

MINUTES OF THE 6th MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE (EAC) ON ENVIRONMENTAL IMPACT ASSESSMENT (EIA) OF THERMAL POWER PROJECTS HELD ON 20th JANUARY, 2021

The 6th Meeting of the re-constituted EAC (Thermal Power) organised by the Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi was held on 20th January, 2021 through video conference under the Chairmanship of Shri Gururaj P. Kundargi. The list of Members present in the meeting is at **Annexure**.

Item No.6: CONFIRMATION OF THE MINUTES OF THE 5th EAC MEETING

The Minutes of the 5th EAC (Thermal Power) meeting held on 30.12.2020 were confirmed in the meeting.

Item No. 6.1: CONSIDERATION OF PROJECTS

Item No.:6.1.1: 14.5 MW Coal based Captive Co-generation Power Plant within the existing facility at Village Puthukkadu, Kokkarakondi Pirivu, Puthupeerkadavu, Taluk Sathyamangalam, District Erode, Tamil Nadu by M/s Sri Andal Paper Mills Pvt. Ltd. – Environmental Clearance – reg. [Proposal No. IA/TN/THE/140843/2020; F. No. J-13012/02/2020-IA.I (T)]

The Project Proponent along with the consultant made the detailed presentation on the project and provided the following information to the EAC:-

- 1 M/s Sri Andal Paper Mills Pvt. Ltd proposes to construct 14.5 MW Coal based Captive Co-generation Power Plant within the existing paper mill facility at Village Puthukkadu, Kokkarakondi Pirivu, Puthupeerkadavu, Taluk Sathyamangalam, District Erode, Tamil Nadu.
- 2 The paper mill manufactures Kraft Paper from wastepaper without deinking, bleaching and colouring which is exempted from environmental clearance as per the EIA Notification, 2006 as amended.
- 3 The proposed power plant project falls under 'Category B' as per capacity (<500 MW) under EIA Notification, 2006. However, the project is to be treated as a 'Category A' project due to its proximity to Sathyamangalam Tiger Reserve, notified protected area under the Wildlife (Protection) Act, 1972. As per authenticated map issued by Tamil Nadu Forest Department vide letter no WL5/3565/2011 Dated: 15-05-2020 the proposed power plant is located outside the ESZ boundary of Sathyamangalam Tiger Reserve at the areal distance of 1.364 km,
- 4 MoEF&CC vide letter No. J-13012/02/2020-IA.I(T) dated 13.04.2020 accorded Terms of Reference for conducting EIA Study to the proposed Power Project.
- 5 M/s. Cholamandalam MS Risk Services Limited, NSC Bose Road, Chennai, a QCI/NABET

accredited consultant has been engaged for undertaking EIA study and preparation of Environmental Management Plan for the proposed Project.

- 6 Public Hearing was conducted on 15th December 2020 at Sri Bannariamman Thirumanamandapam, Thottampalayam, Sathyamangalam Taluk, Erode district, Tamil Nadu. The Public hearing was presided by Mr. C. Kathiravan, IAS, District Magistrate. Total 111 persons from local areas attended the public hearing. Major issues raised were on employment opportunities for the locals, implementation of CSR activities and wastewater treatment and disposal. Company has allocated Rs 55 lakhs for the community development programs.
- 7 Online application for Environmental Clearance for the captive co-generation power plant was submitted to MoEF&CC on 06.01.2021.
- 8 Total land required for CPP is 4.86 ha with an allocation of 33% for greenbelt. Around 3000 trees will be planted.
- 9 No acquisition of land is involved for project site as the proposed project is within the existing paper mill facility; therefore, no R&R issues are involved.
- 10 Existing Paper Mill facility consists of three units with kraft production capacity of 60, 200 and 60 TPD located in a total area of 114.87 acres. The production capacity of 200 TPD in 2nd unit is also proposed to be increased to 800 TPD. The expansion of kraft production capacity without deinking, bleaching and colouring processes is exempted for EC under EIA Notification, 2006.
- 11 The estimated cost of the power plant is Rs 55 crore. This includes about Rs 7 crore towards pollution control measures. About Rs 6 lacs will be the additional yearly cost per annum for EMP.
- 12 The power plant will have atmospheric fluidised bed combustion boiler of 100 TPH capacity at 105 kg/cm² pressure.
- 13 Coal requirement will be 450 TPD for peak steam production. Indonesian coal with GCV of 4300 to 5500 Kcal/kg, sulphur content of 0.15 to 0.5 % and ash content of 3 to 10% will be used which will be unloaded at Tuticorin Port and transported to the plant by road.
- 14 Fresh Water requirement will be 297 m³/day sourced from the river Bhavani (at a distance of 2 km) which is within the water allocation of 1500 m³/day.
- 15 Adequate pollution control measures will be taken. Stack height of 70 m is proposed. ESPs for particulate matter control, dry limestone powder injection for SO₂ emission control and FBC systems with low NO_x combustion will be installed. ETP with anaerobic process and tertiary treatment for wastewater is proposed. Entire mill complex

including proposed CPP will be ZLD unit.

