MINUTES OF THE 14TH MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE (EAC) ON ENVIRONMENTAL IMPACT ASSESSMENT (EIA) OF THERMAL POWER PROJECTS

The 14th Meeting of the re-constituted EAC (Thermal Power) was held on 12th January, 2018 in the Ministry of Environment, Forest & Climate Change at Narmada Meeting Hall, Jal Wing, Ground Floor, Indira Paryavaran Bhawan, Jor Bagh 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. Dr. Sharachchandra Lele - Member
4. Shri N. Mohan Karnat - Member
5. Dr. Jai Krishna Pandey - Member
6. Shri Gururaj P. Kundargi - Member
7. Shri Suramya Dolaray Vora - Member
8. Shri N. S. Mondal - Member (Representative of CEA)
9. Dr. R. K. Giri - Member (Representative of IMD)
10. Dr. S. Kerketta - Member Secretary

Dr. Manjari Srivastava, Prof. S. K. Sinha (Representative of ISM Dhanbad) and Dr. S. K. Paliwal (Representative of CPCB) could not be present.

Item No.14.0: CONFIRMATION OF THE MINUTES OF THE 13th EAC MEETING.

The Minutes of the 13th EAC (Thermal Power) Meeting held on 28.11.2017 were confirmed in presence of the Members.

Item No. 14: CONSIDERATION OF PROJECTS

14.1 1 x 660 MW (Unit-6) Proposed Bakreswar Super Critical Technology based Thermal Power Project at Bakreshwar, District Birbhum, West Bengal by M/s The West Bengal Power Development Corporation Limited (WBPDCL)-reg. ToR.

(File No. J-13012/01/2018-IA.I (T) & Online No. IA/WB/THE/71165/2017)

(14.1.1) The project proponent submitted online application for grant of Terms of Reference on 23.11.2017. The project proponent made the presentation and submitted the following information:

i. The West Bengal Power Development Corporation Limited (WBPDCL) has been operating five units of 210 MW capacity of Thermal Power Plant at Bakreswar. The site is located within 12 km from Suri town in Birbhum District and lies between Andal and Saithia on the broad gauge railway line of Eastern Railway and the nearest railway station is at Chinpai. The site has road access from Dubrajpur-Suri (NH-60) state highway.

ii. 1x660 MW Ultra Super critical Power Project is proposed in the same premises and it is located at 23° 50’ North and 87° 27’ East, in Birbhum district of West Bengal. The details of commissioning of each units are provided as below:

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Phase</th>
<th>Unit</th>
<th>Capacity</th>
<th>Commissioning date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I</td>
<td>1</td>
<td>210</td>
<td>July 1999 to September 2000</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td>2</td>
<td>210</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td>3</td>
<td>210</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>II</td>
<td>4</td>
<td>210</td>
<td>December 2007 to March 2009</td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td>5</td>
<td>210</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>III</td>
<td>6</td>
<td>660</td>
<td>Proposed</td>
</tr>
</tbody>
</table>
iii. The proposed project will be set up in 88.88 Acres (35.98 ha) on the north-east side of the existing station within the acquisition limits of existing power plant (180 ha).

iv. There are no protected areas, eco-sensitive areas, etc. located within 10 km radius of the project.

v. Coal requirement will be 2.08 MTPA at 80% PLF considering the plant is operational for 292 days in a year. Coal will be sourced from new mines at Pachwara (North) and Damagoria, being jointly developed by Bengal EMTA and WBPDCCL and from existing sources, namely Sonepur Bazari, Pandaveswar, Samla and Magma block of ECL.

vi. Coal specifications: Total Moisture: 8%; Volatile matter: 20%; Ash (as received): 40%; fixed Carbon: 42%; Maximum Moisture and Ash: 50%; Sulphur: 0.3%; Gross Station heat rate for 660 MW: 2074.21 kcal/kWh; Gross calorific value: 3900 kCal/kg and Coal Size: 300 mm.

vii. Water requirement for proposed project is 1651 m$^3$/hr (21.85 cusecs), which is approx 2.5 m$^3$/MW. The plant has allocation of 6830 m$^3$/hr (67 cusecs) from Tilpara Barrage pond of Mayurakshi Irrigation System for nine months in a year and from Bakreswar Dam for the balance three months i.e. during stoppage of supply from the main source at Tilpara. The existing water allocation of 67 cusecs is sufficient for the proposed project also.

viii. Estimated project cost is Rs. 4350.93 Crores. The total manpower requirement is estimated to be 130, of which nearly 40 will be deployed for plant operation in keeping with the design and operating philosophy proposed for the station.

ix. The plant would generate about 1.05 Million Metric Ton (MMT) of ash annually based on design coal, which will be used by the cement plants in the nearby area.

