MINUTES OF THE 32nd MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE (EAC) ON ENVIRONMENTAL IMPACT ASSESSMENT (EIA) OF THERMAL POWER PROJECTS HELD DURING 23rd AUGUST, 2019.

The 32nd Meeting of the re-constituted EAC (Thermal Power) was held on 23rd August, 2019 in the Ministry of Environment, Forest & Climate Change at Indus Meeting Hall, Ground Floor, Jal Wing, Indira Paryavaran Bhawan, Jorbagh Road, New Delhi under the Chairmanship of Dr.Navin Chandra. The following members were present:

1.	Dr.Navin Chandra	-	Chairman
2.	Shri Suramya D. Vora	-	Member
3.	Dr. N.P. Shukla	-	Member
4.	Shri G.P. Kundargi	-	Member
5.	Dr. Jai Krishna Pandey	-	Member
6.	Shri N.S. Mondal	-	Member (Rep. of CEA)
7.	Shri N. Mohan Karnat	-	Member
8.	Dr. R.K. Giri	-	Member (Rep. of IMD)
9.	Dr. S.K. Paliwal	-	Member (Rep. of CPCB)
10.	Dr. S. Kerketta	-	Member Secretary

Dr. SharachchandraLele, Dr. Manjari Srivastava and Dr. S.K. Gupta (Rep. of IIT Dhanbad) could not be present.

Item No.32.0: CONFIRMATION OF THE MINUTES OF THE 31stEAC MEETING.

The Minutes of the 31stEAC (Thermal Power) meeting held on 25.7.2019 were confirmed in presence of members present in the meeting.

Item No. 32.0: CONSIDERATION OF PROJECTS

(32.1) 2x800 MW (Stage-IV, Telangana STPP, Phase-I) at Village & Mandal Ramagundam, District Karimnagar, Telangana by M/s NTPC Ltd.-reg. amendment in EC. (F.No.J-13012/112/2010-IA.I(T) & Proposal No.IA/TG/THE/113457/2019)

- (32.1.1) The Project Proponent submitted online application on 05.08.2019 for amendment in EC dated 20.1.2016 regarding inbuilt monitoring for radio-activity and heavy metals in coal and ash as per the Specific condition No.xv.
- (32.1.2) The specific condition No.xv of EC dated 20.1.2016 is as below:

A long term study of radio activity and heavy metals contents on coal to be used shall be carried out through a reputed institute and results thereof analysed every two year and reported along with monitoring reports. Thereafter mechanism for an in-built continuous monitoring for radio-activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.

- (32.1.3) Project Proponent has made the presentation and submitted the following information:
- i. NTPC has explored the technologies for in-built continuous monitoring of radioactivity and heavy metals in coal and ash. There are no instruments available for online in-built continuous monitoring of heavy metals.
- ii. Only periodic sampling of Heavy metals and radioactivity is usually being conducted through reputed Laboratory/Institute i.e. Baba Atomic Research

Centre (BARC). Further, there are no BIS standards/regulations for monitoring of Radioactivity in coal and ash in India.

- (32.1.4) Committee noted the difficulty expressed by M/s NTPC to measure radioactivity online through in-built instruments. Committee is of the opinion that radio-activity in the coal and ash may be analysed once in a year. Further, Committee opined that NTPC being larger organisation having several power plants can also think of setting up of a lab for measuring radioactivity instead of waiting for analysis reports from BARC.
- (32.1.5) Committee after detailed deliberations, recommended for amendment of the following specific conditions and stipulated additional conditions in the Environmental Clearance vide dated 20.1.2016:
 - i. Condition No.xv: Radio activity and heavy metals' contents in coal and fly ash (including bottom ash) shall be carried out through a reputed institute once in a year and the analysis reports to be submitted to the Ministry and its Regional Office.
 - ii. The total Radio-activity in the working areas such as coal stock yard, flyash pond shall be calculated based on the analysis results per unit weight of coal/ash. The total radio-activity in the atmosphere is to be compared with the maximum permissible dosage levels of each person working in those areas. This is to be conducted once in a year.
- iii. Implementation of pollution control measures to meet new emission norms and specific water consumption as per Ministry's notification dated 7.12.2015 to be ensured.
- (32.2) 55 MW Greenfield (Dual Fuel Power Project) Andaman & Nicobar Gas Power Project at Hope Town at Ferrargunj Tehsil in South Andaman District, Andaman and Nicobar by M/s NTPC Vidyut Vyapar Nigam Limited. - reg. amendment in ToR. (F.No.J-13012/14/2018-IA II (T) and Online No.IA/AN/THE/113957/2018)
- (32.2.1)Project Proponent submitted online application on 09.08.2019 for amendment in ToR for enabling the Diesel also as an alternate fuel.
- (32.2.2) The Terms of Reference (ToR) have been issued for establishing 55 MW Gas based Power Project with the following condition:
 - i. The ToR is only for establishing 55 MW LNG based Power Project. No diesel/HSD fired power project is permitted at the location as Power Project is not permissible activity in the CRZ area and the diesel fired power plant is highly polluting.
- (32.2.3) Project Proponent has made presentation along with QCI-NABET Consultants M/Vimta Labs Ltd. inter-alia submitted the following information:
 - i. It is proposed to use Diesel fuel in addition to the LNG as per the following options:
 - a. Firing Natural Gas continuously with HSD as pilot fuel (< 1 % of total fuel requirement).
 - b. Firing HSD (High Speed Diesel) as a standalone fuel during non-availability of LNG.
 - ii. The power plant will be worked on dual fuel technology i.e. through Liquid Natural Gas (LNG) or High Speed Diesel (HSD). The Dual Fuel Technology

enables reciprocating engine to operate on either LNG or HSD. Switching between fuels can take place seamlessly during operation, without loss of power or speed. The engines are designed to have the same output regardless of the fuel used.

- iii. The HSD requirement as pilot fuel is 780 KL/ Year at full load.
- iv. Application was submitted for 55 MW Dual Fuel (LNG/HSD) Power Project for obtaining CRZ recommendations of A&N Coastal Zone Management Authority. During communication between A&N Administration and MoEF&CC, the project was referred as LNG Power Project with LNG being the primary fuel.
- v. The Ministry restricted the single fuel to LNG which is not feasible to be implemented as the proposed project is based on dual fuel technology.
- vi. When running in gas mode, the engine works according to the Otto process, where the Lean Air Fuel Mixture is fed to cylinders during the suction stroke. When running in diesel mode, the engine works according to the diesel process, where the diesel fuel is fed to cylinders at the end of compression stroke.
- vii. At full load, efficiency of the engine is in the order of 45% for gas fuel & 42% for liquid fuel. Engines are optimised for running on gaseous fuels as primary fuel and diesel fuel is used for back-up fuel operation.
- viii. The power requirement of Andaman & Nicobar Islands is met mainly from Government owned diesel generation units with balance power purchased from Independent Power Producers.

Sl.No.	Type generation	of	Installed Capacity (MW)	Percentage
1.	Diesel		99.20 MW	90.64%
2.	Hydro		5.25 MW	4.8%
3.	Solar		5 MW	4.56%
Total			109.45 MW	100%

ix. The power generation in A & B Islands as on December, 2015 is as follows:

- x. The concentration of Diesel Power Plants (59 MW) is highest in South Andaman, where approximately 64 MW out of total base of 109.45 MW is installed.
- xi. Sales of electricity is projected to grow from 229 MU in FY15 to around 330 MU by FY19 at a CAGR of 10% with Peak demand expected to grow from around 58 MW to around 68 MW by FY19. Further, out of the 99.2 MW DG capacities, about 51.745 MW of DG capacities has already outlived their lives thereby making the effective available DG capacity as 47.465 MW.
- xii. The EIA study has to be prepared based on both fuels.
- xiii. While firing natural gas with HSD as pilot fuel, the amount of diesel required will be less than 1% of total fuel consumed at full load. Hence, it is not feasible to implement the proposed project single fuel (LNG).
- xiv. The project Cost is Rs.401.65 Crores.
- (32.2.4)Committee noted that the power project in the extant CRZ regulations is not permissible activity. Initially when project proponent applied for ToR, they have been advised to shift the project site as location is falling within the prohibited area of CRZ. Subsequently, ANCZMA has sent their recommendations to the Ministry to consider the project as a special case. The ANCZMA provided justification that the present location has quick access to the entrance of the Port Blair Bay, it involves low cost of dredging, less requirement of laying pipeline and suitable for avoiding conversion of Liquefied Natural Gas to

Natural Gas due to heating. Further, the basic premise on which the project has been considered as special case by ANCZMA under CRZ Notification is that the project is based on Gas fuel which will reduce the pollution load in A & N Islands as the electricity for entire A & N Islands is supplied by the Diesel which is highly polluting. The CRZ division has also agreed with the justification and mentioned that the gas based power project will substitute existing polluting Diesel Power Units in the Island. Now, the 100% use of Diesel will not only have significant impact on Marine Environment and surrounding Eco-sensitive areas, protected areas but also emit large amount of Sulphur Dioxide into the atmosphere. The use of 1% HSD continuously with LNG may be allowed due to operational issues. Committee further noted that Project Proponent can prepare the EIA/EMP studies for combination of HSD & LNG as also for stand alone HSD with worst case scenarios. Committee further noted there is a discrepancy in the capacity of the Power Plant. Project Proponent initially submitted for 50 MW Power Project. Subsequently, the form-1, PFR have been revised for 55 MW Power Project. CRZ division has also been consulted. The CRZ division has also mentioned that the project has been considered as out of turn and needs amendments in CRZ Notification to accommodate this project. The said recommendations were made only based on that the project is eco-friendly and less polluting special as it uses LNG.

- (32.2.5) Committee after detailed deliberations, recommended for amendment in ToR for using High Speed Diesel as pilot fuel along with LNG (Primary fuel), upto maximum of 1% HSD. Further, the capacity of the Power Project may be modified as 55 MW Power Project. The following additional conditions have also been suggested in addition to the Standard ToR:
 - i. Impact of Marine flora and fauna to be studied for using HSD of 1%, 25%, 50% and 100%.
 - ii. A sub-committee would be visiting the site to ascertain the presence of wildlife sanctuaries including Coral Reef Sanctuary in and around the project site.
 - iii. All the standalone DG sets to be decommissioned, which are located in Port Blair and in this regards, time-bound plan to decommission all the existing DG sets to be prepared and submitted.
 - iv. Laying of pipeline for transport of LNG to be in synchronization with the construction of the proposed gas based plant.
- (32.2.6) The sub-committee comprising of following members will conduct the site visit:
 - i. Dr. N.P. Shukla
 - ii. Shri Suramya Vora
 - iii. Dr. Paliwal, CPCB
 - iv. Shri N. S. Mondal
 - v. Member Secretary, EAC (Thermal)
- (32.3) Proposed 1x660 MW Coal based Supercritical Sagardighi Thermal Power (Phase-III Extension Unit-5), Village Manigram, Chandpara, Kanchanpara, Harirampur, District Murshidabad, West Bengal by M/s The West Bengal Power Development Corporation Ltd.- reg. re-consideration of Environmental Clearance.

(F.No.J-13012/01/2019-IA.I(T) & Proposal No.IA/WB/THE/107519/2019)

- (32.3.1) Project Proponent has submitted the online application on 26.3.2019 for grant of Environmental Clearance. The proposal was earlier considered by the EAC in its meeting held on 26.6.2019 and EAC sought the following information:
 - i. Letter from WBPCB that EIA report has been uploaded on their website and whether any representations/comments have been received. In case, representations are received, an action plan to address the issues mentioned in the representation shall be submitted.
- ii. The time bound action plan for addressing public hearing comments.
- iii. The status of implementation of pollution control measures to meet new emission norms and specific water consumption as per Ministry's notification dated 7.12.2015.
- iv. Permission from the NMCG for water withdrawal.
- v. Source sustainability study shall be conducted by taking competing users in the downstream, in-situ uses, environmental flow before drawing such huge quantity of water $1,75,296 \text{ m}^3/\text{day}$.
- vi. It has been mentioned that evaporation loss is 4733 m³/hr which accounts to be 66% of the total water requirement which is not reasonable. The revised water balance diagram with all details shall be furnished.
- vii. Copies of coal linkages for existing and proposed project shall be submitted.
- viii. RO certified EC compliance report and its action plan shall be uploaded online at PARIVESH portal.
- ix. Particulate Matter (PM_{10}) in the ambient air quality exceeds the National Standard. Justification is to be submitted. The stack height for the proposed project has been designed for the height of 150 m. The incremental concentrations shown by the dispersion modelling for PM_{10} is 18.31 µg/m³ which will be very high as the baseline itself crossed the national standard.
- x. Dispersion modelling shall be carried out for various scenarios with stack height of 150 m and 275 m and for worst case scenarios such as stable weather class- E & F which occurs in the winter, Class-A: Unstable and Class-D: Neutral.
- xi. The input parameters such as pollutant load, climate data and stability class considered for dispersion modelling shall be mentioned in the EIA report.
- (32.3.2) Project Proponent has furnished the reply to the EAC observations on 6.8.2019. Accordingly, the proposal has been considered in the present meeting. Project Proponent along with QCI-NABET consultants M/s Development Consultants Pvt. Ltd. inter-alia submitted the following information:
 - i. West Bengal Pollution Control Board vide letter dated 27.6.2019 mentioned that the newspaper notice has been published on 13.5.2019 and no comments have been received.

Action Plan for issues raised in the Public Hearing has been provided. In the public hearing issues raised by the public, groundwater depletion has been mentioned as the major problem in the region. However, PP has justified with a Hydrogeology report submitted IIEST (formerly known as BESUS) stating that groundwater levels have not been depleted. Regarding, the issue raised in the Public Hearing, PP further submitted that in last 3 financial years, a total of Rs. One crore (approx.) has been spent on CSR and different activities, which include construction of roads leading to the different villages and also to the Highways, construction of boundary walls in the schools, provision of tube wells

which also includes repair work of the existing tube wells, supply of high and low height benches in the nearby schools, construction and maintenance of toilets in the villages, financial provision to the SHGs, etc. Besides, around 750 personnel are engaged in the existing operational plants as unskilled labour force. Similarly, 500-600 persons will be engaged from the local villages as unskilled labour force and 200 persons will be employed in the proposed Unit#5.

- ii. The PP submitted that feasibility study for installation of limestone based wet FGD for all four units have already been done. Tender specifications for the common systems for material handling and effluent handling, for all the units have also been carried out. Tenders for Units 3 & 4 have already been notified during February, 2019 and orders will be placed by August 2019. For Units 1 & 2, specifications for Absorbers shall be ready by December, 2019. Tenders shall be floated thereafter. All the FGDs are to be commissioned at the end of 2022-23 financial year.
- iii. CPCB vide directions dated 11.12.2017 extended the timelines for upgradation of ESP for Unit-1 & 2 (2x300 MW) by December, 2020 and March, 2021, respectively. Timelines for installing FGD for Unit-1 (1x300 MW), Unit-2 (1x300 MW), Unit-3 (1x500 MW) & Unit-4 (1x500 MW) were given up to December, 2020, March, 2021, March, 2022, March, 2020, respectively. Further, timelines for NO_x control systems such as Low NO_x burners and Over Fire Air for all units has been given till 2022 for meeting new emission standards.
- iv. Further, ash water recovery system (AWRS) for Phase-I (2x300 MW) had already been installed. The AWRS for Phase-II (2x500 MW) is under construction.
- v. Recycling from guard pond and ETP are under construction. COC has been optimised to 5.0. Zero liquid discharge will be achieved accordingly. Rainwater harvesting system has been started in three locations.
- vi. National Mission for Clean Ganga (NMCG) vide their letter dated 1.7.2019 has given in-principle approval for drawing 74.36 cusecs of water from Bhagirathi/Hoogly subject to following conditions:
 - a. Project Proponent shall make necessary commitment to use treated sewage from STPs within 50 km radius, i.e. Berhampur STP and Jangipur STP. MoU shall be made within six months with the STP.
 - b. The water shall be drawn only during high flow season (7 months, June-December) and water shall not be drawn during lean season for five months (Jan-May).
 - c. Project Proponent shall ensure that intake water level of the structure shall be above the water level corresponding to discharge (75% dependability) observed during 7 months.
- vii. Source sustainability study has been conducted. From the historical data of water flow through Hooghly River, it appears that the flow never goes down below 25,00 cusec. Moreover, different rivers/creek like Churni, Khari, Jalangi, Ajoy, Saraswati, etc. are also adding water to the Hooghly River in the downstream of proposed TPP.
- viii. The project is allowed to draw 74.36 cusec water by NMCG which is a meagre quantity (0.297%) in comparison to the water flow through the Hooghly River even in the leanest period.
- ix. Major utilities in the downstream of proposed project are drawing 521.75 Cusecs of water. The sustainability of downstream habitations on the river will not be affected due to drawl of 74.36 cusecs. The plant has five water reservoirs for storage of water for using during lean period.

- x. Water balance diagram submitted is a composite diagram for five units of capacity 2260MW and it shows that evaporation loss is 4733 m³/h from the cooling water circuit of 2,96,700 m³/h. Generally, evaporation loss is 2-3% of circulating water. In this case, evaporation is only 1.58% which is quite reasonable.
- xi. The coal linkages for existing Phases (Phase-I & II) has been issued by MoC for coal mines of Gangaramchak, Gangaramchak-Bhadulia coal mines, Pacchwara North Coal Mine, Tara East and West coal mines. The coal linkage for proposed project has been issued by MoC vide letter dated 6.6.2018 from Deocha Pachami Coal Mine, West Bengal.
- xii. Certified EC compliance report and action plan have been uploaded on PARIVESH portal.
- xiii. The maximum value of PM_{10} is 87.48 µg/m³ and the average value of PM_{10} is 69.89 µg/m³. All the values of PM_{10} are below the limit set for Industrial, Residential, Rural and Other areas (100 µg/m³).
- xiv. The maximum value of $PM_{2.5}$ is 37.49 µg/m³ and the average value of $PM_{2.5}$ is 27.38 µg/m³. All the values of $PM_{2.5}$ are well below the limit set for Industrial, Residential, Rural and Other areas (60 µg/m³).
- xv. Plume dispersion modelling has been carried out for various scenarios. The worst case scenarios predicted during Summer for incremental ground level concentrations are as below:

Pollutant	Baseline	Maximum	Resultant GLC	Distance	
	concentrations	predicted GLC			
		Stack Height-150	m		
PM ₁₀	87.48	12.78	100.26	3.6 km	
SO_2	18.75	39.04	57.79	3.6 km	
NOx	36.58	29.37	65.95	3.6 km	
	Stack Height-275 m				
PM10	87.48	11.87	99.35	4.5 km	
SO_2	18.75	34.86	53.61	3.6 km	
NOx	36.58	25.85	62.43	4.5 km	

xv. Input emission concentrations in the stacks have been considered as follows:

Pollutant	PM	SO_2	NO _X
Phase-I	50 mg/Nm ³	600 mg/Nm ³	300 mg/Nm ³
(2x300 MW)	(26.18 g/sec)	(211.86 g/sec)	(105.93 g/sec)
Phase-II	50 mg/Nm ³	200 mg/Nm ³	300 mg/Nm ³
(2x500 MW)	(26.18 g/sec)	(104.7 g/sec)	(105.93 g/sec)
Proposed Project (1x660 MW)	30 mg/Nm ³ (17.66 g/sec)	100 mg/Nm ³ (58.86 g/sec)	100 mg/Nm ³ (58.86 g/sec)

- (32.2.3) The committee after detailed deliberations based on the information provided by the PP, **recommended for grant of environmental clearance** along with the following additional conditions, which will be part of the standards Environmental Clearance conditions:
 - i. As the modelling has been carried out based on highest emissions concentration for 2x300 MW and 2x500 MW as prescribed. Therefore, the

modelling should be carried out based on the actual emissions of the stacks into account for predicting ground level concentrations to ensure meeting the prescribed standards emission norms. The modelling results be submitted to the Ministry before processing for the Environmental Clearance.

- ii. Actual date of giving supply order for installation of FGD in Units 3 & 4.
- iii. ETP and STP to be provided for treatment of plant effluents and domestic waste, respectively and requirement of ZLD to be met with for whole of the Unit.
- iv. Necessary environmental clearance to be obtained for the residential colony as per the provisions of the Environment Impact Notification, 2006.
- v. Separate drains for storm water and effluent to be provided to ensure treatment of industrial effluents separately during rainy season. The treated water be used for dust suppression, green belt development, etc.
- vi. CER budget to be earmarked and based on the same, different activities to be carried out during construction of the project be intimated to the Ministry and also its Regional Office located at Bhubaneswar.
- vii. All the conditions stipulated by NMCG for drawl of fresh water from Bhagirathi river to be complied with. No structure except the pumps and pipelines be located within 500 m distance from the HFL of the Bhagirathi river i.e. towards landward side of the river i.e. from the HFL.

