

MINUTES OF THE 50TH MEETING OF RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE ON ENVIRONMENTAL IMPACT ASSESSMENT OF THERMAL POWER AND COAL MINE PROJECTS

The 50th Meeting of the reconstituted Expert Appraisal Committee (Thermal) was held during **June 25-26, 2012** at Scope Convention Centre, SCOPE Complex, Lodhi Road, New Delhi. The members present were:

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|----|-------------------|---|------------------|
| 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. P.L. Ahujarai | - | Member Secretary |

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

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

The deliberations held and the decisions taken are as under:

DATE: 25.06.2012.

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

The Minutes of the 46th Meeting held during April 9-10, 2012 were confirmed with minor amendments.

ITEM NO. 2.0 CONSIDERATION OF PROJECTS

2.1 2x800 MW Ennore SEZ Supercritical Imported Coal based Thermal Power Plant of M/s TANGEDCO (TNEB) at village Vayalur, in Ponneri Taluk, in District Thiruvallur, in Tamil Nadu-reg. Environmental Clearance

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

The proposal is for setting up of 2x800 MW Ennore SEZ Supercritical Imported Coal based Thermal Power Plant at village Vayalur, in Ponneri Taluk, in District Thiruvallur, in Tamil Nadu. The proposed plant will be established in the existing ash dyke of M/s North Chennai Thermal Power Station (NCTPS). Land requirement will be 500 acres of which 130 acres will be developed under green belt. About 40 acres of area will be used for external corridor including sea water and coal conveyor. The co-ordinates of the site are located within Latitude 13°17'02" N to 13°17'57.3" N and Longitude 80°18'07"E to 80°19'05.5" E. Imported Coal requirement will be 4.29 MTPA, which will be obtained from Indonesia. MoU has been signed with M/s MMTC Ltd., New Delhi on 23.06.2012 for supply of Coal. Ash and sulphur contents in imported coal will be 12% and 0.7-0.8% respectively. About 0.412 MTPA of fly ash and 0.103 MTPA of bottom ash will be generated. Fly ash generated shall be proposed to use for Cement Industry. Twin-flue Stack of 275m shall be provided. Water requirement will be 14,545 m³/hr (755 m³/hr raw water + 13,790 m³/hr cooling water from sea), which will be met from existing intake of M/s North Chennai Thermal Power Station. Discharge will be also through outlet of M/s NCTPS system. Coal will be imported through Ennore Port from where it will be transported through pipe conveyor to the TPP site. 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 23.02.2011. Cost of the project will be Rs.9180.0 Crores.

Ministry representative noted that the EIA/EMP Report submitted is based on ambient air quality data monitored during March to May, 2010, whereas TOR was prescribed only in August, 2010. The project proponent clarified that collection of data can only be either for pre-monsoon or post monsoon data. To save time, the proponent collected the data during pre-monsoon season.

It was also noted that soft copies of Form-I, Feasibility report, EIA/EMP report and its addendum (if any), public hearing proceedings, MoU/FSA for fuel etc.(if already not done) shall be first submitted to the ministry.

The Committee observed that continuous monitoring for heavy metals in and around the existing ash pond area shall be immediately carried out by reputed institutes like IIT, Chennai. *The Committee also noted that the likely impact within 15 kms distance need to be carried out as the area prima facie is surrounded by other power plants and industries and the present and future impact assessment on ambient air, water and soil need a clear picture. The Committee decided that the same shall be first submitted before any action is taken to process the case by the Ministry.*

The Committee also discussed the issues raised in the Public Hearing and the response provided by the project proponent. The major issues raised were regarding unemployment of local public and provision of employment especially

to land losers; lands and drainage canals will be affected due to the deposition of ash; green belt development along the roads around their locality; study the impact on human health due to the project. The project proponent also informed that no litigation was pending / filed pertaining to the power project.

The Committee also observed that regular health check-up of villagers in the nearby villages need to be carried out and records maintained. The Committee further noted that detailed CSR action plan along with year wise committed expenditure need to be submitted to the Ministry.

The Committee however decided that based on the information and clarifications provided can be recommended *for environmental clearances* subject to stipulation of the following specific conditions and prior submission of documents/requirements as mentioned above:

- (i) Harnessing solar power within the premises of the plant particularly at available roof tops shall be undertaken and status of implementation shall be submitted periodically to the Regional Office of the Ministry.
- (ii) Sulphur and ash contents in the coal to be used in the project shall not exceed 0.7 % and 12 % 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.
- (iii) Bi-flue stack of 275 m height shall be provided with continuous online monitoring equipments for SO_x, NO_x and Particulate Matter (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) No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the setting up/operation of the power plant.
- (v) COC of at least 1.3 shall be adopted.
- (vi) Continuous monitoring of marine biology shall be undertaken by an institute of repute.
- (vii) Space provision for installation of FGD shall be made.
- (viii) High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that a particulate emission from the proposed plant does not exceed 50 ug/Nm³.
- (ix) 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.
- (x) Utilisation of 100% Fly Ash generated shall be made from **4th** year of operation of the plant. Status of implementation shall be reported to the Regional Office of the Ministry from time to time.
- (xi) 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 form. 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.
- (xii) 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.
 - (xiii) A long term study of radio activity and heavy metals contents on coal to be used shall be carried out 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.
 - (xiv) Continuous monitoring for heavy metals in and around the existing ash pond area shall be immediately carried out by reputed institutes like IIT, Chennai.
 - (xv) Fugitive emission of fly ash (dry or wet) shall be controlled such that no agricultural or non-agricultural land is affected. Damage to any land, if any, shall be mitigated and suitable compensation provided in consultation with the local Panchayat.
 - (xvi) Green Belt consisting of three tiers of plantations of native species around plant and at least 50 m width shall be raised. Tree density shall not less than 2500 per ha with survival rate not less than 80 %.
 - (xvii) A common Green Endowment Fund shall be created and the interest earned out of it shall be used for the development and management of green cover of the area.
 - (xviii) The project proponent shall also adequately contribute in the development of the neighbouring villages. Special package with implementation schedule for providing free potable drinking water supply in the nearby villages and schools shall be undertaken in a time bound manner.
 - (xix) An amount of Rs. 37 Crore shall be earmarked and spent during the construction phase of the project spanning over 48 months as one time capital cost for CSR programme. Subsequently a recurring expenditure of Rs. 7.40 Crore per annum till the life of the plant shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted to the Ministry within one month along with road map for implementation.
 - (xx) CSR scheme shall be identified based on need based assessment in and around the villages within 5.0 km of the site and in constant consultation with the village Panchayat and the District Administration. As part of CSR prior identification of local employable youth and eventual employment in the project after imparting relevant training may also be undertaken.
 - (xxi) It shall be ensured that in-built monitoring mechanism for the schemes identified is in place and annual social audit shall be got done from the

nearest government institute of repute in the region. The project proponent shall upload the CSR details on Company's Website and also submit the status of implementation of the scheme to the Ministry from time to time. The CSR activities will be monitored by the Environment Cell at the project site with two external member from a nearby university

2.2 2x660 MW (1320 MW) imported Coal Based Thermal Power Plant of M/s Sindya Power Generating Company Pvt. Ltd. at villages Perunthottam & Agaraperunthottam, Sirkazhi Taluk, District Nagapattinum in Tamil Nadu - reg. Environmental Clearance.

