

## **MINUTES OF THE 5<sup>TH</sup> MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE (EAC) ON ENVIRONMENTAL IMPACT ASSESSMENT (EIA) OF THERMAL POWER PROJECTS**

The 5<sup>th</sup> Meeting of the re-constituted EAC (Thermal Power) was held on 26<sup>th</sup> April, 2017 in the Ministry of Environment, Forest & Climate Change at Brahmputra Meeting Hall, Vayu Wing, First Floor, Indira Paryavaran Bhawan, Jorbagh Road, New Delhi under the Chairmanship of Dr. Navin Chandra. The following members were present:

- |    |                           |   |  |
|----|---------------------------|---|--|
| 1. | Dr. Navin Chandra         | - | Chairman                               |
| 2. | Dr. Narmada Prasad Shukla | - | Member                                 |
| 3. | Shri N. Mohan Karnat      | - | Member                                 |
| 4. | Dr. Sharachchandra Lele   | - | Member                                 |
| 5. | Shri N. S. Mondal         | - | Member (Representative of CEA)         |
| 6. | Dr. R. K. Giri            | - | Member (Representative of IMD)         |
| 7. | Prof. S.K. Sinha          | - | Member (Representative of ISM Dhanbad) |
| 8. | Dr. S. Kerketta           | - | Member Secretary                       |

Dr. Rajesh P. Gunaga, and Dr. S. K. Paliwal (Representative of CPCB) could not be present.

### **Item No.5.0: CONFIRMATION OF THE MINUTES OF THE 4<sup>th</sup> EAC MEETING.**

The Minutes of the 4<sup>th</sup> EAC (Thermal Power) Meeting held on 16<sup>th</sup> March, 2017 were confirmed.

### **Item No. 5: CONSIDERATION OF PROJECTS**

#### **5.1 5x800 MW Super Critical Coal Based Thermal Power Project at Veerlapalem Village, Damaracherla Mandal, District Nalgonda, Telangana State by M/s TELANGANA STATE POWER GENERATION CORPORATION LTD. (TSGENCO) – reg. reconsideration of EC.**

- (5.1.1) The proposal for grant of Environmental Clearance has been earlier considered in 59<sup>th</sup>, 60<sup>th</sup>, 63<sup>rd</sup> and 1<sup>st</sup> Re-constituted EAC meetings held during 14<sup>th</sup>-15<sup>th</sup> July, 2016, 27<sup>th</sup> July, 2016, 29<sup>th</sup>-30<sup>th</sup> August, 2016 and 28<sup>th</sup> December, 2016. The EAC in its meetings observed certain shortcomings/plagiarism in final EIA/EMP report prepared by M/s Bhagavathi Ana Labs Pvt. Ltd (a Bureau Veritas Group Company). Project Proponent has been asked to revise the EIA/EMP report. PP terminated the contract of Bhagavathi Ana Labs Pvt Ltd. and appointed M/s B.S. Envi-Tech (P) Ltd. for revising the EIA/EMP inline with EAC observations. EAC has recommended to carry out public consultation process after revision of the EIA/EMP report.
- (5.1.2) Telangana State Pollution Control Board (TSPCB) has uploaded the revised EIA/EMP report on 1.2.2017 for obtaining public comments. A notice in Namasthe Telangana (Telugu Daily) and the Hindu (English) daily has been published to invite public comments/suggestions on the project within three weeks. Three public representations have been received by TSPCB which have been handed over to the PP for addressing the issues raised in the representations and revising the EIA/EMP report. Another representation has directly been received by PP.
- (5.1.3) Project Proponent has submitted the revised final EIA/EMP document duly addressing the issues received through public representations vide online application dated

3.4.2017. PP along with Environment Consultant M/s B.S. Envi-Tech (P) Ltd. made presentation and inter-alia submitted the following information:

- i. The proposal is for establishing 5x800 MW (4000 MW) Super Critical Thermal Power Project at Veerlapalem Village, Damercherla Mandal, Nalgonda Dist., Telangana State. Terms of Reference (ToR) for the said project has been accorded by the Ministry vide letters dated 2.11.2015 and 16.2.2016.
- ii. Nearest town Nalgonda is at 50 km NW from the project. Nearest railway station is Vishnupuram at 4km, Nearest Airport is Hyderabad- 120 km. NH-9 is at 45 km N and SH-2 is at 7 km South. Nagarujana Sagar Tiger Reserve (Amrabad Tiger Reserve) is at 14.03 km SW, Inter-state boundary of Telangana and Andhra Pradesh is at 0.8 km SE. Tungapahad Vagu (Water body) is passing through the proposed project. Krishna and Musi rivers are at 0.5 km SE and 7.4 km E from the proposed project.
- iii. Veerlapalem Reserved Forest (RF) is within the proposed location. Rajagutta RF- 0.3 km E, Daida RF -1.2 km SE, Adividevulapalli RF-4.7 km SW, Oshipalem RF – 4 km NW and Dilawarpur RF-2.9 km N from the proposed project.
- iv. There are four schedule-I species i.e Indian Peafowl, Indian Python, Monitor Lizard and Indian Softshell Turtle are present in the study area. However these Schedule-I species are not falling in the endangered category.
- v. There are no national parks/wildlife sanctuaries/any other protected areas/ESA/ESZs within 10 km radius of the proposed project. Authenticated map showing the distance between Amrabad Tiger Reserved and the project location which is at 14.03 km has been provided by the PCCF (WL), Telangana Forest Department vide their letter dated 5.5.2016.
- vi. Total land requirement for the proposed project is 2800 acres which is as per CEA norms of 0.7 acres/MW. Out of total land requirement, 2095.28 acres is the forestland falling under Veerlapalem Forest Block. Remaining 704.12 acres consists of Patta Land, Government Land, Udafa patta land and D-patta land in Veerappagudem and Veerlapalem villages, Damercherla Mandal, Nalgonda Dist., Telangana State which partly under cultivation. The Stage-II Forest Clearance has been accorded for diversion of forest land vide Ministry's letter No.8-07/201-FC dated 7.6.2015. The non-forest land has already been acquired.
- vii. The proposed project is based on Super-critical boiler technology which uses the pulverised coal of boiler of once-through and does not required a drum to separate steam from water. The proposed project will have five 800 MW super critical units. Steam parameters are: i) Pressure: 247 kg/cm<sup>2</sup> (a), ii) Main steam temperature: 565 °C and iii) Reheat Steam Temperature: 593 °C.
- viii. The project will use blend coal having ratio of 50% indigenous coal and 50% imported coal or 100% imported coal with LDO as start up fuel and Heavy Fuel Oil (HFO) for flame stabilisation.
- ix. The coal requirement for blending coal (50% imported coal and 50% domestic coal) 3,9657.6 TPD (12.25 MTPA @ 85% PLF) and the coal requirement for 100% imported coal is 35,587.2 TPD (11.02 MTPA @ 85% PLF).
- x. Domestic coal characteristics are i) Fixed Carbon: 33%, ii) Volatile Matter: 27%, Moisture: 10%, Ash content: 30%, Calorific value: 4,530 kcal/kg and sulphur content: 0.42%. Imported coal characteristics are i) Fixed Carbon: 42.94%, ii) Volatile Matter: 28.92%, Moisture: 13.14%, Ash content: 15%, Calorific value: 5,700 kcal/kg and sulphur content: 0.8%. Ash and Sulphur contents in the blended fuel shall be not exceed 22.5% and 0.61%, respectively.
- xi. Domestic coal will be sourced from mines of Singareni Collieries Company Ltd. using rail network. MoU has been signed between M/s SCCL and M/s TSGENCO to supply 7 MTPA of G9 and above grades of domestic coal/WG-G9 grade coal.

Another MoU has been signed between M/s MSTC Limited and M/s TSGENCO to supply imported coal of 7 MTPA which will be sourced from Indonesia/Australia/South Africa, etc. The imported coal shall be supplied from Kakinada/Krishnapatnam port or any other nearest port in India. Necessary permissions have been obtained for utilising port facilities at Kakinada/Krishnapatnam/Vishakhapatnam. The railway line is proposed from Vishnupuram Railway station on Bibinagar-Nadikudi Main line of South Central Railway. The distance between Vishnupuram Railway station to proposed project is about 8 km.

- xii. Water requirement for the proposed project is 10,000 m<sup>3</sup>/hr (2.4 Lakhs m<sup>3</sup> per day/97.8 cusec/3.10 TMC per year) considering the COC of 5.0 and complying with the new norm of 2.5 m<sup>3</sup>/MWh. The water requirement will be met from River Krishna. Govt. of Telangana, Irrigation and CAD Department vide their letter dated 30.1.2015 allocated 208 cusecs of water (6.6 TMC/year) from Krishna River. Intake structure shall be installed including pumping station near Madachelu area at the upstream side of confluence point of Tungapahad Vagu and Krishna River. The distance between intake well to raw water reservoir is approximately 6 km. A pipeline will be laid for transporting the water from Krishna River.
- xiii. Flow at Pondugala in Krishna river is 25.72 million m<sup>3</sup>/month and wadenapalli is 27.8 million m<sup>3</sup>/month. Proposed water requirement is 7.21 million m<sup>3</sup>/month. Water withdrawal percentage is <30% of minimum in lean season flows.
- xiv. The power will be evacuated through 400 kV double circuit Quad Core Moose Conductor to the Choutuppal/Dindi/Maheshwaram/Jangaon interconnecting substations.
- xv. Tungapahad Vagu (stream) for length of 3.9 km is passing through the project area which eventually joins Krishna river. The project activities will not interfere with flow of Tungapahad vagu since there is no extraction of water or discharge. No diversion of this stream is proposed. Plant layout is designed to keep a minimum distance of 500 m buffer between ash pond and Tungapadu Vagu to prevent contamination, if any.
- xvi. Baseline data has been collected during December, 2015-February, 2016 by M/s Bhagavathi Ana Labs Pvt. Ltd. Additional baseline data was collected for one month during October, 2016 for one month by M/s B.S. Envi-Tech (P) Ltd. The predominant wind direction is SE during study period.
- xvii. AAQ monitoring has been carried out at 10 locations. Results indicated that the values of different air quality parameters such as PM<sub>10</sub>: 31.9-66.4 µg/m<sup>3</sup>, PM<sub>2.5</sub>: 11.6-31.6 µg/m<sup>3</sup>, SO<sub>2</sub>: 8.3-24.6 µg/m<sup>3</sup>, NO<sub>x</sub>: 10.3-28.1 µg/m<sup>3</sup>, CO: 1-1.8 mg/m<sup>3</sup> and Hg: < 0.1 ng/m<sup>3</sup>. AAQ is within the NAAQ Standards. A total of ten groundwater samples have been analysed in the study area. pH ranges between 6.9-7.38 and Total Hardness varies between 328-591 mg/l and is well within limit of 600 mg/l. Chlorides ranges between 68-362 mg/l. Fluoride ranges between 1.03-1.32 mg/l which is above the acceptable limits. Ground water samples are in compliance with the Drinking water standard of IS:10500 except for Fluoride content. Surface water samples were analysed from ten locations. The results indicated that the values such as pH: 7.92-8.10; DO: and BOD is not monitored. TDS: 408-702 mg/l, Total Hardness: 177-323 mg/l; Chlorides: 60-118 mg/l, Sulphates: 54-133 mg/l. E-coli: 116-230 Cfu/100 ml. Noise levels are in the range of 41.2-50.3 dBA for daytime and 30.2-47.5 dBA for nighttime.
- xviii. Soil quality in the project area is as pH: 7.79, TOC: 0.59%, Chloride: 60 mg/kg. Soil in the project area consists of Sandy loam (80%), Silt (9%) and Clay 11%.

Soil in the study area is as pH: 6.95-8.05, TOC: 0.28-0.92%, Chloride: 35-126 mg/l. Soil in the study area consists of Sandy loam (45-89%), Silt (5-23%) and Clay (6-32%).

