘Severally Polluted Area’. The inconsistency in the statement regarding location of the project in the Minutes of meeting of EAC meetings dated 10.04.2020, 28.07.2020 and 17.11.2020 probably*

due to change in CEPI score at the time of consideration of proposal for grant of ToR and EC. Accordingly, the EAC accepted correction in minutes dated 10.04.2020, 28.07.2020 and 17.11.2020 related to location of the 3x800 MW NLC Talabira Thermal Power Project i.e. project is located in Jharsuguda PIA (identified as 'Other Polluted Area') as under:

1. The words "Project is part of IB valley and Jharsuguda critically polluted area" in the Para 39.3.5 subpart (o) on page 10 of the MOM of the 39<sup>th</sup> EAC meeting (Thermal Power) meeting held on 10.04.2020 may be read as "Project is located in Jharsuguda PIA (identified as 'Other Polluted Area')".
2. The statement "Further, in light of Ministry's OM dated 31.10.2019, the mechanism to deal with projects in Critically Polluted areas stipulated 40% greenbelt instead of 33%. As the project is in Ib valley critically polluted area, the extent of greenbelt needs to be increased in line with the OM." in the Para (1.3.4) subpart iv on page 16 of the MOM of the 1<sup>st</sup> EAC (Thermal Power) meeting held on 28.07.2020 may be read as "Although project is in Jharsuguda PIA (identified as 'Other Polluted Area') however, the area for green belt will be 40% of the total project cover area, in view of the eco-sensitivity of the project location."
3. The words "In line with the Ministry's OM dated 31.10.2019, greenbelt shall be developed in an area of 40% of total project area instead of 33% as the project is located near Ib valley critically polluted area." in the Para (4.3.4) subpart xi. on page 8 of the MOM of the 4<sup>th</sup> EAC (Thermal Power) meeting held on 17.11.2020 may be read as "Although project is in Jharsuguda PIA (identified as 'Other Polluted Area') however, the area for green belt will be 40% of the total project cover area, in view of the eco-sensitivity of the project location."

**Agenda Item No. 23.4:**

**Kudgi Super Thermal Power Plant Stage-I (3x800MW) in an area of 2440 acres located at Village Masuti and Telagi, Tehsil Basavana Bagevadi, District Vijayapura (Karnataka) by M/s NTPC – Reconsideration of Amendment in Environment Clearance (EC) – reg.**

**[Proposal No. IA/KA/THE/250015/2022; F. No. J-13012/06/2009 IA.II (T)]**

**23.4.1** The proposal is for grant of amendment in Environmental Clearance (EC) to Kudgi Super Thermal Power Plant Stage-I (3x800MW) in an area of 2440 acres located at Village Masuti and Telagi, Tehsil Basavana Bagevadi, District Vijayapura (Karnataka) by M/s NTPC.

The amendments sought by the Project Proponent are as under:

- i. Divergence of 390 acres land for development of Industrial park out of total 2440 acres land available with Kudgi Super Thermal Power Plant Stage-I (3x800MW) located at Village Masuti and Telagi, Tehsil Basavana Bagevadi, District Vijayapura (Karnataka) by M/s NTPC.

- ii. Amendment sought in Specific condition no (xi) of EC letter no J-13012/06/2009-IA.II(T) dated 25.01.2012:

**Specific condition no (xi):** ""A stack of 275 m height with flue gas velocity not less than 22 m/s shall be installed and provided with **continuous online monitoring equipments for SO<sub>x</sub>, NO<sub>x</sub>, and PM<sub>2.5</sub> & PM<sub>10</sub>** Mercury emissions from stack may also be monitored on periodic basis."

**Amendment sought:**

The words "*.....continuous online monitoring equipments for SO<sub>x</sub>, NO<sub>x</sub>, and PM<sub>2.5</sub> & PM<sub>10</sub>.....*" may be amended as "*.....continuous online monitoring equipments for SO<sub>x</sub>, NO<sub>x</sub>, and PM.....*".