The proposal is for consideration for environmental clearance. The project proponent made a presentation along with its consultant M/s B.S. ENVI-TECH (P) Ltd., Hyderabad and provided the following information:

The proposal was earlier proposed based on blended coal i.e. 70:30 (domestic coal: imported 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 for blending is available. The site was inspected by a Sub-Committee before recommendation of TOR. In compliance to the suggestion made by the sub-committee, areas with probable salt marshes have been avoided. The proposed power plants of M/s Empee Power Ltd., M/s Patel Engg. Ltd; and M/s NSL Nagapattinam Ltd. are located in the vicinity. The revenue record made some time in 1922 records the agricultural land as wetland. There has been no reclassification after that even though there has been several land use changes. The agricultural areas in most of the Tsunami affected region including the present one has to a significant extent become saline.

The proposal is for setting up of 2x660 MW Imported Coal Based TPP at villages Perunthottam & Agaraperunthottam, Sirkazhi Taluk, District Nagapattinum in Tamil Nadu. Earlier TOR was prescribed for 2x525 MW, on 20.01.2010, which was subsequently requested to be changed to 3x350 MW. Subsequently, this was again changed to 2x660 MW and TOR was reiterated for the changed configuration. Land requirement will be 594.18 acres, out of which 66.9 acres is Govt. revenue land; 37.62 acres is single crop agriculture land; 40.23 acres is dry land and 449.41 acres is agricultural land with no cultivation. About 430 acres of land has already been acquired. The co-ordinates of the site are located within Latitude 11°11'8.862" N to 11°12'9.782" N and Longitude 79°49'44.432" E to 79°50'37.597" E. Imported Coal requirement will be 6.11 MTPA at 85% PLF. Imported Coal will be obtained from Indonesia. FSA has been signed with M/s Sindya Resource Pte. Ltd. Ash and sulphur contents in imported coal will be 2-11% and 0.6% respectively. High Concentration Slurry disposal system for unutilized fly ash shall be proposed. About 1.76 MTPA of fly ash and 0.44 MTPA of bottom ash will be generated. Fly ash will be supplied to M/s Madras Cements Ltd. and M/s India Cement Ltd. Ash pond area will be

160 acres and co-ordinates of the ash pond site is located within Latitude 11°12'18.931" N to 11°12'45.891" N and Longitude 79°50'1.312" E to 79°50'46.592" E. Bi-flue Stack of 275m will be provided. Natural Draft cooling system will be installed. Water requirement of 2,67,792m³/day will be sourced from the Bay of Bengal through a pipeline at a distance of about 1.1 km from the project site. Approval from Tamil Nadu Maritime Board, Govt. of Tamil Nadu has recently been obtained on 07/04/2010. Desalination plant capacity will be 35,000 m³/day. State level CRZ committee has recommended for CRZ clearance and the approval from the Ministry is awaited. Common jetty with M/s Empee Power Ltd. is being worked out. About 93 homestead losers and 200 land losers will be involved. 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 07.02.2012. Cost of the project will be Rs.6996.0 Crores approximately.

The project proponent also informed that the proposed TPP is to be located at a distance of about 5.2 Km from Cauvery River and therefore **does not** come under the purview of G.O issued by the Tamil Nadu Govt. with respect to Cauvery River.

The project proponent also informed the status of various High Court cases including the one filed by M/s Bismi Prawn farms Pvt. Ltd. bearing W.P. No. 3641 of 2012, which was disposed off as being premature. Other High Court cases filed were: W.P. No.3502 of 2012 (C. Manokar Vs Sate of TN &Ors); W.P. No.3654 of 2012 (Nagai District Consumer Protection Awareness Services Organisation Vs State of TN &Ors); W.P. No.29248 of 2011 (R.Tilaynayagam Vs State of TN &Ors). These cases have also been disposed off.

The Committee noted that TOR was prescribed on 20.01.2010 and the baseline AAQ was collected during December, 2010 to February, 2011. The project proponent clarified that post monsoon data during December, 2010 to February, 2011 was collected with due intimation to the EAC, in its first consideration in October, 2010, but the same appears to have inadvertently not been recorded in the minutes of the meeting.

The Committee observed that there are several representations regarding the proposed power project and noted the representation submitted by M/s Bismi Prawn Farm Pvt. Ltd. The point-wise response provided by the project proponent has been enclosed in the Final EIA/EMP Report.

The Committee also noted the clarification provided with respect to representations made by an NGO viz. Coastal Action Network. While deliberating on the issues raised, it was noted that the project proponent's response has been enclosed in the final EIA/EMP report submitted.

The Committee further observed that Vedaranyam, a potential important coastal wetland is located at about 90 Kms (aerial distance) distance from the present site. The proposed site is reported to be about 5 Kms from Manigramam excavation site.

Regarding nesting ground of Olive Ridley Turtles, it was stated by representative of Annamalai University present in the meeting that the area has only sporadic occurrence of Olive Ridley Turtles and that also far off at aerial distance of about 65 Kms from the present TPP site. The Casuarina plantation and disappearance of sand dunes may be the result of infrequent nesting in the region. The project proponent has nevertheless committed to take up conservation measures in association with Annamalai University and other organizations.

The project proponent also provided a list of 26 written representations received from various quarters including the above and indicated the various segments in the Final EIA Report where these have been appropriately addressed. The Committee perused the same and noted the contents.

The Committee discussed the Public Hearing issues and the response provided by the project proponent. The major issues raised were regarding conduct of public hearing involving volunteers from power company in obtaining signatures of participants; likely developmental activities due to power project; unable to do agriculture and fishing due to lower produce and hence desired alternatives livelihood activities; acute shortage of drinking water; NGOs with self interest misleading the people; project being established within 500 m from HTL; details of compensation paid to land losers; preservation of mangroves in the area; ash dyke proposed very close to Buckingham canal; EIA not mentioning marine life but only mentions deep sea fishing; many thermal power plants being proposed in Nagapattinam District prone to Tsunami and floods; likely impact of fishing due to release of hot water to sea; three more power plants in the vicinity and cumulative impact assessment study required; project being located within 5 kms of Cauvery River; dust and ash likely to be generated and the impact on the health of local community; before 10 years all the lands in the region were farm lands, which have now become saline; employment being given only to migrants from other States; presence of a big lake very close to power plant site being a storage for water during rainy season avoiding flooding; ash utilized from power plants in the region would be only 2-3% by cement plants and what action were the promoters going to do for utilizing balance ash generated; presence of radio activity and mercury in coal; change in venue of public hearing etc.

The Committee noted the response made by the project proponent to the various objections raised in the Public Hearing and observed that the issues raised were generally addressed acceptably. The Committee, however, felt that some of the issues in the Public Hearing were genuine and the same need to be

appropriately addressed by the proponent. The Committee therefore decided that the project proponent shall first submit the following **additional information** before their proposal could be considered for recommendation of environmental clearance.