(32.4) 1600 MW (Phase-II: 2x800 MW) Udupi Expansion Coal based Thermal Power Project in the premises of 1200 MW (Phase-I: 2x600 MW) Thermal Power Plant at Yellure Village, Taluk Udupi, District Udupi, Karnataka to 2x800 MW by addition of by M/s Udupi Power Corporation Ltd.reg. -ToR. (F.No.J-13012/09/2019-IA.I(T) & Proposal no. IA/KA/THE/114552/2019).

- (32.4.1)Project Proponent has submitted online application on 14.8.2019 for grant of ToR for establishing 1200 MW Udupi Thermal Power Project in District Udupi, Karnataka. The Environmental Clearance issued for 1200 MW Udupi Thermal Power Project vide Ministry's letter dated 1.8.2017 has been suspended by the Hon'ble NGT vide Orders dated 14.3.2019 in the matter of Janajagrithi Samithi vs Union of India & Ors.
- (32.4.2) The Hon'ble NGT, Delhi vide their orders dated 14.3.2019 in the matter of Janajagrithi Samithi vs Union of India & Ors regarding above mentioned power plant:
 - i. held the ECs pertaining to operating power plant (2x600 MW) illegal and violative of EIA Notifications, 1994 and 2006.
 - ii. suspended the EC dated 1.8.2017 issued to Phase-II: 2x800 MW Project.
- (32.4.3) **Phase-I Power Plant (2x600 MW):** The NGT noted that the ECs of existing plant being invalid and so much time has lapsed since the plant has been established, it has become fait accompli situation and is difficult to order to remove the plant & restore the area. Instead, NGT ordered to pay environmental compensation by invoking 'Polluter Pays' principle under Section 20 of NGT Act, 2010.

Further, NGT has formed a Committee comprising of following members to assess the environmental damage on account of the environmental violations in

the areas of fly ash management, ash pond, ambient air quality, fugitive emissions, etc. and submit the report in three months:

- i. Senior Scientist, CPCB (Nodal Agency)
- ii. Senior Representative, IIT Chennai,
- iii. Senior Scientist, IIT Bangalore.

Awaiting such report, M/s Udupi Power Corporation Ltd. has been directed to pay an interim Environmental Compensation Rs.5 Crores with the CPCB. This would be subject to assessment of final damages by the Committee of Experts. The amount shall be deposited within a month.

- (32.4.4)For the second phase (Phase-II: 2x800 MW) of the project for which EC was issued on 1.8.2017, NGT prescribed the following ToRs to complete the EIA process to address the shortcomings observed by the Tribunal:
 - i. Baseline data of the area in relation to the existing project of 2x600 MW shall be scrupulously collected.
 - ii. In addition to the above, the State of Karnataka shall get a carrying capacity study of the area carried out.
- iii. The baseline data and the carrying capacity study shall be considered as components for studying the impact in relation to the proposed expansion.
- iv. Fresh Public Hearing shall be conducted strictly in accordance with the procedure laid down in Appendix IV of EIA Notification, 2006 ensuring wide participation of the people affected by the project.

After completion of the above, report shall be submitted to the MoEF&CC to be placed before the Expert Appraisal Committee for appraisal as required under Stage IV of the EIA Notification, 2006.The entire exercise shall be completed within a period of one year. In the meanwhile, EC dated 1.8.2017 shall remain suspended and shall not be acted upon.

- (32.4.5) Committee noted that since the NGT had already prescribed the ToRs for conducting EIA study, the committee has limited scope in prescribing the ToRs. The NGT has directed Project Proponent to carry out the EIA studies based on the prescribed ToRs and submit the final EIA for appraisal after conducting Public Consultation and Hearing. Since, the project proponent, approached the EAC, the committee is of the opinion that the cumulative impact assessment studies especially prediction of air quality by using dispersion models should also consider the terrain features such as hills, valleys and coastal areas as the dispersion varies with the variation in topography.
- (32.4.6) Committee after detailed deliberations, recommended for the following additional ToR in addition to the ToR prescribed by the NGT in their Order dated 14.3.2019:
 - i. The cumulative impact assessment of entire plant (existing and proposed) shall be carried out especially the air quality predictions by using a standard Model by considering the variations in topography such as hilly terrain, valley, coastal area, undulated area, and variations in weather class (Stability Class- A, D & F) to provide the near true representation of plume dispersions from flue gas.

(32.5) 1x800 MW (Phase-II) Imported coal based Sri Damodaram Sanjeevaiah Thermal Power Project at Nelaturu Village, Muthukuru Mandal, SPSR Nellore District, Andhra Pradesh by M/s Andhra Pradesh Power Development Corporation Ltd.- reg. amendment in EC for change in coal source.

(File No. J-13012/25/2012-IA.II(T) & Online No. IA/AP/THE/10486/2012)

- (32.5.1) Project Proponent has submitted online application on 13.08.2019 for amendment in EC dated 2.7.2015 for change in coal source from imported to domestic coal.
- (32.5.2) Project Proponent along with QCI-NABET consultants M/s Vimta Labs Ltd. have made the presentation inter-alia submitted the following information:
 - i. The project works are in progress and the unit is programmed for commissioning in the year 2019.
 - ii. As there is an increase in the production of indigenous coal in the country, price escalation of imported coal, volatility in the foreign exchange, increased tariff with imported coal, saving in the foreign exchange, higher moisture content in the foreign coal etc., it has been decided to use washed coal in place of imported coal.
- iii. Based on the assurance of Minister Coal & Power, GOI during visit to SDSTPS on 27.02.2016, APPDCL has applied for allocation of indigenous coal for the project from M/s. Coal India Limited (CIL).
- Ministry of Coal vide letter dated 19thSeptember, 2017 granted long term coal linkage to APPDCL Stage-II 800 MW unit. M/s Mahanadi Coal Fields Limited (MCL) issued Letter of Assurance (LOA) vide letter dated 04-03-2018 for the supply of 3.548 MTPA of coal grade of G11-G15.
- v. The raw coal will be washed at APGENCO's coal washery, Bollaram or any other coal washery in Talcher area.
- vi. Coal characteristics after washing will be GCV- 4200 k Cal/kg, ash-33.83%, Sulphur-0.5%.
- vii. The coal quality and the emission loads incase of imported and domestic coal are given as below:

Parameter	Unit	100% imported	Proposed Washed
		coal as per EC	Domestic Coal based on
			recent linkage
Coal quality			
Fuel consumption	TPH	303.8	392
Ash content	%	13.90	33.83
Sulphur content	%	0.8	0.5
Emission rates			
PM emission	g/s	38.37	38.37
SO_2 emission	g/s	1350.4	1089
SO_2 emission rate	g/s	74.2	54
with FGD			
No _x emissions	g/s	340.2	381
No_x emissions with	g/s	122	138
De No _x			

viii. The maximum incremental ground level concentrations predicted for both imported and domestic coal are as below:

Parameter	Unit	100%	Domestic washed
		imported coal	coal
Incremental GLC max			
Particulate matter PM	$\mu g/m^3$	0.7	0.43
Sulphur dioxide SO_2	$\mu g/m^3$	12.4	10.36
Sulphur dioxide SO ₂ levels	lig/m^3	0.62	0.51
with FGD	μς/ 111		
Oxides of nitrogen No _x with	ug/m^3	1.16	1.31
De No _x	MB1		
Post Project GLCs		•	
Particulate matter PM	$\mu g/m^3$	39.2	38.9
Sulphur dioxide SO ₂	$\mu g/m^3$	27.8	26.27
Sulphur dioxide SO ₂ levels	$\mu g/m^3$	16.02	15.91
with FGD	M8/		
Oxides of nitrogen No _x with	$\mu g/m^3$	19.26	19.41
De No _x	MB/ 111		

ix. The ash generation due to domestic washed coal would increase by nearly three times.

Ash generation	Imported coal	Washed domestic coal	
Flyash generation	929 TPD	2544 TPD	
Bottom ash generation	232 TPD	636 TPD	
Total ash generation	1161 TPD	3180 TPD	

- x. Annual ash generation would be 0.98 MTPA which will be handled at the Existing ash pond of stage-I.
- xi. To achieve Fly Ash utilisation of both Stage-I & II, in addition to existing agreements for disposal of Fly Ash to the tune of 4000 TPD, the following MOUs / Sale orders have been executed by APPDCL.

Imported coal	Washed domestic coal
Inpower Cement Corporation (TPD)	3000
Penna Cements (TPD)	1500
NCL Altec (TPD)	100

- xii. APPDCL has been making efforts in pond ash utilization in the area of road constructions.
- xiii. NHAI has been contacted to lift pond ash and fly ash for the National Highway Project near Tirupati (to be started).

- xiv. M/s Montecarlo Limited, the EPC contractor for the work has requested to allot 15 Lakh MT of fly ash and 20 Lakh MT of Pond ash for the highway project and the firm was informed that the required quantity will be issued.
- xv. Other Environmental mitigation measures are:
 - a. Effluent Treatment Plant will be provided for treatment of effluents generated from plant. 100% dry ash handling systems are under erection for disposal of fly ash in dry form. Hydro bins will be provided to utilize bottom ash (solid waste).
 - b. The raw water requirement for the project is estimated as $6556 \text{ m}^3/\text{hr}$.
 - c. RO plant of 21 MLD capacity is under construction and desalinated water will be used for Ash handling system.
 - d. No additional raw water is required due to the change in source of coal
 - e. No additional effluents will be generated due the change in source of coal
- (32.5.3) Committee noted that there are two major points to be considered while changing the coal source from imported to domestic coal. First one is the transportation. In the present case, the coal is proposed to sourced from Talcher Coalfields to the washery, from washery to Paradip Port, from Paradip Port to Krishnapatnam port and then to power plant by conveyor belt. As there is no road transportation involved in the route, committee expressed that there is no objection to change coal source. Further, switching to domestic coal would considerably increase the ash generation by nearly three times even after using beneficiated coal. Project Proponent informed that the existing ash pond of Stage-I will be used for disposing unutilized ash from the proposed 1x800 MW. However, washed/beneficiated coal is to be used for Stage-II project. Further, it has been informed that the unit is expected to be commissioned in 2019. Project Proponent needs to ensure the FGD installation to control SO₂ emissions as per the revised standards.
- (32.5.4) Committee after detailed deliberations, **recommended for amendment in EC for change in coal source from imported coal to domestic coal** subject to following additional conditions:
 - i. Coal transportation shall not be carried out by road mode. It should be transported either by rail, sea route or conveyor belt.
 - ii. The installation of Flue `gas De-sulphurisation (FGD) Unit shall be made for 800 MW (Phase-II) while commissioning so as to meet the revised emission norms issued vide dated 7.12.2015.
- iii. In line with the Ministry's notification 2.1.2014 and as proposed, the washed/beneficiated coal from M/s MCL shall be used to keep the ash content below 34% as the power plant is located more than 500 km from the source of coal (Talcher coalfields).
- iv. Un-utilised ash shall be disposed in the ash pond of Stage-I (2x800 MW) in an area of 130 acres. No additional ash pond will be permitted. The aim is to utilize the 100% ash in road making, bricks, cement manufacturing, etc.
- (32.6) 2x800 (Phase-I) MW Sri Damodaram Sanjeevaiah Thermal Power Project at Nelaturu Village, Muthukuru Mandal, SPSR Nellore District, Andhra Pradesh by M/s Andhra Pradesh Power Development Corporation Ltd.- reg. amendment in EC for ash pond.

(F.No. J-13011/20/2007-IA.II(T) & Online No. IA/AP/THE/114419/2007)

(32.6.1) Project Proponent vide online application dated 13.08.2019 applied for amendment in EC for increasing the ash pond area from 130 acres to 200 acres.

- (32.6.2) Project Proponent made the presentation inter-alia submitted the following information:
 - i. M/s APPDCL is a sister concern of APGENCO, with equity participation from APGENCO, Govt of AP and 4 Nos Discoms of undivided state of AP.
 - PhaseCapacityCommissioning
DateEC grantPhase-IUnit 1: 800 MW05-02-201517.7.2007Unit 2: 800 MW24-08-201517.7.2015Phase-IIUnit 3: 800 MWUnder Construction.2.7.2015
 - ii. The power project has two phases:

- iii. As per the Phase-I Environmental Clearance, 100 acres of ash pond was permitted to dispose unutilised ash. While granting EC for Phase-II, it was proposed to use the same ash pond for ash disposal.
- iv. As regards to the area of the emergency ash pond to be allowed for the project, the area allowed as per the Fly Ash Notification dated 3.11.2009 is 50 ha for a 500 MW unit (0.1 ha for 1 MW). Accordingly, 160 ha (395.4 acres) is permitted for 1600 MW as an emergency ash pond. However, the EAC while granting Environmental Clearance in 2007 allowed only 100 acres which is much below the permitted area as per the EIA Notification.
- v. Even though, 299.40 Acres has been acquired for ash pond, only 100 acres was used as per the Environmental Clearance.
- vi. However, the ash pond of 100 acres to the dyke height of 5 m got already filled with an approximate ash quantity of 18.5 Lakh Metric Tonnes. Accordingly, a request has been made to allow 30 acres of temporary ash diversion bund for ash disposal till the height of existing ash dyke (100 acres) is increased from 5 m to 10 m.
- vii. Daily ash generation from 2x800 MT is about 4600 MT/day. The ash generation from 2x800 MW and its utilisation is as below:

Year	Ash Generation	Utilisation	Percentage
	(in Lakh MT)	(in Lakh MT)	Utilisation
2015-16	8.52	2.27	31.6%
2016-17	14.53	5.57	38.4%
2017-18	8.27	6.22	75.21%
2018-19	12.14	7.93	65.38%
2019-20	5.50	1.98	36%
(Till July, 2019)			
Total	48.96 Lakh MT	23.97 Lakh MT	49 %

- viii. For raising of existing ash pond bund, studies have been conducted by Professors from IIT/Delhi and IIT/Chennai and both the professors opined that existing bund needs soil improvement measures and that operation of the pond has to be halted briefly and requires temporary diversion during the construction period to avoid interruption for power generation.
- ix. The Expert Appraisal Committee recommended for carving out 30 acres of ash pond for the diversion bund as an exigency to use for dumping of fly ash till the

height of existing pond is increased from 5m to 10m, after obtaining NOC from APPCB.

- x. APPCB while according NOC on 25.4.2019 stipulated the following conditions:
 - a. Devaradibba Girijana colony is located at about 150 m from the Diversion bund. There is protection of 5 m height of main diversion bund to the colony as the cross bund of only 3 m height is proposed and the pond to be filled is up to 2 m height only. Hence, the proposed ash pond with cross bund of 3 m height may not pose any adverse impact on the health of the nearby habitants.
 - b. Further, desalinated water system will be commissioned soon and only fresh water will be used for preparation of ash slurry. As such the village is protected from contamination of ground water also.

Ash pond details	Dyke height	Volume availability	Filled as on date	Remarks
Ash pond-1:	5 m	18.5 Lakh MT	18.5 Lakh MT	-
100 acres	5 m	18.5 Lakh MT	-	Dyke height raise is under process.
	Total: 10 m	37 Lakh MT	18.5 Lakh MT	
Diversion bund: 30 acres	3 m (ash to be filled up to 2 m)	2.43 Lakh MT	-	EAC recommended and APPCB issued NOC.
Balance ash pond: 70 m	5 m	9.10 Lakh MT	-	Proposed request
Total availabilit	y as on date	20.93 Lakh MT	18.5 Lakh MT	

xi. The projected volumes and quantity of ash to be filled up is as below:

- xii. This temporary diversion bund with effective height of 2m i.e. capacity of about 2.40 lakh Cum will cater the needs of the plant for period of only 4 months with existing ash disposal @ 1950cum/day i.e. up to Sept'2019. Accordingly, it is necessary to use remaining 70 acres as additional ash disposal pond to cater to the unutilised ash and to avoid stopping the power plant.
- xiii. Since the existing ash pond was completely filled up, the unutilized ash is being disposed to temporary diversion bund from 15.05.2019.
- xiv. Further the tender for raising of existing ash pond from 5m to 10m height work is under process and is likely to be entrusted to executing agency by the last week of August, 2019.
- xv. The period of contract for completion of raising of existing bund from 5 to 10m height is 6 months. Assuming if the work is awarded by the end of August 2019, it will be completed by February, 2020 end.
- xvi. Utilization of balance 70 acres of the pond from the diversion bund is a dire necessity for continuous power generation and to avoid any environmental risk

as the existing ash pond has reached to its full level and the carved out pond of 30 acres with 3 m bund height will be filled up by September'2019.

- xvii. In case of disruption in Power Generation, cash flows will badly effect the financial position of APPDCL. APPDCL has a monthly commitment of Rs.120.00 Cr to M/s PFC and other banks and other fixed charges of Rs.30.00 Cr viz., salaries, payment to O&M contractors, suppliers etc.,
- xviii. The proposal is submitted to accord approval for utilization of balance 70acres (out of 100Acres) of diversion bund formed for temporary ash disposal arrangement during raising of bund height of existing ash pond
- (32.6.3) Committee noted that 30 acres of diversion bund has been requested by the project proponent in January, 2019. Meanwhile, the dyke height of existing 100 acres is to be increased from 5 m to 10 m. The strengthening of base of ash dyke needs to be done which was already given in the study reports conducted by IIT Chennai and Delhi. Accordingly, it was planned to use 30 acres as an interim measure. Now, Project Proponent states that 30 acres ash dyke was restricted only to 2 m with 1 m free board which can accommodate ash of 2.4 Lakh MT and can be filled in 2-4 months. As noted in the EAC in its meeting held in January, 2019, had already recommended to the Ministry for taking appropriate action for developing the second ash pond in an area of 149 acres without prior approval from the Ministry. The Member Secretary has informed that a show-cause notice has been issued, personal hearing was held, based on the justification, necessary orders along with Bank Guarantee to complete greenbelt in 420 acres. Committee further noted that the emergency ash pond requirement as per the Fly ash notification has been given as 0.1 Ha for 1 MW. Accordingly, for 1600 MW Power Plant, 160 ha (400 acres) may be given. However, the Ministry and EAC during grant of Environmental Clearance has restricted the said area to 100 acres. As there is an issue of stability and sensitive locations such as habitation, APPCB has restricted the dyke height to 2 m for 30 acres diversion bund which can accommodate ash for about 04 months.
- (32.6.4) Committee after detailed deliberations, reiterated the earlier recommendation that 30 acres area to be used as ash pond as an emergency ash pond and didn't recommend for granting permission of using another land of 70 acres located adjacent to this land. The following additional conditions have also been stipulated:
 - i. The report of flyash generation and utilisation as per the Flyash Notification shall also be submitted to Ministry and its Regional Office. Copy of agreements made for flyash and bottom ash utilisation shall also be submitted.
 - ii. At least 50 m width of greenbelt around the periphery of existing ash pond of 100 acres and diversion bund of 30 acres. The time bound action plan along with financial allocation shall be submitted to the Ministry within 3 months.
- iii. Ministry may take a separate call for permitting use of 70 acres of land as requested by the PP to dispose fly ash based on the recent notification of the Ministry i.e. permitting mine voids for disposal of flyash by the owners of Thermal Power Plants.
- iv. Exploring alternate options for importing the ash, if it is not utilised in the nearby area as the Krishnapatnam port facilities are available nearby for exporting.

