

MINUTES OF 34th MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE ON ENVIRONMENTAL IMPACT ASSESSMENT OF THERMAL POWER & COAL MINING PROJECTS

The 34th Meeting of the reconstituted Expert Appraisal Committee (Thermal Power) was held on **29th-30th April, 2015** at Teesta Meeting Hall, First Floor, Vayu Wing, Indira Paryavaran Bhawan (new building), Jorbagh, New Delhi. The members present were:

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| 1. Prof. C.R. Babu | - | Vice Chairman (Acting Chair) |
| 2. Shri T.K.Dhar | - | Member |
| 3. Shri J.L Mehta | - | Member |
| 4. Shri G.S. Dang | - | Member |
| 5. Shri N.K. Verma | - | Member |
| 6. Dr. C.B.S Dutt | - | Member (Representative of NRSC) |
| 7. Dr. S.D. Attri | - | Member (Representative of IMD) |
| 8. Shri P.D Siwal and Shri N.S. Mondal | - | Member (Representative of CEA) |
| 9. Dr. S.S. Bala | - | Member (Representative of CPCB) |
| 10. Ms. Sanchita Jindal | - | Member Secretary |

In attendance: Dr. M. Ramesh, Scientist 'D', MoEF&CC.

Shri A.K. Bansal, Dr. Ratnavel, and Dr. Asha Rajvanshi did not attend the meeting.

Item No.1: CONFIRMATION OF THE MINUTES OF THE LAST MEETING.

The Minutes of the 32nd EAC meeting held during 23rd- 24th February, 2015 were confirmed with the following corrections-

Under Item 2.1, the following shall be inserted as Para 21 and accordingly, the earlier Para 21 shall be read as Para 22.

' The Committee noted that the PP has proposed 70 m height for the stack which is recommended for gas based power plant of only 400 MW, whereas the above proposal is for 5x400 MW. Hence, the stack height should be accordingly worked-out taking into account total emission of NO_x from 5 plants, similar to that in case of SO₂ emission from coal based power plants'.

2. Further, it is observed that NO_x emission from gas based power plant will be in addition to 4000 MW coal based power plant proposed by the PP, NO_x contribution from which is very high (47.17 to 57.19 microgram/NM³ for blended coal, that is above the base line data that ranges between 10 to 22 microgram/NM³). In addition, contribution from vehicular emission will also increase in future due to increase in vehicles. In view of this, it is essential to increase stack height of gas based power plants to minimize contribution of NO_x at ground level.

3. The isopleths of proposed 2000 MW gas based power plant shall also be made in addition to 4000 MW coal based power plant for NO_x and combined effect shall be assessed on GLC for knowing impact on air quality. This will lead to increased stack height requirement to keep GLC well within the standards of 80 microgram/NM³ for 24 h average, keeping some cushion for future. **The stack height adequacy shall be checked by CPCB based on modeling.**

The condition No. (v) of Para 22 shall be read as :

‘Stacks of adequate height as recommended by CPCB shall be provided with continuous on-line monitoring system. Exit velocity of flue gases shall not be less than 22 m/sec’.

Item No. 2: CONSIDERATION OF PROJECTS

2.1 Supercritical imported coal based Thermal Power Plant of 2x660 MW capacity at Villages Ottapidaram & Sillanatham, Taluk Ottapidaram, District Thoothukkudi, Tamil Nadu by M/s KU Thermal Power Pvt. Ltd.- For EC

1. The PP along with their environmental consultant, Vimta Labs Ltd., Hyderabad made a presentation and inter-alia provided the following information-

- 1) The ToR for preparation of EIA/EMP report was accorded on 28.12.2011 and the validity was extended till 27.12.2015. The EIA/EMP report, after conducting Public Hearing, was submitted to the Ministry for consideration of environmental clearance.
- 2) The optimized land requirement for the project is 750 acres of which 725 acres has already been acquired. There are no R & R issues involved as there are no homestead outstees in the project area and the land has been purchased

through mutual consent. The land is a dry & barren land. The Tahsildar of Ottapidaram Taluk certified that the project site does not come under ayacut area of any irrigation project. The project site does not involve any forest land, does not fall under the Kaveri Basin and is located at a distance of about 11 km from the sea. There is no grazing land and common property resources within the project site. There is no National Park, Sanctuary, Elephant/ Tiger Reserve (existing as well as proposed), migratory route / wildlife corridor, ecological sensitive location, archaeological monument, place of tourist interest and defense installation within 10 km radius of the project site. Chalikulam Reserve Forests is at a distance of 4.3 km, NW. The estimated cost of the project is Rs. 6600 Crores of which the cost towards environment protection measures is Rs. 418 Crores. The budget towards CSR is Rs. 20.25 Crores with a recurring budget of Rs.1.5 Crores per annum.

- 3) An application was filed with Ministry of Coal for domestic coal which is under process. Imported coal shall be used till indigenous coal is made available. FSA has been made with M/s PT Krishapusaka Sejati for providing 100% imported coal from Indonesia. The imported coal requirement is 3.25 MTPA. The EIA /EMP has been prepared for three different sources of coal like imported coal (Indonesia), blended coal (70% domestic + 30% imported) and domestic coal (MCL mines). Coal will be shipped to Thoothukudi Port and transported to rail network to Tattaparai, which is about 7 km from the project site. From Tattaparai, the coal will be transported by road/rail network to the plant.
- 4) High efficiency ESP will be installed to control particulate emissions < 50 mg/Nm³. One bi-flue stack of 275 m height and low NO_x burners will be installed.
- 5) The base-line monitoring was done during Oct-Dec, 2011. The base line concentration for PM₁₀, PM_{2.5} SO₂, NO_x and Hg is in the range of 24.5-32.6 µg/m³, 9.2-11.3 µg/m³, 7.9- 9.9 µg/m³ and < 0.01 µg/m³ respectively The incremental concentration of PM, SO₂ and NO_x in the worst case scenario is 0.53 µg/m³, 38.64 µg/m³ and 15.14 µg/m³ respectively. Final GLC of all these will be within the limits prescribed in ambient air quality.
- 6) The water requirement of 60 m³/h will be met from desalinated water supplied by M/s South Ganga Water Technologies Private Limited. Water supply agreement has been signed with South Ganga Waters Technologies Private Limited on 9.11.2011. Air Cooled Condensing (ACC) System and induced draft cooling towers for recirculation water are proposed. M/s South Ganga Water Technologies Pvt. Ltd. has obtained the CRZ clearance for the de-salination

plant and the water shall be sourced from them. The ETP and STP will be based on Zero discharge concept. Marine impact is not applicable as the site is land locked.

- 7) Fly ash generated from the project will be supplied to the nearby cement manufacturers and 100% fly ash utilization will be done from 4th year onwards & in compliance with the fly ash utilization Notification. MOU has been signed on 19.11.2014 with My Home Industries for lifting of flyash. High Concentration Slurry Disposal (HCSD) system will be adopted for ash disposal. HDPE/LDPE liners will be provided for the ash pond in order to control any seepage from ash pond water into groundwater. Green belt will be developed of 50-100 m width all along the plant & ash pond.
- 8) Public hearing/public consultation for the project was conducted by Gujarat Pollution Control Board on 25.07.2014. It was noted that the issues raised in the public hearing pertained to ground water pollution & kidney failure, welcoming the project due to more employment opportunities, providing employment to locals, installation of FGD, water scarcity infrastructure development of the area, CSR activities, non conducting of the PH at the project site etc. The Committee discussed the issues raised in Public Hearing and the reply of the Project Proponent.

