

MINUTES OF THE 3rd MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE (EAC) ON ENVIRONMENTAL IMPACT ASSESSMENT (EIA) OF THERMAL POWER PROJECTS

The 3rd Meeting of the reconstituted EAC (Thermal Power) was held on 14th February, 2017 in the Ministry of Environment, Forest & Climate Change at Brahmaputra 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:

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| 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. S.K. Paliwal | - | Member (Representative of CPCB) |
| 7. | Dr. S. Kerketta | - | Member Secretary |

Dr. Rajesh P. Gunaga, Dr. R. K. Giri (Representative of IMD) and Professor D. C. Panigrahi (Representative of ISM Dhanbad) could not be present.

Item No.3.0 : CONFIRMATION OF THE MINUTES OF THE 60th EAC MEETING.

The Minutes of the 2nd EAC (Thermal Power) Meeting held on 20th January, 2017 were confirmed.

Item No. 3: CONSIDERATION OF PROJECTS

3.1 1x700 MW Coal Based Thermal Power Plant at Village Kudatini, in Bellary Taluk & District in Karnataka by M/s Karnataka Power Corporation Ltd.- reg. extension of validity of EC

(3.1.1) Project Proponent (PP) did not attend the meeting. Thus, the project is **deferred**.

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3.2 4x660 MW, Stage-I, Barethi Super Thermal Power Project near village Barethi, Tehsil Rajnagar, District Chhatarpur, Madhya Pradesh by M/s NTPC Ltd.- reg. reconsideration for EC.

(3.2.1) The proposal was earlier appraised by the EAC in its 36th, 57th and 63rd Meetings held during 19-20th May, 2015, 16-17th June, 2016 and 29-30th August, 2016 respectively. EAC in its 63rd Meeting held during 29-30th August, 2016 sought additional information regarding no further expansion, feasibility study for setting up of non-conventional power plants within six months, NBWL recommendations, details of water withdrawal, effluent treatment, construction of holding tank for storm water and monitoring of storm water outlet, fugitive emissions and prediction of air quality, revision of sulphur balance, justification for assumption of 95% sulphur emissions, reply to eRC representation dated 28.08.2016.

(3.2.2) PP vide their letter dated 03.01.2017 submitted the reply to the additional details sought by EAC. PP made presentation along with their environment consultant EMTRC Consultant Pvt. Ltd. inter-alia submitted the following information:

- i. No future expansion is envisaged at the site. Feasibility of installation of various options for non-conventional power plants in the area will be explored under Stage-II. Area proposed for Stage-II shall be utilised for rain water harvesting.
- ii. Shyamri stream and Bada nala stream are monsoon fed streams carrying sufficient rain water during monsoon season and are dry during non-monsoon season. At present most of the agriculture in the proposed project area is rainfed having very low per unit yield and poor agriculture intensity. Practically, there is no flow in Shyamri stream and Bada Nallah stream in lean season. Water Resources Department, Sagar M.P. letter dated 15.02.2013 mentions that Shyamri river and Bada Nalla on which Shyamri and Majhgaon projects are proposed are not perennial and do not have any flow during lean period (Jan to May). Thus both the projects do not involve release of any lean season flow as required for international consideration. Office of the Executive Engineer Bariyarpur L.C. Division No.2 Chhatarpur (M.P.) letter dated 29.9.2016 allots storage and utilisation of 40.0 MCM water for NTPC requirement from Shyamri Medium project. Also, the said letter mentions that Shyamri river is not perennial river and runs only for three months. Water Resource Department Panna, M.P letter dated 16.09.2016 also provides allocation of 40 MCM from Majhgaon Medium Project constructed on Bada nallah which is the tributary of Ken river. The said letter also states that the Bada nallah is seasonal and non-perennial which flows only during monsoon. However, minimum flow of 1.24 MCM from Shyamri dam and 4.21 MCM from Majhgaon dam will be released in the downstream for sustenance of the aquatic fauna and flora.
- iii. Storm water drains except for the specific areas where treatment is done for reuse are not allowed to mix with plant/process effluents. Monitoring of storm water at the outlet point is not envisaged. Storm water will be discharged into the nallah outside the plant premises. Construction of separate storm water holding tank may not be required.
- iv. Fugitive emissions are anticipated at coal handling, limestone handling, Gypsum handling and flyash handling areas. Incremental ground level concentration of 18.8 $\mu\text{g}/\text{m}^3$ for PM10 has been predicted during winter season. Baseline value is 56 $\mu\text{g}/\text{m}^3$. Total Ground level concentration is 74.8 $\mu\text{g}/\text{m}^3$ for PM10. Mitigation measures such as installation of adequate water sprinklers at unloading points, stacking and reclaiming points, keeping the coal stock yard moist all the time, handling and loading of Gypsum in wet condition, installation of bag filters at coal mill and limestone crusher, pneumatic evacuation of flyash from ESP hopper and storage in silos, covering all conveyors, installation of adequate dust extraction/suppression systems at coal and lime handling plant and stockyards, transfer points and dust prone areas, developing greenbelt, asphalt/concrete roads within the plant area shall be implemented to control fugitive dust emissions.
- v. Sulphur balance has been revised. 2.816 T/hr of SO₂ is generated from boiler at 0.4% Sulphur content. 95% of SO₂ emissions are through stack and 5% is through ash. FGD will be installed to bring down the SO₂ emissions 0.2413 T/h (100 mg/Nm³) through stack. 2.434 T/h of Gypsum is generated. Assumption of 95% of Sulphur emissions from stack is based on USEPA, AP-42-Compilation of Air Pollutant Emission Factors.
- vi. Total number of hours of plant operation at 90% Plant Load Factor is considered approx.7884 and the annual coal requirement is 11.0 MTPA which is 352 tonnes/hr/unit.
- vii. Reply to eRC representation has been submitted. Banai coal block, Chhattisgarh has been allocated for the proposed project. Bridge linkage has been accorded from SECL coal mines (80% from Korba/Raigarh fields and 20% from Korea Rewa fields) till the Banai coal block becomes operational. Tentative Coal analysis reports of G-10 and G-11 coal are made available. Ash content ranges between 36.01-38.96%. Revised plant layout keeping 33% greenbelt has been submitted.