- xix. Cumulative air quality impact is predicted for the proposed power plant, proposed power plant of KGPUL, Proposed cement plant and limestone mine of Myhome cements and existing industries such as India cements ltd, Parasakti cements, Penna cements, Deccan cements, Andhra cements (comprising cement plant, captive power plant and captive limestone mine). The maximum incremental ground level concentration is predicted for PM is in the range of 6.83-13.99  $\mu\text{g}/\text{m}^3$ ,  $\text{SO}_2$ : 18.1-37.76  $\mu\text{g}/\text{m}^3$ ,  $\text{NO}_x$ : 19.76-30.38  $\mu\text{g}/\text{m}^3$ .
- xx. One single flue and two Bi-flu Stacks with height of 275 m will be erected for dispersion of pollutants as per CPCB guidelines. ESP (99.9% efficiency) for Particulate Matter removal, Flue Gas Desulphurisation System for removal of Sulphur, Selective Catalytic Reduction System for  $\text{NO}_x$  removal shall be installed to meet the emission norms vide Ministry's Notification dated 7.12.2015. Gypsum production is 25-30 TPH per unit (Total units: 5). Dust suppression system (water spraying, bag filters at transfer points, atomized water sprinkling system at crusher) at coal handling points, ETP and STP are the major pollution control measures proposed to be provided in the plant.
- xxi. Total wastewater generation is 43,320  $\text{m}^3/\text{day}$ . Cooling water blowdown is 39,360  $\text{m}^3/\text{day}$ . No treated water will be discharged into Krishna River or Tungapahad Vagu. Domestic wastewater generation from plant is 192  $\text{m}^3/\text{day}$  and from colony is 768  $\text{m}^3/\text{day}$ . Sewage Treatment Plant with Sequential Batch Reactor will be installed to treat the domestic wastewater.
- xxii. Quantity of Flyash and bottom ash generation is 2.2 MTPA and 0.56 MTPA, respectively. Dry flyash from the plant will be transported to ash storage silos through pneumatic system. Five flyash silos are proposed for storing dry flyash. All silos will be provided with bag filters for control of dust. Flyash will be provided to the nearby cement plants for utilisation. Unutilised flyash and bottom ash will be conveyed to ash pond with lean slurry system. Ash disposal area of 400 acres with height of 15 m ash dyke is proposed at 2.28 km away from this proposed power plant. Piezometers will be installed around the ashdyke to monitor the groundwater. HDPE liner with 1,000 microns will be laid in the ash dyke to have zero permeability.
- xxiii. Colony will be constructed within the project site for the employees of the power plant in 80 acres. The colony includes quarters for 2,000 employees, hostel, guest house, community center, health center, recreational facilities, etc.
- xxiv. Hazard identification and Risk assessment has been carried out for the storages of hazardous chemicals such as Hydraulic Oil, LDO, HFO, Hydrogen storage, HCL,  $\text{H}_2\text{SO}_4$  storage, Ammonia and Chlorine tonners, etc. Control and mitigation measures have been proposed.
- xxv. Public hearing was conducted by Telangana State Pollution Control Board (TSPCB) on 31.5.2016 at Pylon Area in the premises of proposed site of 5x800 MW Coal based Yadadri Thermal Power Station, Veerlapalem (V), Damarcherla (M), Nalgonda Dist. An action plan has been prepared for addressing the issues raised by the public.
- xxvi. Project will displace about 173 families residing in the proposed project area in two isolated pockets of habitation i.e. Modugulakunta Tanda and Kapura Tanda. R&R has been initiated and Rs. 16.0 crores have been earmarked for land acquisition, providing basic amenities, constructing Govt. Buildings, religious structures and providing grave yard, etc. Project Affected families are 413 as 704.12 acres of Patta land, Govt. land, Udafa patta land and D-patta land has

been acquired. PAF will get one time payment for Rs.5 lakhs per each family under annuity. Total amount of this payment is Rs. 29.20 crores. In case one time payment is not being taken by any project pusteess, employment can be provided to one person in the family not less than the minimum wages in the total employment of the project. Total financial benefits of PDFs and PAFs proposed by the Project Administrator & Joint Collector, Nalgonda will be paid directly to the concerned bank accounts after approval from the Government.

- xxvii. Greenbelt is proposed to be developed in 1,352 acres which will include restoration of forest area of 1,049 acres and development of green belt in non-forest area of 303 acres. The company will take up additional plantation in the Reserved Forests that demarcates the project boundary on the South.
- xxviii. Employment generation during construction period is 150 (direct employment) & 5000 (indirect employment) and operation period is 2,000 (direct employment) & 2,000 (indirect employment).
- xxix. Estimated project cost is Rs.25,099.42 Crores. An additional budget of Rs.0.9 crore/MW will be incurred to comply with new emission norms of MoEF&CC Notified vide OM dated 7.12.2015. Budget of Rs. 5597 crores (Capital) and Rs. 430 Cores/annum (Recurring) have been earmarked for environmental protection measures. Budget allocated for CSR activities is Rs 100.40 crores which is approximately 0.4% of the total cost of the project.

(5.1.4) Committee after detailed deliberations, **recommended for grant of Environment Clearance subject to the following additional conditions in addition to the specific conditions pertaining to Thermal Power Projects mentioned at Annexure-A2:**

- i. A written commitment is to be submitted by the PP
  - that M/s SCCL shall supply coal having ash not more than 30%.
  - that the incremental GLC values shall not exceed the standards as prescribed vide O.M. dated 07.12.2015.
  - that the coal transportation shall be done through railway line only.
  - that during acquisition of land for railway line, no displacement would be made.
  - that no groundwater will be extracted for construction of project.
  - That the supercritical Thermal Power Plant will maintain a thermal efficiency as per the Technical Standards notified by CEA.
- ii. A minimum e-flow in the lean season is to be ensured at the downstream of water drawl point i.e. near Madachelu of Veerlapalem village of the Krishna river for sustaining the ecology of the river stretches. In this regards, a written commitment is to be submitted by pp.
- iii. Analysis of mercury (Hg) in the coal be re-done once again by using modern technique and submitted.
- iv. Transportation of imported/domestic coal will be made from the port/SCCL mines of Kothagudem area through rail route with tarpaulin covered wagons only.
- v. In case any STPs are located within 50 km distance from the proposed Project then the treated water from the STPs shall be used in the plant.
- vi. A 100 m width on either side of Vagu flowing through the plant site to be earmarked to raise greenbelt.
- vii. Plantation should be raised at the rate of 2,500 saplings per hectre. The tree species should be of local variety having hardened and broad leaves types. Plantation be

- preferred by using 2 years old seedlings than new seedlings for better survival of plantation.
- viii. Alternate technology may be explored for utilization of fly ash such as road making, etc. by using geo-polymer based technology. Firm MoU may be made with the Cement Manufacturers for utilization of Fly Ash.
  - ix. Provision of impervious liner/HDPE lining has been made in the ash pond to prevent any leaching. However, groundwater analysis be carried out at the upstream / downstream of the fly ash pond by creating a network with the existing wells and installing new piezometes and report be submitted that no leaching is taking place due to fly ash dumping.
  - x. Skill mapping of the Project Affected People (PAF) be carried out on a long-term basis for their livelihood generation. A report is to be submitted within 3 months to the Ministry from the date of issuance of environmental clearance.
  - xi. Modern methods of agriculture organic forming, compost/vermiculture making and utilization, drip/direct to root irrigation) to be promoted in and around the Project area.
  - xii. While implementing CSR,
    - Women empowerment is important. Therefore, proper skill based training/long term livelihood revenue generation be created for all them.
    - Computer facilities may be provided in the school along with a trained computer teacher to inculcate computer skill among the youths.
    - Water supply provisions shall be made for all the bio-toilets under Swachh Bharat Abhiyan.
    - Preventive health programme may be preferred than the curative health programme such as nutrition development of small children in and around the project.

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## **5.2 2x525 MW Coal Based Thermal Power Plant at village Malibrahamani, Chendipada Block in Angul Dist., Odisha by M/s MONNET POWER COMPANY LTD.- reg. extension of validity of EC.**

- (5.2.1) PP submitted the online application on 2.3.2017 for extension of validity of EC. PP during the meeting and in the application inter-alia submitted the following:
- i. The Environment Clearance for setting up of 2x525 MW Coal Based Thermal Power Plant at village Malibrahamani, Chendipada Block in Angul Dist., Odisha has been accorded vide Ministry's letter dated 29.6.2010 which was valid for five years i.e. till 28.6.2015. The said validity of EC has been further extended for a period of two years i.e. till 28.6.2017 vide Ministry's letter dated 27.5.2015.
  - ii. The coal block earlier allotted for meeting the fuel requirement of the plant has been de-allocated as per the Hon'ble Supreme Court's Order. The coal is to be procured from other sources which require heavy investments and no bank is ready to provide funds in view of the present scenario of steel and power sector.
  - iii. Rs.6500 Crores have already been expended in the said project but still more funds are required to make the plant operational
  - iv. The company has neither fuel nor funds to operate the plant within the validity of environment clearance. In view of this, it is requested to extend the validity of EC for further period of five years i.e. till 28.6.2022.

(5.2.1) Committee after detailed deliberations, **recommended for extension of validity of EC for period of three years** subject to submission of the following information:

- i. Exact status of construction of project unit-wise to be submitted by the PP.
- ii. In case any STPs are located within 50 km distance from the proposed Project then the treated water from the STPs shall be used in the plant.
- iii. Modern methods of agriculture organic farming, compost/vermiculture making and utilization, drip/direct to root irrigation) to be promoted in and around the Project area.
- iv. Alternate technology for fly ash utilization such as road making using geo-polymer shall be explored with the institutes of national repute.
- v. Preventive health programme may be preferred than the curative health programme such as nutritional development of small children in and around the project as a part of CSR programme.

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**5.3 3x800 MW Super-Critical TPP at village Annapurna Khamar, Taluk Kamakhyanagar, Dhenkanal Distt., Odisha by M/s. ODISHA THERMAL POWER CORPORATION LTD.- reg. EC.**

(5.3.1) Project Proponent (PP) vide their letter dated 18.4.2017 submitted that they will not be able to attend the meeting due to pre-occupation for attending State Power Ministers' Conference at Vishakhapatnam on the same day. In view of this, **Committee deferred the project.**

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**5.4 Expansion by addition of 1x250 MW Lignite Based Barsingsagar Thermal Power Plant at village Barsingsar, Kolayat Taluk, Bikaner District, Rajasthan by M/s NLC INDIA LTD.-reg.-extension of validity of EC.**

(5.4.1) Project Proponent (PP) submitted online application on 4.4.2017 for extension of validity of EC. PP attended the meeting and inter-alia submitted the following:

- i. The environment clearance for expansion project of 1x250 MW Lignite based Barsingsar Thermal Power Plant at village Barsingsar, Kolayat Taluk, in Bikaner Dist., Rajasthan has been accorded vide Ministry's letter dated 30.7.2012 which is valid for five years i.e. till 29.7.2017.
- ii. PP issued LOA as turnkey package and construction work has commenced. It will take about four years to complete the erection work and to commission the project. It is requested to extend the validity of EC for further period of five years i.e. 29.7.2022.