2. After detailed deliberations, the Committee felt that area for the ash pond should be reduced. 25 acre which is yet to be acquired may be forgone. The plant shall be constructed in a way that surface water drainage is not altered and no ground water should be extracted. The Committee sought the following information which was either not available in the EIA/EMP report or was given wrong. Accordingly, the proposal was **deferred**. -

- (i) *The ash content in blended coal is given more than the domestic coal. The Sulphur Content is given the same for both domestic and imported coal. These needs to be relooked into. The ash content has to be less than 34%.*
- (ii) *The base-line monitoring was done during Oct-Dec, 2011, which is a rainy season in the area. Further, the data is more than three years old. Hence, the monitoring shall be re-done during non-monsoon season and cumulative impacts (including those of proposed industries, TPPs etc. in the area) shall be assessed. The data may corroborate with other data available with the existing industries and data of proposed projects. Prediction of air quality may be done after incorporating their data too. The Sulphur content used for prediction modeling shall be of the worst case*

scenario. List of other industries , both existing and proposed may be given. Protocol for ambient Hg monitoring may also be given.

- (iii) Since there are variations in sea and land breeze during the day, the monitoring result may be reported 8 hrly.*
- (iv) This would change the data and EIA report too. However, the Committee felt that there is no need to carry out the Public Hearing again. To make the Public Aware, public notice/s in the leading newspapers including local language informing the public about the revised EIA/EMP with revised AAQ data etc. should be published. The comments from the public should be obtained giving a time period of minimum 15 days after the public notice is published. The revised EIA/EMP report should be placed on the website for public information.*
- (v) Breakup of the proposed project area specifying storage areas etc.*
- (vi) Coal storage area and quantity shall be re-looked into and submitted.*
- (vii) Action plan for establishment of railway siding for coal transportation. Alternatively, a separate study may be carried out for impact of transportation of coal by road in case of delay in commissioning of railway siding.*
- (viii) Details of proposed CDM benefits as mentioned in the EIA report.*
- (ix) Details of number of Salt pans including any closed one and the distance of nearest salt pan from the site. These may be given on a site map.*
- (x) Status of CRZ clearance and CMFRI approval for the Desalination plant of M/s South Ganga Water Technologies Pvt. Ltd. Ensure that impact on Marine ecology has been taken into account by the Supplier.*
- (xi) Alternate source of water in case of any breakdown or close down of the desalination plant from where water will be obtained.*
- (xii) Details of COC for recirculation of water.*
- (xiii) Storm water management system.*

- (xiv) *Commitment for non alteration of the surface drainage pattern of the area and for not extracting ground water.*
- (xv) *In the EIA report, it is mentioned that fly ash shall be used as fertilizer. This may be corrected as usage of fly ash as fertilizer is not allowed.*
- (xvi) *Clear and discrete fly ash utilization plan.*
- (xvii) *Copies of tie up with cement plant/s .*
- (xviii) *Optimized land area for ash pond.*
- (xix) *Action plan for provision of drinking water to the locals. . In the Public Hearing, it is mentioned that people in the project area are suffering from Kidney problem. Plan to take care of the same.*
- (xx) *Population of fishermen in the area and affect on their livelihood.*
- (xxi) *Revised detailed response and Action plan with budgetary provisions for issues raised in PH.*
- (xxii) *Justification for the venue for holding PH at Collectorate instead of the project site.*
- (xxiii) *Details of employment proposed for locals.*
- (xxiv) *Area of the project is TB prone. Pretreatment of TB may be included in the CSR.*
- (xxv) *Vision Document given in EIA report does not provide any vision.*

All the discrepancies in the EIA/EMP report shall be rectified and the revised EIA/EMP incorporating the above shall be submitted along with the revised Form-1.

2.2 Expansion by addition of 1x800 MW capacity (Stage II) to 2x800 MW (Stage-I) for imported coal based Sri Damodaram Sanjeevaiah Thermal Power Station at Village Nelaturu, Tehsil Muttukuru, Sri Potti Sriramulu Nellore District in Andhra Pradesh by M/s. Andhra Pradesh Power Development Company Limited (APPDCL)- For EC.

1. The PP along with their environmental consultant, Vimta Labs Ltd., Hyderabad made a presentation and inter-alia provided the following information. The replies to the issues raised by RO, MoEF in its report on compliance of the conditions of EC and CRZ clearance for Stage-1 was also presented.

- 1) EC was accorded for Stage-I (2X800 MW) on 17.07.2007. Both the units are based on Super Critical technology. Commercial Date of Operation (COD) for Unit-I achieved on 05.02.2015 and Consent for operation (CFO) issued by Andhra Pradesh Pollution Control Board (APPCB) is valid upto March 2017. The Unit-II was synchronized on 16.12.2014 and trial operations are under progress. COD is planned in May-2015. The existing Units (Stage-I) are based on 70% imported and 30% domestic washed coal. The net ash content in the coal shall be <34%.
- 2) The ToR for preparation of EIA/EMP report for the expansion Unit of Stage-II of 1x800 MW was accorded on 26.09.2012. The EIA/EMP report after conducting Public Hearing on 18.09.2014 was submitted to the Ministry for consideration of environmental clearance.
- 3) The proposed expansion TPP (Stage-II) will be on about 51 acres of land within the 1344.80 acres of land which is already under possession of APPDCL. Therefore, no additional land is required for this expansion Unit. All existing facilities for Stage-I shall be used for Stage II also. There is no R&R involved. There are no national parks, sanctuary, Elephant / Tiger reserve, migratory roots/wild life corridors within 10 km radius of the existing plant site. Buckingham Canal is at 0.4 km E, Bay of Bengal is at 2.6 km E and Upputeru River is at 6.0 km, SSW. Ipuru Reserve Forest (RF) is at 6.5 km SSW & Tammenapatnam RF is at 9.7 km S. Ecological survey shows that there are no endangered or threatened species of flora and fauna in the region. The flora and fauna observed in the region are common in nature. The capital cost and recurring cost per annum for environmental measures is Rs. 360 crores and 5 crores respectively. Provision for Rs. 20.56 Crores being 0.4% of project cost is earmarked for CSR activities under Stage-II with a recurring expenditure of Rs.4.11 Crores at 0.08%.
- 4) Stage _II shall be based on 100% imported coal and an MoU has been signed with MMTC on 26.03.2015 for supply of 2.5 MTPA coal. The sulphur and ash content in coal shall range from 0.45-0.8 (%) and 12-16 (%) respectively. Coal will be transported in a closed piped conveyor system from Krishnapatnam port to the plant. Stage-I conveyer system will be utilized for Stage-II also.

Radiation levels will be monitored in the coal storage and fly ash storage areas every six months.