- (32.7) Expansion from 2x600 MW to 2000 MW (2x600 + 1x800 MW) of Coal based Singareni Thermal Power Plant at Pegadapalli Village, Jaipur Mandal, Mancherial District in Telangana by M/s Singareni Collieries Company Ltd.- reg. re-consideration of EC.
 (F.No. J-13015/08/2015-IA.I (T) & Online no. IA/TG/THE/27094/2015)
- (32.7.1)The proposal for grant of Environmental Clearance has been submitted by the M/s SCCL on 03.11.2018. The proposal has been has been considered by the EAC (Thermal Power) on 30.11.2018 and the Committee recommended for a site visit by the sub-committee for assessing the requirement of additional ash pond, avenues for utilization of ash and filling in abandoned mines, greenbelt development, water availability from Godavari and Pranahita rivers, issues pertaining to wildlife management, decision to arrive at stack height of 100 m/275 m, CSR activities carried out till date and the need for shifting of Pegadapalli Village due to pollution caused by the project, etc.
- (32.7.2) The Sub-committee conducted the site visit during 30th-31st May, 2019. The site visit report has been placed before EAC in its meeting held on 26.6.2019. The EAC has sought the action plan as recommended in the site visit report.) Project Proponent vide letter dated 16.07.2019 submitted the reply to the additional information. The matter was re-considered in the EAC in its meeting held on 25.7.2019 and EAC sought the following information:
 - i. Data on groundwater table collected during last 5 years (pre and post monsoon) in the project and surrounding areas.
 - ii. A copy of the CGWB design report for constructing rainwater harvesting structures. The time bound action plan for its implementation.
 - iii. Hydrogeological Report to be revised based on the Ministry's Guidelines.
 - iv. Concurrence of the District Collector, Adilabad and necessary clearance from State PCB be submitted regarding water drawal of 2 TMC/annum (34 MGD) from Pranahita River.
 - v. Copy of Ministry of Coal guidelines for exemption of coal linkage for grant of environmental clearance.
 - vi. The timelines for implementation of FGD with specific target dates for each activity. A PERT chart to commission FGD shall be submitted.
 - vii. Details of budget along with the breakup of activities for implementation of Rs. 5.95 Crores for developing greenbelt in an area of 141.33 ha.
 - viii. Action plan to create Environmental Management Cell with the professionals from the Environmental Sciences and Engineering, soil/plant biology.
- (32.7.3) Project Proponent has submitted the reply vide dated 13.8.2018 submitted the reply and the same has been placed before the EAC in the present meeting. Project Proponent along with QCI-NABET consultants M/s Ramky Enviro Services Pvt. Ltd.made the presentation inter-alia submitted the following information:
 - i. Data on groundwater table collected during last 5 years (pre and post monsoon) in the project and its surrounding areashas been provided. The ground water levels are in the range of 2.51-12.98 m during pre-monsoon and 1.29-11.07 m during post-monsoon.
 - ii. The detailed study has been carried out by CGWB authorities for rainwater harvesting structures inside and outside the Singareni Thermal Power Plant.
 - iii. CGWB has estimated the total rooftop available (administrative building, hostel, quarters, dispensary, Bungalows) for collection of rainwater is

34,580 m² which can collect 10652.1 m3/day of rainwater on any maximum rainy day.

- iv. CGWB recommended to construct 1775 m³ volume of storage tanks with recharge pits should not exceed 8877 m³.
- v. Further, CGWB has also recommended for construction check dams/percolation tanks on the upstream side of the project area. Five check dams have been suggested to be constructed at Jaipuram (2 locations), Mittapalli, Gudipalli and Adilpet villages.
- vi. An amount of Rs.1.65 Crores is being deposited with Irrigation Department for construction of Check Dams at four locations through Minor Irrigation Division, Mancherial, Telangana State. An MoU with EE, Irrigation Department was made for construction of check dams.
- vii. As suggested by CGWB, suitable Rainwater Harvesting Structures and artificial recharge ponds be adopted within the STPP. All these works will be completed by end of March, 2020.
- viii. Hydrogeological Report has been revised by the QCI-NABET consultant as per Ministry's guidelines.
- ix. Net annual ground water availability for future use in the buffer zone of proposed prject.
 - a. Annual extractable groundwater resource: 8845.55 ham/year
 - b. Existing gross ground water extraction: 7819.61 ham/year
 - c. Net annual ground water available for future use: 1026.88 ham/year
 - d. Stage of ground water development: 88.40%
 - e. Categorisation of area: Semi-critical.
- x. The construction of Medigadda and Sundilla barrages across River Godavari will inundate the two water abstraction structures constructed for Singareni Thermal Power Project, i.e. at Devulawada and Shetpally into backwaters. Hence, at these two locations, standing waters are available throughout the year.
- xi. The company will continue the impact studies on surface hydrology and water regime in and around the project area.
- xii. Concurrence for drawl of 2 TMC/annum (34 MGD) from Pranahita River has been obtained from District Collector, Adilabad on 8.10.2013.
- xiii. State Pollution Control Board has also accorded CFE for drawl of water from Pranahita River for consumption of STPP on 4.4.2017.
- xiv. Naini Coal Block in Odisha was allotted to SCCL on 13th August, 2015 for supply of coal to the end user-STPP.
- xv. Mining Plan and Mine Closure Plan of Naini Coal Block was approved by MoC on 8th April, 2019.
- xvi. SCCL applied for grant of ToR to MoEF&CC for Naini Coal block with a production capacity of 10 MTPA and obtaining EC is in the process.
- xvii. The production of coal from the Naini mine is planned from the year 2021 and coal can be supplied from allotted Naini coal block to 1x800 MW STPP (Stage-2).
- xviii. The coal requirement of STPP for 2000 MW (2x600 + 1x800) is around 8.8 MTPA.
- xix. SCCL initiated installation of FGD system for 2x600 MW and DPR was prepared by NTPC.
- xx. SCCL Board recommended DPR to Government of Telangana and the same was approved, vide letter no.499/PR.A1/2019, dated 14.06.2019.
- xxi. Pre-award consultancy services were issued to M/s NTPC for installation of FGD for 2x600 MW, STPP; vide PO No. 8900000996, dated 18.06.2019.

- xxii. The installation of FGD for the existing 2x600 MW STPP is scheduled to be completed by June 2022. The timelines for installation of FGD has been submitted.
- xxiii. Detailed breakup of budget for implementation Rs.5.95 Crores for developing greenbelt in an area of 202.46 ha has been submitted. This budget does not include preparatory works like levelling, ploughing, uprooting, etc. and cost of saplings. Additional funds as per the requirement, will be allotted every year for maintenance.
- xxiv. A separate Environmental Management Cell has been established at unit level to monitor the compliance of various statutory clearances related to environment.
- xxv. The Environment Management Cell of STPP will be strengthened by posting professionals with qualification in Environmental Science and Engineering.
- (32.7.4) Committee noted that CPCB vide their directions has extended the timelines up to December, 2019. Considering the plan submitted by the Project Proponent, it is unlikely to be completed by December, 2019. Either Project Proponent has to take further extension or stop the existing plant operations, if they fail to comply with the latest emission norms as per the Ministry's Notification dated 7.12.2015. A condition in this regard is to be stipulated. Further, the CGBW has conducted a study on the implementation of rainwater structures such as rooftop rainwater collection and recharge pits within the complex of power plant and construction of check dams outside the power plant in several villages. These recommendations shall be judiciously be implemented.

(32.7.5) Committee after detailed deliberations, recommended for grant of Environmental Clearance for establishing 1x800 MW Thermal Power Project within the premises of 2x600 MW Thermal Power Plant subject to following conditions in addition to the Standard EC conditions listed as Annexure-A2:

- i. The Power Generation in terms of Units (MWh/KWh), average Plant Load Factor, coal consumption during six months (April-September on or before 1st December & October-March on or before 1st June of each calendar year) shall be submitted as part of six monthly compliance report.
- ii. Date of financial closure, commencement of construction activities, progress construction activities, expenditure made, commissioning of power plant shall be submitted till the power plant is achieved COD.
- iii. The land requirement for the proposed project shall not exceed 127.31 ha (Main plant, Equipment & CHP: 47.632 ha; Ash dyke: 30 ha; Greenbelt: 79.68 ha). All other facilities such as water reservoir, coal transportation and water lines are to be used from the existing plant. The land requirement for Phase-I Power plant is 300.972 ha and the total land requirement for phase-I and II shall be restricted to 428.28 ha.
- iv. Coal requirement for 1x800 MW Project shall not exceed 4.05 Million Metric Tonne/annum and to be sourced from Naini coal block (Planned Production: 10 MTPA) located in Chhendipada, Village & Tehsil, Angul District, Odisha. The expected coal quality is 3500 kcal/kg with Sulphur and Ash contents 0.5% and 45%, respectively
- v. Coal transportation shall be done by rail only. No road transportation is permitted. In case of change in coal source and its location, a fresh reference is

to be made to Ministry for seeking amendment in EC for assessing adequate impacts and stipulating pollution control measures.

- vi. The new emergency ash pond for proposed project (Phase-II: 800 MW) shall be restricted to 30 ha. The existing ash pond of 30 ha for (Phase-I: 2x600 MW) will be used for unutilised ash generated from Phase-I Power Plant. The remaining area of the 29.44 ha towards Pegadapalli Village shall not be used for ash pond and the area shall be developed with greenbelt.
- vii. The ash pond proposed for Phase-II (800 MW) shall have HDPE liner, Piezometric wells around the ash dyke, greenbelt around the periphery of the dyke, High Concentrated Slurry Disposal System with Ash Water Recirculation Unit be made functional.
- viii. Monthly generation of ash (Both flyash and Bottom ash, approximately 5000 Tons/day), utilisation, disposal into the ash pond shall be submitted as per the format being submitted to CPCB under Flyash Utilisation Notification. The efforts shall be made to utilise the 100% ash for cement, brick and tiles and other construction materials manufacturing, road construction. The unutilised ash shall be disposed in the abandoned/working Coal Mines of M/s SCCL in a range of 50 km as backfilling material or overburden dumps.
- ix. The water requirement for Phase-I plant (2x600 MW) and Phase-II Project (1x800 MW) shall not exceed is 88,800 m3/day and 48,000 m3/day (Total: 1,36,800 m3/day). The water withdrawal permissions from State Irrigation Department for drawing 1.05 TMC (77,592 m3/day) from Godavari River (8.65 km pipeline from Shetpalli village) during lean season and 2 TMC (1,55,184 m3/day) from Pranahita River (43.5 km pipeline from Devulawada village) were accorded. After all the facilities for water pumping, transportation and storage facilities are made ready, a final layout map showing co-ordinates of intake points in Godavari and Pranahita Rivers, pump house, pipeline route, water reservoir along with capacities and specifications shall be submitted.
- x. Monthly water drawl from Pranahita and Godavari rivers shall be submitted. The specific water consumption (monthly) shall be calculated based on total water consumption and total power generation against 3 m³/whr specified as per the Notification.
- xi. The progress of implementation of pollution control equipment to meet new emission norms dated 7.12.2015 for Phase-I Project shall be submitted as part of compliance report.
- xii. The progress of implementation of pollution control equipment such as Electro Static Precipitator, Wet FGD, SCR &De-NO_X systems for Phase-II (800 MW) project shall also be submitted during construction phase or till its implementation.
- xiii. The emissions of Flue gas such as PM, SO₂, NO_x, Mercury shall be connected online through analysers. The Minimum, Maximum and 98% percentile value of monthly flue gas emissions PM (Standard: 30 mg/Nm³), SO₂ (Standard: 100 mg/Nm³), NO_x (Standard: 100 mg/Nm³) and Mercury (Standard: 0.03 mg/Nm³) shall be submitted. In addition, the flow rate in the flue gas is to be maintained with minimum velocity of 22 m/sec. Continuous online measuring systems shall also be installed to monitor flue gas velocity so that effective plume height is maintained for dispersion of gases.
- xiv. Stack height of 150 m is prescribed based on the 95% removal of Sulphur Dioxide through Wet Flue-gas Desulphurisation Unit and considering the operation of 2x600 MW Power Plant in the same complex.

- xv. The compliance of forest clearance (Stage-II/Formal) issued vide dated 7.5.2019 including diversion of 2.99 ha forest land for laying pipeline for transporting water from Pranahita River shall be submitted.
- xvi. As recommended by the CGWB in their report, the rooftop rainwater harvesting system with storage tanks and recharge pits shall be set up for the roof cover of 34,580 m² which can collect 10,652.1 m3/day of rainwater on any maximum rainy day. As recommended, storage tanks with volume of 1775 m³ and recharge pits with maximum volume of 8877 m³ shall be constructed.
- xvii. As recommended by CGWB for construction check dams/percolation tanks on the upstream side of the project in Villages Jaipuram (2 locations), Mittapalli, Gudipalli and Adilpet villages, demand of Rs.1.65 Crores has been raised by Irrigation and CAD Department vide letter dated 27.7.2019. The demand note shall be paid to the Irrigation Department and the subsequent progress report of construction of check dams shall be obtained from Irrigation Department.
- xviii. As and when, the Phase-II Power Plant is commissioned, augmentation of roof top structures and associated water collection and recharge systems for new buildings constructed under this phase shall be made. The assessment shall be done within 6 months from the date of commissioning.
- xix. Wildlife Management Plan for conservation of Schedule-I Species Black Buck and Chousinga in Mancherial District vetted has already been submitted to Wildlife Department. A copy of the Wildlife Management Plan duly approved by the Chief Wildlife Warden along with activities and budget earmarked for conservation shall be submitted.
- xx. Capital and Recurring Cost towards Environmental Management Plan and Protection measures shall be earmarked as Rs.1128.756 Crores and Rs. 67.901 Crores/annum (Table 9.9 of Chapter 9.7.3, page.518 of EIA report), respectively for implementation of ESP, Stack, FGD, SCR, Cooling towers, ash handling and ash water recycling, dust extraction systems, ETP, DM water treatment, STP, greenbelt development, rainwater harvesting structures, environmental monitoring, etc., and their maintenance.
- xxi. Commitments made during Public Hearing held on 7.3.2018 and as part of EMP regarding primary health care facilities, skill training, employment to land losers in the Phase-I project, use of SCCL dispensary by villagers, periodic health camps through mobile medical van, provision of RO treated drinking water facilities, installation of Solar Power generation facilities shall be adhered and implemented in the surrounding affected villages.
- xxii. As proposed, the greenbelt development for the both phases shall be developed in an area of 202.46 ha (2,50,421 saplings) with budget of Rs.5.95 Crores which also includes existing 13.72 ha mango plantation and it shall not be disturbed. Additional amount of Rs.4.5 Crores has been earmarked for avenue plantation, grass development near the reservoir, green cover in 80 ha in surrounding villages, afforestation in 50 ha degraded forest land. Miyawaki system of greenbelt development will be taken up wherever feasible.
- xxiii. As per the Ministry's Office Memorandum dated 1.5.2018, the one time CER cost of 0.25% on project cost: Rs.5879.62 Crores, i.e. Rs. 14.7 Crores shall be earmarked for carrying out CER activities for developing infrastructure in the surrounding villages.
- xxiv. As part of CER/CSR activities, the infrastructure development activities on education sector such as construction of laboratories and instruments/equipment, construction of hostel, providing college bus, provision of drinking water treatment facilities at hostels shall be taken up at Kothagudem School of Mines. The budget shall be drawn from onetime CER

cost of Rs.14.7 Crores. The progress of infrastructure development along with the financial allocations shall be submitted in the compliance report.

- xxv. The profits generated of every year from Phase-I and Phase-II Power Plants shall reported. The amount of 2% of profits of three preceding years shall be reported for implementing CSR activities during operation phase of power plant. The amount earmarked and the expenditure along with activities in the surrounding villages during the Financial Year shall be submitted.
- The Power Plant (Phase-I & II) should have an Environment Management Cell xxvi. comprising of atleast two professionals (EMC) from Environmental Engineering/Science, one soil biologist/expert in forestry, one chemist/chemical engineer to implement environmental mitigation measures. be headed by a professional in The EMC should Environmental Engineering/Science and directly reporting to the Plant head, who would review the environmental compliance once in three months.
- xxvii. CO_2 and other GHG emissions emitted annually from the power plant shall be calculated due to coal consumption and power generation. The calculated values shall be verified through measurement of CO_2 flow and concentrations in the flue gas. Total quantity of CO_2 generated and number of power units generated, the specific emissions of CO_2 in terms of tonnes per MWhr shall be reported.

(32.8)Proposed Expansion of 726.6 MW (Unit-3&4: 2x363.3 MW) Gas based Power Project at Village Palatana, Tehsil Kakraban, Dist. Gomati, Tripura by M/s ONGC Tripura Power Company Limited - reg. internal discussion on site visit report.

(F.No. J-13012/02/2017-IA. II(T)) & Online No. IA/TR/THE/97559/2006)

(32.8.1) The Project Proponent submitted online application No. dated 01.03.2019 for grant of Environmental Clearance. The proposal for grant of EC was considered in the EAC meeting held on 26.4.2019 and the EAC recommended for conducting site visit. Accordingly, a sub-committee comprising of following members has been constituted vide Ministry's Order dated 3.6.2019:

S.No. Name

i.	Dr. Navin Chandra	-	Chairman
ii.	Shri Gururaj Kundargi	-	Member
iii.	Shri Mohan Karnat	-	Member
iv.	Dr. (Mrs.) Manjari Srivastava	-	Member
v.	Shri N. S. Mondal	-	Member
vi.	Dr. S. Kerketta	-	Member Secretary

- (32.8.2) The Sub-committee visited the project site on during 28th-30th June, 2019 and have made the following observations:
 - i. The availability of gas and agreement letter from ONGC for the proposed project are to be made available to ensure availability of sufficient natural gas for the propose project.
 - ii. The total effluent generated is 5,858 m³/day. A total of 1,000 m³/day treated water is used for landscaping and greenbelt development. Online Effluent monitoring sensors was found to be operational and in order.

- iii. The total area of the project is 207.60 acres (including corridors). An area of 73.08 acres has already taken up for the greenbelt development till date and fulfils the requirement of covering 33% of the total area (including corridors). However, the PP has also agreed to take up the isolated patches of open area for further plantation.
- iv. One of the Air Quality monitoring stations is located at the roof top of the Fire Station Building which is around 105 m from Udaipur-Kakraban road. As the road was being widened during collection of air samples, the value of PM_{10} is relatively higher and might have been contributed due to the construction work of this road.
- v. The PP explained that as there is no SOx in the fuel, the minimum stack height requirement is 30 m as per CPCB guidelines. Therefore, the stack height of 60 m with 6.5 m diameter has been decided to have the positive draft to assist in better dispersion of flue gas from the stack with exit velocity of 20 m/s.
- vi. A list of Schedule-I species has been prepared by the PP and submitted to the Chief Wildlife Warden for wildlife conservation plan. The Schedule-I species includes both flora and fauna viz., Flora (3): Canarium Strictus (Dhup), Magonia Pterocarpa (Duli Champa) and Mangifera sylvatica (Aam) and Fauna (17) :Arhopala pseudocentarus, Baoris farri, Castalius Rosimon, Ceopora Nerrisa, Elymnias Malelasa, Meaisba Malaya, Narathura Selta, Pantoporia Hordonia (8) (Butterflies and moths), Indo Gangetic Flatshell Turtel, Common India Monitor Lizard, Water Monitor (3) (Reptilian Species), Black Kite (1) (Avi-fauna) and Bison, Capped langur, Slow loris, Hoolock gibbon and Leopard cat (5) (Mammals).
- vii. The action plan along with financial allocations to address the public hearing issues such as agriculture development, assistance to irrigation, education and compensatory afforestation has been made and an outlay of Rs. 8.95 crores (0.25% of the project cost has been earmarked. The same is found to be in order with the Ministry's Circular dated 01.05.2018.
- (32.8.3) Sub-committee in its site visit (Report: **Annexure-A3**) recommended to submit the action plan on following aspects:
 - i. In case 15% increase of installed capacity of the proposed existing plant to be made then necessary amendment of the ToR to be taken up.
 - ii. Confirmation on the availability of natural gas of 2.7 MMSCMD for proposed project to be obtained from M/s. ONGC.
- iii. The wildlife conservation plan for Schedule-I species vetted by the Chief Wildlife Warden to be submitted.
- iv. NBWL recommendations from wildlife angle for the existing plant to be obtained.
- v. The existing power plant is discharging the treated effluent water (approximately $4,858 \text{ m}^3/\text{day}$) into the Gomti river. Therefore, it is mandated to convert the entire water treatment system into zero discharge system for both existing and proposed power project.
- vi. Isolated open area within the project to be earmarked and taken up for plantation.
- vii. To isolate the gas handling plant during emergency, water sprinkler jacket be provided for both existing and proposed plants.
- (32.8.4) Committee after detailed deliberations recommended the Project Proponent to submit the action plan and replies to the observations and recommendations made in the site visit report. **Accordingly, the proposal is deferred**.

