

## **MINUTES OF THE 40<sup>th</sup> MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE (EAC) ON ENVIRONMENTAL IMPACT ASSESSMENT (EIA) OF THERMAL POWER & COAL MINING PROJECTS**

The 40<sup>th</sup> Meeting of the reconstituted EAC (Thermal Power) was held on 23<sup>rd</sup> July, 2015 in the Ministry of Environment, Forests & Climate Change at Teesta Meeting Hall, Vayu Wing, First Floor, Indira Paryavaran Bhawan, Jorbagh Road, New Delhi-110003. The following members were present:

1. Prof. C.R. Babu - Vice Chairman (Acting Chairman)
2. Shri T.K. Dhar - Member
3. Shri J.L Mehta - Member
4. Shri N.K. Verma - Member
5. Dr. S.D. Attri - Member (Representative of IMD)
6. Dr. S.S. Bala - Member (Representative of CPCB)
7. Shri P.D. Siwal - Member (Representative of CEA)
8. Shri B.B. Barman - Member Secretary

Shri A.K. Bansal, Shri G.S. Dang, Dr. C.B.S Dutt, Dr. Ratnavel and Dr. Asha Rajvanshi could not be present. List of other participants is at **Annexure -I**.

### **Item No.1: CONFIRMATION OF THE MINUTES OF THE 39<sup>th</sup> EAC (LAST) MEETING.**

The Minutes of the 38<sup>th</sup> EAC meeting held during 25<sup>th</sup> -26<sup>th</sup> June, 2015 were confirmed save the following amendment at Para 4 of the Minutes corresponding to the Proposal at Sl No. 2.6 of M/s KSK Mahanadi Power Company Ltd:

*“4. Based on the information and clarifications provided by the Project Proponent and detailed discussions held on all the issues concerned thereto, the Committee recommended the following:*

- (i) The total project area shall comprise of 828.46 ha (with minor shift in the coordinates) instead of 830 ha as stipulated while issuing the EC.*
- (ii) The specific condition no. (vii) of the EC shall be amended as, “An amount of Rs.64 crores as capital and Rs. 1.83 crores/annum (or the amount as per the CSR policy of GoI whichever is higher) as recurring costs should be earmarked for CSR activities. Details of the activities to be undertaken in this regard shall be submitted”.*
- (iii) The extension of validity of EC to be in line with as already recommended earlier by the EAC in its 28<sup>th</sup> meeting held during 22<sup>nd</sup> -23<sup>rd</sup> December, 2014.”*

### **Item No. 2: CONSIDERATION OF PROJECTS**

#### **2.1 Durgapur Captive Power Project-III (2x20 MW) at Durgapur, District Burdwan, West Bengal M/s NTPC-SAIL Power Company Private Ltd – For EC.**

The Project Proponent (PP) along with their environmental Consultant, Vimta Labs Ltd., Hyderabad made a presentation and *inter-alia* provided the following information. Although, otherwise the proposal falls under Category ‘B’ of the schedule of the EIA Notification, 2006, it's being located within the Durgapur Steel Plant (DSP), which is a Category ‘A’ project, the proposal was appraised at the central level. The Consent to Operate (CTO) for the existing CPP (2X60 MW) was renewed with validity till 30.11.2015.

- (i) ToR for carrying out EIA study and preparation of EMP for the above proposal was accorded by the Ministry on 07.05.2014. Public Hearing for the project was conducted on 06.01.2015. The total land requirement for the proposed CPP including ash dyke and green belt is 35.5 acres which is already within DSP's premises and does not require any further acquisition. No separate township is required for the plant as existing DSP residential facilities shall be made available. The elevation of plant site and ash dyke is 1.8 m to 3 m above HFL. Waria railway station is located at a distance of 0.2 km, SW and Beliator Protected Forest is at a distance of 9.1 km, SSW. The cost of the expansion project is about Rs. 361.94 crores, which includes about Rs. 18.1 crores for environmental protection measures. No litigation is pending against the project. An amount of Rs. 4.29 crores is earmarked for CSR activities during 2015-20 and a recurring cost of Rs. 62.5 lakhs per annum is earmarked for CSR.
- (ii) The coal requirement will be 0.3 MTPA and will be sourced from SAIL's Ramnagore Captive coal mine, which is in operation since 1905. The maximum sulphur and ash content in the coal will be 0.5% and 40% respectively. No separate Railway Siding is envisaged as existing facility is proposed to be utilized. The coal will be stored in the existing stock yard of DSP, which is within the premises and will be transported through trucks to the proposed CPP. The optimized water requirement of 300 m<sup>3</sup>/h shall be supplied by DSP from Waria reservoir using the already allocated quota. The total ash generation will be 1,20,000 TPA (Fly ash-98,000 TPA & Bottom ash-24,000 TPA). Fly ash will be utilized for bricks and cement manufacture. Bottom ash will go to ash pond and possibility of industrial use is being explored.
- (iii) The Baseline Ambient Air Quality (AAQ) was monitored during March – May, 2014. The maximum baseline concentration for PM, SO<sub>2</sub> and NO<sub>x</sub> was 80.4 µg/m<sup>3</sup>, 26.3 µg/m<sup>3</sup> and 36.1 µg/m<sup>3</sup> respectively. The maximum cumulative incremental concentration of PM, SO<sub>2</sub> and NO<sub>x</sub> would be 17.11 µg/m<sup>3</sup>, 30.51 µg/m<sup>3</sup> and 17.33 µg/m<sup>3</sup> respectively. The resultant GLCs will be within the prescribed AAQ limits.
- (iv) Public Hearing/Public Consultation for the project was conducted by West Bengal Pollution Control Board on 06.01.2015. It was noted that the issues raised in the PH pertained to stringent pollution control measures, maintain zero discharge, fly ash utilization, CSR activities & their monitoring etc. The Committee discussed the issues raised in the PH and the reply of the PP.