(3.2.3) Committee noted that validity of the accreditation of the environment consultant EMTRC Constants has expired now. However, they have valid accreditation certificate during the EIA/EMP study period. Accordingly, Project Proponent was allowed to present the project details. Committee noted that water is not available in the area during lean season (Jan-May) in both Shyamri stream and Bada nalla. Project is designed for 75% of the water dependability. The plant will be literally shut down for three months a year due to water scarcity. Also the region including Bundelkhand is water scarce area with very low rain-fall. Reasonable rainfall was observed only during 2016. Sustainability of the downstream areas due to water withdrawal for the proposed project is to be studied. Total fugitive emissions for PM10 predicted during winter season are 74.8 µg/m³. The concentrations are likely to increase during summer. Coal characteristics of Banai coal which was allotted for the proposed project is not made available. Prediction of air quality modelling based on the characteristics of coal from Banai coal block or the characteristics of coal from the bridge linkage is not carried out. PP could not provide the justification how the ash content will be brought down to less than 34%.

(3.2.4) Committee after detailed deliberations sought the following additional information and accordingly **deferred** the proposal.

- i. Eco-hydrology study of dams, impact of aquatic ecology, and agriculture in the downstream due to proposed water withdrawal shall be carried out by an Institute of National Repute. The design of project shall be based on 90% of the water dependability instead of 75%.
- ii. Characterisation and analysis of storm water sludge. Justification for not proposing monitoring of storm water outlet and not installing holding tank for storm water shall be provided. Disposal plan for storm water sludge for the quantity of 6 Ton/hr generation.
- iii. Fugitive dust modelling shall be carried out for based on the climate data for summer season both PM10 and PM2.5.
- iv. Plan to bring down the ash content of the Coal from 39% to less than 34% shall be submitted. Feasibility of setting up of coal washery within the proposed plant shall be studied.
- v. Indicative characteristics of coal for Banai coal block, Chhattisgarh shall be submitted. Variation of air quality prediction and emission calculations based on the characteristics of Banai coal block may be verified, if any.
- vi. Mercury emission study shall be carried out.
- vii. Air cooled condenser shall be installed to reduce the water consumption. Measures to reduce the water consumption of 80 MCM shall be submitted as the region is water scarce area.

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3.3 Expansion of by addition of 2x660 MW (Phase-II) Supercritical TPP at village Kalsindh and Nimoda, Thesil Jhalarapatan, Dist. Jhalawar, Rajastha by M/s Rajasthan Rajya Vidyut Utpadan Nigam Ltd. – reg. extension of validity of ToR.

(3.3.1) Project Proponent (PP) did not attend the meeting. Thus, the project is **deferred**.

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3.4 2x660 MW Coal based Khurja Super Critical Thermal Power Plant at Villages Dashashra Kherli, Jahanpur, Naiphal and Rukanpur, Khurja Taluk, Bulandshahar Dist., Uttar Pradesh by M/s THDC Ltd - reg. reconsideration for EC.

(3.4.1) The proposal was last appraised by the Re-constituted EAC in its 1st meeting held on 28.12.2016 where in committee sought additional information regarding flyash generation and disposal plan, justification for diverting natural drain from the project site, justification for revising the baseline data, details of quantitative risk assessment, preparation of greenbelt development plan with local and indigenous species etc.

(3.4.2) Project Proponent (PP) vide their letter dated 30.01.2017 submitted the reply to the information sought by EAC. PP along with their environment consultant M/s Mantec Consultants Pvt. Ltd made the presentation inter-alia submitted the following:

- i. Flyash and bottom ash generation from the proposed project is 1.469 MTPA and 0.367 MTPA respectively. Bottom ash will be disposed-off with wet disposal or High Concentration Slurry Disposal (HCSD) system. Pneumatic conveying system shall be employed for conveying of flyash and air pre-heater ash from ESP hoppers and air pre-heater hoppers in dry form. Ash water recirculation system shall be set up for reuse of decanted water from ash pond. Flyash will be lifted by various cement industries and ready mix concrete manufacturers. LOI/EOI has been made with Adycon Infra Pvt. Ltd., Ficus E-Logic Pvt. Ltd., Mahesh Enterprises, Star Corporation, JK Lakshmi Cements, Ambuja Cements Ltd., Mangalam Cement Ltd., JK Cement Ltd and Ashtech (India) Pvt. Ltd. Company shall ensure 100% utilisation of flyash by fourth year.
- ii. Natural drain Aligarh Nallah is proposed for diversion through the existing ditch along the side of existing NH-91 which is passing through the site. Comprehensive hydrology study has been carried out by NIH Roorkee which includes study of local drainage pattern and modification of existing Aligarh drain. Existing cross-section of Aligarh drain is unable to carry design discharge. Hence modified lined trapezoidal cross section is recommended by NIH. The land development work within the plant site should be carried out to maintain the natural slope to facilitate the drainage in the area and divert any entry of excess water through plant boundary.
- iii. Baseline data in the EIA has been corrected and revised. All maps in the EIA have been submitted in the legible form.
- iv. Risk assessment along with failure scenarios and consequence analysis has been carried out for the LDO, Transformer Oil, Hydrogen, Ammonia and Chlorine storages. Failure scenarios of 25 mm, 50 mm leak and catastrophic rupture in LDO & Transformer Oil storage tank, 10 mm leak and catastrophic rupture from Hydrogen cylinder and compressor, 2 mm leak from flange of chlorine tonner and 10 mm leak & catastrophic rupture from Ammonia bullet storage tank have been considered. Risk assessment is within acceptable region of HSE UK Register.
- v. Native and indigenous species have been proposed for greenbelt development. Rs. 5 Crores have been earmarked for greenbelt development.
- vi. Public Hearing proceedings in English prepared by Uttar Pradesh Pollution Control Board have also been submitted.

(3.4.3) Committee after detailed deliberations **recommended** for grant of Environmental Clearance subject to following conditions:

- i. Greenbelt development shall be developed in 400 acres with native and indigenous species to maintain 33% of the land green. Greenbelt plan shall be

formulated in consultation with local Forest Department and submitted to the Ministry and its Regional Office for monitoring. The budget of Rs.5 Crores for greenbelt shall be accordingly revised in consultation with Forest Department. No herbs and shrubs shall be planned. Only tall seedlings shall be planted. Greenbelt development shall start during construction period.

- ii. Hydrogen plant shall be shifted away from Uncha Gaon. Minimum of 500 m distance shall be maintained from the village. The layout indicating relocation of Hydrogen plant shall be submitted to the Ministry and its Regional Office.
- iii. Need based assessment study shall be conducted for implementing CSR activities. Company shall provide Guest teachers to the surrounding Govt. schools.
- iv. Alternate technologies for Flyash utilisation such as road making using geopolymers shall be explored in consultation with Director AMPRI, Bhopal/DG-CSIR. Use of ash dyke shall be minimised.
- v. Separate environmental clearance may be obtained for township construction under EIA Notification, 2006 and its amendments, as applicable.

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3.5 2x660MW (Stage-III) Super Thermal Power Project, Singrauli, Sonebhadra, Uttar Pradesh by M/s NTPC Limited – reg. reconsideration of ToR

(3.5.1) The proposal for grant of ToR has been earlier considered by EAC during its 1st meeting held on 28.12.2016 and EAC recommended for grant of additional ToR. In the form-I, three alternatives have been submitted for location of ash pond. It is submitted that 330 acres of additional land is required for location of ash pond for which various alternatives are being considered such as mine void filling, acquisition of additional land in M.P or construction of ash dyke after relocating the existing township of Singrauli STPS. Project Proponent (PP) vide their letter dated 16.01.2017 requested for amendments regarding locations ash pond. PP submitted that alternate location for ash pond may not be insisted as the proposed ash pond location is 1.5 km from the Rihand reservoir. Ash pond has been proposed in the Uttar Pradesh and will be constructed after dismantling the existing township. Accordingly, Public Hearing in Madhya Pradesh may not be insisted.

(3.5.2) Committee after detailed deliberations **recommended** for amendment of following additional ToRs subject to conditions:

- i. Ash pond is proposed in the existing township in Uttar Pradesh. Firm plan regarding ash pond location along with coordinates on toposheet shall be submitted. Dismantling of the exiting township will involved noise, dust generation, construction waste and debris generation. The environment management plan for dismantling the township shall be included in the EIA/EMP report.
- ii. The project along with ash pond is proposed in the Uttar Pradesh. However, the project is located near the inter-state boundary of U.P. and M.P. The Public Hearing shall be conducted by covering villages within 10 km radius including villages in Madhya Pradesh. Madhya Pradesh Pollution Control Board shall also be involved for ensuring the participation of villages in Madhya Pradesh.

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3.6 Farakka Super Thermal Power Project at Farrakka, District Murshidabad, West Bengal by M/s NTPC - regarding amendment of EC for transport of coal through National Waterway (NW) No. 1.

(3.6.1) Project Proponent (PP) vide their online application dated 16.01.2017, requested for extension of permission granted vide Ministry's letter dated 26.10.2016 for transportation of 1.5 MTPA imported coal through National Waterway No.1 from Sagar to Farakka along river Ganga for five years. PP vide their application has also requested for permission to increase the quantity of imported coal from 1.5 MTPA to 3 MTPA.