(32.9) Proposed 2x660 MW Super Critical Thermal Power Project (Expansion) within the premises of 2400 MW Koradi Power Plant at Village Koradi, Tehsil- Kamptee, District Nagpur, Maharashtra by M/s Maharashtra State Power Generation Company Limited (MAHAGENCO) - reg. Internal discussion on site visit report. (F.No.J-13012/07/2019-IA.I(T) &Online no. IA/MH/THE/102533/2019)

(32.9.1)M/s Maharashtra State Power Generation Company Ltd.(MAHGENCO) has applied for grant of Terms of Reference (ToR) pm 20.4.2019 for establishing

- applied for grant of Terms of Reference (ToR) pm 20.4.2019 for establishing 2x660 MW Power Project in the premises of 2x210 MW & 3x660 MW Koradi Power Plant near Village Koradi, Tehsil Kamptee, District Nagpur.
- (32.9.2) The proposal of ToR was considered by the EAC in its meeting held on 28th May, 2019. The EAC in its meeting held on 28.5.2019 recommended for a site visit by the Sub-committee to review the pollution levels in the surrounding area, emissions from the operating power plants, impact on Nagpur and Koradi towns, review the implementation of pollution control equipment, availability of land without compromising the greenbelt area.
- (32.9.3) The following members have been nominated for site visit vide Ministry's Order dated 3.7.2019:

S.No. Name

:	Dr. N.D. Shultle (Member FAC)		Chairman
1.	DI. N.F. SHUKIA (MEHIDEI EAC)	-	Chairman
ii.	Shri Gururaj Kundargi (Member EAC)	-	Member
iii.	Shri N. S. Mondal, CEA	-	Member
iv.	Dr. S.K. Paliwal, Scientist D, CPCB	-	Member
v.	Shri Suresh Kumar Adapa, Scientist D,	-	Member
	RO-MoEFCC, Nagpur		
vi.	N. Subrahmanyam, Scientist C, MoEFCC	-	Member Secretary

- (32.9.4) Shri N. S. Mondal representing CEA could not be present during the site visit. The Committee visited Koradi Power Plant & its ash ponds, Koradi Pond, Proposed Project Area, Koradi town and temple area, Khaperkheda Power Plant, Sewage Treatment Plant located near Bhadewadi, Nagpur and held meetings with Project Authorities, Locals and NGOs during 01st -3rd August, 2019.
- (32.9.5) The sub-committee has made the following observations & recommendations (*Site Visit Report: Annexure-A4*):
 - i. The land for proposed project as mentioned in the proposal 275.39 ha is not available at the site. The actual area available is in the order of 180-200 acres. The plan for demolition of existing buildings along with the total area of available for the proposed plant is to be submitted leaving the adequate space for 2x210 MW.
 - ii. The emission from the fluegas of Koradi Power Plant and Khaperkheda Power Plants are exceeding the standards. Action plan to bring it below the standards is to be submitted.
- iii. Initial installation of FGD for one unit (1x660 MW) at the time of commissioning as per the Environmental Clearance has been extended till 7.12.2017 vide Ministry vide permission dated 23.3.2017. The said permission has also given

timelines for FGD installation for remaining two units (3x660 MW). Till date FGD has not been installed. The significant progress of FGD is yet to be made and it is yet tender stage. The action on non-compliance of the Ministry permission 23.3.2017 is to be addressed by the Ministry.

- iv. Firm plan for installation of FGD for new units is to be submitted. Either installation of FGD &upgradation of ESPs is to be done or phasing out plan for older units is to be provided.
- v. Ambient Air quality in the premises of Koradi Power Plant is exceeding the national standards. The time bound action plan to bring the ambient air quality levels below the standard is to be submitted.
- vi. Effluent Treatment Plant is not functional. The effluents are mixed with ash slurry without treatment. Further, effluents along with ash is discharged into open drains. The ETP is to be made operational to avoid discharge into open drains.
- vii. There are no HDPE liners for the ash ponds of Koradi & Khaperkheda. Also no liners have been proposed for the new ash pond under installation for Khaperkheda power plant.
- viii. Ash water Recirculation unit of Koradi Ash pond be made functional.
- ix. As the ash utilisation is only about 30%, the ash utilisation plan for existing and proposed power plants shall be submitted. The plan should also include backfilling in mine voids as the power plant is surrounded by coal mines.
- x. No peizowells have been installed at the periphery of ash ponds for monitoring the ground water quality.
- xi. The details of Units which have been phased out and the units yet to be phased out. The phasing out plan for the units to be phased out should be submitted.
- xii. Tree enumeration is required for felling in the proposed area.
- xiii. Greenbelt development plan around the ash dyke of Koradi plant is to be submitted.
- xiv. The issues raised by the CPCB specifically installation of dust extraction systems at coal handling/transfer points, fugitive emissions from ash silo, improvement of road condition to the approach bund of Koradi ash pond are to be addressed on priority to control ambient air quality in the surroundings in their visit during May-June, 2017.
- (32.9.6) Committee after deliberations, suggested that Project Proponent should submit the action plan for reducing the pollution levels in the area. Accordingly, **project is deferred.**

- (32.10)1x660 MW Ennore Supercritical Thermal Power Project (Expansion), Ernavur Village, Tiruvottiyur Taluka, Thiruvallur District, Tamil Nadu by M/s Tamil Nadu Generation and Distribution Corporation Ltd (TANGEDCO)- reg. EC.
 (F.No.J-13012/15/2018-IA-I(T) & Online no. IA/TN/THE/2062/2018)
- (32.10.1) Project Proponent vide online application dated 16.08.2019 applied for grant of Environmental Clearance.

- (32.10.2) The Environmental Clearance for 1x660 MW Ennore Thermal Power Project has been accorded on 3.6.2009 which was valid for 10 years through extensions, i.e. till 2.6.2019. However, Project Proponent could not complete the construction activities and commission the project within validity period of 10 years. As informed only, 17% physical progress has achieved with an expenditure of Rs.703 Crores. When application was submitted for further extension, Ministry has advised to obtain a fresh EC. Accordingly, ToR for the above mentioned project was issued on 21.1.2019. Subsequently, amendments in ToR were issued on 1.5.2019 for using the existing baseline data and examination of alternate sites. Subsequently, the Ministry vide letter dated 10.7.2019 has exempted for conducting Public Hearing for the project.
- (32.10.3) Project Proponent along with the NABET-QCI Consultants M/s Ramky Enviro Services Pvt. Ltd. have made the presentation inter-alia submitted the following information:
 - i. The proposed power plant is to be located within the existing ETPS complex as expansion to the existing (decommissioned) units (2x60 MW & 3x110 MW).
 - ii. The nearest airport is at Chennai, which is about 26 km.
- iii. The total land available inside the ETPS complex is about 237 acres out of which 84 acres (southern side) is earmarked for the proposed ETPS expansion project. Another 6 acres is required for laying pipelines and belt conveyor for transporting water and coal.
- iv. 14 acres (16.7%) is earmarked for developing greenbelt out of total 84 acres available for the proposed project.
- v. The land available within ETPS is sufficient to accommodate this power plant of 1x660MW capacity unit, with common coal stock yard and common cooling water intake system for both proposed units (i.e.) ETPS expansion project and ETPS replacement project (1x660 MW).
- vi. Total coal requirement is 2.0 MTPA (imported coal) based on 85% PLF. TANGEDCO has signed an MOU with MMTC on 23.07.2012 for supply of imported coal over 2.0 MTPA. The coal will be brought to Ennore port by ship and further it is transported by belt conveyors up to crusher plant. The crushed coal will be brought by pipe conveyor to the project site.
- vii. The coal quality is 5805 kCal/kg, ash and sulphur contents are 6.62% and 0.53% respectively.
- viii. There is no separate external coal handling system for this project as the crushed coal from the North Chennai Thermal Power Station (NCTPS) stockyard will be transported to the ETPS through Pipe conveyors directly which is at a distance of 3 km.
- ix. The outfall and the intake locations have been located as per the detailed study by NIO, Goa. The intake pipeline and the outfall pipeline has been provided at a distance of 650m and 250m respectively from the shore. The intake and the outfall are provided at different directions from each other to avoid mixing of water. The total quantity of intake for the Replacement unit and the Expansion unit is 25000 m³/hr and the total quantity of discharge is 16000 m³/hr.
- x. The present project is based on Super-critical technology boilers.
- xi. The Tamil Nadu Coastal Zone Management Authority vide letter dated 14.8.2019 has recommended for CRZ clearance for setting up of Pipe Coal conveyor from North Chennai Power Plant to proposed Project, intake and outfall water pipelines from the sea to project site and vice versa for both this power project and another project of (1x600 MW) proposed at the same location.

- xii. For all other facilities, vacant land can be utilized. The fly ash generated from the proposed power plant would be collected in dry form and fully utilized and disposed through e-auction. The bottom ash would be disposed off in slurry form to the existing ash Pond. Existing housing colony will be renovated to accommodate the essential O & M staff of this proposed power plant.
- xiii. The daily water requirement for the project is 1,70,712 m³/day (cooling water make up: 136800 m³/day and Sea water requirement for RO: 33912 m³/day). One time requirement for Natural draft cooling tower system and Ash water system requirement is 1,01,490 m³/day.
- xiv. The present environmental regulations stipulate that the thermal power projects using sea water should meet discharge standards of maximum temperature not more than 5° C wrt to ambient seawater at release point.
- xv. Electro Static Precipitators (ESP) to control suspended particulate matter in the flue gas is proposed to limit the emission to 30mg/Nm³.Advanced combustion technology for lower emission of nitrogen dioxide is proposed to control NOX emissions in the boilers.
- xvi. To control the Sulphur dioxide emissions, Flue Gas Desulphurization (FGD) system is proposed. The design and layout of steam generator and its auxiliaries will be designed such that wet / dry FGD system can be installed.
- xvii. For proper dispersion of SO₂ emissions and to meet the MoEFCC &TNPCB guidelines, single flue RCC stack of 275m height will be provided. The chimney would be provided with personal access for regular monitoring of stack emissions. The exit velocity would be more than 22 m/sec and minimum chimney internal diameter at exit will be 7.0m.
- xviii. Closed cycle condenser cooling is envisaged with natural draft cooling tower (NDCT). Makeup water will be pumped to the circulating water sump from there is pumped to condenser and will discharge back to NDCT having cooling range of 9°C and maintaining a cycle of concentration of 1.3. The recooled water from cooling tower will be channeled to cooling water sump. Suitable arrangement for adding NaOCl to curb organic growth will be taken.
- xix. The ash pond is located near to the power plant and it is an existing ash pond. The slurry pump chain head shall be designed to enable discharge at farthest point in the dyke area up to ultimate dyke height. The ash slurry pipes will discharge into the ash pond and ash particles will settle inside the ash pond.
- xx. Ambient air quality (AAQ) monitoring is carried out during July to September 2018.LULC, Water, Noise, Soil, Ecological and Socio-economic conditions were carried out during April- May 2019.The 98thpercentile of particulate matter2.5, recorded with in the study area range of 35.6 to 58.4 μ g/m3.The 98th percentile of SO2 recorded within the study area are in the range of 12.1 μ g/m3 to 26.5 μ g/m3.The 98th Percentile of NOx recorded within the study area was in the range of 20.8 to 38.5 μ g/m3.The 98th percentile of O3 recorded within the study area mas in the range of 28.3 to 50.8 μ g/m3.
- xxi. The 98thpercentile of particulate matter PM10, recorded with in the study area in the range of 74.8 to 98.5 μg/m3.
- xxii. Ground water results in the study area pH: 7.0-7.8 (standard: 6.5 to 8.5); Total dissolved solids: 462- 2545 mg/l (Standard: 500 mg/l&2000 mg/l in absence of alternate sourc); Chlorides: 120-762 mg/l (Standard: 250 mg/l & 1000 mg/l); Hardness: 295- 983 mg/l (Acceptable limit: 200 mg/l & permissible: 600 mg/l); Fluoride: <0.5- 1.6 mg/l (Acceptable limit: 1 mg/l &permissible limit: 1.5 mg/l).
- xxiii. Surface water quality in the study area, pH: 6.9-8.2; TDS: 1850-39417 mg/l;Chloride: 604- 19134 mg/l; Hardness: 413- 4817 mg/l; Fluoride: 0.94-1.5 mg/l.

- xxiv. Day equivalent noise levels (dB (A)) are in the range for Industrial area 57.6-62.4; Commercial area:55.7-62.2; Residential area: 53.8-54.8; Silence zone: 49.8-49.9 whereas in night noise levels: Industrial area 44.1-45.3; Commercial area: 43.8-44.7; Residential area: 42.8-43.5; Silence zone: 39.8-39.9. Noise values in the study area are within the Noise Pollution Rules 2000.
- xxv. There are one perennial water body i.e: Kosasthaliya River at above 500mm(W) and several small village/irrigation tanks Peeriyathoppu lake 6.1km(SW), Kadapakkam lake 5.4km(SW) Buckingham Canal adjacent (W), Bay of Bengal 0.8km(E), like in the 10km study area. There is no reservoir either in the core or buffer zone. There are no protected wetlands or other ecologically sensitive wetlands within the 10 km radius of the study area. As such, the area is not important from the point of aquatic ecology.
- xxvi. During the study period (July to September 2018), the winds were predominantly recorded from SW closely followed by WSW. Calm conditions prevailed for 2.38 % of the total time and the average wind speed for the season is 2.85 m/sec.
- xxvii. The natural drainage of the study area is consisting of streams, drains, Buckingham Canal, Kosasthaliyar River and Bay of Bengal. Bay of Bengal is about 815 m away from the project site towards East. These streams, drains and canal are found throughout the study area. The drainage system is showing sub-dendritic drainage pattern. The streams are flowing through the study area finally flowing towards Kosasthaliyar river.
- xxviii. Depth to Ground Water Level in the study area varies between 3.5-25.0m bgl. The seasonal fluctuation shows a rise between 0.28- 4.80 mbgl.

xxix.	The incremental air quality concentrations predicted through plume dispersion
	modeling are as below:

Scenario	Cumulative concentrations ($\mu g/m^3$)				
	PM_{10}	SO_2	NO _X		
Without FGD					
Baseline air	98.5	26.5	38.5		
quality					
Predicted Ground	0.64	54.2	2.9		
level		(without FGD)			
concentrations					
Total ground level	99.14	80.7	41.4		
concentrations					
(Baseline+					
incremental)					
With FGD					
Predicted GLC	-	2.7	-		
with FGD					
Total Ground	-	29.2	-		
Level					
concentrations					
National	100	80	80		
Standards					

- xxx. Capital Cost and recurring cost of EMP is Rs.977 Crores and Rs.98 Crores respectively.
- xxxi. It has been proposed to incur Rs. 500 Crores towards installation of FGD (Flue Gas Desulfurization) and SCR (Selective Catalytic Reduction) to comply the

latest emission norms. The additional Greenbelt endowment fund of Rs. 1.0 Crore has been allocated for greenbelt development.

- xxxii. The Company shall earmark the fund of Rs. 13.65 Crores (0.25% of project cost) for CER which shall be utilized over a period of 3 years.
- xxxiii. The total area under greenbelt, block plantations and avenue plantations including the existing plantations shall not be less than 28 acres (14 acres within site & 14 acres outside boundary) which is about 33% of total area. Capital outlay of Rs.68 Lakhs/annum and maintenance of Rs. 5 Lakhs have been earmarked for developing greenbelt.
- xxxiv. Estimated Project is Rs.5, 421.38 Crores. Manpower required during construction phase is 2100 and during operation phase is 550.
 - (32.10.3) Committee noted that the proposed project is to be established in 84 acres. Further, Project Proponent is planning to use the ash pond of the existing power plant. However, the details of the ash pond such as area, location, connecting pipelines, dyke height, status of liner, total volume of the ash pond and volume available have not been mentioned in the EIA reportIt has been mentioned that sea water will be used for ash slurry mixing and disposal. Whether ground water monitoring has been carried out around the ash pond area and there are any villages/habitations near the ash pond area. Details regarding whether the ash pond and connecting discharge pipelines and ash water recirculation pipelines from power plant to ash pond & vice-versa are falling in the CRZ area are not available. The CRZ maps prepared by IRS Chennai show that the some portion of the ash pond is also falling in the CRZ area and the pipelines to ash pond are crossing the creek which also has some mangroves and buffer in CRZ area. Ash pond is not permitted in the CRZ area as per the CRZ Notification. Letter of TNCZMA recommendations for CRZ clearance mentions only coal conveyor, intake and outfall discharge pipelines. As the construction has progressed up to 17%, details regarding whether the orders for FGD installation have been placed or not are to be furnished. The baseline ambient air quality for PM10 at two locations is touching the national standard of 100 μ g/m³ (Athipattu: 96 μ g/m³ and North Chennai: 98.5 μ g/m³). Further, 98% percentile value of PM10 at the project site is also high (86 $\mu g/m^3$). Further the total baseline concentrations including the incremental pollution due to project is 99.14 $\mu g/m^3$ which is also touching the National standard of 100 μ g/m³. The greenbelt proposed in the plant area is only 14 acres which is approximately 17%. It has been mentioned that another 14 acres will be identified for achieving greenbelt of 33% of the total project area. The details of 14 acres identified for additional greenbelt are not available in the EIA report. While considering the total project area, the area of ash pond should also be considered for calculating 33% greenbelt area. Further, Public Hearing has been exempted. However, TNPCB has not furnished any letter that whether any comments have been received from public after uploading the EIA reports. Committee further noted that the proposal has been submitted on 16.8.2019 as TNCZMA recommendations were given on 14.8.2019. The length of pipelines from the project site to intake/discharge point should also be provided. The CRZ Division in the Ministry has been sought for recommendations on CRZ angle which are yet to come. As per the Ministry Circular dated 19.1.2015, the proposals involving CRZ component is to be discussed in the EAC after obtaining comments from CRZ Division.

(32.10.4) Committee after deliberations, suggested that a reply to the observations made above should be submitted. Meanwhile, the recommendations of CRZ Division in the Ministry also be placed for appraisal on CRZ angle. Accordingly, **the proposal is deferred**.

As there being no agenda item left, the meeting ended with a vote of thanks to the Chair.

Terms of Reference (TOR):

- i) The proposed project shall be given a unique name in consonance with the name submitted to other Government Departments etc. for its better identification and reference.
- ii) Vision document specifying prospective long term plan of the project shall be formulated and submitted.
- iii) Latest compliance report duly certified by the Regional Office of MoEF& CC for the conditions stipulated in the environmental and CRZ clearances of the previous phase(s) for the expansion projects shall be submitted.
- iv) The project proponent needs to identify minimum three potential sites based on environmental, ecological and economic considerations, and choose one appropriate site having minimum impacts on ecology and environment. A detailed comparison of the sites in this regard shall be submitted.
- v) Executive summary of the project indicating relevant details along with recent photographs of the proposed site (s) shall be provided. Response to the issues raised during Public Hearing and the written representations (if any), along with a time bound Action Plan and budgetary allocations to address the same, shall be provided in a tabular form, against each action proposed.
- vi) Harnessing solar power within the premises of the plant particularly at available roof tops and other available areas shall be formulated and for expansion projects, status of implementation shall also be submitted.
- vii) The geographical coordinates (WGS 84) of the proposed site (plant boundary), including location of ash pond along with topo sheet (1:50,000 scale) and IRS satellite map of the area, shall be submitted. Elevation of plant site and ash pond with respect to HFL of water body/nallah/River and high tide level from the sea shall be specified, if the site is located in proximity to them.
- viii) Layout plan indicating break-up of plant area, ash pond, green belt, infrastructure, roads etc. shall be provided.
- ix) Land requirement for the project shall be optimized and in any case not more than what has been specified by CEA from time to time. Item wise break up of land requirement shall be provided.
- Present land use (including land class/kism) as per the revenue records and State Govt. records of the proposed site shall be furnished. Information on land to be acquired including coal transportation system, laying of pipeline, ROW, transmission lines etc. shall be specifically submitted. Status of land acquisition and litigation, if any, should be provided.
- xi) If the project involves forest land, details of application, including date of application, area applied for, and application registration number, for diversion under FCA and its status should be provided along with copies of relevant documents.
- xii) The land acquisition and R&R scheme with a time bound Action Plan should be formulated and addressed in the EIA report.
- xiii) Satellite imagery and authenticated topo sheet indicating drainage, cropping pattern, water bodies (wetland, river system, stream, nallahs, ponds etc.), location of nearest habitations (villages), creeks, mangroves, rivers, reservoirs etc. in the study area shall be provided.
- xiv) Location of any National Park, Sanctuary, Elephant/Tiger Reserve (existing as well as proposed), migratory routes / wildlife corridor, if any, within 10 km of the project site shall be specified and marked on the map duly authenticated by the Chief Wildlife Warden of the State or an officer authorized by him.