(14.1.2) Committee noted that the proposed power project is located just adjacent to the NH 60. Keeping minimum distance of 500 m from the NH 60, the plant layout may be realigned the proposal. PP shall also provide the copies of Environmental Clearances and Consent to Operate for all the existing units which are under operation. PP agreed to submit the revised alignment with fresh proposal. **Committee after detailed deliberations recommended that the present proposal may be returned to the applicant.**


*File No.: J-13012/02/2018-IA.I (T) & Online No.: IA/MH/THE/71692/2017*

(14.2.1) Project Proponent submitted online application for grant of Terms of Reference on 19.12.2017. The project proponent made the presentation and, *inter-alia* submitted the following information:

i. It has been proposed to set up 22 MW Coal based Captive thermal power plant and Kraft paper Plant with a capacity of 3,00,000 tonnes per annum at Village Prakasha, Nandurbar District, Maharashtra.

ii. Kraft paper mill does not require “environmental clearance” as per MoEF & CC, GoI notification dated 14.09.2006 Sl. No. 5(j). This proposal for 22 MW captive power plant has been submitted to MoEF&CC because Prakasha village is located on the border of Gujarat & Maharashtra states and hence considered as Category “A” project at central level.
iii. River Tapi flows at a distance of 3 km from east to west. There is a barrage located at a distance of 3.5 km. There are no sensitive areas and other protected areas within 10 km radius of the project.

iv. Land requirement for the proposed power plant would be 3.4 ha. Agreement with land owners (Khasra Nos.162, 163, 164, 166, 54/1, 54/2, 54/3 & 54/4) has already been made. Location of Co-ordinates of the project site are as under:

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Location</th>
<th>Latitude</th>
<th>Longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>A</td>
<td>21° 31’ 47.07” N</td>
<td>74° 19’ 37.31” E</td>
</tr>
<tr>
<td>2.</td>
<td>B</td>
<td>21° 31’ 39.16” N</td>
<td>74° 19’ 30.04” E</td>
</tr>
<tr>
<td>3.</td>
<td>C</td>
<td>21° 31’ 36.46” N</td>
<td>74° 19’ 29.70” E</td>
</tr>
<tr>
<td>4.</td>
<td>D</td>
<td>21° 31’ 17.84” N</td>
<td>74° 19’ 31.47” E</td>
</tr>
<tr>
<td>5.</td>
<td>E</td>
<td>21° 31’ 26.01” N</td>
<td>74° 19’ 45.03” E</td>
</tr>
<tr>
<td>6.</td>
<td>F</td>
<td>21° 31’ 31.90” N</td>
<td>74° 19’ 50.31” E</td>
</tr>
<tr>
<td>7.</td>
<td>G</td>
<td>21° 31’ 42.15” N</td>
<td>74° 19’ 42.85” E</td>
</tr>
</tbody>
</table>

v. Total land requirement for Kraft Paper Mill and Power Plant is 40.5 ha. The land proposed for the project is private agricultural land. Main crop is cotton, jowar and sugarcane. Soil is black cotton type. Two crops per year are being practiced.

vi. Coal requirement is 340 TPD. Imported Coal will be obtained from open market from nearest port i.e either from Hazira or Daheja or Mumbai ports. Coal will be transported by covered trucks. Only high quality coal will be used to limit particulate matter and sulphur dioxide emissions so as to maintenance emission norms less than 30 and 100 mg/Nm3, respectively as per MoEF&CC notification.

vii. Coal specifications: Total & inherent moisture will be 34 & 16%, respectively, ash content: 5-8%; Volatile Matter: 40%; Fixed Carbon: 36%; Sulphur: 0.3-0.5%; Gross Calorific Value: 4,200 kcal/kg and Ash fusion temperature: 1160 °C. There would be C.H.P. with dust control system to produce coal of sizes 0-2 mm:13-15 %; 0-50 mm: 91% and 51-100 mm: 8-10 %.

viii. Two boilers each of 60 T/hour capacity with fluidized bed combustion are proposed. Air cooled condenser system will be used to minimize water consumption.