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

- I. *The existing and proposed project shall comply with the Environment Action Plan formulated by WBPCB for the Durgapur Area. The compliance report in this regard shall be submitted along with the six monthly compliance reports.*
- II. *The Sulphur and ash content of coal shall not exceed 0.5 % and 40 % respectively. In case of variation of quality at any point of time, fresh reference shall be made to the Ministry for suitable amendments to the environmental clearance.*
- III. *A stack of 120 m height shall be provided with continuous online monitoring equipments for SO<sub>x</sub>, NO<sub>x</sub> and PM<sub>2.5</sub> & PM<sub>10</sub>. 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. PP shall examine the feasibility of transportation of coal through closed conveyor from the stock yard. Till that time, the transportation shall be through covered trucks.
- V. The island near the project site shall be protected by stabilizing the banks with vegetation cover and check dams across the major surface run-off channels of the island.
- VI. There shall be no discharge and dumping of waste in any form into River Damodar
- VII. An integrated rain water harvesting plan along with the Steel Plant shall be formulated and submitted to the Ministry's R.O. and SPCB within six months.
- VIII. An integrated OHS study along with the Steel Plant shall be conducted and submitted to the Ministry's R.O. and SPCB within six months.
- IX. As committed, a minimum amount of Rs. 4.29 Crores shall be earmarked as capital cost for CSR activities and Rs.62.5 Lakhs/annum or the amount as per the CSR policy of GOI whichever is higher shall be earmarked as recurring cost per annum till the operation of the plant.

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

The PP requested for deferment.

**2.3 Expansion by addition of 2x800 MW (Phase-II) coal based TPP at Padubidri Industrial Area in Villages Yellure and Santhru, Tehsil & District Udupi, Karnataka by M/s. Udupi Power Corporation Ltd. - For ToR.**

The project proponent along with their environmental consultants, NEERI and NIO made a presentation and inter-alia provided the following information.

- (i) EC was accorded on 20.03.1997 to the existing TPP for 2x500 MW based on imported coal. EC was amended on 25.01.1999 and 09.09.2009 for enhancement of capacity to 2x507.5 MW and 2x600 MW respectively. These amendments in EC were consolidated on 01.09.2011 by MoEF. Both the Units of Phase-I have been commissioned and 90% of net power generated is being supplied to the state of Karnataka. ToR for expansion by addition of 2x660 MW was granted by MoEF vide letter dt. 11.08.2010. Due to financial and other reasons, the PP could not proceed on the project.
- (ii) Udupi Power Corporation Ltd. is now a subsidiary of Adani Power Limited. The instant proposal is for expansion of existing 1200 MW imported Coal based TPP to 2800 MW by addition of 1600 MW (2X800 MW super-critical units in Phase-2). The expansion of the main plant is proposed partly within the existing plant area and partly in the additional land adjacent to the boundary of existing plant. The land of existing power plant (Phase1) as well as additional land for proposed expansion (Phase-2) falls in survey numbers of village "Yellure" and "Santhru" in Padubidri Industrial Area, notified in 1995 and 1998 under KIADA Act, 1966 by the State Government. Total 728.1 acres (Plant Area - 403.1 acres; Ash Pond - 325 acres) of additional land is required for the proposed expansion. Besides, for R&R colony, 32.99 acres land is separately identified in Village Padebettu adjacent to the existing R&R colony. No additional land is required for sea water pipeline corridor and ash corridor. No forest land is identified within

proposed site. The proposed ESZ in Western Ghats is over 23 Km from Main Plant and 20 Km from proposed Ash Dyke.

