

MINUTES OF THE 11th MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE ON ENVIRONMENTAL IMPACT ASSESSMENT OF THERMAL POWER & COAL MINE PROJECTS

The 11th Meeting of the reconstituted Expert Appraisal Committee (Thermal) was held on **February 13-14, 2014** at Fazal Hall, Scope Convention Centre, Scope Complex, Lodhi Road, New Delhi. The members present were:

1. Shri A.S. Lamba	-	Chairman
2. Dr. C.R. Babu	-	Vice Chairman
3. Shri T.K. Dhar	-	Member
4. Shri J.L. Mehta	-	Member
5. Shri N.K. Verma	-	Member
6. Shri G.S. Dang	-	Member
7. Shri P.D. Siwal	-	Member (only on 13 th)
8. Dr. S.D. Attri	-	Member (only on 13 th)
9. Dr. Ratnavel	-	Member (only on 13 th)
10. Dr. S.S. Bala	-	Representative of CPCB
11. Dr. Asha Rajvanshi	-	Representative of WII (only on 14 th)
12. Dr. Saroj	-	Member Secretary

In attendance: Dr. M. Ramesh, Deputy Director, MoEF.

Shri A.K. Bansal and Dr. C.B.S Dutt were absent.

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

The Minutes of the 8th EAC meeting and 10th EAC meeting held during January 9-10, 2014 and January 21, 2014 respectively were confirmed with minor corrections.

Item No. 2: CONSIDERATION OF PROJECTS

2.1 Extension of Sasan Thermal Power Project by addition of 3x660 MW at Village Sasan, in Waidhan Taluk, District Singrauli in Madhya Pradesh by M/s Sasan Power Ltd. –reg. reconsideration for Environmental Clearance.

The proposal was earlier discussed in the 56th Meeting of the EAC (Thermal) held during **September 3-4, 2012**, the minutes of which are as under:

Quote “The proposal is for consideration for environmental clearance. The project proponent made a presentation along with its consultant M/s GIS Enabled Environment & Neo-Graphic Centre (GreenC), Ghaziabad and provided following information:

The proposal is for expansion by addition of 3x660 MW Sasan Ultra Mega Power Project Plant at village Sasan, in Waidhan Taluk, at District Singrauli in Madhya Pradesh. No additional land and water will be required for expansion project. The expansion will be accommodated within existing area i.e. 3723 acres. The co-ordinates of the site are at Latitude 23⁰56’54” N to 23⁰59’35” N and Longitude 82⁰36’ 42” E to 82⁰38’11” E. Coal requirement will be 8.7 MTPA at 85 PLF. Blended coal is 70:30 (Domestic Coal 6.1 MTPA:

Imported Coal 2.6 MTPA) ratio. Ash and sulphur contents in blended coal will be 31% and 0.38% respectively. While domestic coal has 40% of ash content, 0.5% of Sulphur content and 3000 kcal/kg whereas imported coal has 1.3% of ash, 0.05 to 0.1% of Sulphur and 5500 kcal/kg. Water requirement will be 47 cusec which will be obtained from the Govind Ballabh Pant Sagar reservoir through a pipeline at a distance of 22.5 km from project site. Induced draft cooling system will be installed. Tri-flue single Stack of 275 m of height will be installed. There are no National parks, Wildlife sanctuaries, Tiger/Biosphere reserves etc. within 10 km of the site. Public Hearing was held on 14.11.2011. Cost of the project is Rs. 9805.64 Crores.

The project proponent also informed that all units of 6x660 MW Sasan UMPP are under active stage of implementation and also presented status progress of construction at site.

The Committee also noted that AAQ data collected is for the period December 2010 to February, 2011, whereas TOR was issued only on 23.05.2011. The project proponent informed that AAQ data collection had been an ongoing process and it was informed earlier when the present expansion case was taken up for TOR in the 19th Meeting held during March 7-8, 2011 and also in the 22nd meeting held during April 4-5, 2011, the Committee perused the AAQ data collected and agreed that the same can be acceptable.

The Committee also noted that there were many missing gaps of information including compliance to the TOR point-wise. As an example the project proponent have not answered the details sought in TOR point (iii) described as *“The project proponent shall have an integrated EIA study conducted by an institute of repute and assessment of baseline data and impact predicted shall be done a macro level. The project proponent shall also refer to the World Bank study earlier carried out for the area wherein it was reported to have capacity of assimilating only about 18000 MW, which has now far exceeded. Justification accordingly shall be provided”*.

Similarly the Committee also noted that primary information sought at TOR points (xi), (xiv), (xix), (xx), (xxi), (xxii), (xxvii), (xxviii), (xxxvi) etc. were answered perfunctorily with no details cited. On the issue of water availability study required to have been carried out, the Committee decided that the hydrology and source sustainability study purportedly carried out by IIT, Roorkee for the area shall be submitted. The committee felt that the said study was carried out long before even the UMPP was given environmental clearance and hence the acceptability and relevance of such an old study with the requirement for the proposed expansion needs clarification and further deliberation.

The Committee also agreed that the impact due to withdrawal of such a large quantity of water by the UMPP and its expansion by addition of 3x660 MW from the same source (or maybe different source) and other power plants or industries would be enormously large and the cumulative impact on the competing recipients cannot be ignored, even though no additional water was envisaged for the proposed expansion. *The Committee therefore decided that the project proponent needs to also come out with details of such a cumulative impact assessment (based on secondary data) due to water drawn for the power project and other developmental projects (power or industrial) from the same source.*

The Committee observed that the area is not too far off from critically polluted area of Singrauli and therefore decided that Action Plan for mitigation formulated for Singrauli region need to be seen and as abundant precaution need to be integrated with the proposed activity for the power project.

The Committee also observed that for such a large power project it would be advisable that ancillary units are encouraged to be set up in and around the region, which can also generate a lot of employment potential. Subsequently, since the human health related issues would also be large, it is imperative that baseline data of endemic diseases are identified so that appropriate long term preventive measures can be formulated.

The Committee also noted that the predicted SO₂ emission based on baseline AAQ collected during December, 2010 to February, 2011 is very high and is almost touching the AAQ standards. *The Committee therefore decided that prediction based on other seasons is a necessity in the present case and the project proponent shall accordingly carry out the exercise based on collected data (as reported to have been carried out as an ongoing process) and submit results.*

On the issue of firm coal allotment, the Committee observed that the project proponent have come premature without established source of firm coal availability required for the proposed expansion. It was reported that 30% imported coal will be used and the remaining 70% shall comprise of domestic coal and washery rejects from expanded capacities of coal washeries. *The Committee therefore decided that a clear coal/washery reject source and established coal quantity availability with appropriate documentation shall be first submitted. It was also decided that in case washery reject is proposed, the details of coal washery, its environmental clearance status etc. shall also be submitted (including copy of EC letter) along with a copy of firm imported coal agreement.*

It was also decided that the issue of port handling of imported coal and railway wagon availability need to be spelt out in black and white and documents from Port Authority and Railways shall be submitted to substantiate the claims made.

The Committee also discussed the issues raised in the Public Hearing and the responses provided by the project proponent. The major issues raised were regarding radio activity from ash and coal; increase in air, water and noise pollution; impact on livelihood of villagers; impact on aquatic life on Rihand Reservoir; land fertile and not barren as mentioned in EIA; forests area near project site and hence impact on wildlife; demand for civic amenities like roads, drinking water, electricity; educational facilities etc.; proper compensation for PAPs; Singaruli already an identified critically polluted area why such a plant should come up; afforestation to be done in large scale etc.

The Committee noted that the issues raised have been more or less addressed but few issues need detailed deliberation such as impact on Rihand Reservoir and radio activity from coal and fly ash. *The Committee therefore decided that not only for the expansion but also for the UMPP the project proponent needs to carry out a long term study of radio activity and heavy metals contents on coal to be used through a reputed institute. Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place and in and around the existing ash pond area shall be carried out by reputed institutes like IIT, Roorkee and accordingly formulate mechanism for carrying out the above.*

The Committee finally decided that the proposal in its present form is premature for recommendation of environmental clearance and decided that after incorporating the issues cited in the above mentioned paras, either in the EIA/EMP report or submit addendum EIA/EMP and

shall come back with point-wise TOR compliance. Accordingly the proposal was deferred. It was also decided that since the above will take some time the proposal can be de-listed from the pending list.” **Unquote.**

On submission of information by the PP for the above aspects, the matter was again placed before the EAC in the present meeting for its re-consideration and the following information was provided by the PP and their environmental consultant.

Two units of 6x660 MW Sasan UMPP are operational and balance are under active stage of implementation. The chimney height clearance has been obtained from Airport Authority of India and Ministry of Defence. The coal requirement will be 7.77 MTPA at 85% PLF and blended coal of 60:20:20 ratio (Imported Coal - 4.67 MTPA, Domestic E. Auction Coal - 1.55 MTPA and Washery Rejects - 1.55 MTPA) will be used. The imported coal has 5% of ash content, 0.3% of Sulphur content and 5000 kcal/kg of GCV. The domestic E. Auction coal has 34% of ash content, 0.5% of Sulphur content & 3800 kcal/kg of GCV and the Washery rejects has 50% of ash content, 0.5% of Sulphur content and 2200 kcal/kg of GCV. *Ash and sulphur contents in blended coal will be maintained to less than 34 % and 0.38 % respectively.* The imported coal shall be sourced through M/s Reliance Coal Resources Pvt. Ltd. from Indonesia and other off shore sources. The domestic Coal shall be sourced through E. Auction from SECL/NCL/MCL, whereas the washery rejects shall be sourced from the washeries of M/s Mahavir Benefication Pvt. Ltd. in Madhya Pradesh and M/s ACB (India) Ltd. in Odisha and Chhattisgarh. MoUs have been signed for the requisite quantities of imported coal and washery rejects. The imported coal shall be brought through western ports (Mundra/Kandla, Pipavav, Navlakhi) and then through Indian Rail to the project site (Via: Gandhidham/Dhola/Dahinsara). From Viramgram, the coal will be transported to Singrauli via Ahmedabad, Bhopal and New Katni route. The domestic washery rejects shall be brought through Indian Rail via Champa, New Katni to Singrauli.

Regarding the integrated EIA study, the study area considered for the baseline assessment is divided in two zones v.i.z: Core Zone: An area covering 10 km radius from the centre of the proposed project site and Buffer Zone: An area covering 25 km radius from the centre of the proposed project site has been considered as the buffer zone as desired by the EAC. The monitoring period considered for the study is winter (December 2010 to February 2011) substantiated with baseline monitoring data for other seasons. The baseline data for core-zone was collected through primary survey/monitoring. The air quality impact over the study area has been carried out using an Industrial Source Complex Short-term [ISC3] Dispersion Model based on the baseline data collected for the project covering all three seasons in 2010-11. The predictions were carried in two scenarios, i.e. Scenario I: Impact considering industries within 10 km {there are only Sasan UMPP (6x660 MW) and proposed Sasan TPSE (3x660 MW)}. Scenario II: Impact considering industries within 25 km, which are in various stages of completion and proposed for clearance. (Both coal mines and Thermal Power plants).

The present integrated EIA study includes reference to the Regional Integrated EIA study carried out by EDF, France (1989 – 90) for the Singrauli Area. The Regional Integrated EIA study carried out by EDF had considered Kanoria chemicals as centre of the study and also considered various parameters based on the then available technology and had assessed the carrying capacity for 18,000 MW. The Sasan TPSE is much beyond the study area considered by EDF, France. The nearest industry i.e. Vindyachal STPP is approximately 14.6 km away from Sasan TPSE. Also considerable changes have taken place in Technology as well as in environmental laws and practices since the study has been conducted by EDF France, such as emission norms changed to 50 µg/m³ from 150 µg/m³, super-critical technology for

better Thermal Efficiency, Induced draft close cycle cooling in place of once through cooling system, zero discharge from industries including higher COC, OB re-handling and mine closure plan, improved discharge quality and reduction in quantity from existing industries, non usage of ground water for industrial purposes

Regarding very high SO₂ emissions, during the summer season (Mar-May, 2011), the baseline GLC of SO₂ is varying from 13.9 to 21.7 µg/m³ within 10 km study area. The incremental GLC of SO₂ has been predicted considering Sasan TPSE, Sasan UMPP and other proposed industries to vary from 16.8 to 54.4 µg/m³ on all monitoring stations. The resultant GLC of SO₂ has been predicted considering Sasan TPSE, Sasan UMPP and other proposed industries to vary from 36.6 to 69.4 µg/m³. Whereas it is seen that the combined resultant GLC of SO₂ in the buffer zone (25 km radius) of the project area varies from 38.6 to 61.5 µg/m³.

During the winter season (Dec 2010 – Feb 2011), the baseline GLC of SO₂ varies from 13.1 to 22.8 µg/m³ in 10 km study area. The incremental GLC of SO₂ has been predicted considering Sasan TPSE, Sasan UMPP and other proposed industries to vary from 1.0 to 52.8 µg/m³ on all monitoring stations. The resultant GLC of SO₂ has been predicted considering Sasan TPSE, Sasan UMPP and other proposed industries to vary from 22.1 to 65.9 µg/m³. Whereas it has been found that the combined resultant GLC of SO₂ in the buffer zone (25 km radius) of the project area varies from 36.5 to 54.7 µg/m³.

Regarding the topography of the area and land use of the study area, the land-use map was prepared from LISS IV satellite imagery; the names of the locations are taken from Survey of India Topographical sheet. No additional land will be acquired for the proposed extension project. The land-use development initiatives taken by Sasan UMPP are that, the land-use pattern of the study area present dominance of agriculture land, approx. 20,000 trees are planted in waste land as part of land development in project vicinity, social forestry will be done on more barren land as part of CSR activity, further identification of waste land is under process and fund for development of barren land for agriculture purpose is being earmarked under CSR activities.

Regarding regeneration of water-bodies, the major drainages of the area, which includes Garra Nala, Mayar River, Kachan River etc. are all flowing outside the project boundary and are not affected by any project activities. The internal drainage pattern as planned and approved for Sasan UMPP is maintained without any alteration. No static degenerated water-bodies are present in and around the site within 3.0 km radius. The project is implementing Rainwater Harvesting inside the plant for recharge of ground water.

Regarding hydro-geological study of the area, Indian Institute of Technology, Roorkee (IIT Roorkee) carried out the hydro-geological study including infiltration tests with fly ash slurry for the Sasan Ultra Mega Power project. Based on the information available, the value of permeability of the study areas is 0.11958 cm/sec. Ground water potential in the area is limited as the depth of aquifer is shallow. Rainfall recharge is low due to undulating topography of the plant area and being covered mostly by waste land. The study area has unconfined aquifer with depth of layer limited to 12-13 m in general below which hard rocks exist. Transmissibility of the aquifer for an average saturated thickness of 5m is estimated as 8.64 m²/d. Rainwater harvesting system and artificial recharge techniques are recommended

not only to compensate for reduction in ground water recharge on account of imperviousness after the project is commissioned but also as environmentally sound water conservation measure in plant area.

On the basis of the analysis of the data generated from the systematic and comprehensive Hydro geological survey, the location and types suitable for rainwater harvesting structures are finalized to impound as well as recharge ground water. The total cost of rain water harvesting comes to Rs 41.35 lakhs. The monitoring of ground water level should be done on regular basis at least twice in year in the months of May (Pre monsoon) and November (Post monsoon). The data generated will be sent to Central Ground Water Authority New Delhi and Bhopal. 10 piezometers have been installed in the project area.

Regarding study on the impact on river/marine ecology, the make-up water requirement for the extension project is proposed to be drawn from the Rihand Reservoir. This water requirement shall be met from the water allocated for the Sasan UMPP and no additional water allocation is required. As the water requirement for the proposed extension shall be met from existing drawl point only, no additional impact is envisaged due to withdrawal of water. The project envisages Reduce-Reuse-Recycle principle and thus only minimum quantity effluent is expected to be discharged into nearby natural nallah. Further, only treated effluents meeting the stipulated standards as prescribed by Madhya Pradesh Pollution Control Board and MoEF shall be discharged, if any.

Regarding detailed source of water sustainability study, a study was conducted under the aegis of Central Electricity Authority through Alternate Hydro Energy Centre, Indian Institute of Technology, Roorkee in 2009 – 2010 with an objective to assess water sustainability of GBPS with the demands of new proposed thermal power plants and the additional capacity that can be given allocation from Rihand reservoir. The report has already been submitted to MoEF. This assessment of water sustainability was carried through a systematic study through collection of all available information and previous studies conducted by Irrigation Research Institute of Roorkee and National Institute of Hydrology and site visits during 2009. The study is based on Climatic and Physiographic characteristics, Drainage Pattern in Study Area, Catchment of Upstream of Rihand Dam, inflows into Rihand Reservoir (water availability), its usage by allocation/utilization by thermal power plants etc.

□ The proposed Sasan Extension project does not envisage requirement of any additional water allocation as it will use the optimized water quantity from the water allocated by competent authority for Sasan UMPP.

Regarding detailed socio-economic study, the proposed extension project will be set-up in the land already acquired for Sasan Ultra Mega Power Project. Hence, no additional R&R issue is involved at the project site. Social data was collected for demography, economic status and basic amenities available in the area from secondary information and census data sourced from the various public, semi-public and research organizations. A primary survey was also conducted to understand the socio-economic status of the project affected area. The study area has a population of about 2.5 lakhs with 45,712 household with annual average growth rate of 3.7%. The average household size of the study area is 5.8.

Regarding identification of local employable youth, no additional R&R on account of Sasan TPSE as there is no land acquisition involved. However, initiatives are being taken for employment of youth by Sasan UMPP such as, priority is being given to affected persons and local population and endeavors are being made to provide employment opportunity for at least one person from the displaced families. Adequate provisions have been included in project tenders for contractors / subcontractors to give priority to employ affected persons in

construction and other works. Labour co-operatives of affected persons are encouraged. Shops in the employee township have been reserved for affected vulnerable persons. Displaced persons, especially educated unemployed youth, are being provided industrial training free of cost in various skills such as masonry, carpentry, welding. Training imparted to 430 people in various trades such as Fitter, Mason, Shuttering Carpenter & Welder and Tailoring training imparted to 13 women. Stipend of Rs 1000 per month to each trainee is being paid.