(3.6.2) Ministry accorded the temporary permission for transportation of imported coal through National Waterway No.1 for a period of one year i.e. till 31.07.2015 vide Ministry's letter dated 31.07.2014. The said permission was extended for further one year i.e. till 30.07.2016 vide Ministry's letter dated 29.09.2015 subject to certain conditions. This was further extended for another six months i.e. till 31.01.2017 vide Ministry's letter dated 26.10.2016. This was further extended for a period of two months i.e. till 31.03.2017. Ministry vide letter dated 29.09.2015 stipulated following certain conditions along with a site visit to be undertaken, if need be.

- i. Long term, and a minimum period of one year continuous study shall be conducted on the impacts of varying traffic loads on aquatic flora and fauna with particular reference to species composition of different communities, abundance of selective species of indicator value, species richness and diversity and productivity.*
- ii. Impacts of noise generated by the barge movement on Gangetic Dolphin which has been declared a National Aquatic Animal.*
- iii. Energy conservation and other perceived benefits vis-à-vis rail and road transportation.*
- iv. Impact on the abundance of economically important fish species (including Dolphin), fish growth and production at varying traffic loads.*
- v. Impact on bank erosion vis-a-vis safeguard measures like stabilization of banks with native vegetation (including mangroves) that will prevent erosion*
- vi. Impact on the fish catch under varying traffic loads and livelihood of fishermen and their views on the coal transportation by barges.*
- vii. NTPC shall set up a permanent laboratory of CIFRI at the site to expedite the study w.r.t above parameters and for making scientifically sound conclusions.*
- viii. The characteristics of treated sewage which is being reportedly used for irrigation. The coliform count specially has to be monitored and reported.*
- ix. Accordingly, the study should conclusively come out as to what tonnage of coal can be transported through Waterways i.e. in the proposed route of NW-1 in an environmentally sustainable manner.*

(3.6.3) PP submitted the study report of Impact Assessment of coal transportation conducted by ICAR-Central Inland Fisheries Research Institute (CIFRI), Kolkata. PP along with CIFRI made the presentation, and *inter-alia* submitted the following:

- i. Out of total stretch of 1,620 km of National Waterway No. 1, 560 km from Sagar to Farakka of river Bhagirathi-Hoogly is being utilised for transportation of imported coal.*
- ii. Tripartite agreement amongst NTPC, Inland Water Way Authority of India (IWAI) and Jindal ITF Ltd was signed on 11.08.2011. IWAI shall maintain the waterway and provide a guarantee for navigability of channel. M/s JITF Ltd would be*

- responsible for unloading the coal from the ocean going vessel and hauling coal on barges and delivering the coal at the coal stack yard of Farakka STPP.
- iii. Barges with capacity of 2,100 tons will be used with the average speed of 7-8 nautical miles per hour which takes 5-6 days for transportation of 560 km.
 - iv. Unloading of coal is carried through grab unloaders and transported through 2.2 km long conveyor.
 - v. Fish diversity has been studied. The 560 km stretch has been separated as three zones. Zone-I (Estuarine – lower stretch) was observed with maximum fish diversity of 157 species, Zone-II (tidal fresh water- middle stretch) with higher density of 99 species and Zone- III (Non-tidal riverine- Upper stretch) with lowest fish diversity of 75 species. Zone-I was observed with maximum fish diversity.
 - vi. 11 species in the Zone-I, 25 species in Zone-II and 21 species in Zone-III are classified under IUCN conservation status of fish species. Fish catch was compared at middle stretch during 2011-12 when there was no barge movement and during 2016 after commencement of barge movement. Fish catch has reduced from 1,400 to 1,280. However, general catch structure remained the same.
 - vii. Fish catch was measured before and immediately after barge movement. It reduced from 95 Nos./haul to 38 Nos./haul in the middle and upper stretch. Overall fish diversity was reduced from 15 species to 10 species after barge movement. International studies mentioned that it is practically difficult to identify the effects of inland navigation on fishes due to their ability to avoid disturbance by migrating to adjacent areas.
 - viii. Govt. of West Bengal has notified three Hilsa Sanctuaries along the route vide Notification dated 09.04.2013. Gradual decline in the Hilsa catch from 17,000 tons during 2003-04 to 1,000 tons during 2013-14 in the inland sector which indicates that high rate of fishing pressure and other factors responsible for reduction. Sharp decline in fish catch was observed even before the commencement of coal transportation.
 - ix. There is no significant change in the percentage composition of live and morbid fish larvae in samples taken before and after barge movement. High sampling mortality and less abundance of larvae in the sailing line masked barge effects, if any.
 - x. Macro-benthic invertebrate study has been carried out in three zones. 25 species found in the study area. Upper stretch showed more diversity than other stretches which indicates relatively less disturbance. The study to be continued further to understand the impact of barge movement on benthos.
 - xi. Plankton diversity was measured before barge movement, immediately after barge movement and half-an-hour after barge movement. Higher abundance of diatoms was recorded in the upper stretch than other two stretches. 16% decrease in total plankton was recorded after immediate barge movement. 15% damage to phytoplankton was found due to turbulence from barge movement.
 - xii. Gangetic dolphin is an indicator species for the river ecosystem and is at the apex of the food chain which falls under Schedule I of Wildlife Protection Act (WLPA), 1972 and in the endangered category of IUCN red list. Noise levels of the barge are in the range of 110-140 dBA. Sultanganj Pahar to Kahalgaon stretch of river Ganga is declared as the Vikramashila Dolphin Sanctuary under WLPA, 1972 vide S.O. dated 7.08.1991. Dolphins were recorded at 18 locations varying between 1-14 at various stretches. The EIA study of South of EMBLEY project reveals that there is no negative impacts to the Marine Dolphin up to the noise levels of 177 dBA. Thus, impact on auditory systems of dolphins is not anticipated due to noise generation from barge movement. However, certain