- (iii) Blended Coal (70% domestic and 30% imported) will be used and the requirement will be 7.0 MTPA with maximum 34% ash and 0.5% sulphur. Coal transportation will be through New Mangalore Port Trust (NMPT) and onward by rail. M/s ACC had installed cement blending unit in Phase-I plant premises. The same cement blending unit with capacity augmentation shall be used for utilization of fly ash from proposed units. Cement industries around the plant area shall also be identified for utilization of fly ash. Unutilized ash shall be disposed through HCSD system. Additional 325 acres land for ash pond expansion is identified near existing ash pond in village Santharu.
- (iv) It is proposed to use sea water condenser cooling. The condenser cooling circuit shall operate on 'closed cycle system'. The water requirement of the proposed TPP is estimated at around 14,000 m<sup>3</sup>/h (123 MCM per annum). Sea water at the Plant end will be received in water reservoir, which will have an overall storage capacity of about seven (7-10) days water requirement of the Plant.

2. The Committee has received a representation from ERC, New Delhi on the proposed expansion. The issues are w.r.t the numerous ongoing litigations (34) against the existing project, splitting project components and incomplete & unclear details in Form I. The PP submitted that there was no adverse Order in any of the litigation. The Committee took note of the TOR already issued for expansion of 2 X 660 MW in 11.08.2010, but the project proponent did not implement the project. *The Committee sought a detailed reply from the PP to the said representation and all other environmental issues raised in the litigations.*

3. Regarding the Public Hearing exemption sought as per the Ministry's O.M. dated 10.12.2014, i.e. location of the project in notified Padubidri Industrial Area, the Committee noted that the said O.M. is in furtherance to another O.M. dated 16.05.2014. Moreover, Hon'ble NGT, Pune has in a way stayed the O.M. dated 10.12.2014 and the matter is pending. *Hence, the Ministry may take a decision on Public Hearing exemption in compliance to the final Order of Hon'ble NGT.*

4.1 *Based on the information and clarifications provided by the Project Proponent and detailed discussions held on all the relevant issues, the Committee **recommended** the ToR as per **Annexure A1 and Annexure A2**, including the following additional ToRs for undertaking detailed EIA study and preparation of EMP and subject to the outcome of pending litigations:*

- (i) *A combined detailed monitoring for compliance to the existing EC and CTO conditions of SPCB shall be conducted by the Ministry's R.O. and SPCB and the report shall be submitted to the Ministry prior to the submission of final EIA/EMP by the PP.*
- (ii) *An updated status of all Court Cases on the existing project and the proposed expansion. The detailed response of the PP on the environmental issues raised in the litigations.*
- (iii) *Point wise reply to the representation of ERC, a copy of which was made available to the PP.*

4.2 *Regarding the issue of Public Hearing exemption, the Committee recommended that the same shall be in compliance to the final Order of Hon'ble NGT and the Ministry may take a decision at an appropriate time.*

## 2.4 Expansion by addition of 2000 (2x1000) MW imported coal based TPP at Village Paguthan, Tehsil & District Bharuch, Gujarat by M/s. CLP India Pvt. Ltd. - For ToR

The project proponent along with their environmental consultant, GreenIndia Consulting Pvt. Ltd. made a presentation and inter-alia provided the following information.

- (i) The existing 655 MW gas fired Paguthan Combined Cycle Power Plant received EC from MoEF in 1989. The project is operational since 1998 (1997 in open cycle) under the Consent to Operate issued by GPCB. CLP India acquired majority stake in the Plant in 2002 and completed acquisition of 100% equity in 2003. As directed by Gujarat High Court for all Schedule I industries in Gujarat, an yearly environment audit is being carried out by empanelled auditors and submitted to Gujarat High Court and GPCB.
- (ii) In October 2007, EC was accorded by MoEF for setting up an additional capacity of 3X350 MW gas based power plant in the same location; this was further extended till 2017. However, due to non availability of domestic gas and non-viability of power produced on the very expensive regassified LNG, the project could not be taken forward. Considering the above challenge and proximity of the site to the West Coast, CLP explored imported coal based project at the same site. In January 2015, CLP India signed an MOU with the Government of Gujarat for developing a 2X1000 MW imported coal based project at the same site.
- (iii) The existing project area is 212 acres and the land required for the proposed TPP is 154 acres. The entire land (366 acres) is in possession, however if the option of coal transportation from tapping off proposed Baruch by pass railway line is opted for, additional 15 acres land may have to be acquired near the plant site. There are no national parks or wildlife sanctuaries within 15 km radius of the project site. There is no forest land in the study area. River Narmada flows at a distance of 8.6 km, SSE and Bharuch is at a distance of 6.7 km, S. Canal passing along the boundary of the project site will not be disturbed.
- (iv) The proposed TPP is conceptualized on imported coal; however, suitable provisions are provided in design to have flexibility to burn domestic fuel up to 40% by weight. Imported coal is proposed to be received at Dahej Port (50 km from project site). Coal from the Dahej port will be transported to the plant site through one of the options, i.e. tapping off railway line from the proposed Bharuch by-pass line or through rail network up to Nabipur terminal and onwards through conveyor. CLP group has a strong experience of sourcing coal (approx. 15 MTPA) from Indonesia, Australia, South Africa and China. CLP is evaluating options for sourcing imported coal. Domestic coal sourcing, if required, will be sourced through a coal linkage/FSA with commercial miners/counterparties/others.
- (v) Water required for the TPP is proposed to be drawn from River Narmada. The intake point is proposed at existing plant's intake point (Angareshwar: 23 Km from Plant site) and the existing water pumping arrangement is proposed be augmented by laying of 23 Km water pipeline. Estimated water requirement for the plant is 4,450 m<sup>3</sup>/h and request to Irrigation Department for in-principle water allocation (~45 MCM) has been submitted.