- i) An addendum to EIA Report incorporating cumulative impact due to various TPPs and any industrial activity over 25 kms radius using appropriate model for coastal region. The cumulative impact assessment shall comprise of marine component i.e. likely impact due to water drawal and discharge from and into sea by all TPPs in the area on the marine biology, as also likely impact on traditional fishing;
- ii) Detailed action plan for rehabilitation of homestead losers and details of compensation paid to land losers. The plan shall also include identification of marginalized section of people who do not own land but were dependant indirectly on the land acquired for the power plant and their rehabilitation thereof;
- iii) The proponent has committed Rs. 26.2 Crore as one time capital expenditure for CSR activities during construction phase. Thereafter recurring annual budget has to be Rs. 6.6 Crore till the operative life of the power plant with Social Audits to be got conducted annually. Action plan for implementation of CSR with time schedule and committed expenditure year marked. As part of CSR, scheme for supply of drinking water to nearby villages from the proposed desalination plant shall be formulated and commitment details for regular potable drinking supply, the quantity envisaged and villages to cover shall be furnished;
- iv) Proposed layout and details of diversion of small channels;
- v) Action plan for employment of local population by imparting training in association with nearby ITI for eventual employment in the project shall also be made as also given in the TOR;
- vi) Plan and possibility for de-siltation of lake/water body nearby and development of community pond(s);
- vii) Action plan for carrying out long term study on 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);
- viii) Impact on aqua farm due to proposed power plant;
- ix) Tsunami protection measures in consonance with any guidelines formulated by NDMA as may be applicable to be detailed out.

In view of the observation made by the Committee, the proposal was deferred for reconsideration at a later stage.

2.3 2x350MW (± 10%) Gas Based Combined Cycle Power Plant of M/s Elgen (India) Ltd. at village Guggilla, in District Karimnagar, in Andhra Pradesh - reg.Environmental Clearance.

The proposal is for consideration for environmental clearance. The project proponent made a presentation along with its consultant M/s TATA Consulting Engineers Ltd., Mumbai and provided the following information:

The proposal is for setting up of 2x350 MW ($\pm 10\%$) Gas Based Combined Cycle Power Plant at village Guggilla, in District Karimnagar, in Andhra Pradesh. Land requirement of 120 acres is in possession of the project proponent. The co-ordinates of the site are located within Latitude 18°12'40.22" N to 18°13'19.42" N and Longitude 79°02'34.56" E to 79°03'31.80" E. Gas requirement will be 0.82 MMTPA of either natural gas/ RLNG (Regassified Liquefied Natural Gas). Natural gas will be sourced from Krishna Godavari Basin, in Andhra Pradesh through a spur pipeline of existing East-West Pipeline of M/s Reliance Industries Ltd. running along the State Highway (Rajiv Gandhi Rahyadri) from Shamirpet, which is about 110 km from the site. Two Stacks of 70m shall be installed. Water requirement of 21744 m³/day will be sourced from the Mid Manair Dam through a pipeline at a distance of about 15 km from the project site. Approval for water drawl has been obtained from Irrigation & CAD (PW Reforms) Department, Govt. of Andhra Pradesh on 20.01.2012. There are no National Parks, Wildlife Sanctuaries, Heritage Sites, Tiger/Biosphere reserves etc. within 10 km of the site. Public Hearing was held on 03.03.2012. Cost of the project will be Rs.3396.0 Crores.

Ministry's representative brought to the notice of the EAC that the project proponent had not submitted soft copies of all documents including Form-I, EIA Report, Public Hearing proceedings etc.

The Committee noted that TOR for the project was prescribed on March 30, 2011, and the baseline AAQ was collected during March 20, 2011 to June 10, 2011, which though marginally inadequate does not meet the prescribed requirement.

The Committee noted that the area has fluoride problem. The project proponent was advised to carry out examination of school going children's teeth in the study area as a preliminary assessment of fluoride contamination of drinking water sources.

On the question of availability of gas, the project proponent informed that they have studied various scenarios and confirmed the viability of the project. The Committee however decided that the project proponent should give in writing the exercise carried out in examining the viability of the project on various scenarios considering both natural gas and LNG. The Committee also decided that the project proponent shall respond to the Ministry of Power's circular dated 14th March, 2012 advising project proponents not to plan gas based TPPs until 2014-2015.

It was also noted that provisions of TOR prescribed for the project have not been complied with. The Committee observed that the present proposal is silent on the aspect of impact of NO_x emission on the atmosphere and the health implications. Therefore, the Committee suggested that these aspects need to be studied and incorporated in the EIA/EMP report.

The proponent was also advised to submit soft copies of Form-I, Feasibility report, EIA/EMP report and its addendum (if any), Public Hearing proceedings, MoU/FSA for fuel etc.(if already not done) to the Ministry.

The Committee therefore decided that the project was premature for consideration and advised the project proponent to come fully prepared with point wise TOR compliance. Accordingly the proposal was deferred for reconsideration at a later stage.

2.4 2x600 MW and 3x800 MW Coal Based TPP of M/s IL&FS Tamil Nadu Power Company Ltd. at villages Kottatai, Ariyagosthi, Villianallur & Silambimangalam, in Chidambaram Taluk, in Cuddalore, District, in Tamil Nadu - reg. review of EC.

In pursuance to the Order of the Hon'ble National Green Tribunal, dated 23.05.2012, the review of environmental clearance accorded to 2x600 MW and 3x800 MW Coal Based TPP of M/s IL&FS Tamil Nadu Power Company Ltd. at villages Kottatai, Ariyagosthi, Villianallur & Silambimangalam, in Chidambaram Taluk, in Cuddalore, District, in Tamil Nadu was taken up.

Representatives of M/s IL&FS Tamil Nadu Power Company Ltd. informed the Committee that the Appellants in the matter were served with copy of updated RIA Report incorporating rapid cumulative environment impact assessment.

In the meanwhile, the Ministry received a letter purportedly signed by the three Appellants communicating their inability to be present in the meeting as they required some more time to study the report made available to them.

M/s IL&FS Tamil Nadu Power Company Ltd gave a brief presentation on the cumulative marine impact assessment.

During the deliberations the Committee observed that while the cumulative impacts of all proposed power plants and refinery etc. in 25 kms was dealt with, the issue of social impact assessment study appeared not to be adequately covered. It was observed that any meaningful social impact assessment study needs to be based on detailed socio-economic data and livelihood source data of the population of the region. Information on marginalized section of society either due to land lost (owned or dependent on the land for livelihood) to industry or due to indirect impact of industrial activity, needs appropriate and authentic method of assessment.

The Committee also noted that none of the three Appellants was present during the meeting and accordingly decided that one more opportunity needs to be given in the interest of natural justice. It was, therefore, decided that the matter could be taken up as a special item in the forthcoming meeting of the Coal Committee meeting scheduled during July 16-17, 2012. It was also decided that the Ministry shall accordingly inform the Appellants through the mode of Registered Post as also utilizing the services of the Appellants.

2.5 2x60 MW Imported Coal based Thermal Power Plant of M/s ARS Metals Ltd. at village Gummidipoondi, in District Thiruvallur in Tamil Nadu - reg. Amendment of EC.