(4.4.2) Committee noted that as per the EIA amendment Notification dated 14.9.2016, the validity of Environment Clearance is given for seven years. Accordingly, validity of the said Environment Clearance is automatically extended till 29.7.2019 (7 years). **As sufficient time is available for expiry of validity of EC, the EAC suggested the PP that they should approach or apply to the Ministry for revalidation of EC before expiry of the EC as per the Ministry's circulars/guidelines notified time to time. Accordingly, the project is deferred.**

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**5.5 Expansion by addition of 2x800 MW (Phase-II) Coal based Thermal Power Plant at Padubidri Industrial Area in village Yellure and Santhra, Tehsil & District Udupi, Karnataka by M/s UDUPI POWER CORPORATION LTD.- reg. EC.**

(5.5.1) Project Proponent (PP) along with their Environment Consultants viz. M/s NEERI, Nagpur and NIO, Goa provided the following information:

- i. The expansion project of 2x800 MW (Phase-II) Coal based Thermal Power Project is proposed at Padubidri Industrial Area in village Yellure and Santhra, Tehsil & District Udupi, Karnataka. The proposed expansion Phase-II will be set up near existing power plant having installed capacity of 2x600 MW (Phase-I) which is under operation.
- ii. Terms of Reference (ToR) for the Phase-II (2x800 MW) has been accorded vide Ministry's letter dated 13.8.2015. Environment Clearance for Phase-I (2x600 MW) has been initially accorded on 9.9.2009. CRZ clearance for Phase-I (2x600 MW) for laying sea water intake and marine outfall pipelines has been accorded by the Ministry on 18.5.2010. Subsequently, consolidated Environment Clearance has been accorded on 1.9.2011.
- iii. The total land requirement for the proposed project is about 730 acres (295.4 ha) that includes 180 acres for main plant, 278 acres for Ash dyke and 272 acres for railway yard/MGR facilities inside the plant. The area where the existing 2x600 MW plant is located and also where the 2x800 MW units expansion project is proposed are already declared as an industrial area in 1995 and 1998 under Section 3(1) of Karnataka Industrial Area Development Act (KIADA 1966) in the gazette of Karnataka.
- iv. The proposed project will be in notified industrial area as per KIADA 1966 in the gazette of Karnataka. Land acquisition is being done by Karnataka Industrial Area Development Board (KIADB) as per Karnataka Industrial Area Development Act, 1966 which have inbuilt mechanism for Resettlement and Rehabilitation (R&R). After notification of 168.10 Ac land, which is part of the total land, under 28 (4) of KIADA, Compensation Fixation Committee Chaired by District Commissioner of Udupi has fixed the Compensation and R&R package with consent of the all project affected people of this part of the land. Other land area is in the process of acquisition by KIADB for which notification under Sections 28 (1) and 28 (3) of KIADA has been completed and R&R package shall be fixed in similar manner by Compensation Fixation Committee. M/s UPCL have agreed for the same Compensation and R&R package for all the project affected people from total 730 acres land proposed for this project.
- v. There are no national parks, wildlife sanctuaries, Elephant/Tiger reserve, Migratory routes, wildlife corridor notified or proposed to be notified in 10 km radius of the project.
- vi. Nearest railway station is Padubidri, nearest airport is at Mangalore and nearest seaport is New Mangalore Port Trust which is located at a distance of 3 km, 35 km and 30 km, respectively. NH-66 is at 5 km away from the proposed project. River Mulki and Udayavarna are at about 5 km South and 6 km north, respectively. Proposed project site conforms to the prescribed guidelines in terms of distance over 500 m from High Flood Level (HFL) of the river, highways and railway line. The nearest water body is Arabian sea which is 4.5 km. Project area falls under Seismic Zone III.
- vii. Supercritical (SC) and Ultra-Supercritical (USC) technology are being considered which will be coalfired. Boiler is designed for blended coal in the ratio of 70% Imported coal and 30% domestic coal. Coal-fired boilers will be producing steam at about 270 bar at 600-610 °C. Annual coal requirement is 6.20 MTPA at a



Plant Load Factor (PLF) of 85%. Till the domestic allocation from MoC is received, 100% imported coal from Australia and Indonesia will be used. In either case, Ash content in the coal mix shall be maximum 25% and Sulphur content shall be maximum 0.5%. Expected GCV of the blended coal is 3,900-4,000 kcal/kg, moisture: 16-18%, Ash: 23.0-25.0, sulphur: <0.5%, fixed carbon: 31.0-33.0%, volatile matter: 20.0-23.0, etc. Station Heat Rate of proposed plant will be 2081/Kwh at PLF 85%. Commitment letters to supply 9 MTPA coal from Indonesia, Australia and any other source have been given by M/s Adani Global Pte Ltd. on 15.12.2016.

- viii. The company is already having dedicated railway siding connected with Konkan railway from Nandikur railway station to the existing plant site. For existing 2x600 MW units, coal is handled at dedicated berth at New Mangalore Port Trust (NMPT), Mangalore. From NMPT, it is transported to the plant through Konkan railway line up to Nandikur railway station and then taken into plant through dedicated railway siding from Nandikur railway station. For proposed 2x800 MW units, Coal transportation route is the same as existing from NMPT to Nandikur railway Station and railway siding from Nandikur railway station to the plant site. However, route of railway siding within the plant shall be extended to cater to the proposed 2x800 MW project also. For extension of the railway siding route within plant boundary and coal yard, additional land shall be required.
- ix. Karnataka Coastal Zone Management Authority (KCZMA) has given recommendations for grant of CRZ clearance for laying of seawater intake and marine outfall pipelines along with intake well and outfall diffuser in the existing 25 m wide corridor vide Govt. of Karnataka Letter dated 1.4.2017. Existing pipeline runs to a total distance of 598 m out of which 520 m is in CRZ-III and 78 m is in CRZ-I. The existing intake point is 1,430 m inside the sea and outfall point is 670 m from HTL. Use of seawater for the existing 2x600 MW unit is 10,000 m<sup>3</sup>/hr, which is being now met from the Arabian sea.
- x. NIO recommended to set up intake pipes from Land fall point to Caisson with an option of off-shore pump house at proposed intake point in CRZ-IV at -6.8 meters CD and 650 m from shore-line. Outfall pipe to diffuser at proposed outfall point is in CRZ-IV at -7.5 m CD and 1750 m from the shore-line. Sea water requirement for TPP after expansion to 2800 MW shall be 24,381 m<sup>3</sup>/hr which is proposed to be met from the Arabian Sea.
- xi. Total water requirement for the proposed expansion project will be 14,381 m<sup>3</sup>/hr and will be drawn from the Arabian Sea. It also includes the requirement of desalination plant, cooling of water make up and electro chlorination. Due to operational constraints faced in the seawater intake system in the existing Phase-I, seawater intake system will be re-designed to cater to both Phase-I and Phase-II up to the seawater intake pump house. The seawater intake and outfall locations have been finalized by CSIR-NIO, Goa.
- xii. Power evacuation for the existing Phase-I (2x600 MW) unit is done through 400 kV outdoor switchyard to Hassan Substation of PGCIL through double circuit and also through 400/220 kV interconnecting transformer to 220 kV switchyard to feed Kemmar substation. For proposed Phase-II project, new 400 kV lines shall be provided.
- xiii. Baseline Environmental Studies were conducted during winter season (January to March, 2016). The predominant wind direction is South-East during the study period. AAQ monitoring has been carried out at 8 locations during the study period. The 98<sup>th</sup> percentile values of 24 hourly concentrations of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>2</sub> ranged from 37-73 µg/m<sup>3</sup>, 14-20 µg/m<sup>3</sup>, 5-23 µg/m<sup>3</sup> and 8-

- 37  $\mu\text{g}/\text{m}^3$ , respectively. Highest concentration of  $\text{PM}_{10}$  ( $75 \mu\text{g}/\text{m}^3$ ) was recorded at Pump house,  $\text{PM}_{2.5}$  ( $22 \mu\text{g}/\text{m}^3$ ) at Kollur Village,  $\text{SO}_2$  ( $24 \mu\text{g}/\text{m}^3$ ) at Kollur village and  $\text{NO}_2$  ( $40 \mu\text{g}/\text{m}^3$ ) at Kollur village. High concentrations of  $\text{PM}_{2.5}$ ,  $\text{SO}_2$  and  $\text{NO}_2$  recorded at Kollur village are due to the fact that air quality monitoring site was in close proximity to the chapatti making unit, which uses wood/coal in the unit. Pb concentration was found to be in the range of  $0.01\text{-}0.15 \mu\text{g}/\text{m}^3$ , highest being at Pump house site, which is close to NH-66. Concentration of As, Ni and Hg was found below detectable limit at all the locations. CO is in the range of  $0.5\text{-}1.2 \text{ mg}/\text{m}^3$ . The observed concentrations at all locations were found to be below the National Ambient Air Quality Standards (NAAQMS 2009).
- xiv. Noise monitoring was carried out at eight residential areas near the air quality monitoring stations, near noise sources within the existing plant, along the railway line (since the coal is being transported from harbor to the plant by railway) and commercial places within 10 km radius zone. Noise levels ( $L_{eq}$ ) in residential areas varied from 54-73 dBA in daytime and from 38-45 dBA during nighttime. The CPCB standards for daytime and nighttime noise level are 55 and 45 dBA, respectively. Higher noise level during daytime was recorded due to traffic as well as miscellaneous activities taking place in the vicinity of monitoring locations.
  - xv. Noise levels ( $L_{eq}$ ) in commercial areas varied from 55-93 dBA in daytime and from 62-85 dBA during nighttime. The CPCB standards for daytime and nighttime noise levels are 65 and 55 dBA, respectively. High noise levels during day as well as nighttime in Padubidri village was observed due to high traffic movement on NH-66 and also near Adani pump house close to the highway. Similarly, high noise levels were recorded at Palimar (near railway track) and village Mudrangadi (near market area).
  - xvi. Noise levels ( $L_{eq}$ ) near various locations within the premises were also recorded during daytime. The noise level varied from 70-98 dBA in daytime.
  - xvii. Surface water samples collected from Mulki river and Papanashini river. Presence of high levels of chloride and salinity indicates that the Mulki river is highly influence by coastal backwaters. As per CPCB classification, Papanashini water body could be classified under Class A i.e. drinking water source without conventional treatment but after disinfection.
  - xviii. Five groundwater samples each have been collected in the 5 km radius and 5-10 km radius, respectively. The groundwater samples in the 5 km radius confirmed to the drinking water standards (IS-10500: 2012) for most of the parameters at all locations except for mercury and aluminum. Total coliforms were observed in all the samples, which varied from 10 to 130 CFU/100 ml, whereas fecal coliform were not detected.
  - xix. The groundwater quality in the 5-10 km region falls within drinking water standards (IS-10500: 2012) for most of the Physico-chemical parameters except for certain heavy metals such as nickel, lead, iron and molybdenum. Total Coliforms were observed in all the samples, which varied from 10 to 50 CFU/100 ml, whereas fecal Coliforms were not detected.
  - xx. Cumulative air quality impact is predicted for the existing and proposed power plants. The maximum incremental ground level concentration has been predicted for  $\text{PM}_{10}$  is in the range of  $2.4 \mu\text{g}/\text{m}^3$ ,  $\text{SO}_2$ :  $7.9 \mu\text{g}/\text{m}^3$  and  $\text{NO}_x$ :  $7.9 \mu\text{g}/\text{m}^3$  at a distance of 1.77 km in the WNW direction.
  - xxi. No major water body/nallah is passing through the proposed project. Hence no diversion is proposed. The capacities and course of two moderate size Natural Drains passing through the proposed 235 acres land on west side of the main plant shall be maintained even after creation of new facilities. The proposed ash