Regarding location of the project not too far from the critically polluted area of Singrauli, the proposed plant is not within the Critically Polluted Area identified by Ministry of Environment & Forests, GoI. The project is being set up after getting requisite permission from MoEF, GoI. However, action points shall be implemented such as; all the conditions as mentioned in consent of Sasan UMPP are being followed. Also the consent to establish will be taken from MPPCB before commencement of proposed 3x660 MW TPSE. Greenbelt development in an area of approx. 474 acres of area in main plant and 50 acres in ash dyke area. Environmental Management Department consisting of qualified Scientists, Engineers and Field Staff will be established, who in turn will be reporting to the head of the establishment. For preventive measures arising out of spillage and leakage detection, correction system in ash-slurry pipelines, emergency response plan being prepared and adhered to for any such eventuality. ETP & STP shall be operated for the entire duration of plant operation. The hazardous waste will be disposed off suitably in consultation with Pollution Control Board. Used oil will be sold to approved recyclers. Installation of Continuous Real Time Monitoring Station. Standard EHS and OSHAS guidelines will be followed. Separate fly ash management study was conducted by M/s Fly Ash and Technology Management Associates to identify the probable avenues for ash utilization. Highly Efficient ESP to control particulate matter emission upto 50 mg/Nm³.

Regarding setting up of ancillary unit which can generate considerable employment potential, the Sasan TPSE is a very large size project and will require large quantity of spares during operations. During Construction and O&M phase, the project company would encourage the sub-contractors to employ local skilled people for various jobs. The project company would encourage local entrepreneurs to set up various ancillary units like fly ash brick manufacturing, tiles, etc. which will generate local employment as well. For this purpose, the project authorities will impart skill development training to the local people.

Regarding the human health related issues, a fully functional health centre is already in operation since 2009 where facilities are available such as Well equipped maternity ward, pathology lab, emergency ward, OPD, dressing room, medicine room, etc., 24 hours ambulance service, distribution of free medicines, Health Care Center is operational in R&R village, periodical monitoring for endemic / epidemiological survey will be carried out as a part of post project activity, the scope shall be designed as per the guidance of Local Chief Medical Officer and details of long term implementation programme will also be formulated under guidance and involvement of local health department.

Regarding long term study of radio activity and heavy metal contents of coal, the study will be done after the COD of the project as per EIA compliance. The operation phase monitoring mechanism will be controlled by Environment Management Cell. The Heavy Metals (Cu, Hg, Cd, Pb) in Fly ash and Coal will be analyzed once in three months and radio-active elements in Ash and Coal will be analyzed once in a year.

The Regional Office of MoEF had visited the site on 14.09.2013 and submitted the monitoring report for the existing UMPP project. The committee noted that at the time of monitoring, only Unit 3 was operational. From the said monitoring report, it seems that the most of the conditions stipulated in the EC are being complied by the PP. However, the committee recommended that the observations made by the R.O for few conditions as partly complied and yet to be complied, shall be complied by the PP in line with commissioning of the units.

The Committee noted that the predicted SO₂ emissions based on baseline AAQ collected during all seasons of 2010 - 2011 is very high and is almost touching the AAQ standards. Hence, it was recommended that FGD shall be installed to minimize the sulphur emissions.

The Committee also sought the following information/clarifications from the PP.

- *The documents circulated to the members prior to the meeting are at variance with the presentation made w.r.t coal parameters and sources of coal.*
- *ECs for the coal washeries from which the coal washery rejects would be sourced.*
- *Firm commitment/letter from Ports and Railways for handling the additional capacity of the coal.*
- *Water balance considering the input quality of water used especially w.r.t TDS. The discharge quality of cooling water blow down at proposed COC of 7.5.*
- *Generation of baseline data for endemic diseases*

In response to the above, the PP provided the following information/clarifications.

With the change in coal blending proportions from 70: 30 (Domestic –E.Auction and Washery Reject: Imported coal) to 60:20:20 (Imported: E. Auction Coal: Washery Reject), the coal quality has improved in terms of GCV and thus there is a reduction in coal consumption from the earlier 8.7 MTPA to 7.7 MTPA. The reduction in coal consumption shall have lesser emissions of sulphur and particulate matter. The sulphur emission dispersion has been calculated at a worst case concentration of 0.5% in both the cases. The ash generation estimated was 2.7 MTPA with ash content of 31% and with a coal consumption of 8.7 MTPA. With the revised ash content of 34% (worst case scenario) and with a coal consumption of 7.77 MTPA, the ash generation would be 2.6 MTPA. The ash utilization plan for the utilization of 2.7 MTPA of ash as per the Flyash utilization notification, 2009 has already been presented. The project proponent is in advantageous position for better utilization of the ash as they are coming up with their own cement manufacturing units at Mahiar, Gondwali in Madhya Pradesh.

The relevant consent to operate documents for M/S ACB Pvt. Limited for its operations of coal washeries at Odisha and Chhattisgarh and for M/s Mahavir Benefication Pvt. Ltd., for its operations at Madhya Pradesh duly issued by the respective State Pollution Control Boards were submitted by the PP. It was also informed that as per the MoUs signed with both ACB and Mahavair, all the licenses and permits required for supplying E-Auction coal/washery reject to buyer shall be the sole responsibility of seller. EC to coal washeries will also be covered in the said licenses/permits.

APM Terminals, Pipavav vide letter dated 12.02.2014 has confirmed that they have sufficient capacity to handle additional 4.67 MTPA of imported coal for the above project. The terminals are well connected to the network of Indian Railways by rail lines upto the port complex and four dedicated railway sidings exist within the port boundary for dispatch of coal by rail. The PP has requested the Railway Authority for permission for transportation of coal required for the project from various sources and the same is awaited.

The TDS of the raw water/make up water will be 115 ppm. The TDS of the circulating water will be 575 ppm and 863 ppm with a COC of 5 and 7.5 respectively. The better raw water quality of the source of water i.e. Govind Ballabh Pant Sagar reservoir w.r.t TSS and TDS and better utilization of heat rate enables the project for adopting higher COC up to 7.5 which is an environmentally sound practice in its own in the industry. The project proponent informed that their 220 MW power plant at Samalkot in Andhra Pradesh is operating at a COC of 12.0.

SPL would conduct an epidemiological survey including endemic diseases within the study area by a reputed institute and the same shall be submitted to MoEF before commencement of the construction.

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 specific conditions:

- i) Harnessing solar power within the premises of the plant particularly at available roof tops shall be carried out and status of implementation shall be submitted periodically.
- ii) A stack of 275 m height shall be provided with continuous online monitoring equipments for SO_x, NO_x and PM_{2.5} & PM₁₀. Exit velocity of flue gases shall not be less than 22 m/sec. Mercury emissions from stack shall also be monitored on periodic basis.
- iii) *Sulphur and ash contents in the blended coal to be used in the project shall not exceed 0.5 % and 34.0 % respectively at any given time. In case of variation of coal quality at any point of time, fresh reference shall be made to the Ministry for suitable amendments to environmental clearance condition wherever necessary.*
- iv) *FGD shall be installed. The FGD system shall be so designed such that non-functional of the FGD shall render the Unit non-functional.*
- v) High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm³. Adequate dust extraction system such as cyclones/ bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.
- vi) *COC of atleast 7.5 shall be adopted.*
- vii) Monitoring of surface water quantity and quality shall also be regularly conducted and records maintained. The monitored data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall be undertaken.
- viii) *Restoration of nalahs leading to Rihand Reservoir shall be carried out and details of works done and impact thereof be monitored and analyzed annually.*

- ix) A well designed rain water harvesting system shall be put in place within six months, which shall comprise of rain water collection from the built up and open area in the plant premises and detailed record kept of the quantity of water harvested every year and its use.
- x) Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Unutilized fly ash shall be disposed off in the ash pond in the form of 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. No ash shall be disposed off in low lying area.
- xi) Ash pond shall be lined with HDPE/LDPE lining or any other suitable impermeable media such that no leachate takes place at any point of time. Adequate safety measures shall also be implemented to protect the ash dyke from getting breached.
- xii) A long term study of radio activity and heavy metals contents on coal to be used shall be carried out through a reputed institute and results thereof analyzed every two year and reported along with monitoring reports. Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.
- xiii) CSR schemes identified based on need based assessment shall be implemented in consultation with the village Panchayat and the District Administration starting from the development of project itself. As part of CSR prior identification of local employable youth and eventual employment in the project after imparting relevant training shall be also undertaken. Company shall provide separate budget for community development activities and income generating programmes.
- xiv) *Potential for Agro forestry be studied through a reputed institute like ICFRE and an annual plan of action put in place and a nursery be established for raising tall plants of indigenous species for supply among the farmers to serve as a sink for pollutants. All details of plants supplied to farmers along with growth data shall be kept to assess actual sequestration of carbon.*
- xv) A minimum amount of Rs 39.23 Crores as one time capital investment shall be earmarked for activities to be taken up under CSR during construction phase of the Project. Recurring expenditure for CSR thereafter shall be Rs 7.85 Crores per annum or as per CSR guidelines of Govt. of India, whichever is more till the life of the plant.
- xvi) For proper and periodic monitoring of CSR activities, a CSR committee or a Social Audit committee or a suitable credible external agency shall be appointed. CSR activities shall also be evaluated by an independent external agency. This evaluation shall be both concurrent and final.
- xvii) *An epidemiological survey including endemic diseases of the study area shall be conducted by a reputed institute and submitted to MoEF and its Regional Office before commencement of the construction.*
- xviii) An Environmental Cell comprising of at least one expert in environmental science/ engineering, occupational health and social scientist, shall be created preferably at the project site itself and shall be headed by an officer of appropriate superiority and qualification. It shall be ensured that the Head of the Cell shall directly report to the head of the organization who would be accountable for implementation of environmental regulations and social impact improvement/mitigation measures.

2.2 2x660 MW Imported Coal Based TPP of M/s SJK Powergen Ltd. at village Lalapur, in Shahdol Distt., in Madhya Pradesh - RE-CONSIDERATION FOR EC.

The proposal was earlier discussed in the 46th, 64th, 1st and 6th Meetings of the EAC held during April 9-10, 2012, January 7-8, 2013, September 19-20, 2013 and December 5-6, 2013 respectively, wherein it was deferred due to inadequacy of information requisite for appraisal.

The project proponent in the earlier meetings gave a presentation and provided the following information:

Quote. “The proposal was earlier proposed based on domestic coal but due to non-availability of the same, it has been decided to go ahead with imported coal from Indonesia for an interim period until domestic coal is available.

The present proposal is for setting up of 2x660 MW Supercritical Imported Coal Based Thermal Power Plant at village Lalpur, in Sohagpur Taluk, in Shahdol Distt., in Madhya Pradesh. Land requirement will be 700 acres, of which 163 acres is Govt. land (chote jhar ka jungle), 527 acres is private land and 10 acres is revenue land. Stage-I forests clearance has been obtained for diversion of 66.294 ha of revenue forest land. The co-ordinates of the site are located within Latitude 23⁰15'50"N to 23⁰17'10" N and Longitude 81⁰28'12" E to 81⁰30'20" E. Imported coal requirement will be 4.72 MTPA at 85% of PLF and will be obtained from Indonesia, Kuansinglnti Makmur (KIM) Coal mines and PT Borneo Indobara (BIB) Coal mines. MoU has been signed with M/s GMR Coal Resource Pvt. Ltd, Singapore. Ash and sulphur contents in imported coal will be 7.5% and 0.59% respectively. Total ash generation will be 0.356 MTPA. Fly ash will be supplied to M/s ACC Keymore Cement Works of Katni, MP. Ash pond area will be 240 acres and co-ordinates of the ash pond site is located within Latitude 23⁰15'50"N to 23⁰16'57" N and Longitude 81⁰29'1" E to 81⁰30'20" E. HCSD is being envisaged for disposal of ash from power plant. Twin flue Stack of 275m shall be provided. Induced Draft cooling system shall be installed. Water requirement of 34.69 MCM will be sourced from the River Son through a pipeline at a distance of about 2.5km from project site. Permission to draw water has been obtained from the Govt. of Madhya Pradesh and the Central Water Commission. Water will be drawn upstream of Bansagar Dam in River Son. Sarphanala (a seasonal nala) is located at 0.2 km distance from the project site. There are nine reserve forest blocks within 10 km of the study area of the project site. There are no National Parks, Wildlife Sanctuaries, Heritage Sites, Tiger/Biosphere reserves etc. within 10 km of the site. Public Hearing was held on 08.10.2009. Cost of the project will be Rs 8000.0 Crores.

In **46th meeting**, the Committee noted that land has been optimized from 950 acres to 700 acres in order to reduce the area of forest land (Jhudpi jungle). It was also informed that proposed ash pond has been relocated further away from the River Sone. That the colony (township) has also been removed.

The project proponent also informed that their intention for installation of Assisted Spray Air Cooled Condensers is under serious examination.

The Committee had also discussed the issues raised in the public hearing held on 18th December, 2009 and the responses provided by the project proponent. The major issues raised were regarding unemployment of local youth and provision of employment especially to land losers and educated youth; pollution due to stone crushers in the area; educational facilities; request for non-disposal of fly ash in Sone River or Sarphanallah as these are sources of drinking water for the villagers; regular monitoring of air and water, general pollution, plantation of trees, provisions of drinking water, electricity, hospital and roads. The

project proponent also informed that there are no litigation in any court of law pertaining to the project.

The Committee also discussed the reply given by the project proponent to the written communication received during the public hearing.

The Committee noted that even though water allocation appears to be in place, a detailed analysis on the water availability during lean season, taking into account the flow available in Sone river, (considering the riparian needs) and the storage capacity for meeting the lean season period, need to be submitted.

The Committee also noted that transportation of coal and associated impacts including coal handling at ports and railway rolling stocks availability etc. need to be substantiated with available study reports /materials / data etc.

It was also observed that the study area has Schedule-I species including Sloth Bear for which conservation plan should be prepared for immediate implementation.

In view of the missing gaps and requisite information sought as above, the Committee decided to defer the project for reconsideration on receipt of following information:

- i) Detailed Action plan for implementation on relevant issues / concerns raised in Public Hearing along with response made and the rough budgetary allocation shall be prepared.
- ii) Geological map of the plant area shall be furnished;
- iii) Location of additional ash pond details shall be provided;
- iv) MoU for Fly Ash Utilisation signed with contracting parties shall be submitted;
- v) Transportation of coal and associated impacts / barriers, including coal handling capacity at Ports and railway rolling stocks availability shall be studied and report submitted;
- vi) A copy of R&R plan to be submitted.
- vii) CSR Action Plan shall be revised and financial break up activity wise along with firm commitment shall be submitted;
- viii) Detailed analysis on the water availability during lean season taking into account the flow available in Sone River (considering the riparian needs) and the storage capacity for meeting the lean season requirement shall be prepared and report submitted; and
- ix) Wildlife Conservation Plan drawn in consultation with the office of the Chief Wildlife Warden for immediate implementation shall be prepared and submitted.

On submission of the clarification, the matter was again placed before the Committee during the **64th meeting** of EAC.

The project proponent informed that imported coal from own mine in Indonesia will be brought to Vizag Port, and transported to TPP site by rail, which is about 900 Kms.

The project proponent informed that a barrage will be constructed at a distance of about 2 Kms from the TPP site. It was however clarified that the barrage will entail no submergence as such as the same is being proposed on high banks of the river for holding excess monsoon water for use of TPP during lean season and that mean minimum flow of river required will be maintained. It also stated that Bansagar Reservoir is located at about 150 Kms downstream.

The Committee observed that more detail information such as impact on other competing sources of water downstream of the proposed barrage and detail water availability for the proposed TPP need to be established along with detail analysis on the adverse impact due to water storage (barrage) on fauna flora. The Committee also decided that the project proponent shall satisfy the Committee that Barrage will have no significant adverse impact on livelihood of people downstream. It was also decided that approval of the CWC, as may be applicable, shall also be submitted for records.

The Committee also noted that the information provided on land use pattern in the study area shall be revisited; preferably using IRSA satellite maps and R&R plan shall be submitted. That while formulating CSR, the methodology adopted and the issues and activities studied/ examined shall be clearly indicated.

In view of the shortcomings as pointed above, the proposal was deferred for re-consideration at a later stage. It was also decided that in the information as stated above may be furnished timely, so that the matter can be placed in the forth coming meeting for re-consideration”.

On submission of the above, the matter was again taken up during the **1st meeting held in September, 2013.**

The project proponent stated water from Sone river is not proposed to be drawn during non monsoon months i.e October to May. That the area dependant on Sone River downstream of proposed Barrage is about 252 sq.km. Total Catchment area of Sone River and its tributaries upto Banasagar Reservoir is about 12159 sq.km. Catchment area of Sone River upto proposed Barrage location is about 5091 sq.km. Balance of catchment area from downstream of Barrage upto Banasagar is about 7068 sq.km. Thus, out of 7068 sq.km of Catchment below the Barrage, an area of 6816 sq.km is taken care of by the various major rivers flowing into Sone River. The remaining area is 252 sq.km (i.e 7068 sq. km – 6816 sq.km).

Out of 252 sq.km, about 112 sq.km is covered by reserved forests and no agricultural or other activities are permitted in these areas. The balance land is about 140 sq.km allowing for villages/homesteads, open shrubs etc. The cultivable area may work out to say 80 sq.km, that is 8000 Ha. The terrain being rocky in nature, not more than one crop is raised, that too availing the rains.