ix. Water requirement for power plant will be 800 m³/day. Source of water will be Prakasha barrage on the River Tapi which is 2.5 km away from the site. Fresh water requirement after recycle for Kraft paper and power plant would be 4,000 m³/day. Permission from State Irrigation Department and CGWB to draw water of 2,000 m³/day will be obtained. Make up water for boiler will be taken from the R.O. plant.

x. A bi-flue stack of 51 m with high efficiency ESP is proposed. Fugitive sources of particulate matter will be controlled by i) covered conveyer belts for material transfer and ii) water sprinkling. Dry ash handling is proposed. A Clinker Grinding Unit (Cement Plant) based on fly ash as raw material is being constructed nearby to village Jatoda in Dhulia district.

xi. Boiler blow downs and miscellaneous non-point discharges from power plant area will be transferred to a sump for use in the paper mill. R.O. rejects also will be taken to this sump.

xii. Ash generation will be about 27 T/day. Bottom ash will be 5.4 T/day and fly ash will be 21.6 T/day. Dry ash handling is proposed. Ash will be stored in silos and will be made available to local cement/brick manufacturer as per demand or for agriculture use as ash is proven to protect the crop from pests.
Consultant for carrying out Environmental Impact Assessment Studies is M/s Enviro Techno Consult Pvt. Ltd. who is QCI-NABET accredited consultant and listed at Sl. No. 46 in the list of Accredited Consultant Organisation as on 05.01.2018.

Total estimated project cost is Rs. 101 crores.

(14.2.2) Committee noted that PP has submitted the proposal only for 22 MW Power Project. However, PP has not submitted the process and other details of Kraft Paper Manufacturing unit. It is noted that Tapi river which is the inter-state boundary of Gujarat and Maharashtra is just adjacent to the proposed location. Committee also noted that PP mentions that the environmental clearance is not required for Kraft Paper Plant as per EIA notification, 2006. However, as per EIA amendment Notification dated 25.6.2014, Pulp and Paper Industry requires Environmental Clearance. The details of the notification are as follows:

<table>
<thead>
<tr>
<th>Sr.no.</th>
<th>Category</th>
<th>Category ‘A’</th>
<th>Category ‘B’</th>
<th>Remarks</th>
</tr>
</thead>
</table>

Committee also opined that this may be sent to Policy Division to determine the requirement of EC for Kraft Paper Manufacturing. If it requires EC, the procedure given in the Ministry’s Office Memorandum dated 24.12.2010 regarding Integrated and Inter-linked projects shall be followed. The OM delineates the procedure for these kind of projects that Inter-linked projects having multi Sectoral components will prepare a common EIA report covering impacts in comprehensive manner after obtaining ToR from each Sectoral EAC. Application for ToR shall be submitted simultaneously to all the relevant sectors. Respective EACs will stipulate ToRs. PP shall prepare common EIA for all ToRs and conduct common Public Hearing. The final EIA shall be submitted to Sectoral EACs for making recommendations with respect to the concerned sector. The file for EC shall also be processed separately to issue separate ECs.

(14.2.3) Committee after deliberations, **deferred the project for want of following additional information.**

i. Alternate site analysis report shall be submitted by considering at least three sites.

ii. Pre-feasibility Report shall include detailed Kraft Paper Manufacturing Process and details of raw materials, impacts, etc.

iii. The proposed site locations shall be beyond 500 m from the HFL of Tapi river.

iv. Policy Division is required to be consulted after submission of details of Kraft Paper Manufacturing process so as to determine the requirement of EC for Kraft Paper Plant.

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14.3 Expansion by addition of 1x350 MW Imported Coal based Thermal Power Plant (Phase II) at Village Kamalanga, in Odapala Taluk in Dhenkanal Distt., Odisha by M/s GMR Kamalanga Energy Ltd.- reg. reconsideration for amendment of EC.
(File No.: J-13012/73/2011-IA.II (T) & Online No.: IA/OR/THE/75/2008)

(14.3.1) The Project Proponent (PP) submitted online application on 2.6.2017 for amendment in the EC dated 5.12.2011 for increase in land requirement from 1038.5 acres to 1176.24 acres and extending the validity of EC up to 4.12.2021. The proposal was earlier considered by the EAC in its 8th meeting held on 24.07.2017. EAC on 24.7.2017 recommended for exemption for reconducting the Public Hearing as it is the case of acquiring additional land of 137.74 acres without any project activities to be put up subject to the following conditions:

i. A public notice in the newspapers for seeking public comments be given. Notice shall be published in two newspapers preferably one in vernacular language of the locality concerned and another one in English newspapers to seek the public comments/suggestions within one months from the date of notice.

ii. PP should address all the public comments/suggestion received within one month and address accordingly and submit to the Ministry for further consideration.