mitigative measures have been recommended such as restriction of barge movement to the designated pathway, fitting dolphin reflectors, maintaining low barge speed at <5 knot/h in narrow stretches areas of Dolphin.

- xiii. Energy consumption, emissions, etc. have also compared with the different means of transportation. It has been inferred that Inland Waterway transportation is more environment friendly than the rail and road transportation in terms of energy conservation and fuel emissions.
- xiv. Water quality of the river reveals that pH: 7.4-7.7, DO: 4.30-652 mg/l, BOD: 2-6 mg/l, Salinity: 0-1.46 ppt, Conductivity: 196-2820 μ S/cm, Coliforms (MPN): 1.1-1.4x10⁴. A maximum of six persons can travel in the Barge. So, sewage generated from these 6 people will be treated in the STP which is inbuilt to Barge and the treated sewage will be discharged at the designated places. Use of anti-fouling paints are toxic to aquatic life. Non-toxic and non-tetrabutyltin containing anti-fouling paints has been recommended to be used. Ballast water is taken from the river near Farakka and is discharged into the same river. Thus, no impact is anticipated from the ballast water discharge.
- xv. Vessels should be fitted with propeller guards to avoid any injury and associated mortality. IWAI should develop stringent norms for vessel operators.
- xvi. Approximately 30 km stretch is identified as erosion prone areas. IWAI may take appropriate measures for bank protection.
- xvii. Approximately livelihood of 25,000 people is dependent on fishing on this 560 km stretch i.e. Sagar to Farakka stretch. The majority of the population is socio-economically backward and 65-73% of their total income is generated from the fishing. 500 families have been surveyed along the whole stretch to study the impact of barge movement. Percentage of suspension of fishing operations due to barge movement is reported as 10%, 27% and 62% in the lower, middle and upper stretches from the surveyed families. Monetary loss due to decrease in fish catch was observed to be Rs.0.75/-, Rs.4.35/- and Rs. 18/- on an average per incidence of barge movement in lower, middle and upper stretch, respectively.

(3.6.4) Committee noted that the review of the study and impacts due to barge movement on environment requires more study and time to arrive at informed decision. Committee observed that CIFRI study focused on the impact of barge traffic on riverine ecosystem. This study provides a useful and important benchmark data for biodiversity patterns and fish catch. However, CIFRI study was not able to directly measure impacts of noise on important species such as the Gangetic dolphin. The EAC noted that the biology of gangetic dolphins, particularly their echo-location system may be different from that of marine dolphins, and so it is not certain that the results for marine dolphin can be extrapolated to river dolphins. The study had to take recourse to using an acceptable noise thresholds observed for marine dolphins, and compared it with observed noise levels generated by the barges in the study region. The EAC also noted that the continued movement of barges requires maintenance dredging of the channel in the river. Dredging, even if in some stretches and limited in frequency, involves removal of 50cm to 1m of the river bottom causing disturbance to the river bottom. The CIFRI study has not covered the impact of this form of disturbance.

(3.6.5) The EAC opined that it is necessary to proceed with caution in this matter, and **recommended** that:

- i. The current level of coal transport of 1.5 MPTA is recommended to increase to transport of 3.00 MTPA for a period of one year.
- ii. During this one year period, studies are to be carried out by a reputed research institute to specifically monitor noise levels and its impact on Gangetic dolphins as also the impacts of maintenance of dredging for the current and higher levels of barge traffic.
- iii. West Bengal Coastal Zone Management Authority recommendations as per the CRZ Notification, 2011 shall be submitted as Estuarine Zones/CRZ areas involved in this project. Specific recommendations with respect to the protection of mangroves and impact due to barge movement may be obtained.
- iv. As the barges carrying coal pass through Vikramashila Dolphin Sanctuary and three notified Hilsa Sanctuaries under Wildlife Protection Act, 1972, specific recommendations from Chief Wildlife Warden and Standing Committee of National Board of Wildlife (SCNBWL) be submitted.

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3.7 Proposed 15 MW Imported coal based co-generation captive power plant at Villages Sarigam & Angam, Tehsil Umbergaon, District Valsad, Gujarat by M/s. N.R. Agarwal Industries Ltd.- reg. ToR.

