

## **MINUTES OF THE 70<sup>TH</sup> MEETING OF RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE ON ENVIRONMENTAL IMPACT ASSESSMENT OF THERMAL POWER AND COAL MINE PROJECTS**

The 70<sup>th</sup> Meeting of the reconstituted Expert Appraisal Committee (Thermal) was held on **March 26, 2013** at NTPC Conference Hall, 5<sup>th</sup> Floor, NTPC Bhawan, Lodhi Road, New Delhi. The members present were:

- |    |                  |   |                  |
|----|------------------|---|------------------|
| 1. | Shri V.P. Raja   | - | Chairman         |
| 2. | Dr. C.R. Babu    | - | Vice-Chairman    |
| 3. | Shri T.K. Dhar   | - | Member           |
| 4. | Shri J.L. Mehta  | - | Member           |
| 5. | Dr. G.S. Roonwal | - | Member           |
| 6. | Shri M.S. Puri   | - | Member           |
| 7. | Dr. S.D. Attri   | - | Member           |
| 8. | Dr. Saroj        | - | Member Secretary |

Member Secretary, CPCB; Dr. CBS Dutt, Dr. K.K.S. Bhatia and Shri V.B. Mathur were absent.

In attendance: Sh. W. Bharat Singh, Deputy Director, MoEF.

The deliberations held and the decisions taken are as under:

### **ITEM No.1 CONFIRMATION OF THE MINUTES OF THE LAST MEETING.**

The minutes of the 68<sup>th</sup> Meeting held during February 26, 2013 were confirmed with some minor corrections.

#### **2.1 2x660 MW Super critical coal based Thermal Power Project of M/s Welspun Energy UP Pvt. Ltd. at village Dadri Khurd, Tehsil Mirzapur Sadar, District Mirzapur, in Uttar Pradesh- reg. Environmental Clearance**

The proposal is for consideration for environmental clearance. The project proponent made a presentation along with its consultant [M/s J. M. Enviro Net Pvt. Ltd., Gurgaon](#) and provided following information:

The proposal is for setting up of 2x660 MW Super critical Coal Based Thermal Power Project at village Dadri Khurd, in Tehsil Mirzapur Sadar, in District Mirzapur, in Uttar Pradesh. The proposal was earlier proposed to be set up based on domestic coal but due to non-availability of the domestic coal, it has been decided to go ahead with imported coal from Indonesia for an interim

period until domestic coal is available. The land required will be 875 acres, out of which 15.63 acres will be single crop agriculture land; 853.74 acres will be barren Land; 5.44 acres will be water body; and 0.19 comprises of human settlements. The co-ordinates of the site are located within Latitude 24°58'41.645" N to 25°00'16.887" N and Longitude 82°39'50.425" E to 82°41'03.728" E. Imported Coal requirement will be 5.27 MTPA. Coal will be obtained from Indonesia. Coal supply agreement had been signed with M/s Sirdi Sai Goodearth International PTE Ltd. Ash and sulphur contents in imported coal will be 14% and 0.34% respectively. Gross Calorific value of the coal will be 4400 kcal/kg. About 0.59 MTPA of fly ash and 0.15 MTPA of bottom ash will be generated. Ash will be supplied for manufacturing of Cement and MoU have been signed with M/s ABG Cement Ltd. Ash pond area will be 180 acres and co-ordinates of the ash pond site will be within Latitude 24°59'46.8" N to 25°0'14.5" N and Longitude 82°40'8.2" E to 82°40'57.8" E. Lean concentration slurry fly ash disposal system will be adopted. Bi-flue Stack of 275m will be provided. Water requirement of 36 MCM will be sourced from the Ganga river through a pipeline at a distance of about 17 km from the project site. Irrigation Department Govt. of U.P has accorded water allocation vide its letter dated 09.09.2011. CWC has also approved the water allocation of 36 MCM from River Ganga vide its letter dated 12.10.2011. R.O System will be installed and zero discharge will be adopted as far as practically possible. Induced draft cooling system will be installed. There are no National Parks, Wildlife Sanctuaries, Heritage Sites, Tiger/Biosphere reserves etc. within ten km of the project site. Public Hearing was held on 07.04.2012. Cost of the project will be Rs.7500 Crores.

M/s Welspun Energy UP Pvt. Ltd. also made point-wise TOR compliance. It was observed that TOR for the power project was issued on 15.06.2011, whereas AAQ Data has been collected for the period March to May, 2011. The project proponent clarified that while TOR was recommended, they had requested the Committee for allowing using AAQ Data they have started collecting data, which the Committee had duly conceded. The Committee perused through the minutes of the meeting wherein recommendation for TOR was made and noted consent had been given to use data collected already. It was noted that proposal for TOR was considered twice i.e in April, 2011 and in May, 2011 and recommendation for TOR was made during the meeting held in May, 2011.

It was also informed by the project proponent that the power project has 100% PPA with UP Power Corpn. Ltd.