- Topography of the study area supported by toposheet on 1:50,000 scale of Survey of India, along with a large scale map preferably of 1:25,000 scale and the specific information whether the site requires any filling shall be provided. In that case, details of filling, quantity of required fill material; its source, transportation etc. shall be submitted.
- xvi) A detailed study on land use pattern in the study area shall be carried out including identification of common property resources (such as grazing and community land, water resources etc.) available and Action Plan for its protection and management shall be formulated. If acquisition of grazing land is involved, it shall be ensured that an equal area of grazing land be acquired and developed and detailed plan submitted.
- xvii) A mineralogical map of the proposed site (including soil type) and information (if available) that the site is not located on potentially mineable mineral deposit shall be submitted.
- xviii) Details of fly ash utilization plan as per the latest fly ash Utilization Notification of GOI along with firm agreements / MoU with contracting parties including other usages etc. shall be submitted. The plan shall also include disposal method / mechanism of bottom ash.
- xix) The water requirement shall be optimized (by adopting measures such as dry fly ash and dry bottom ash disposal system, air cooled condenser, concept of zero discharge) and in any case not more than that stipulated by CEA from time to time, to be submitted along with details of source of water and water balance diagram. Details of water balance calculated shall take into account reuse and re-circulation of effluents.
- xx) Water body/Nallah (if any) passing across the site should not be disturbed as far as possible. In case any Nallah / drain is proposed to be diverted, it shall be ensured that the diversion does not disturb the natural drainage pattern of the area. Details of proposed diversion shall be furnished duly approved by the concerned Department of the State.
- xxi) It shall also be ensured that a minimum of 500 m distance of plant boundary is kept from the HFL of river system / streams etc. and the boundary of site should also be located 500 m away from railway track and National Highways.
- xxii) Hydro-geological study of the area shall be carried out through an institute/ organization of repute to assess the impact on ground and surface water regimes. Specific mitigation measures shall be spelt out and time bound Action Plan for its implementation shall be submitted.
- xxiii) Detailed Studies on the impacts of the ecology including fisheries of the River/Estuary/Sea due to the proposed withdrawal of water / discharge of treated wastewater into the River/Sea etc shall be carried out and submitted along with the EIA Report. In case of requirement of marine impact assessment study, the location of intake and outfall shall be clearly specified along with depth of water drawl and discharge into open sea.
- xxiv) Source of water and its sustainability even in lean season shall be provided along with details of ecological impacts arising out of withdrawal of water and taking into account inter-state shares (if any). Information on other competing sources downstream of the proposed project and commitment regarding availability of requisite quantity of water from the Competent Authority shall be provided along with letter / document stating firm allocation of water.
- xxv) Detailed plan for rainwater harvesting and its proposed utilization in the plant shall be furnished.
- xxvi) Feasibility of near zero discharge concept shall be critically examined and its details submitted.

- xxvii) Optimization of Cycles of Concentration (COC) along with other water conservation measures in the project shall be specified.
- xxviii) Plan for recirculation of ash pond water and its implementation shall be submitted.
- xxix) Detailed plan for conducting monitoring of water quality regularly with proper maintenance of records shall be formulated. Detail of methodology and identification of monitoring points (between the plant and drainage in the direction of flow of surface / ground water) shall be submitted. It shall be ensured that parameter to be monitored also include heavy metals. A provision for long-term monitoring of ground water table using Piezometer shall be incorporated in EIA, particularly from the study area.
- xxx) Socio-economic study of the study area comprising of 10 km from the plant site shall be carried out through a reputed institute / agency which shall consist of detail assessment of the impact on livelihood of the local communities.
- xxxi) Action Plan for identification of local employable youth for training in skills, relevant to the project, for eventual employment in the project itself shall be formulated and numbers specified during construction & operation phases of the Project.
- xxxii) If the area has tribal population it shall be ensured that the rights of tribals are well protected. The project proponent shall accordingly identify tribal issues under various provisions of the law of the land.
- xxxiii) A detailed CSR plan along with activities wise break up of financial commitment shall be prepared. CSR component shall be identified considering need based assessment study and Public Hearing issues. Sustainable income generating measures which can help in upliftment of affected section of society, which is consistent with the traditional skills of the people shall be identified. Separate budget for community development activities and income generating programmes shall be specified.
- xxxiv) While formulating CSR schemes it shall be ensured that an in-built monitoring mechanism for the schemes identified are in place and mechanism for conducting annual social audit from the nearest government institute of repute in the region shall be prepared. The project proponent shall also provide Action Plan for the status of implementation of the scheme from time to time and dovetail the same with any Govt. scheme(s). CSR details done in the past should be clearly spelt out in case of expansion projects.
- xxxv) R&R plan, as applicable, shall be formulated wherein mechanism for protecting the rights and livelihood of the people in the region who are likely to be impacted, is taken into consideration. R&R plan shall be formulated after a detailed census of population based on socio economic surveys who were dependant on land falling in the project, as well as, population who were dependant on land not owned by them.
- xxxvi) Assessment of occupational health and endemic diseases of environmental origin in the study area shall be carried out and Action Plan to mitigate the same shall be prepared.
- xxxvii) Occupational health and safety measures for the workers including identification of work related health hazards shall be formulated. The company shall engage full time qualified doctors who are trained in occupational health. Health monitoring of the workers shall be conducted at periodic intervals and health records maintained. Awareness programme for workers due to likely adverse impact on their health due to working in nonconducive environment shall be carried out and precautionary measures like

use of personal equipments etc. shall be provided. Review of impact of various health measures undertaken at intervals of two to three years shall be conducted with an excellent follow up plan of action wherever required.

- xxxviii) One complete season site specific meteorological and AAQ data (except monsoon season) as per latest MoEF Notification shall be collected and the dates of monitoring shall be recorded. The parameters to be covered for AAQ shall include PM_{10} , $PM_{2.5}$, SO_2 , NO_x , CO and Hg. The location of the monitoring stations should be so decided so as to take into consideration of the upwind direction, pre-dominant downwind direction, other dominant directions, habitation and sensitive receptors. There should be at least one monitoring station each in the upwind and in the pre-dominant downwind direction is likely to occur.
- xxxix) In case of expansion project, air quality monitoring data of 104 observations a year for relevant parameters at air quality monitoring stations as identified/stipulated shall be submitted to assess for compliance of AAQ Standards (annual average as well as 24 hrs).
- xl) A list of industries existing and proposed in the study area shall be furnished.
- xli) Cumulative impacts of all sources of emissions including handling and transportation of existing and proposed projects on the environment of the area shall be assessed in detail. Details of the Model used and the input data used for modeling shall also be provided. The air quality contours should be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any. The windrose and isopleths should also be shown on the location map. The cumulative study should also include impacts on water, soil and socio-economics.
- xlii) Radio activity and heavy metal contents of coal to be sourced shall be examined and submitted along with laboratory reports.
- xliii) Fuel analysis shall be provided. Details of auxiliary fuel, if any, including its quantity, quality, storage etc should also be furnished.
- xliv) Quantity of fuel required, its source and characteristics and documentary evidence to substantiate confirmed fuel linkage shall be furnished. The Ministry's Notification dated 02.01.2014 regarding ash content in coal shall be complied. For the expansion projects, the compliance of the existing units to the said Notification shall also be submitted
- xlv) Details of transportation of fuel from the source (including port handling) to the proposed plant and its impact on ambient AAQ shall be suitably assessed and submitted. If transportation entails a long distance it shall be ensured that rail transportation to the site shall be first assessed. Wagon loading at source shall preferably be through silo/conveyor belt.
- xlvi) For proposals based on imported coal, inland transportation and port handling and rail movement shall be examined and details furnished. The approval of the Port and Rail Authorities shall be submitted.
- xlvii) Details regarding infrastructure facilities such as sanitation, fuel, restrooms, medical facilities, safety during construction phase etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase should be adequately catered for and details furnished.
- xlviii) EMP to mitigate the adverse impacts due to the project along with item wise cost of its implementation in a time bound manner shall be specified.
- xlix) A Disaster Management Plan (DMP) along with risk assessment study including fire and explosion issues due to storage and use of fuel should be

carried out. It should take into account the maximum inventory of storage at site at any point of time. The risk contours should be plotted on the plant layout map clearly showing which of the proposed activities would be affected in case of an accident taking place. Based on the same, proposed safeguard measures should be provided. Measures to guard against fire hazards should also be invariably provided. Mock drills shall be suitably carried out from time to time to check the efficiency of the plans drawn.

- 1) The DMP so formulated shall include measures against likelv Fires/Tsunami/Cyclones/Storm Surges/Earthquakes etc, as applicable. It shall be ensured that DMP consists of both On-site and Off-site plans, complete with details of containing likely disaster and shall specifically mention personnel identified for the task. Smaller version of the plan for different possible disasters shall be prepared both in English and local languages and circulated widely.
- Detailed scheme for raising green belt of native species of appropriate width li) (50 to 100 m) and consisting of at least 3 tiers around plant boundary with tree density of 2000 to 2500 trees per ha with a good survival rate of around 80% shall be submitted. Photographic evidence must be created and submitted periodically including NRSA reports in case of expansion projects. A shrub layer beneath tree layer would serve as an effective sieve for dust and sink for CO_2 and other gaseous pollutants and hence a stratified green belt should be developed.
- Over and above the green belt, as carbon sink, plan for additional plantation lii) shall be drawn by identifying blocks of degraded forests, in close consultation with the District Forests Department. In pursuance to this the project proponent shall formulate time bound Action Plans along with financial allocation and shall submit status of implementation to the Ministry every six months.
- liii) Corporate Environment Policy
 - a. Does the company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.
 - b. Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.
 - c. What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions. Details of this system may be given.
 - d. Does the company has compliance management system in place wherein compliance status along with compliances / violations of environmental norms are reported to the CMD and the Board of Directors of the company and / or shareholders or stakeholders at large? This reporting mechanism should be detailed in the EIA report.

All the above details should be adequately brought out in the EIA report and in the presentation to the Committee.

Details of litigation pending or otherwise with respect to project in any Court, liv) Tribunal etc. shall invariably be furnished.

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Standard EC Conditions for Thermal Power Sector:

A. Statutory compliance:

- Emission Standards for Thermal Power Plants as per Ministry's Notification S.O. 3305(E) dated 7.12.2015, G.S.R.593(E) dated 28.6.2018 and as amended from time to time shall be complied.
- 2. Part C of Schedule II of Municipal Solid Wastes Rules, 2016 dated 08.04.2016 as amended from time to time shall be complied for power plants based on Municipal Solid Waste.
- 3. MoEF&CC Notification G.S.R 02(E) dated 2.1.2014 as amended time to time regarding use of raw or blended or beneficiated/washed coal with ash content not exceeding 34% shall be complied with, as applicable.
- MoEF&CC Notifications on Fly Ash Utilization S.O. 763(E) dated 14.09.1999, S.O. 979(E) dated 27.08.2003, S.O. 2804(E) dated 3.11.2009, S.O. 254(E) dated 25.01.2016 as amended from time to time shall be complied.
- 5. Thermal Power Plants other than the power plants located on coast and using sea water for cooling purposes, shall achieve specific water consumption of 2.5 m³/MWh and Zero effluent discharge.
- 6. The recommendation from Standing Committee of NBWL under the Wildlife (Protection) Act, 1972 should be obtained, if applicable.
- 7. No Objection Certificate from Ministry of Civil Aviation be obtained for installation of requisite chimney height and its siting criteria for height clearance.
- 8. Groundwater shall not be drawn during construction of the project. In case, groundwater is drawn during construction, necessary permission be obtained from CGWA.

B. Ash content/ mode of transportation of coal:

1. EC is given on the basis of assumption of ___% of ash content and ___km distance of transportation in rail/road/conveyor/any other mode. Any increase of %ash content by more than 1 percent, and/or any change in transportation mode or increase in the transport distance (except for rail) require application for modifications of EC conditions after conducting the 'incremental impact assessment' and proposal for mitigation measures.

C. Air quality monitoring and Management:

- 1. Flue Gas Desulphurisation System shall be installed based on Lime/Ammonia dosing to capture Sulphur in the flue gases to meet the SO_2 emissions standard of 100 mg/Nm³.
- 2. Selective Catalytic Reduction (SCR) system or the Selective Non-Catalytic Reduction (SNCR) system or Low NOX Burners with Over Fire Air (OFA) system shall be installed to achieve NO_X emission standard of 100 mg/Nm³.

- 3. High efficiency Electrostatic Precipitators (ESPs) shall be installed in each unit to ensure that particulate matter (PM) emission to meet the stipulated standards of 30 mg/Nm³.
- 4. Stacks of prescribed height ____m shall be provided with continuous online monitoring instruments for SO_x, NOx and Particulate Matter as per extant rules.
- 5. Exit velocity of flue gases shall not be less than 20-25 m/s. Mercury emissions from stack shall also be monitored periodically.
- 6. Continuous Ambient Air Quality monitoring system shall be set up to monitor common/criteria pollutants from the flue gases such as PM₁₀, PM_{2.5}, SO₂, NO_x within the plant area at least at one location. The monitoring of other locations (at least three locations outside the plant area covering upwind and downwind directions at an angle of 120° each) shall be carried out manually.
- 7. Adequate dust extraction/suppression system shall be installed in coal handling, ash handling areas and material transfer points to control fugitive emissions.
- 8. Appropriate Air Pollution Control measures (DEs/DSs) be provided at all the dust generating sources including sufficient water sprinkling arrangements at various locations viz., roads, excavation sites, crusher plants, transfer points, loading and unloading areas, etc.

D. Noise pollution and its control measures:

- 1. The Ambient Noise levels shall meet the standards prescribed as per the Noise Pollution (Regulation and Control) Rules, 2000.
- 2. Persons exposed to high noise generating equipment shall use Personal Protective Equipment (PPE) like earplugs/ear muffs, etc.
- 3. Periodical medical examination on hearing loss shall be carried out for all the workers and maintain audiometric record and for treatment of any hearing loss including rotating to non-noisy/less noisy areas.

E. Human Health Environment:

- 1. Bi-annual Health check-up of all the workers is to be conducted. The study shall take into account of chronic exposure to noise which may lead to adverse effects like increase in heart rate and blood pressure, hypertension and peripheral vasoconstriction and thus increased peripheral vascular resistance. Similarly, the study shall also assess the health impacts due to air polluting agents.
- 2. Baseline health status within study area shall be assessed and report be prepared. Mitigation measures should be taken to address the endemic diseases.
- 3. Impact of operation of power plant on agricultural crops, large water bodies (as applicable) once in two years by engaging an institute of repute. The study shall also include impact due to heavy metals associated with emission from power plant.
- 4. Sewage Treatment Plant shall be provided for domestic wastewater.
F. Water quality monitoring and Management:

- Induced/Natural draft closed cycle wet cooling system including cooling towers shall be set up with minimum Cycles of Concentration (COC) of 5.0 or above for power plants using fresh water to achieve specific water consumption of 2.5 m³/MWhr. (Or) Induced/Natural draft open cycle cooling system shall be set up with minimum Cycles of Concentration (COC) of 1.5 or above for power plants using sea water.
- 2. In case of the water withdrawal from river, a minimum flow 15% of the average flow of 120 consecutive leanest days should be maintained for environmental flow whichever is higher, to be released during the lean season after water withdrawal for proposed power plant.
- 3. Records pertaining to measurements of daily water withdrawal and river flows (obtained from Irrigation Department/Water Resources Department) immediately upstream and downstream of withdrawal site shall be maintained.
- 4. Rainwater harvesting in and around the plant area be taken up to reduce drawl of fresh water. If possible, recharge of groundwater to be undertaken to improve the ground water table in the area.
- 5. Regular (at least once in six months) monitoring of groundwater quality in and around the ash pond area including presence of heavy metals (Hg, Cr, As, Pb, etc.) shall be carried out as per CPCB guidelines. Surface water quality monitoring shall be undertaken for major surface water bodies as per the EMP. The data so obtained should be compared with the baseline data so as to ensure that the groundwater and surface water quality is not adversely impacted due to the project & its activities.
- 6. The treated effluents emanating from the different processes such as DM plant, boiler blow down, ash pond/dyke, sewage, etc. conforming to the prescribed standards shall be re-circulated and reused. Sludge/ rejects will be disposed in accordance with the Hazardous Waste Management Rules.
- 7. Hot water dispensed from the condenser should be adequately cooled to ensure the temperature of the released surface water is not more than 5 degrees Celsius above the temperature of the intake water.
- 8. Based on the commitment made by the Project Proponent, Sewage Treatment Plants within the radius of 50 km from proposed project, the treated sewage ofKLD from STP (name) shall be used as an alternative to the fresh water source to minimize the fresh water drawl from surface water bodies.
- 9. Wastewater generation ofKLD from various sources (viz. cooling tower blowdown, boiler blow down, wastewater from ash handling, etc) shall be treated to meet the standards of pH: 6.5-8.5; Total Suspended Solids: 100 mg/l; Oil & Grease: 20 mg/l; Copper: 1 mg/l; Iron:1 mg/l; Free Chlorine: 0.5; Zinc: 1.0 mg/l; Total Chromium: 0.2 mg/l; Phosphate: 5.0 mg/l;
- 10.Sewage generation ofKLD will be treated by setting up Sewage Treatment plant to maintain the treated sewage characteristics of pH: 6.5-9.0; Bio-Chemical Oxygen Demand (BOD): 30 mg/l; Total Suspended Solids: 100 mg/l; Fecal Coliforms (Most Probable Number): <1000 per 100 ml.</p>

G. Risk Mitigation and Disaster Management:

- 1. Adequate safety measures and environmental safeguards shall be provided in the plant area to control spontaneous fires in coal yard, especially during dry and humid season.
- 2. Storage facilities for auxiliary liquid fuel such as LDO and HFO/LSHS shall be made as per the extant rules in the plant area in accordance with the directives of Petroleum & Explosives Safety Organisation (PESO). Sulphur Content in the liquid fuel should not exceed 0.5%.
- 3. Ergonomic working conditions with First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.
- 4. Safety management plan based on Risk Assessment shall be prepared to limit the risk exposure to the workers within the plant boundary.
- 5. Regular mock drills for on-site emergency management plan and Integrated Emergency Response System shall be developed for all kind of possible disaster situations.

H. Green belt and Biodiversity conservation:

- 1. Green belt shall be developed in an area of 33% of the total project with indigenous native tree species in accordance with CPCB guidelines. The green belt shall interalia cover an entire periphery of the plant.
- 2. *In-situ/ex-situ* Conservation Plan for the conservation of flora and fauna should be prepared and implemented.
- 3. Suitable screens shall be placed across the intake channel to prevent entrainment of life forms including eggs, larvae, juvenile fish, etc., during extraction of seawater.

I. Waste management:

- 1. Solid waste management should be planned in accordance with extant Solid Waste Management Rules, 2016.
- 2. Toxicity Characteristic Leachate Procedure (TCLP) test shall be conducted for any substance, potential of leaching heavy metals into the surrounding areas as well as into the groundwater.
- 3. Ash pond shall be lined with impervious liner as per the soil conditions. Adequate dam/dyke safety measures shall also be implemented to protect the ash dyke from getting breached.
- 4. Fly ash shall be collected in dry form and ash generated shall be used in phased manner as per provisions of the Notification on Fly Ash Utilization issued by the Ministry and amendment thereto. By the end of 4th year, 100% fly ash utilization should be ensured. Unutilized ash shall be disposed off in the ash pond in the form of High Concentration Slurry. Mercury and other heavy metals (As, Hg, Cr, Pb, etc.) will be monitored in the bottom ash as also in the effluents emanating from the existing ash pond. Flyash utilization details shall be submitted to concerned Regional Office along with the six-monthly compliance reports and utilization data shall be published on company's website.

- 5. Unutilized ash shall be disposed off in the ash pond in the form of High Concentration Slurry/Medium Concentration Slurry/Lean Concentration Slurry method. Ash water recycling system shall be set up to recover supernatant water.
- 6. In case of waste-to-energy plant, major problems related with environment are fire smog in MSW dump site, foul smell and impacts to the surrounding populations. Therefore, the following measures are required to be taken up:
 - i) Water hydrant at all the dumpsites of MSW area to be provided so that the fire and smog could be controlled.
 - ii) Sprayer like microbial consortia may be provided for arresting the foul smell emanating from MSW area.