- pond area of 278 acres is undulating with presence of two first order natural drains and drain into Hoyamari Hole on its south.
- xxii. Regional Office, Bangalore carried the site visit on 23.6.2016 and provided the certified compliance report.
  - xxiii. Marine EIA has been carried out by NIO, Goa. NIO has recommended for design of sub-marine pipeline leak proof and regular post project monitoring of coolant seawater, etc.
  - xxiv. Considering the expected coal quality with hourly coal firing rate of 832 TPH, a maximum amount of 208 TPH of ash will be generated from the proposed power plant. Out of this, the bottom ash will be about 20% of the total ash generated i.e. 41.6 TPH and the fly ash will be remaining 80% of total ash i.e., 166.4 TPH. It is proposed to utilize 100% of the fly ash generated from the project as per the Fly Ash Notification. All efforts will be made to utilize bottom ash for various purposes. Unused bottom ash will be disposed in the ash pond (278 acres/112.56 ha) through High Concentration Slurry Disposal facility. After the ash pond is abandoned, its area will be reclaimed through tree plantation. HDPE liners will be provided in the ash pond in order to arrest any leaching and seepage of ash pond water into the groundwater table.
  - xxv. Damage distances for the accidental release of hazardous materials (LDO/HSD, H2 cylinder) have been computed. Weather conditions have been selected to accommodate worst case scenarios to get maximum effective distances. Risk Mitigation Measures have been suggested for hazards of heat radiation and toxicity. Further mitigation measures of natural disaster and off site and on site disaster management plans have been suggested.
  - xxvi. Installation of FGD, ESPs with >99.99% efficiency, provision of 275 m height stack for dispersion of gaseous emissions, providing the De-NOx system, dust extraction system, greenbelt development, etc. are the major environment protection measures proposed.
  - xxvii. 180 acres (72.9 ha) out of total land of 730 acres (295.65 ha) for Phase-II (2x800 MW) will be utilized for developing the greenbelt.
  - xxviii. Karnataka State Pollution Control Board has conducted Public Hearing on 10.11.2016 at Paniyooru Durgadevi Higher Primary School, Yelluru, Udupi Taluk and District.
  - xxix. There are about 36 court cases pending for adjudication in various courts. WPs 21439/2005, 2180/2007, 11095/2007, 22933/2012 and 5588/2008 before High Court of Karnataka have been transferred to NGT (Application No. 26/2013, 27/2013, 28/2013, 51/2012 and 29/2013 respectively). Application No. 29/2013 has been disposed of. Remaining cases are pending before NGT. In addition to NGT, there are other matters pending before several other courts and commissions.
  - xxx. Total employment during operation period is 350 and during construction phase is 1,500.
  - xxxi. Total estimated project cost is Rs.11,500 crores. Budget for pollution control measures is Rs. 1,888.55 crores (capital) and Rs.828.51 crores (recurring). Budget for greenbelt is Rs.30.9 crores (Capital) and Rs. 1 Crores (recurring). Funds earmarked for Biological conservation fund is Rs. 1 crores (capital) and Rs. 0.1 crores (recurring). Budget for social welfare measures is Rs.35 crores (capital) and Rs.8 crores (recurring).
  - xxxii. Reply to the Complaint from Janajagrithi Samithi has been submitted. Regarding court cases, PP submitted that several court cases have been clubbed and now under sub-judice before NGT and final judgment is awaited. Regarding following procedure for conducting Public Hearing, PP submitted that Public

Hearing has been conducted by the Dy. Commissioner (DC) and Karnataka Pollution Control Board as per procedure laid down in the EIA Notification, 2006. Public Hearing was a lawful assembly of people under EIA Notification. Section 144 of CrPC empowers the Magistrate to pass an order to prohibit unlawful assembly of four or more people in cases of any apprehended danger. As maintaining the law and order is an administrative matter and purely a domain of the magistrate concerned, date for this PH was decided by the DC of Udupi District and PH was also chaired by him. Videography and attendance register show the presence of over 1,500 people during PH. Videography of PH shows that presiding officer and KSPCB team was providing opportunity to people whoever wanted to speak during Public Hearing. NEERI representative Dr. S.K. Goyal, Head EIRA division, was present in the Public Hearing. Scientists from NIO, Goa and from NIO, Kocchi, who conducted marine EIA were also present. Existing plant has been set up after due Environment Clearance from MoEF&CC. Allegations raised in the complaint regarding existing 2x600 MW plant and its public hearing are under sub-judice in the court. Allegation of “Low wind speed and high wind calms in the area except the monsoon season shall lead to high GLC of pollutants” seems an assumption without data and facts. NEERI predicted GLCs after expansion of the project which are within National Ambient Air Quality Standards. Absolute emissions of SO<sub>2</sub> and NO<sub>x</sub> from stack shall reduce after expansion because of installation of FGD for 100% flue gases and De-NO<sub>x</sub> system. The cooling water and desalination rejects will be discharged through marine outfall, which will have localised and insignificant impacts as studied by NIO.

(5.5.2) Committee deliberated the complaint received from Janajagriti Samithi. Committee suggested NEERI to submit the justification regarding the carrying capacity report submitted earlier vis-a-vis impacts due to proposed expansion project. Committee also noted that there are about 36 court cases which are under adjudication at various courts and some of them are related to environmental issues. NEERI had brought out a report in 1996 that due to various ecological sensitive features of the Region, coal based TPP in the Region would be unsustainable even with installation of FGD as per the direction of the Hon'ble Supreme Court in the matter of Maneka Gandhi Vs Mangalore Power Corporation (Cogentrix),. However, now NEERI is involved in preparation of EIA Report of this TPP and is recommending that it can come up in the same region. It is found to be inconsistency in the scientific conclusion.

(5.5.3) Committee after deliberations, **deferred** the project for submission of following additional information:

- i. Additional land for Proposed Phase-II power project is stated to be non-forest land which has been acquired by KIADB. However, DCF, Kandapura Division vide letter dated 17.2.2017 informed that the Survey nos.16/2F, 16/2F2, 16/2F3, 16/2F5, 17/2F1A, 17/24, 160/2A2A, 160/2A2D and 160/1 in Village Santhuru, Udupi taluk having deemed forest land of about 1.32 ha and attract provisions of Forest (Conservation) Act, 1980. If the said land is part of 730 acres, necessary forest clearance is to be obtained. In case, this land is not acquired, a certificate from DCF shall be obtained stating that the said forest land is not being diverted for the proposed project.

- ii. Details of court cases pending in different Courts/Tribunal should be submitted by the PP as in the format of undertaking in the stamp paper including status of all the court cases.
- iii. As per Ministry's OM dated 1.11.2010, a firm coal linkage between the imported coal supplier and the PP in the form of MoU shall be submitted.
- iv. As mentioned at above para, a logical and scientific explanation is required from the NEERI in support of this project that as to why this project is viable now as earlier NEERI had recommended in their carrying capacity report that due to various ecological sensitive features of the Region, coal based TPP in the Region would be unsustainable even with installation of FGD.
- v. As per the Fly Ash Utilization Notification, fly ash utilization Plan, MoUs with other companies for utilizing fly ash shall be submitted.

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**5.6 2x150 MW (Phase-I) and 2x150 MW (Phase-II) Middling and Coal fine based captive Thermal Power Plant at Village Dongamahua, District Raigarh, Chhattisgarh by M/s JINDAL STEEL & POWER LTD.- reg. Amendment in EC.**

(5.6.1) Project Proponent submitted online application on 7.2.2017 for amendment in EC for change in coal source. PP vide their application and during the presentation inter-alia submitted the following information:

- i. Environment Clearance for setting up of 2x150 MW (Phase-I) Middling and Coal fine based Thermal Power Plant at village Dongamahua, District Raigarh, Chhattisgarh has been accorded vide Ministry's letter dated 31.7.2008. Middlings from the washery as well as coal fines will be used as fuel and will be transported by conveyor. The Sulphur and Ash content in the mixed fuel (middlings and coal fines) shall not exceed 0.5% and 54% respectively.
- ii. Environment Clearance for expansion of existing 2x150 MW (Phase-I) by addition of 2x150 MW (Phase-II) Middlings and Coal fines based Thermal Power Plant at the same location has been accorded vide Ministry's letter dated 9.11.2010. About 4.30 MTPA of middlings and coal fines from captive washery reject from Gare Pelma IV/1 and IV/6 which caters to 85% fuel requirement will be used as fuel. Balance fuel will be obtained from nearby washery. Subsequent amendment has been issued vide Ministry's letter dated 9.1.2012 for restricting Sulphur and ash contents to 0.5% and 54%, respectively.
- iii. These two poser plants cater to the Integrated Steel Plant at Raigarh, Chhattisgarh. The main source of middlings and fines as per EC for the above units was from Captive Coal Mines of JSPL i.e Gare Pelma IV/1 and IV/6.
- iv. However, Gare Pelma IV/1 is inoperational. The washed coal from the Gare Pelma IV/1 is being used in the Sponge Iron Plant/Steel Plant. The middlings and coal fines generated during washed coal are used as fuel for Phase-I and II Power plants.
- v. Due to de-allocation of Gare Pelma IV/1 and other mines, the company is facing difficulties in disposal of unutilised flyash and in sourcing of middlings and coal fines.
- vi. Due to shortage of availability of middlings and coal fines, an amendment in EC (Phase-I and Phase-II) has been issued by Ministry vide letter dated 16.12.2016 for procurement of 0.5 MTPA coal through e-auction for blending with available middlings and coal fines for use in existing power plant and transportation of coal by road from MCL/SECL mines for **a period of four years** and for setting up of 250 TPH Mobile Crusher within the existing project premises.

- vii. In the Phase-I EC, there is no provision for ash dyke. In the phase-II EC, there is a provision of ash dyke. However, CTE/CTO from CECB does not have provision for disposing ash in the dyke. Since 2010, flyash generated from all four units was utilised in backfilling of mine voids of Gare Pelma IV/1 Coal mine. Further, the company has installed flyash brick plant of 2,000 bricks/hr capacity for ash utilisation. However, this plant is able to utilise only a small percentage of total ash generated.
- viii. SECL is not allowing to mix flyash with Overburden for backfilling in its mines despite several requests. The matter is now under judicial consideration and hence sub-judice.
- ix. Due to non-availability of coal fines/middlings, company proposes to use 100% raw coal of 4.18 MTPA at 80% PLF. The raw coal will be procured from Gare Pelma IV/1, IV/2 and IV/3 coal mines, presently being operated by SECL through e-auction held by CIL. The raw coal is also proposed to source from Kulda mines of MCL as per the Coal Linkage won by the Power Plant under CPP Sub-sector.
- x. Estimation of change in emissions of various pollutants have been carried by the company. Emission loads existing Phase-I and II for PM: 32.25 kg/hr & 32.25 kg/hr; SO<sub>2</sub>: 1558.8 kg/hr and 1872 kg/hr and NO<sub>x</sub>: 255.6 kg/hr and 1404 kg/hr. Emission loads proposed Phase-I and II by using raw coal for PM: 32.17 kg/hr & 32.17 kg/hr; SO<sub>2</sub>: 1433.75 kg/hr and 1433.75 kg/hr and NO<sub>x</sub>: 192.99 kg/hr and 192.99kg/hr.
- xi. EC dated 31.7.2008 for Phase-I stipulates that mine sump water shall be used from Gare Pempla IV/1 mine. In this regard, the Phase-I power plant has been operated using mine sump water since its commissioning. However, due to cancellation of allocation of Gare Pelma IV/1 by the Hon'ble Supreme Court, mine sump water is not available. The PP had already obtained permission from Water Resource Department vide letter dated 9.4.2008 for water drawl of 42 MCM/annum from Shivnarayan barrage located at Mahanadi River out of which 13 MCM will be sourced for the Steel Plant and 2x150 MW CPP (Phase-II) for which necessary permission has been obtained.
- xii. It has been placed by the PP that as necessary pipeline has already been laid, drawal of raw water from Mahanadi River may be allowed for 2x150 MW (Phase-I) as because drawl of Mine Sump water is discontinued since deallocation of Gare Pelma IV/1 Mine. As drawl of Mine Sump water from the Gare Pelma IV/1 Mine has been stopped, temporary arrangement of drawl of raw water has been allowed by the Irrigation Department, Water Resources, Chhatishgarh.

(5.6.2) Committee noted that PP requested Ministry to give direction to M/s SECL for utilization of fly ash in the mine voids. However, committee did not find any sufficient reason to recommend for the same.

(5.6.3) Committee noted that permission for withdrawal of water from the Mahanadi river as given by Water Resource department is not adequate. Downstream impacts due to water withdrawal shall be assessed.

(5.6.4) Committee after detailed deliberations and facts presented by the PP, **deferred** the project and sought the following additional information:

- i. Since Project Proponent is not permitted by SECL to dispose fly ash in the mine void, PP has to have firm plan how the flyash would be disposed off, and would come out with a disposal plan.

- ii. If coal source is changing, then PP need to bring out a coal transport plan and its traffic study.
- iii. Environmental impacts on aquatic life, downstream users including fisherman needs due to water withdrawal from Mahanadi River shall be assessed.
- iv. A layout plan of the pipeline from the point of drawal of Mahanadi river to the outlet point be provided alongwith details of water balance.

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**5.7 90 MW Captive Thermal Power Plant at village Vadnagar, Taluka: Kodinar, Dist. Gir Somnath (Erstwhile Junagadh) Gujarat by M/s GUJARAT AMBUJA CEMENT LTD.-reg. Amendment in EC.**

(5.7.1) Project Proponent did not attend the meeting. Accordingly, the committee **deferred** the project.