*It was observed that the imported coal document furnished is from a trading company and does not appear to be from the project proponent's own mine in Indonesia as reported to be sourced from for the power project. The Committee desired that clarification of the same be submitted.*

*Deliberating the issue of uncertainty in coal (including imported coal from Indonesia), the Committee observed that in order to avoid dis-service to financial institutes by creating stranded assets, the issue of firm fuel and water availability need to be deliberated at length and need to be confirmed to its satisfaction. It was therefore decided that the project proponent shall submit documents to submit viable fuel source for running the power project (2x660 MW) clearly indicating source of fuel and impact of low grade imported coal on the boiler efficiency.*

*The issue of coal transportation from the country of origin to the TPP site and the bottle necks of Port and Railways was also observed to have been inadequately dealt with and details on the same has been sought.*

*The Committee therefore decided over and above financial viability of using imported coal from Indonesia, the project proponent shall submit and explain tripartite agreement entered with the U.P Govt. The Committee also desired further information from the project proponent the legal tenability of the PPA entered into with UPPCL.*

*Regarding water availability the Committee noted that the CWC clearance has many conditions and clearly indicates that between January to May no water can be drawn. The project proponent informed that a storage reservoir is being planned to cater for six months requirement at a site of about 4.5 Km from the TPP site. That the existing Dam (Upper Khajuri Dam) which is highly un-utilized will be utilized to by way of pumping and storage excess monsoon water for use of the power plant using lean season period.*

*The Committee recommended that the project proponent shall ensure that the power project is self-sufficient in its water requirement for which necessary water conservation practices shall be done.*

*It was therefore decided that the project proponent shall submit a well-planned water harvesting scheme, development of small check dams in the area, flood water storage schemes (as may be feasible).*

*The Committee expressed that the Dam must have been built long ago for irrigation and drinking water needs. It was therefore decided that the project proponent shall submit details of existing conflict of interest of the same water source between drinking, agricultural and industrial in the region.*

*Regarding water availability study the project proponent informed and submitted a study report prepared by M/s WAPCOS, which inter-alia includes area drainage study. It was also informed that Geo-Hydrology study was carried out by M/s Minmec Consultant; seismic study by IIT, Chennai; Need Based Assessment Study by M/s XIDAS, Jabalpur; Feasibility Study for Railway Siding by M/s Aarvee Consultants and take off stations finalized in consultation with*

*Railways. That Biodiversity Assessment has been carried out by Dr. Justus Joshua of M/s Green Future Foundation and Conservation Management Plan accordingly prepared. That till date expenditure to the tune of Rs 126.48 Crores has already been incurred.*

The Committee was informed that a complaint against setting up of the proposed power project by one Shri Baliram Singh, President, Van Upvan Conservation of Nature Environment Society, Shamsherpur, in Chandoli Distt., in U.P has been forwarded by the Prime Minister's Office. The Committee perused through the contents of the complaint and decided that the project proponent shall submit detail point-wise clarification (both in Hindi and in English) on the issues raised.

The Committee also discussed the issues raised in the public hearing and the responses made by the project proponent. The major issues raised were regarding employment opportunities to stop percentage of migration; wildlife conservation; jobs for poor and unemployed land losers; plan for the women empowerment; pollution control instruments to be installed; conventional and beneficial plants to be planted while development of green belt; education and medical facilities for villagers etc. The project proponent also informed that there are no litigations in any courts w.r.t the proposed power project.

The project proponent in the public hearing responded that preference for job opportunities will be given to land losers. That the company will set up a separate CSR team for development activities in the area which shall include health care facilities, infrastructure improvement and refurnishing of schools. That Rs. 10 Crores has already been projected for various women empowerment activities.

The Committee noted that while presenting their case on issues raised and responses made during public hearing the project proponent have mixed up the responses made and the action plan for implementation. That perusal of the presentation itself indicates that no concrete action plan seems to have been formulated. *The Committee therefore decided that the project proponent shall clearly indicate the issues raised in the public hearing and the actual response made and followed by specific action plan for implementation and submit the same. The Committee also advised the project proponent that they shall integrate locals as part of the development process of the power project and accordingly formulate an action plan. As part of health care venture it was observed that the project proponent may tie up with local community health care centers. It was also advised that long term preventive health care measures need to be the focus and the project proponent need to obtain medical records of endemic diseases in the region in case anything worthwhile scheme is proposed to be formulated in consultation with the local Public Health Department.*

*On being narrated the health care services already being conducted in the area, the Committee noted the good services purportedly being carried out by the project proponent in health sector in three villages in the area.*

On the issue of wildlife, the Committee noted that the secondary data of wildlife of the area seem to indicate a fairly good population of Schedule-I species and decided that a conservation action plan vetted by the office of the concerned Chief Wildlife Warden shall be submitted.

On the issue of details of land of the thermal power project site, the Committee observed that details as per Revenue records shall be submitted.

*In view of the shortcomings noted above the Committee decided that the proposal be **deferred** for re-consideration at a later stage on submission of the clarifications/study reports sought.*

## **2.2 2x660 MW Super critical coal based Thermal Power Project of M/s CESC Ltd. at village Neulapoi, District Dhenkanal, in Odisha- reg. Environmental Clearance**

The proposal is for consideration for environmental clearance. The project proponent made a presentation along with its consultant **M/s MECON Ltd.**, and provided following information:

The proposal is for setting up of 2x660 MW Super critical Coal Based Thermal Power Project at village Neulapoi, District Dhenkanal, in Odisha. The proposal was earlier proposed to be set up based on domestic coal but due to non-availability of the domestic coal, it has been decided to go ahead with imported coal from Indonesia for an interim period until domestic coal is available. It is proposed to go ahead with imported coal for the 1<sup>st</sup> unit of 660 MW. The 2<sup>nd</sup> unit of 660 MW will be based on domestic coal. The land required will be 1093.31 acres, out of which 970.25 acres will be single crop agriculture land, 39 acres will be barren Land, 8.44 acres Bastiyogya land; and 21.62 acres will be Forest Land. The Project proponent applied to IDCO for Gochar land de-reservation. Permissive possession for community land is expected shortly. The co-ordinates of the site are located within Latitude 20°42'34" N to 20°44'19" N and Longitude 85°40'56" E to 85°42'08" E. Imported Coal and domestic coal requirement will be 2.9 MTPA and 3.0 MTPA. Ash pond area will be 296.53 acres and co-ordinates of the ash pond site is located within Latitude 20°42'44.43" N and Longitude 85°41'40.39" E. High concentration slurry fly ash disposal system will be installed. Bi-flue Stack of 275m will be provided. Water requirement of 4080 m<sup>3</sup>/hr will be sourced from the Brahmani river through a pipeline at a distance of about 8.5 km from the project site. Natural draft cooling system will be installed. Kapilas Elephant Sanctuary is located at 4.1 km from the proposed plant site. There are no National Parks, Wildlife