As per the latest census figures village wise the population count in this area of 140 sq.km is 32000. Thus for a population of 32000, adopting a domestic water requirement of 50 litre per capita per day, the quantum for the three dry months will work out to 450000 litres (450 cum). Whereas, it is programmed to release 0.26 MCM per month downstream of barrage to cater to the drinking water as well as any agricultural needs for the village clusters in the 140 sq.km area. This figure has been considered in the simulated reservoir routing carried out for 10 years using the inflow hydrological data available.

With regard to information on land use of the area downstream of the Barrage, it was stated that the extent of land area downstream of the proposed Barrage, depends on water sourcing from Sone River. The classification of the total area of land in the District Shahdol between various uses is summed up as: Total Geographical area is about 5,61,000 ha. Out of this total area forest cover is about 2,27,800 Ha (constitutes 40%). Out of this balance area is

about 3,33,200 Ha. Whereas, land for non-agriculture uses is about 44,600 Ha. Barren and un-cultivable land is about 9,300 Ha. Permanent pastures & other grazing land is about 6,500 Ha. Land under misc. trees, crops & groves is about 700 Ha. Uneconomical patches of land are about 17,700 Ha. Total is 78,800 Ha. It was also stated that Shahdol district has a good area under food and non food crops during the Kharif season- nearly 190,000 Ha. However, during Rabi season, the area dwindles to a meager 14,000 Ha. Thus, as it is the area does not draw much water from the flow in Sone River.

Irrigated source-wise irrigated water area was also presented and it was stated that in Shahdol district the source wise irrigated area is as below:

By Canal – 4,400 Ha; By Tank-2,400 Ha; By Tube wells -1,300 Ha; By Open wells-3,800 Ha; From other source-8,900 Ha. Thus the total area irrigated is about 20,800 Ha. This is very low compared to other district in the Rewa Division. District wise, this area of 20,800 Ha constitutes to a meager 6% of the Rewa Division.

Shahdol district has a distinctly large area under Paddy-1,08,000 ha. Out of total area of 1,62,000 ha. That the land can be put to cultivation in Sadhol District is only about 45 % of total area and is predominantly one crop only. Out of the total area of 1,72,800 ha, area actually sown is only 20,800 Ha (12%). Even such irrigated land mostly depends on tanks, tube wells etc. and irrigation provided by Canals is for a meager 4,400 Ha.

As a further check on the viability of the reservoir operation for routing the inflows vis-à-vis the reservoir storage position month wise has been considered. Such an exercise will confirm the availability of water for ensuring the upstream & downstream committed allocations & usages taking into account various losses etc.

It was further stated that with data of observed daily flow in the River Sone being available, an attempt has been made to come out with a working table for operation of the Reservoir to be formed behind the proposed Barrage structure on the River near Shahdol (village Lalpur) for routing this flow. The daily flow data collected for the years 1993-1994 to 1998-1999 at the Phapund gauging station maintained by CWC have been considered for this purpose. The value of the daily flow has been proportionately reduced to that at Shahdol by applying the factor of 0.42 arrived at by comparing the catchment area drained by the River at the two locations. That having fixed the FRL at EL 458.00, the entire boundary of the reservoir was surveyed & marked with the erection of pillars (totaling nearly 440 numbers) for identification and physical verification ensuring no adverse submersion. In view of the above references, the project proponent stated that provision of barrage will entail no adverse impact on competing recipients.

It was further stated that in view of the proposed barrage drinking water for Shadol town will be greatly benefitted and people residing upstream of the barrage will also be benefitted due to availability of water all round the year.

On the issue of R&R plan it was stated that Madhya Pradesh Govt's. R&R Policy has been taken into account wherever applicable. Regarding CSR activities the project proponent made a presentation and informed that sustained activity began from June, 2010 in Lalpur and Chhata Gram Panchayat of Sohagpur Block. That an amount of Rs 80.62 lakhs has been incurred till date on activities such as health care, education, sanitation, community development etc. That during the year 2013-2017, it is proposed to take up establishing an English Medium School; infrastructural upgradation of all Govt. Schools and Anganwadis;

support for bright students of Navadoya and Sainik Schools; establishment of 8 bedded hospitals with ambulance facilities in core village; installation of hand pumps etc.

The Committee noted some of the good work done by the project proponent in social sector but in the instant case it was observed that the claims of CSR activities appears to be an exaggeration in the absence of specific evidences – documentary or otherwise to substantiate the claim. It was also observed that the activities having declared as having been carried out since June, 2010 were not supported with any financial expenditure statement. Regarding proposed CSR programmes the Committee noted that these are general statements with no specific details and commitments. The Committee therefore decided that the project proponent shall submit a detailed Action plan and a firm commitment of implementation of the CSR activities (based on need based assessment) proposed to be carried out along with financial budget allocation.

In view of the observation made above, the Committee decided that the proposal be deferred and shall be taken up once information/study noted above are submitted.”

On submission of the information sought above, the matter was again placed before the EAC for its re-consideration in the meeting held in **December, 2013**.

The PP made a presentation on the detailed action plan with budgetary provisions for the CSR activities. The revised CSR Report includes the evidences for the activities carried out till now, the supporting documents for financial expenditure towards the above activities and the action plan for the proposed CSR activities (based on need based assessment) along with the budgetary allocation. The proposed budget for CSR activities has been increased by about 50% over the previous allocation. The total CSR investment proposed during 2013-2017 is Rs. 30 crores with an annual expenditure of Rs. 1.5 crores for O&M from the FY 2017-18. The committee felt that the recurring annual CSR expenditure be raised to Rs. 3.5 crores.

*The committee informed the PP that a representation/complaint was received from EIA Resource and Response Centre, New Delhi for the project. A copy of the same was provided to the PP for their reply. The committee desired that the PP shall submit their detailed reply with a copy to the members for a decision on the issues raised in the said representation and therefore, the proposal was **deferred.**” **Unquote.***

On submission of the information sought above, the matter was again placed before the EAC, wherein the project proponent gave a comprehensive presentation with the details as given below:

1. The project proposal was examined by the committee in four meetings held in April 2012, Jan 2013, September 2013 and December 2013 in which all the issues raised by the NGO were thoroughly discussed and incorporated in the scheme.
2. Regarding selection of site, there is no violation of EIA Notification as the Site was selected based on the guidelines prescribed by MoEF. The Lalpur site was chosen from amongst three identified alternative sites. A detailed analysis has been provided in the EIA report (in pages 138 to 141 in Chapter 5) for technology and site selection and the same were also brought out in the presentation made on April 09, 2012. The selected site involved no rehabilitation or resettlement, no removal of dense plantation and is in full compliance to MOEF siting guidelines. As regards to the question of non- validity of site selection as now imported coal is proposed instead of locally available coal and

non- availability of water all around the year, the validity of site selection is justified as below:

- a) The plant was expected to come up in the 12th plan. PFR was done based on the availability of domestic coal and the then prevailing Govt. of India policy for coal allocation at that time. Coal linkage has not been allotted yet due to non-availability of domestic coal. So the company approached the Ministry for going ahead with the project based on imported coal as an interim measure, which was approved by the EAC based on presentation made on 9th April, 2012.
 - b) SJK had obtained the permission to draw water from Sone River. Water Resources Department, Govt of MP allocated 0.032 mill.A.F (39.47 MCM) of water for this project out of their share of 1 Mill.A.F, after considering the requirement of the existing users.
 - c) Water allocation by WRD, M.P and confirmation of the same by CWC take into account all relevant considerations including the impact on competing users.
 - d) The EAC had directed the project proponent in the Jan'13 meeting to address the water issues more comprehensively. A detailed presentation was made to EAC in the meeting of Sep'13 comprehensively addressing all queries to the satisfaction of the committee.
 - e) The site does not fall in the flood plain of the River as the site is at least 1 Km away from the HFL of River and not 500 m as mentioned by the complainant. The land requirement for the project has been optimized as a result of changes in the layout. The minimum distance of 500 m shown in the submission referred to the old layout. The Supplementary Report submitted to MOEF on 28th July, 2010 clearly depicts the changes made in the layout and distance of the nearest point of site from the Sone River which is about 1 km away. Revised lay out optimizing total land area and reduction in forest land requirement were presented to EAC on 9th April'12 and this has been accepted by the Committee. Also the site was marked in topo sheet and submitted to MoEF as desired during the meeting of 9th April, 2012. It can be seen that the site is not in flood plain of River Sone as the site elevation is 471 m & HFL is 460 m.
3. With regard to the complaint of providing incomplete information in Form 1 and EIA report and to poor compliance of TOR, the project proponent reiterated that the details of controlling emissions during construction phase are given under Para 4.1.9 of Chapter – 4 of the EIA report. The project proponent also explained the various measures to control emissions during construction, from coal handling plant operation and Coal Transportation. During Coal Transportation and Coal Handling Plant operation, it was confirmed that the project shall adopt a) Water Sprinkling to avoid Entrainment of coal to Ambient Air b) Water recirculation system will be adopted to conserve water c) Gasoline and diesel powered vehicles are properly maintained to comply with exhaust emission requirements d) Trucks carrying coal will be suitably covered with tarpaulins e) During loading and unloading at various locations like port, yard and track hoppers sprinkling arrangement will be made to contain emissions f) Dust suppression system will be installed at all transfer points in the Coal Conveying System.

During Construction Phase, the project shall adopt a) Frequent water sprinkling in the vicinity during the construction phase b) Maintain roads properly c) Install Dust suppression system as per prudent industry practices to suppress emission. The study regarding movement of coal from port was prepared and submitted to the committee

during Jan 07, 2013 meeting and the usage of imported coal is only an interim measure.

4. To the complaint that the EIA report is very poor with impacts not properly assessed and poor baseline monitoring, the project proponent submitted that a) the coordinates for the power plant and the ash pond have been submitted in Final EIA. One ash dyke is located in the main plant area and co-ordinates of additional ash pond were also provided to EAC and discussed in the EAC meeting of April 09, 2012. b) One complete season AAQ data was taken during (Winter Season Dec 2008 to Feb 2009) and was included in the report. c) The requirement for Hg and Ozone monitoring was just introduced at that time when the studies were carried out. Due to non-clarity on the monitoring procedure, this was not taken up. However, it is assured that the monitoring of Hg and Ozone will be commenced during the construction phase itself and will be continued during operation phase. d) The typical coal quality of imported coal from the selected Indonesian mines was provided. Since the operation of mines is yet to commence, the coal quality will depend on the seam of coal which may vary depending on the time of mining. Hence, the heavy metal analysis will be undertaken during the construction phase and subsequently during the operation of the power plant. This will reflect accurately the quality of coal that will be used e) Details of ash pond were furnished by SJK as part of the clarifications to the EAC. EAC sought and obtained details of geological map, bore-hole data and ash pond design details including proposal for lining. These issues were discussed in detail in the 46th & 64th meetings held in April 2012 and Jan 2013 respectively and EAC was satisfied with the submissions f) The sources of data provided in EIA report are from forest department, Bilaspur University, Rewa University and published literature. Detailed study was carried out again and a wild life conservation plan was prepared with a budget of Rs 203 lakhs by Dr. Ram Prasad, Ex Chief wild Life Warden, Govt. of M.P. The same was approved by PCCF, Bhopal.
5. It was mentioned by the complainant that Cumulative Impact Assessment was not done and that new NAAQ standards came into existence in 2009, and this EIA report was prepared (in 2008-2009) based on previous standards which are not valid now. The project proponent clarified that the baseline study was carried out in winter 2008-09 and the EIA report was submitted to MoEF in 2009 which includes cumulative impact assessment of said components. Due to other special studies such as Wildlife Conservation Plan, Water Study etc., the representation to EAC got delayed.
6. The complainant has said that the environmental conditions must have changed since 2008 and asked will the decision of EAC reflect correct environment impact of the project? The project proponent replied that the Final EIA report was submitted in Dec 2009 but SJKPL could approach MOEF for EC in April 2012 only. The delay was mainly due to the revised policy of GOI. As per the circular dated 1st Nov'2010, the projects will be given EC only if the source of Coal i.e. linked Coal mine/ Coal block is known. Also the EAC insisted on more studies to be done including special studies such as Wildlife Conservation Plan, Water Study etc. It was pointed out by the project proponent that though the baseline monitoring was done in winter 2008-09, the data is still valid as no new industry has come up in the area within a radius of 10 km and no major change in environmental conditions.

7. The complainant raised questions regarding the completeness of Fuel Supply Agreement. The documents submitted in this regard were quoted and referred to the relevant portions of the agreement containing these details. The details were presented to the EAC in the meeting of April, 2012.
8. The complainant has contended that with the change in fuel source from local to imported and lapse of 5 years, the cost-benefit analysis would be no more valid to which the project proponent replied that a) the benefits to the local community in terms of employment, community development and CSR activities and revenue to the government & railways will remain unaffected. b) The direct benefit by generation of power, supply of power to M.P at only variable cost as specified in the MOU will also remain unaltered. The company earnings may be impacted during the interim period imported coal is used c) the issue of Cost-Benefit Analysis is a complex subject which is dependent on different contributing factors. The escalation in input costs is normally considered as part of the cost benefit analysis but it should also be borne in mind that change in Government policies in future cannot be assumed/forecast by any power project developer which falls under project risk and any power project developer has to take.
9. The complainant has raised that the Assessment of Cumulative Impact and Ecological Impact on River Sone be carried out and quoted portions of the Bansagar Agreement, the studies of SANDRP1 and referred to the reports of CGWB3. In reply to the above, it was informed by the project proponent that a separate detailed note on the above issues as part of the clarifications were submitted to EAC in the previous meetings of Jan 13 and Sep13. The detailed note was in addition to the complete copy of the report submitted to WRD, M.P. It was again clarified by the project proponent that a) the proposed water retention structure is only a barrage and not a dam b) it is envisaged that only excess water going waste during monsoon will be stored c) the design ensures that no upstream or downstream users will be affected by the barrage as only excess water during monsoon will be utilized. Hence the flows during other periods will remain as before with no impounding of water during these periods will be done in the barrage d) the proposed barrage is in an area where the River flows in a deep gorge. The submergence is also contained well within the banks of the River e) the water allocation has been made by Water Resources Department (WRD) based on its allocation on upstream of Bansagar Dam, considering requirements of other industries & other users and CWC, considering all the factors including those raised in the query and the interstate issues involved had cleared the allocation.

M/s CES carried out the water studies as per the M.P Govt requirement. The proposed water scheme was available in EIA report and referred in Table in page 23 of June 2012 note. An incorrect observation has been made by the complainant regarding water drawl by the project. It was categorically stated that the non-monsoon flows are not to be impounded by the barrage. The downstream flows considered for flushing are over and above the flows occurring during lean seasons and that it is difficult to see how upstream areas are affected by the barrage. Besides, the project has addressed the issues of downstream users as required by EAC. This additional flow will have beneficial impact only. The land records of Govt. have been used to arrive at land use pattern and this has also been mentioned in the report. Issues raised above are covered under detailed water studies carried out by Mr. Sunderbabu, Ex Member (CWC) and presented to EAC in two of the meetings on – Jan'13, Sep'13 and the report was accepted by EAC.

The replies by the proponent were discussed at length by the Committee. The committee also noted that the project site is outside the flood plain as the elevation of the site is 471 m, whereas the HFL is 460 m.

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 specific conditions:

- i) *The AAQ monitoring including Hg and Ozone shall be done for a period of one month within 3 months and submitted to MoEF. A comparison of the monitored AAQ data with that of the data during EIA shall also be made.*
- ii) *Harnessing solar power within the premises of the plant particularly at available roof tops shall be carried out and status of implementation shall be submitted periodically.*
- iii) *A stack of 275 m height shall be provided with continuous online monitoring equipments for SO_x, NO_x and PM_{2.5} & PM₁₀. Exit velocity of flue gases shall not be less than 22 m/sec. Mercury emissions from stack shall also be monitored on periodic basis.*
- iv) *High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm³. Adequate dust extraction system such as cyclones/ bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.*
- v) *COC of atleast 5.0 shall be adopted.*
- vi) *Monitoring of surface water quantity and quality shall also be regularly conducted and records maintained. The monitored data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall be undertaken.*
- vii) *A well designed rain water harvesting system shall be put in place within six months, which shall comprise of rain water collection from the built up and open area in the plant premises and detailed record kept of quantity of water collected and its use.*
- viii) *Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Unutilized fly ash shall be disposed off in the ash pond in the form of 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. No ash shall be disposed off in low lying area.*
- ix) *Ash pond shall be lined with HDPE/LDPE lining or any other suitable impermeable media such that no leachate takes place at any point of time. Adequate safety measures shall also be implemented to protect the ash dyke from getting breached.*
- x) *A long term study of radio activity and heavy metals contents on coal to be used shall be carried out through a reputed institute and results thereof analyzed every two year and reported along with monitoring reports. Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.*
- xi) *CSR schemes identified based on need based assessment shall be implemented in consultation with the village Panchayat and the District Administration starting from the development of project itself. As part of CSR prior identification of local employable youth and eventual employment in the project after imparting relevant*

- training shall be also undertaken. Company shall provide separate budget for community development activities and income generating programmes.
- xii) A minimum amount of Rs 32.0 Crores as one time capital investment shall be earmarked for activities to be taken up under CSR during construction phase of the Project. Recurring expenditure for CSR thereafter shall be Rs 6.4 Crores per annum or as per CSR guidelines of Govt. of India, whichever is more till the life of the plant.
 - xiii) For proper and periodic monitoring of CSR activities, a CSR committee or a Social Audit committee or a suitable credible external agency shall be appointed. CSR activities shall also be evaluated by an independent external agency. This evaluation shall be both concurrent and final.
 - xiv) An Environmental Cell comprising of at least one expert in environmental science/ engineering, occupational health and social scientist, shall be created preferably at the project site itself and shall be headed by an officer of appropriate superiority and qualification. It shall be ensured that the Head of the Cell shall directly report to the head of the organization who would be accountable for implementation of environmental regulations and social impact improvement/mitigation measures.