M/s ARS Metals Ltd. was accorded environmental clearance for its 2x60 MW Imported Coal based Thermal Power Plant on 20.05.2011. The project proponent has now requested the Ministry for amendment of Specific Conditions (i), (iii) and (vi) stipulated in the environmental clearance extracted as under:

- (i) Transportation of coal shall be carried out strictly by rail and the project proponent shall immediately take up the matter with the Railways. Status of implementation shall be submitted to the Regional Office of the Ministry from time to time.*
- (iii) Sulphur and Ash contents in the coal to be used in the project shall not exceed 0.5% and 25% respectively at any given time. In case of variation of coal quality at any point of time fresh reference shall be made to MOEF for suitable amendments to the environmental clearance conditions wherever necessary.*
- (vi) Water requirement for running plant shall be met from harvested rain water initially subject to approval from Central Ground Water Board/ Authority but the project proponent subsequently shall shift to use harvested water only. Status of implementation in this regard shall be submitted to the Ministry from time to time. ”*

M/s ARS Metals Ltd. informed that they have applied to the railway for the approval of railway siding and are in final stage of appointing a consultant. The process of approval and the completion of work will take minimum period of four years. M/s ARS Metals Ltd. therefore requested the Ministry to permit a road transport of coal by road for a period of 5 years after commissioning.

M/s ARS Metals informed that as per FSA the sulphur content of coal quality varies from 0.3 to 0.7 % and therefore requested the Ministry for permission to use the coal with sulphur content upto 0.7%.

M/s ARS Metals further informed that they have already completed the construction of storm water drains and the rain water reservoir. Efforts of the

company will be only to use harvested water and permission to use ground water may also be given as the area falls under safe zone.

The matter was placed before the Committee for its views.

M/s ARS Metals pleaded before the Committee that a similar amendment for permission to use road transportation for a period of four years was given to M/s Accord Energy Ltd. for its proposed TPP located at about 200 m from their proposed plant.

The Committee felt that while seeking the amendment, substantial issues such as impact due to road transportation, volume of traffic for coal transportation and its implications etc. need to be spelt out in detail. That simply relying on a case pertaining to M/s Accord Energy Ltd. was not an appropriate justification for seeking the present amendment.

The Committee also noted that public health and safety issues involving road transportation of coal need to be adequately addressed.

The Committee observed that the project proponent shall submit documents to indicate action taken up with the railways and communication to this effect from the Railways shall be first submitted before the matter could be considered. Accordingly the matter was deferred.

- 2.6 390 MW (ISO) Expansion (Phase-II) of Jejurupadu Combined Cycle Power Project of M/s GVK Industries Ltd., at Jejurupadu, in East Godavari Distt., in Andhra Pradesh -reg. Amendment of EC.**
- 2.7 540 MW (4x135 MW) Coal based Power Plant of M/s VadanaVidyut Pvt. Ltd. at Chhuri, Salora, Gangpur, Darrabhata & Jhora, Tehsil Katghora, District Korba, Chhattisgarh- reg. Amendment in EC**
- 2.8 1x7.2 MW Gas based Captive Power plant of M/s Raymond Ltd. at village Khadki-Udwada, Taluka Pardi, District Valsad in Gujarat- reg. Amendment in EC**
- 2.9 3x23MW Captive Power Plant of M/s Ultratech Cement Ltd. at Awarpur Cement works, Taluka Korpana, District Chandrapur in Maharashtra-reg. Amendment in EC**
- 2.10 3X500 MW Aravali Thermal Power Project of M/s Aravali Power Company Pvt. Ltd. at village Jharli, District Jhajjar in Haryana-reg. Amendment in EC**

2.11 4x660 (2640) MW Coal Based Thermal Power Plant of M/s Alfa Infraprop Pvt. Ltd. near village Komarada, District Vizianagaram in Andhra Pradesh –reg. Amendment in EC

The above items could not be taken up due to paucity of time.

DATE: 26.06.2012

2.12 2x800 MW (Stage-I) Coal Based Lara Super Thermal Power Plant of M/s NTPC Ltd. at District Raigarh in Chhattisgarh- reg. Environmental Clearance.

The proposal is for consideration for environmental clearance. The project proponent made a presentation along with its consultant M/s Mantec Consultants (P) Ltd., New Delhi and provided following information:

The proposal is for setting up of 2x800 MW (Stage-I) Coal Based Lara Super Thermal Power Plant in Raigarh Distt., in Chhattisgarh. Ultimate Land requirement will be 2859 acres (for 5x800 MW), out of which 2334.18 acres is private land, 148.99 acres is govt. land; and 375 acres is revenue forest land. Land requirement for Stage-I will be 1870 acres. The co-ordinates of the site are located within Latitude 21°44'57" N to 21°146'19" N and Longitude 83°25'37" E to 83°27'56" E. Coal requirement will be 8.0 MTPA at 90% PLF and will be obtained from Talaipalli Coal Block. Ash and sulphur contents in coal will be 40% and 0.5% respectively. High Concentration Slurry Disposal system for ash shall be adopted. About 2.56 MTPA of fly ash and 0.64 MTPA of bottom ash will be generated. Ash pond area will be 663 acres and co-ordinates of the ash pond site is located within Latitude 21°43'07" N to 21°44'27" N and Longitude 83°27'37" E to 83°29'04" E. Bi-flue Stack of 275m will be provided. Closed cycle cooling system will be installed. Water requirement of 4830m³/hr for the Stage-1 will be sourced from the Mahanadi River through Saradih Barrage. 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 23.12.2011. Cost of the project will be Rs.6996.0 Crores.

The Committee noted that the land requirement for ash pond is too large considering that fly ash need to be utilized 100% from 4th year of operation of the plant in accordance with the Fly Ash Notification. It was therefore decided that land area for Fly Ash Pond shall not exceed 400 acres. Accordingly land requirement should be optimized further from 1870 acres keeping into consideration further reduction in reservoir and township areas.

It was also noted that the proposal involves forest area of about 375 acres of which about 135 acres will be in Stage-I. It was observed that copy of application for forest diversion for Stage-I needs to be submitted.

The Committee also desired the information regarding the HFL of Mahanadi and MSL of the site. That area drainage study needs to be undertaken for the project.

In view of the above, the Committee decided to seek following additional information for reconsideration:

- i) Revised EIA/EMP report after incorporating cumulative impacts of all likely sources of emissions from TPPs, Industries over an area of 15 Kms radius;
- ii) Revised layout plan after optimizing the land requirement. Optimization of land requirement due to reduction in ash pond, water reservoir and township areas.
- iii) Geological map shall be provided and location of proposed TPP superimposed;
- iv) Details of water availability for 12 months and drainage area study shall be submitted. The study shall include details of competing sources of water from Mahanadi downstream of the proposed power plant;
- v) Copy of application for Stage-I Forest clearance shall be submitted;
- vi) R&R plan and CSR action plan proposed shall be clearly spelt out and committed expenditure activity-wise along with schedule of implementation shall be submitted;
- vii) Compliance to point wise TOR provision (as applicable) shall be furnished; and
- viii) Submit soft copies of Form-I, Feasibility report, EIA/EMP report and its addendum (if any), Public Hearing proceedings, MoU/FSA for fuel etc.(if not already done).

Accordingly the proposal was deferred for reconsideration at a later stage.