(3.7.1) The proposal was listed in EAC (Thermal) meeting held on 28.12.2016. Project Proponent (PP) did not attend the meeting and the project was deferred. The proposal was again listed in this meeting. PP did not attend the meeting. Thus, the proposal is **deferred**.

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3.8 2x660 MW Super Critical Lignite based Thermal Power project at Neyveli by M/s. NLC India Ltd. – reg. reconsideration for ToR.

(3.8.1) The proposal was earlier placed before the EAC in its meeting of the reconstituted EAC of Thermal Power Projects held on 28.12.2016. As per the online application, the Form I mentions the Project as “New”. However, during appraisal of 2x660 MW Super Critical Lignite based Thermal Power Project at Neyveli by M/s Neyveli Lignite Corporation Limited, the Project Proponent appraised the project as “Expansion Project” and raised ambiguity in defining the Project category and accordingly, clarification of the PP was sought on the above. The PP submitted the reply on 02.01.2017 alongwith a static Google map and clarified that category of the Project was mentioned as “New” since the software of the Ministry was not accepting the Project type as “Brown field/expansion of the proposed Project”. Therefore, to ascertain the Project category, a 4 Member Sub-Committee was constituted to verify the above site and to submit a factual report on the same for appraisal before the next EAC meeting.

(3.8.2) Based on the recommendations of Expert Appraisal Committee (Thermal Projects) held on 28.12.2016, it was decided that a Sub-Committee was constituted comprising of the following Expert Members to visit the site to ascertain the status of the project whether it is a Brown field/expansion or New:

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| (i) Dr. Narmada Prasad Shukla | - | Chairman |
| (ii) Shri Mohan Karnat | - | Member |
| (iii) Shri N.S. Mondal | - | Member |
| (iv) Dr. S. Kerketta | - | Member Secretary |

- (3.8.3) Except Shri Mohan Karnat who could not visit the site due to preoccupation, the other members of the Sub-Committee viz. Dr. Narmada Prasad Shukla, Shri N.S. Mondal and Dr. S. Kerketta, visited the proposed Project site on 4th and 5th February, 2017. It was informed by the Sub-committee that during visit, the sites viz., 2x660 MW Super Critical Lignite Based Thermal Power Project, Emergency Ash Pond, Water Reservoir of TPS II, Mine I, Mine II, Plantation in the Colony, etc were visited. Discussion was held with the officials of the Project. It was noted by the Sub-Committee that the proposed site to set up 2x660 MW TPP is located adjacent to the existing TPS II plant (**a copy of the Site Visit of the Sub-Committee is enclosed**). It has been confirmed that it is a brown-field project and the ambiguity of “New” project doesn’t arise and the same has also been ascertained from the map.
- (3.8.4) During the EAC meeting, Dr. N.P. Shukla, Chairman of the Sub-Committee explained the ambiguity between “New” and “Brownfield/expansion” of the TPS II and informed that the proposed site is an Expansion to existing TPS-II Unit.
- (3.8.5) After deliberation and considering the facts provided by the Sub-Committee, the proposed Project is confirmed to be an Expansion of TPS II Project and has agreed to give **recommendation** for grant of ToR which was recommended during first meeting of EAC held on 28.12.2016. The additional ToR including the standard ToR which have been recommended for undertaking detailed EIA study and preparation of EMP during the meeting of EAC held on 28.12.2016 including some suggestion made by the Sub-Committee.

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3.9 Compliance of NGT, Central Zonal Bench, Bhopal Order dated 22.11.2016 in OA NO.124/2014 (CZ) in the matter of Ajay Dubey Vs. State of Chhattisgarh & Ors regarding stipulation of specific condition in the EC for flyash utilisation.

- (3.9.1) Member Secretary briefed the NGT Bhopal Order dated 22.11.2016. EAC after deliberations recommended that a specific condition regarding flyash utilisation as per flyash utilisation notification and its amendments shall be stipulated while granting Environmental Clearance. The specific condition shall also include year-wise utilisation plan and percentage of utilisation.

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3.10 Compliance of NGT, Central Zonal Bench, Bhopal Order dated 5.1.2017 in OA No.122/2016 in the matter of Amar Singh Rathor & Anr. Vs. M/s MB Power (M.P.) Ltd & 5 Ors. regarding setting up of Captive Cement Plants along with Thermal Power Plants for effective flyash utilisation.

- (3.10.1) Member Secretary briefed the NGT Bhopal Order dated 5.1.2017 wherein Hon’ble NGT has directed the Ministry to examine the feasibility of setting up of captive cement plants at the location of Thermal Power Plants either by Project Proponents themselves or by jointly or by joint venture for effective utilisation of flyash generated from the power plants mentioned in the application.
- (3.10.2) EAC noted that cement plants require nearly 70-80% of limestone for manufacturing clinker which is grinded for making cement. Only 20-30% of flyash is being currently used in making Pozzolana Portland Cement (PPC). Though there are technologies available worldwide for using 80% of flyash in cement manufacturing, it is not practised in India for various reasons.

(3.10.3) EAC after deliberations, suggested that the **information regarding availability of required natural resources around the Thermal power plants and feasibility of setting up of captive cement plants may be obtained** from the respective Project Proponents of the Thermal Power Plants. **A Sub-committee may be formed** with the representative Ministry of Mines, Ministry of Power, Ministry of CEA, Department of Industrial Policy and Promotion (DIPP) and Ministry of Coal for examination. Based on the report from the Sub-committee, a decision of feasibility of setting up of cement plant may be arrived.