**23.4.2** The proposal was earlier considered by reconstituted EAC in its 20<sup>th</sup> EAC meeting held on 28<sup>th</sup> January, 2022 and the proposal was deferred seeking additional information from Project Proponent (PP) on following points:

1. The land use change document issued by Government of Karnataka as submitted by the PP is for 390 acres area only for proposed industrial park; however, during presentation PP informed that 410 acres area will be diverted. The PP shall submit clarification in this regard. If the land area to be diverted is 410 acres necessary permission for change in land use from Govt. of Karnataka for the land area to be diverted, need to be submitted.
2. Status of green belt across the periphery of the project boundary shall be provided, along with action plan for future plantation.
3. Ash Utilization since operation of plant and 100% ash utilization plan for next 5 years along with timeline need to be submitted

**23.4.3** PP submitted Point-wise replies by the vide letter dated 14<sup>th</sup> March, 2022 in response to additional details sought (ADS) by EAC in its 20<sup>th</sup> meeting are as follows:

**Query 1:** The land use change document issued by Government of Karnataka as submitted by the PP is for 390 acres area only for proposed industrial park; however, during presentation PP informed that 410 acres area will be diverted. The PP shall submit clarification in this regard. If the land area to be diverted is 410 acres necessary permission for change in land use from Govt. of Karnataka for the land area to be diverted, need to be submitted.

**Reply:** NTPC wish to confirm that the land requirement for development of Kudgi Industrial Park is 390 acres only. Govt. of Karnataka vide Order No.CI 320 SPI 2021(E), Bengaluru, dated

11.11.2021 has accorded in-principle approval to the investment proposal of M/s NTPC Limited to establish “Industrial Park for Energy Intensive Industries” in an area of 390 acres of land acquired and allotted by KIADB as SUC consisting of the following Survey Nos. 291, 286, 290, 289, 295, 292, 293, 296, 305, 306, 307, 308, 309, 310, 313, 314, 315, 329, 328, 330, 331, 340, 327, 340, 341, 342, 326, 325, 288, 287, 285, & 316 of Masuti Village and Survey Nos. 93, 94, 106, & 107 of Telagi Village, Kolhar Hobli, Basavana Bagewadi Taluk, Vijayapura District. It is requested that the above survey Nos. may be excluded from the Environmental Clearance (EC) of Kudgi STPP.

**Query 2:** Status of green belt across the periphery of the project boundary shall be provided, along with action plan for future plantation

**Reply:** NTPC Kudgi has been carrying out afforestation activities in designated greenbelt areas in Plant and Township through Karnataka Forest Department (KFD) of Govt. of Karnataka since year 2013-14 on MoU route. So far, cumulative tree plantation of more than 3,00,000 saplings has been completed up to the end of FY 2021-22 in the periphery of the project, inside the Main Plant and Township areas, avenue plantation along the internal and external roads, and other available land spaces in a total area of around 230 acres involving indigenous native plant species. Certain areas which are currently under use for laydown of material and assemblies in the main plant area are being progressively vacated for taking up the afforestation activities. Copy of the General Layout Plan (GLP) earmarked with greenbelt and afforestation areas in and around Main Plant and Township area has been submitted along with photographs related to the afforestation carried out till date. In addition to the above, a tree massive plantation of more than 500000 saplings (including maintenance for subsequent 5 years) has been carried out through KFD in the four divisions of Karnataka Forest Dept. namely Shivamogga, Sagar, Hunsur and Mandya forest divisions. It is submitted that the land for Kudgi STPP is mostly barren and rocky and therefore raising the green belt is a challenging task and the growth of saplings is also slow. However, NTPC is making its best efforts to increase the green cover through State Forest Department, which is the best experts in the area.

**Action Plan for Future Plantation:**

NTPC Kudgi has also planned for carrying out afforestation activities other than NTPC and/ premises. In this line, KFD was approached for taking up plantation/ afforestation outside NTPC i.e. in external available forest/ govt. land in the Bijapur District. KFD has proposed to carry out a total of 50,000 saplings during FY2022-23 and FY2023-24 in reserved forest area (including Govt. C&D land) spread in an area of 125 acres. Proposal is under approval at NTPC for taking up the activity as planned.

**Query 3:** Ash Utilization since operation of plant and 100% ash utilization plan for next 5 years along with timeline need to be submitted

**Reply:** The financial year-wise ash utilization details of Kudgi Station up to Jan-2022 are as follows:

Period (FY)	Qty of Ash Gen. (LMT/Annum)	Qty of Ash Utilization (LMT/Annum)	Area-wise Break-up of Utilization (%)				Total Utilization (%)
			Cement	Brick	RMC	Others	
2017-18	7.14	3.58	94.67	3.16	2.18	-	50.05
2018-19	13.70	8.86	97.25	0.76	1.99	-	64.65
2019-20	8.93	8.97	77.88	17.00	2.72	2.84	100.45
2020-21	9.82	4.47	93.98	2.59	3.42	0.01	45.57*
2021-22 (up to 31st Jan 2022)	8.90	5.17	93.60	1.56	4.84	-	58.12*

\* COVID-19 Pandemic/ Lockdowns/ Travel Restrictions.