Sanctuaries, Heritage Sites, Tiger/Biosphere reserves etc. within ten km of the project site. Public Hearing was held on 23.10.2010. Cost of the project will be Rs.6802 Crores.

*The project proponent informed that for the 2<sup>nd</sup> unit of 660 MW no domestic coal is available and therefore requested that they have approached for consideration for only the 1<sup>st</sup> unit of 660 MW proposed on imported coal.*

*The Committee noted that the MoU submitted for imported coal is only for 1.0 MTPA, which does not even meet the requirement of one unit of 660 MW. That against the requirement of 2.9 MTPA the amount of coal seem high;y inadequate. The Committee also observed that the contents of MoU seem vague and appears to have been entered only with the sole purpose of meeting the requirement of establishing firm coal linkage. The Committee perused through the contents of the terms and conditions referred in the MoU submitted and declined to accept the same as long term firm coal availability assurance document.*

*The Committee reiterated its earlier observations made while discussion of the previous item that in order to avoid dis-service to financial institutes by creating stranded assets, the issue of firm fuel and water availability need to be deliberated at length and need to be satisfactorily addressed. It was therefore decided that the project proponent shall work out and submit viability of the project based on the coal source stated, for running the 1<sup>st</sup> unit of the power project (1x660 MW) clearly indicating the tariff structure having considered the landed imported coal costs at site.*

*The Committee also noted that the project proponent has not fulfilled the requirement while TOR was reiterated for 2x660 MW (against 2x500 MW earlier proposed), wherein they have been specifically given the TOR reiteration by the Ministry in 2009 on condition of optimization of land. It was observed that even as per CEA norms the land required stated is unacceptable.*

*The Committee therefore decided that the project proponent shall revise its layout by optimizing the land requirement at 850 acres and submit the same.*

*The Committee also noted that Kapilas Elephant Sanctuary is located at about 7.0 Kms from the site, whereas, during TOR stage it was submitted by the project proponent that there are no wildlife sanctuary, national park etc. within 10 Kms radius. **The same was viewed seriously by the Committee and accordingly decided that the suitability of the site itself need to be carefully re-examined.***

*The Committee felt that the sanctuary may be located nearer than stated as 7.0 Kms and therefore decided that the distance shall be got verified on the top-sheet by the office of the Chief Wildlife Warden.*

The Committee also noted that application required to be submitted for approval of the Standing Committee of the National Board of Wildlife seem to be have been not made till date despite the fact that public hearing for the project based on domestic coal was held in October, 2010.

The project proponent stated that the elephant sanctuary is not yet notified. The Committee observed that the irrespective of the sanctuary being notified or not, the existence of wildlife is a known fact and the project proponent need to have carry out the needful in accordance with the various observations of the Hon'ble Supreme Court and requirements prescribed by the Ministry.

It was also observed that AAQ Data was reportedly collected during December 2009 to February 2010 and does not mention PM<sub>2.5</sub> and PM<sub>10</sub> despite the statutory requirement after issue of National AAQ Standards in November 2009. No cumulative impact assessment has been carried out either.

Perusal of the project file indicated that TOR was prescribed on 20.04.2007 for 2x500 MW and reiterated for 2x660 MW on 20.07.2009. Public hearing of the project was held on 23.10.2010 based on domestic coal for both the units.

*The issue now is the OM issued by the Ministry on 22.03.2010 provides that in case of the proposals, which had been granted TORs prior to the issue of the OM, the EIA/EMP reports should be submitted, after public consultation where so required, no later than four years from the date of the grant of the TORs, with primary data not older than three years old.*

In the present case, the EIA/EMP has been submitted after public consultation after five years and nine months from the grant of TOR on 20.04.2007. Further, the primary data w.r.t AAQ collected for impact assessment is also slightly now more than three years old.

*In view of the large gaps in information the Committee declined to appraise the project in its present form and referred the matter to the Ministry for its views on the acceptability of data presented and validity of TOR. The proposal was accordingly *deferred*.*

### **2.3 2x660 MW Coal Based Thermal Power Project of M/s Patratu Energy Ltd. (a joint venture with M/s JSEB) at village Patratu, in RamgarhDistt., in Jharkhand - reg. TOR reconsideration.**

The proposal was earlier considered for determination of Terms of Reference (TOR) for undertaking EIA/EMP study in the 60<sup>th</sup> and 62<sup>nd</sup> Meeting held during November 5-6, 2012 and December 4, 2012. In the 60<sup>th</sup> meeting the project

proponent gave a presentation along with its consultant **M/s Tata Consulting Engineers, Bangalore** and provided the following information:

The proposal is for setting up of 2x660 MW Coal Based Thermal Power Project at village Patratu, in Ramgarh Distt., in Jharkhand. Land requirement will be 1050 acres which is already in possession of Jharkhand State Electricity Board. The co-ordinates of the site are located in between Latitude 23°36'49.65" N to 23°37'20.14" N and Longitude 85°15'58.34" E to 85°16'44.61" E. Coal requirement will be 6.3 MTPA, which will be obtained from Banhardih Coal Block, in Latehar Distt., in Jharkhand, allocated by the Ministry of Coal, to JSEB. Water requirement of 37 MCM will be sourced from Patratu Reservoir of M/s JSEB through a pipeline at a distance of 1.5 km from the project site. There are no National Parks, Wildlife Sanctuaries, and Tiger/Biosphere Reserves etc. within 10 km of the site.