2.3 2x250 MW Barauni (Extension) Thermal Power Project by M/s Bihar State Power Generation Company Ltd. at Village Barauni, Districts Begusarai & Patna, Bihar – reg. reconsideration for Environmental Clearance

The proposal was earlier discussed in the 8th Meeting of the EAC (Thermal) was held on **January 9-10, 2014**, the minutes of which are as under:

Quote. “The proposal is for setting up of 2x250 MW Barauni (Extension) Thermal Power Project at Village Barauni, District Begusarai, Bihar by M/s Bihar State Power Generation Company Ltd. The project was accorded TOR for preparation of EIA/EMP report on 16.01.2009. The EIA/EMP report after conducting public hearing was submitted to the Ministry for consideration of environmental clearance. The Project Proponent (PP) along with their environmental consultant, M/s Bhagavathi Ana Labs Limited, Hyderabad made a presentation and provided following information:

The total project area is 410 acres of which the power plant area is 200 acres, ash pond area is 190 acres and 20 acres for rail, road etc. The proposed extension units (2x250 MW) will be constructed on the ash pond area of the existing plant after evacuation and a common ash pond shall be developed for all units. The plant site co-ordinates are Latitude 25⁰23’13.5” N to 25⁰23’54” N & Longitude 86⁰01’05.1” E to 86⁰01’46.3” E and the ash pond co-ordinates are Latitude 25⁰21’54.05” N to 25⁰22’27.11” N & Longitude 86⁰02’26.4” E to 86⁰03’21.21” E. There are no National Parks, Wildlife Sanctuaries, Biosphere/Elephant/Tiger Reserves, Heritage sites within 10 km of the project site. The project cost is around Rs. 3,666 crores.

The total installed capacity is 365 MW (3X15, 2X50 and 2X110). All the units are very old, of which the latest ones were installed in 1980s. EC was not obtained for any of these units as was not applicable at that time. The 2X110 MW units are only viable and undergoing R&M. Other 5 units are being phased out gradually. Tapering coal linkage from Eastern Coalfields Limited (ECL) of GCV grade of G10 and above coal (ash content, sulphur content and GCV are in the range of 12.1 - 40.1%, 0.2 – 0.6 %, and 4,750 – 6,725 Kcal/Kg) was accorded till the allocated coal block (Urma Paharitola) becomes operational. LoA was issued by ECL on 27.09.2013.

The water requirement is estimated to be 2530 m³/h, which will be met from River Ganga flowing at a distance of about 3 km. Water Resources Department, Govt. of Bihar has accorded permission for 60 cusecs of water drawl for the existing as well as the proposed units. CWC has approved 45 cusecs of water for the proposed TPP for the lean season i.e. January to May.

Base line data of ambient air quality monitored at eleven locations indicates that concentrations of PM₁₀, PM_{2.5}, SO₂ and NO_x are varying from 31.7 µg/m³ to 59.0 µg/m³, 12.7 µg/m³ to 23.6 µg/m³, 4.6 µg/m³ to 13.9 µg/m³ and 8.0 µg/m³ to 15.1 µg/m³ respectively. The predicted maximum incremental GLCs due to the proposed unit would be 2.93 µg/m³, 17.61 µg/m³ and 7.82 µg/m³ with respect to PM₁₀, SO₂ and NO_x respectively. The resultant concentrations are within the NAAQS. About 394 m³/h of wastewater will be generated, which shall be treated and utilized within the plant premises.

Public hearing/public consultation was conducted by the Bihar State Pollution Control Board on 08.07.2011 and 11.11.2011 in Districts Begusarai and Patna respectively. The issues raised in the public hearing inter-alia include proper compensation to the land losers before acquisition, identification of land for ash pond, fly ash generation and its utilization, pollution control measures, CSR activities. The Committee discussed the issues raised in Public Hearing and the responses made by Project Proponent. The proposed CSR activities are maintenance of schools, village roads, drainage, power supply and water supply, scholarships to poor children, health facilities and nursery plantation with a capital cost of 14.64 crores and recurring cost of 0.31 crores.

The committee opined that the proposed 2X250 MW units need to be examined by the PP whether they are techno economically feasible. In this regard it would be appropriate for the PP to consult CEA. The PP needs to submit status of phasing out of old units (3X15, 2X50) in a time bound manner. The status of removal of ash from the existing pond area on which the proposed 2X250 MW units are to be constructed, and the details of ash utilization from the existing and the proposed units. An action plan with budgetary provisions for the public hearing issues shall be submitted. The committee noted that the capital cost of CSR budget is acceptable, however the recurring cost needs to be increased. The photographs of the existing green belt shall also be submitted.

*In view of the above short comings, the proposal was **deferred** for reconsideration after submission of all the above information/documents." **Unquote.***

On submission of information by the PP for the above aspects, the matter was again placed before the EAC for its re-consideration and the following were discussed.

The details of existing units were provided along with the decommissioning schedule for the old units of 15 MW and 50 MW units. M/s MSTC Ltd. has been engaged for de-commissioning of 15 MW and 50 MW units and the work is expected to be completed by September, 2014 and March 2015 respectively. On 2X110 MW units, the PP informed that the units are currently undergoing renovation and modernization with upgraded pollution control systems and expected to be operational by March 2015. The details of total project area with existing as well as proposed facilities are:

Existing Plant Area

Land Use	Area in Acres	Remarks
Existing Main Power Plant	86.10	3x 15 + 2 x 50 Units : 3.96 acres 2 x 110 units + balance of plant : 69.22 acres Green belt : 12.92 acres
Existing Colony Area	139.27	Built-up & vacant land : 111.42 acres Green belt: 27.85 acres
Existing Ash pond Area	314	Proposed 2 x 250 Unit : 200 acres Plantation / green cover : 114 acres
Total	539.37	

Proposed Plant Area

Land Use	Area in Acres	Status
Proposed 2x 250 MW Units	314	Proposed 2 x 250 Unit : 200 acres Plantation / green cover : 114 acres
Proposed Ash Pond Area (acquired)	290	Ash pond area : 185 acres Green Belt : 55 acres Earthen Bund : 50 acres
Support Facilities	20	16.09 acres Govt. Land (water pipeline 14.82 acres + Railway siding 1.27 acres) 3.91 acres Pvt. Land Section 4/6 Issued for laying pipeline and access road.
Total Area of BTPS after proposed expansion will be 849.37 acres		

It was informed that an assessment of techno-economic feasibility of the project was carried out and the project has been found to be technically feasible and also financially viable. The PP informed that consultation with CEA had also been made. It was further informed that the Project was conceived in 2006 itself as 11th Plan project and all key resources such as fuel, water, land, statutory clearances, evacuation plan, rail infrastructure etc. have been tied-up. Being indigenously evolved based on operating experience, the 250 MW units are successfully operating with a total capacity of 11,750 MW already installed in the Country. The PP further informed that considering all the above aspects, the State Govt. had approved the project and any other change in configuration will severely affect the project schedule.

The PP informed that the past experiences of power plant construction on old ash ponds were studied (Pragati -I & II in Delhi, Anpara -D in U.P. and Ennore SEZ in Tamil Nadu). The PP further presented a case-study of Anpara - D project on the construction philosophy. It was informed that for the proposed project also a similar philosophy would be followed where in the entire ash lying at the project site would be compacted and retained at the same location covered with a suitably layer of good soil. It was informed that there would be no displacement of ash from the existing ash pond area.

On fly ash utilization, it was informed that after expansion, around 1.079 MTPA of fly ash based on 40% ash coal, is estimated to be generated from both existing as well as

proposed units. It was informed that the project proponent has already entered into MoU's with various Cement industries (Shree Cement, Amrit Cement) and local Fly ash brick manufacturers (R.K Mishra Enterprises, Kavish Infrastructure, Shiv Shakti Enterprises) for off-take of about 1.162 MTPA of fly ash to be generated from the power plant (2x110 MW +2x250 MW units). Further, the Road Construction Department and Rural Works Dept. of (GoB) have also requested for off-take of fly-ash from the power plant to meet their huge requirements for on-going road projects. The PP further informed that the guidelines for fly ash utilization targets would be complied with.

To take care of the issues raised during the public hearings, an action plan along with budgetary provisions was presented. It was informed that based on the feedback received during the public hearing, the land requirement for the proposed ash pond near Marachi village has been optimized and land acquisition is restricted to only Govt. Land for both the existing as well as proposed units. With respect to the aspect of likely pollution from wastewater discharge, it was informed that wastewater generated from the plant would be treated and efforts to achieve maximum reuse of treated water would be made within the plant premises for dust suppression system, horticulture, service water etc. and balance treated water meeting the discharge standards for surface water would be discharged into River Ganga. With regard to pollution control measures for the existing units, it was informed that various steps like provision of new ESPs, green belt area development, waste water treatment plant etc. are planned under renovation & modernization works of 110 MW units and a total budget of Rs. 52.21 Crores has been earmarked for the same. With regard to pollution control measures for the proposed units, it was informed that all the norms & guidelines as prescribed by MoEF/CPCB/BSPCB shall be complied with and a total budget of Rs. 366 Crores has been earmarked for the same.

The PP informed that in order to ensure the overall development of the surrounding villages near the power project, the CSR budget has been increased from previously proposed amount of Rs. 14.64 Crores to Rs. 21.996 Crores. It was further informed by PP that budget for annual recurring expenses has also been increased to Rs.3.666 Crores.

The photographs of the existing green belt area in the power plant and the colony area were presented. It was further informed that under the green belt and plantation program it is proposed to increase the total area under green cover to about 276 acres. Further, it was also informed that the density of existing green cover at both existing plant and colony area would also be increased.

Further, as desired by the committee, the HFL status of the area proposed for the construction of ash pond was presented in detail. The letter from the Flood Control Division Begusarai District was also submitted which mentioned that the area earmarked for the ash pond did not fall under flood affected areas. It was also informed that in order to provide further protection to the proposed ash pond, a protection bund of 7 m height and also a 50 m wide green-belt have been proposed around the periphery of ash pond area.

The committee felt that the project site is in the flood plain of Ganges and therefore need to take additional protective measures for the embankment around the ash dyke & TPP to prevent the flood waters entering into the site. Since the existing TPP has already been functioning for a long time and the proposed project site is also in the same area, it was decided that a strong embankment should be constructed around the ash dyke and TPP. Further, a study needs to be undertaken through reputed institutes like CWPRS, Pune for the stability of the embankments and the recommendations of the institute shall accordingly be implemented.

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 specific conditions:

- i) Harnessing solar power within the premises of the plant particularly at available roof tops shall be carried out and status of implementation shall be submitted periodically.
- ii) A stack of 275 m height shall be provided with continuous online monitoring equipments for SO_x, NO_x and PM_{2.5} & PM₁₀. Exit velocity of flue gases shall not be less than 22 m/sec. Mercury emissions from stack shall also be monitored on periodic basis.
- iii) High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm³. Adequate dust extraction system such as cyclones/ bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.
- iv) COC of atleast 5.0 shall be adopted.
- v) Monitoring of surface water quantity and quality shall also be regularly conducted and records maintained. The monitored data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall be undertaken.
- vi) A well designed rain water harvesting system shall be put in place within six months, which shall comprise of rain water collection from the built up and open area in the plant premises and detailed record kept of quantity of water collected and its use.
- vii) No discharge in the River is permitted except if the quality of the effluent is of the same quality or better as that of River.
- viii) Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Unutilized fly ash shall be disposed off in the ash pond in the form of 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. No ash shall be disposed off in low lying area.
- ix) Ash pond shall be lined with HDPE/LDPE lining or any other suitable impermeable media such that no leachate takes place at any point of time. *A strong embankment shall be constructed around the ash dyke and TPP to prevent the flood waters entering into the site. The stability of these embankments shall be assessed by reputed institutes like CWPRS, Pune and the recommendations of the institute shall accordingly be implemented.*
- x) A long term study of radio activity and heavy metals contents on coal to be used shall be carried out through a reputed institute and results thereof analyzed every two year and reported along with monitoring reports. Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.
- xi) CSR schemes identified based on need based assessment shall be implemented in consultation with the village Panchayat and the District Administration starting from the development of project itself. As part of CSR prior identification of local employable youth and eventual employment in the project after imparting relevant training shall be also undertaken. Company shall provide separate budget for community development activities and income generating programmes.

- xii) As committed, an amount of Rs 21.996 Crores as one time capital investment shall be earmarked for activities to be taken up under CSR during construction phase of the Project. Recurring expenditure for CSR thereafter shall be Rs 3.66 Crores per annum or as per CSR guidelines of Govt. of India, whichever is more till the life of the plant.
- xiii) For proper and periodic monitoring of CSR activities, a CSR committee or a Social Audit committee or a suitable credible external agency shall be appointed. CSR activities shall also be evaluated by an independent external agency. This evaluation shall be both concurrent and final.
- xiv) An Environmental Cell comprising of at least one expert in environmental science/ engineering, occupational health and social scientist, shall be created preferably at the project site itself and shall be headed by an officer of appropriate superiority and qualification. It shall be ensured that the Head of the Cell shall directly report to the head of the organization who would be accountable for implementation of environmental regulations and social impact improvement/mitigation measures.

2.4 4000 MW (6x660 MW) Coal based Ultra Mega Power Project of M/s Orissa Integrated Power Ltd. near Bhedabahal Village in Sundergarh Tehsil of District Sundergarh, in Odisha - reg. re-consideration for Environmental Clearance.

The proposal was earlier discussed in the 56th and 10th meetings of the EAC held during September, 3-4, 2012 and January 21, 2014, the minutes of which are extracted as under.

Quote. “The proposal is for consideration for environmental clearance. The project proponent made a presentation along with its consultant M/s Desein Private Ltd., Delhi and provided following information:

The proposal is for setting up of 4000 MW Imported Coal based Ultra Mega Power Project near Bhedabahal village in Sundergarh Tehsil of District Sundergarh, in Odisha. Land requirement will be 3245 acres, out of which main the plant area will be in an area of 1311 acres; ash disposal area & ash utilization facilities 1006 acres; and area for Township 144 acres. About 2423.89 acres of the total area is a single crop agriculture land; 309.65 acres consists of settlements; 68.88 acres is forest land; 199.05 acres is Gochar land; and 244.49 acres is others land which includes road, Pathar Chattan, Nallah/Pond & Barren land. About 785 acres of land is within 700m corridor from river bank which will be used for resettlement, afforestation, Gochar land etc. Land for MGR, Railway link and pipeline will be separately acquired. The co-ordinates of the site are located within Latitude 22⁰02’12” N to 22⁰04’31” N and Longitude 83⁰59’42”E to 84⁰01’58” E. Coal requirement will be 19-20 MPTA at 85% PLF. Coal will be obtained from Captive coal blocks of Meenakshi, Meenakshi B and Dip side Meenakshi, Orissa which have been allocated by Ministry of Coal vide letter dated 13.09.2006. These coal blocks are located about 40 kms from the proposed UMPP site. Ash and sulphur contents in coal will be 40% and 0.5% respectively. Water requirement of 122 cusecs will be sourced from Hirakud reservoir through a pipeline at a distance of about 40 km from project site. Natural draft cooling system will be installed. There are no national parks, wildlife sanctuaries, heritage sites, tiger/biosphere reserves etc. within 10 km of the project site. Public Hearing was held on 30.07.2010. Cost of the project will be Rs.16,000.00 Crores.

The Committee noted that in accordance with the existing policy decision taken by the Ministry vide O.M dated November 01, 2010 and its amendment dated April 19, 2012, the status of EC and FC of the linked coal block of this UMPP as on date is required to be known. A letter

from the Secretary, Power, Govt. of India addressed to the Secretary, MoEF was also read for information of the members. The Committee decided that in pursuance to the existing policy decision taken by the Ministry, the proposal can only be taken up once the Ministry takes a decision on the contents of the aforementioned letter of the Secretary, Power.

The Committee however decided to peruse through the presentation made by the project proponent.

It was noted that land requirement appeared to be very large and need to be optimized strictly in accordance with the norms issued by CEA from time to time. Accordingly it was decided that area for ash dyke shall not exceed 600 acres initially and under any circumstances shall not exceed the norms prescribed by CEA from time to time. It was decided therefore that the project proponent shall submit revised layout and revise its documents strictly in consonance with revised land requirement suggested, clearly indicating location of power plant components and others such as greenbelt, coal stock area, ash dyke location with elevations, MGR route etc. Coal stock area which is located near the river shall also be re-located.

The Committee also decided that any community land such as Gouchar land, community pond etc., if falling in the plant site shall be avoided and if in case the same is unavoidable due to its sheer location, equal area of community land either Gouchar or pond shall be first developed for handing over to the community and details submitted. It was also noted that a nallah runs inside the plant site and diversion of the same shall be carried out such that natural drainage pattern is not affected.

The Committee therefore decided that details of nallah diversion and detailed hydrological study (surface hydrology) of the study area shall be submitted to inter-alia includes details on water availability for the UMPP throughout the year.

The Committee also observed that AAQ Data and others collected were prior to issue of TOR. The project proponent stated that it was submitted during the presentation for TOR before the Committee and the Committee had agreed considering that appropriate season data need to be collected but the same was not reflected in the minutes of the meeting.

On further perusal of the AAQ data, the Committee observed that there were minor deficiencies which could be an inadvertent or clerical error. It was however, decided that full one season data (between November to January, 2012) shall be collected and AAQ assessment and impacts analysis carried out. It was also decided that additionally data for two seasons as reported to be already available with the project proponent shall be used for assessment of predicted impact on AAQ and details submitted.