#### **Action Plan for Ash Utilization:**

NTPC Kudgi has tied up with end users i.e. 15 Cement manufacturing industries, 02 Ready Mix Concrete (RMC) units and ash based product manufacturers for the sale of dry fly ash. The dry fly ash is supplied through closed HCSD silos in the closed bulkers.

#### **Proposed Ash Utilisation Plan**

Period (FY)	Ash Gen. (LMT/Annum)	Ash Utilization (LMT/Annum)	Ash Utilization (%)
2022-23	47.17	37.74	80
2023-24	47.17	42.45	90
2024-25	47.17	47.17	100
2025-26	47.17	47.17	100
2026-27	47.17	47.17	100

#### **Action Plan for Utilization of Pond Ash:**

The un-utilized fly ash and bottom ash sent to ash dyke i.e. pond ash is being issued to the cement and brick manufacturing units. NTPC Kudgi has tied up with 02 Cement Industries and 02 Brick Manufacturing industries through E-auction for sale of about 5 LMT of pond ash up to Dec-2022.

The above plan has been prepared based on 100% PLF of the Station. However, keeping in view the current energy scenario of thermal power in India, the actual PLF is likely to be much



lower than 100%. Further, there is no coal based thermal power plant in the vicinity of Kudgi STPP. Therefore, the utilisation of ash from Kudgi STPP is likely to be high.

PP along with ADS reply vide letter no CC:ESE:9573:2022:GEN dated 14.03.2022 further requested to amend following specific condition no (xi) of EC letter no J 13012/06/2009-IA.II(T) dated 25.01.2012:

<b>EC Condition</b>	<b>Stipulation in EC</b>	<b>Amendment Requested</b>	<b>Justification for amendment</b>
<b>Specific Condition No.(xi)</b>	"A stack of 275 m height with flue gas velocity not less than 22 m/s shall be installed and provided with <b>continuous online monitoring equipments for SO<sub>x</sub>, NO<sub>x</sub>, and PM<sub>2.5</sub> &amp; PM<sub>10</sub></b> Mercury emissions from stack may also be monitored on periodic basis."	The para "continuous online monitoring equipments for PM <sub>2.5</sub> & PM <sub>10</sub> " may please be amended with " <b>continuous online monitoring equipment for PM stack emission</b> "	Instruments for online monitoring of PM <sub>2.5</sub> & PM <sub>10</sub> in stack emissions are not available. The amendment of similar condition in EC for Tanda STPP, Stage-II, FGUTPP Stage-IV, Meja TPP, Darlipalli STPP and Gadarwara STPP based on the above justification was already accorded by MOEF&CC.

**Justification by NTPC for amendment of condition:**

1. NTPC has already deployed online continuous monitoring instruments for PM<sub>2.5</sub> & PM<sub>10</sub> in ambient air in Automatic Ambient Air Quality Stations near its projects. However, the instruments for online continuous monitoring instruments for PM<sub>2.5</sub> & PM<sub>10</sub> in stack emissions are not available and at present, total particulate matter (PM) is being monitored online.
2. NTPC contacted all Vendors/Manufacturers/Suppliers of stack monitoring instruments such as Chemtrols, Durag India, Envea, Adage etc. who have expressed their inability to provide such equipment and confirmed that currently there is no suitable product/equipment available worldwide for continuous online monitoring of PM<sub>2.5</sub> & PM<sub>10</sub> in stack emissions.
3. NTPC also published Expression of Interest (EOI) for supply of suitable

technology/equipment for online continuous monitoring of PM2.5 & PM10 in the Stack emission of Thermal Power Stations through various Indian and International newspapers/journals of different countries viz. *Germany, USA, Italy, France, UK, Singapore, Japan etc.* and also through NTPC Website: [www.ntpc tender.com](http://www.ntpc tender.com)

4. In view of above, the following facts are submitted:

- i. Instruments for online monitoring of PM2.5 & PM10 in stack emissions are not available, as mentioned in Para 2 and 3 above.
- ii. MOEF&CC notification dated 7<sup>th</sup> December 2015, published on new environmental norms for coal-based power plants does not specify any emission standards for PM2.5 & PM10 and includes emission limits for particulate matter (PM) as whole.
- iii. MOEF&CC O.M. dated 19<sup>th</sup> November 2018, published on new standardized EC conditions for coal-based power plants stipulates the online monitoring of particulate matter (PM) as whole.
- iv. The emission levels of particulate matter from the stacks of thermal power projects is of the order of 30 – 50 mg/Nm<sup>3</sup>, leading to an incremental ground level concentration of the order of 1-2 micro gram/ m<sup>3</sup>, which is extremely low as compared to National Ambient Air Quality Standards (60 micro gram/ m<sup>3</sup>).
- v. The amendment of similar condition in EC for Tanda STPP, Stage-II, FGUTPP Stage-IV, Meja TPP, Dalripali, Gadarwara STPP based on the above justification was already accorded by MOEF&CC.