2.13 Modernization and Expansion of existing power plant from 741.7MW to 999.7 MW of M/s Hindalco Industries Ltd. at Renusagar, District Sonebhadra 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 Vimta Labs Ltd., Hyderabad and provided the following information:

The proposal is for partly modernization and expansion of existing power plant from 741.7 MW to 999.7 MW by addition of 258 MW in phases. Additional generation of 98.3 MW will be achieved through process modification and addition of 1x79.7 MW and 1x80 MW new TG sets will be involved. The existing plant of capacity 741.7 MW is located at village Renusagar, District Sonebhadra Distt., in Uttar Pradesh. No additional land is required (1.9 Ha

land required is within the existing plant premises).The co-ordinates of the site are located within Latitude 24°10'41" N to 24°11'06" N and Longitude 82°47'05" E to 82°47'25" E. Nearest village is Renusagar which is located at 0.6 Kms from the site. Ash pond is located at about 7.0 Kms distance from the site. GB Pant Sagar is located at a distance of 0.9 Km from the plant. MoU for imported coal has been signed with M/s Swiss Singapore Overseas Enterprises Pte Ltd. Ash and sulphur contents in imported coal will be 10% and 0.4% respectively. Fly ash will be supplied to M/s Jaiprakash Associates Ltd., M/s Prism Cement Ltd., M/s ACC Ltd., M/s Kymore Cement Works, M/s Birla Corporation Ltd., M/s ECO Cement India Ltd., M/s Hyderabad Industries Ltd., M/s Jai Laxmi Cement Co. Pvt. Ltd., M/s Trinayani Cement Pvt. Ltd., and M/s Kalyanpur Cement Ltd. No additional water will be drawn. Water requirement of 236.97 m³/hr will be met from recycling of treated waste water. IDC and Air Cooled Condenser cooling system shall 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 23.09.2009. Cost of the project will be Rs.773.33 Crores.

The proponent informed that coal requirement of 1.439 TPA would be sourced either from M/s Godavari Ltd., Kolkata or imported coal from South Africa/Indonesia or through e-auction. The coal will be transported through rakes to Krishnashilla Railway siding to project site through a combination of link conveyor belt pipe conveyor and aerial ropeways. The proponent shall explore the possibility for installation of wagon tippler at railway siding

The Committee observed that sourcing of coal from a trading company or washery cannot be considered as firm coal linkage and therefore decided that the proposal can be considered based on imported coal from South Africa/Indonesia, and e-auction to which the project proponent agreed.

The Committee noted that TOR was recommended by the EAC in its meeting held during January 12-13, 2009 and TOR issued on 10.02.2009. The baseline AAQ data as per the EIA report submitted was for the period September 15 to December 15, 2008. The project proponent clarified that collection of baseline data is an ongoing process in the existing plant and exercise for prediction of cumulative impact on air quality has been carried out. Further it was also informed that the project was kept pending due to imposition of Govt. Moratorium as the CEPI index was high in the area. Now, moratorium in the area has been lifted.

The Committee discussed the compliance to the environmental clearance accorded for the existing plant and found it to be satisfactory.

The Committee noted that the area had water quality problem and water borne diseases (including fluorosis) are reported to be prevalent and therefore advised the project proponent to identify problems and take appropriate measures as

part of CSR activity. Accordingly it was decided that the project proponent shall revise CSR action plan and provide committed expenditure with activity wise breakup to the Ministry both onetime Capital expenditure during construction phase as also annual CSR expenditure till the running of the plant.

The Committee also decided that the project proponent shall monitor heavy metals and radio activity concentration in ground water around ash pond and formulate appropriate mechanism for continuous monitoring of these parameters. Accordingly mechanism to be adopted and agency to be involved shall be communicated to the Ministry.

The Committee discussed in detail the Public Hearing issues raised in the Public Hearing held on 23.09.2009 and the response provided by the project proponent. The major issues raised were regarding adoption of environment protection technology; provision of employment to the local people; fluoride in ground water; ground water contamination with heavy metals; impact on agriculture and Rihand Dam due to fly ash; transportation of coal and lack of medical facilities etc.

The Committee noted that many of the issues raised were not directly related with pollution arising from the plant alone. The project proponent, as proactive measure, shall ensure that all possible engineering solutions are adopted in running the plant in conformity with environmental requirements including the proposed expansion as a model plant with sound environmental integrity.

It was further noted that soft copies of Form-I, Feasibility report, EIA/EMP report and its addendum, public hearing proceedings, MoU/FSA for fuel etc. shall be first submitted (if not already done).

Based on the information and clarifications provided, the Committee recommends 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 undertaken and status of implementation shall be submitted periodically to the Regional Office of the Ministry.
- (ii) Sulphur and ash contents in the coal to be used in the project shall not exceed 0.5% and 40 % 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.
- (iii) Stack of 100 m height shall be provided with continuous online monitoring equipments for SO_x, NO_x and Particulate Matter (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) No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the setting up / operation of the power plant.
- (v) COC of at least 5.0 shall be adopted.
- (vi) Space provision for installation of FGD shall be made.
- (vii) High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission from the proposed plant does not exceed 50 ug/Nm³.
- (viii) 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.
- (ix) Utilisation of 100% Fly Ash generated shall be made from 4th year of operation of the plant. Status of implementation shall be reported to the Regional Office of the Ministry from time to time.
- (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 form. 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. 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) Continuous monitoring for heavy metals in and around the existing ash pond area shall be immediately carried out by reputed institutes like IIT, Roorkee.
- (xiv) Fugitive emission of fly ash (dry or wet) shall be controlled such that no agricultural or non-agricultural land is affected. Damage to any land, if any, shall be mitigated and suitable compensation provided in consultation with the local Panchayat.
- (xv) Green Belt consisting of three tiers of plantations of native species around plant and at least 50 m width shall be raised. Tree density shall not less than 2500 per ha with survival rate not less than 80 %.
- (xvi) The project proponent shall also adequately contribute in the development of the neighbouring villages. Special package with implementation schedule for providing free potable drinking water supply in the nearby villages and schools shall be undertaken in a time bound manner.

- (xvii) An amount of Rs. 3.10 crore shall be earmarked as one time capital cost for CSR programme. Subsequently a recurring expenditure of Rs. 0.60 crore per annum till the life of the plant shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within one month along with road map for implementation.
- (xviii) CSR scheme shall be identified based on need based assessment in and around the villages within 5.0 km of the site and in constant consultation with the village Panchayat and the District Administration. As part of CSR prior identification of local employable youth and eventual employment in the project after imparting relevant training should have also to be undertaken and information furnished.
- (xix) It shall be ensured that in-built monitoring mechanism with two external members for the schemes identified is in place and annual social audit shall be got done from the nearest Government institute of repute in the region. The project proponent shall also submit the status of implementation of the scheme from time to time and put it on company's website.

2.14 2x660 MW Imported Coal Based TPP of M/s MB Power (Chhattisgarh) Limited. at villages Birra, Siladehi and Gatwa, in Bamnidhi Taluk, in Jangir Champa Distt., in Chhattisgarh-reg. Environmental Clearance.