(14.3.2) PP submitted the additional information on 20.12.2017 Environmental Clearance for Phase-I: 3x350 MW Thermal Power Plant has been issued vide Ministry’s letter dated 5.2.2008. Unit-1, Unit-2 and Unit-3 have been under operation since 30.4.2013, 12.11.2013 and 25.3.2014 respectively.

i. Total area as per EC for both the phases was 1038.5 acres. The area has been increased to 1176.24 acres.

ii. The incremental 137.74 acres will be used for approach road outside the plant boundary (31.02 acres), Merry Go Round Railway line outside plant boundary (30.79 acres), Realignment of PGCIL transmission line inside plant boundary (17.67 acres), Left-out plots inside plant boundary (31.19 acres), Periphery development at outside of plant boundary (7.33 acres), Permissive possession of Govt. land at inside of plant boundary (19.74 acres). There is no forest land involved in the proposed additional land. Plantation will be carried out along side of the approach road.

iii. The project proponent has published notice for inviting suggestions/ comments from general public in Suryaprava (4th most circulated Odia language newspaper) and The New Indian Express (English daily) on 26.10.2017. One month time was given to received comments from Public.

iv. The project proponent has also submitted an undertaking confirming that no comments/ suggestion were received on the notice.

v. In addition, the project proponent submitted that for EMP for water sprinkling at approach roads by water tanker for controlling fugitive emissions, speed restriction of vehicles, road maintenance, transportation by covered trucks and avenue plantation along roadside will be provided.

(14.3.3) Committee after detailed deliberations, recommended for amendment in EC for increase in land requirement from 1038.5 acres to 1176.24 acres subject to following additional conditions:

i. No forest land is involved in the incremental area of 137.74 acres.

ii. Avenue Plantation shall be developed along the Railway line and approach roads.
iii. Revised emission standards and water consumption as per the Ministry's notification dated 07.12.2015 and subsequent amendments notified from time to time shall be complied.

iv. Treated water from the STP located within 50 km distance from the project be reused in the project.

v. An Environmental Officer be declared to look after the matter related to the implementation of various environmental control measures. In case of any non-implementation of such control measures, the Environmental Officer shall be held responsible.

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14.4 3x800 MW Super-Critical TPP at village Annupurna Khamar, Taluk Kamakhyanagar, Dhenkanal Distt., Odisha by M/s. ODISHA THERMAL POWER CORPORATION LTD.- reg. reconsideration of EC.
(File No.: J-13012/43/2012-IA.II(T)& Online No. IA/OR/THE/10522/2012)

(14.4.1) The Project Proponent has submitted the final EIA/EMP documents vide their online application dated 01.03.2017 for grant of environmental clearance. The proposal was earlier considered by the EAC in its 6th meeting held on 29.5.2017 and deferred for want of the following additional information:

i. Status of the land for the proposed project be submitted from the Revenue Department mentioning whether the land proposed for project is irrigated or not, if so, whether single or double crops.

ii. The project proponent shall revise the justification of the Project based on present power demand-supply situation and considering 19th EPS published by CEA.

iii. The undertaking submitted by CEO, Odisha Thermal Power Corporation Ltd. dated 18.1.2014 shall be revised.

iv. Data on distribution of water for other uses including industrial, agriculture and in-stream uses, in upstream and downstream locations and including both existing and commitments made for imminent projects, and the water availability for the proposed Thermal Power Plant be authenticated and submitted. The effect on downstream due to water withdrawal especially during lean season shall be studied further.

v. Base line air quality results along the incremental GLC values should be compared with the latest emission standards to maintain uniformity in the EIA report and submitted.

vi. Baseline ambient air quality results of the study area is to be rerun by using the Air Modeling in IMD, New Delhi. The verification be checked by the Expert Members jointly viz., Dr. S.K. Paliwal, CPCB representative and Dr. R.K. Giri, IMD Representative.

vii. Status of Forest clearance along with density and tree enumeration reports. Status shall clearly indicate whether it is pending at DCF/CF/Nodal Officer/RO, MoEF&CC/MoEF Delhi along with documentary support.

viii. Wildlife Conservation Plan shall be prepared in consultation with the State Forest Department.

ix. An undertaking regarding use of alternate coal blocks along with transport network shall be submitted.