2.1 Based on the information and clarifications provided by the Project Proponent and detailed discussions held on all the issues, the Committee **recommended** the following ToR in addition to the standard TORs (as applicable) as per **Annexure-A1** for undertaking detailed EIA

*study and preparation of EMP. The Committee also recommended for undertaking a Site Visit by a sub-group of EAC to PP's Unit at Jhajjar, Haryana to see the compactness of the Units and optimization of the land being proposed in the above proposal.*

- (i) *Source sustainability study for the water. Detailed information on the impact on the downstream users, likely adverse effect on mangroves and fisheries due to extraction of water and safeguard measures.*
- (ii) *Cumulative Impact Assessment for air and water within 15 km radius of the project site.*

*2.2 The PP has applied and got an EC for the project for a gas based Power Plant. The EAC recommended that the PP shall first apply for cancellation of the existing EC dated 13.06.2007 to the Ministry and only upon cancellation of the said EC by the Ministry, the fresh ToR as recommended may be issued.*

**2.5 3x660 MW coal based TPP at Villages Mirchwara & Buraugaon, Taluk Mahroni, District Lalitpur, Uttar Pradesh by M/s. Lalitpur Power Generation Company Ltd.- For amendment of EC for change in source of coal for Unit-III.**

The PP along with their environmental consultant, Bhagavathi Ana Labs Pvt. Limited, Hyderabad made a presentation and *inter-alia*, provided the following information.

- (i) EC for 3 x 660 MW (1,980 MW) was granted on imported coal on 31.03.2011 (an interim arrangement in the absence of linkage for indigenous coal). In accordance to CCEA decision and Presidential Directive, the PP signed MoU with CIL subsidiaries for supply of indigenous coal for 2 Units of 660 MW each. Based on the MoU signed with CIL subsidiaries, amendment in EC for change in type of coal for 2 Units (660 MW each) to indigenous coal had been applied for and had been granted by MoEF on 20.05.2014, while 3<sup>rd</sup> Unit is based on imported coal.
- (ii) Ministry of Coal, Government of India, have now notified a policy (vide O.M. dated 30.06.2015) for power plants already commissioned or to be commissioned in 2015-16 "to make coal available for those plants which are stressed or in short supply of coal for the reason that they do not have linkages, so that they do not turn into NPAs". Accordingly, a separate quantity within the e-auction quantity shall be earmarked for power sector so that the assets created are put to productive use. To begin with, e-auction shall be conducted separately for PPA holders (long and medium term) by offering initially a quantity of 5 Million Tonnes, which may be increased as availability as well as coal production is increasing. LPGCL Unit 3 is eligible to receive coal under the above dispensation from CIL subsidiaries (CCL & SECL) through limited e-auction (having long term PPA). Due to availability of indigenous coal (through limited e-auction) for Unit 3 (660 MW), amendment in EC for change in type of coal is being requested.
- (iii) Due to volatility in the cost of imported coal, foreign exchange fluctuations, frequent changes in sovereign laws of coal producing countries and shipping & transportation bottlenecks, the cost of power becomes costly. As CIL production is increasing at around 9% annually and considering CIL's target of 1 billion tonnes, availability of domestic coal is expected to increase substantially. Any benefit of cheaper indigenous coal will be passed on to DISCOMs and thereby to consumers.
- (iv) The Unit-I was synchronized on 09.06.2015, the Boiler of Unit-II was lighted up and the Boiler Hydro Test of Unit-III was completed. The Units I, II and III are scheduled to be

commissioned by 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> Quarters of 2015-16. The PP has committed to the state of U.P for supply of its entire power generated (100%) on Regulated Tariff (Cost Plus). Any benefit of indigenous coal would be passed through in tariff thereby to U.P STATE DISCOMs/and ultimately to consumers. Long Term PPA (1980 MW) for 25 years is signed with U.P State DISCOMs at regulated tariff, where tariff would be approved by U.P regulatory commission. There is a provision in PPA that in case of short supply, seller can procure coal from other sources including e-auction with prior consent of the procurer. Currently, coal procurement under MoU is allowed by U.P DISCOMs.