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

The proposal is for setting up of 2x660 MW imported Coal Based TPP at villages Birra, Siladehi and Gatwa, in Bamnidhi Taluk, in District Jangir Champa, in Chhattisgarh. Land requirement will be 925 acres, out of which 743 acres is single crop agriculture land; 138 acres is waste land and 44 acres comprising of abandoned minor canals. Green belt will be raised in an area of 160 acres. The co-ordinates of the site are located within Latitude 21^o45'57.77" N to 21^o46'14.69" N and Longitude 82^o44'24.92" E to 82^o45'56.38" E. Imported coal requirement will be 5.7 MTPA at 90% PLF. Imported Coal will be obtained from Indonesia. FSA has been signed with M/s PT. Mitra Setia Tanah Bumbu. Ash and sulphur contents in imported coal will be 15-25% and 0.1-0.4% respectively. Imported coal will be brought from Indonesia to Dhamra Port and thereafter by train to plant site. About 0.94 MTPA of fly ash and 0.24 MTPA of bottom ash will be generated. Ash pond area will be 190 acres and co-ordinates of the ash pond site is located within Latitude 21^o45'18.12" N to 21^o45'38.52" N and Longitude 82^o44'58.79" E to 82^o45'17.35" E. Bi-flue Stack of 275m shall be provided. Induced Draft cooling system will be installed. Water requirement of 36 MCM will be sourced from Mahanadi River. Water Resource Department,

Chhattisgarh has planned to construct a Mironi barrage on Mahanadi River. Water will be drawn from a Barrage, for which an amount of Rs 22.6 crore has been already paid to WRD, Govt. of Chhattisgarh. There are no National Parks, Wildlife Sanctuaries, Heritage Sites, Tiger/Biosphere reserves etc. are within 10 km of the project site. Public Hearing was held on 21.10.2011. Cost of the project will be Rs.7890Crores.

The project proponent has also informed that a petition has been filed in High Court at Bilaspur by some of the land owners challenging the procedure adopted for land acquisition by Govt. of Chhattisgarh. The case is pending for disposal.

The Committee noted that baseline AAQ data has been mentioned in the EIA Report collected during October to December, 2009, whereas, TOR was issued on 04.12.2009. The project proponent clarified that while consideration for TOR, the proposal had gone twice to the Committee and permission for using data for post monsoon period of September – December, 2009 was sought and agreed to during the deliberation of the EAC meeting held in October, 2009.

The Committee also noted that the site is very close to Hasdeo River. It was also noted that the site being in conformity to guidelines on siting criteria i.e. 500 m from HFL of river etc. was an issue while the proposal was deliberated during considering for TOR in the meeting held in September, 2009. That a specific TOR provision at item (iii) was therefore prescribed to this effect and while deliberations in September, 2009 was asked to come with this confirmation with support of IRSA satellite imagery.

The Committee further noted that a network of canals appeared in the plant site which requires diversion and also some water bodies' vicinity. It was also observed that the proposed ash pond location was not appropriate and needed relocation.

It was observed that the report on R&R Plan, in particular the chapter on implementation arrangement and costing contains no specific commitment and action plan for implementation of various schemes devised. It was also noted that AAQ assessment appeared to be very ideal data and needed to be rechecked after carrying the modeling and data which should be resubmitted after rechecking.

The Committee discussed the Public Hearing issues and the response made by the project proponent. The major issues raised were regarding compensation for land; demand for educational and civic amenities; provision of employment to locals; adoption of village Birra; afforestation; medical facilities; opposition to acquisition of land; preservation of village ponds; protection of local deity (18th century Shivrinarayan temple); impact due to pollution from power plant; marginalization of farmers due to loss of livelihood etc.

The Committee on perusal of the issues raised in the Public Hearing noted that the project may entail marginalization of farmers particularly landless farmers and therefore decided that implementation of R&R shall include formulation of special schemes for landless farmers whose sustenance was dependent on the land proposed to be acquired for the power project. The Committee therefore suggested that the project proponent shall identify such category of landless farmers and accordingly revise R&R plan.

The Committee observed that there are gaps in the information and therefore decided that the project is too premature for consideration in its present form and would be taken up on submission of the following additional details:

- i) Documentary evidence that the site is in conformity with the guidelines on siting criteria of thermal power plants and is atleast 500 m away from HFL of river. IRSA satellite imagery superimposing HFL authenticated by concerned agency (WRD/Irrigation Deptt.) should be submitted;
- ii) Water availability especially during lean season keeping into consideration the riparian needs of Mahanadi/Hasdeo River and details of downstream competing sources shall be submitted;
- iii) Action plan for implementation of issues raised in Public Hearing along with activity-wise committed expenditure for proposed CSR activities submitted;
- iv) Identification of marginalized section of community and formulation of scheme for their welfare. The R&R Plan to be revised suitably;
- v) Prior approval of Archaeological Survey of India (ASI) or a copy of application or NOC from ASI for setting up the power plant nearly 18th century temple located in study area;
- vi) AAQ assessment to be redone and resubmitted;
- vii) Ash pond location shall be revised and new location with co-ordinates on a topo-sheet submitted;
- viii) Identify institute for carrying out long term study on radio activity and heavy metals contents on coal to be used, ensuring that a mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) is also put in place; and
- ix) Submit soft copies of Form-I, Feasibility report, EIA/EMP report and its addendum, Public Hearing proceedings, MoU/FSA for fuel etc.(if not already done).

Accordingly the proposal was deferred for re-consideration at a later stage.

2.15 Expansion by addition of 1.50 MW Back Pressure Turbine and Installation of 500 KW Black Start DG Set of M/s Ruby Macons Ltd. at village Morai, in Pardi Taluk, District Valsadin Gujarat - reg. Environmental Clearance.

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

This is a 'B' category project. However, the project was appraised at Centre due to location of the project within 10 km of Inter-State boundary of Gujarat & Daman as per the General Condition of the EIA Notification, 2006.

The proposal is for expansion by addition of 1.50 MW Back Pressure Turbine and Installation of 500 KW Black Start DG Set at village Morai, in Pardi Taluk, in District Valsad in Gujarat. The PP is presently manufacturing 10500 MT/M of MG Kraft paper from the waste paper and power generation through CPP & Turbine is 4.95 MW for the manufacturing unit. It is proposed to expand the manufacturing unit by 4500 MT/M for which additional 1.5 MW of power is required. Environmental clearance for existing 4.95 MW which is in operation was not required. No additional land for the expansion will be involved. Imported coal requirement will be 14 TPD and lignite requirement will be 54.5 TPD. Imported Coal will be obtained from Indonesia. Lignite will be obtained from M/s GMDC lignite mines in Gujarat. Ash and sulphur contents in imported coal will be 15-25% and 0.1-0.4% respectively. About 0.94 MTPA of fly ash and 0.24 MTPA of bottom ash will be generated. Induced Draft cooling system will be installed. Water requirement of 1.090 MLD will be sourced from Damanganga water canal. There exist patches of dense mangrove near the estuarine zone of River Kolak, located at about 5.2 km of the site. Also there are patches of reserved forest within 10 km. There are no National Parks, Wildlife Sanctuaries, Heritage Sites, Tiger/Biosphere reserves etc. within 10 km of the project site. Cost of the project will be Rs.4.50 Crores.