J. Monitoring of compliance:

- 1. Environmental Audit of the project be taken up by the third party for preparation of Environmental Statement as per Form-V & Conditions stipulated in the EC and report be submitted to the Ministry.
- 2. Resettlement & Rehabilitation Plan as per the extant rules of Govt. of India and respective State Govt. shall be followed, if applicable.
- 3. Energy Conservation Plan to be implemented as envisaged in the EIA / EMP report. Renewable Energy Purchase Obligation as set by MoP/State Government shall be met either by establishing renewable energy power plant (such as solar, wind, etc.) or by purchasing Renewable Energy Certificates.
- 4. Monitoring of Carbon Emissions from the existing power plant as for the proposed power project shall be carried out annually from a reputed institute and report be submitted to the Ministry's Regional Office.
- 5. Energy and Water Audit shall be conducted at least once in two years and recommendations arising out of the Report should be followed. A report in this regard shall be submitted to Ministry's Regional Office.
- 6. Environment Cell (EC) shall be constituted by taking members from different divisions, headed by a qualified person on the subject, who shall be reporting directly to the Head of the Project.
- 7. The project proponent shall (Post-EC Monitoring):
 - a. send a copy of environmental clearance letter to the heads of Local Bodies, Panchayat, Municipal bodies and relevant offices of the Government;
 - b. upload the clearance letter on the web site of the company as a part of information to the general public.
 - c. inform the public through advertisement within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment, Forest and Climate Change (MoEF&CC) at http://parviesh.nic.in.

- d. upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same periodically;
- e. monitor the criteria pollutants level namely; PM ($PM_{10} \& PM_{2.5}$ incase of ambient AAQ), SO₂, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company;
- f. submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MoEF&CC, the respective Zonal Office of CPCB and the SPCB;
- g. submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company;
- h. inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project and the date of commencement of the land development work.

K. Corporate Environmental Responsibility (CER) activities:

1. CER activities will be carried out as per OM No. 22-65/2017-IA.II dated 01.05.2018 or as proposed by the PP in reference to Public Hearing or as earmarked in the EIA/EMP report along with the detailed scheduled of implementation with appropriate budgeting.

L. Marine facilities:

- 1. As the seawater intake systems are required for the plant fall in CRZ area, recommendations from State Coastal Zone Management Authority (SCZMA) as per CRZ Notification shall be implemented.
- 2. Marine intake and outfall pipelines shall be located as per the recommendations State Coastal Zone Management Authority (SCZMA).

M. Sea Water Intake:

- 1. Seawater intake system shall be so designed and constructed to ensure sufficient sweater in terms of quantity and quality.
- 2. The withdrawal of seawater shall be preferably through a pipeline with a riser equipped with a velocity cap arrangement and bar screen to arrest the impingement of large marine organisms.
- 3. In all tide conditions (particularly at spring low tides) the riser head must be flooded with the required submergence of seawater above its top.

N. Effluent Release:

1. At the effluent release point, maximum temperature of the discharge water shall not be more than 5°C and salinity shall not exceed 50 ppt with respect to that of the ambient seawater.

- 2. Use of antifouling agents like chlorine / hypochlorite, shall be carefully controlled. The chlorine concentration shall not exceed 0.2 ppm at the effluent release point.
- 3. The effluent when released at the selected location shall attain sufficient dilution so that near ambient water quality (particularly temperature and salinity) is attained within 500 m from the release location, at low tide.
- 4. The location of the diffuser shall be marked with a solar lighted buoy to avoid accidents.
- 5. The site selected based on mathematical modeling shall ensure absence of recirculation of the effluent plume in the seawater intake area under all tidal conditions.
- 6. The effluent shall be released through a properly designed multiport diffuser above the seabed to facilitate its efficient initial mixing with the receiving seawater.
- 7. Efficacy of the diffuser shall be ascertained at least once in 2 years through scientific studies and corrective actions such as cleaning of the diffuser from marine growth, removal of silt deposits, etc. shall be taken up, if warranted.
- 8. Continuous online monitoring system for Temperature and Salinity shall be installed to monitor the quality of effluent.

O. Common to intake and effluent:

- 1. The pipeline shall be buried below the seabed at a depth to ensure its stability under rough sea conditions particularly during cyclone / tsunami. The depth of burial will depend on the seafloor strata but normally the top of the pipeline shall be at least 1 m below the bed level. In the surf and intertidal zones, the pipeline shall be buried below the maximum scour level.
- 2. In case of open channel, the channel shall be constructed as per the recommendations of State Coastal Zone Management Authority (SCZMA).
- 3. If the substratum is rocky the pipeline may be anchored to the rock provided the geology of the area satisfactorily supports the structure which shall be ascertained through geo-technical investigations.
- 4. Exposed pipeline section and riser shall be protected by armour stone from waves, boats anchoring, fishing activities etc.
- 5. The location of the riser & diffuser shall be marked with a solar lighted buoy to avoid accidents from boats.
- 6. Marine / Sea water quality shall be monitored at effluent release location at the center. Parameters to be monitored shall be as follows:
 - a. *Physico-chemical:* Temperature, Salinity, pH and Dissolved Oxygen.
 - b. *Biological:* Primary Productivity, Phytoplankton (Chlorophyll a, Phaeophytin, Population, Species), Zooplankton (Biomass, Population, Species) and Benthos (Biomass, Population, Species).
- 7. In case of Coastal Power Plants, the Mangrove plantation shall be taken up in an area ofha, along the coast/ on the banks of Estuary.

Site visit report of the proposed Expansion of 726.6 MW (Units-3&4: 2x363.3 MW) Gas Based Power Project at village Palatana, Tehsil Kakraban, Gomti District, Tripura by M/s ONGC Tripura Power Company Ltd.

Background:

During 27th meeting of the EAC for Thermal Power Project held on 26.04.2019 at Ministry of Environment, Forest and Climate Change, New Delhi, it was decided by the EAC that a Sub-committee consisting of five Member committee could be constituted, which shall visit the project site of the proposed 2x363.3 MW Gas based Power project at village Palatana, Tehsil Kakraban, Gomti District, Tripura by M/s ONGC Tripura Power Company Ltd. The Sub-committee would consisting of following members to address the issues related environmental sensitivity such as forests, adequacy of greenbelt, presence of endangered biodiversity and wildlife, socio-economic conditions, emissions and effluent discharge, etc.

i.Dr. Navin Chandra	~	Chairman
ii. Shri Gururaj Kundargi	-	Member
iii. Shri Mohan Karnat	-	Member
iv. Shri Manjari Srivastava	-	Member
v. Shri N. S. Mondal, CEA	-	Member
vi.Representative of MoEF & CC	-	Member Secretary.

The Sub-committee was duly approved by the Competent Authority vide Ministry's Office Order No. J-13012/02/2007-IA.I (T), dated 03.06.2019. The Sub-committee visited the project site on 28-30.07.2019. Dr. S. Kerketta, Director-IA.I had represented the Ministry during the site visit of the Sub-committee. The Sub-committee visited the Power House, ETP, Chemical Laboratory, proposed plant site, Gas Storage Area, Siphai Jala Wildlife Sanctaury, Trishna Wildlife Sanctuary, etc. were visited.

Discussion was held with the PP at the project site and *inter-alia*, the PP intimated the following to the Sub-committee:

The Environmental Clearance for existing 2x363.3 MW has been issued vide Ministry's letter dated 07.02.2007 and the the Unit#1 has been commissioned on 04.01.2014 and Unit#2 has been commissioned on 24.03.2015. Now, two units of 363.3 MW have

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been planned at the existing location of the power project for which the Terms of Reference has been issued by the Ministry vide letter dated 06.04.2017. The project is based on Combined Cycle Gas Turbine which generates electricity and the waste heat is used to generate steam to produce additional electricity via steam turbine. There is no requirement of additional land for setting up of the proposed Gas based Power Project. The existing land of the project site is 197.15 acres, out of which 193.66 acres is forestland and 3.49 acres is private land. Stage-II Forest Clearance has already been obtained for diversion of forestland on 25.04.2006. The existing plant has been set up in 164.05 acres and the proposed project will be set up in an area of 33.1 acres. Besides, the PP has acquired 8.24 acres of land for laying raw water pipeline corridor and 2.21 acres for the purpose of boundary straightening of the plant. The project boundary is located within 10 km radius of Trishna Wildlife Sanctuary. Cost of the project is Rs.3,580 Crores. The Cost of EMP during Construction and Operation shall be Rs.19.69 crores and Rs.6.32 Crores, respectively. Existing manpower is 155 persons. Approximately 500 personnel will be engaged during construction phase and 235 personnels will be engaged during operation phase.

The fuel for the proposed project is Natural Gas. MoPNG has allocated 5.0 Million Metric Standard Cubic Meter per Day (MMSCMD) natural gas to the PP. The gas will be sourced from the gas fields of Tripura operated by M/s ONGC Ltd. The gas consumption for the existing plant at 85% PLF is 2.65 MMSCMD. The gas requirement for the proposed project is 2.7 MMSCMD. However, 2.35 MMSCMD is now available for the proposed project and the shortfall for expansion project has been requested to MoPNG. The estimated calorific value of the natural gas is 8,250 kcal/Sm³. The water requirement for the existing Units is 25,320 m³/day. The water requirement for the proposed project will be 20,400 m³/day. During construction, 100 m³/day will be required. Drawl of fresh water shall be made from Gumti River. The PWD, Govt. of Tripura has granted permission to draw 125 MLD (1.25 Lakh m³/day) water from the Gumti river.

The land use of the proposed area (within 10 km radius) includes rubber plantation (37.72%), Agricultural land (27.48%), settlement & homestead plantation (22.75%), natural forest (10.36%), river (0.86%), waterbody (0.25%), etc. The project is located in Zone-V of Seismic zone.

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The sub-committee observed the following:

- 1. The availability of gas and agreement letter from ONGC for the proposed project are to be made available to ensure availability of sufficient natural gas for the propose project.
- The total effluent generated is 5,858 m³/day. A total of 1,000 m³/day treated water is used for landscaping and greenbelt development. Online Effluent monitoring sensors was found to be operational and in order.
- 3. The total area of the project is 207.60 acres (including corridors). An area of 73.08 acres has already taken up for the greenbelt development till date and fulfils the requirement of covering 33% of the total area (including corridors). However, the PP has also agreed to take up the isolated patches of open area for further plantation.
- 4. One of the Air Quality monitoring stations is located at the roof top of the Fire Station Building which is around 105 m from Udaipur-Kakraban road. As the road was being widened during collection of air samples, the value of PM₁₀ is relatively higher and might have been contributed due to the construction work of this road.
- 5. The PP explained that as there is no SOx in the flue gas, the minimum stack height requirement is 30 m as per CPCB guidelines. Therefore, the stack height of 60 m with 6.5 m diameter has been decided to have the positive draft to assist in better dispersion of flue gas from the stack with exit velocity of 20 m/s.
- 6. A list of Schedule-I species has been prepared by the PP and submitted to the Chief Wildlife Warden for wildlife conservation plan. The Schedule-I species includes both flora and fauna viz., Flora (3): Canarium Strictus (Dhup), Magonia Pterocarpa (Duli Champa) and Mangifera sylvatica (Aam) and Fauna (17): Arhopala pseudocentarus, Baoris farri, Castalius Rosimon, Ceopora Nerrisa, Elymnias Malelasa, Meaisba Malaya, Narathura Selta, Pantoporia Hordonia (8) (Butterflies and moths), Indo Gangetic Flatshell Turtel, Common India Monitor Lizard, Water Monitor (3) (Reptilian Species), Black Kite (1) (Avi-fauna) and Bison, Capped langur, Slow loris, Hoolock gibbon and Leopard cat (5) (Mammals).
- 7. The action plan along with financial allocations to address the public hearing issues such as agriculture development, assistance to irrigation, education and compensatory afforestation has been made and an outlay of Rs. 8.95 crores

(0.25% of the project cost has been earmarked. The same is found to be in order with the Ministry's Circular dated 01.05.2018.

The Sub-committee after discussions and site visit, following observed to be complied by the PP:

- 1. In case 15% increase of installed capacity of the proposed existing plant to be made then necessary amendment to be done.
- 2. Confirmation on the availability of natural gas of 2.7 MMSCMD for proposed project to be obtained from M/s. ONGC.
- 3. The wildlife conservation plan for Schedule-I species vetted by the Chief Wildlife Warden to be submitted.
- 4. NBWL recommendations from wildlife angle for the to be obtained.
- 5. The existing power plant is discharging the treated effluent water (approximately 4,858 m³/day) into the Gomti river. Therefore, it is mandate to convert the entire water treatment system into zero discharge system for both existing and proposed power project.
- 6. Isolated open area within the project to be earmarked and taken up for plantation.
- 7. To isolate the gas handling plant during emergency, water sprinkler jacket be provided for both existing and proposed plants.

(S Kerketta) 8 219

Sd1-(Manjari Srivastava)

(N.S. Mondal)

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sel-(Mohan Karnat)

Navin Chandra)

Site Visit Report of

Koradi and Khaperkheda Power Plants, Nagpur District, Maharashtra of M/s Maharashtra State Power Generation Company Ltd. during 01st-3rd August, 2019

M/s Maharashtra State Power Generation Company Ltd.(MAHGENCO) has applied for grant of Terms of Reference (ToR) for establishing 2x660 MW Power Project in the premises of 2x210 MW & 3x660 MW Koradi Power Plant near Village Koradi, Tehsil Kamptee, District Nagpur. The proposal of ToR was considered by the EAC in its meeting held on 28th May, 2019. The salient points of the proposal are as below:

Configuration	2x660 MW Super-critical Technology		
Land requirement	275.39 ha		
Coal requirement	4 Million Metric Ton/Annum to be sourced from WCL mines. The existing linkages for Koradi Unit-5 (200 MW) decommissioned on 2.3.2017 and Nasik Unit-4&5 planned to be decommissioned in July, 2020 and July, 2021. The balance coal will be sourced from Umred and other WCL mines.		
Water requirement	Consumptive use: 36,000 m ³ /day from Pench Dam water Cooling requirement: 84,000 m ³ /day from Treated Sewage Water from Nagpur STP. Total: 1,20,000 m ³ /day		
Ash pond	No additional land required for ash pond and raw water reservoir. Existing ash pond of Koradi Power Plant will be used.		
Project Cost	Rs.9,982 Crores		

The EAC in its meeting held on 28.5.2019 recommended for a site visit by the Subcommittee to review the pollution levels in the surrounding area, emissions from the operating power plants, impact on Nagpur and Koradi towns, review the implementation of pollution control equipment, availability of land without compromising the greenbelt area. The following members have been nominated for site visit vide Ministry's Order dated 3.7.2019 (Ministry's Order: **Annexure-D**):

Sl.No. Name

i.	Dr. N.P. Shukla (Member EAC)	-	Chairman
ii.	Shri Gururaj P. Kundargi (Member EAC)	-	Member
iii.	Shri N. S. Mondal, CEA	-	Member
iv.	Dr. S.K. Paliwal, Scientist D, CPCB	-	Member
v.	Shri Suresh Kumar Adapa, Scientist D,	-	Member
	RO-MoEFCC, Nagpur		
vi.	N.Subrahmanyam, Scientist C, MoEFCC	-	Member Secretary

Shri N. S. Mondal representing CEA could not be present during the site visit. The Committee visited Koradi Power Plant & its ash ponds, Koradi Pond, Proposed Project Area, Koradi town and temple area, Khaperkheda Power Plant, Sewage Treatment Plant located near Bhandewadi, Nagpur and held meetings with Project Authorities, Locals and NGOs during 01st -3rd August, 2019 (*Attendance: Annexure-B*).

Environmental Sensitivity: Koradi Town is adjacent to the Koradi Power Plant. The Koradi Water Pond/Lake and the Koradi Mahalakshmi Temple are also located adjacent to the Koradi Power Plant. Nagpur Town is 4 km S from the Koradi Power Plant. Both suburbs of Nagpur is extending towards Koradi and almost touching Koradi. Further, Kolar River is located at 1.3 km N from Koradi Power Plant. Kanhan River is located adjacent to the Khaperkheda Power Plant and Bhanegaon ash pond of Khaperkheda TPP.

Koradi Power Plant: Presently Units-1-5: 4x120 MW and 1x200 MW have been decommissioned and not functional. Units:6-10: 2x210 MW & 3x660 MW are under operation. However, theold units (Units:1-5)and their infrastructure is to be dismantled to clear the area for proposed project. At the time of Environmental Clearance issued in January, 2010 for 3x660 MW (Unit-8, 9 & 10) Koradi Thermal Power Project, it was proposed that the first four units (4x120 MW) will be replaced by 1x660 MW and additional 2 units of 660 MW will be established. The units of 3X660 MW were already established as per the EC issued in January, 2010 without removing the de-commissioned units of 4X120 MW Capacity. M/s MAHAGENCO is now proposing to replace these old units with present proposal of 2x660 MW Project.

Units	Load	PLF (%)	Coal Requirement	Remarks
			(TPH)	
Unit-6	0	0	-	Units are not in
(210 MW)				operation during the
Unit-7	0	0	0	site visit, due to
(210 MW)				maintenance of some
Unit-8	0	0	0	units and no
(660 MW)				demand from the
Unit-9	0	0	0	grid.
(660 MW)				
Unit-10	0	0	0	
(660 MW)				

During the visit the following units are functional:

Land availability: The land of approximately 200 acres (80 ha) is available for the proposed project. There are several existing structures and buildings, roads are to be dismantled. Further, there are several trees needs to be cut for making the area available for proposed project. Further, if the proposed project is to come up in the available area, the area for greenbelt for the entire plant will have to be made less.

Water and water reservoir availability: The water requirement for the Koradi power plant is presently met from Pench Dam water and treated sewage water from Nagpur STP. A pipeline of 22 km has been laid from Right Bank Canal of Pench Dam at Navegaon Kairi. The water is transported and released into the Koradi Pond (Pond No.3). The pump house at Koradi Pond (6000 m3/hr or 1,44,000 m³/day) is inturn

will supply the water to Koradi and Khaperkheda Power Plants. The water requirement details of Koradi Power Plant is as below:

Capacity	Treated STP water	Koradi Pond (Pond.3)	
2x210 MW	5000 m ³ /hr	3500 m ³ /hr	
3x660 MW	3000 m ³ /hr	1500 m ³ /hr	
Total	8000 m3/hr	4500 m3/hr	
Grand total	3,00,000 m ³ /day		

For the proposed power project, it was informed that treated STP water will be completely used for the plant except DM water and drinking water requirements. Hence, sufficient water is available for the proposed project. M/s MAHAGENCO made an agreement with Pench Irrigation Division to draw water of 67 Million m³ per year for meeting the needs of Koradi and Khaperkheda Power Plants. Further, Khaperkheda power plant is expected to take mine pit water from Bhanegaon Opencast mine and Bhandegaon Sewage Treatment Plant which will reduce the fresh water consumption significantly.

Requirement of Ash pond: Koradi has presently two ash ponds. One (Koradi-150 ha) is almost filled and the second one (Kasara-250 ha) is under operation. It has been informed that the further dyke height of 5m will be raised to accommodate the ash generated from the proposed project. Both the ash ponds do not have HDPE liners. It was informed that liners werenot laid as these were constructed 20 years back. Further, there will not be any need to have fresh ash pond for the proposed project.

Khaperkehda Power Plant: Khaperkehda Power Plant is located approximately 3 km from the Koradi Plant and has 4x210 MW and 1x500 MW power plants under operation. This plant also has two ash ponds out of which one is almost filled (Waregaon-282.5 ha) and the second one (Nandgaon-258 ha) is under construction. These ash ponds are also not having HDPE liners.