- 5) Baseline Environmental monitoring has been conducted from October 2012 to May 2013. With regard to the air quality in the study area, the concentrations of particulate matter (PM₁₀ and PM_{2.5}), Sulphur dioxide (SO₂) and Oxides of Nitrogen (NO_x) were (maximum among the 3 seasons) in the range of 21.32-46.4 µg/m³, 10.3-17.2 µg/m³, 8.2-15.4 µg/m³ and 10.5-18.1 µg/m³ respectively which are well below the stipulated standards. The emissions from stack would be routed through stacks of 275 m height each for adequate dispersion. Cumulative air dispersion modeling studies indicated that the maximum predicted incremental concentrations for PM, SO₂ and NO_x likely to be encountered during post monsoon 2012 are 1.53 µg/m³, 55.76 µg/m³, 12.0 µg/m³ be occurring at a distance of about 5.2 km in SW direction, Winter 2012-2013 are 1.55 µg/m³, 58.8 µg/m³ and 13.6 µg/m³ occurring at a distance of about 4.5 km in SW direction, pre monsoon 2013 are 1.49 µg/m³, 54.4 µg/m³ and 11.2 µg/m³ occurring at a distance of about 5.0 km in WNW direction. The resultant concentrations are within the NAAQS.
- 6). The water for the proposed expansion project will be sourced from sea and the total sea water requirement is about 6,556 m³/h. Out of this, about 4,565 m³/h (primarily cooling tower blow down and R.O plant reject water) would be discharged back to the sea and about 1,656 m³/hr would be lost through evaporation in the cooling towers. Remaining treated wastewater along with R.O reject water will be discharged into sea at about 1.5 km from the sea shore. The resultant requirement of water of 2.49 m³/h/MW is well within the Central Electricity Authority (CEA) norms of 3.0 m³/h/MW. Cycles of Concentration (COC) of 1.4 will be maintained. Sea water allocation has been obtained from Government of Andhra Pradesh Infrastructure & Investment (Ports-I) Department vide letter dated 26-12-2012.
- 7) The water quality in the area covering surface and ground water sources in the region is in compliance with the stipulated standards of IS:10500. Ground Water Department (GWD), GoAP has been contacted for necessary guidance for water harvesting. GWD, GoAP has suggested that the water table in the project area is shallow i.e. 1.2 m to 2.5 m. therefore rainwater harvesting shall result in water logging. Therefore, construction of rain water harvesting structures in the project area is not recommended.
- 8) Hydro-geological study was carried by M/s. National Institute of Hydrology and the recommendations made in the said study shall be implemented.

Rapid Marine Environmental Impact Assessment Studies and Marine Environmental Management Plan was prepared by National Institute of Oceanography, Visakhapatnam, Andhra Pradesh and coordinates of the sea water intake and out fall have been finalised. During revised CRZ clearance (dated 03.09.2013), WAPCOS has conducted Hydrographic, Bathymetry and return water dispersion modelling studies. The cooling tower water shall be discharged into the sea at the outfall after cooling the water therefore; there is no increase in temperature of the discharge water.

- 9) Total ash generation from Stage-II TPP would be 1162 TPD which will comprise of 232 TPD of Bottom ash (20%), 930 TPD of dry fly ash (80%). MoU has been signed with M/s India Cements and M/s Bharati Cements for lifting of Dry Fly Ash of 400 TPD and 500 TPD respectively. Bottom ash will be supplied to brick manufacturers at free of cost. Existing ash pond will be utilized for Stage-II also. It is proposed to monitor water quality at three locations around the ash pond every six months. Shifting of ash pond with due approvals was challenged in Hon'ble NGT. The same was dismissed by NGT in favour of the PP. However, the petitioners have approached Hon'ble Supreme Court and the matter is pending.
- 10) A detailed socio-economic study has been conducted by M/s. Centre for Management & Social Research, Hyderabad. The CSR study has been carried out in 13 villages of Muthkur Mandal covering Nelatur, Nelatur Harijanawada, Nelaturpalem, Pynapuram, Pynapuram Harijanawada, Ananthapuram, Vagarthi, Musunuruvaripalem & Kothapalem, Mittapalem, Mamidipudi, Krishnapatnam and Krishnapatnam Adi-Andhra Colony. CSR initiatives already implemented by APPDCL over the past 5 years have been reviewed and need based study was conducted and development priorities were identified for all villages. A Station Level Monitoring Committee (SLMC) is being constituted to review the progress of CSR initiatives once in every six months. Social audits of CSR activities would be carried out by an independent agency during the construction and after the completion of the project based on requirement. About 11.73% tribal population exist in the study area. CSR activities have been formulated reflecting the needs and priorities of the community covering health, sanitation, drinking water, electrification of roads and livelihood enhancement.
- 11) Public hearing/public consultation was conducted by the APPCB on 18.09.2014. It was noted that the issues raised in the public hearing pertain to cumulative impact assessment, fly ash utilization, impact of radio activity, installation of CAAQMS, permanent employment to the land losers, shifting of

ash pond, use of non-saline water for ash disposal, land compensation, R&R package for three villages, CSR activities, green belt development etc. The Committee discussed the issues raised in Public Hearing and the reply presented by the Project Proponent.

2. Based on the information and clarifications provided by the Project Proponent and detailed discussions held on all various issues, the Committee **recommended the project for environmental clearance** subject to stipulation of the following additional specific conditions:

- i) *Amendment to the EC of existing Units regarding Rain Water Harvesting shall be obtained.*
- ii) *Since the closed conveyor for transportation of coal shall be operational by June, 2015 and currently for trial operation/commissioning, transportation of coal is being done by road, permission from the Ministry shall be obtained in this regard immediately.*
- iii) *Monitor water quality at three locations around the ash pond every six months*
- iv) *Radiation levels will be monitored in the coal storage and fly ash storage areas every six months.*
- v) *As committed, there will be no increase in temperature of discharge water at the out fall point in the sea.*
- vi) *The Sulphur and ash content of coal shall not exceed 0.8 % and 16 % respectively. In case of variation of quality at any point of time, fresh reference shall be made to the Ministry for suitable amendments to the environmental clearance.*
- vii) *Latest authenticated satellite imagery shall be submitted on an annual basis to monitor the alterations of the area.*
- viii) *Green belt development for the existing Units (stage-I) shall be expedited and completed latest by the end of the Year 2015.*
- ix) *As committed, a minimum amount of Rs. 20.56 Crores shall be earmarked as capital cost for CSR activities and Rs. 4.11 Crores/annum or the amount as per*

the CSR policy of GOI whichever is higher shall be earmarked as recurring cost per annum till the operation of the plant.

2.3 Addition of Stage-V of Supercritical Unit of 1x800 MW capacity to the Existing capacity of 1760 MW at Dr. Narla Tata Rao Thermal Power Station (Dr. NTTPS) of at Ibrahimpatnam, Krishna District in Andhra Pradesh by M/s Andhra Pradesh Power Generation Corporation Ltd. (APGENCO) - Reconsideration for EC.