On the issue of social impact assessment, the Committee observed that the information submitted was grossly inadequate and the project proponent did not appear to be seriously concerned. It was therefore decided that for a project of such a magnitude, a social impact assessment study shall be carried out by a reputed institute in the field such as Tata Institute of Social Science; XLRI, Jamshedpur; IRMA, Anand etc. It was accordingly decided that CSR shall be revised and formulated based on need based assessment in the study area and activities proposed be explicitly spelt out along with financial allocation based on the SIA study got carried out as stated above.

The Committee also discussed the issues raised in the public hearing and the responses provided by the project proponent. The Committee noted that the minutes of the

public hearing indicated major problems on the issue of likely impact due to ash and social unrest. The PAPs being in quite a large number and the response of the project proponent that compensation will be as per R&R Policy of Govt. of Orissa, 2006, is debatable since NPRR Policy of Govt. of India had been issued in 2007, and anything below the bench mark set by the NPRR Policy of Govt. of India would certainly not be acceptable. The major issues raised in the public hearing were regarding compensation; dust generation; local employment; health care facilities; afforestation programme etc. which need to be addressed suitably.

The Committee further noted that about 50% of the people in the area comprises of SC/STs and issues of tribal rights need clearly to be identified and implementation Action Plan drawn. It was also observed that the project site may comprise of scheduled area (tribal area) and acquisition and compliance of tribal rights etc. is a factor the project proponent clearly needs to furnish details of its total compliance which is a Constitutional provision.

The Committee finally decided that the following shall be complied/followed:

- i) Project proponent to optimize the land requirement strictly in accordance with the norms issued by CEA, area for ash dyke not to exceed 600 acres, to submit revised layout and revise documents strictly in consonance with revised land requirement suggested, clearly indicating location of power plant and other components such as greenbelt, coal stock area, ash dyke location with elevations, MGR route etc. Coal stock area which was earlier, located near the river to be re-located and indicated in the revise layout.
- ii) Community land such as Gouchar land, community pond etc. if falling in the project area shall be avoided and if in case the same is unavoidable due to their location, an equivalent area of community land, Gouchar or community pond shall be first developed in the vicinity for handing over to the community and details submitted.
- iii) Details of diversion of nallah running in the proposed plant site shall be submitted. It shall be ensured that the natural drainage pattern is not affected.
- iv) Details of hydrological study (surface hydrology) of the study area shall be carried out and submitted. The study shall include details on water availability for the UMPP for the full year including details during lean season.
- v) The project proponent shall explore possibility of attaining COC 6 to 7 instead of 5.
- vi) One full one season data (between November to January, 2012) shall be collected and AAQ assessment and impacts analysis carried out. Additionally data for two seasons as reported to be already available with the project proponent shall be used for assessment of predicted impact on AAQ and details submitted.
- vii) Cumulative impact assessment over 10 Km radius shall be carried out considering all existing and likely sources of emissions from other industries, TPPs including any other activities. The cumulative impact assessment shall include assessment of impact due to withdrawal of water for UMPP and other industrial use from the same source, on the downstream ecology of the river. Information of other competing sources of water shall also be submitted
- viii) Social impact assessment study shall be carried out by a reputed institute in the field such as Tata Institute of Social Science; XLRI, Jamshedpur; IRMA, Anand etc. Accordingly CSR shall be revised and formulated based on need based assessment in the study area and activities proposed be explicitly spelt out along with financial allocation based on the SIA study.
- ix) Identify tribal rights involved and implementation action plan shall also be drawn. Accordingly tribal land acquisition and compliance of tribal rights details thereof and its compliance which is a Constitutional provision shall be furnished.

- x) To submit revised EIA/EMP or its addendum after incorporation of the above points both in hard and soft copy along with revised Form-I and other requisite documents as mentioned in the Ministry's Circular no. J-11013/19/2012-IA-II(I), dated March 20, 2012.

In view of the above missing essential gaps of information the Committee strongly felt decided that the proposal was too pre-mature for consideration of grant of environmental clearance. The Committee also decided that the project proponent shall revert with point-wise TOR compliance along with the compliance to the above mentioned specific issues with requisite maps and relevant documents for re-consideration. The proposal was accordingly deferred.

The project proponent has submitted an addendum to the EIA/EMP addressing the above along with the revised Form-I to MoEF in October, 2013. MoEF vide O.M dated 30.12.2013 has amended the earlier O.M dated 19.04.2012 by delinking the EC for UMPPs with the issue of EC and Stage-I FC of the linked coal block provided the coal blocks do not fall under the category of inviolate areas. The PP informed that the captive coal blocks of Meenakshi, Meenakshi B and Dip side Meenakshi in Orissa allocated by Ministry of Coal to the project do not fall under the category of inviolate areas. However, the same needs to be ascertained by the FC division of MoEF.

The project proponent made a presentation along with its consultant M/s Desein Private Ltd., Delhi and provided the following information as was sought earlier by the EAC:

W.r.t optimization of the land requirement for ash dyke, the land requirement for the ash dyke of the above power project shall not exceed 990 acres and 870 acres respectively as per the CEA guidelines of September 2010 and the MoEF Notification dated 03.11.2009, However, as per the directions of EAC, initially, 600 acres of area will be developed for ash dyke area and to meet any exigency, another 118 acres of area has also been kept reserved for the ash dyke area. Further, the land for ash utilization facilities has been optimized from 200 acres to 130 acres. A green belt of 158 acres will be developed around the ash dyke. The layout has also been revised demarking the power plant, coal stock area, ash dyke, green belt etc. and approx. 2.0 km distance has been maintained between the coal stock area and the River Bank.

An equivalent area (approx. 199 acres) of land lying between the plant boundary and River Bank will be handed over to the community for Gouchar land, community pond etc. after requisite development. The plant layout has been revised to retain the natural path of the nallah.

The surface hydrology study has been conducted by WAPCOS for the water availability at Hirakud Reservoir which reveals that water from Hirakud Reservoir can meet the requirement of the proposed TPP without affecting other commitments. The mean annual rainfall in the region is about 1381 mm and the down stream region experiences frequent cyclonic conditions with very heavy precipitation. These and other factors contribute to the sustenance and growth of flora and fauna down stream of Hirakud Dam.

As per the raw water analysis, the concentration of reactive silica and colloidal silica are 8.49 ppm and 1.4 ppm respectively. At COC of 6, the reactive silica level will increase to more than 50 ppm which can form hard silica scale of calcium and magnesium in the condenser tubes. There is little saving (400 m³/hr) of water in going for COC of 6 to 7. The

system is designed based on COC of 5, but during operation, if feasible, the TPP would be operated on COC of 6.

One full season data (between November to January, 2012) was collected and AAQ assessment & impacts analysis were carried out. As per the AAQ predictions, the cumulative impacts of proposed UMPP and NTPC power plant in vicinity shall be only at locations A5 (Surda), A6 (Chhotbanga) and A7 (Bharatpur) in SW to SSW direction of UMPP only during the summer season. The AAQ data of 10 km area around the proposed UMPP in all the three seasons will remain within the prescribed NAAQS.

Study on social impact assessment, tribal rights compliance and CSR action plan was carried out by XLRI, Jamshedpur. An amount of Rs. 59 crores is proposed for various CSR activities which include education, drinking water facilities, electrification, health facilities etc. The Section 4 of PESA Act, 1996 has been totally complied. The consent of Gram Sabha was obtained for diversion of forest land as per the provisions under the Scheduled Tribes and other traditional Forest Dwellers (recognition of Forest Rights) Act, 2006. Gram Sabha was conducted with more than 50% participation and in compliance to their decision, 785 acres of excess land is being acquired.

The Committee deliberated at length on the information and clarifications provided by the Project Proponent and was of the view that further details on water balance and water availability for the UMPP for the lean season needs to be submitted. It was also decided that comments of Dr. Attri on AAQ data and predictions needs to be obtained. Further detailed R&R plan shall also be submitted.

*In view of above, the committee **deferred** the proposal for further consideration after submission of the desired documents as sought.” **Unquote.***

On submission of information by the PP for the above aspects, the matter was again placed before the EAC for its re-consideration and the following information was provided by the PP and their environmental consultant.

The water balance diagram for the project with design COC-5 was submitted. The intake flow from Hirakud reservoir would be 11,832 m³/h (1189 cusec). Total evaporation & drift loss from 6 cooling towers and water reservoir would be 8675 m³/h (1440X6+35). About 10 m³/h water would be used for potable water for colony and plant area.

The water availability at the downstream of Hirakud Dam during the lean season is ensured as the minimum water level continues to be maintained to meet the priority requirement of Hydro Power Generation through Dam; the outlet of hydro machines flows in the downstream tail of the reservoir which meets the irrigation and drinking water requirements. No water would be drawn for industry purposes including thermal Power station below the MDDL (Minimum Draw Down Level) of RL595 ft. The allocation of 0.334 MAF for industrial demand, which includes OIPL demand of 0.107 MAF, does not affect the water available for two hydro power stations thereby maintaining the availability of water for downstream demands of irrigation and municipal use. Hence, the downstream flow required for irrigation and drinking purpose is not affected due to the allocation to UMPP.

The committee noted that after the proposed project, the SOx values will be exceeding the threshold limits. Hence, it was recommended that FGD shall be installed to minimize the sulphur emissions.

Regarding the R&R plan, Orissa Resettlement & Rehabilitation Policy, 2006 of Government of Odisha and its amendments have been the guidelines in preparation of the R&R Plan for Odisha UMPP. As per the Orissa Resettlement & Rehabilitation Policy, 2006, a Rehabilitation and Periphery Development Advisory Committee (RPDAC) was constituted by Government of Odisha to recommend its decision in preparation of the R&R plan. The R&R Plan has been provisionally approved by the RPDAC. The total financial outlay of the R&R package is Rs. 1060 Crores. The salient features of the R&R package offered to the displaced families are Compensation for Land – Rs.19.1 lacs per acre as decided by Govt. of Odisha, preference to at least one person per family for employment in the project or one time cash assistance in lieu of employment/ self-employment, skill up gradation of the nominated member of each displaced or other family for employment in the project etc.

Regarding the forest clearance for the forest land involved in the project site, it was informed that out of the 3,246 acres of the proposed project site, about 69 acres of land is forest land. After filling up the part-II of the proposal, DFO forwarded the same to RCCF Rourkela on 30.03.2013 for filling of the Part-II of the proposal. The observations of RCCF Rourkela as intimated vide his letter dated 11.02.2014 are being complied with.

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 specific conditions:

- i) Harnessing solar power within the premises of the plant particularly at available roof tops shall be carried out and status of implementation shall be submitted periodically.
- ii) A stack of 275 m height shall be provided with continuous online monitoring equipments for SO_x, NO_x and PM_{2.5} & PM₁₀. Exit velocity of flue gases shall not be less than 22 m/sec. Mercury emissions from stack shall also be monitored on periodic basis.
- iii) *FGD shall be installed. The FGD system shall be so designed such that non-functional of the FGD shall render the Unit non-functional.*
- iv) High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm³. Adequate dust extraction system such as cyclones/ bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.
- v) COC of atleast 5.0 shall be adopted.
- vi) Monitoring of surface water quantity and quality shall also be regularly conducted and records maintained. The monitored data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall be undertaken.
- vii) *No discharge in the River is permitted except if the quality of the effluent is of the same quality or better as that of River.*
- viii) A well designed rain water harvesting system shall be put in place within six months, which shall comprise of rain water collection from the built up and open

- area in the plant premises and detailed records kept of quantity of water collected and its use.
- ix) Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Unutilized fly ash shall be disposed off in the ash pond in the form of 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. No ash shall be disposed off in low lying area.
 - x) Ash pond shall be lined with HDPE/LDPE lining or any other suitable impermeable media such that no leachate takes place at any point of time. Adequate safety measures shall also be implemented to protect the ash dyke from getting breached.
 - xi) A long term study of radio activity and heavy metals contents on coal to be used shall be carried out through a reputed institute and results thereof analysed every two year and reported along with monitoring reports. Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.
 - xii) CSR schemes identified based on need based assessment shall be implemented in consultation with the village Panchayat and the District Administration starting from the development of project itself. As part of CSR prior identification of local employable youth and eventual employment in the project after imparting relevant training shall be also undertaken. Company shall provide separate budget for community development activities and income generating programmes.
 - xiii) A minimum amount of Rs 64.0 Crores as one time capital investment shall be earmarked for activities to be taken up under CSR during construction phase of the Project. Recurring expenditure for CSR thereafter shall be Rs 12.8 Crores per annum or as per CSR guidelines of Govt. of India, whichever is more till the life of the plant.
 - xiv) For proper and periodic monitoring of CSR activities, a CSR committee or a Social Audit committee or a suitable credible external agency shall be appointed. CSR activities shall also be evaluated by an independent external agency. This evaluation shall be both concurrent and final.
 - xv) An Environmental Cell comprising of at least one expert in environmental science/ engineering, occupational health and social scientist, shall be created preferably at the project site itself and shall be headed by an officer of appropriate superiority and qualification. It shall be ensured that the Head of the Cell shall directly report to the head of the organization who would be accountable for implementation of environmental regulations and social impact improvement/mitigation measures.

2.5 Expansion by addition of 1x800 MW (Extension Unit-8) Super-Critical Coal Based Thermal Power of M/s. Gujarat State Electricity Corpn. Ltd. Plant at Wanakbori, in Thasara Taluk, in Distt. Kheda, in Gujarat. – reg. amendment in EC.

The proposal is for Amendment of the Specific Condition No. 1 in the EC accorded by MoEF for the above project on 02.12.2013. The project proponent and their environmental consultant, Pollution Control Research Institute, Bharat Heavy Electricals Ltd., Haridwar made a presentation and provided the following information.

The EAC in its 3rd meeting held on 9th August, 2010 recommended the above proposal for EC. However, EC was not issued by MoEF in light of Circular dt. 1st November, 2010 of MoEF regarding firm coal linkage. GSECL has represented MoEF that coal will be diverted

from existing old and inefficient 5x120 MW units, which are running with higher heat rate, if the Production of coal gets delayed from captive coal mines of Machhakata, by the time 1x800 MW Unit-8 is commissioned. MoEF vide letter dt. 30th May, 2013 conveyed to submit certificate/concurrence of CEA to shut down the old and inefficient units of 5x120 MW. GSECL obtained No Objection Certificate/Concurrence from CEA and conveyed the same to MoEF vide letter dt. 12th July, 2013. MoEF vide letter dt. 14th October, 2013 informed GSECL to submit a Bank Guarantee of Rs. 100 Crores, which shall be forfeitable unless coal from the linked mine is not developed within 3-years and coal supplied for the expansion unit. GSECL has submitted the Bank Guarantee vide letter dt. 13th November, 2013.

The Specific Condition No. 1 of the said EC stipulates “*Old and inefficient units which have outlived the plant life viz. 210 MW units of Wanakbori Unit- 1, 2 and 3; and 120 MW units at Gandhinagar and Ukai shall be phased out and dismantled within the next three years or before commissioning of Wanakbori Extension Unit No. 8 (1x800 MW), whichever is earlier*”.

The PP has requested to review/amend the said specific condition of the EC since it is impractical & detrimental as it is directed to phase out and dismantle 210 MW unit nos. 1 to 3 of Wanakbori also, in addition to 120MW Units of Gandhinagar and Ukai TPS i.e. 3x210 MW + 4x120 MW units (= 630 MW + 480 MW) aggregating capacity to 1110 MW within next 3-years against proposed expansion capacity of 800 MW. Further, it is also to be noted that the commissioning of 800 MW coal based unit takes @ 4-5 years. It is essential for GSECL to add new efficient unit to phase out old inefficient units of 120 MW.

The 120 MW units do not come under merit order and hence, required to keep under Reserve Shut Down (RSD). Further, the heat rate of these old units is also very high & efficiency is low. Action Plan has already been initiated by GSECL for Life Cycle Assessment and Efficiency Improvement. RLA of unit nos. 1 to 6 completed between 2004 to 2013. Order placed for C&I up-gradation work for Wanakbori units 1 to 6. Work for Unit no. 2,4,5 completed & work for unit 3 is under progress.

The coal factor of the proposed 800 MW unit is @ 0.54 kg/kWh as compared to 0.76 kg/kWh of 5 units of 120 MW, the same quantity of diverted coal from these 120 MW units would be sufficient for $\{(5 \times 120 \text{ MW} \times 0.76) / 0.54\} = 844 \text{ MW}$ unit size. Bank Guarantee of Rs. 100 Crores was submitted by GSECL. GSECL has also confirmed with submission of concurrence/NOC from CEA that if the coal production gets delayed from captive coal mines by the time 1 x 800 MW Unit 8 is commissioned, the coal will be diverted from existing 5 x 120 MW Units by closing down the units.

In view of above, it is requested to amend the Environment Clearance issued as (a) with deleting the specific condition A (i) as the same is detrimental to GSECL capacity addition and impractical to phase out and dismantle units within next three years or (b) refund the Rs. 100 Crore BG and introduce closing down of 5 units of 120 MW to meet the coal requirement for the proposed 800 MW unit if coal shall not be made available from the link source at the time of commissioning of new 800 MW Unit.

The committee noted that the PP had only committed for closing down of 5 units of 120 MW to meet the coal requirement for the proposed 800 MW unit if coal shall not be made available from the link source at the time of commissioning of new 800 MW Unit. The PP has also submitted a Bank Guarantee of Rs. 100 Crores to MoEF, which shall be forfeitable unless coal from the linked mine is not developed within 3-years and coal supplied for the expansion unit.

Further, as informed, Action Plan has already been initiated by GSECL for Life Cycle Assessment and Efficiency Improvement. RLA of Wanakbori unit nos. 1 to 6 was completed between 2004 to 2013 and Order placed for C&I up-gradation work. Work for Unit no. 2,4,5 is completed & for unit 3 is under progress.