Units	Load	PLF (%)	Coal Requirement (TPH)
Unit-1 (210 MW)	0	0	-
Unit-2 (210 MW)	114	54.43%	109
Unit-3 (210 MW)	124	59.05%	145
Unit-4 (210 MW)	0	0%	0
Unit-5 (500 MW)	369	73.72%	345
Total	607	65.97%	640

During the visit the following units are functional:

Sewage Treatment Plant: the STP of 130 MLD (1.3 Lakh m³) has been constructed jointly M/s Mahagenco and Nagpur Municipal Corporation at Bhandewadi, Nagpur to treat the sewage flowing into the Nag River of the Nagpur City. The STP has grit removal system, primary clarifiers, Sequential Batch Reactors, Sand & Charcoal Filters, and Chlorination to reduce the BOD levels below 30 mg/l. The plant is designed to treat the Sewage with BOD of 250 mg/l. The anaerobic digesters were also installed to produce biogas. The STP is functional. The Clarifiers and Anaerobic digesters are not operational as the incoming BOD is very less (120 mg/l) and there is no need to operate at low organic loads. The treated Sewage quality is of good quality with BOD less than 30 mg/l. A pipeline will be laid from STP to Koradi power plant to supply water to the project.

seen that the emissions of Koradi Power Plant are as follows.				
Parameter/Unit	Unit-6	Unit-7	Unit-8, 9 & 10	Standards
	(210 MW)	(210 MW)	(3x660 MW)	
PM (mg/Nm ³)	126-246	238-358	42-49	2x210 MW: 100
				mg/Nm ³
				3x660 MW: 50
				mg/Nm ³
SO2 (mg/Nm ³)	1270-1416	835-1527	1477-1722	2x210 MW: 600
				mg/Nm ³
				3x660 MW: 100
				mg/Nm ³
NOX (mg/NM ³)	250-288	159-254	297-351	2x210 MW: 600
				mg/Nm ³
				3x660 MW: 100
				mg/Nm ³

Ambient air quality and Emissions: The flue gas emissions were observed. It has seen that the emissions of Koradi Power Plant are as follows:

The emissions of the Khaperkheda Power Plant are as below:

Parameter/Unit	Unit-	Unit-3&4	Unit-5	Standards	5	
	1&2(2x210	(2x210 MW)	(500 MW)			
	MW)					
PM (mg/Nm ³)	225-238	95-103	45	4x210	MW:	100
				mg/Nm ³		
				500 MW: 3	50 mg/Nn	1 ³
SO2 (mg/Nm ³)	1193-1218	1174-1200	1615	4x210	MW:	600
				mg/Nm ³		
				500 MW:	100 mg/N	m ³
NOX (mg/NM ³)	333-346	322-333	305	2x210	MW:	600
				mg/Nm ³		
				3x660	MW:	100
				mg/Nm ³		

The ambient air quality reports reviewed for the Koradi Power Plant. The average PM10 emissions at Power Station Railway siding consistently exceeded the standard of 100 μ g/m³. Occasional increases of PM10 observed at Location No.3 (Outside plant). The PM2.5 values in the air quality have consistently exceeded the standard of 60 μ g/m³ at Arya Nagar, Bokhara and Khasala. All other parameters are within the standards. The average SO2 and NOx are in the range of 15-16 μ g/m³ and 20-24 μ g/m³. Further, ambient air quality at Khaperkheda for PM10 is exceeding during Summer and Winter months.

Ash Utilisation:

The ash utilization from the Koradi Power Plant for the year 2018-19 is 29%. The remaining ash is sent to the ash dykes. The details of coal consumption and ash generation for FY 2018-19 are as below:

Coal consumption	64,74,079 MT
Percentage of ash	41%
Total ash generation	26,55,433 MT
Utilisation percentage	7,75,245 (29.19%)

Ash generation at Khaperkheda Power Station in the range of 17-26 Lakhs Tonnes/Annum and the utilization is in the range of 15-35%.

Status of Air pollution control equipment and FGD installation: FGD for Unit-8 (1x660 MW) is to be installed during the commissioning as per the Environmental Clearance which was not installed. Subsequently, M/s MAHAGENCO obtained extension stating that time extension of FGD for Unit-8 be extended inline with MoEF&CC Notification dated 7.12.2015, i.e. till 7.12.2017. Accordingly, Ministry vide permission dated 23.3.2017 has given extension up to 7.12.2017 to install FGD for all three units (3x660 MW). The FGDs for all three units are yet to be installed. It has been informed that Tenders for 3x660 MW (Koradi) have been published. Evaluation of Techno-economic bid is in progress. The expected date of completion is October, 2021. Note for board approval will be placed in Board Meeting of August, 2019. Tentative placement of Letter of Agreement (LoA) for 2x210 MW (Koradi) is in December, 2019 and expected date of completion is December, 2021. Further, out of 2x210 MW Koradi Units, R&M has been completed for one unit and upgradation is proposed for second unit to replace the ESP.

In-principle Board approval has been given for FGD installation for 500 MW of Khaperkheda TPP. For Khaperkheda 4x210 MW, the phasing out plan is under preparation considering the life of the units and balance life.

Effluent Treatment Plant& AWRS: During the visit, the Effluent Treatment Plant is not functional. The effluents from all processes are collected in guard pond and then pumped to ash slurry making without treating the effluent. Further, the effluent generated from the washing of ESP having mixed with flyash is not sent to settling pond, instead it is directly discharged into nearby drains. There are leakages observed

at the ash slurry mixing unit and some portion is going into the drain to discharge outside the premises.

Further, Ash water recycling unit of Koradi ash pond is not functional during the visit. The overflow water is going to adjacent drain.

Transportation: The pipe conveyor from Gondegaon and Bhanegaon mines to Khaperkheda and Koradi of length 16.1 km as per the Ministry's permission dated 29.5.2018 is under construction. If this pipeline is made operational, the air pollution due to road transportation will be reduced significantly.

Greenbelt: The greenbelt has been developed inside the Koradi Plant area. The area is seen with plants with age of 1-2 years. Further, it was informed that NEERI has been engaged to do plantation in the open areas of the Koradi Power Plant. However, the greenbelt developed may not be 33% of the total area. The greenbelt around the ash dyke was also not developed. Only natural growth of thorny bushes and grass has been observed during the visit. Photographs pertaining to Power Plant are enclosed at **Annexure-A** to this report.

NGO representations: NGOS such as Vidharbha Connect, Sangharsh Gaganyacha Jan Andolan Chalval representing Local People of Nagpur and Koradi area have made the following submissions (*Representations: Annexure-C*):

- i. There is no shortage of power in Maharashtra. Several Power Plants are closed down for lack of demand of power.
- The installed capacity in Maharashtra is 23,486 MW out of which 16,816 MW has been installed in Vidharbha region. The demand for Vidarbha region is 1700 MW and the surplus power is transmitted to the rest of Maharashtra. Consumption of electricity in Pune Division is higher than the Vidarbha (11 districts) region of Maharashtra. Pune and Nasik Division are reaping the benefits of power generation whereas Vidarbha Region is facing the problems of environmental pollution and resource depletion.
- iii. As per WHO report, Nagpur is amongst most polluted cities in Maharashtra as PM10 and PM2.5 concentrations are very high.
- iv. PM 2.5 pollution has caused more than 5,00,000 deaths in India in 2015.
- v. Solar potential, roof top solar, wind and other renewable energy resources are not tapped to the fullest.
- vi. Nagpur District has already has installed capacity of 7000 MW coal based Power Plants.
- vii. Huge quantity of water meant for irrigation is diverted to power generation.

- viii. More than 5,00,000 Tons of ash per day is generated which is stored in ash ponds with an area of 7000 acres and the ash utilization is negligible.
- ix. If new units are installed, it will further damage the environment.
- x. 500 MLD of water has been diverted for MAHAGENCO power generation and Vishwaraj Plant from Peeli Nadi, Pohro Nadi and Naag Nadi. More than half a lakh farmers sustain their livelihood from this water. These rivers are getting dried due to in-judicious use. If 500 MLD water is diverted, there is little water available for irrigation which will push the state into agrarian crisis.

CSR activities: A hospital has been built by Ms/ MAHAGENCO in Koradi town which is helpful to the nearby villagers and may not go to Nagpur for all emergencies. The hospital is being maintained by Vivekananda Trust. The charges of consultation and treatment are very nominal and all surrounding villages can avail the facility. In addition, a latest mobile medical van and ambulance have been sponsored by M/s Mahagenco to conduct medical camps in villages. In addition, one school and indoor sports complex has been built Ms/ Mahagenco.

Committee observations:

- i. The land for proposed project as mentioned in the proposal 275.39 ha is not available at the site. The actual area available is in the order of 180-200 acres. The plan for demolition of existing buildings along with the total area of available for the proposed plant is to be submitted leaving the adequate space for 2x210 MW.
- ii. The emission from the fluegas of Koradi Power Plant and Khaperkheda Power Plants are exceeding the standards. Action plan to bring it below the standards is to be submitted.
- iii. Initial installation of FGD for one unit (1x660 MW) at the time of commissioning as per the Environmental Clearance has been extended till 7.12.2017 vide Ministry vide permission dated 23.3.2017. The said permission has also given timelines for FGD installation for remaining two units (3x660 MW). Till date FGD has not been installed. The significant progress of FGD is yet to be made and it is yet tender stage. The action on non-compliance of the Ministry permission 23.3.2017 is to be addressed by the Ministry.
- iv. Firm plan for installation of FGD for new units is to be submitted. Either installation of FGD &upgradation of ESPs is to be done or phasing out plan for older units is to be provided.
- v. Ambient Air quality in the premises of Koradi Power Plant is exceeding the national standards. The time bound action plan to bring the ambient air quality levels below the standard is to be submitted.
- vi. Effluent Treatment Plant is not functional. The effluents are mixed with ash slurry without treatment. Further, effluents along with ash is discharged into open drains. The ETP is to be made operational to avoid discharge into open drains.

- vii. There are no HDPE liners for the ash ponds of Koradi & Khaperkheda. Also no liners have been proposed for the new ash pond under installation for Khaperkheda power plant.
- viii. Ash water Recirculation unit of Koradi Ash pond be made functional.
- ix. As the ash utilisation is only about 30%, the ash utilisation plan for existing and proposed power plants shall be submitted. The plan should also include backfilling in mine voids as the power plant is surrounded by coal mines.
- x. No peizowells have been installed at the periphery of ash ponds for monitoring the ground water quality.
- xi. The details of Units which have been phased out and the units yet to be phased out. The phasing out plan for the units to be phased out should be submitted.
- xii. Tree enumeration is required for felling in the proposed area.
- xiii. Greenbelt development plan around the ash dyke of Koradi plant is to be submitted.
- xiv. The issues raised by the CPCB specifically installation of dust extraction systems at coal handling/transfer points, fugitive emissions from ash silo, improvement of road condition to the approach bund of Koradi ash pond are to be addressed on priority to control ambient air quality in the surroundings in their visit during May-June, 2017.

Dr. S. K. Paliwal (Member)

Dr. N.P. Shukla (Chairman)

GP (Member)

A. Sweeth Kum

Suresh Kumar Adapa (Member)

N. Subrahmanyam N. Subrahmanyam (Member Secretary)





Proximity of Koradi Town and Nagpur City to Power Plants



Proposed Project area (2x660 MW)



Proposed Project area (2x660 MW)





Proposed Project area (2x660 MW)



Pipe Conveyor under Construction



Ash pond filled to the brim



Coal transfer pont showing spillages of coal



Discharge of effluent in open drain Leakage from ash slurry mixing unit





Annexure-B: Attendance of M/s MAHAGENCO representatives and Civil Society Groups

S.No.	Name	Designation	Signature
1	V. Thangapandian	Dir (Project) Mahagenus	vol.
2	Dr. N.S. Nagh	(47M (E \$)	Augh
J.	A- G-Deolare	CECO/I	do
4	p.R. Munder	CE(c)-I Bombay	Dric
5.	A.K. Jachar	Doy CECO Mumbei	- Aler .
6	S.S. Sonpethkar	Dy CE(210) Foradi	M
7.	K.R. Karade	Of CE(C) cce, knd.	PE
8	G.S. Kumanogr	D) cF2 37660 Mu	2 Au
9.	A.A. Bamne	Dy. C.E. H.O.	Atimul.
10	R.V. Taskai	CE (210)	Ref
IJ.	Rijesh Patil	CE (KTPS-660m	» he
12.	Sanjay Marndhan	ED(I)	8 min

Attendance of Representatives of M/s Maharashtra State Power Generation Company Limited (MAHAGENCO) on 01st August, 2019

		abile on OI hug	ust, 2017
S.No.	Name	Designation	Signature
1	Adv. Mulcean Serna Ot 9422102907	Presdent Vidabbre Connet	lou.lange
2	DINESM NAIDU	Secretary Vidabha Connet	Broule
3	Sandesh Singaukar 9822233099	President SWARAJ FOUNDATION	12 2 gowwww.
4	Adv. Vipul. B. Ingle 8390867805.	Member Vidanbha Connect:	Vydite
S	Aut Chanchegypter Samulti	Menber Videbh (omt	Bout.
6	NITIN RONGHE	CONVENER MAHAVIDARBHA JANAJAGARAN.	Amet
7	O.P. MIGLANI-	meribec ,	Orghann.
8	SUDHIR PALIWAL	CONVENOR Viclarbha Environme Action Broup	tel Sechiphumí
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Attendance of Local Public on 01st August, 2019

S.No.	Name	Designation	Signature
I	V. Thangapandian	Dir (project) Mahagen co	Vel. 2/8/19
2.	Dr. N.S. Wagn	(GM (Els)	Allegh
3.	A.E. Deorare	((-(())/II) koradi	-000 -18/5
4.	p. R. munde	CF(C)-1 Bombar	Dorl
٤.	R.V. Taskar	(((210)	PLP=18
6.	Rajesh pau'i	((- ()(1)25 660 mw)	pre
.	Sanjay Masudikar	€D (P)	Amo
81	Drakash khandare	(khapeskhedy)	Aggin
g.	Rajentra. Raut	Dys. Cls. SHMNKPKD	Ri
10.	Sharad Bhagal-	DY. C.E 210 MW KPKP	Geptreet

Attendance of Representatives of M/s Maharashtra State Power Generation Company Limited (MAHAGENCO) on O2nd August, 2019

ATTENDENCE OF EAC SUB COMMITTEE AND REPRESENTATIVE OF MAHAGENCO DATED 3 RD AUGUST 2019			
SR.NO.	NAME	DESIGNATION	SIGNATURE
1	SHRI N.P. SHUKLA	CHAIRMAN	A. 08.19
2	SHRI G. KUNDARGI	MEMBER & EX.CMD MOIL NAGPUR	Dike
3	SHRI S. ADAPPA	MEMBER & SCIENTIST –D MOEFCC NAGPUR	A-Smathlun 03/00/19
4	SHRI V. THANGPANDIAN	DIRECTOR(PROJECT) MAHAGENCO	V3:rd 3[8/17
5	SHRI S.MARUDKAR	E.D.(PROJECT) MAHAGENCO	A min
6	SHRI R. PATIL	C.E. KTPS 660MW MAHAGENCO	ne
7	SHRI R. TASKAR	C.E. KTPS 210 MW MAHAGENCO	ng
8	SHRI N. WAGH	CGM(E&S) MAHAGENCO	Adagh
9	SHRI A.G. DEOTARE	C.E.(CIVIL-II) MAHAGENCO KORADI	- 00 ca- 8 8/19
10	SHRI A. BAMNE	DY.C.E. MAHAGENCO	Atinut 3.82019.
11	SHRI R. SHRIVASTAV	PROJECT CONSULTATANT	My 2.8 2019



To,

M.O.E.F

(Ministry of Environment and Forest)

The Officer

(M.O.E.F.)

August 1st 2019

Subject :- Protest against extension of Koradi Powerplant at Korodi and Khaparkheda

ne Englisherer

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Dear Sir/Ma'am,

500 ml/d water has been diverted for the soneration of electricity at Mahajan co. plant and Vishwaraj Plant from Peeli Nadi, Pohro Nadi and Naag Nadi. More than half-a-lakh farmers sustain their livelihood from the waters of these rivers for years now. This year, Naag river and Pohra river dried due to in-judicious use of water by authorities. The fact that I would like to highlight is this catastrophe was caused by 130 million litre/ day use. What destruction would 500 ml/d water unleash is unfathomable. No water is available for the irrigation of numerous fields whose farmers sought to protest for their basic human rights of livelihood with a movement 'शेलकऱ्याची मरणयात्रा'. India is an agrarian country and therefore an agriculturist should be the epicenter of development. We do not oppose the development, but demand a sustainable nature of it, for what we is progress when it does not reach all. An ardent request and a humble demand is for you to put a stop to the extension at Koradi Powerplant ensuring lives and employment of innumerable farmers along with protecting the environment.

Expecting your cooperation

Thanking You

Yours Faithfully

Prof. Avantika Lekurwale Alouut President

'संघर्ष जगण्याचा' जनआंदोलन चळवळ



201, Golden Palace, West High Court Road, Dharampeth, Nagpur 440 010 Ph.: 0712 - 2544879 Email: vidarbhaconnect@gmail.com www.vidarbhaconnect.in, www.vidarbhaconnect.org



Founder President Adv. Shreehari Aney sganey1234@gmail.com

President Adv. Mukesh Samarth 8806223408

Hon. Secreta Dinesh Naid 9823016763

Date:-31.07.2019

To,

Dr. Narmada Prasad Shukla Former Chairman, Madhya Pradesh Pollution Control Board, Chairman, Sub-Committee of EAC (Thermal Power) MoEF&CC, New Delhi. E-mail: <u>Shuklanp55@gmail.com</u> Shuklanp55@yahoo.co.in

Subject: Proposed 2x660 MW Super Critical Thermal Power Project (Expansion) within the premises of 2400 MW Koradi Power Plant at Village Koradi, Tahsil-Kamptee, District Nagpur, Maharashtra by M/s Maharashtra State Power Generation Company Limited (MAHAGENCO)-reg. ToR. (F.No.J-13012/07/2019-IA.I(T) & Online no. IA/MH/THE/102533/2019) – Request for personal hearing during your visit to Koradi, Nagpur

Hon'ble Sir,

Vidarbha connect is a prominent organisation which is striving hard for the sustainable development of the region as in last 60 years the State Government has meted out stepmotherly treatment to Vidarbha region and violated historical Nagpur Pact with the people of this region.

Sir, we welcome you to Nagpur and are thankful to EAC (Thermal Power) MoEF&CC for constituting a committee under your Chairmanship to review the pollution levels of the surrounding area, the emissions of the existing plant, the cumulative impact of Koradi and Kaperkheda Power Plants, the impact on adjacent Nagpur and Koradi towns, the status of implementation of pollution control equipment to meet revised emission norms, the availability of land without compromising the greenbelt area within the plant boundary, etc.:

While presenting the State Budget of Maharashtra Hon'ble Finance Minister has announced in-principal approval of 1320 MW new Power Plant at Koradi, Nagpur at the cost of Rs 8407 Crore. We strongly objected to this decision as Koradi is part of Nagpur Metro City and existing Koradi Power plant is already having installed capacity of 2600 MW, new plant of 1320 will add further pollution to highly polluted Nagpur region. In this regard we had submitted a letter to the Regional Officer, MoEF&CC, Nagpur, which was forwarded to The Member Secretary, IA Division (Thermal Projects) MoEF&CC, New Delhi by letter dated 24.-7.2019.

Sir, we request you to consider our following objections before granting TOR to Koradi TPS Expansion project:

- It is raining heavily since last several days in Nagpur district and the committee may not be able to see pollution levels of surrounding area.
- Due to rains the demand of power is greatly reduced therefore generating units are operating at very low load. Thus emissions are also low as compared to full load.
- There is no shortage of Power in Maharashtra neither there is any demand of power by distribution companies.
- Maharashtra is a power surplus State with Installed Thermal Power generation capacity of 23,486 MW. Installed coal based Thermal Power generation capacity in Vidarbha region is 16,816 MW. The demand for power in Vidarbha is around 1700 MW therefore surplus power is transmitted to rest of Maharashtra. Vidarbha region generates as much as 71% of the total thermal power generated in Maharashtra, but consumes only 11% of it. In return People of Vidarbha are risking their lives, health, and parting with precious land and water for generation of electricity for entire Maharashtra.
- Since last several years no new power plant is set up in Western Maharashtra Pune and Nashik divisions as local people strongly oppose polluting coal based power plants and therefore do not allow any new Thermal Power in their area. In fact the present expansion of 2x660 MW at Koradi is replacement of Mahagenco's generating units in Nasik, Paras & Chandrapur.
- Power plants with installed capacity of over 40,000 MW are closed down for want of demand for Power in the country.
- Solar Energy Potential of Maharashtra is not explored to desired extent. The targets are not achieved till date.
- Roof Top Solar is discouraged by Power distribution companies
- · Wind and other sources of non-conventional energy are not tapped to fullest.
- Nagpur district is already having installed capacity to produce more than 7000 MW of Power from coal.
- Huge quantity of water meant for irrigation is diverted for power generation & needless to say that Vidarbha is the 'Farmer Suicide' capital of the world only due to lack of irrigation.
- More than 50,000 tons of fly ash per day is generated in the region which is stored in unlined Ash ponds as Fly ash utilization is negligible.
- More than 7,000 acres of land is used for fly ash disposal in the region.
- Air, water and soil pollution from radioactive & toxic ash from existing power plants has resulted in diseases such as asthma, bronchitis, emphysema, cardiovascular, premature death and cancer.
- In fact Nagpur is now called Cancer Capital due to highest number of Cancer Hospitals in Central India.
- As per WHO report Nagpur is amongst most polluted cities in Maharashtra as the concentration level of airborne particles of size PM 2.5 and PM10 is very high.
- As per a recent World Bank study the economically backward region of Vidarbha will witness sweeping downward economic impacts in the wake of a Climate Change. The study warns that seven of the 10 climate hotspot districts in India are from this region that has long been in the throes of a raging agrarian crisis.
- CPCB has identified Nagpur as Non-attainment city in which the prescribed National Ambient Air Quality Standards (NAAQS) are violated. Any air polluting Industry which will add to the ambient air pollution levels in Nagpur cannot be permitted.