1. The proposal was earlier discussed in the 26th Meeting of the EAC (Thermal) held during 27th -28th **November, 2014**, the minutes of which are as under:

Quote "The project proponent and their environmental consultant, Ramky Enviro Engineers Ltd., Hyderabad made a presentation on the above proposal. At the outset, the committee inter-alia noted that there is no firm coal linkage for the proposed project as the allotment of Suliyari Belwar Coal Block of APMDC from which the coal is to be sourced was cancelled in compliance to the Hon'ble Supreme Court's Judgment. Although the PP informed that the project will be implemented using imported coal in case Suliyari coal block is not re-allotted to APMDC, there are no details of the imported coal i.e. the MoU, coal characteristics, transportation plan etc. Further, the EIA/EMP including public consultation were conducted only based on domestic coal.

2. *In view of above, the proposal was **deferred**. The Committee also sought the following additional information.*

(i) Detailed reply on compliance to the issues raised in the monitoring report of the R.O. for the existing units.

(ii) Compliance to the Ministry's Notification dated 02.01.2014, as applicable, for the existing Units and proposed regarding maximum 34% ash in the coal.

(iii) Action plan for phasing out Units I and II as they were commissioned in 1979-80.

(iv) Fresh approval of the Competent Authority for water drawl for the proposed expansion project.

(v) Existing fly ash utilization and proposed in compliance to the fly ash utilization Notification. Accordingly, proposed ash pond area shall be minimized.” Unquote

2. On submission of the above information, the proposal was placed before the EAC, wherein the PP made a presentation along with their environmental consultant, Ramky Enviro Engineers Ltd., Hyderabad and inter-alia provided the following information-

- 1) The existing Units (7) are Stage-I (2X210 MW), Stage-II (2X210 MW), Stage-III (2X210 MW) and Stage-IV (500 MW). The Stage-IV was commissioned on 06.04.2009. The present, for which EC is applied, is Stage-V of 1x800 MW and shall be Unit no. 8. The ToR for preparation of EIA/EMP report for the proposed project was accorded on 26.09.2012. The EIA/EMP report after conducting Public Hearing on 10.01.2014 was submitted to the Ministry for consideration of environmental clearance.
- 2) Existing land, coal yard, coal unloading facilities, marshalling yard, canal and intake pump house, colony etc. will be used for the expansion unit. Only 70 acres of additional land is required for ash pond. There are no national parks, sanctuary, Elephant / Tiger reserve, migratory routes/wild life corridors within 10 km radius of the plant site. The project cost is about 5286.54 Crores. The Capital cost and recurring cost for EMP are Rs. 282 Crores and Rs. 15 Crores/annum respectively. The capital cost and recurring cost for CSR activities is Rs. 21.15 Crores (0.4% of project cost) and Rs. 4.23 Crores/annum (0.08% of project cost) respectively.
- 3) The proposed unit shall be based on 100% imported coal. MOU has been concluded with M/s MMTC Ltd, a Govt. of India Enterprises for supply of 100% imported coal requirement of which is 8,088 TPD (2.65 MTPA). The Sulphur and ash content in the coal will range from 0.45-0.8 % and 12-16 % respectively. Irrespective of the mine or source Country, the coal will be supplied by supplier for the agreed parameters as the supplier will have option to import from any source. M/s Krishnapatnam Port Company Ltd. has given consent for handling of imported coal at the Port. Permission has been accorded by South Central Railway vide letter dated 20-03-2015 for transportation of imported coal from Krishnapatnam/Kakinada ports to Dr. NTTPS. Environmental Impact Studies have been carried taking into account the coal parameters mentioned in the MOU. Post project AAQ levels with 100% imported coal are found to be within NAAQ limits.

- 4) The supplementary report was placed on the APGENCO web-site for one month requesting suggestions, comments from the public. Change of coal source was notified in the "Eēnadu" and "The Hindu" news papers on 14-02-2015 and 15-02-2015 respectively requesting public views within a month. Three representations were received which conveyed no objection for use of imported coal however, raised some issues like , commitments made in the Public Hearing to be fulfilled, CSR funds, Mechanism to check the quality of coal, sulphur composition of the imported coal, 24 hour power supply etc. The Committee discussed the issues raised in these representations and those of Public Hearing dated 10.01.2014 and the reply of the Project Proponent. These were found in order.
- 5) The response of the PP to the issues raised by the RO of the Ministry in EC compliance report was also presented and discussed by the Committee. The PP assured that the green belt development will be completed by October, 2015. The Committee expressed its displeasure as the TPP is very old and before starting the construction even the green belt should have been planted. The PP expressed some difficulties with the species of plants for which committee suggested that either the Forests Dept. or Annamali University should have been consulted. The PP assured to do so.
- 6) Annual coal requirement for the existing Dr. NTTPS is about 9.3 million tonnes which is sourced from MCL and SCCL which are located at a distance of 945 km and 350 km respectively from the project site. As per MOEF notification dated 02-01-2014, Dr. NTTPS shall have to use coal containing ash content less than 34% from 01-01-2015 hence APGENCO entered into an agreement with M/s Spectrum Coal & Power Limited for setting up of a coal washery of 11 MTPA capacity to supply washed coal. M/s Spectrum Coal & Power Limited has established the washery which will be commissioned shortly. Supply of washed coal from M/s Spectrum Coal & Power Limited will start from May 2015. Meanwhile, Dr. NTTPS has been using imported coal having 7.81% ash content blended with the domestic coal. It was also informed by the PP that the conveyor belt system to transport the coal shall be ready within two months.
- 7) The water requirement for the proposed expansion is 2000 m³/h and fresh approval has been given by Irrigation Department for allocation of 25 cusecs of water for the proposed project vide G.O Rt. No. 127, dated 05-03-2015. Hydro-geological study was carried by National Institute of Hydrology and the recommendations made in the said study shall be implemented

- 8) The ash utilization for the existing units during the year 2013-14 is 71.83% and 2014-15 is 64.18%. However, 100% ash utilization will be achieved for the existing station from 2016-17 as cement plants of about 32.21 MTPA capacity exist within 150 km of the plant site. MOU has been entered with M/s Vertex Cements (P) Ltd, Hyderabad for lifting 1035 TPD of dry fly ash from the proposed Stage-V unit. 100% dry fly ash will be utilized from this Unit. Ash pond would be required for storing unutilized bottom ash. MOEF & CC vide its notification dated 03-11-2009 allows 50 ha of land for ash pond for a unit of 500 MW based on coal of 45% ash content, or in the same proportion for units of other capacities taking into account the ash content in coal to be used. Accordingly, APGENCO proposes to use 70 acres (28 ha) of the existing land for the ash pond.
- 9) Regarding phasing out of Units 1 & 2, it was submitted that these Units were commissioned on 01.11.1979 and 10.10.1980 respectively. However, several major R&M works have been implemented for both the Units which include installation of parallel ESPs, Replacement of complete Economiser Assembly, Replacement of complete Low Temperature Super Heater (LTSH), Cold Reheat (CRH) & Hot Reheat (HRH) lines, water wall bend assemblies, Modification of air preheater, total burner and wind box assembly in new C&I system etc. About Rs. 198.33 crores have been spent for this R&M works so far is. Further, proposals for certain more R&M works amounting to Rs. 95.79 crores are also under progress. An amount of Rs. 23 crores was incurred to upgrade the ESPs for Stage-I Units. Due to these R&M works taken up so far, both the units are complying with environmental norms. The Heat rate, Specific Coal consumption, Specific oil consumption, PLF and Auxiliary power consumption of Units 1 & 2 of Dr. NTTPS are on par with the latest 210 MW units of Dr. NTTPS commissioned in 1995. The performance of the units are compared with the CERC norms for the unit size of 210 MW and found that the units are performing well. The heat rates of the units are varying from 2348 kcal/kWh to 2418 kcal/kWh against the CERC norm of 2500 kcal/kWh. Due to the R&M works taken up so far, the expected life of Units 1 & 2 is about 15 more years. Hence, phase out programme is planned in 2030. The Unit 1 & Unit 2 will be phased out by October 2030.
3. Based on the information and clarifications provided by the Project Proponent and detailed discussions held on all the issues, the Committee **recommended the project for environmental clearance** subject to stipulation of the following additional specific conditions:

- i) *The sulphur and ash content of coal shall not exceed 0.8 % and 16 % respectively. In case of variation of quality at any point of time, fresh reference shall be made to the Ministry for suitable amendments to the environmental clearance.*
- ii) *Considering the pollution load of the old Units (I&II) and the proximity to Vijayawada/new capital of A.P, the EAC recommended to phase out the Units I and II at the earliest.*
- iii) *Latest authenticated satellite imagery shall be submitted on an annual basis to monitor the alterations of the area.*
- iv) *As committed, a minimum amount of Rs. 21.15 Crores shall be earmarked as capital cost for CSR activities during construction phase of the project and Rs. 4.23 Crores/annum or the amount as per the CSR policy of GOI whichever is higher, shall be earmarked as recurring cost per annum till the operation of the plant.*
- v) *Green belt development will be completed by October, 2015.*

2.4 Addition of 2x500 MW at Marwa Thermal Power Plant of 2280 MW at Marwa, District Janjgir Champa in Chhattisgarh by M/s Chhattisgarh State Power Generation Company Ltd. – For Reconsideration for Extension of EC.

1. The proposal was earlier discussed in the 28^h Meeting of the EAC (Thermal) held during **22nd -23rd, December, 2014**, the minutes of which are as under:

Quote “The PP made a presentation and inter-alia provided the following information. The proposal is for extension of validity of EC accorded by the Ministry for the above project on 05.02.2008. Consent to Establish (CTE) was accorded by Chhattisgarh Environment Conservation Board (CECB) on 05.05.2008 and the validity was extended till 01.05.2016. The Consent to Operate (CTO) for Unit 1 was accorded vide letter dated 31.03.2014 with the validity of three months. The validity extension has been requested from CECB and the same is awaited.

2. Regarding current status of the project, trial synchronization of Unit 1 was done on 20.12.2013 and coal fired synchronization of Unit 1 was done on 30.03.2014 to achieve the CEA capacity addition plan. O&M team is available at site for operation of Unit 1. The construction of track hopper is under progress

and CHP commissioning is expected by March, 2015. Rail connection from the Naila Railway Station for coal transport is expected by January, 2015. Ash dyke civil work for HCSD and water mash lagoon was completed and laying of piping is under progress, which is expected to be completed by end of January, 2015. Steam blowing of Unit 2 (steam piping) was done and normalization is under process, which is planned for synchronization in February, 2015. Work on ETP is in progress.

3. Raw water from Hasdeo River is being utilized for different utilities of the power plant i.e. D. M water, clarified water, fire fighting system etc. Two reservoirs of 5 lakh cu.m each are ready and D.M plant has been commissioned. Tapering coal linkage from SECL was obtained and FSA signed on 04.09.2013 between SECL and CESPGL. The compliance to conditions stipulated in the EC was presented. The progress of various units/facilities including CSR activities along with photographs was presented. An amount of Rs. 18.75 lacs has been incurred for CSR activities during 2009-13. It is proposed to donate Rs. 8.6 crores for an engineering college in the District and first installment of Rs. 2.0 crores has already been provided to District Administration. Green belt development shall be initiated after completion of erection activities. However, plantation of one lac tree in vicinity of intake pump house in 44.534 ha has been done in the year 2010-12 through Rajya Van Vikas Nigam, Chhattisgarh.

4. The reasons for delay in implementation of the project are delay in land acquisition and very slow progress by BOP vendor.

*5. The Committee noted that the Ministry has received a representation from Mr. Jaigopal Soni against the project. The reply of PP in this regard was sought which is still awaited. The proposal was accordingly **deferred.**" Unquote*

2. On submission of the above said reply, the proposal was placed before the EAC, wherein the PP made a presentation on the issues raised in the said representation and inter-alia provided the following information-

1) The ultimate capacity of Marwa Power Plant was informed as 3x500 MW in year 2007 to MoEF. No additional land for Unit No. I & II over and above the limit of 508 Ha has been acquired. The land for Phase-II shall facilitate enhancement of the capacity utilizing the common facilities and infrastructure. Trial synchronization of Unit no. 1 was done on 20.12.2013 and coal fired synchronization was done on 30.3.2014. Trial synchronization of Unit #2 was done on 31st March, 2015 with oil support. Work of coal unloading facility is on the verge of completion and commissioning of Coal handling Plant (CHP) is

expected by March, 2015. The delay in the project was because of the land acquisition.

2) Regarding reply to the representation, it was submitted that the complainant has stated in its complaint that he has lodged some complaint to the Revenue Authorities who have asked him to approach Court of Law. CSPGCL cannot therefore comment on this issue as it is between the complainant and Revenue Authorities of the State. Complainant has never approached CSPGCL in this matter. However, his main complain is regarding some small piece of land. It was submitted that entire land for the Project has been acquired through the Collector, Janjgir – Champa who has issued awards after observing all necessary formalities as per LA Act CSPGCL is a Govt. of Chhattisgarh undertaking and is fully committed for implementation of approved R&R Policy of the State Govt. R&R Policy of State Govt. is being followed. There is distinction between displaced family/person and affected family/person. Compensation over and above payable as per award under LA Act has been given on demand of the land owners. Policy provides the order of preference for employment to the displaced people on the basis of percentage of total land holding. Employment / alternate arrangement is to be provided on the basis of availability and eligibility. There have been many such applications and out of total 52 cases filed by the land owners in the High Court of Bilaspur, 48 nos. have been disposed off and three have been replied. Reply against only one petition is to be filed.

3. The Committee also discussed the issues raised by the Appellant in his e-mail dated 27.04.2015. It was noted that the issues are primarily w.r.t R&R and the State Govt. is the concerned Authority which needs to look into the matter. Regarding Consent to Establish (CTE) and Consent to Operate (CTO) issues, the MOEF & CC may get clarification from the Chhattisgarh Environment Conservation Board (CECB).

4. The issue of construction/trial operation without a valid EC for this expansion project, it was informed by the PP that they had applied for extension of EC to the Ministry prior to the expiry of the validity period of EC. However, the statement of the PP could not be ascertained. It was noted that at the time of synchronization of this expansion unit, the EC was not valid as it had expired.

5. The Committee was of the view that since the Unit is already synchronized, there is nothing technically prohibiting the extension of EC. However, legal aspect of validity of applying period needs to be looked into by the Ministry. In view of the advanced stage of implementation of the Project, the Committee decided that in accordance with the provisions of EIA Notification, 2006 and in public interest, the

request for extension upto 31.12.2015 can be agreed with and the additional conditions which were earlier not prescribed but relevant now be also stipulated.