#### **23.4.3 The EAC during deliberations noted the following:**

The EAC in the present meeting (23<sup>rd</sup> meeting) deliberated on the additional information submitted by PP and noted that land requirement for development of Kudgi Industrial Park is 390 acres has been approved by the Govt. of Karnataka vide Order No.CI 320 SPI 2021(E), Bengaluru, dated 11.11.2021. The EAC observed that survival rate of plantation done is more than 85% and the species which are not able to survive it is getting replaced by another species in every 3 years.

**23.4.4** *The EAC after detailed deliberation on the information submitted and as presented during the meeting accepted the amendments as requested by the Project Proponent in Environmental Clearance to Kudgi Super Thermal Power Plant Stage-I (3x800MW) in an area of 2440 acres located at Village Masuti and Telagi, Tehsil Basavana Bagevadi, District Vijayapura (Karnataka) by M/s NTPC under the provisions of EIA Notification, 2006 and as amended therein subject to compliance of following additional conditions:*

- i. Increase plantation area to 33% in periphery of the plant boundary.*
- ii. Improve the soil quality in consultation with reputed institute so that plants can be*

*survive in the region.*

- iii. Three row plantation along the boundary of 390 acres of land proposed to be diverted for development of Industrial park. The plantation work will be completed prior to diversion of land.*
- iv. 24x7 online Continuous monitoring system for ambient air quality parameters SO<sub>x</sub>, NO<sub>x</sub> and PM shall be established with connected server to CPCB and SPCB.*
- v. Other conditions of the EC letter dated 25.01.2012 shall remain unchanged.*

**The meeting ended with vote of thanks to the Chair.**

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**ATTENDANCE**

<b>S. No</b>	<b>Name</b>	<b>Role</b>	<b>Attendance</b>
1.	Shri Gururaj P. Kundargi	Chairman	P
2.	Shri SuramyaVora	Member	P
3.	Dr. Santosh Kumar	Member	P
4.	Shri K. B. Biswas	Member	P
5.	Dr. Nandini. N	Member	P
6.	Shri M. P. Singh	Member (Representative of CEA)	P
7.	Prof. S. S. Rai	Member Representative of IIT/ISM Dhanbad	P
8.	Representative from CPCB	Member	A
9.	Shri Yogendra Pal Singh	Member Secretary	P

Following members were present in the meeting for Agenda Item No. 23.3:

**Discussion on issues regarding location of Neyveli Lignite Corporation Limited (NLCIL) Thermal Power Project related to Appeal No. 02/2021 in the matter of Prafulla Samantaray vs Union of India & Others before Hon'ble National Green Tribunal, Kolkata – reg.**

1.	Shri Bijaya Kumar Behera	Additional Chief Environmental Engineer, State Pollution Control Board, Odisha
2.	Shri Ajay Aggarwal	Scientist F, Central Pollution Control Board

## APPROVAL OF THE CHAIRMAN

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**Fwd: Draft MOM of the EAC (Thermal) meeting held on 07.04.2022 for perusal and comments-Reg**

2 messages

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**Yogendra Pal Singh** <yogendra78@nic.in>  
To: geetdeepbisht <geetdeepbisht@gmail.com>

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**From:** gpkundargi@gmail.com  
**To:** "Yogendra Pal Singh" <yogendra78@nic.in>  
**Sent:** Friday, April 22, 2022 3:34:59 PM  
**Subject:** Re: Draft MOM of the EAC (Thermal) meeting held on 07.04.2022 for perusal and comments-Reg

Dear Yogendra ji  
Draft minutes are in order & approved. You may take further necessary action.  
G P Kundargi

On Thu, 21 Apr, 2022, 12:04 pm Yogendra Pal Singh, <yogendra78@nic.in> wrote:

Dear Sir,

Please find attached the draft MOM of the EAC (Thermal) meeting held on 07.04.2022 for perusal and comments, if any.

With Regards,

**Yogendra Pal Singh**  
**Scientist 'E'**  
**M/o Environment, Forest and Climate Change**  
**Room No. 236, 2nd Floor, Vayu Wing**  
**Indira Paryavaran Bhawan**  
**Jor Bagh, New Delhi-110003**  
**Tele-fax: 011-20819364**