In view of above, the committee recommended that the specific conditions nos. 1 and 2 of the said EC may be amended as under:

- (i) Old and inefficient units which have outlived the plant life viz. 5X120 MW units at Gandhinagar, Ukai and Sikka shall be closed down to meet the coal requirement for the proposed 800 MW unit if coal shall not be made available from the link source at the time of commissioning of new 800 MW Unit.
- (ii) Life Cycle Assessment (LCA) of all the seven units of 210 MW each shall be carried out, if not done, either by Central Electricity Authority (CEA) or any other competent agency and vetted by CEA. If the 5X120 MW units at Gandhinagar, Ukai and Sikka are proposed to continue operation after the coal from the link source is available for the 800 MW unit, the LCA shall be carried out for these units as well. In case the units are found fit for efficient operation after proposed overhauling, the ESPs shall be replaced or retrofitted such that particulate emission does not exceed 50 mg/Nm³.

2.6 Expansion by addition of 1x80 MW and 1x160 MW Coal Based Thermal Power Plant of M/s. OPG Power Generation Pvt. Ltd. at Villages Peria Obulapuram and Papankuppam, in Gummidipoondi Taluk, in Thiruvallur Distt., in Tamil Nadu – reg. Amendment in EC for augmentation of capacity from 160 to 180 MW.

The proposal is for Amendment (for augmentation of capacity from 160 to 180 MW) in EC accorded by MoEF for the above project on 18.05.2011. The project proponent made a presentation before the committee and provided the following information.

M/s. OPG Power Generation Pvt. Ltd. is located at Peria Obulapuram and Papankuppam Villages, in Gummidipoondi Taluk, in Thiruvallur Distt., in Tamil Nadu. Environmental Clearances were accorded by MoEF for 2 x 77 MW and subsequent expansion by 1 x 80 MW & 1 x 160 MW on 31.03.2008 and 18.05.2011 respectively. The 2 x 77 MW & 1 x 80 MW units are under operation and the 1 x 160 MW is under construction stage. The compliance to the various conditions stipulated in the ECs was presented, which is as follows.

The plant has 3 chimneys i.e. 140 m common chimney for 2 x 77 MW, 100 m for 1 x 80 MW and 120 m for 1 x 160 MW. These chimneys are also provided online continuous monitoring system for SO₂, NO_x and SPM, which is linked to the care air center at TNPCB. ESPs were installed to limit SPM emission to < 50 mg/Nm³. All the coal stock yards are provided with closed shed and the coal conveyors are completely closed. The coal unloading is done through automatic truck tippers and is provided with water spray system to prevent any fugitive emission. Bag filters were installed at all transfer points and Pneumatic Conveyance of Ash is installed. Blended Coal i.e. 50% Imported Coal and 50% Indian Coal is used as fuel for power generation. Sulphur and Ash contents in the blended coal are less than 0.8% and 25% respectively. Exit velocity of flue gases is about 21 m/s i.e. less than 22m/s. Mercury emissions from stack are also monitored once in a month. The emission level of Mercury is below detectable levels.

Rain water harvesting system is in place in the form of storm water drains in the entire plant site, with infiltration pits and also rain water recharge wells. A reservoir of 50,000 cu.m has also been constructed for collection of rain water. Most of the water is met from rain water reservoir, although clearance from State Ground Water Board for drawl of water upto 540 cu.m/d exists. The present water consumption is only 75.79 cu.m/d. There are 2 R.O Plants of 10 Cu.m and 30 Cu.m capacity to treat and recycle the waste water emanating in the form of Boiler Blow Down, D.M Plant Regeneration wastewater etc. thus ensuring the operation of the plant under zero discharge of wastewater. Air cooled condensers have been provided for main condensate cooling. Harvested Rain Water will be used along with Ground water during the lean season. There are no water bodies within the radius of 1 km from the plant site boundary and hence no disturbance for water bodies and natural drainage system due to the operation. STP of 7.5 KLD has already been installed and the treated sewage is used for greenbelt development.

Fly Ash is pneumatically transported to Silos and from there pneumatically loaded to Trucks. Bottom Ash is pneumatically transported to Silos and then to LDPE lined dyke, wherein water column is maintained. Fly ash shall be given to Cement Plant and Bottom ash shall be given to brick manufacturers. A MoU was signed by the Project Proponent with M/s. India Cements Ltd. & M/s. Ace CEMEX Pvt. Ltd., for fly ash supply. Bottom Ash shall be regularly analyzed for Arsenic, Lead, Chromium etc. and no Ash shall be disposed in low lying area. A total of 31,000 trees consisting of Ponga, Ashoka, Neem, Syzeium, Gulmohar, Copper Pod, Hard Wood has been planted in 30.33-Acres of land. HFO Tank of 230 KL Capacity and LDO Tank of 40 KL Capacity provided at a distance of 150 m from the Main Plant. The storage area is provided with dyke wall to contain the entire liquid in case of leakage. Water sprinklers and hydrant provided with static water storage of 750 m³.

Various CSR activities were undertaken like provision of road cleaning machine in the villages nearby, provision of ambulance facility to villagers, construction and maintenance of public health centers, provision of free school uniforms, bags, notebooks to all school childrens, school fees sponsorship for single parent etc. and also fund paid to the District collector for regeneration of degraded water bodies. The total fixed expenditure on CSR is Rs. 4,94,55,500/- and that the Recurring expenses annually is Rs 40,49,000/-.

Regarding the certified compliance report from the R.O of MoEF, it was informed that the monitoring/inspection of R.O is scheduled in the next fortnight and the report shall be submitted to MoEF. Regarding the progress made in the railway siding, it was informed that they have in principle approval from Indian Railways on the pre feasibility report and also that the route survey has been completed by the Indian Railways and have also in principle approval for the railway crossing at the National Highway. An amount of Rs. 45 lakhs (approx.) has also been deposited with the Indian Railways. In this regard, the relevant documents of Indian Railways and NHAI were also submitted.

The project proponent then highlighted the salient features of the augmentation of the capacity from 160 MW to 180 MW, which are as follows.

The 160 MW unit can generate upto 180 MW if operated under valve wide open condition, the technology for which was recently developed by its Turbine Supplier. The heat rate will remain the same as was previously proposed at 2015 KCal/Kwhr. The Turbine will be modified to continuously generate 180 MW with heat rate of 2015 Kcal/Kwhr and upgrading generator equivalent to 180 MW, whereas all other utilities like coal handling, coal unloading, conveyors, bunkers, crushers, Boiler and its auxiliaries, ash handling units, water treatment systems etc. will remain the same as was originally proposed for the 160 MW unit. No

additional land area is required, and will remain the same as was originally proposed for 160 MW. The fuel i.e. coal proposed will be a blend of 50% Imported and 50% Domestic coal as was originally proposed and the blended coal consumption will increase from 2150 T/d to 2418 T/d. The existing coal linkage with Mahanadi Coal Fields for Domestic coal would suffice for the additional requirement also.

The stack height proposed for the 160 MW was 120 m and the same would be sufficient for 180 MW also. There will only be a marginal increase in ground level concentration of SO₂, NO_x and SPM i.e. SO₂ concentration will increase by 2.5 µg/Nm³ from 18 µg/Nm³ to 20.5 µg/Nm³ and that of NO_x will increase by 2 µg/Nm³ from 15 µg/Nm³ to 17 µg/Nm³, whereas that of SPM will increase by only 0.1 µg/Nm³ from 0.8 µg/Nm³ to 0.9 µg/Nm³.

The additional water required for the augmentation from 160 MW to 180 MW will only be 3.67 KLD for Boiler feed make up and that there will be no other water requirement. The additional wastewater generated will also only be from Boiler Blow Down of 5.53 KLD, and that there is an R.O Plant already in place for treatment and reuse of blow down wastewater. The plant would continue to operate as a zero discharge unit even after the proposed augmentation. The entire fly ash and bottom ash at present is being utilized and that the additional ash generated of 67 TPD will also be completely utilized.

Based on the information & clarifications provided by the Project Proponent, the detailed discussions held on all the issues and considering the advantages of the proposed augmentation, the Committee recommended the project for Amendment in EC for augmentation of capacity from 160 to 180 MW subject to submission of satisfactory compliance of the operational units by the R.O of MoEF and stipulation of the following additional specific condition.

- (i) The matter for transportation of coal by rail shall be expedited. The progress made in this regard shall be submitted to the Ministry and its R.O from time to time.*

2.7 2X300 MW Thermal Power Project of M/s Haldia Energy Ltd. (a subsidiary of CESC Ltd.) at Baneshwar Chak, District Haldia, West Bengal - reg. extension of validity of EC.

The proposal is for extension of validity of EC accorded by MoEF for the above project in the name of CESC Ltd. on 01.10.2008 and subsequently transferred in the name of Haldia Energy Limited on 18.01.2010. The project proponent made a presentation before the committee requesting for the extension and provided the following information.

Subsequent to the EC, the process of acquisition of Land, Rehabilitation & Resettlement was carried out. Thereafter, final approval for investment was obtained from West Bengal Regulatory Commission in June, 2011 after which the tendering for plant and equipment was carried out. Due to the said reasons, the Zero date for the project could be achieved only in November, 2011. Therefore, construction could not be completed within the validity period of five years of the EC. However, the units are under advanced stage of construction/erection. The first unit is expected to be commissioned in September, 2014 and second unit in December, 2014. Long Term PPA with Discom is in place and FSA has already been signed with MCL. The detail status of the project along with photographs were also presented.

The committee noted that the Form-I submitted is incomplete and hence, shall be revised and re-submitted.

Based on the information and clarifications provided, the Committee noted that the project is in an advance stage of implementation and no public interest will be served by denying the extension sought. The Committee therefore decided that the request for extension can be agreed to in accordance with the provisions of EIA Notification, 2006. The Committee further recommended that additional conditions which were earlier not prescribed but relevant now be stipulated while issuing the extension of validity.

2.8 2640 MW Bhavanapadu Thermal Power Project of M/s. East Coast Energy Pvt. Ltd. near Kakarapalli Village, Santhabommali Mandal, Srikakulam District, Andhra Pradesh - reg. extension of validity of EC.

The proposal is for extension of validity of EC accorded by MoEF for the above project on 09.04.2009 and subsequent amendment dated 22.09.2011. The project proponent made a presentation before the committee requesting for the extension and provided the following information.

The Consent for Establishment was accorded by Andhra Pradesh Pollution Control Board (APPCB) on 15.06.2009. The Environment Clearance of the Project was upheld by Hon'ble High Court of Andhra Pradesh vide Judgment dated 13.07.2010 and National Environment Appellate Authority vide Order dated 30.08.2010.

The construction activities for the **Phase-I** of the Project (2 x 660MW) commenced at the Project site from 17.06.2009 and are in progress at brisk pace with an objective of setting up the project duly complying with the conditions laid down by various statutory authorities at the Central and State Government level. An amount of Rs. 2,300 Crores is already incurred on the Project.

The following is the status of activities under the Phase – I of the Project:

- Basic engineering – 95% completed and Detailed engineering – 70% completed
- About 26,500 MTs (out of 35,000 MT for Unit # 1) of BTG material received at site from China and 750 MTs of material is dispatched from China. Balance BTG material in various stages of manufacturing.
- About 25% of construction works has been completed in Main Plant area.
- Specialized Sub – Contractors already identified for the BoP Works and are Mobilizing at site
- Site enabling & Infrastructural works are nearing completion

The Phase-I of the Project has received Host Country Approval (HCA) for Clean Development Mechanism (CDM) from National CDM authority, MoEF, GoI on 25.04.2012. The Project is monitored regularly by Central Electricity Authority (CEA) and is also listed by Cabinet Committee of India (CCI) and is monitored by the Hon'ble Finance Minister. CEA has listed the Project for commissioning during 2015–16. Ministry of Power & Ministry of Coal have also taken a note of the same for signing the Fuel Supply Agreement.

M/s. East Coast Energy Pvt. Ltd. (ECEPL) has entered into a Memorandum of Understanding (MoU) with the Government of Andhra Pradesh on 12/13, January 2012 for setting up of the Phase – II of the Project adjacent to the Phase - I within the Project site. The

Phase – II of the Project is scheduled for Commissioning during the last quarter of 2018. ECEPL have been carrying out the Environmental monitoring in the vicinity of the Project, formed the Conservation Cell and Advisory Committee in accordance to the EC and the reports are submitted to MoEF regularly and the latest EC compliance report submitted to MoEF and other Statutory Authorities vide letter dated 06.12.2013. The Project is in full compliance with the Environment Clearance issued for the Project.

ECEPL has been carrying out various CSR activities in the vicinity of the Project site since 2008 and has received appreciations from the locals. As per the EC, Rs. 10 Crores needs to be earmarked for CSR activities during the construction period, which is increased to Rs. 25 Crores for implementing CSR activities in priority areas as per the advice and direction of the local stake holders and District administration. An amount of Rs. 18.56 Crores is incurred on the CSR activities upto Dec, 2013.

Delay in Project Execution

In view of factors during suspension of the project by MoEF on 01.03.2011 due to an un-fortunate incident in the vicinity of the Project Site (owing to Law & Order), the construction activities at the Project site were suspended during the period March 2011 to April, 2012. Additionally, in view of nature's fury (in view of extended monsoon and cyclones) and agitation against division of the State, the construction activities at the Project site were hampered at regular intervals during the period April, 2012 to February, 2013. The construction works however resumed in full swing from March, 2013 onwards for commissioning of the Phase-I of the project by March, 2016, with the support of the District Administration and local stakeholders. The project now has got enough support from the local stakeholders as a result of the continued CSR activities of the project even during the suspension period.

Based on the information and clarifications provided, the Committee noted that the project implementation has been delayed due to factors beyond the control of the PP and no public interest will be served by denying the extension sought. The Committee therefore decided that the request for extension can be agreed to in accordance with the provisions of EIA Notification, 2006 subject to submission of the details regarding pending court cases and CEA certification regarding the status of the project.

The Committee further recommended that additional conditions which were earlier not prescribed but relevant now be stipulated while issuing the extension of validity.

2.9 2x660 MW Super Critical Coal Based Thermal Power Plant of M/s. Madhucon Projects Ltd. at villages Thopgram, Bykuntpur, Abhirampur, Debu, Satyanarayanpur and Narayanpur, in Barharwa Block, in Sahibganj Distt., in Jharkhand- reg. TOR Validity

The Committee noted that a policy decision has been taken by the Ministry vide its Office Memorandum dated 22.03.2010 for dealing with the above matter. The Committee therefore recommended that the above item may be considered purely in consonance with the applicability as contained in the aforesaid Office Memorandum.

2.10 1980 (3x660) MW Ghatampur Thermal Power Station of M/s Neyveli Lignite Corporation Ltd. in Tehsil Ghatampur, District Kanpur Nagar, Uttar Pradesh. – reg. reconsideration for Environmental Clearance

The proposal was earlier discussed in the 6th Meeting of the EAC held during December 5-6, 2013, the minutes of which are as under:

Quote. “The proposal is for setting up of 1980 MW (3x660 MW) Thermal Power Plant in Ghatampur, Kanpur, Uttar Pradesh by M/s Neyveli Lignite Corporation Ltd. The ToR for preparation of EIA/EMP report was accorded on 28.12.2011. The EIA/EMP report after conducting public hearing was submitted to the Ministry for consideration of environmental clearance. The project proponent along with their environmental consultant, M/s Vimta Labs Ltd., Hyderabad made a presentation and provided the following information:

The total project area is 1886 acres including ash pond area and township. The breakup of land use is 190.19 acres of single crop, and 1694.42 acres as others. Regarding the status of land acquisition, there was no clarity and commitment provided. As per the TOR issued there were 1032 project affected families. However, there was no mention about the detailed rehabilitation plan. On the contrary, it was informed that the disbursement of compensation for 7 villages is in progress with the approval of the State Govt. and for the 8th village it has not been initiated. *In view of this, the committee desire to know the details of the land use pattern, land acquired, to be acquired, compensation to the affected families etc.* The total project cost is Rs. 14375.4 crores.

There are no national parks, wildlife sanctuaries, biosphere/tiger reserves etc. within 10 km of the plant. There are four reserve forests in the study area viz. Mannjhupur R.F at 3.4 km in the west direction, Chandupur East Block R.F. at 4.0 Km in the west direction, Badanpur R.F. at 4.0 Km in the west direction and Chandupur West Block R.F at 6.0 km in the west.

The coal requirement would be 8.511 MTPA. The Ministry of Coal has allocated Pachwara South Coal Block for the project on 25th July, 2013. The proposal for environmental clearance of the aforesaid coal block was submitted to MoEF and as informed was considered for ToR for preparation of EIA/EMP in the EAC meeting held on 26.11.2013. The coal block involves about 50% of forest land and the proposal for forest clearance was submitted to the concerned DFO, U.P.

The Total water requirement is estimated to be 6275 m³/hr (150.6 MLD), which will be met from River Ganga (seepage water from West Allahabad branch canal near Bidhnu Kasha Village). The permission for water drawl has been obtained from the Govt. of U.P. on 6th June, 2012. *The committee noted that the present proposal for water drawl may affect the agriculture and irrigation of farmers. Hence, alternate options for water drawl shall be explored and the details of conservation of seepage water by lining shall also be submitted. A plan for sustainability of ecology also needs to be submitted.*

Public hearing/public consultation was conducted by the Uttar Pradesh Pollution Control Board held on 23.03.2013. It was noted that the issues raised in the public hearing include ash utilization, employment, pollution of River Yamuna, damage to the crops near by and compensation for the land. The Committee discussed the issues raised in Public Hearing and the responses made by Project Proponent.

The committee noted that Pachwara South Coal Block was allocated for the project only on 25.07.2013, whereas the EIA/EMP report was prepared prior to it. Therefore, a detailed clarification was sought from the PP regarding the basis for the predictions on ambient air quality data etc. submitted in the EIA/EMP report. The characteristics of coal from Pachwara South Coal Block also need to be submitted. The committee also noted that the environmental clearance & Stage-I forest clearance for the coal block will take substantial time and are mandatory as per the policy of MoEF.