2.5 Permission for Backfilling of Ash from Talcher Super Thermal Power Station at Talcher, Odisha of M/s. NTPC Ltd. in abandoned voids of Quarry No. 8 of Jagannath Mines of M/s MCL - For Amendment of EC.

The Committee perused the presentation made by NTPC. It was noted earlier NTPC, Bhushan Steel and NALCO in Odisha were given permission for mine void filling on pilot basis and the results/outcome of the pilot study are not yet concluded. It was also noted that the existing ash pond has capacity to last for about four more years. However, the PP submitted that there are no cement plants in the vicinity and there is not much demand of fly ash bricks in the State and there are not many infrastructure projects coming up in the State where the fly ash can be utilized therefore there is no other option than to use for mine void filling. The present fly ash notification also permits mine void filling and filling of low lying areas. Recently, the Committee constituted by the NGT has also visited various sites and recommended mine void filling for TTPs in Talcher area. The Committee was of the view that sheer volume of the fly ash makes it hazardous and there is all possibility of heavy metals leaching into the ground water. Therefore, till the results of the pilot study are made available, the proposal may be kept in abeyance. Meanwhile, NTPC may submit scientific and engineering plan for backfilling of the mines after consulting the National and International Experts for exploring the various geo-technical & engineering solutions.

Simultaneously, alternate avenues for fly ash utilization shall be explored and detailed action plan shall be submitted. It was also decided that Ministry may take a policy decision for allowing Mine void filling.

In view of above, the proposal was **deferred**.

2.6 Setting up of an additional Unit no. 9 of 800 MW capacity by phasing out existing Units No.1 to 4 (117.8 +3X110) MW at Panipat Thermal Power Station at Panipat, Haryana by M/s Haryana Power Generation Corporation Ltd.- For ToR .

1. The PP along with their environmental consultant, MECON Ltd., Ranchi made a presentation and inter-alia provided the following information-

- 1) The capacity of existing Units I - VIII are 117.8, 110, 110, 110, 210, 210, 250 and 250 MW respectively totaling to 1367.8 MW. It is proposed to decommission the Units I-IV after the commissioning of the proposed Unit of

800 MW. The coal linkage of Units I-IV shall be diverted to the proposed Unit.

- 2) The proposed Unit will be installed within the existing plant premises of **Panipat Thermal Power Station (PTPS)**, Panipat. Infrastructure facilities like ash dyke, raw water reservoir, marshalling yard, railway siding and colony of the existing plant shall be commonly used. No alternate sites were identified because required land was available inside the existing plant boundary. Panipat Oil Refinery and Panipat Town are located at a distance of 8 km and 10 km respectively from the project site.
- 3) The total coal requirement is 3.20 MTPA at 85% PLF. A blend of indigenous (GCV-3600 Kcal/Kg) and imported coal (GCV- 5400 Kcal/Kg) in 70:30 ratio as per CEA guidelines is proposed to be used. The domestic coal will be sourced from existing coal linkages from BCCL, WCL & CCL and imported coal through prospective suppliers (mainly MSTC, MMTC & STC). The water requirement is 2600 m³/h (25 Cusec) for the proposed Unit and shall be sourced from West Yamuna Canal within the existing allocation. The project cost is about Rs. 4418.9 crores of which the cost towards environment control measures is about Rs. 442 crores.

2. The Committee tried to understand the prevailing wind direction vis-à-vis plant layout including the town ship and the proximity to Panipat Town and Refinery. However, the same was not clear to the Committee. After detailed deliberations, **site visit** by a sub-group of the EAC was recommended. Further, the Committee recommended that breakup of the existing and proposed project site along with revised Form-I and PFR after rectifying the inconsistencies/errors pointed out by the committee, shall be submitted.

*The proposal was accordingly **deferred**.*

2.7 Coal-based Supercritical Thermal Power Project of 1320 Mw (2x660 MW) at Villages Dimirimunda, Samasingha & Mahulamund in Rairakhol Tehsil of Sambalpur District in Orissa by M/s. Visaka Thermal Power Ltd.- For ToR.

Neither the PP nor his representative was present. Hence, the proposal couldn't be appraised.

2.8 Expansion from 2x600 MW to 3x600 MW of Coal Based Singareni Thermal Power Plant at Pegadapalli Village, Jaipur Mandal, Adilabad District in Telangana by M/s Singareni Collieries Company Ltd.- For ToR.

1. The PP along with their environmental consultant, Ramky Enviro Engineers Ltd., Hyderabad made a presentation and inter-alia provided the following information-

- 1) EC for the existing 2x600 MW was accorded by the Ministry on 27.12.2010. Presently, the construction is under progress and power generation is likely to commence in the month of November, 2015. Due to acute power shortage in newly formed Telangana State, the Government of Telangana directed Singareni Collieries Company Limited (SCCL) to set up one more unit of 1x 600 MW at the same location of existing 2x600 MW on top priority.
- 2) No new infrastructure facilities are required for expansion unit. Total required land is available with SCCL, no R&R is involved and, adequate raw water is available from Godavari & Pranahita Rivers. Water will be pumped through the existing pipe line and pump house only. There is no forest land involved for the project.
- 3) Presently 2X600 MW STPP is under construction in area of 300.972 Ha and the land required for additional unit of 1X600 MW will be 105.21 Ha. Thus total land required is 406.182 Ha which is under possession of SCCL. The required coal will be supplied from SRPOC-I, SRPOC-II, RKP OC Phase-I, KK OCP of SCCL mines and future opencast mines like SRPOC-III & RKP OC phase-II. MoC has allotted Naini coal block in Odisha for SCCL's TPP on 30.03.2015. SCCL made a request to MoC for allocation of tapering coal linkage for Singareni TPP from SCCL mines.
- 4) The total water required for 3x600 MW is 1,32,000 KLD (5,500 m³/h) of which the water requirement for 2x600 MW plant under construction is 88,800 KLD (3,700 m³/h) and for proposed 1X600 MW is 43,200 KLD (1,800 m³/h). The required water will be met from River Godavari and Pranahitha. State Government has allocated 1.05 TMC of water from Godavari River and 2.00 TMC of water from Pranhitha River. The Capital cost of the 2x600 MW plant under construction is Rs. 7,573.51 crores and estimated Capital Cost of proposed additional unit of 1x600 MW shall be Rs. 3,570.20 crores, (Capitalized Project Cost including IDC has been taken) therefore, total Capital cost of all the units will be Rs.11,143.71 crores.

2. The Committee noted that the project is based on sub-critical technology. PP was not in a position to give any clarification or commitment to change the technology. Since, as per the policy of MoP, only Super Critical TPPs are permitted from the 13th Plan onwards and the same is preferred from environment point of view also, it was decided that the PP shall explore the feasibility of switching to Super Critical Technology. If sub-critical is proposed, prior approval of MoP shall be submitted. It was also observed the mode of transportation for the existing Units under construction will be changed.

3. The PP informed that they have started collecting the data and requested for allowing them to use the base-line data for pre-monsoon season 2015 (1st March - 31st May, 2015) for preparation of EIA/EMP, which was agreed by the Committee.