- (v) CCL and SECL mines are well connected through rail network. Coal would be loaded from nearest Railway Siding in Railway Rakes supplied by Indian Railways to Lalitpur Power Plant. In case, logistics is to move the coal from mines to loading point by road (till the railway siding is completed) and there after by rail, requisite measures will be undertaken. The maximum sulphur and ash content of G10 Grade coal from CCL/SECL shall be 0.5% and 33% respectively.
- (vi) The EIA studies & Public Hearing conducted prior to the EC included the impacts of both imported coal and indigenous coal. The impacts due to SO<sub>2</sub> emissions is relatively less with the proposed scenario (all three units with indigenous coal) having negligible impacts. There are no industries within 10-km radius. The total fly ash generation by all the three Units based on domestic coal will be 2.55 MTPA and 100% utilization shall be achieved as per Fly Ash Utilization Notification, 2009. MOUs/agreements signed for more than 100% off-take.

2. *Based on the information and clarifications provided by the Project Proponent and detailed discussions held on all the issues, the Committee recommended the amendment in environmental clearance for change in source of coal for Unit-III from Imported to Domestic subject to stipulation of the following additional conditions:*

- i. The Sulphur and ash content of coal shall not exceed 0.5 % and 34 % respectively. In case of variation of quality at any point of time, fresh reference shall be made to the Ministry for suitable amendments to the environmental clearance.*
- ii. The transportation of coal shall be by Rail to the extent feasible. If road transportation of coal from Pit-Head to Railway Siding is unavoidable, the same shall be through mechanically covered trucks to the extent feasible, else through tarpaulin covered trucks.*
- iii. Avenue plantation of 2/3 rows all along the road shall be carried out by the project proponent at its own expenses in consultation with the State Government.*
- iv. Periodic maintenance of the road shall be done by the project proponent at its own expenses and shall also facilitate the traffic control on the road in consultation with the State Government Authorities.*

There being no agenda item left, the meeting ended with a vote of thanks to the Chair. The next meeting of the EAC (Thermal Power) is scheduled for **27<sup>th</sup> -28<sup>th</sup> August, 2015.**

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**Terms of Reference (TOR):**

- i) The proposed project shall be given a unique name in consonance with the name submitted to other Government Departments etc. for its better identification and reference.
- ii) Vision document specifying prospective long term plan of the project shall be formulated and submitted.
- iii) Latest compliance report duly certified by the Regional Office of MoEF for the conditions stipulated in the environmental and CRZ clearances of the previous phase(s) for the expansion projects shall be submitted.
- iv) The project proponent needs to identify minimum three potential sites based on environmental, ecological and economic considerations, and choose one appropriate site having minimum impacts on ecology and environment. A detailed comparison of the sites in this regard shall be submitted.
- v) Executive summary of the project indicating relevant details along with recent photographs of the proposed site (s) shall be provided. Response to the issues raised during Public Hearing and the written representations (if any), along with a time bound Action Plan and budgetary allocations to address the same, shall be provided in a tabular form, against each action proposed.
- vi) Harnessing solar power within the premises of the plant particularly at available roof tops and other available areas shall be formulated and for expansion projects, status of implementation shall also be submitted.
- vii) The geographical coordinates (WGS 84) of the proposed site (plant boundary), including location of ash pond along with topo sheet (1:50,000 scale) and IRS satellite map of the area, shall be submitted. Elevation of plant site and ash pond with respect to HFL of water body/nallah/River and high tide level from the sea shall be specified, if the site is located in proximity to them.
- viii) Layout plan indicating break-up of plant area, ash pond, green belt, infrastructure, roads etc. shall be provided.
- ix) Land requirement for the project shall be optimized and in any case not more than what has been specified by CEA from time to time. Item wise break up of land requirement shall be provided.
- x) Present land use (including land class/kism) as per the revenue records and State Govt. records of the proposed site shall be furnished. Information on land to be acquired including coal transportation system, laying of pipeline, ROW, transmission lines etc. shall be specifically submitted. Status of land acquisition and litigation, if any, should be provided.
- xi) If the project involves forest land, details of application, including date of application, area applied for, and application registration number, for diversion under FCA and its status should be provided along with copies of relevant documents.
- xii) The land acquisition and R&R scheme with a time bound Action Plan should be formulated and addressed in the EIA report.
- xiii) Satellite imagery and authenticated topo sheet indicating drainage, cropping pattern, water bodies (wetland, river system, stream, nallahs, ponds etc.), location of nearest habitations (villages), creeks, mangroves, rivers, reservoirs etc. in the study area shall be provided.
- xiv) Location of any National Park, Sanctuary, Elephant/Tiger Reserve (existing as well as proposed), migratory routes / wildlife corridor, if any, within 10 km of the project site shall be specified and marked on the map duly authenticated by the Chief Wildlife Warden of the State or an officer authorized by him.