Further, the committee noted that detailed MOU for ash utilization has not been submitted. As far as, ash pond area is concerned, it was felt that it needs to be optimized. The ash pond shall be lined by HDPE as the project is in the Ganga Basin and the ash dyke embankment shall be stone pitched. The committee noted the PP did not submit any permission letter /assurance from Railways for transportation of coal. As the project involves 1032 affected families, a detailed R&R plan needs to be submitted. With respect to CSR, an action plan with budgetary provisions for (i) Capital cost @ 0.4% of the Project Cost during the construction phase (ii) and thereafter expenditure towards annual Recurring CSR @ 0.08% of the Project Cost indicating the activities needs to be submitted.

*In view of the above short comings, the proposal was **deferred** for reconsideration at a later stage.” **Unquote.***

On submission of information by the PP for the above aspects, the matter was again placed before the EAC for its re-consideration and the following information was provided by the PP and their environmental consultant.

The land use pattern for 1886 acres at the time of land acquisition was submitted. Conversion from the existing land use pattern to Industrial land has been issued by ADM, Kanpur Nagar. The PP has deposited an amount of Rs. 130.32/- Crores as per demand letter received from the Revenue authorities. More than 80% of land owners in the eight villages have given their consent for land acquisition. Land compensation distribution process to the individual owners is going on and the compensation details were submitted. The detailed R&R plan included in the compensation package along with calculation made for the R&R provision was submitted.

Alternate options for drawl of water were explored from River Yamuna and Ganga. After discussing various options available, the State Govt. has awarded the allocation of water from River Ganga. The water will be drawn from the River Ganga by effecting saving of water by strengthening the West Allahabad branch canal system by way of lining to prevent water leakage loses, wastage and also improving the optimization of water to the agriculture by construction of 122 check dams, thus improving the water table to benefit more no. of farmers dependant on agriculture. Apart from this, efforts will also be made to improve the optimal utilization of water by forming water users committees in collaboration with Irrigation Department as part of CSR initiative. The proponent is committed to develop greenbelt (479 acres) as per the norms by conservation and protection of local species as suggested by the committee.

Standard F Grade washed Coal has been considered for the Air Dispersion modeling while preparing the EIA/EMP report. New scenario considering a worst case of sulphur content at 1% and also at 0.7% is carried out. The Pachwara South coal block is in the Gondwana coal formation region. The occurrence of sulphur in this region is only in traces. The report/letter of GSI/CMPDI for the characteristics of coal from this region is submitted.

NLC being an experienced Mining Company is confident of exploiting the coal reserves of the Pachwara south coal block to meet the power plant requirement for its commissioning. The required clearances are being vigorously pursued with various agencies.

The total ash generated from the power plant will be 2.89 Million Tonnes out of which 2.31 MTPA will constitute fly ash (80%) and the balance as bottom ash. M/s JK Cements have already given a commitment letter to lift the fly ash generated from the proposed Ghatampur Thermal Power Plant. They have agreed to lift 1.16 MT during the first year, 1.93 MT during the second year and 2.31 MT from the third year onwards. To this effect they have signed a Fly Ash off take agreement with NUPPL. The area provided for ash dyke is 427 acres which is well within the CEA norm of 495 acres for 3 x 660 MW plant. NUPPL is committed to line the ash dyke with an impervious lining to prevent seepage of ash water. As recommended in the Hydrological study done by NUPPL thro' Hydro-Geosurvey Consultants Private Limited, Jodhpur, it is proposed that the ash pond area, after compaction, will be provided with either clay layer of 300 mm thickness of permeability value of 10^{-7} cm/sec to 10^{-9} cm/sec for making it a fool proof impervious barrier or with HDPE lining so that no pollutants from fly ash and bottom ash join the surface or ground water.

Railways informed that no separate Rail Transport Clearance (RTC) is required as per the present Policy guidelines and no special permission/approval required for transportation of coal. Also the Zonal Railway have agreed in principle that Coal from Pachwara can be moved to GTPS. The letters of correspondence to support the same are submitted. CSR plan for construction phase @ 0.4% of project cost i.e Rs 57.50 Crores and during operational stage @ 0.08% of project cost i.e Rs 11.50 Crores per annum of project cost was submitted.

The committee noted that the CSR details presented are only indicative. A detailed Action Plan needs to be worked out within next three months after taking views of Gram Sabhas and District Authorities. Further, a detailed clarification was sought from the PP regarding the resettlement colony etc. under the R&R plan.

The committee further deliberated on the source of water as seepage water from West Allahabad branch canal and recommended to explore the possibility of installation of ACC for conservation of water vis-à-vis the cost for lining of the canal etc. The committee also desired a commitment from the PP that no water shall be drawn from River Yamuna and that the water proposed to be drawn from West Allahabad branch canal throughout the year is sufficient for the project. The water drawl for the project shall not affect the water drawl for irrigation and drinking water.

The committee noted that the predicted SO₂ emissions based on baseline AAQ collected is high and shall be touching the AAQ standards. Hence, it was recommended that FGD shall be installed to minimize the sulphur emissions.

An original full scale satellite map from NRSA/NRSC showing the land use pattern needs to be submitted by the PP. As suggested by the EAC, the green belt species shall be revised and submitted. The MoU for fly ash utilization shall be revised and submitted. The permission letter of DRM for transportation of coal shall also be submitted.

In response to the above, the PP provided following information/documents.

The satellite imagery details of the study area and compensation demand letters raised by the Land Acquisition Department inclusive of compensation towards R&R were submitted. As suggested by the EAC, the green belt species that would be planted were revised and submitted.

Regarding permission of Railways for transportation of coal, a letter dated 07.02.2014 from RITES Ltd. was submitted, which inter-alia states that Railway Ministry used to give permission letter/assurance for transportation of coal in the form of rail traffic clearance (RTC). However, as per the revised policy issued by Railway Board on 23.07.2012, Railways have dispensed with system of RTC for power plants. RITES is already preparing a feasibility report for the above power plant which will be submitted to Railways in due course. Considering the various options of the routes for transportation of coal Railways shall be in a position to transport the coal from mints the plant. However, final route for movement of coal shall be decided by the Railways after examination of the feasibility report.

The details of CSR activities proposed and undertaken along with budget were submitted. A MoU was signed with M/s JK Cement Ltd. for utilization of 100% fly ash from the third year of operation of the TPP. The MoU is valid for a period of five years from the date of commencement of lifting of fly ash, which is further extendable.

The committee also noted that as per the existing policy of MoEF, the environmental clearance & Stage-I forest clearance for the linked coal block is a pre-requisite. Although the EC and Stage-I FC for the Pachwara South coal block allotted for the project are under process, it may take substantial time, therefore the proposal needs to be referred to the Committee once again when the EC and Stage-I FC for the linked Coal block has been obtained.

*In view of the above, the proposal was **deferred** for reconsideration at a later stage.*

2.11 Change in location of Ash Pond for 2x660 MW Coal Based TPP of M/s Lanco Babandh Ltd. at Dhenkanal Distt., in Orissa – reg. reconsideration for amendment in EC.

The proposal was earlier discussed in the 3rd Meeting of the EAC (Thermal) held during **October 10, 2013**, the minutes of which are as under:

Quote. “M/s Lanco Babandh Ltd. was accorded environmental clearance for its 2x660 MW Coal Based at Dhenkanal Distt., in Orissa on 17.02. 2010. As per the said environmental clearance, ash pond is to be located within the plant area.

M/s Lanco Babandh Ltd. have now informed the Ministry that to cater to the water requirement during lean season, Govt. of Odisha (GoO) imposed enhancement of Raw Water Storage Capacity from 10 days to 60 days i.e two months during revalidation of water allocation. Due to this, raw water reservoir land area is required to be increased from 70 acres to 200 acres. This imposition clubbed with associated green belt requirement for land totaling 260 acres has constrained them to relocate the Ash Pond outside the plant boundary.

M/s Lanco Babandh Ltd. have also informed that orientation in GMR system based on the condition put up by Railway Authority for preliminary approval on the DPR for railway siding, has necessitated installation of Wagon tippler and associated systems to cater the need of Box-N type Railway wagons. This resulted in additional Wagon tippler and associated conveyor system and re-orientation of MGR Bulb to provide Pre & Post tippler length.

That the above conditions has forced them to relocate the Ash Pond outside the plant boundary at suitable location with minimum disturbances avoiding any adverse impact on environment. That after due diligence of the local area, they have now selected a location for ash pond at a distance of 8.9 km from project site at villages Janamunda & Sanamunda, in Tehsil Hindol, in Distt- Dhenkanal, in Odisha. The location of the new site for ash pond shall be within latitude 20⁰44'53.96" N and longitude 85⁰14'46.67" E. The proposed area does not involve relocation of habitations, forest land, wild life presence habitations etc.

That while approaching the Odisha State Pollution Control Board (OSPCB) for their consent on suitability of this land. That on their recommendation of OSPCB, they have conducted detailed hydro-geological study of the proposed location with specified area. After careful consideration of our proposal and based upon the studies conducted by them, OSPCB has approved the relocation request.

In view of the above. M/s LBPL has requested for amendment in the EC accorded /permission for the changes.

The Committee noted the request and observed that apparently M/s LBPL has failed to acquire 220 acres in the main plant area as the land probably might be fertile agricultural land which can be irrigated by the canal passing nearby in the region.

The Committee also noted that the project proponent intends to increase not only the raw water reservoir area from 70 acres to 220 acres but also the Coal Handling Plant (CHP) area from 130 acres to 200 acres. The net land area additionally required is 230 acres.

The Committee observed that the amendment sought needs further detail information on land holders as per revenue records. It was also noted that the land for new ash pond required is stated as mostly barren with hardly any agricultural activity. There also seem to be habitations nearby the newly identified ash pond area.

The Committee was of the firm view that allowing the amendment without having the stake holders views would be unadvisable as the environmental impact due to ash pond not appropriately managed are large with severe consequences.

The Committee therefore decided that the project proponent shall place all details of the new ash pond location and system of conveyance using HCS in public domain at appropriate locations such as the Regional Office of the State Pollution Control Board, their Site Office and their website. Thereafter a public notice in a National and local newspapers of wide circulation in both English and vernacular language seeking comments and objections within 30 days shall be issued.

Copy of the public notice in newspaper and objections received thereof shall be thereafter submitted to Ministry for further reference to the Committee. Accordingly the matter was deferred." Unquote.

On submission of information by the PP for the above aspects, the matter was again placed before the EAC for its re-consideration.

M/s Lanco Babandh Ltd. took the stakeholders opinion through OSPCB and also conducted EIA study of the proposed area where ash pond relocation is requested for.

Considering the public/stakeholder's opinion, the response on the demand raised by 11 villages of the affected area is submitted. The committee noted that the major issues raised were regarding measures taken for pollution control, provision for basic necessities like Health-Centre, support for schools infrastructure, drinking water, electricity and also special measures to be taken for the educational and financial support to the SC/ST communities. The committee noted that the response made by Lanco Babandh Ltd. addresses the demand raised by the villagers and also the company agreed to extend help and support to the local community and the affected families in consultation with Dist. Administration and local authorities. The committee also noted the budget allocation made by M/s Lanco Babandh Power Ltd. on the demands raised by the villagers.

Based on the information and clarifications provided, the Committee **recommended** the amendment in environmental clearance for relocation of Ash Pond outside the project boundary at villages Janamunda & Sanamunda, Tehsil Hindol, Dist. Dhenkanal, Odisha, subject to stipulation of the following conditions:

- i. As committed, 400 people shall be given suitable employments.
- ii. As a matter of abundant precaution, a lumpsum amount of Rs. 50 lakhs shall be earmarked as a contingency fund to take care of any eventualities like ash pipe line leakage etc., if any.
- iii. Adequate street lights and lights at public places, preferably of solar power shall be provided in the nearby villages.
- iv. The services of an Agricultural Extension Officer/Expert shall be made available to the villagers for agricultural productivity enhancement.

2.12 3x660 MW Imported Coal Based Thermal Power Plant of M/s. Lalitpur Power Generation Company Ltd. at Villages Mirchwara and Buraugaon, in Mahroni Taluk, in Lalitpur Distt., in Uttar Pradesh - reg. amendment in EC for change of source of fuel.

Environmental clearance for setting up of 3x660 MW Imported Coal Based Thermal Power Plant at Villages Mirchwara and Buraugaon, in Mahroni Taluk, Lalitpur Distt., Uttar Pradesh was accorded to M/s Lalitpur Power Generation Company Limited (LPGCL) by MoEF on 31.03.2011. The said EC stipulates that sulphur and ash contents in the imported coal to be used in the project shall not exceed 0.7% and 10% respectively at any given time. In case of variation of coal quality at any point of time, fresh reference shall be made to the Ministry for suitable amendments to EC condition wherever necessary.

M/s LPGCL has informed that the project has been conceived and developed on basis of fuel from domestic coal sources and the EIA study was carried out on the basis of both imported and indigenous coal. It was also informed that the use of imported coal is only an interim arrangement and that the plant is being developed to run on domestic coal. It was also informed that the impact of domestic coal was considered in the Environment Impact Assessment Report which was submitted at the time of Environmental Clearance. The following were the developments with regard to domestic coal supply to the project:

1. Cabinet Committee on Economic Affairs (CCEA) in its meeting held on 21.06.2013 approved the capacities aggregating to 78,000 which have been issued LOA for supply of domestic coal and signing of FSA and also directed that coal may also be supplied to capacity aggregating to 4,660 MW which do not have LOA.
2. Subsequently, Presidential Directive was issued by Ministry of Coal to CIL which also inter-alia reiterated that Coal may also be supplied to power plants of 4,660 MW

capacities that do not have any fuel linkage but they will be commissioned by March 2015 and have long term PPA with DISCOMs. Two (2) units of Lalitpur TPP i.e. 2 x 660 MW totaling to 1320 MW covered in 4,660 MW as described in CCEA decision and Presidential Directive. Detailed list of projects aggregating to 4,660 MW has been mentioned in Ministry of Power Office Memorandum No FU-12/2011-IPC (Vol-IV) dated 11th June 2013.

3. In accordance to the decision of CCEA, Presidential Directive and communication of Coal India Limited to its subsidiaries companies dt. 08.08.13, Mahanadi Coal Fields Limited has signed Memorandum of Understanding (MOU) with Lalitpur Power Generation Company Limited on 23.12.2013 for supply of coal from Kulda/Basundhara mines for two units of 660 MW each totaling to 1320 MW. The 3rd unit of 660 MW is also in advanced stage of construction and is high on priority for supply of domestic coal very soon.

In view of domestic coal availability, M/s LPGCL has requested for amendment of environment clearance as may be necessary. The matter was placed before the EAC for amendment in environmental clearance due to change in fuel, wherein the Project proponent made a presentation along with its consultant, M/s Bhagavathi Ana Labs Private Limited and provided the following information:

Mahanadi Coalfields Limited (subsidiary of Coal India Ltd.) has now signed MOU with LPGCL for supply of G10 grade of coal for unit 1 and unit 2 i.e. 2 x 660 MW (1320 MW) from Kulda/Basundhara (sources/ collieries) which are located at about 842 km from proposed thermal power plant. Coal from the source collieries will be transported to the Railway Sidings by Road (31 to 54 km) through covered trucks to reduce any dust emissions and there after transported by Rail to the Power Plant. The total distance of coal transportation from the source collieries to the Power Plant will be less than 1000 km. LPGCL is developing Railway Sidings from Udaipura Railway Station to the Plant site as per railway norms. Water Sprinklers are provided to reduce the dust emissions during coal unloading and handling inside the plant.

The Domestic coal requirement for Unit 1 and 2 shall be 6.45 MTPA @ 2317 kcals/kWh with GCV of 4000 kcals/kg and imported coal requirement for unit 3 shall be 2.51 MTPA with GCV of 4900 kcals/kg. The sulphur content and ash content in domestic coal would be maximum 0.5 % and less than 33% respectively. Total Ash generation for unit 1 & 2 considering domestic coal will be 2.1285 MTPA and for unit 3 considering imported coal will be 0.251 MTPA. MOUs/Agreements for ash off take have been signed for 4.54 MTPA, whereas the total ash generation would be 2.38 MTPA.

The committee noted that there will be a reduction in the SOx emissions due to less sulphur content (0.5 %) in the proposed domestic coal as against the imported coal (0.7 %). Although there will be a substantial increase in the ash generation due to domestic coal as against imported coal, the proponent has signed MOUs/Agreements for 100% fly ash utilization.

Based on the information and clarifications provided, the Committee **recommended** the amendment in environmental clearance for change of source of coal from Imported to Domestic for two units aggregating to 1320 MW (Unit 1 (660 MW) and Unit 2 (660 MW)) subject to stipulation of the following conditions:

- i. The coal transportation by road shall be through tarpaulin covered trucks for a maximum period of two years and thereafter shall be only through mechanically covered trucks.
- ii. Avenue plantation of 2/3 rows all along the road shall be carried out by the project proponent at its own expenses in consultation with the State Government Authorities.
- iii. Periodic maintenance of the road shall be done by the project proponent at its own expenses and shall also facilitate the traffic control on the road in consultation with the State Government Authorities.

2.13 Expansion of Rosa Thermal Power Project (2x660 MW) Stage -III of M/s Rosa Power Supply Company Ltd. at Village Choudhera, Distt. Shajahanpur, Uttar Pradesh – reg. ToRs.