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**5.8 1x660 MW Super Critical Power Plant at Salboni, District West Medinipur, West Bengal by M/s JSW ENERGY (BENGAL) LTD. -regarding EC.**

(5.8.1) Project Proponent (PP) submitted online application for grant of Environment Clearance on 22.11.2016. Information pertaining to additional information sought has been submitted on 28.3.2017. PP along with their environment consultant M/s Ghosh Bose & Associates (P) Ltd. made the presentation inter-alia submitted the following information:

- i. Terms of Reference (ToR) has been accorded for establishing 1x660 MW Super Critical Power Plant, Villages Salboni, Salika, Hatmari, Gaighata, Kulpheni, Jamebedia, Asansuli, Dist. West Medinipur, West Bengal vide Ministry's letter dated 7.1.2014 which was valid for two years. The validity of ToR has been extended for one more year i.e. till 6.1.2017 for submission of final EIA report.
- ii. Nearest highway is NH-60 at 1 km E, Nearest town is Medinipur which is at 22 km S, Haldia Port is at 120 km S. Palang and Tamal rivers are located at 4.6 km SW and 9 km NE. Nearest railway station is Godapiasai at 4 km S. There are not defence installations and archaeological sites within 15 km radius of the project.
- iii. There are various protected forests located in the study area and proximity to the project site. There are no national parks/ wildlife sanctuaries/protected areas within 10 km radius.
- iv. Proposed plant would be based on supercritical technology. The parameters considered for the proposed project are a) main steam pressure: 242.2 bar, b) Main steam temperature: 565 °C, c) Reheat temperature: 593 °C, d) computed turbine cycle heat rate: 1850 kal/kWh and e) COC:4.
- v. Total land available for the proposed project is 560 acres. Power Plant area consists of 170 acres which includes 33% of green belt. Land outside power plant is 190 acres which consists of land for ash disposal (85 acres), for township (30 acres) and for corridor for ash slurry, raw water pipeline and railway lines (75 acres). An area of 200 acres have been kept for future expansion. The land has already been acquired for the Integrated Steel Plant project. The company has already provided the compensation to the project oustees. No R& R is involved. 90% of the proposed site is barren land and 10% is agriculture land. The land used for the purpose of laying pipeline and railway line is agriculture land. Pipelines will be buried at least 1.0 m below ground and covered. This land will be returned to farmers.
- vi. The annual coal requirement for the proposed project at 85% PLF is 2.2 MTPA. Imported coal is considered as main fuel principally from Indonesia and if the

need arises, from Australia or South Africa for the proposed project. The expected GCV of the imported coal is 5,030 kCal/kg. Annual HFO requirement would be 4,914 m<sup>3</sup> for the purpose of start-up and flame stabilisation. The imported coal would arrive at Haldia Port through the sea route. The coal then would be transported to the Salboni site through the Indian Railway System. Ash and Sulphur content in the imported coal is 12% and 0.8%, respectively.

- vii. Water requirement for the proposed project is 1,980 m<sup>3</sup>/hr (47,520 m<sup>3</sup>/day) and will be met from River Rupnarayan which is located at 80 km from the proposed site. Irrigation and Waterways Department, Govt. of West Bengal has allocated 45 Million gallon of water per day (82 cuses) from River Rupnarayan for the purpose of setting up of 3 MTPA integrated steel plant at Salboni, Dist. Paschim Medinipur vide their letter dated 12.12.2011.
- viii. Baseline data has been collected during December, 2013-March, 2014. Predominant wind direction during the study period is NE. Ambient air quality has been monitored at 4 villages. Results indicated that the values of different air quality parameters are in the range of PM<sub>10</sub>: 60-77 µg/m<sup>3</sup>, PM<sub>2.5</sub>: 33-35 µg/m<sup>3</sup>, SO<sub>2</sub>: BDL of 6.94 µg/m<sup>3</sup>, NO<sub>x</sub>: BDL of 20 µg/m<sup>3</sup>, CO: Not monitored, O<sub>3</sub>: <10 µg/m<sup>3</sup> and Hg: <0.069 20 µg/m<sup>3</sup>. AAQ is within the NAAQM Standards. Average Ambient noise levels during daytime and nighttime ranges between 46.12-53.28 dBA and 40.12-51.23 dBA.
- ix. Three surface water samples have been collected from different ponds at project site, Tamal river and Parang river. The pH ranges between 7.08-7.1 and Total Hardness varies between 30-140 mg/l and is well within limit of 600 mg/l. Chlorides range between 14.41-23.41 mg/l. DO: 5.5-6.4 mg/l; BOD-3-12 mg/l; COD: 9.8-39.2 mg/l. Iron: 1.38-9.23 mg/l. Groundwater samples have been collected from ash pond area and plant site as groundwater is most likely to be affected due to the ash pond leachate phenomena. Iron content in the groundwater samples is varies between 2.2-2.44 mg/l which exceed the permissible limit of IS standards (0.3 mg/l). Soil samples have been collected from three locations.
- x. Total ash generation 0.264 MTPA out of which 20% is bottom ash. The high concentrate slurry disposal system would be provided for ash disposal during emergency conditions. The concentration of ash in the high concentrate slurry would be about 65-70%. This slurry would be pumped by HCSC pumps to ash disposal area. The ash disposal area is provided with LDP/HDPE membrane so as to prevent contamination of groundwater table.
- xi. Public Hearing has been conducted by West Bengal Pollution Control Board on 26.8.2014 at the Salboni Panchayat Samiti Community Hall (Near Durga Mandir), PO & PS – Salboni, Dist. West Medinipur, West Bengal.

(5.8.2) Committee observed that the entire EIA/EMP report has been prepared in the qualitative manner without providing any specific details w.r.t to the project. The EIA report is to be revised based on the following observations as follows:

- i. There is no map or diagram which depicts the project location, land use land cover map, project layout, pipeline routes, railway line, ash pond location, nearby forests, ambient air quality/water samples/soil sample/noise locations, isopleths for predicting incremental ground level concentrations, satellite imagery for land use (NRSA), risk contours, etc shown in the hard copy of the EIA/EMP report.
- ii. Ambient air quality monitoring has been carried at only 4 locations. Surface water quality samples have been collected from three locations and groundwater sampling has been collected at two locations. All the locations are not



- representative. It is difficult to assess the said locations are representative without providing any scientific justification and location maps.
- iii. Baseline monitoring has been initiated in December, 2013 prior to the grant of ToR i.e. on 7.7.2014. Detailed inference of baseline results along with comparison with applicable standards is not provided. NPK values are the indicators of soil quality and its fertility. However, only a few lines regarding Electric conductivity, organic carbon and content are mentioned in the baseline chapter. Baseline data has been collected by various laboratories. The groundwater analysis and soil analysis reports reveal that the sampling and analysis was done in the month of January, 2017 which is after public hearing. It appears that some data and studies pertaining to EIA/EMP have been collected post public hearing. Land use land cover study has been done without procuring NRSA satellite imagery as specified in the ToR. It is mentioned in the compliance report that procurement of NRSA maps are under process.
  - iv. Hydrogeology study only mentions the report submitted by Schlumberger wherein numerous lithological samples (40 samples) have been analysed based on resistivity method to find out depths of various formations including aquifers. About 25 pages of the main EIA report contain graphs and tables of resistivity (Ohm.m) which does not provide any details about groundwater aquifers and flow and should have been annexed to the EIA report.
  - v. Air quality prediction has been done only for SO<sub>2</sub> and NO<sub>2</sub>. However, incremental GLCs have not been predicted for PM.
  - vi. Keshpur branch canal which is passing through the project has been proposed for diversion. However, no details regarding diversion and its impact on surface water regime/catchment area is not provided.
  - vii. There are Schedule-I species in the study area. Wildlife Management plan in consultation with District Forest Department is to be provided.
  - viii. The ESP design is done for 100 mg/Nm<sup>3</sup> for Particulate Matter. However, as per new standards dated 7.12.2015, emission norm for PM is 30 mg/Nm<sup>3</sup>.
  - ix. The EMP/DMP prepared is theoretical without any firm commitments of environment protection measures. There is no financial allocation provided for environment protection measures.
  - x. Risk assessment does not provide any details except the theoretical methodology of radiation standards, etc. The Risk Assessment does not provide the quantitative risk assessment like consequence analysis and frequency analysis along with risk contours.
  - xi. Project Benefits Chapter is not provided in the report whereas it is mandatory chapter as per Generic Structure of EIA report provided in the EIA notification, 2006.
  - xii. Letter of Assurance provided by Equentia natural Resources Pte ltd. dated 9.10.2015 for supplying 3.2 MTPA imported coal is a plain letter. However, an MoU on judicial stamp paper may be submitted. The Govt. of West Bengal letter dated 12.12.2011 for allocation 45 Million Gallon per Day (82 cusecs) from River Rupnarayan is for the purpose of setting up of 3 MTPA integrated steel plant but not for the proposed project. Also, the allocation letter is valid for 60 months for executing water supply agreement which now expired. A fresh allocation letter for the purpose of power plant may be obtained.
  - xiii. The baseline data is more than three years old. The baseline data has been collected in December, 2014 which was prior to issue of ToR i.e. 7.1.2014. A fresh one month baseline data may be collected and a revised EIA/EMP report in compliance with ToRs may be submitted to the West Bengal Pollution Control Board for uploading it on their website for one month for obtaining public

comments/opinions. Newspaper advertisements in both vernacular and English languages shall be given that revised EIA has been uploaded at WBPCB website for providing comments/opinions.

- xiv. A layout plan of the pipeline from the intake point to the outlet point along with water balance to be submitted. Downstream impact from the point of drawal to be provided.
- xv. Analysis of mercury (Hg) in the coal be re-done once again by using modern technique and submitted.
- xvi. Plantation should be raised at the rate of 2,500 saplings per hectre. The tree species should be of local variety having hardened and broad leaves types. Details of plantation to be carried out to be submitted to cover at least 33% of the proposed area. The area which has already been acquired for the future Plant should also be part of the greenbelt development plan.
- xvii. Details of expenditure to be made towards implementation of CSR activities be provided.

(5.8.3) Committee after deliberations **deferred the proposal** for revising the EIA with one month baseline monitoring data as per the observations mentioned at para 5.8.2. The revised EIA shall be submitted to West Bengal Pollution Control Board (WBPCB) for uploading it on their website for one month for obtaining public comments on revised EIA. The revised EIA shall be submitted along with comments received from the general public for further consideration.

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## **5.9 2x250 MW (Phase-II) Thermal Power Plant at village Tamnar, District Raigarh, Chhattisgarh by M/s JINDAL POWER LTD.-reg. amendment in EC.**

- (5.9.1) Project Proponent (PP) submitted online application on 28.3.2017 for amendment of Environment Clearance. PP made the presentation inter-alia submitted the following:
- i. Environment Clearance for setting up of 2x250 MW (Stage-II) Thermal Power Plant at Village Tamnar, Dist. Raigarh, Chhattisgarh has been accorded on 8.6.2006.
  - ii. Specific Condition No. 3(iii) stipulates that “no additional land for ash pond shall be acquired during Phase-II of the project. The height of the existing ash dyke shall be limited to 10 m”.
  - iii. It is proposed to raise the height of the ash dyke from 10 m to 18 m to avoid the acquisition of additional land for disposal of unutilised ash from the power plant. Ash dyke is proposed to raised in two stages of 4 m each. The present elevation of RL 278 m will be raised to RL of 286 m.
  - iv. A detailed construction designing and stability study has been done by M/s L&T Sargent & Lundy Ltd. The report has also been approved by Dept. Of Civil Engineering, IIT Madras. The results of the report show that the factors of Safety for all conditions are well above desired values.
  - v. Submission of Updated Form-1 is not applicable for the proposed amendment sought.
  - vi. Total ash pond area is 198 ha. Ash pond no.1 consists of 118.14 ha of area and ash pond No.2 consists of 79.86 ha of area. The total generation of ash from 4x240 MW and 4x600 MW is 0.412 MCM/month. Total storage capacity after raising of two ash ponds by 8 m is 12.47 MCM. Stability of starter dyke has been checked for additional loading expected from future raisings.