- xv) Topography of the study area supported by toposheet on 1:50,000 scale of Survey of India, along with a large scale map preferably of 1:25,000 scale and the specific information whether the site requires any filling shall be provided. In that case, details of filling, quantity of required fill material; its source, transportation etc. shall be submitted.
- xvi) A detailed study on land use pattern in the study area shall be carried out including identification of common property resources (such as grazing and community land, water resources etc.) available and Action Plan for its protection and management shall be formulated. If acquisition of grazing land is involved, it shall be ensured that an equal area of grazing land be acquired and developed and detailed plan submitted.
- xvii) A mineralogical map of the proposed site (including soil type) and information (if available) that the site is not located on potentially mineable mineral deposit shall be submitted.
- xviii) Details of fly ash utilization plan as per the latest fly ash Utilization Notification of GOI along with firm agreements / MoU with contracting parties including other usages etc. shall be submitted. The plan shall also include disposal method / mechanism of bottom ash.
- xix) The water requirement shall be optimized (by adopting measures such as dry fly ash and dry bottom ash disposal system, air cooled condenser, concept of zero discharge) and in any case not more than that stipulated by CEA from time to time, to be submitted along with details of source of water and water balance diagram. Details of water balance calculated shall take into account reuse and re-circulation of effluents.
- xx) Water body/Nallah (if any) passing across the site should not be disturbed as far as possible. In case any Nallah / drain is proposed to be diverted, it shall be ensured that the diversion does not disturb the natural drainage pattern of the area. Details of proposed diversion shall be furnished duly approved by the concerned Department of the State.
- xxi) It shall also be ensured that a minimum of 500 m distance of plant boundary is kept from the HFL of river system / streams etc. and the boundary of site should also be located 500 m away from railway track and National Highways.
- xxii) Hydro-geological study of the area shall be carried out through an institute/ organization of repute to assess the impact on ground and surface water regimes. Specific mitigation measures shall be spelt out and time bound Action Plan for its implementation shall be submitted.
- xxiii) Detailed Studies on the impacts of the ecology including fisheries of the River/Estuary/Sea due to the proposed withdrawal of water / discharge of treated wastewater into the River/Sea etc shall be carried out and submitted along with the EIA Report. In case of requirement of marine impact assessment study, the location of intake and outfall shall be clearly specified along with depth of water drawl and discharge into open sea.
- xxiv) Source of water and its sustainability even in lean season shall be provided along with details of ecological impacts arising out of withdrawal of water and taking into account inter-state shares (if any). Information on other competing sources downstream of the proposed project and commitment regarding availability of requisite quantity of water from the Competent Authority shall be provided along with letter / document stating firm allocation of water.
- xxv) Detailed plan for rainwater harvesting and its proposed utilization in the plant shall be furnished.
- xxvi) Feasibility of near zero discharge concept shall be critically examined and its details submitted.
- xxvii) Optimization of Cycles of Concentration (COC) along with other water conservation measures in the project shall be specified.