(14.4.2) PP submitted the reply on 31.10.2017. PP made the presentation inter-alia submitted the following information:

i. Total private land being acquired for the project is 820.235 acres in seven revenue villages viz. Annapurnapur Khamar (Kha), Aluajharan, Anlabereni, Dhobabahali, Kateni, Kantapal, Kusumajodi are non-irrigated land raising single crop except land of 2.840 acres which is irrigated land raising single
crop. A copy of Tehsildar, Kamakhyanagar letter no.3418 dated 27.7.2017 is submitted in support of this.

ii. As per the 19th EPS, electrical energy requirement for eastern region would be 1,71,228 MU by the end of 13th plan and 2,17,468 MU by the end of 14th plan period. Average peak electrical load for eastern region is forecast to be 20,883 MW and 28,046 MW by end of 12th and 13th plan, respectively. Thus capacity addition requirement may be estimated in the range of 7,163 MW during 13th plan period. Total installed capacity in the eastern region is 34,752.87 MW as on 31.5.2017. It may be mentioned that some power stations which have been planned to be commissioned, may not be feasible as lenders have filed proceedings against them. The shortfall of 3,156 MW due to these power plants is imperative and the proposed power plant fits well in the overall power scenario.

iii. Revised undertaking by CEO has been submitted.

iv. The report on flow availability and water demand during non-monsoon period (Nov-May) at both downstream and upstream of Kantapal intake point of Brahmani river has been furnished by Water Resources Dept. vide their letters dated 26.10.2017 and 13.10.2017. The water requirement of 80 cusecs (42 MCM) for proposed project is part of the industrial demand of 328 MCM. Demand in the upstream (irrigation, domestic water demand and industrial demand) is 1,642 MCM. The water available in the downstream is about 1,032.31 MCM. After considering the demand of 795 MCM in the downstream (Irrigation, domestic water, industrial, Mega lift Project, Export to Baitarani Basin), the balance of 238 MCM flow is available at Jenapur which will meet the sea. This 238 MCM is sufficient for environmental flow.

v. AAQ baseline data though it is within NAAQs standards, values of Particulate Matter are high in the region (PM$_{10}$: 89 µg/m$^3$ max & PM$_{2.5}$: 54 µg/m$^3$ max) which can be attributed to local activities as there are no industrial activities nearby. Most of the roads in the study area are kuchha roads/unpaved roads. Condition of almost all the village roads is not good with poor maintenance. As per the census of Kamakhyanagar block, it is found that about 95% of households in the study area use firewood, crop residue and cow dung. To cross check the contribution of these activities to ambient air quality, some of filter papers were analyzed for metals and organic carbon. It is found that 15-20% of the total particulate matter is composed of organic carbon.

vi. Emission modeling has been carried out considering the stack emissions, coal handling, emissions from truck transportation. AERMOD is used to estimate atmospheric dispersion and concentrations of the released emissions in the immediate vicinity of the proposed sources. GLCs due to transportation of fly ash via road have been also been estimated by considering 450 number of bulkers with capacity of 25 T.

vii. Maximum predicted GLCs for PM, SO$_2$ and NO$_x$ are 2.89 µg/m$^3$, 9.63 µg/m$^3$ and 9.63 µg/m$^3$, respectively. Emissions due to coal stock yard for PM is 0.74 µg/m$^3$.

viii. Copy of the modeling report is sent to Dr. S.K. Paliwal, CPCB and Dr. R.K. Giri, IMD for their reviews vide letter dated 12.10.2017.

ix. Revised application for diversion of Forest land of 39.098 ha has been submitted to Nodal Office, FC Act on 24.10.2017. The proposal is pending with State Government at DCF/DFO level for tree enumeration and calculation of NPV, etc.

x. Wildlife Management Plan has already been prepared in consultation with the State Forest Department as recommended by DFO and RCCF. A provision of Rs.7.41 Crores has been made in the project cost for
implementation. The wildlife management plan has been forwarded by the CCF (WL) to PCCF (WL)/ Chief Wildlife Warden on 1.3.2014 for its vetting which is pending.

xi. An undertaking has been given that as and when alternate coal blocks allocated by MoC, the same will be intimated with transportation network plan from the revised mines to the project.