The Committee in the said 60<sup>th</sup> meeting had noted that the present proposal is being proposed in the premises of the existing Patratu Thermal Power Station of M/s Jharkhand State Electricity Board (JSEB) and the land belongs to JSEB. The existing units of JSEB in the Patratu Thermal Power Station are 10x110 MW, of which only few units are operational at present. *The Committee therefore observed that the present case is more of an expansion of the existing units and cannot be termed a green field project as claimed by the project proponent.*

The Committee had also noted that the area has large number of mines in operation and highly polluted. That the existing units of JSEB are very old and may have outlived its life and a life cycle assessment of the old units is a necessity. The Committee therefore desired that M/s JSEB shall furnish full details of the existing units and come out with full facts on the joint venture.

The Committee had further noted that the existing site does not prima facie seem to meet the siting criteria for a thermal power plant and therefore decided that layout of the site indicating complete details of proposed location of the 2x660 MW and the old units shall be furnished. It was further decided that compliance of the environmental regulations for the thermal power station shall be submitted. In view of the above the proposal was deferred for re-consideration at a later stage.

The matter was again taken up in the 62<sup>nd</sup> meeting on submission of few clarifications and the Committee noted that the joint venture entered into between PFC and Jharkhand State Electricity Board (JSEB) need clarity and decided that copy of the approval of the Board on the issue of JV shall be submitted.

The Committee was also informed of a representation forwarded by the Prime Minister's Office submitted by an Ex-MLA to the Govt. of Jharkhand on the environmental damages created by Patratu Thermal Power Station.

*After detailed deliberations, the Committee decided that the representation cannot be ignored and wanted a detailed response from the PP to represent. The Committee also decided that a site visit may be undertaken by a Sub-Group Chaired by Dr. C.R. Babu and comprising of other EAC members viz. Sh. J.L. Mehta, Sh. M.S. Puri and Sh. T.K. Dhar. The proposal was accordingly deferred.*

The site visit was under taken by the sub-group on January 28, 2013 and the made the following recommendations:

- 1.0 The operating units of the PTPS are operating far below their installed capacity and the plant load factor is just 25%. The stack emissions of units 4 & 6 suggest that the ESPs are not functioning efficiently; the ash handling system and cooling towers are in defunct state. **Consequently, the committee suggests that all the units should be decommissioned as soon as the first unit of 2X660 MW is operational. Meanwhile, the efficiency of ESPs of the operating units should be installed / improved to prevent air pollution and also enhance the PLF of functional units.**
- 2.0 The cooling towers being pretty old are not at all efficient as was evident by the warm water discharged from ash dykes. This issue needs to be investigated. The power plant authorities could not explain the cooling water circuit. In case cooling tower blow down for ash handling is being tapped from the warm side, necessary modification may be carried out to ensure that CT blow down is tapped from cold side. Complete water balance diagram indicating the effluent blow down being discharged or being utilized for ash slurry and other uses need to be finalized. Under no circumstances the warm water should be discharged into streams before it is cooled to ambient temperature. This can be achieved by retaining the ash effluent in the dyke for a longer period or drained into cooling ponds or guard ponds, newly constructed. The filtering system installed in the shaft in ash pond 2 is not efficient, as the fine flyash is found to be deposited all along the streams and rivulets which receive the effluent. This is also quite evident from white colored and turbid discharge from the ash dykes.
- 3.0 The water from ash effluent is not recycled inspite of the fact that clean water from the reservoir is used. This leads to excess use of fresh water. A COC of 3 to 4 should be attempted at. The local communities (unauthorized people living in encroachments) do not have potable water supply and hence they use fly ash effluent water for bathing and washing. The PTPS should provide potable water to these communities.

Further, the clean stream/rivulet waters are contaminated with fly ash effluent having high fly ash content and warm water. The net result is that the stream bed is covered with fly ash and water is covered with blue green algae that may produce toxins. These streams are devoid of any biological activity. The pollution of surface water bodies should be stopped forthwith due to inefficient and ineffective ash management.

The ash deposited along streams and rivers, including Damodar River should be dredged and deposited in fly ash dykes or used in road construction and or brick making. Before the effluent is discharged into water bodies from the dyke, the effluent should be made to pass through cascade systems that enable to settle the ash.