4. Based on the information provided and the presentation made, the Committee recommended the following ToR in addition to the standard TORs (as applicable) at **Annexure-A1** for undertaking detailed EIA study and preparation of EMP.

- (i) *Shall explore the feasibility of switching to Super Critical Technology. If sub-critical is proposed, prior approval of MoP shall be submitted. Accordingly, the EIA/EMP shall be prepared.*
- (ii) *Transportation plan including impact of road transportation, in case of delay of rail transportation shall be included in the EIA/EMP.*
- (iii) *The PP shall obtain an amendment in existing EC for change of source of coal, mode of transportation etc.*
- (iv) *Details of using Bottom Ash for the existing and new units shall be provided .*

2.9 Pet Coke based Captive Cogeneration Power Plant of 360 MW (4x90 MW) for Hazira Manufacturing Division at GIDC Mora Plot, Village Mora, Tehsil Chorasi, District Surat, Gujarat of M/s. Reliance Industries Ltd. - For ToR.

The PP made a presentation and inter-alia provided the following information-

- 1) Hazira Manufacturing Division (HMD) of Reliance Industries Ltd. (RIL) is located in GIDC declared Hazira Notified Industrial Area. Hazira Manufacturing Division (HMD) is a multi-product, fully integrated petrochemicals complex. Presently, the power & steam requirement for the process units of the petrochemical complex is met by gas-based Captive

Power Plant (CPP) of 360 MW. To supplement this need, a Coal based CCGT (360 MW- 4x90 MW) was proposed for which EC was granted by SEIAA, Gujarat on 28.01.2015. However, now the PP has decided to change the fuel to Pet Coke which is generated in house at RIL, Jamnagar. The instant proposal is to change fuel from coal to pet coke in this CCGT. In view of the capacity more than 50 MW, the project becomes "A" category. Hence the application.

- 2) No new construction or facilities are required as the proposal is only a switching of fuel from coal to Pet coke. There is no requirement of additional investment. The technology shall remain the same i.e. CFBC as it has Fuel Flexibility, Reduced Emission, Compact Boiler, High Combustion efficiency etc. The land requirement and water requirement shall also remain same i.e. 51 Ha which is available within HMD and 2,000 m³/h (from singanapur weir) respectively. The pet coke requirement is ~1.8 MTPA which shall be sourced from RIL, JMD and other refineries. Since Pet Coke has more Sulphur, to quench SO_x, direct lime injection into the boiler shall be done. Limestone of ~1 MTPA shall be sourced locally. No ash pond is proposed and utilization of fly ash shall be as per the timelines given in the Fly Ash Utilization Notification. Covered fuel storage and close conveying system shall be provided. For all material transportation, port facilities of Adani and Essar shall be used.

2. Based on the information provided and the presentation made, the Committee felt that EC of the SEIAA cannot be considered valid for this project and fresh TOR shall have to be given for the project, as this is completely a new project for the Committee.

3. However, in view of the valid EC from SEIAA, the PP requested to allow them to use of baseline data collected in 2013-14 and summer 2014 and exempt them from Public Consultation as the project is in GIDC area. The Committee agreed for the same however it was suggested that a Public Notice in the News Papers may be given informing about the change in the fuel.

4. After detailed deliberations, the Committee recommended the following ToR in addition to the standard TORs (as applicable) at **Annexure-A1** for undertaking detailed EIA study and preparation of EMP-

- i. Stack emission limit of 100 mg/Nm³ for SO₂ shall be complied by installation of the requisite Pollution Control Equipment (PCE).

- ii. Data of the Air Quality monitored for the existing Plant shall be provided i.e. 104 observations as per the MoEF&CC Notification.
- iii. In case of any delay in installation of railway siding/conveyor system, alternative transportation plan including impact due to road transportation, shall be studied and included in the EIA/EMP report. Effect of Transportation of Lime stone and Fly Ash.
- iv. The treated effluent quality shall be equal to or better than the estuarine water quality.
- v. Cumulative impacts of the discharges on the estuarine ecology and fisheries.
- vi. *Public Notice in the News Papers may be given informing about the change in the fuel.*

2.10. Coal Based Super Critical Thermal Power Project of 1320 MW (2x660 MW) at Villages Bhawanipur Char and Sripur, Taluk Balagarh, District Hooghly in West Bengal by M/s CESC Ltd. - For ToR.

1. The proposal was earlier discussed in the 24^h Meeting of the EAC (Thermal) held during **30th -31st October, 2014**, the minutes of which are as under:

Quote "The project proponent made a presentation and inter-alia provided the following information. ToR for the above proposal was accorded on 08.09.2010 and validity was extended upto 07.09.2013 on 20.03.2013. Due to lack of firm coal linkage the final EIA/EMP report could not be completed within the validity period. Hence, the present proposal is for fresh ToR.

2. The land requirement is about 550 acres and 902 acres land is already under possession. There is no forest land involved in the project site and no R&R is involved. There are no National Parks, Wildlife Sanctuaries, Biosphere Reserves and Heritage sites within a radius of 10 Km from the site.

3. The coal requirement is 6.95 MTPA at 85% PLF with GCV of 3500 kcal/kg and will be met through long term domestic coal linkage, which is awaited. The recommendation for coal linkage was made by Dept. of Power, Govt. of West Bengal to Ministry of Power (MoP) and Ministry of Coal (MoC) and by CEA/MoP to MoC. The water requirement is 4,235 m³/h and will be

sourced from River Hooghly. The approval has been accorded by CWC, Department of Irrigation, GoWB and Kolkata Port Trust.

4. Based on the information provided and the presentation made, the Committee sought the following information and **deferred** the proposal.

- (i) *Details regarding the project site being a riparine or an estuarine island.*
- (ii) *The tidal effect, if any, on the stability of the island*
- (iii) *Photographs of the project site*
- (iv) *Alterations made in the island*
- (v) *Whether the island is in the Fishing zone?*
- (vi) *Plant layout along with the breakup of the project area.*
- (vii) *Land use of the project site*
- (viii) *Project site on an Original toposheet*
- (ix) *Since WAPCOS have conducted study on the stability of the island, the concerned representatives shall present the findings before the EAC “*
Unquote

2. On submission of the above information, the proposal was placed before the EAC, wherein the PP made a presentation along with representatives of WAPCOS & CWPRS, Pune and inter-alia provided the following information-

- 1) The Balagarh Island, the project site is of 1000 acres and formed by alluvial deposits within Hooghly River having mostly seaward unidirectional flow with insignificant tidal ingress. This justifies the island being riparine.
- 2) The island is located at about 230 km upstream of the Sagar Island. The tidal effect reaches Balagarh only during spring tides. During neap and average tides due to the upland discharge, the flood velocities reduce drastically. It becomes as good as an impounding effect. During monsoon, it is a one way flow region. This indicates that most of the time the flow in the Hooghly River and channels surrounding Balagarh Island is towards sea. Therefore Tidal effect is insignificant.