(14.4.3) Committee noted that whether water of 238 MCM available in the downstream is sufficient for environmental requirements. PP has submitted only a letter from the Irrigation Department. However, a study has been asked to carry out regarding water sufficiency in the downstream considering the demands of instream users and e-flows. Further, the air quality modeling has been carried out considering the standard emission limits of 30 mg/Nm$^3$, 100 mg/Nm$^3$ and 100 mg/Nm$^3$ for PM, SO$_2$ and NO$_x$. Comments from the Dr. S.K. Paliwal could not be taken up as he was not present in the meeting. Dr. R.K. Giri informed that he has seen the results and found satisfactory. Committee however noted that Air quality predictions shall be carried out for the worst scenario which is the failure of ESP or FGD or NOx control systems. Further, forest clearance application has been submitted in October, 2017 which is in the initial stages. Committee noted that Wildlife Management Plan may also be vetted by the Chief Wildlife Warden.

(14.4.4) **Committee after deliberations, deferred the project for want of the following information:**

i. Water sustainability studies to be conducted for determining the demand of instream users and environmental flow. The study should clearly bring out the impacts on the downstream users and instream biota due to the water drawal for the proposed project.

ii. Wildlife Management Plan be vetted by the Chief Wildlife Warden and a copy of the plan shall be submitted to the Ministry.

iii. Prediction of Air quality impacts shall be carried out for worst case scenario (Failure of ESP or FGD or NOx control systems)

iv. Status of Forest Clearance shall be submitted.

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(File No.: J.13011/3/2007-IA.II(T) & Online No.: IA/OR/THE/11812/2007)

14.5.1 The Project Proponent (PP) submitted online application on 30.11.2017 for amendment in the EC dated 7.12.2007 for expansion/addition of ash ponds. PP along with their environmental consultant, M/s ERM India Pvt. Ltd. made the presentation and inter-alia provided the following information:

i. The M/s Vedanta Limited (earlier M/s Sterlite Energy Limited) has the following sites at Jharsuguda:
   a. 2400 MW Thermal Power Plant
   b. 1.6 MTPA Aluminium Smelter along with Captive Power Plant of 9x135 MW

iii. Subsequently, amendment to the EC dated 7.12.2007 has been issued, was issued vide letter dated 12.5.2008 to M/s Sterlite Energy Ltd. for shifting ash pond from Siriapali village to new site at Sripura village for the area of 757.3 acres. The amendment was necessitated along with proposal of expansion of 2400 MW power plant by addition of 2000 MW.

iv. EC for expansion of Aluminium Smelter by 13.5 LTPA and captive power plant by 675 MW M/s Vedanta Limited (erstwhile Vedanta Aluminium Limited) was accorded by the Ministry vide letter No. J-13011/10/2006-IA (T) dated 14th March, 2007. The approval was granted for 315 ha plant area, besides ash pond area of 191.92 ha, near Gudigaon village.

v. Presently, Vedanta Limited is operating 2400 MW Thermal Power Plant (TPP) and 9x135 MW Captive Power Plant. Total ash generation from both the plant is 26809 TPD approx. Details of daily ash production from CPP and TPP are as below:

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Power Plant</th>
<th>Bottom Ash (TPD)</th>
<th>Fly Ash (TPD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Thermal Power Plant</td>
<td>3,340</td>
<td>13,360</td>
</tr>
<tr>
<td>2.</td>
<td>Captive Power Plant</td>
<td>2,022</td>
<td>8,087</td>
</tr>
</tbody>
</table>

vi. The existing ash pond is located at Katikela, which will be non-sustainable after 1 year. Now, Vedanta Limited has proposed for expansion/ addition of ash ponds. Accordingly, Vedanta Limited has proposed 4 locations for expansion/ addition of ash ponds, with details as below:

a. Expansion of Katikela Ash Pond: 128.55 acre; Vedanta Limited (existing Ash pond)
b. Siriapali Ash Pond: 206.22 acres: EC was obtained for 230 acres of ash pond for 2400 MW TPP project vide F. No. J13011/3/2007-IA.II(T) dated 7th Dec. 2007; however, ash pond was not constructed.
c. Kumudapali Ash Pond: 188.89 acre: The Kumudapali site is also the part of 2400MW TPP EC
d. Gudigaon Ash Pond: 576.33 acre: This ash pond is also the part of EC for Expansion of Aluminium Smelter by 13.5 LTPA capacity with 675 MW Captive Power Plant vide letter No. J-13011/10/2006-IA(T) dated 14 March 2007; however, ash pond was not constructed.

vii. Total manpower required for ash pond during construction phase is about 80-100 person and during operations will be approx 05 persons.

viii. Total cost of project is 708 crores.