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3.11 Any Other Item with the permission of Chair.

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

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 PM₁₀, PM_{2.5}, SO₂, NO_x, 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.
- xl ii) Radio activity and heavy metal contents of coal to be sourced shall be examined and submitted along with laboratory reports.
- xl iii) Fuel analysis shall be provided. Details of auxiliary fuel, if any, including its quantity, quality, storage etc should also be furnished.
- xl iv) Quantity of fuel required, its source and characteristics and documentary evidence to substantiate confirmed fuel linkage shall be furnished. The Ministry's Notification dated 02.01.2014 regarding ash content in coal shall be complied. For the expansion projects, the compliance of the existing units to the said Notification shall also be submitted
- xl v) Details of transportation of fuel from the source (including port handling) to the proposed plant and its impact on ambient AAQ shall be suitably assessed and submitted. If transportation entails a long distance it shall be ensured that rail transportation to the site shall be first assessed. Wagon loading at source shall preferably be through silo/conveyor belt.
- xl vi) For proposals based on imported coal, inland transportation and port handling and rail movement shall be examined and details furnished. The approval of the Port and Rail Authorities shall be submitted.
- xl vii) Details regarding infrastructure facilities such as sanitation, fuel, restrooms, medical facilities, safety during construction phase etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase should be adequately catered for and details furnished.
- xl viii) EMP to mitigate the adverse impacts due to the project along with item - wise cost of its implementation in a time bound manner shall be specified.
- xl ix) A Disaster Management Plan (DMP) along with risk assessment study including fire and explosion issues due to storage and use of fuel should be carried out. It should take into account the maximum inventory of storage at site at any point of time. The risk contours should be plotted on the plant layout map clearly showing which of the proposed activities would be affected in case of an accident taking place. Based on the same, proposed safeguard measures should be provided. Measures to guard against fire hazards should also be invariably provided. Mock drills shall be suitably carried out from time to time to check the efficiency of the plans drawn.
- l) The DMP so formulated shall include measures against likely Fires/Tsunami/Cyclones/Storm Surges/Earthquakes etc, as applicable. It shall be ensured that DMP consists of both On-site and Off-site plans, complete with details of containing likely disaster and shall specifically mention personnel identified for the

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

- li) Detailed scheme for raising green belt of native species of appropriate width (50 to 100 m) and consisting of at least 3 tiers around plant boundary with tree density of 2000 to 2500 trees per ha with a good survival rate of around 80% shall be submitted. Photographic evidence must be created and submitted periodically including NRSA reports in case of expansion projects. A shrub layer beneath tree layer would serve as an effective sieve for dust and sink for CO₂ 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.

SITE VISIT OF THE SUB COMMITTEE TO PROPOSED 2x660 MW SUPER CRITICAL LIGNITE BASED THERMAL POWER PROJECT AT NEYVELI BY M/s NLC INDIA LTD

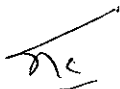
As per the record available in the Ministry, the online Form-I application mentions the Project as "New". However, during appraisal of 2x660 MW Super Critical Lignite based Thermal Power Project at Neyveli by M/s Neyveli Lignite Corporation Limited, (NLCIL) the Project Proponent appraised the project as "Expansion Project" during the Expert Appraisal Committee meeting held on 28.12.2016 and raises ambiguity in defining the Project category and accordingly, clarification of the PP was sought on the above. The PP submitted the reply on the above on 02.01.2017 along with a static Google map and clarified that category of the Project was mentioned as "New" since the software was not accepting the Project type as "Brown field/expansion of the proposed Project".

2. To ascertain the Project category, a 4 Member Sub-Committee was constituted in its EAC meeting held on 28.12.2016 to verify the above site and to submit a factual report on the same for appraisal before the next EAC meeting, a Sub Committee was constituted comprising of the following Expert Members to visit the site to ascertain the status of the project whether it is a Brown field/expansion or New:

- | | | | |
|-------|---------------------------|---|------------------|
| (i) | Dr. Narmada Prasad Shukla | - | Chairman |
| (ii) | Shri Mohan Karnat | - | Member |
| (iii) | Shri N.S. Mondal | - | Member |
| (iv) | Dr. S. Kerketta | - | Member Secretary |

3. The Sub-Committee visited the Project site on 4th and 5th February 2017 to ascertain the above facts. During the visit, Shri Mohan Karnat, Member of the Sub-Committee could not be present due to preoccupation. The following officials and Senior Executives were present from the Project site during visit of the Sub-Committee and held discussion:

- | | |
|-------|---|
| (i) | Shri Rakesh Kumar, Director (Finance) |
| (ii) | Shri Subir Das, Director (Mines) |
| (iii) | Shri V. Thangapandian, Director (Power) |