- 16 Peak Ash generation will be 45 TDP @ 10% peak ash content in coal, which will be stored in the dry form and sent to cement plants and local brick manufacturers. MoUs with the fly ash users have been signed.
- 17 Baseline monitoring study as per ToR was conducted during 15th May to 14th August 2020. As per the study all air quality, noise levels, surface water and ground water quality parameters are within the permissible limits. GLCs for PM10, SO₂ and NO_x are also within the limits as per air quality modelling.
- 18 No activities will be executed near the boundary of the reserved forest and no road is planned through Sathyamangalam Tiger Reserve Eco Sensitive area.

The Committee after detailed deliberations **recommended for grant of Environmental Clearance** for establishing 14.5 MW Coal based Captive Co-generation Power Plant within the existing facility, with the following specific conditions for the compliance, in addition to the standard conditions(Annexure B)stipulated for the thermal power plants:

- a) Wildlife conservation plan for the site for Schedule -I list shall be prepared and implemented after approval of the Chief Wildlife Warden of the State. Sufficient budgetary allocation shall be done accordingly. Purchasing of vehicle for implementation of wildlife conservation plan budget is not allowed.
- b) Set up ETP for wastewater treatment to meet the norms and achieve ZLD guidelines of CPCB.No discharge shall be allowed outside the plant boundary.
- c) An online continuous emission monitoring system is to be installed and its data shared with the CPCB/SPCB.
- d) Manufacturing of kraft paper in existing plant and proposed expansion should not involve deinking, bleaching and colouring processes.
- e) No transportation of materials shall be allowed within/from wild life area.
- f) Impact assessment study shall be carried out at two years interval to know the impacts of plants on wildlife through a reputed government research institute having expertise in the wildlife research. The impact assessment study will be submitted to concerned regional office of the Ministry.
- g) Transportation of Fly Ash shall be done as per standard procedure prescribed by CPCB with due care of all environmental parameters. Dumping of Fly Ash is not allowed.
- h) Green belt of native species of appropriate width (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 developed. Photographic evidence be created and submitted periodically to the concerned regional office of the Ministryincluding survival rate of saplings. A shrub layer beneath tree layer would serve as an effective sieve for dust and sink for CO₂ and other gaseous pollutants and hence a stratified green belt should be developed.
- i) Over and above the green belt, as carbon sink, additional plantation shall be done 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 Regional Office of the Ministry every six months.

Attendance List

Name & Address	Role	Attendance
1. Shri Gururaj P. Kundargi	Chairman	P
2. Dr. N. P. Shukla	Member	P
3. Shri Suramya Vora	Member	P
4. Dr. Santosh Kumar	Member	P
5. Dr. Umesh Jagannathrao Kahalekar	Member	P
6. Shri K.B. Biswas	Member	P
7. Dr. Nandini. N	Member	P
8. Dr. Unmesh Patnaik	Member	P
9. Shri Prasant Kumar Mohapatra	Member	P
10. Dr. Nazimuddin	Member (Representative of CPCB)	P
11. Shri M. P. Singh	Member (Representative of CEA)	P
12. Prof S. S. Rai	Member Representative of IIT/ISM Dhanbad	P
13. Prof R. K. Giri	Member Representative of IMD	P
14. Yogendra Pal Singh	Member Secretary	P

Standard EC Conditions for Thermal Power Sector:

A. Statutory compliance:

1. 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.
4. 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 SO₂ 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, NO_x 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:

1. 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/MW hr. (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.

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 inter-alia 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 aswell 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 (PM₁₀& PM_{2.5}incase of ambient AAQ), SO₂, NO_x (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.III dated 30.09.2020 or as proposed by the PP in reference to Public Hearing or as earmarked in the EIA/EMP report along with the detailed schedule of implementation.

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 seawater 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 modelling 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.