(5.9.2) Committee after deliberations and considering the fact of the proposal as presented by the PP, the **Committee recommended for permission to increase the ash dyke by 4 m** and suggested the following additional conditions:

- i. Recommended to increase the dyke height by 4 m.
- ii. A certificate of compliance of EC condition to the existing Project from the Regional Office is to be submitted.
- iii. Groundwater analysis is to be carried out at the upstream / downstream of the existing fly ash pond by creating a network with the existing wells and installing new piezometers and report be submitted that no leaching is taking place due to fly ash dumping.
- iv. Alternate technology for fly ash utilization such as road making using geopolymer shall be explored with the institutes of national repute.

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**5.10 4x300 MW Thermal Power Plant at village Nandlwade Jaigad, District Ratnagiri, Maharashtra by M/s JSW ENERGY (RATNAGIRI) LTD.-reg.- amendment in EC.**

(5.10.1) Project Proponent submitted online application on 2.2.2017 for amendment in EC for change in coal source. PP vide their application and during the presentation inter-alia submitted the following information.

- i. The Environment Clearance for setting up of 4x300 MW Thermal Power Plant at Jaigad, Dist. Ratnagiri, Maharashtra has been accorded vide Ministry's letter dated 17.5.2007. The additional conditions have been added in the said environment clearance vide Ministry's letter dated 16.4.2010. Another amendment for the said EC has been accorded vide Ministry's letter dated 28.6.2010.
- ii. The plant started its commercial operations in 2011. The EC issued was based on 100% imported coal with ash and sulphur contents are less than 12% and 0.6%. The total imported coal requirement is 4.015 MTPA with GCV of 6,000 kcal/kg. Ash generation from imported coal is 0.4818 MTPA.
- iii. Timely availability of low Sulphur and low ash content quality imported coal is an area of concern due to very limited sources. And there is a wide fluctuation in imported coal prices resulting in issue of sustainability. With the increased availability of domestic coal in the country, coal is being offered to TPPs through Special e-forward auction for regulated sector (Power sector)/spot e-auction and other sale route by subsidiaries of Coal India Ltd such as Mahanadi Coal Fields and Eastern Coal Fields Ltd.
- iv. In order to give the generating companies greater sustainability for supply of domestic coal "special forward E-auction for power producer with flexible lifting validity up to 3 years" notified by CIL vide notice CIL/S&M/Spl E-auction/32 dated 9.1.2017.
- v. It is proposed to increase the total quantity of coal to 5.0 MTPA (Blended: 50% domestic and 50% imported coal) from 4.015 MTPA (100% imported coal). Total ash generation will also increase from 0.48 MTPA to 1.25 MTPA.
- vi. Present arrangement for receipt of imported coal is through Jaigad port which located very close to the plant. There are two streams closed conveyors provided for conveying coal from unloading berth of the port, up to the stock yards and stock yard to bunkers. To minimize the fugitive emissions from the loading of coal, total covered coal shed (104 m x 440 m) is provided.
- vii. Domestic coal will be sourced from Eastern Coal Fields (ECL) Ltd with indicative characteristics of GCV: >5000 kCal/kg, Ash content: 22-30%, Moisture content:

- 6-10%, Sulphur: 0.4-0.6% and from Mahanadi Coal Fields Ltd (MCL/Talcher Coal fields) with indicative characteristic of GCV: >4000 kcal/kg, Ash content: 34%, Moisture content: 7-12%, Sulphur: 0.4-0.5%.
- viii. Coal from ECL will be transported by rail (from Sonepur Bazari siding/Bankola siding/Jhanjra siding/Kajora siding (Jambod OCP)) up to Paradeep /Dhamra port. Thereafter, the coal will be brought to Jaigad port through sea route.
  - ix. Coal from MCL will be transported by rail (from Balram siding, Jaggannath siding, Bhubaneswari siding and any other siding designated by ECL) up to Paradeep/Dhamra port. Subsequently, the coal will be brought to Jaigad port through sea route.
  - x. The proposed plant is situated next to port area. The existing conveying and storage facilities are sufficient and will be used for handling of domestic coal.
  - xi. Due to proposed amendment, there is no increase in water and land requirement. 100% flyash utilisation will be achieved as the agreements with several cement industries/ RMC plants/flyash traders and exporters have been made.
  - xii. Pollution loads at present stage is PM: 209 kg/hr; SO<sub>2</sub>: 2231 kg/hr and NO<sub>x</sub>: 1710 kg/hr. Estimated pollution loads due change in coal source is PM: 229 kg/hr; SO<sub>2</sub>: 2446 kg/hr and NO<sub>x</sub>: 1875 kg/hr. There is an increase of about 9.6% from the existing pollution loads. Net increase in GLCs are in the range of for PM: 0.1 Incremental GLCs for PM: 0.1 µg/m<sup>3</sup>, SO<sub>2</sub>: 0.7-1.3 µg/m<sup>3</sup> and NO<sub>x</sub>: 0.4-1.0 µg/m<sup>3</sup>. Other impacts on land, fugitive emissions, road traffic, etc. have been estimated. The study reveals that the proposed project would not have much significant impact on the environment.

(5.10.2) Committee after deliberations and considering the fact of the proposal as presented by the PP, the **recommended for permission for change of fuel from 100% imported coal to 50% imported and 50% domestic coal** which is to be procured through e-auction. The committee suggested the following additional conditions:

- i. Extraction of Cenospheres from the Fly Ash is to be explored.
- ii. In case any STPs are located within 50 km distance from the proposed Project then the treated water from the STPs shall be used in the plant.
- iii. Plantation should be raised at the rate of 2,500 saplings per hectare. The tree species should be of local variety having hardened and broad leaves types. Plantation be preferred by using 2 years old seedlings than new seedlings for better survival of plantation.
- iv. Domestic coal will be sourced from Eastern Coal Fields (ECL) Ltd with indicative coal characteristics of GCV: >5,000 kCal/kg, Ash content: 22-30%, Moisture content: 6-10%, Sulphur: 0.4-0.6% and from Mahanadi Coal Fields Ltd (MCL/Talcher Coal fields) with indicative coal characteristic of GCV: >4000 kcal/kg, Ash content: 34%, Moisture content: 7-12%, Sulphur: 0.4-0.5%.
- v. Coal from ECL will be transported by rail (from Sonepur Bazari siding/Bankola siding/Jhanjra siding/Kajora siding (Jambad OCP)) up to Paradeep /Dhamra port. Thereafter, the coal will be brought to Jaigad port through sea route. Similarly, coal from MCL, Talcher would be brought to Paradeep/Dhamra port and therefore sea route to Jaigad port.
- vi. The preventive health programme be preferred than the curative health programme such as nutrition development of kids of the girl child be taken up in the area to minimize health problems among the local people as a part of CSR activities.

- vii. Modern means of agriculture be introduced in and around the Project area as part of CSR activities. Mixed type of irrigation, i.e. flood irrigation /micro irrigation be taken up in the area using organic farming as a part of a long term livelihood training programme.
- viii. As a part of CSR, water supply provisions shall be made for all the bio toilets under Swachh Bharat Abhiyan.

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**5.11 1x660 MW Coal Based Supercritical Panki Extension Power Project at Panki, District Kanpur, Uttar Pradesh by M/s UTTAR PRADESH RAJYA VIDYUT UTPADAN NIGAM LIMITED-reg. reconsideration of EC.**

- (5.11.1) The proposal for grant of Environment Clearance has been considered by the EAC in its 57<sup>th</sup> meeting held during 16-17<sup>th</sup> July, 2016. EAC after deliberations suggested to explore alternate electricity generation options (Gas based/Solar, etc.) in the proposed location considering the Kanpur (including Panki) is existing critically polluted area and presence of dense population surrounding the plant site etc. The EAC also advised the PP to explore alternative locations for the proposed coal based TPP as it would not be possible for it to consider the presently proposed location.
- (5.11.2) The proposal was re-considered in the 1<sup>st</sup> meeting of re-constituted EAC held on 28.12.2016. A sub-committee has been constituted for making site visit to assess the environmental impacts and submissions made by the Project Proponent.
- (5.11.3) A site visit has been made by the sub-committee on 17.3.2017. A detailed site visit report is appended to the minutes as **Annexure-A3**. The recommendations of the sub-committee are as follows:
  - i. Relocation of proposed ash silo to a place relatively away from the Panchmukhi Hanuman Temple.
  - ii. Water balance of the project, details of rail connection available and further new infrastructures to be constructed.
  - iii. Details of power evacuation system available and to be constructed.
  - iv. Ash utilisation details as per Fly ash notification, 2016.
  - v. A commitment regarding phasing out the old units and replacement with new unit.
  - vi. The existing infrastructure available may be optimized and reused during implementation of the proposed unit.
  - vii. A greenbelt plan all around the project periphery in 3-tier system with indigenous specie should be planned so that the habitations existing around the project area shall not be affected.
  - viii. The committee is of the view that in case the existing power plant is phased out in a time bound manner and the proposed project is implemented, the incremental pollution load should meet the Ministry's Notification dated 7.12.2015. Implementation of the proposed Project may be considered keeping in view the investment made, utilisation of existing infrastructure, possible increase in power demand and also employment generation.
- (5.11.4) Committee after detailed deliberations, considering the facts of the project and also considering the complaints received by the Ministry, **recommended for grant of Environmental Clearance** subject to submission following information **in addition to the specific conditions pertaining to Thermal Power Projects mentioned at Annexure-A2:**

- i. Point-wise reply to the recommendation of the site visit of the Sub-committee is to be submitted.
- ii. In case any STPs are located within 50 km distance from the proposed Project then the treated water from the STPs shall be used in the plant.
- iii. Plantation should be raised at the rate of 2,500 saplings per hectre. The tree species should be of local variety having hardened and broad leaves types. Plantation be preferred by using 2 years old seedlings than new seedlings for better survival of plantation.
- iv. Alternate technology may be explored for utilization of fly ash such as road making, etc. by using geo-polymer based technology.
- v. Skill mapping of the Project Affected People (PAF) be carried out on a long-term basis for their livelihood generation. A report is to be submitted within 3 months to the Ministry from the date of issuance of environmental clearance.
- vi. Modern methods of agriculture organic forming, compost/vermiculture making and utilization, drip/direct to root irrigation) to be promoted in and around the Project area.
- vii. Details of expenditure made towards implementation of CSR activity be provided.
- viii. While implementing CSR,
  - Women empowerment is important. Therefore, proper skill based training/long term livelihood revenue generation be created for all them.
  - Computer facilities may be provided in the school along with a trained computer teacher to inculcate computer skill among the youths.
  - Water supply provisions shall be made for all the bio-toilets under Swachh Bharat Abhiyan.
  - Preventive health programme may be preferred than the curative health programme such as nutritional development of small children.

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#### **5.12 ANY OTHER ITEM WITH THE PERMISSION OF THE CHAIR.**

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

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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& CC 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 of the upwind direction, pre-dominant downwind

direction, other dominant directions, habitation and sensitive receptors. There should be at least one monitoring station each in the upwind and in the pre-dominant downwind direction at a location where maximum ground level concentration is likely to occur.