The Committee noted that the project was categorized as 'B₂' category while deliberation for TOR and accordingly was exempted from Public Hearing. It was also observed that soft copies of Form-I, feasibility report, EIA/EMP report etc. were not available and should be first submitted.

The Committee also noted that even though permission to draw water from Damanganga Canal for 1000 KLD is available, additional water is required. The Committee therefore decided that as fresh water is scarce resource in the area, the project proponent shall undertake rainwater and water conservation measures. Accordingly the Committee decided that the project proponent shall formulate a detailed rainwater harvesting and water conservation scheme and submit the status of implementation of the same to the R.O of the Ministry.

Based on the information and clarifications provided, The Committee decided that *recommendation of the project for environmental clearance* can be made subject to stipulation of the following specific conditions and submission of documents/requirements above mentioned:

- (i) Sulphur and ash contents in the coal to be used in the project shall not exceed 1% and 34 % 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.
- (ii) No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the setting up/operation of the power plant.
- (iii) COC of at least 5.0 shall be adopted.
- (iv) 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) Utilisation of 100% Fly Ash generated shall be made from 4th year of operation of the plant. Status of implementation shall be reported to the Regional Office of the Ministry from time to time.
- (vi) Ash pond (if any) 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.
- (vii) Green Belt consisting of three tiers of plantations of native species around plant and at least 50 m width shall be raised. Tree density shall not less than 2500 per ha with survival rate not less than 80 %.
- (viii) An amount of Rs. 0.08Crore shall be earmarked as one time capital cost for CSR programme. Subsequently a recurring expenditure of Rs. 0.02 Crore per annum till the life of the plant shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within one month along with road map for implementation.

2.16 Expansion by addition of 185 MW CFBC Captive Boiler Thermal Power Plant of M/s Bhushan Energy Ltd. at village Meramandali, District Dhenkanal, in Orissa by - reg. TOR.

The proposal was earlier considered and the Committee had noted that the project proponent have not submitted compliance to the conditions stipulated in the environmental clearances of its previous phase for both Steel and Power plants, which is reported to be very poor. The Committee therefore decided that the Ministry may obtain status of compliance from its Regional Office and the State Pollution Control Board before the case is considered. Accordingly the proposal was deferred for reconsideration at a later stage.

Neither the project proponent nor its representative was present to defend the proposal. The proposal was therefore deferred for re-consideration at a later stage.

2.17 2x660 MW Super Critical Coal Based Thermal Power plant of M/s Essel Infra Projects Ltd. at village Chhadahna & Bhonde, Tehsil Jawa, in Rewa Distt., in Madhya Pradesh – reg. TOR.

The proposal was earlier considered in the 32nd Meeting held during September 12-13, 2011. The Committee noted that the proposed site is not suitable for location of a thermal power plant. The Committee also noted that other alternative sites shown were also not found to be suitable. The Committee further noted that Tons/Tamas River has water for about only three-four months and therefore advised the project proponent to provide a detailed availability source of sustainable water availability especially during lean season. The Committee had, directed the project proponent to revert back after identifying alternative sites.

The proposal then was for setting up the proposed 2x660 MW Super Critical Coal Based Thermal Power plant at village Tikuri, Raghunathpur, Ansara & Ghumri, in Teonthar Taluk, in Rewa Distt., in Madhya Pradesh.

The present proposal is now for setting up of coal based thermal power plant with the same unit configuration at villages Chhadahna & Bhonde, Tehsil Jawa, in Rewa Distt., in Madhya Pradesh. The co-ordinates of the site are in between Latitude 25°03'02.73" N and Longitude 81°29'31.29" E. Water requirement will be 40 cusec (97 MLD) and will be sourced from the Tons/Tamas River through a pipeline. About 120 land oustees will be involved. Coal requirement will be 7.68 MTPA. There are no National Parks, Wildlife Sanctuaries, Heritage sites, tiger/biosphere reserves etc. within 10 km of the site.

The Committee noted that prima facie the site is suitable for setting up of the thermal power plant. The Committee also noted that land requirement shall not exceed 900 acres.

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

- i) Action plan for rehabilitation of homestead losers (if any) and details of compensation paid to land losers shall be submitted. The R&R plan shall include identification of marginalized section of people who do not own land but were dependent indirectly on the land to be acquired for the power plant and their rehabilitation thereof;
- ii) Details of water availability for 12 months and drainage area study shall be submitted. The study shall include details of competing sources of water from Tamas river downstream of the source of the proposed power plant;

- iii) Action plan for carrying out long term study on 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).

2.18 4X660 MW Thermal Power Plant of M/s K.R. Energy Services Pvt. Ltd. at village Badonkalan, in Datia Tehsil, in Datia Distt., in Madhya Pradesh - reg. TOR reconsideration.

The proposal was earlier considered in the 28th Meeting held during July 4-5, 2011, wherein the Committee noted that the proposed site appeared to be low lying area and close to flood plain of two major rivers. The Committee had therefore decided that the project proponent shall look for alternative sites and/or come back with requisite details furnishing authentic information on water flow in the rivers and HFL details for the past few decades. The Committee also decided that that the project proponent area shall first ascertain the mineralogy of the area from the Competent Authority. Accordingly the proposal was deferred.

On submission of clarification the proposal was again taken up.

It was informed that the proposal is for setting up of 4X660 MW coal based thermal power plant at village Badonkalan, in Datia Tehsil, in Datia Distt., in Madhya Pradesh. Land requirement will be 830 acres, which comprises 830 acres of waste land. The co-ordinates of the plant site are at Latitude 25°50'00"N to 25°49'34"N and Longitude 78°20'12" to 78°18'31" E. Coal requirements will be 13.38 MTPA. Area requirement for ash/pond dyke will be 261.03 Ha. Water requirement will be 80 MCM, which will be sourced from the Sind River through a intake cum jack well pipeline at a distance of 2 km from project site. There are no National parks, Wildlife sanctuaries, Tiger/Biosphere reserves etc. within 10 km of the site.

The Committee noted that the site is a catchment area of Sindh River and its tributaries and cannot, therefore, be accepted. The Committee reaffirmed that there can be no change in its position with respect to the site and categorically stated that the site is rejected from the point of view of location of a thermal power plant. Accordingly the proposal was closed.

2.19 2X800 MW Supercritical Coal based Thermal Power plant of M/s Bansagar Thermal Power Company Ltd. at village Hirwar, in Beohari Tehsil, in District Shahdol, in Madhya Pradesh - reg. TOR.

The proposal was earlier considered in the 44th Meeting held during March 4-5, 2012, wherein the Committee noted that the proposed site prima facie appears

to very close to Bansagar Reservoir and that the other alternative sites indicated were itself not suitable to the project proponent. The Committee had therefore decided that the project proponent shall identify suitable sites. Accordingly the proposal was deferred for reconsideration at a later stage.

Neither the project proponent nor its representative was present to defend the proposal. The proposal was therefore deferred for re-consideration at a later stage.

2.20 500 MW (2x100 MW + 2x150 MW) Captive Power Plant of M/s Prakash Industries Ltd. at village Hathneora, in Champa Taluk, District Janjgir-Champa in Chhattisgarh- reg. Amendment in TOR.