- 4.0 The proposed scheme for recirculation of effluent from the neutralizing pit as well as for the recirculation of decanted water from ash pond need to be furnished. The decanted water from the pit receiving drain water from CHP area also to be reused and a scheme in this respect be proposed and implemented.
- 5.0 There are many brick kilns, which use good earth for making brick kilns around the fly ash dykes. The owners of the brick kilns should be given all necessary facilities to utilize ash for making bricks.
- 6.0 Continuous monitoring of air, and surface and ground water pollution should be carried out. In fact Jharkhand State Pollution Control Board (JSPCB) have not renewed consent to operate for the old units for the last 5 years and issued notices to JSEB to take necessary mitigative measures to reduce particulate matter levels and prevent discharge of ash effluent into surface waters. Immediate mitigation measures should be taken to reduce particulate matter from stack emissions and use of cascade system resorted to sediment fine particulate matter from ash dyke effluent.
- 7.0 The Aluminum recovery plant from fly ash that is being setup by M/s Fly Ash Remediation Services Pvt. Ltd., Kochi based on Tat-Tech technology has no proven record of successful operation nor its technology. The techno-feasibility of the plant needs to be re-examined by competent experts as no information is provided on: (i) what are effluents from the plant and how these are disposed off? (ii) what is the recovery of Aluminum and other products? (iii) how the residues will be disposed off? (iv) what is the extent of acid used in the processes? (v) what is the cost-benefit analysis? (vi) how much fresh water is used in the process? and (vii) how much consumption of power? These issues need to be adequately addressed before the operation of the plant.  
In any case, the plant requires Consent to Establish and Operate from JSPCB before it is set up.
- 8.0 Regarding the Patratu Reservoir, the intake is about 120 Cusec. The water is clean and transparent and is managed well. After meeting the committed requirements, including 41 cusec for the proposed 2X660MW power plant of JSEB, a balance of 46 Cusec will be available. There is no flow in the downstream of Nalkari river and the entire inflow from its vast

catchment is stored. A small quantity is released in spite of the fact that large number of villages located along the banks depends upon the river for domestic and agricultural use. A minimum ecological flow (7.5 Cusec) should be released into downstream to sustain biological systems and to meet the needs of downstream communities. The JSEB should ensure that the visitors to the reservoir should not dispose of their solid waste into the reservoir. The management should keep waste paper baskets at the picnic spots and view points.

- 9.0 Regarding the site for the proposed 2X660MW Super Critical Coal-Fire Power Plant of JSEB, the site of 1016 acres is a part of Patrattu valley and receives the drainage from vast catchment through network of streams and rivulets, all of which discharge their content into Nalkari river downstream of the reservoir. Consequently, the terrain is uneven with average difference of 25m between high and low points. It also includes a weir on one of the tributaries of Nalkari, agricultural fields, abandoned colony, schools, temples and old colony of JSEB. A State highway divides the site into two halves.

Nalkari river forms boundary on its east side, the reservoir forms boundary on the south east, a public school forms boundary on the north east, the lower slopes of the hillock forms the boundary on the north west, west and south west. A small market also exists within the site. Although the site is owned by JSEB, there is a large scale encroachment.

Taking into account the contours of the landscapes, the presence of schools and temples within the site, the massive encroachment of the site, the presence of network of streams and rivulets, the proximity to the Patrattu reservoir and Nalkari river and State highway passing through the site, the subgroup recommends that:

- 9.1 The project should be treated as **green field project** as all the 10 units of PTPS should preferably be phased out at the end of 12<sup>th</sup> Plan; and
- 9.2 The options with regard to the site for the location of 2X660MW TPP of JSEB are recommended as under:

**Option I:**

The main plant may be located in the elevated areas of the proposed site, preferably on the western side of the Ranchi - Ramgarh highway keeping adequate distance from the road as per the norms and without disturbance of network of streams and rivulets and minimum filling; the plant boundary be kept at sufficient distance not less than 200m from nearby stream/downstream of dam / reservoir; existing ash dykes and coal handling site may be used for the proposed 2X660MW TPP of JSEB in case available area at the new site is not adequate.

**Option II:**

Locate 2X660MW TPP of JSEB on 600 acres of vacant land located close to Ash Pond No. I and utilize ash dykes of PTPS and other facilities for the proposed plant.

**Option III:**

Phase out all the units of PTPS and use the site for location of 2X660 MW TPP of JSEB.

The site visit report was deliberated and the Committee accepted the report. The project proponent have chosen Option-I.

The Committee noted that as stated by the sub-group in its report, in deference to its earlier observation, the site better qualifies as a green field project and therefore recommended that the site may be considered as a green filed project.

*The project proponent requested that they may be permitted to utilize AAQ data already collected since March, 2013 as there will be an inordinate delay if post monsoon data collection is to be awaited.*

*The Committee noted the request and observed that the present proposal is being dealt with in November, 2012 and again in December, 2012 and now in this present meeting. The Committee therefore recommended that the request seem valid and permission for using data collected can be accepted.*

*The Committee also deliberated the reply submitted by JSEB with regard to the complaint forwarded by the PMO and noted that the reply answers the complaint and is in order.*

Based on the information provided and presentation made, the Committee recommended TOR and prescribed the following additional specific TOR over and above the standard TORs (as applicable) at **Annexure-A1** for undertaking detailed EIA study and preparation of EMP.

- i) Point-wise compliance to the recommendations made in the site visit report shall be submitted.
- ii) Certified compliance report with respect to environmental clearance conditions for existing thermal power project from RO of the Ministry shall be submitted.
- iii) Detailed water availability of the proposed unit and the impact on downstream recipients (from the source of water for the power plant) of other competing sources shall be submitted.
- iv) Concrete action plan of ash utilization along with verifiable ash utilization status shall be submitted.
- v) Action plan for carrying out a long term study of radio activity, heavy metals from coal to be used and reputed institute identified for the task shall be formulated. The plan shall comprise of an in-built continuous monitoring mechanism for radio activity and heavy metals in coal and fly ash (including bottom ash).
- vi) Detail coal linkage including its source shall be indicated.