- xxxix) In case of expansion project, air quality monitoring data of 104 observations a year for relevant parameters at air quality monitoring stations as identified/stipulated shall be submitted to assess for compliance of AAQ Standards (annual average as well as 24 hrs).
- xl) A list of industries existing and proposed in the study area shall be furnished.
- xli) Cumulative impacts of all sources of emissions including handling and transportation of existing and proposed projects on the environment of the area shall be assessed in detail. Details of the Model used and the input data used for modeling shall also be provided. The air quality contours should be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any. The windrose and isopleths should also be shown on the location map. The cumulative study should also include impacts on water, soil and socio-economics.
- xliv) Radio activity and heavy metal contents of coal to be sourced shall be examined and submitted along with laboratory reports.
- xlvi) Fuel analysis shall be provided. Details of auxiliary fuel, if any, including its quantity, quality, storage etc should also be furnished.
- xlviii) 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
- xlvi) 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.
- xlvii) 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.
- xlviii) Details regarding infrastructure facilities such as sanitation, fuel, restrooms, medical facilities, safety during construction phase etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase should be adequately catered for and details furnished.
- xlvi) EMP to mitigate the adverse impacts due to the project along with item - wise cost of its implementation in a time bound manner shall be specified.
- xlix) A Disaster Management Plan (DMP) along with risk assessment study including fire and explosion issues due to storage and use of fuel should be carried out. It should take into account the maximum inventory of storage at site at any point of time. The risk contours should be plotted on the plant layout map clearly showing which of the proposed activities would be affected in case of an accident taking place. Based on the same, proposed safeguard measures should be provided. Measures to guard against fire hazards should also be invariably provided. Mock drills shall be suitably carried out from time to time to check the efficiency of the plans drawn.
- l) The DMP so formulated shall include measures against likely Fires/Tsunami/Cyclones/Storm Surges/Earthquakes etc, as applicable. It shall be ensured that DMP consists of both On-site and Off-site plans, complete with details of containing likely disaster and shall specifically mention personnel identified for the

task. Smaller version of the plan for different possible disasters shall be prepared both in English and local languages and circulated widely.

- li) Detailed scheme for raising green belt of native species of appropriate width (50 to 100 m) and consisting of at least 3 tiers around plant boundary with tree density of 2000 to 2500 trees per ha with a good survival rate of around 80% shall be submitted. Photographic evidence must be created and submitted periodically including NRSA reports in case of expansion projects. A shrub layer beneath tree layer would serve as an effective sieve for dust and sink for 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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**Specific Conditions related to Thermal Power Projects:**

- (i) Vision document specifying prospective plan for the site shall be formulated and submitted to the Regional Office of the Ministry within **six months**.
- (ii) Harnessing solar power within the premises of the plant particularly at available roof tops shall be carried out and status of implementation including actual generation of solar power shall be submitted along with half yearly monitoring report.
- (iii) A long term study of radio activity and heavy metals contents on coal to be used shall be carried out through a reputed institute and results thereof analyzed every two year and reported along with monitoring reports. Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.
- (iv) Online continuous monitoring system for stack emission, ambient air and effluent shall be installed.
- (v) High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 30 mg/Nm<sup>3</sup> or as would be notified by the Ministry, whichever is stringent. 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 along with an environment friendly sludge disposal system.
- (vi) 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.
- (vii) Monitoring of surface water quantity and quality shall also be regularly conducted and records maintained. The monitored data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall also be undertaken and results/findings submitted along with half yearly monitoring report.
- (viii) A well designed rain water harvesting system shall be put in place within six months, which shall comprise of rain water collection from the built up and open area in the plant premises and detailed record kept of the quantity of water harvested every year and its use.
- (ix) 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.
- (x) Additional soil for leveling of the proposed site shall be generated within the sites (to the extent possible) so that natural drainage system of the area is protected and improved.
- (xi) Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Mercury and other heavy metals (As, Hg, Cr, Pb etc.) shall be monitored in the bottom ash. No ash shall be disposed off in low lying area.
- (xii) No mine void filling will be undertaken as an option for ash utilization without adequate lining of mine with suitable media such that no leachate shall take place at any point of time. In case, the option of mine void filling is to be adopted, prior detailed study of soil characteristics of the mine area shall be undertaken from an institute of repute and adequate clay lining shall be ascertained by the State Pollution Control Board and implementation done in close co-ordination with the State Pollution Control Board.

- (xiii) 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 shall be mitigated and suitable compensation provided in consultation with the local Panchayat.
- (xiv) Green Belt consisting of three tiers of plantations of native species all around plant and at least 50 m width shall be raised. Wherever 50 m width is not feasible a 20 m width shall be raised and adequate justification shall be submitted to the Ministry. Tree density shall not be less than 2500 per ha with survival rate not less than 80 %.
- (xv) Green belt shall also be developed around the Ash Pond over and above the Green Belt around the plant boundary.
- (xvi) The project proponent shall formulate a well laid Corporate Environment Policy and identify and designate responsible officers at all levels of its hierarchy for ensuring adherence to the policy and compliance with the conditions stipulated in this clearance letter and other applicable environmental laws and regulations.
- (xvii) CSR schemes identified based on need based assessment shall be implemented in consultation with the village Panchayat and the District Administration starting from the development of project itself. As part of CSR prior identification of local employable youth and eventual employment in the project after imparting relevant training shall be also undertaken. Company shall provide separate budget for community development activities and income generating programmes.
- (xviii) For proper and periodic monitoring of CSR activities, a CSR committee or a Social Audit committee or a suitable credible external agency shall be appointed. CSR activities shall also be evaluated by an independent external agency. This evaluation shall be both concurrent and final.

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**SITE VISIT OF THE SUB-COMMITTEE TO 1x660 MW COAL BASED SUPERCRITICAL PANKI EXTENSION POWER PROJECT AT PANKI, DISTRICT KANPUR, UTTAR PRADESH BY M/s UTTAR PRADESH RAJYA VIDYUT UTPADAN NIGAM LIMITED (UPRVNL)**

During the meeting of Expert Appraisal Committee (Thermal Power Sector) held on 16 -17 June, 2016, EAC observed that –

“....despite the fact that the proposed expansion would have relatively lesser impacts in comparison to the existing old TPP, considering that Kanpur (including Panki) is existing *critically polluted area* and presence of dense population surrounding the plant site, etc. The EAC is of the view that the PP may explore alternate electricity generation options (Gas based/Solar, etc.) in the proposed location. The EAC also advised the PP to explore alternative locations for the proposed coal based TPP as it would not be possible for it to consider the presently proposed location. In addition, the EAC recommended that the MoEF&CC should ask the CPCB and SPCB to take immediate action to ensure that the existing TPP is complying to the emission & effluent standards”.

Subsequently, a request also was received from the Chairman, UPRVNL, Lucknow requesting that the EAC/MoEF&CC re-consider the case for grant of EC for the proposed 1x660 MW coal based supercritical unit Panki Project (Kanpur) in the larger interest of the people of the power-starved state of UP. As already a good amount has been spent on the same and made earnest efforts to comply with the conditions of the TOR prescribed by MoEF&CC. UPRVNL has also agreed to ensure full compliance with other/additional conditions, as may deem fit.

The above request was placed before the Hon'ble Minister with a request for reconsideration. The Competent Authority approved to constitute a Sub-Committee, comprising of members who would inspect the site to address the issues raised by Govt. of U.P, environmental impacts and issues related to de-commissioning of existing plant, environmental compliance and alternate locations.

Sl. No.	Name	Designation	Organization
1.	Dr. Navin Chandra	Chairman	EAC (Thermal Sector)
2.	Dr. S.K. Paliwal	Scientist "D"	CPCB, New Delhi
3.	Shri N.S. Mondal	Director	CEA, New Delhi
4.	Dr. Mohd. Sikander	Regional Officer	RO, UPSPCB, Kanpur
5.	Dr. S.K. Lal	Scientist "C"	RO, MoEF&CC, Lucknow
6.	Dr. S. Kerketta	Director	MoEF & CC, New Delhi

The committee also suggested that Dr. S. Kerketta, Director and also Member Secretary of EAC would co-ordinate with the Ministry's Regional Office as well as UPSPCB for nominating a member to the Sub-committee and he would be a Nodal Officer for the site inspection and submission of the recommendations.

Earlier, the Project Proponent furnished that as there is acute shortage of natural gas in the Country and imported LNG is very expensive. Further, solar based power plant with a capacity of 110 MW can only be set up at the proposed location which will not meet the present energy requirement of the State. Land and other facilities for setting up of Power



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Project are readily available now. To explore the possibility to consider the same location i.e. at the existing site for the proposed Power Project, the Sub-committee visited the Project site on 17 March, 2017.

Dr. Mohd. Siknder could not join the Sub-committee due to pre-occupation and in his place Dr. A.K. Mathur, Asst. Environmental Engineer had joined the team. Dr. S.K. Lal, Scientist "C", RO, MoEF&CC, Lucknow could not be present during the visit of the Sub Committee due to preoccupation.

A Power Point presentation was made by the Project Proponent along with Consultant PCRA to assess the environment *viability* of the proposed 1x660 MW coal based Supercritical Panki Extension Power Project at Panki, District Kanpur, Uttar Pradesh. Discussion was held with the members of the Sub-committee on the above issue and the Project Proponent explained with best satisfaction of the Members.

Then the Sub-committee visited the site along with the officials of the Project. During the site visit Units like Coal Handling Plant, Project Site, ETP, STP, Ash Pond area, proposed FGD plant and nearby villages outside the Project area were visited. After detailed deliberations with the PP, the Sub-committee suggested the following:


1. Relocation of proposed ash silo to a place relatively away from the Panchmukhi Hanuman temple;
2. Water balance of the Project, details of rail connection available and further new infrastructures to be constructed;
3. Details of power evacuation system available and to be constructed.
4. Ash utilization details as per Fly Ash Notification, 2016.
5. A commitment regarding phasing out the old units and replacement with new unit.
6. The existing infrastructure available may be optimized and reused during implementation of the proposed unit.
7. A greenbelt plant all around the project periphery in 3-tier system with indigenous species should be planned so that the habitations existing around the project area shall not be affected.

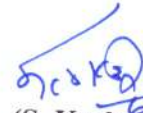
The Committee is of the view that in case the existing power plant is phased out in a time bound manner and the proposed project is implemented, the incremental pollution load should meet the Ministry's Notification dated 07.12.2015. Implementation of the proposed Project may be considered keeping in view the investment made, utilization of existing infrastructures, possible increase in power demand and also employment generation.


Some photographs of the site visit are enclosed along with individual captions.

  
06/04/17  
(A.K. Mathur)  
Member

  
(S.K. Paliwal)  
Member

  
(N.S. Mondal)  
Member

  
06/04/2017  
(S. Kerketta)  
Member

  
(Navin Chandra)  
Chairman

PHOTOGRAPHS (SLIDE 1)



Meeting of Sub-Committee with the PP



Meeting of Sub-Committee with the PP



Meeting of Sub-Committee with the PP

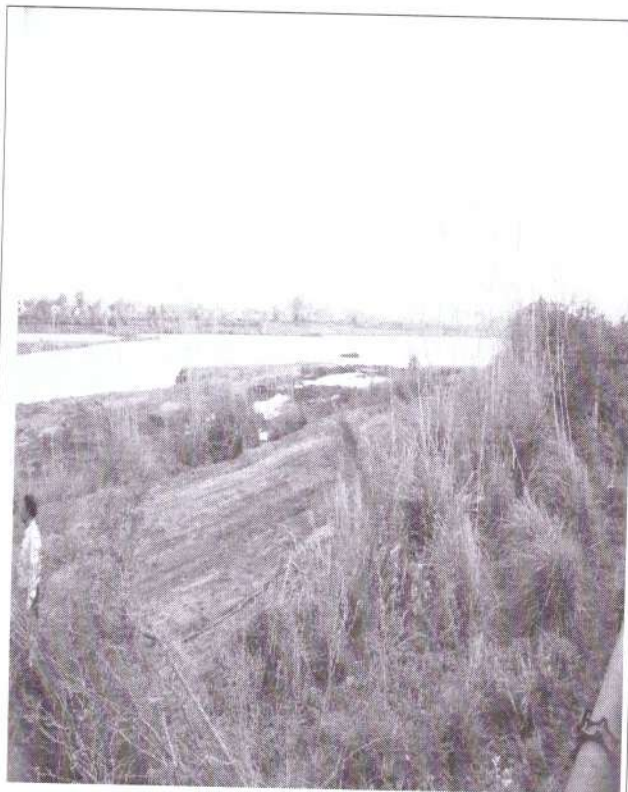


Ash Water Recirculation Facility

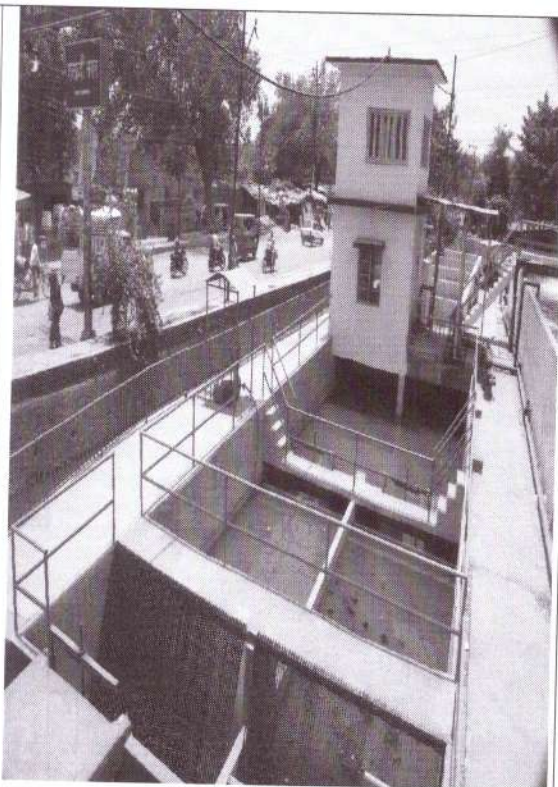
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PHOTOGRAPHS (SLIDE 2)