Sir, we would like to further submit that till date Koradi Power Plant has not complied with Environmental Clearance conditions of 3x660 MW granted vide its letter no. J-13012 /87/2007-IA.II(T) dated 04.01.2010

Some of the violations are:

- a) No FGD is installed till date inspite of close proximity to Koradi & Nagpur.
- b) Fly Ash utilization is virtually Zero. MoEF&CC notification of January 2016 is not followed.
- c) The Ash Pond is not lined with HDPE and the leachates have already polluted ground water in the nearby villages. No ground water monitoring is done in scientific manner.
- d) Toxic & Radioactive Fly ash is being used in Agriculture and filling of low lying area even though it is prohibited under Environmental Clearance extension. It is packed in bags and sold as soil additive. Thousands of tons is dispatched all over the country in different brand names.
- e) Fly ash and bottom ash is being used for mine filling without MPCB permission.
- f) Main Silos for dry Fly Ash disposal are not connected to ESPs.
- g) Three tier Green Belt around Plant and Ash pond does not exist.
- h) STP and ETP are not commissioned till date. Nor Rain water harvesting system is in operation.
- i) The emissions are very high and emission norms are not followed. No Mercury emissions are monitored. Continuous monitoring instruments for stack and ambient air are not calibrated therefore results are not reliable.
- j) The emissions are monitored by same agency which is also collecting samples for MPCB.
- k) Mahagenco has till date not connected Nagpur City Sewage by pipeline to the Sewage Treatment Plant constructed at Bhandewadi. Instead River water of Nag River is pumped and supplied to Koradi Power Plant after filtration at Bhandewadi. Filtered river water cannot be termed as treated sewage.
- Six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored date (both in hard copies as well as by e-mail) to the respective regional office of MoEF, the respective Zonal Office of CPCB & SPCB are not submitted regularly.
- m) The status of compliance of the stipulated EC conditions, including results of monitored data is not uploaded on power plant web site.
- n) Solar power within the premises particularly at available rooftops is not harnessed nor status of implementation including actual generation of solar power is submitted.
- o) No long term study of radio activity and heavy metals contents on coal to be used is carried out.
- p) No mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) is put in place.
- q) Fugitive emissions are not controlled to prevent impact on agricultural or nonagricultural land. Whole Power Plant area is surrounded by residential houses where thousands of people are residing. Most of the houses are adjoining to boundary wall.
- r) Environmental Cell comprising of at least one expert in environmental science/engineering, ecology, occupational health and social science, is not created at the project site.
- s) CSR funds are diverted for other works. For periodic monitoring of CSR activities, a CSR Committee/Social Audit Committee/credible external agency is not appointed. CSR activities are not evaluated by an independent external agency, both concurrently and final.
- t) Minimum required environmental flow suggested by the Competent Authority of the State Govt. is not maintained in the Koradi Dam reservoir discharge even in lean

season. Natural drainage in the region is badly disturbed due to activities associated with operation of the plant.

u) The Unit No 9 and 10 are commissioned after expiry of validity of Environmental Clearance extension.

Lastly it is humbly submitted that the directions given by National Green Tribunal order dated 20th September 2011 in Appeal No. 7 of 2011 (T) against grant of EC to Koradi Power Plant are not followed till date by MoEF&CC and other respondents. Therefore it will not be appropriate to consider grant of TOR for 2x660 MW expansion of Koradi Power Plant.

Sir, we are thankful to the Sub Committee for giving us an opportunity to discuss our objections and we hope that in the interest of lakhs of residents of the region the expansion proposal of Koradi Power Plant will be rejected by MoEF&CC Environmental Appraisal Committee.

Thanking You.

Dinesh Naidu Secretary Vidarbha Connect

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APOLL

 Pointer President

 (i)(i)
 Adv. Shreehari Aney

 sganey1234@gmail.com

The Regional Officer,

Civil Lines, Nagpur

5.0 Date:-11.07.2019

17 JUL 2019

201, Golden Palace, West High Court Road, Dharampeth, Nagpur 440 010 Plu.: 0712 - 2544879 Email: vidarbhaconnect@gmail.com www.vidarbhaconnect.in, www.vidarbhaconnect.org

President Adv. Mukesh Samarth 8806223408



Hon. Secretary Dinesh Naidu 9823016763

Subject: Maharashtra State Budget announcement 18th June 2019 by Finance Minister for in-principal approval of 1320 MW new Power Plant at Koradi, Nagpur at the cost of Rs 8407.00 Crore.

Department of Environment, Forest & Climate Change, Govt. of India,

Hon'ble Sir,

While presenting the State Budget of Maharashtra Hon'ble Finance Minister has announced in-principal approval of 1320 MW new Power Plant at Koradi, Nagpur at the east of Rs 8407.00 Crore.

We strongly object to this decision as Koradi is part of Nagpur Metro City and Vexisting Koradi Power plant is already operating with installed capacity of 2600 MW, where we plant of 1320 will add further pollution to highly polluted Nagpur region.

Maharashtra is a power surplus State with Installed Thermal Power generation capacity of 23,486 MW. Installed coal based Thermal Power generation capacity in Vidarbha region is 16,816 MW. The demand for power in Vidarbha is around 1700 MW therefore surplus power is transmitted to rest of Maharashtra. Vidarbha region generates as much as 71 % of the total thermal power generated in Maharashtra, but consumes only 11% of it.

Compared to this, it is very surprising that Pune Division alone is consuming 30 per cent of electricity while Rest of Maharashtra is using 70 per cent energy generated in the State. Consumption of electricity of Pune Division is more than the consumption of entire Vidarbha region having 11 districts of Maharashtra.

In spite of huge demand in Pune region there is no power plant in Pune.

People of Vidarbha are risking their lives, health, and parting with precious land and water for generation of electricity for entire Maharashtra. But, the residents of Pune and Nashik divisions are reaping the benefits of electricity generated in Vidarbha. In last several years, the State Government has not paid any attention towards this disparity.

In last 60 years, the State Government has meted out step-motherly treatment to Vidarbha region and violated historical Nagpur Pact with the people of this region.

As per WHO report Nagpur is amongst most polluted cities in Maharashtra as the concentration level of airborne particles of size PM 2.5 and PM10 is very high. These tiny airborne particles can enter human lungs and kill people. NOx can cause respiratory infections and SO2 can lead to bronchoconstriction.


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Founder President Adv. Shreehari Aney sganey1234@gmail.com President Adv. Mukesh Samarth 8806223408

Hon. Secretary Dinesh Naidu 9823016763

PM 2.5 pollution caused more than 500,000 premature deaths in India in 2015, according to an October 2017 report in the *Lancet, a* medical journal. The study estimated 1.9 million deaths across 21 Asian countries in 2015; one in every four deaths was in India. As per 2017 Greenpeace study based on satellite data 32% rise in SO2 level and 34% rise

in PM 2.5 levels are reported. Chandrapur – Nagpur Region is a potential air pollution hot spot in India.

Pollution from thermal, or coal-fired, power plants killed about 115,000 Indians and caused an economic loss of \$4.6 billion (Rs 29,500 crore), according to the 2017 Economic Survey. These figures are based on 2012 data; India's coal capacity has grown by more than 150% since, so the impact to life, health and the economy will keep rising unless held in check.

Vidarbha Connect strongly opposes Govt of Maharashtra decision to set up two new units of 660 MW each at Koradi in view of following reasons:

- There is no shortage of Power in Maharashtra neither there is any demand of power by distribution companies.
- Many power plants are closed down for want of demand for Power.
- Solar Energy Potential of Maharashtra is not explored to desired extent. The targets are not achieved till date.
- Roof Top Solar is discouraged by Power distribution companies
- Wind and other sources of non conventional energy are not tapped to fullest.
- Nagpur district is already having installed capacity to produce more than 7000 MW of Power from coal.
- Huge quantity of water meant for irrigation is diverted for power generation & needless to say that Vidarbha is the 'Farmer Suicide' capital of the world only due to lack of irrigation.
- More than 50000 tons of fly ash per day is generated which is stored in Ash ponds as Fly ash utilization is negligible.
- More than 7000 acres of land is used for fly ash disposal
- Air, water and soil pollution is greatly damaging the environment
- If new units come it will further damage the environment.

We request you to immediately cancel the Koradi Power Plant expansion.

Vidarbha Connect- VCan, along with numerous likeminded social organizations and members of civil society will oppose these 2X660MW coal based power plants coming up at Koradi, Nagpur by taking all the necessary available democratic and legal means.

Thanking You.

Dinesh Naidu Secretary Vidarbha Connect

Annexure-D: The MoEF&CC Office Order for conducting Site Visit



No. J-13012/87/2007 -IA. I (T) Government of India Ministry of Environment, Forest and Climate Change

> Indira Paryavaran Bhawan, 3rd Floor, Vayu Wing Jor Bagh Road, Aliganj, New Delhi-110003

> > Dated: 03.07.2019

OFFICE ORDER

Sub: 2x660 MW Super Critical Thermal Power Plant at Village Koradi, Tahsil-Kamptee, District Nagpur, Maharashtra by M/s Maharashtra State Power Generation Company Limited (MAHAGENCO)- reg. Site Visit.

Sir,

This has reference to your online application No. **IA/MH/THE/102533/2019** dated 20.04.2019 submitted by M/s Maharashtra State Power Generation Company Limited (MAHAGENCO) and meeting of 28th Expert Appraisal Committee (Thermal Power) held on 28.5.2019 for grant of Terms of Reference.

2. The EAC (Thermal Power) in its 28th Meeting held on 28.5.2019 recommended for a site visit by the sub-committee for addressing issues related to pollution levels of the surrounding area, the emissions of the existing plant, the cumulative impact of Koradi and Kaperkheda Power Plants, the impact on adjacent Nagpur and Koradi towns, the status of implementation of pollution control equipment to meet revised emission norms, the availability of land without compromising the greenbelt area, etc.

3. In acceptance of the recommendations of the EAC (Thermal Power) in its meeting held on 28.05.2019, the Ministry hereby constitutes the sub-committee comprising of following members which would carry out site inspection and submit a report on findings with respect to the concerned project of **M/s Maharashtra State Power Generation Company Limited (MAHAGENCO).**

i.	Dr. N.P. Shukla		Chairman
ii.	Shri Gururaj Kundargi	-	Member
iii.	Shri N. S. Mondal, CEA	-	Member
iv.	Dr. S.K. Paliwal, CPCB	-	Member
v.	Representative of RO, MoEF&CC, Nagpur	-	Member
vi.	Representative of MoEF&CC, New Delhi		Member

4. The Sub-committee shall carry out a site inspection in **July**, **2019** and submit the report within 15 days to the Ministry for further consideration.

5. TA/DA of the Sub-committee nominated by the Ministry for undertaking site visit shall be met by the Ministry of Environment, Forest and Climate Change as per rules.

This issues with the approval of Competent Authority.

Yours faithfully,

(Dr. S. Kerketta) Director, IA. I

Copy to:-

- 1. Dr. N.P. Shukla/Shri Gururaj Kundargi/ Dr. S.K. Paliwal, CPCB /Shri N. S. Mondal, CEA.
- 2. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032
- 3. The Additional Director General of Forests (C), Ministry of Environment, Forest and Climate Change, Regional Office (WCZ), Ground Floor, East Wing, New Secretariat Building Civil Lines, Nagpur-440001- with a request to nominate member from RO, Nagpur for conducting site visit.
- 4. The Principal Secretary, Department of Environment, 15th Floor, New Administrative Building, Madam Cama Road, Mantralaya, Mumbai 400032.
- The Chairman, Maharashtra Pollution Control Board, Kalpataru Point, 3rd & 4th Floors, Sion Matunga Scheme Road No. 6, Opp. cine Planet, Sion Circle, Sion (E), Mumbai – 400 022.
- 6. The District Collector, Nagpur District, Ravindra Nath Tagore Marg, Civil Lines, Nagpur, Maharashtra 440001.
- 7. The 1Chief General Manager (E&S), M/s Maharashtra State Power Generation Co. Ltd. 4th Floor, HDIL Tower, Banda (East) Mumbai-400051.
- 8. Guard file/Monitoring file.
- 9. Website of MoEF&CC.

Woll

Director, IA. I

LIST OF MEMBERS (Attendance Sheet)

32nd EXPERT APPRAISAL COMMITTEE MEETING (Thermal)

t

DATE & TIME :23rd August 2019, 10:30 AMVENUE :Teesta Hall, Vayu Wing, First Floor, Indira Paryavaran Bhawan, New Delhi

1. Dr. Navin Chandra Chairman	Marinchand? 50002 (23/6/19
	5000 (23)8/19
2. Shri Suramya D. Vora, IFS (Retd.) Member	
3. Dr. Narmada Prasad Shukla Member	23.08.19
4. Sh. N. Mohan Karnat, IFS Member	Junt 23/8/2019
5. Dr. Sharachchandra Lele Member	Abs
6. Sh. N.S. Mondal, CEA Member	Now 23/8
7. Dr. R.K. Giri, IMD Member	R-blinger 23/8/10
8. Dr. S.K. Paliwal, CPCB Member	
9. Prof. S.K. Gupta (ISM/ IIT Dhanbad) Member	ABS
10. Dr. Jai Krishna Pandey Member	(Onday 2328129
11. Dr. Manjari Srivastava Member	ABS,
12. Dr. Gururaj P Kundargi Member	Eledin 23/8/19
13. Dr. S. Kerketta Member Secretary, MoEFCC	Spenticen) 23/8/24/9

Approval of Minutes by the Chairman-EAC

N Subrahmanyam

From: Sent: To:	navin chandra <navinchandrarrl@yahoo.com> Sunday, 5eptember 15, 2019 7:11 PM Dr S. Kerketta; Dr S. Kerketta; Dr S. Kerketta; N. Subrahmanyam; N. Subrahmanyam</navinchandrarrl@yahoo.com>
Subject:	Final MoM of 32nd EAC meeting (Thermal) -reg.
Attachments:	32nd MoM_Thermal Draft11.9.19 (2).docx

Dear Dr, Kerketta Ji,

I have gone through the Draft MOM of 32nd meeting of EAC (Thermal). There were a few typographical errors, which have been corrected. The final report is attached herewith and can be uploaded on the web site of the ministry. regards,

Sincerely,

(NAVIN CHANDRA)

Dr. Navin Chandra,

Chairman, Coal Mining & Thermal Power, MoEF&CC, GOI, New Delhi. Ex-Director General MPCST, Bhopal, Ex-Vice Chancellor, SSSUTM, Sehore (MP) (Retd.) Director (Actg.), CSIR-AMPRI, Bhopal Member, RC, CSIR-AMPRI, Bhopal. Phone (Res.) 91-755-2454600 navinchandrarrl@yahoo.com, navinchandraampri@gmail.com

AGENDA OF 32nd MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE ON THERMAL POWER PROJECTS

DATE : 23th August, 2019

- TIME : 10.30 A.M. ONWARDS
- VENUE : TEESTA MEETING HALL, First FLOOR, Vayu WING, IPB, JORBAGH ROAD, NEW DELHI-110003.

ITEM			
Item No. 32.0	CONFIRMATION OF MINUTES OF 31 st EAC (THERMAL) MEETING		
Item No.	CONSIDERATION OF PROJECTS		
32.1	2x800 MW (Stage-IV, Telangana STPP, Phase-I) at Village & Mandal Ramagundam, District Karimanagar, Telangana by M/s NTPC Ltdreg. amendment in EC. (F. Na. L 12012/112/2010, IA I/T) & Proposal parts (A/TC/THE/112457/2010).		
32.2	50 MW Greenfield (Dual Fuel Power Project) Andaman & Nicobar Gas Power		
	Project at Hope Town at Ferrargunj Tehsil in South Andaman District, Andaman and Nicobar by M/s NTPC Vidyut Vyapar Nigam Limited reg. amendment in ToR. (F No. J-13012/14/2018-IA II (T) and Online No. JA/AN/THE/113957/2018)		
32.3	Proposed 1x660 MW based Coal Supercritical Sagardighi Thermal Power (Phase-III Extension Unit-5), Village Manigram, Chandpara, Kanchanpara, Harirampur, at District Murshidabad, West Bengal by M/s The West Bengal Power Development Corporation Ltd- reg. re-consideration of Environmental Clearance. (E No.1-13012/01/2019-IA I(T) & Proposal no IA/WB/THE/107519/2019)		
32.4	Expansion 1200 MW (2x600 MW) Coal based Thermal Power Plant at Yellure Village, Taluk Udupi, District Udupi, Karnataka to 2800 MW by addition of 1600 MW (2x800 MW units) by M/s Udupi Power Corporation Ltd.regToR. (QCI-NABET Consultant is to be engaged at this stage). (F No.J-13012/09/2019-IA I(T) & Proposal no IA/KA/THE/114552/2019).		
32.5	 1x800 MW (Phase-II) Imported coal based Sri Damodaram Sanjeevaiah Thermal Power Project at Nelaturu Village, Muthukuru Mandal, SPSR Nellore District, Andhra Pradesh by M/s Andhra Pradesh Power Development Corporation Ltd reg. amendment in EC for change in coal source. (File No. J-13012/25/2012-IA.II(T) & Online No. IA/AP/THE/10486/2012) 		
32.6	 2x800 (Phase-I) MW Sri Damodaram Sanjeevaiah Thermal Power Project at Nelaturu Village, Muthukuru Mandal, SPSR Nellore District, Andhra Pradesh by M/s Andhra Pradesh Power Development Corporation Ltd reg. amendment in EC for ash pond. (F.No. J-13011/20/2007-IA.II(T) & Online No. IA/AP/THE/114419/2007) 		
32.7	Expansion from 2x600 MW to 2000 MW (2x600 + 1x800 MW) of Coal based Singareni Thermal Power Plant at Pegadapalli Village, Jaipur Mandal, Mancherial District in Telangana by M/s Singareni Collieries Company Ltdreg. re-consideration of EC. (F.No. J-13015/08/2015-IA.I (T) & Online no. IA/TG/THE/27094/2015)		
32.8	Proposed Expansion of 726.6 MW (Unit-3&4: 2x363.3 MW) Gas based Power Project at Village Palatana, Tehsil Kakraban, Dist. Gomati, Tripura by M/s ONGC Tripura Power Company Limited – reg. internal discussion on		

	site visitreport. (F.No. J-13012/02/2017-IA. II(T)) & Online No. IA/TR/THE/97559/2006)	
32.9	Proposed 2x660 MW Super Critical Thermal Power Project (Expansion) within the premises of 2400 MW Koradi Power Plantat Village Koradi, Tehsil- Kamptee, District Nagpur, Maharashtra by M/s Maharashtra State Power Generation Company Limited (MAHAGENCO) - reg. internal discussion on site visit report	
	(F.No.J-13012/07/2019-IA.I(T) &Online no. IA/MH/THE/102533/2019)	
32.10	ANY OTHER ITEM WITH THE PERMISSION OF THE CHAIR.	

Note: If project documents are not submitted to Committee Members on time along with brief summary/basic information as per pro-forma, it will be the Committee's discretion to consider the project. Project proponents shall bring shape file (.kml file) containing project boundaries & facilities and shall be saved on computer in the meeting hall. Project Proponents are required to bring hard copy (A0/A1 size) and soft copy (pdf) of a map showing project facilities superimposed on Survey of India Toposheet. Proponents shall submit the attendance form duly filled to the Member Secretary before starting the presentation.