## **2.4 Replacement of 5x62.5 MW by 1x660 MW Coal Based Thermal Power Plant, at Satpura Thermal Power Station of M/s M.P. Power Generating Co. Ltd. at Sarni, in Taluk Ghoradongari, in District Betul, in Madhya Pradesh -reg. TOR**

The proposal was considered for determination of Terms of Reference (TOR) for undertaking EIA/EMP study as per the provisions of EIA Notification, 2006. The project proponent gave a presentation along with its consultant M/s Development Consultants Pvt. Ltd. and provided the following information:

The proposal is for replacement of 5x62.5 MW by 1x660 MW Coal based Thermal Power Plant at Satpura Thermal Power Station of at Sarni, Taluk Ghoradongari, District Betul, in Madhya Pradesh. No additional land is required for the project. Existing capacity is 114.5 MW (5x62.5 MW + 1x200 MW + 3x210 MW). Two more units of 500 MW (i.e 2x250 MW) is under construction. The co-ordinates of the site are located in between Latitude 22°06'35" N to 22°06'55" N and Longitude 78°10'13" E to 78°10'28" E. Coal requirement will be 3.34 MTPA. Diversion of coal for 5x62.5 MW for use of 1x660 MW has been applied to the Ministry of Coal. No additional ash pond is proposed for the replacement unit of 1x660 MW. Water requirement of 1757 m<sup>3</sup>/ hr will be sourced from Satpura Reservoir through a pipeline at a distance of 2.8 km from the project site. Satpura Reservoir, Tawa River, Ranipur Reserved forest, Asir Reserved Forest and Shobhapur Reserved Forest are located within the 10.0 km radius of the project site.

The project proponent also informed that while according EC for 2x250 MW, a condition was stipulated that 5x62.5 MW shall be phased out within one year of commissioning of the 1<sup>st</sup> unit.

The Committee noted that ash utilization of the operational units is very poor and therefore recommended that a specific condition shall be prescribed in the TOR specifying that concrete action plan of ash utilization along with ash utilization status shall be submitted.

Based on the information provided and presentation made, the Committee recommended TOR and prescribed the following additional specific TOR over and above the standard TORs (as applicable) at **Annexure-A1** for undertaking detailed EIA study and preparation of EMP.

- i) Cumulative impact assessment of all sources of pollution (air, water and soil) in the study area shall be carried out.
- ii) Detailed water availability of the proposed unit and the impact on downstream recipients (from the source of water for the power plant) of other competing sources shall be submitted.

- iii) Concrete action plan of ash utilization along with verifiable ash utilization status shall be submitted.
- iv) Action plan for carrying out a long term study of radio activity, heavy metals from coal to be used and reputed institute identified for the task shall be formulated. The plan shall comprise of an in-built continuous monitoring mechanism for radio activity and heavy metals in coal and fly ash (including bottom ash).

**2.5 2200 MW Gas based combined cycle Thermal Power Plant at Taluka Palghar of M/s ONGC Ltd. at village Kelwa, Mahim and Tokrale, Taluk Palghar, District Thane in Maharashtra - Reg. TOR.**

The proposal was considered for determination of Terms of Reference (TOR) for undertaking EIA/EMP study as per the provisions of EIA Notification, 2006. The project proponent gave a presentation along with its consultant M/s Cholamandalam MS Risk Services Ltd., Chennai and provided the following information:

The proposal is for setting up of 2200 MW Gas based combined cycle Thermal Power Plant at Taluka Palghar at village Kelwa, Mahim and Tokrale, Taluk Palghar, District Thane in Maharashtra. The land requirement will be 350 acres. The co-ordinates of the site are located in between Latitude 19°37'36" N to 19°40'17.86" N and Longitude 72°44'16" E to 72°47'32.07" E. Natural gas requirement will be 8 to 9 MMSCMD. Process water requirement will be sourced from Surya Dam through a pipeline at a distance of 40 km from the project site. Cooling water requirement of 273 MLD will be source from seathrough a pipeline at a distance of 5-7 km from the project site. De salination plant will be installed. Vadari Creek, Dudh Creek, Sarvar Creek, Kelwe Creek, Mahim Creek, Danda Creek, Kelwe Beach, Mahim Beach, Shirgaon Beach, Shirgaon Lake and Tarukhind RF are located within the 10 km radius of the project site. About 35 land oustees will be involved.

The project proponent informed that Gas Processing Plant proposal has been submitted to the Industry Committee and is being proposed to be taken up for TOR in the next meeting.

The Committee noted that the recommendations made by the EAC (Industry) shall be also furnished separately while applying for environmental clearance.

No fresh water shall be utilized for process water and the same shall be also met from Desalination plant.

*The Committee observed that a number of power plants are stranded due to non availability of gas. As such the project proponent may obtain clearance from the Ministry of Petroleum and natural gas and the Ministry of Power on the*

*availability of gas for the power project prior to application of environmental clearance.*

Based on the information provided and presentation made, the Committee prescribed the following specific TOR over and above the standard TORs (as applicable) as at **Annexure-A1& A2** for undertaking detailed EIA study and preparation of EMP.

- i) Obtain clearance from the Ministry of Petroleum and natural gas and the Ministry of Power on the availability of gas for the power project prior to application of environmental clearance.
- ii) Cumulative impact assessment over a radius of 10 Kms shall be carried. The cumulative impact assessment shall also include marine EIA studies considering impact on marine ecosystem due to sea water drawl and discharge from Thermal Power Plants.
- iii) A study shall be initiated to assess the impact of emission of the gas based power plant on the chemistry of upper troposphere and stratosphere of the atmosphere and the impact on radiation budget. It shall be ensured that the study takes into account the worst seasonal atmospheric conditions.
- iv) Location for setting up permanent monitoring stations for measurement of PAN, NMHC besides criteria pollutants shall be identified and details submitted.
- v) Possibility for harnessing solar power within the premises of the plant particularly at available roof tops shall be examined and details submitted.
- vi) Layout plan indicating break-up of plant, green belt, infrastructure, roads etc. shall be provided.
- vii) Land requirement for the project shall be optimized as per latest CEA norms. Item wise break up of land requirement and revised layout shall be provided.