Ash Pond Area



Ash water recirculation facility



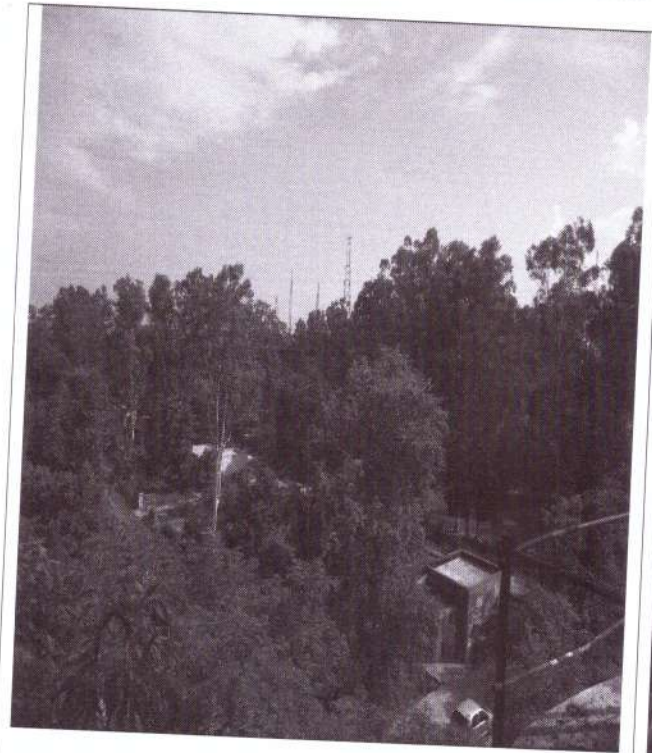
Plantation at Ash Pond area



Plantation at Ash Pond area

*ndw*

PHOTOGRAPHS (SLIDE 3)



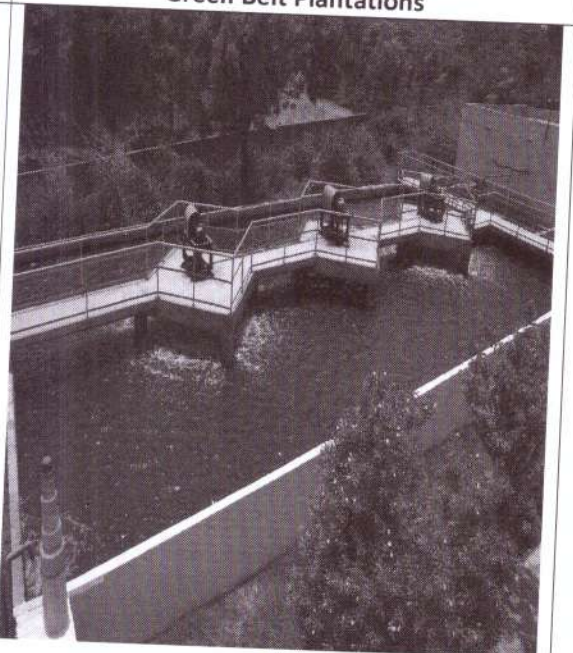
Green Belt plantations



Green Belt Plantations



Sewerage Treatment Plant



Sewerage Treatment Plant

*John*



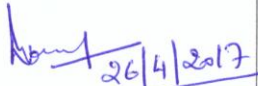
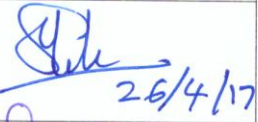
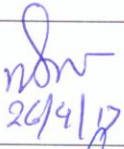
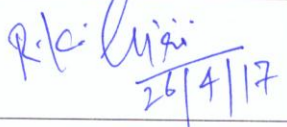
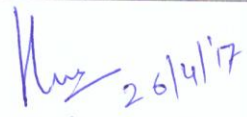
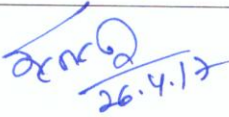
Attendance of the 5<sup>th</sup> EAC Meeting of the Re-constituted Expert Appraisal Committee (EAC) for Thermal Power Projects Meeting held on 26<sup>th</sup> April, 2017.

LIST OF MEMBERS (Attendance Sheet)

5<sup>th</sup> EXPERT APPRAISAL COMMITTEE MEETING (Thermal Sector)

DATE & TIME : 26<sup>th</sup> April 2017

VENUE : BRAHPUTRA CONFERENCE HALL, VAYU WING,  
INDIRA PARYAVARAN BHAWAN.

Sr.No.	Name of Member	Signature
1.	Dr. Navin Chandra Chairman	
2.	Dr. Narmada Prasad Shukla Member	
3.	Dr. Rajesh P. Gunaga Member	Absent
4.	Sh. N. Mohan Karnat, IFS Member	
5.	Dr. Sharachchandra Lele Member	
6.	<del>Sh. P.D. Siwal</del> / Sh. N.S. Mondal Representative of CEA	
7.	Dr. R.K. Giri, Scientist 'E' Representative IMD	
8.	Dr. S.K. Paliwal, Scientist 'D' Representative of CPCB	Absent
9.	Prof. D.C. Panigrahi/ Prof. S.K. Sinha/ Prof. OM PRAKASH Representative of IIT (ISM) Dhanbad	
10.	Dr. S. Kerketta Member Secretary MoEFCC	

Approval of Minutes of the 5<sup>th</sup> Meeting of the Re-constituted Expert Appraisal Committee (EAC) on Environmental Impact Assessment (EIA) of Thermal Power Projects by the Chairman.

5/15/2017

[https://mail.gov.in/iwc\\_static/layout/shell.html?lang=en&3.0.1.2.0\\_15121607](https://mail.gov.in/iwc_static/layout/shell.html?lang=en&3.0.1.2.0_15121607)

Subject: Fw: Re: Minutes of 5th meeting of thermal committee Corrected on 15.06.2017

Date: 05/15/17 01:52 PM

From: navin chandra <navinchandrarr1@yahoo.com>

To: "Dr S. Kerketta" <s.kerketta66@gov.in>,  
"Dr. S. Kerketta" <suna1466@rediffmail.com>

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15.06.2017 corrected 5th\_MoM\_EAC\_\_Thermal\_26.4.201... (222kB)

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----- Forwarded Message -----

**From:** navin chandra <navinchandrarr1@yahoo.com>

**To:** Dr S Kerketta <s.kerketta66@gov.in>

**Sent:** Monday, May 15, 2017, 1:50:40 PM GMT+5:30

**Subject:** Re: Minutes of 5th meeting of thermal committee Corrected on 15.06.2017

15.09.2017.

Dear Dr. Kerketta Ji,

I have gone through the minutes of 5th meeting of Thermal Committee sent by you today. The corrected is attached with this e-mail. You can upload it at website of the ministry after approval from competent authority.

(NAVIN CHANDRA)

Chairman, EAC (Coal and Thermal), MoEF&CC (GOI)

On Monday, May 15, 2017, 1:18:39 PM GMT+5:30, Dr S Kerketta <s.kerketta66@gov.in> wrote:  
Sir,

Resubmitted the draft minutes of 5th EAC meeting of Thermal Sector for perusal and approval please.

--  
regards,

Dr. S. Kerketta  
Director- IA (Thermal, River Valley & HEP)  
MoEF&CC, New Delhi  
Phone: 011-24695314 (O), 26113096 (R)

**5<sup>th</sup> MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE ON  
THERMAL POWER PROJECTS**

**DATE : 26<sup>th</sup> April, 2017**

**TIME : 10.30 A.M. ONWARDS**

**VENUE : TEESTA MEETING HALL, VAYU WING, FIRST FLOOR, INDIRA PARYAVARAN  
BHAWAN, JORBAGH ROAD, NEW DELHI-110003.**

**AGENDA**

<b>ITEM</b>	
<b>26.04.2017</b>	
<b>Item No. 5.0</b>	<b>CONFIRMATION OF MINUTES OF 4<sup>th</sup> EAC (Thermal) MEETING</b>
<b>Item No.</b>	<b>CONSIDERATION OF PROJECTS</b>
5.1	5x800 MW Super Critical Coal Based Thermal Power Project at Veerlapalem Village, Damaracherla Mandal, District Nalgonda, Telangana State by <b>M/s TELENGANA STATE POWER GENERATION CORPORATION LTD. (TSGENCO) – reg. reconsideration of EC.</b>
5.2	2x525 MW Coal Based Thermal Power Plant at village Malibrahamani, Chendipada Block in Angul Dist., Odisha by <b>M/s MONNET POWER COMPANY LTD.- reg. extension of validity of EC.</b>
5.3	3x800 MW Super-Critical TPP at village Annupurna Khamar, Taluk Kamakhyanagar, Dhenkenal Distt., Odisha by <b>M/s. ODISHA THERMAL POWER CORPORATION LTD.- reg. EC.</b>
5.4	Expansion by addition of 1x250 MW Lignite Based Barsingsagar Thermal Power Plant at village Barsingsar, Kolayat Taluk, Bikaner District, Rajasthan by <b>M/s NLC INDIA LTD.-reg.-extension of validity of EC.</b>
5.5	Expansion by addition of 2x800 MW (Phase-II) Coal based Thermal Power Plant at Padubidri Industrial Area in village Yellure and Santhra, Tehsil & District Udupi, Karnataka by <b>M/s UDUPI POWER CORPORATION LTD.- reg. EC.</b>
5.6	2x150 MW (Phase-I) and 2x150 MW (Phase-II) Middling and Coal fine based captive Thermal Power Plant at Village Dongamahua, District Raigarh, Chhattisgarh by <b>M/s JINDAL STEEL &amp; POWER LTD.- reg. Amendment in EC.</b>
5.7	90 MW Captive Thermal Power Plant at village Vadnagar, Taluka: Kodinar, Dist. Gir Somnath (Erstwhile Junagadh) Gujarat by <b>M/s GUJARAT AMBUJA CEMENT LTD.-reg. Amendment in EC.</b>
5.8	1x660 MW Super Critical Power Plant at Salboni, District West Medinipur, West Bengal by <b>M/s JSW ENERGY (BENGAL) LTD. -reg. EC</b>
5.9	2x250 MW (Phase II) Thermal Power Plant at village Tamnar, District Raigarh, Chhattisgarh by <b>M/s JINDAL POWER LTD.-reg. amendment in EC.</b>
5.10	4x300 MW Thermal Power Plant at village Nandlwade Jaigad, District Ratnagiri, Maharashtra by <b>M/s JSW ENERGY (RATNAGIRI) LTD.-reg.- amendment in EC.</b>
5.11	1x660 MW Coal Based Supercritical Panki Extension Power Project at Panki, District Kanpur, Uttar Pradesh by <b>M/s UTTAR PRADESH RAJYA VIDYUT UTPADAN NIGAM LIMITED-reg. reconsideration of EC.</b>
5.12	<b>ANY OTHER ITEM WITH THE PERMISSION OF THE CHAIR.</b>