- xxviii) Plan for recirculation of ash pond water and its implementation shall be submitted.
- xxix) Detailed plan for conducting monitoring of water quality regularly with proper maintenance of records shall be formulated. Detail of methodology and identification of monitoring points (between the plant and drainage in the direction of flow of surface / ground water) shall be submitted. It shall be ensured that parameter to be monitored also include heavy metals. A provision for long-term monitoring of ground water table using Piezometer shall be incorporated in EIA, particularly from the study area.
- xxx) Socio-economic study of the study area comprising of 10 km from the plant site shall be carried out through a reputed institute / agency which shall consist of detail assessment of the impact on livelihood of the local communities.
- xxxi) Action Plan for identification of local employable youth for training in skills, relevant to the project, for eventual employment in the project itself shall be formulated and numbers specified during construction & operation phases of the Project.
- xxxii) If the area has tribal population it shall be ensured that the rights of tribals are well protected. The project proponent shall accordingly identify tribal issues under various provisions of the law of the land.
- xxxiii) A detailed CSR plan along with activities wise break up of financial commitment shall be prepared. CSR component shall be identified considering need based assessment study and Public Hearing issues. Sustainable income generating measures which can help in upliftment of affected section of society, which is consistent with the traditional skills of the people shall be identified. Separate budget for community development activities and income generating programmes shall be specified.
- xxxiv) While formulating CSR schemes it shall be ensured that an in-built monitoring mechanism for the schemes identified are in place and mechanism for conducting annual social audit from the nearest government institute of repute in the region shall be prepared. The project proponent shall also provide Action Plan for the status of implementation of the scheme from time to time and dovetail the same with any Govt. scheme(s). CSR details done in the past should be clearly spelt out in case of expansion projects.
- xxxv) R&R plan, as applicable, shall be formulated wherein mechanism for protecting the rights and livelihood of the people in the region who are likely to be impacted, is taken into consideration. R&R plan shall be formulated after a detailed census of population based on socio economic surveys who were dependant on land falling in the project, as well as, population who were dependant on land not owned by them.
- xxxvi) Assessment of occupational health and endemic diseases of environmental origin in the study area shall be carried out and Action Plan to mitigate the same shall be prepared.
- xxxvii) Occupational health and safety measures for the workers including identification of work related health hazards shall be formulated. The company shall engage full time qualified doctors who are trained in occupational health. Health monitoring of the workers shall be conducted at periodic intervals and health records maintained. Awareness programme for workers due to likely adverse impact on their health due to working in non-conducive environment shall be carried out and precautionary measures like use of personal equipments etc. shall be provided. Review of impact of various health measures undertaken at intervals of two to three years shall be conducted with an excellent follow up plan of action wherever required.
- xxxviii) One complete season site specific meteorological and AAQ data (except monsoon season) as per latest MoEF Notification shall be collected and the dates of monitoring shall be recorded. The parameters to be covered for AAQ shall include PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and Hg. The location of the monitoring stations should be so decided so as to take into consideration the upwind direction, pre-dominant downwind direction,

- other dominant directions, habitation and sensitive receptors. There should be at least one monitoring station each in the upwind and in the pre - dominant downwind direction at a location where maximum ground level concentration is likely to occur.
- xxxix) In case of expansion project, air quality monitoring data of 104 observations a year for relevant parameters at air quality monitoring stations as identified/stipulated shall be submitted to assess for compliance of AAQ Standards (annual average as well as 24 hrs).
- xl) A list of industries existing and proposed in the study area shall be furnished.
- xli) Cumulative impacts of all sources of emissions including handling and transportation of existing and proposed projects on the environment of the area shall be assessed in detail. Details of the Model used and the input data used for modeling shall also be provided. The air quality contours should be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any. The windrose and isopleths should also be shown on the location map. The cumulative study should also include impacts on water, soil and socio-economics.
- xl ii) Radio activity and heavy metal contents of coal to be sourced shall be examined and submitted along with laboratory reports.
- xl iii) Fuel analysis shall be provided. Details of auxiliary fuel, if any, including its quantity, quality, storage etc should also be furnished.
- xl iv) Quantity of fuel required, its source and characteristics and documentary evidence to substantiate confirmed fuel linkage shall be furnished. The Ministry's Notification dated 02.01.2014 regarding ash content in coal shall be complied. For the expansion projects, the compliance of the existing units to the said Notification shall also be submitted
- xl v) 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.
- xl vi) For proposals based on imported coal, inland transportation and port handling and rail movement shall be examined and details furnished. The approval of the Port and Rail Authorities shall be submitted.
- xl vii) 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.
- xl viii) 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.
- xl ix) A Disaster Management Plan (DMP) along with risk assessment study including fire and explosion issues due to storage and use of fuel should be carried out. It should take into account the maximum inventory of storage at site at any point of time. The risk contours should be plotted on the plant layout map clearly showing which of the proposed activities would be affected in case of an accident taking place. Based on the same, proposed safeguard measures should be provided. Measures to guard against fire hazards should also be invariably provided. Mock drills shall be suitably carried out from time to time to check the efficiency of the plans drawn.
- l) The DMP so formulated shall include measures against likely Fires/Tsunami/Cyclones/Storm Surges/Earthquakes etc, as applicable. It shall be ensured that DMP consists of both On-site and Off-site plans, complete with details of containing likely disaster and shall specifically mention personnel identified for the task. Smaller version of the plan for different possible disasters shall be prepared both in English and local languages and circulated widely.