**2.6 160 (2x80) MW Coal Based Captive Thermal Power Plant of M/s Vakkal Energy Pvt. Ltd. at village Gowdasandra, Taluk Gauribidanur, Chikka Ballapura District, in Karnataka - reg. TOR.**

The proposal was considered for determination of Terms of Reference (TOR) for undertaking EIA/EMP study as per the provisions of EIA Notification, 2006. The project proponent gave a presentation and provided the following information:

The proposal is located within 10 km of Andhra Pradesh State Border and hence taken up at the Centre.

The proposal is for setting up of 2x80 MW (160 MW) coal based Captive Thermal Power Plant along with 2x80 MW Capacity Ferro-Alloy Plant at village Gowdasandra, Taluk Gauribidanur, Chikka Ballapura District, in Karnataka. Total land requirement will be 119 acres (CPP + Ferro-Alloy Plant); out of which 52 acres is single crop agricultural land; 45 acres is waste land; and 22 acres is Grazing land. The co-ordinates of the site are located in between the Latitude 13°40'13" N to 13°40'22.8" N and Longitude 77°30'58.3" E to 77°31'11.7" E. Coal requirement will be 1 MTPA. Air cooled condensers will be installed. Water requirement of 2,500 m<sup>3</sup>/day will be sourced from treated sewage from nearby Gauribidanur Town and will be treated in sewage Treatment plant and then supplied to the project site through a pipeline at a distance of 6-8 km. There are no National Parks, Wildlife Sanctuaries, and Tiger/Biosphere Reserves etc. within 10 km of the site.

*The Committee decided that Ferro-Alloy Plant shall be taken up with the Industry Committee and while application for EC for CTPP is submitted the project proponent shall ensure that point wise compliance of TOR prescribed by the Industry Committee shall be separately submitted.*

Based on the information provided and presentation made, the Committee recommended TOR and prescribed the following additional specific TOR over and above the standard TORs (as applicable) at **Annexure-A1** for undertaking detailed EIA study and preparation of EMP.

- i) Cumulative impact assessment of all sources of pollution (air, water and soil) in the study area shall be carried out.
- ii) Detailed water availability of the proposed unit and the impact on downstream recipients (from the source of water for the power plant) of other competing sources shall be submitted.
- iii) Concrete action plan of ash utilization along with verifiable ash utilization status shall be submitted.
- iv) Point wise compliance of TOR prescribed by the Industry Committee shall be separately submitted.

## **2.7 Expansion by addition of 18 MW (Phase-II) Rice Husk & Bagasse Based Co-Generation Power Plant of M/s Usher Eco Power Ltd. (UEPL) at Dautana village, Tehsil Chhata, District Mathura, in Uttar Pradesh- Reg. TOR**

The proposal was considered for determination of Terms of Reference (TOR) for undertaking EIA/EMP study as per the provisions of EIA Notification, 2006. The project proponent gave a presentation along with its consultant **M/s MITCON Consultancy & Engineering Services Ltd., Pune** and provided the following information:

The proposal is for expansion by addition of 18 MW (Phase-II) Rice Husk & Bagasse Based Co-generation Power Plant at Dautana village, Tehsil Chhata, District Mathura, in Uttar Pradesh. Phase-I of the project comprises of 16 MW rice husk based biomass power plant and EC for the same was obtained from the SEIAA, U.P. The land requirement for expansion will be 0.88 ha. The co-ordinates of the site are Latitude 27°44'41" N and Longitude 77°29'16" E. Rice husk requirement for phase -II will be 135878 TPA. Water requirement of 0.286 MCM will be sourced from **Ground water extracted from tube wells**. No coal will be used at any point of time. There are no National Parks, Wildlife Sanctuaries, and Tiger/Biosphere Reserves etc. within 10 km of the site.

The project proponent requested that public hearing exemption may be given as for the Phase-I, public hearing was carried out only in 2010. The Project proponent further requested that they may be permitted to utilize AAQ data already collected since March, 2013 as there will be an inordinate delay if post monsoon data collection is to be awaited.

*The Committee noted the request and observed that the request can be considered considering that within the study area not much industrial activity is being reportedly present. The Committee therefore recommended that permission for using data collected can be accepted.*

*Regarding public hearing exemption, the Committee deliberated and from the project proponent's submission learnt that in the last public hearing no significant issues were raised objecting to the Phase-I project. It was observed that in principle power generation through non-conventional sources such as rice husk and bagasse need to be encouraged. The Committee therefore accepted the request of the project proponent with regard to exemption of public hearing in accordance with Clause 7(ii) of EIA Notification. The Committee however decide that while applying environmental clearance the status of compliance to the issues raised in the public hearing for the Phase-I project shall be clearly submitted.*

Based on the information provided and presentation made, the Committee recommended TOR and prescribed the following additional specific TOR over and above the standard TORs (as applicable) at **Annexure-A1** for undertaking detailed EIA study and preparation of EMP.

- i) Status of compliance and action plan to address issues raised in the public hearing for the Phase-I project shall be submitted
- ii) Certified compliance report with respect to environmental clearance conditions for existing thermal power project from RO of the Ministry (as applicable) shall be submitted.
- iii) Detailed water alternative source of water availability study shall be prepared indicating various measures like water harvesting schemes, development of check dams (as feasible) in the study area etc.