- (iv) Shri P. Selvakumar, Director (Planning & Projects)
- (v) Shri R. Vikraman, Director (Human Resources).
- (vi) Shri S. Thirunavukkarasu, Executive Director (Corporate Planning & Project Monitoring)
- (vii) Shri P. Sollin Selvan, CGM (Projects & Business Development)
- (viii) Shri A. Surya Narayanan, CGM (Thermal)
- (ix) Syed Abdul Fateh Khalid, Executive Director (Mines)
- (x) Shri V. Renganathan, Executive Director (Conveyor & Specialized Mining Equipment)
- (xi) Shri M. Rajasekaran, CGM (MINE-II & Expansion)
- (xii) Dr. M. Velan, Deputy General Manager (Environment Corporate)

4. The Sub Committee visited the proposed Project site viz., 2x660 MW Super Critical Lignite Based Thermal Power Project, Emergency Ash Pond, Water Reservoir of TPS II, Mine I, Mine II, Plantation in the Colony, etc. Discussion was held with the officials of the Project. **It was noted by the Sub-committee that the proposed site to set up 2x660 MW TPP is located adjacent to the existing TPS-II plant**(Photographs of the project site are enclosed).It is a brown-field project and the ambiguity of "New" project doesn't arise and the same has been confirmed after the site visit of the sub-committee.

5. Further, water reservoir and Emergency Ash Handling systems are found to be common for the existing TPS-II and its extension. No fresh land acquisition is envisaged. Also existing township can cater to the needs of the proposed project. At the entrance of the site, a power evacuation line is passing through and it needs to be shifted.

6. During visit, the Sub-committee noted that two natural nullahs with gradient from the North-West direction towards South-East are passing at the proposed Project site. As diversion of these would affect the downstream users, it is advised not to disturb the same. The project proponent has agreed to leave the nullahs as it is and accordingly re-orient their site plan.

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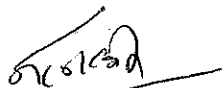
7. Eucalyptus plantation are found in the Eastern side of the proposed project site and it shall be rejuvenated and kept as such and it can be made further denser with mixed plantation with native trees.

8. Adequate AAQ monitoring stations have been proposed based on the up-wind and down-wind direction so that maximum GLC can be achieved. Carbon Footprint study was proposed to link to climate change.

9. The selected location is a not a low-lying area. The elevation varies from 50 to 57 m and the PP informed that pond ash can be used as filling materials and can level the land.

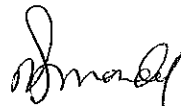
10. There is no displacement of the people and no R&R is involved due implementation of this project.

11. Old OB dump of Mine I to be developed and rehabilitated with proper slope stabilization and good vegetative cover.



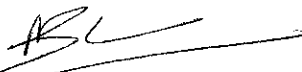
(Dr. S. Kerketta)

Member Secretary/Director



(Shri N.S. Mondal)

Member



(Dr. N.P. Shukla)

Chairman of Sub-committee

PHOTOGRAPHS OF THE SITE VISIT TO THE PROPOSED (2 X 660) MW PLANT OF M/S NEYELI LIGNITE CORPORATION



1. Locating the project components in map



2. A view of the Site Area



3. A view of the Site Area



4. A view of the Ash Pond

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5. A view of the Ash Pond



6. View of the Ash pond & NLC Plant in the background



7. Site Area with NLC plant area in the background



8. Transmission lines

NLC



9. Water Reservoir



10. Committee members at water reservoir area



11. Interaction of the PP with the Committee members







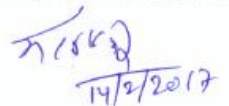
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Attendance of the 3rd EAC Meeting of the Re-constituted Expert Appraisal Committee (EAC) for Thermal Power Projects Meeting held on 14th February, 2017

EXPERT APPRAISAL COMMITTEE (Thermal & Coal Mining Sector)

DATE & TIME : 14th February 2017

VENUE : BRAHMAPUTRA MEETING HALL, VAYU WING,
GROUND FLOOR, 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. Sr. Sharachandra Lele Member	
6.	Sh. P.D. Siwal/ Sh. N.S. Mondal Representative of Central Electricity Authority (CEA)	
7.	Dr. R.K. Giri, Scientist 'E' Representative of Indian Meteorological Department (IMD)	Absent
8.	Dr. S.K. Paliwal, Scientist 'D' Representative of Central Pollution Control Board (CPCB)	
9.	Prof. D.C. Panigrahi Representative of Indian School of Mines (ISM)	Absent
10.	Dr. S. Kerketta Member Secretary MoEFCC	

Approval of Minutes of the 3rd Meeting of the Re-constituted Expert Appraisal Committee (EAC) on Environmental Impact Assessment (EIA) of Thermal Power Projects by the Chairman.

2/23/2017

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Subject: **Approved minutes of meeting of Thermal Committe.**
To: "Dr S. Kerketta" <s.kerketta66@gov.in>

Date: 02/23/17 02:56 PM
From: navin chandra <navinchandrarrl@yahoo.com>
Reply-To: navin chandra <navinchandrarrl@yahoo.com>

Chairman_Minutes_of_Meeting_3rd_EAC_14.02.2017.doc... (182kB)

23/02/2017

Dear Dr. Kerketa Ji,

I have gone through the minutes and approved the same.

(NAVIN CHANDRA)