(14.5.2) Committee noted that PP has obtained total of three ECs in the name of M/s Sterlite Energy Ltd. and M/s Vedanta Aluminium Ltd.

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Type of clearance</th>
<th>Project Configuration</th>
<th>Date</th>
<th>Ash pond location and area</th>
</tr>
</thead>
<tbody>
<tr>
<td>M/s Sterlite Energy Ltd.</td>
<td>EC Amendment in EC</td>
<td>2400 MW Thermal Power Plant, Brundamal, Jharsuguda</td>
<td>7.12.2007</td>
<td>230 acres</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12.5.2008</td>
<td>757.3 acres at Sripura village for both the phases in-lieu of 230 acres.</td>
</tr>
</tbody>
</table>
Committee noted that PP is operating 3615 MW (2400 MW + 9x135 MW). It is noted that one unit of 135 MW has not come up. Committee noted that the EC dated 7.12.2007 does not mention the location of ash pond but it mentions the area of 230 acres. However, the EC amendment dated 12.5.2008 clearly mentions that the ash pond proposed earlier in the area of 230 acres should not be used as it close to elephant corridor. It also mentions that ash pond with an area of 757.3 acres out of 790 acres at Sripura village for both phases shall be used as ash pond and it is to be carved in such a way that it is away from the river as far as possible. Further, EC dated 14.3.2007 does not mention any designated area for ash pond and location. However, in the EC dated 11.6.2008 mentions that 191.92 ha shall be used as ash pond. It appears that PP has changed the location of the ash pond. As these ECs do not clearly mention the location and area of the ash pond earlier approved under these ECs, Ministry may verify the previous records such as EIA reports/other documents whether PP is currently using the approved ash ponds or not. Further, EC dated 11.6.2008 has been issued by Industry Sector. PP has generated total of 15.32 Million Tons of ash for 1215 MW and 7.7 Million Tons of ash for 2,400 MW till date since commissioning of the plant. It has also been noted that the ash pond used near Bhedan river has been breached. Certainly, the river water may have been polluted. Now, PP has proposed another ash pond next to existing ash pond which will be again close to Bhedan river. Committee felt that the ash pond near Bhedan river is not at all feasible. Also, the location of these proposed ash pond is in the vicinity of the forests, water bodies and other wildlife sensitive areas. Further, committee noted that the ECs have been issued in the name of M/s Sterlite Energy Ltd. and M/s Vedanta Aluminium Ltd. Now the present application has been submitted by the M/s Vedanta Ltd. Though all the companies are subsidiaries/sister companies of M/s Vedanta Ltd., the necessary amendments would have been taken for the earlier ECs. There are villages surrounding these ash ponds. PP should ideally utilize the 100% fly ash generated from the plant.

(14.5.3) Committee after deliberations, **deferred the project and recommended for a site visit by a Sub-committee of EAC having 5-member committee to verify the following details:**

i. Location of existing ash ponds, available volume and condition of the ash ponds. Whether the existing ash pond locations are approved under various Environmental Clearances issued time to time.

ii. Location of proposed ash ponds, sensitivity surrounding these locations such as villages, water bodies, forests and wildlife corridors. Feasibility of these locations considering the environmental and social sensitivities.
iii. Existing utilisation pattern and feasibility of various utilisation options such as cement manufacturing, brick manufacturing, road construction, filling in abandoned mines.

iv. Viability of using flyash in the mine void located in the vicinity of the project area as a part of concurrent backfilling along with the Over burden materials.

v. Action plan for remedial measures of the breached dyke including rehandling of the spilled ash at the downstream.

vi. Point-wise reply of the Public Representation.

(14.5.4) Committee also recommended that the following EAC members shall make a site visit and submit the report in 15 days from the date of site visit. A representative from RO, MoEF & CC, Bhubaneswar shall also be requested to be part of the Sub-committee visit:

i. Dr. Navin Chandra - Chairman
ii. Shri S.D. Vora - Member
iii. Dr. S. Lele - Member
iv. Dr. Om Prakash - Member (Rep. of IIT (ISM), Dhanbad)
v. Dr. S. Kerketta - Member Secretary

(File No: J-13012/95/2008-IA.II(T) & Online No. IA/MH/THE/20423/2011)