- iv) Break up of fuel (Rice Husk and Bagasse) shall be submitted.

**2.8 20.5 MW Cogeneration Power Plant of M/s Rajshree Sugars and Chemicals Ltd. at Semmedu village, Gingee Taluk, District Villupuram, in Tamil Nadu- reg. Amendment of EC.**

M/s Rajshree Sugars and Chemicals Ltd. was accorded environmental clearance for its 20.5 MW Cogeneration Power Plant at Semmedu village, Gingee Taluk, District Villupuram, in Tamil Nadu on 21.12.2006.

M/s Rajshree Sugars and Chemicals Ltd. have informed the Ministry that at the time of proposal they had mentioned that they would draw water from the Varaganathi River for the use of the plant. That Varaganathi River being a seasonal river has water available only for 2-3 months. M/s Rajshree Sugars and Chemicals Ltd. request permission to use ground water and accordingly amend condition in the EC issued by the Ministry.

The matter was placed before the Committee for its views.

M/s Rajshree Sugars and Chemicals Ltd. also informed the Committee that the clearance for drawal of ground water from the dug wells has been accorded from Central Ground Water Authority on 21.11.2008. That rain water harvesting in an area of 4 acres has already been carried out and treated water from existing sugar plant will be re-used.

*The Committee perused through the letter of the Central Ground Water Authority and agreed in principle that the request can be agreed. The Committee however recommended that the conditions stipulated in the said letter shall be reflected in the amendment issued by the Ministry.*

**3.0 Any other items with the permission of the Chair.**

**3.1 3x363.30 MW (1090 MW) Combined Cycle Gas Based Thermal Power Project at village Palatana, in South Tripura Distt., in Tripura - Amendment of factual typographical error.**

M/s ONGC Tripura Power Company Ltd. (earlier M/s ONGC Tripura Power (P) Ltd.) was accorded environmental clearance for its 1082 MW (3x360.80 MW) Gas Based Combined Cycle Power Plant at village Palatana, in South Tripura Distt., in Tripura on 07.02.2007. The validity of the environmental clearance expired on 06.02.2012 and extension of validity for further period of five years

was issued by the Ministry on 03.05.2012 based on the recommendation of the Committee in its meeting held in February, 2012.

M/s ONGC Tripura Power Company Ltd. has sent a representation citing few typographical errors in the Office Order issued by the Ministry on 03.05.2012 as provided under:

- (i) That while issuing the extension of validity period the unit configuration 3x363.30 MW (1090 MW) has been inadvertently written as 2x363.30 MW (1090 MW);
- (ii) That at para no.2 of the aforesaid Office Order, at clause no. (b), the figures 228.26 acres need to have been 222.86 acres (90.19 ha) and the figure 77.87 ha need to have been 78.78 ha.

The Committee noted the request and observed that considering 1.0 acre as 0.4047 ha, the conversion made in the Office Order issued by the Ministry seem slightly in variance and the request of M/s ONGC Tripura Power Co. Ltd. seem to be valid.

The Committee therefore recommended that the Ministry may issue an amendment making changes to the factual error reported. Accordingly the matter was dropped.

### **3.2 4000MW Chhattisgarh UMPP of M/s Akaltara Power Ltd. (now M/s Chhattisgarh Surguja Power Ltd.) near Salka/ Khamaria, District Sarguja, in Chhattisgarh- reg. Extension of validity of TOR.**

M/s Akaltara Power Ltd. was prescribed TOR for its 4000 MW Chhattisgarh UMPP near Salka/ Khamaria, District Sarguja, in Chhattisgarh on 30.03.2009. M/s Akaltara Power Ltd. (name changed to M/s Chhattisgarh Surguja Power Ltd.) has informed that Pindrakhi & Puta Parogia Coal Block Hasdeo-Arand allocated to this UMPP were categorized as “No-Go Area”, there by delaying the various activities including Public Hearing for the project. M/s Chhattisgarh Surguja Power Ltd. also informed that REIA was submitted to SPCB, Raipur for conduct of public hearing vide their letter dated 01.02.2010, which has not progressed also till date. M/s Chhattisgarh Surguja Power Ltd. has therefore requested that the validity period of TOR be extended for a further period of four years.

The request was taken up before the Committee in its 64<sup>th</sup> Meeting held during January 7-8, 2013, wherein, the Committee noted the TOR earlier prescribed in 2009 may be inadequate additional TOR points maybe prescribed. It was also noted that in doing so it shall be assured that for

such a large project the comprehensive EIA need to be carried out and placed for public consultation. The Committee accordingly recommended that validity of TOR extension can be given for one year in accordance with the existing policy decision.

M/s Chhattisgarh Surguja Power Ltd. vide its letter 14.03.2013 have represented that a full comprehensive EIA will require one year data collection and have requested reconsideration of the same as allow them to re-conduct public hearing based on fresh one season data.

The Committee noted and deliberated the request and agreed that the request is valid and the Ministry may concede to the same.

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

**Terms of Reference (TOR) :**

- i) Vision document specifying prospective long term plan of the site, if any, shall be formulated and submitted.
- ii) Status of compliance to the conditions stipulated for 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, alongwith 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/ organisation 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 alongwith 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 utilisation 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), SO<sub>2</sub>, NO<sub>x</sub>, Hg and O<sub>3</sub> (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 modelling 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 auxillary 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.
- xlv) 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.

xlix) 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.

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**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.

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