M/s Prakash Industries Ltd. was issued TOR for its 500 MW (2x100 MW + 2x150 MW) Captive Power Plant on 18.04.2011. M/s Prakash Industries Ltd. have now informed that earlier for 2x100 MW, it was proposed to install 4 Nos. of AFBC Boilers of 190 TPH capacity each to be attached with 2 Turbines of 100 MW each i.e. 2 AFBC Boilers for each 100 MW Turbine.

The proponent now felt that due to advancement in technology of Boilers as well as Turbine, there is availability of reheat type Boilers and Turbines which ensure substantial saving in coal consumption, thereby reducing pollution load.

It was now therefore proposed now to install two numbers of CFBC Boilers of reheat type of 310 TPH capacities each in place of 4 nos. AFBC Boilers of non-reheat type for 2x100 MW. That it is proposed now to install 2 nos. 100 MW reheat type Turbine in place of 2 nos. 100 MW non reheat type Turbine, which will result in reduced specific steam consumption.

Instead of using 100% coal, with the changed setup 60% coal and 40% char + ESP dust of existing WHRB can now be used. That presently solid waste (Char and ESP dust) is being generated in-house from their Sponge Iron Plant, thereby conserving natural resource. That use of these solid wastes in power generation will also result in lesser fugitive emissions.

M/s Prakash Industries Ltd. therefore requested for amendment in TOR earlier prescribed as may be required incorporating the request mentioned above.

The Committee noted the request and decided that the request could be acceded to. Accordingly the Committee decided that the Ministry shall do the needful as may be required.

2.21 2x300 MW Surat Lignite Power Plant (Station-II) of M/s Gujarat Industries Power Company Ltd, at Nani Naroli, in Taluk Mangrol, in District Surat, in Gujarat - reg. Amendment in TOR.

M/s Gujarat Industries Power Company Ltd., was issued TOR on 08.08.2009 for its 2x300 MW Lignite Based Power Plant (Station-II) proposed at village Karagara/Khareda near Mosali, in Taluk Mangrol, in District Surat, in Gujarat. Public hearing for the project was also held on 19.11.2010.

M/s Gujarat Industries Power Company Ltd. has now informed that the site was chosen as it was very close to captive lignite mine (2-3 kms). Though the project site is very close to the mine, it is about 6 kms away from State Highway and dedicated approach road needs to be constructed. However, it had now come to their notice that there was strong resistance for acquisition of land for the power plant site as well as for the approach road.

M/s Gujarat Industries Power Company Ltd. now desires to change the site at a new location, where about 150 Ha land was available. This site was also considered as one of the site during the site selection. The new site will be at village Nani Naroli, in Mangrol Taluk, in Surat Distt., in Gujarat, which will be about 9.5 Kms away from the previous site.

It was also informed that the new site is just adjacent to its existing 500 MW (4x125 MW) power plants for which environmental clearances were obtained in two phases in 1996 and 2003. From the new site, captive lignite mine will be at a distance of about 15 kms.

The project proponent also produced photographs of the site indicating present site condition.

The Committee deliberated the matter and decided that the change in site could be agreed to but since the study area has changed the request for consideration for environmental clearance based on EIA/EMP Report, Public Hearing etc. for the previous site could not be accepted as it was legally not tenable.

The Committee therefore decided that in the present changed scenario, the proposal is more of an expansion case of the existing 4x125 MW SLPP. The Committee therefore decided that the project proponent shall submit revised Form-I, Feasibility report etc. and as an expansion proposal (Phase-II) of its existing 4x125 MW.

The Committee further decided that the Ministry may accordingly consider the proposal on receipt of the documents for consideration of TOR.

2.22 1x500 MW Imported Coal Based Thermal Power Plant of M/s Hassan Thermal Power Pvt. Ltd. in KIDB notified industrial area at villages Dobba Basavanahalli, Dobba Honnenahalli, Kachandyakanahalli and Bustanhalli, in Hassan Taluk, District Hassan in Karnataka - reg. Amendment in EC.

M/s Hassan Thermal Power Pvt. Ltd. was accorded environmental clearance for its 1x500 MW Imported Coal Based Thermal Power Plant in KIDB notified industrial area at villages Dobba Basavanahalli, Dobba Honnenahalli, Kachandyakanahalli and Bustanhalli, in Hassan Taluk, district Hassan in Karnataka on 17.02.2012.

M/s Hassan Thermal Power Pvt. Ltd. have now informed that Govt. of Karnataka has directed them to opt for 1x660 MW Super-critical Technology instead of 1x500 MW Sub-Critical Technology, in view of volatility of imported coal price and issues associated and considering that with 1x660 MW Super-Critical, techno economic benefits to the State will be advantageous and therefore to the consumers.

M/s Hassan Thermal Power Pvt. Ltd. also presented the increase in coal consumption and subsequent incremental environmental pollutants.

The Committee deliberated the data presented and decided that with a marginal increase in coal consumption, Super-Critical Technology can give a large output of electricity and therefore the request could be agreed to. The Committee also observed that the Govt. of India Policy is also to opt for more efficient technology and therefore the request could be favorably considered. The Committee, therefore, recommended that the Ministry may do further needful in the matter.

3.0 Any other item with permission of the Chair:

3.1 Discussion of report of the Sub-Group of EAC on visit to Trombay TPPS of M/s Tata Power Co. Ltd. - reg.

The report of the Sub-Group of EAC on visit to Trombay TPPS of M/s Tata Power Co. Ltd. was presented.

The Committee deliberated point wise recommendation of the sub-group and unanimously accepted the report.

The Committee decided that additional TOR conditions for the modernization/ change in fuel proposal of M/s Tata Power Company Ltd. for its Unit -6, in accordance with the recommendation of the Sub-Groups report could be prescribed by the Ministry.

3.2 540 MW (4x135 MW) Coal based Power Plant of M/s Vadana Vidyut Pvt. Ltd. at Chhuri, Salora, Gangpur, Darrabhata&Jhora, Tehsil Katghora, District Korba, Chhattisgarh- reg. Amendment in EC

M/s Vadana Vidyut Pvt. Ltd. was accorded environmental clearance for 540 MW (4x135 MW) Coal based Thermal Power Plant at Chhuri, Salora, Gangpur,

Darrabhata&Jhora, Tehsil Katghora, District Korba, Chhattisgarh on 09.03.2009.

M/s Vadana Vidyut Pvt. Ltd have now requested the Ministry for amendment of the environmental clearance, wherein it was stated that coal for the project will be obtained from their captive Fatehpur East Coal Block at a distance of about 80 Kms which will be transported by road/rail.

M/s Vadana Vidyut Pvt. Ltd informed that since the coal block is yet to be operational and tapering coal linkage has been granted by the Ministry of Coal, in order to sign FSA with SECL, the request for appropriate inclusion of running power plant with tapering coal linkage until coal block is operational is required.

The Committee deliberated the request and agreed that since tapering linkage for 540 MW has been allocated the request could be favorably considered. Accordingly it was decided that the Ministry may do the needful.

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

It was decided that the next meeting of the Committee will be held during July 2-3, 2012.

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), 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 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.

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.