The proposal is for prescribing ToR for preparation of EIA/EMP report for the expansion of Rosa Thermal Power Project (2x660 MW) Stage-III at village Choudhera, Distt. Shajahanpur, Uttar Pradesh by M/s Rosa Power Supply Company Ltd. The PP along with their environmental consultant, M/s Greencindia Consulting Pvt. Ltd. has made a presentation and provided the following information:

The proposed coal based Power Plant will be located inside the boundary of existing power plant of 610 ha and shall be requiring an additional 233 ha of land to accommodate the Coal Handling Plant and ash pond area. The Latitude and Longitude of the proposed project site vary from 27⁰49'21.5" N to 27⁰50'25.2" N and 79⁰51'11.4" E to 79⁰56'48.2" E respectively. The Latitude and Longitude of the proposed project site vary from 27⁰48'8.3" N to 27⁰48'39.7" N and 79⁰55'26.8" E to 79⁰56'0.6" E respectively. The project site is located at about 10 Km from Sahajahanpur on SH-25. No separate township is required for the proposed plant as the existing residential facilities shall be made available. The total project cost is around Rs. 9,000 crores.

The proposed project shall use super critical technology for better utilization of heat rate, raw material utilization and emission for better SO_x and NO_x control with particulate emission <50 mg/Nm³. The coal requirement will be about 6.0 MTPA, which shall be sourced from multiple sources like imported coal to be blended with domestic coal and washery rejects. No separate Railway Siding is envisaged as the existing facilities are proposed to be utilized. The water requirement of around 50 CuSecs, out of which 25 Cusecs water shall be used from the optimized water available with the operational power plant whereas balance water requirement of 25 CuSecs will be sourced from nearby River Garrah. The bottom ash generated shall be disposed into the proposed ash dyke in lean slurry form whereas the fly ash shall be collected in dry form for better ash utilization as per prescribed guidelines.

The committee deliberated on various issues and sought the following additional information:

- i. *Certified compliance report from the MoEF R.O. for the conditions stipulated in the ECs accorded to the existing plant*
- ii. *Land use pattern of the project site from the revenue department.*
- iii. *HFL of the project site on the toposheet.*

- iv. *Relocation of the proposed ash pond near to the existing ash pond shall be explored after optimization of the ash pond area requirement.*

*In view of the above short comings, the proposal was **deferred** for reconsideration after submission of all the above information/documents.”*

2.14 26 MW Bagasse based Co-Generation power project of M/s. Shrigonda Sahakari Sakhar Karkhana Ltd. at Village Shrisakhar, Taluka Shrigonda, Distt. Ahmednagar, Maharashtra – reg. ToRs.

The proposal is for prescribing ToR for preparation of EIA/EMP report for the 26 MW Bagasse based Co-Generation power project at Village Shrisakhar, Taluka Shrigonda, Distt. Ahmednagar, Maharashtra by M/s. Shrigonda Sahakari Sakhar Karkhana Ltd. The PP along with their environmental consultant, M/s ULTRA-TECH Environmental Consultancy and Laboratory, Thane has made a presentation and provided the following information:

The project area is 15 acres, which is a part of the total land of 80 acres for the sugar industry. There are no National Parks, Wildlife Sanctuaries, Biosphere/Elephant/Tiger Reserves, Heritage sites within 10 km of the project site. The project cost is Rs. 130.45 crores. Bagasse & cane trash will be used as fuel and no coal will be used. The water requirement will be 989 m³/d, which will be sourced from Ghod Left Canal through pipeline. No additional water drawl permission is required.

The committee noted that it is proposed to use the ash for brick making & spent oil in boiler and recommended that the ash shall be utilized as fertilizer and spent oil shall be given to registered recyclers.

Based on the information provided and the presentation made, the Committee recommended the standard TORs (as applicable) at **Annexure-A1** for undertaking detailed EIA study and preparation of EMP along with the specific TOR as under:

1. Spent oil shall be given to registered recyclers and not to be used in boiler.
2. Ash shall be utilized as a fertilizer and not for bricks.

2.15 Enhancement of existing recycle paper production capacity, addition of new product (i.e. Coated Paper) and installation of 20 MW Captive Power Plant of M/s. Ruby Macons Ltd. Survey No. 56/1, Village Morai, Tehsil Pardi, District Valsad, Gujarat – reg. ToRs.

The proposal is for prescribing ToR for preparation of EIA/EMP report for the Enhancement of existing recycle paper production capacity, addition of new product (i.e. Coated Paper) and installation of 20 MW Captive Power Plant at Survey No. 56/1, Village Morai, Tehsil Pardi, District Valsad, Gujarat by M/s. Ruby Macons Ltd. The committee noted that the existing and proposed paper production is from waste paper & wood pulp and neither pulp manufacturing nor bleaching is involved. Hence, the paper production does not require environmental clearance. Although the TPP (20 MW) is listed under Category 'B' of the schedule of EIA Notification, 2006, due to its location within 10 km of the boundary of U.T of Daman and applicability of General Condition, the proposal is treated as Category 'A' and appraised at Centre. The PP along with their environmental consultant, Eco Chem Sales & Service, Surat has made a presentation and provided the following information:

The total project area is 78,419 m² and no additional land will be required due to the proposed expansion. There are no National Parks, Wildlife Sanctuaries, Biosphere/Elephant/Tiger Reserves, Heritage sites within 10 km of the project site. River Kolak and Damanganga flow at a distance of 0.15 km and 3.0 km respectively. The project cost is around Rs. 120 crores.

The existing production capacity is 10,500 MT/Month of M.G. Kraft Paper and the production capacity after the proposed expansion will be 30,000 MT/Month of M.G. Kraft Paper and/or Crafted paper Board. The raw materials for paper production are waste paper, wood pulp, sizing & dyes, starch, coating pigments & binders and coal/lignite will be used as fuel for the CPP. The requirement of coal/lignite and HSD after the proposed expansion will be 750 TPD and 500 LPH respectively. The power requirement after the proposed expansion will be 20 MW and will be sourced from the CPP. The existing 4.95 MW CPP will be decommissioned after the commissioning of the proposed 20 MW CPP and 3.0 MW DGVCL

grid power will be used as standby for initial start-up of power plant and 2500 KVA DG set for

emergency when total blackout occurs.

Total 2,155 KLD of water will be required after the proposed expansion, and additional water consumption during the operation phase will be 1,342 KLD. The water will be sourced from Damanganga canal. The committee noted that River Kolak is only at a distance of 0.15 km from the project site. It was informed by the PP that the existing unit is a zero discharge unit and after the proposed expansion also, the same shall be maintained.

Based on the information provided and the presentation made, the Committee recommended the standard TORs (as applicable) at **Annexure-A1** for undertaking detailed EIA study and preparation of EMP along with the specific TOR as under:

1. Impact of the existing and the proposed units on the River Kolak shall be assessed.
2. The recycling of sludge shall be explored.

2.16 Durgapur Captive Power Project-III (2x20 MW) at Durgapur, Distt. Burdwan in West Bengal by M/s NTPC-SAIL Power Company Private Ltd. – reg. re-consideration for ToRs.

The proposal was earlier discussed in the 8th Meeting of the EAC (Thermal) held on **January 9-10, 2014**, the minutes of which are as under:

Quote. “The proposal is for prescribing ToR for preparation of EIA/EMP report for the Durgapur Captive Power Project-III (2x20 MW) at Durgapur, Distt. Burdwan in West Bengal by M/s NTPC-SAIL Power Company Private Ltd. Although the proposal falls under Category ‘B’ of the schedule of the EIA Notification, 2006, since it is proposed to be located within the Durgapur Steel Plant (DSP), which is a Category ‘A’ project, the proposal was appraised at the Centre. The PP has made a presentation and provided the following information:

The proposed coal based Durgapur Captive Power Plant-III is to be located inside the boundary of DSP and shall cater to their CAT-I (emergency) power requirement including DSP’s ongoing expansion program. The site is located in the District of Burdwan of West Bengal at Latitude: 23° 32' 48" N to 23° 32' 33" N and Longitude: 87°14' 25" E to 87°14'43" E.

It is located at about 170 Km from the city of Kolkata on NH-2. The total land for the power plant excluding the ash dyke is envisaged to be 20 acres which is already within DSP's premises and does not require any further acquisition. No separate township is required for the plant as existing DSP residential facilities shall be made available.

Around 0.3 MTPA of coal is committed to be supplied by SAIL from their Captive Ramnagar Mines. No separate Railway Siding and coal storage area is envisaged as existing facilities of PP-II are proposed to be utilized. The water requirement of around 400 m³/hr shall be supplied by DSP from their network using already allocated quota. CPP-III is envisaged to use FBC Boilers for better SO_x and NO_x control with particulate emission <50 mg/Nm³. The ash generated is proposed to be discharged in existing ash dyke of CPP-II.

The committee deliberated on various issues and sought the following additional information:

- i. Certified compliance report from the MoEF R.O. for the conditions stipulated in the EC accorded to the existing plant*
- ii. Coordinates of ash dyke and power plant along with the HFL on the toposheet.*
- iii. Details of the installed capacities of the existing CPPs vis-à-vis the current production capacities, the phase out plan of the old units etc.*
- iv. Details of the production capacity of captive coal mine from which the coal is proposed to be sourced vis-à-vis the utilization by various power plants including the proposed.*
- v. Details of fly ash utilization*
- vi. Water balance for the proposed CPP including the steel plant.*

*In view of the above short comings, the proposal was **deferred** for reconsideration after submission of all the above information/documents." **Unquote.***

On submission of the information sought above, the matter was again placed before the EAC for its re-consideration. The PP made a presentation and provided the following information:

EC for the existing steel plant was accorded by MoEF on 10.09.2007 and the project was monitored on 23.05.2013 by the MoEF, Regional Office. The observations made in the compliance report regarding uploading the six monthly compliance status of EC conditions & monitored data on the website and submission of production details of various projects in the six monthly compliance reports will be complied.

The coordinates of ash dyke and power plant along with the HFL on the toposheet was submitted. Regarding Fly Ash Utilization, Durgapur is having high potential of ash utilization. Fly Ash dry disposal system is being commissioned. In ash utilization seminar on 10th Feb 2014, 35 no. of parties have shown interest including brick and cement manufacturers. Already 18 parties have shown interest and will be awarded by 15th March, 2014 for 100% fly ash utilization. Tie-up with NHAI for Dhanbad-Dankuni Highway (NH-2) is also being done for

pond ash utilization. 1 lakh ash bricks per month manufacturing in-house will be done and the machine is under commissioning. Ash will be discharged in existing ash dyke as a fall back arrangement only. *The committee noted that the existing ash dyke wherein the ash of the proposed CPP is planned to be disposed as a fall back arrangement falls within the active flood plain and River bed. Hence, the committee recommended that the ash dyke for the proposed CPP shall be relocated to elsewhere outside the active flood plain and River bed.*

The DSP's Old Power Plant (CPP-I) has 7 nos. Boilers of 68 TPH each, 4 nos. Turbo Generators of 5 MW each. The present Generation Capacity is 6 MW and 240 T/Hr Steam. The NSPCL CPP-II has a present Generation Capacity of 120 MW (2X60 MW). Under the Phase Out Plan, 4 TG and 1 Boiler of CPP-I will be decommissioned. The Ramnagore captive coal mine from which the coal is proposed to be sourced has a present Production Capacity of 1.02 MTPA. The present Coal Allocation to other beneficiaries is 0.132 MTPA (BSL: 2 rakes/month and BSP: 1 rake/month). The NSPCL CPP-III Coal Requirement is 0.3 MTPA. The water balance diagram for the DSP and the proposed NSPCL CPP-III with a COC of 5.0 was submitted.

Based on the information provided and the presentation made, the Committee recommended the standard TORs (as applicable) at **Annexure-A1** for undertaking detailed EIA study and preparation of EMP along with the specific TOR as under:

- i. The ash dyke for the proposed CPP shall be relocated to elsewhere outside the active flood plain and River bed.

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

ANNEXURE- A1

Terms of Reference (TOR):

- i) Vision document specifying prospective long term plan of the site, if any, shall be formulated and submitted.
- ii) Certified compliance report from the Regional Office of MoEF for the conditions stipulated in the environmental and CRZ clearances of the previous phase(s), as applicable, shall be submitted.
- iii) Executive summary of the project indicating relevant details along with recent photographs of the approved site shall be provided. Response to the issues raised during Public Hearing and to 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.
- iv) Harnessing solar power within the premises of the plant particularly at available roof tops and other available areas shall be formulated and status of implementation shall be submitted to the Ministry.
- v) The coordinates of the approved site including location of ash pond shall be submitted along with topo sheet (1:50,000 scale) and confirmed GPS readings of plant boundary and NRS satellite map of the area, shall be submitted. Elevation of plant site and ash pond with respect to HFL of water body/nallah/river shall be specified, if the site is located in proximity to them.

- vi) Layout plan indicating break-up of plant area, ash pond, area for green belt, infrastructure, roads etc. shall be provided.
- vii) 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 and revised layout (as modified by the EAC) shall be provided.
- viii) Present land use as per the revenue records (free of all encumbrances of the proposed site, shall be furnished. Information on land to be acquired) if any, for coal transportation system as well as for laying of pipeline including ROW shall be specifically stated.
- ix) The issues relating to land acquisition and R&R scheme with a time bound Action Plan should be formulated and clearly spelt out in the EIA report.
- x) Satellite imagery or authenticated topo sheet indicating drainage, cropping pattern, water bodies (wetland, river system, stream, nallahs, ponds etc.), location of nearest villages, creeks, mangroves, rivers, reservoirs etc. in the study area shall be provided.
- xi) 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 Office of the Chief Wildlife Warden of the area concerned.
- xii) 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 fill material required; its source, transportation etc. shall be submitted.
- xiii) 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 to be acquired is developed alternatively and details plan shall be submitted.
- xiv) A mineralogical map of the proposed site (including soil type) and information (if available) that the site is not located on economically feasible mineable mineral deposit shall be submitted.
- xv) Details of 100% fly ash utilization plan as per 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.
- xvi) Water requirement, calculated as per norms stipulated by CEA from time to time, shall be submitted along with water balance diagram. Details of water balance calculated shall take into account reuse and re-circulation of effluents which shall be explicitly specified.
- xvii) Water body/nallah (if any) passing across the site should not be disturbed as far as possible. In case any nallah / drain has to be diverted, it shall be ensured that the diversion does not disturb the natural drainage pattern of the area. Details of diversion required shall be furnished which shall be duly approved by the concerned department.
- xviii) 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.
- xix) 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.

- xx) 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/creek/ 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.
- xxi) 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. Commitment regarding availability of requisite quantity of water from the Competent Authority shall be provided along with letter / document stating firm allocation of water.
- xxii) Detailed plan for carrying out rainwater harvesting and its proposed utilization in the plant shall be furnished.
- xxiii) Feasibility of zero discharge concept shall be critically examined and its details submitted.
- xxiv) Optimization of COC along with other water conservation measures in the project shall be specified.
- xxv) Plan for recirculation of ash pond water and its implementation shall be submitted.
- xxvi) 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.
- xxvii) Socio-economic study of the study area comprising of 10 km from the plant site shall be carried out by a reputed institute / agency which shall consist of detail assessment of the impact on livelihood of local communities.
- xxviii) 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.
- xxix) 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.
- xxx) 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. Sustainable income generating measures which can help in upliftment of poor 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.
- xxxi) 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.
- xxxii) 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.
- xxxiii) Assessment of occupational health as endemic diseases of environmental origin shall be carried out and Action Plan to mitigate the same shall be prepared.
 - xxxiv) 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 years shall be conducted with an excellent follow up plan of action wherever required.
 - xxxv) One complete season site specific meteorological and AAQ data (except monsoon season) as per MoEF Notification dated 16.11.2009 shall be collected and the dates of monitoring recorded. The parameters to be covered for AAQ shall include SPM, RSPM (PM10, PM2.5), SO₂, NO_x, Hg and O₃ (ground level). The location of the monitoring stations should be so decided so as to take into consideration the pre-dominant downwind direction, population zone, villages in the vicinity and sensitive receptors including reserved forests. 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.
 - xxxvi) A list of industries existing and proposed in the study area shall be furnished.
 - xxxvii) Cumulative impact of all sources of emissions (including transportation) on the AAQ of the area shall be well assessed. 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 wind roses should also be shown on the location map as well.
 - xxxviii) Radio activity and heavy metal contents of coal to be sourced shall be examined and submitted along with laboratory reports.
 - xxxix) Fuel analysis shall be provided. Details of auxiliary fuel, if any, including its quantity, quality, storage etc should also be furnished.
 - xl) Quantity of fuel required, its source and characteristics and documentary evidence to substantiate confirmed fuel linkage shall be furnished.
 - xli) 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.
 - xlii) For proposals based on imported coal, inland transportation and port handling and rolling stocks /rail movement bottle necks shall be critically examined and details furnished.
 - xliii) 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.
 - xliv) 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.
 - xlvi) 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.

- xlvi) The DMP so formulated shall include measures against likely Tsunami/Cyclones/Storm Surges/Earthquakes etc, as applicable. It shall be ensured that DMP consists of both on-site and off-site plan, complete with details of containing likely disaster and shall specifically mention personnel identified for the task. Smaller version of the plan shall be prepared both in English and local languages.
- xlvii) Detailed plan for raising green belt of native species of appropriate width (50 to 100 m) and consisting of at least 3 tiers around plant boundary (except in areas not possible) with tree density of 2000 to 2500 trees per ha with a good survival rate of about 80% shall be submitted. Photographic evidence must be created and submitted periodically including NRSA reports.
- xlviii) Over and above the green belt, as carbon sink, additional plantation shall be carried out in identified 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.

xliv) 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 system of reporting of non compliances / violations of environmental norms to 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.

- l) 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 agency shall be submitted.
- c) The soil levelling 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 bunds should be strengthened and desilted.
- d) Additional soil for leveling of the sites should be generated as far as possible within the sites, in a way that natural drainage system of the area is protected and improved
- e) Marshy areas which hold large quantities of flood water shall 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. The outfall should be first treated in a guard pond (wherever feasible) and then 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 of **Fishermen Welfare Fund** should be created out of CSR grants not only to enhance their quality of life through 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 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 is fertile agricultural land used for paddy cultivation.