- li) Detailed scheme for raising green belt of native species of appropriate width (50 to 100 m) and consisting of at least 3 tiers around plant boundary with tree density of 2000 to 2500 trees per ha with a good survival rate of around 80% shall be submitted. Photographic evidence must be created and submitted periodically including NRSA reports in case of expansion projects. A shrub layer beneath tree layer would serve as an effective sieve for dust and sink for CO<sub>2</sub> and other gaseous pollutants and hence a stratified green belt should be developed.
- lii) Over and above the green belt, as carbon sink, plan for additional plantation shall be drawn by identifying blocks of degraded forests, in close consultation with the District Forests Department. In pursuance to this the project proponent shall formulate time bound Action Plans along with financial allocation and shall submit status of implementation to the Ministry every six months.
- liii) Corporate Environment Policy
  - a. Does the company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.
  - b. Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.
  - c. What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions. Details of this system may be given.
  - d. Does the company has compliance management system in place wherein compliance status along with compliances / violations of environmental norms are reported to the CMD and the Board of Directors of the company and / or shareholders or stakeholders at large? This reporting mechanism should be detailed in the EIA report.

All the above details should be adequately brought out in the EIA report and in the presentation to the Committee.

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

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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 agencies shall be submitted.
- c) The soil leveling should be minimum with no or minimal disturbance to the natural drainage of the area. If the minor canals (if any) have to be diverted, the design for diversion should be such that the diverted canals not only drains the plant area but also collect the volume of flood water from the surrounding areas and discharge into marshy areas/major canals that enter into creek. Major canals should not be altered but their embankments should be strengthened and desilted.
- d) Additional soil required for leveling of the sites should as far as possible be generated within the site itself in such a manner that the natural drainage system of the area is protected and improved.
- e) Marshy areas which hold large quantities of flood water to be identified and shall not be disturbed.
- f) No waste should be discharged into Creek, Canal systems, Backwaters, Marshy areas and seas without appropriate treatment. Wherever feasible, the outfall should be first treated in a Guard Pond and then only discharged into deep sea (10 to 15 m depth). Similarly, the Intake should be from deep sea to avoid aggregation of fish and in no case shall be from the estuarine zone. The brine that comes out from Desalinization Plants (if any) should not be discharged into sea without adequate dilution.
- g) Mangrove conservation and regeneration plan shall be formulated and Action Plan with details of time bound implementation shall be specified, if mangroves are present in Study Area.
- h) A common **Green Endowment Fund** should be created by the project proponents out of EMP budgets. The interest earned out of it should be used for the development and management of green cover of the area.
- i) Impact on fisheries at various socio economic level shall be assessed.
- j) An endowment **Fishermen Welfare Fund** should be created out of CSR grants not only to enhance their quality of life by creation of facilities for Fish Landing Platforms / Fishing Harbour / cold storage, but also to provide relief in case of emergency situations such as missing of fishermen on duty due to rough seas, tropical cyclones and storms etc.
- k) Tsunami Emergency Management Plan shall be prepared wherever applicable and Plan submitted prior to the commencement of construction work.
- l) There should not be any contamination of soil, ground and surface waters (canals & village pond) with sea water in and around the project sites. In other words necessary preventive measures for spillage from pipelines, such as lining of Guard Pond used for the treatment of outfall before discharging into the sea and surface RCC channels along the pipelines of outfall and intake should be adopted. This is just because the areas around the projects boundaries could be fertile agricultural land used for paddy cultivation.

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

(Shri T.K.Dhar)  
Member

(Shri J.L Mehta)  
Member

(Shri N.K. Verma)  
Member

(Dr. S. D. Attri)  
Member

(Shri P.D. Siwal)  
Member

(Shri S.S. Bala)  
Member

(Shri B.B. Barman)  
Member Secretary

**List of Participants**

**2.1 M/s. NTPC –SAIL Power Company Private Ltd.**

1. Sh. Manash Sarkar, CEO
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4. Sh. Amit Gautam, AGM (Engr.)
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6. Sh. Partha Biswas, AGM (SLCC), SAIL
7. Dr. B. Chandra Sekhar, Vimta Labs
8. Sh. J. Sunil Kumar, Vimta Labs

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1. Sh. Jatinder Bhatnagar, Project Director
2. Sh. Santosh Kumar Singh, Authorized Signatory-Env.
3. Sh. B.S. Sodhi, Vice President
4. Sh. Sanjay Tibrewal, G.M
5. Sh. Praveen Anant, DGM-Env
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**2.4 M/s. CLP India Pvt. Ltd.**

1. Sh. Naveen Munjal, Director-Commercial
2. Sh. Nitin Malkan, VP-Operation
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**2.5 M/s. Lalitpur Power Generation Company Ltd.**

1. Sh. T.C. Upreti, President
2. Dr. A.V. Singh, President
3. Sh. N.V. Balasubramanian, Advisor
4. Dr. Lokesh Kumar, Manager
5. Sh. Ankush Jain, AGM
6. Sh. E. Shyam Sunder, Head- Env., Bhagvathi Ana Labs Pvt. Ltd.