- 3) Hydrographic survey charts of Hooghly River available since 1940, shows the existence of Balagarh island. Thus Balagarh island is existing for more than a period of 75 years with gradual developmental signs. (Central Water And Power Research Station (CWPRS), Pune had carried out extensive research to establish the stability of Balagarh island. As many as seven Technical Reports have been submitted on stability aspects by CWPRS, Pune. The CWPRS Tech. Report No. 4708 of March 2010 amply describe the various aspects regarding stability of Balagarh island, including changes in velocities, changes in cubic capacities of the River stretch etc. particularly assessment of effects of severe floods that occurred in September, 2000. These studies have shown that the severe flood of 2000 had marginal effect on stability of the riverine portion in Balagarh region.
- 4) The stability of island was checked on three aspects i.e. Cubic Capacity changes in channels, Cross Sectional changes in channels and Bank line changes around Island. Cubic Capacity of River channels around Balagarh Island has not changed in last 19 years. This shows that the Island is stable as there is no major erosion. The year wise cross sectional areas in Balagarh reach in last 19 years has also been analyzed. In order to study bank line changes around Balagarh island and both banks of Hooghly River, (Indian Remote Sensing Satellite (IRS) images for the year 1997, 2000, 2005, 2008 and 2015 were procured from NRSC, Hyderabad and analyzed. Satellite imageries were geo-referenced with respect to original toposheets supplied by Survey of India.
- 5) No alterations were made in the island. For protection measure, the bamboo make porcupine cages are provided which do not obstruct the flow but reduces the velocity near the bank. As the velocity gets reduced, the sediments are slowly dropped down near the bank and enhance the strength of island. The process is natural deposition of sediment and no effect on flow regime or towards other bank.
- 6) Balagarh region is substantially not a fishing zone. Moreover, if some few fishermen have their livelihood as fishing in the area they can still continue their activity since the power plant having a technology of Minimum Discharge (as per MoEF guidelines) is in anyway not encroaching or altering the River course.
- 7) The plant area including green belt required for the project is 550 acres. However, 902 acres is under possession. The emergency ash disposal area is 115 acres which will be outside the island. As per the Forest Cover map from

FSI, the project site is a non forest area and there are no traces of mangrove plantation. The Original Toposheets from "SURVEY OF INDIA" indicates that the project site is uninhabited, deserted & non forest area, no permanent structures, highway, road and power lines and Balagarh Island is never used for any religious purpose by any community.

8) The Land of Balagarh Island has indicated signs of stability even during the severe floods of 2000. Hence, it could be considered suitable in many ways and ideal for construction and operation of a thermal power station.

3. Based on the information provided and the presentation made, the Committee recommended the following ToR in addition to the standard TORs (as applicable) at **Annexure-A1** for undertaking detailed EIA study and preparation of EMP-

- (i) All the excess area other than required for the project shall be developed into vegetation/green belt.*
- (ii) Action plan for 100% fly ash utilization from day one and transport through piped conveyor. Filling of low lying areas is not permitted. Ash pond will be only for emergency and outside the island.*
- (iii) The surface drainage pattern and topography of the area shall not be changed.*
- (iv) Action plan for transportation of coal through piped conveyor from Balagarh railway station to the project site. Road transportation of coal is not permitted.*
- (v) The treated effluent quality shall be equal to or better than the estuarine water quality.*
- (vi) Cumulative impacts of the discharges on the estuarine ecology and fisheries.*
- (vii) The approval of Irrigation Department for construction of bridge shall be submitted.*
- (viii) No Colony at the site is permitted.*

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 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.
- x) 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.
- xv) 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 non-conducive 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 PM₁₀, PM_{2.5}, SO₂, NO_x, CO and Hg. The location of the monitoring stations should be so decided so as to take into consideration 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 at a location where maximum ground level concentration 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.
- xliv) Radio activity and heavy metal contents of coal to be sourced shall be examined and submitted along with laboratory reports.
- xlvi) Fuel analysis shall be provided. Details of auxiliary fuel, if any, including its quantity, quality, storage etc should also be furnished.
- xlvii) 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
- xlviii) 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.

- xlvi) 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.
- l) The DMP so formulated shall include measures against likely 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.
- li) Detailed scheme for raising 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 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 CO₂ and other gaseous pollutants and hence a stratified green belt should be developed.
- lii) Over and above the green belt, as carbon sink, plan for additional plantation 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.

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

Additional TOR for Coastal Based TPPs:

Over and above the TOR mentioned in **Annexure- A1**, the following shall be strictly followed (as applicable):

- a) Low lying areas fulfilling the definition wetland as per Ramsar Convention shall be identified and clearly demarcated w.r.t the proposed site.
- b) If the site includes or is located close to marshy areas and backwaters, these areas must be excluded from the site and the project boundary should be away from the CRZ line. Authenticated CRZ map from any of the authorized agencies shall be submitted.
- c) The soil leveling should be minimum with no or minimal disturbance to the natural drainage of the area. If the minor canals (if any) have to be diverted, the design for diversion should be such that the diverted canals not only drains the plant area but also collect the volume of flood water from the surrounding areas and discharge into marshy areas/major canals that enter into creek. Major canals should not be altered but their embankments should be strengthened and desilted.
- d) Additional soil required for leveling of the sites should as far as possible be generated within the site itself in such a manner that the natural drainage system of the area is protected and improved.
- e) Marshy areas which hold large quantities of flood water to be identified and shall not be disturbed.
- f) No waste should be discharged into Creek, Canal systems, Backwaters, Marshy areas and seas without appropriate treatment. Wherever feasible, the outfall should be first treated in a Guard Pond and then only discharged into deep sea (10 to 15 m depth). Similarly, the Intake should be from deep sea to avoid aggregation of fish and in no case shall be from the estuarine zone. The brine that comes out from Desalinization Plants (if any) should not be discharged into sea without adequate dilution.
- g) Mangrove conservation and regeneration plan shall be formulated and Action Plan with details of time bound implementation shall be specified, if mangroves are present in Study Area.
- h) A common **Green Endowment Fund** should be created by the project proponents out of EMP budgets. The interest earned out of it should be used for the development and management of green cover of the area.
- i) Impact on fisheries at various socio economic level shall be assessed.
- j) An endowment **Fishermen Welfare Fund** should be created out of CSR grants not only to enhance their quality of life by creation of facilities for Fish Landing

Platforms / Fishing Harbour / cold storage, but also to provide relief in case of emergency situations such as missing of fishermen on duty due to rough seas, tropical cyclones and storms etc.

- k) Tsunami Emergency Management Plan shall be prepared wherever applicable and Plan submitted prior to the commencement of construction work.
- l) There should not be any contamination of soil, ground and surface waters (canals & village pond) with sea water in and around the project sites. In other words necessary preventive measures for spillage from pipelines, such as lining of Guard Pond used for the treatment of outfall before discharging into the sea and surface RCC channels along the pipelines of outfall and intake should be adopted. This is just because the areas around the projects boundaries could be fertile agricultural land used for paddy cultivation.

(Prof. C.R. Babu)
Vice Chairman (Acting
Chair)

(Shri T.K.Dhar)
Member

(Shri J.L Mehta)
Member

(Shri G. S. Dang)
Member

(Shri N.K. Verma)
Member

(Dr. S.D. Attri)
Member

(Shri P.D Siwal &
Shri N.S. Mondal)
Member

(Dr. C.B.S Dutt)
Member

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Member

(Ms. Sanchita Jindal)
Member Secretary