(14.6.1) Project Proponent submitted online application on 1.12.2017 for extension of validity of EC dated 27.12.2010. PP made the presentation inter-alia submitted the following information:

i. The Environment Clearance to the proposed 2x660 MW super-critical Technology Coal based Solapur Thermal power plant at Villages Fatatetawadi & Ahirwadi, South Solapur Taluk, Solapur District, Maharashtra has been issued vide Ministry's letter dated 27.12.2010, which was valid for 5 years i.e. till 26.12.2015.

ii. However, as per the EIA amendment notification S.O.1141 (E) dated 29.4.2015, the validity of the EC has been made to seven years. As the said EC is valid on the date of notification, it is presumed that the validity automatically is extended to seven years. Accordingly, the EC is valid till 26.12.2017.

iii. The Unit-I (1x660 MW) has been commissioned in September, 2017 and Unit-II (1x660 MW) is in advance stage of completion.

iv. Details of location of the project site are as under:
   Latitude:  17° 32' 10.9” to  17° 33’ 38.18’” N
   Longitude:  75° 58’ 42.0” to  75° 59’ 36.00” E

v. The project proponent has informed that the Unit-II is in advanced stage of completion and is expected to be commissioned by June, 2018. It could not be commissioned yet due to various reasons including delay in Engineering and supplies for Qualified SG manufacture due to merger of M/s Hitachi and M/s Mitsubishi Heavy Industries, non-availability of sand and morum, severe draught in Solapur, Maharashtra during 2012-2015.

vi. The project proponent has requested to extend the validity of environment clearance further by 2 years i.e. till 25.12.2019.
Committee noted that the PP has not submitted the progress of construction activities so far and balance of activities pertaining to Unit-II. PP mentioned that the unit-II will be expected to be commissioned by June, 2018 whereas they are asking for extension for two years. The brief format submitted by PP mentions regarding distance of wildlife sanctuaries as not applicable. However, the EC dated 27.12.2010 mentions Madhok Sanctuary is located at 5 km from the plant boundary. EC conditions stipulated many conditions regarding obtaining recommendations of NBWL, submission of Primary survey of flora and fauna in the study area and wildlife conservation plan vetted by Chief Wildlife Warden within six months. The status is not furnished. The status and implementation of pollution control systems for meeting environmental norms issued vide dated 7.12.2017 has also not been furnished.

Committee after detailed deliberations, recommended for extension of validity of EC for two years subject to submission of the following details:

i. Status of recommendations of NBWL.
ii. Status of details of Primary survey of flora and fauna.
iii. Status of wildlife conservation plan vetted by CWLW.
v. Appportionment of Community Development work with revised cost of the project. Status of community Development work to be submitted to the Ministry and its Regional Office located at Bhopal after one year.

Project Proponent submitted online application on 20.12.2017 for amendment in EC dated 17.02.2010. PP made the presentation inter-alia, submitted the following information:

i. The Environmental Clearance for the project 1x600 MW Coal Based Thermal Power Plant at villages Barela & Gorakpur, in Ghansore Tehsil, in Seoni Distt., in Madhya Pradesh M/s Jhabua Power Ltd.-reg. Amendment Environment Clearance. (File No. J-13012/105/2008-IA-II(T) & Online No. IA/MP/THE/10294/2008)

ii. Thereafter, extension of environmental clearance and amendment in Environment Clearance was obtained vide letter No J-13012/105/2008-IA.II(T), dated 15.02.2016 for temporary transportation of coal by road for a limited period of two years i.e till 15.02.2018, from Gosalpur (GSPR) and Garha sidings (GGGS) to power plant.

iii. Now, the project proponent has submitted that the Railway track from Jabalpur to Binaiki railway station (68 km) has been completed. However, the railway track from Binaiki till plant premises (3 km with curves) is under construction phase. The work has been delayed due to delay in approval of Engineering Scale Plan (ESP) by South East Central Railway (SECR), land acquisition, difficulties in completing the civil work of four bridges and adverse fund availability. The same is now expected to be completed by December 2018.

iv. It has been requested by the project proponent to extend the validity period of Environment Clearance and amended Environmental clearance for coal transportation by road from Binaiki siding till plant premises (1.86 km) for further period of one year i.e till 28.02.2019.
Committee after detailed deliberations, recommended for extending validity of the EC and the permission of coal transportation by road for one year i.e. till 28.2.2019.

(File No.: J-13012/31/2008-IA II(T) & Online No.: IA/OR/THE/12066/2009)

14.9.1 Project Proponent (PP) submitted online application on 13.12.2017 for extending the validity of Environmental Clearance. PP made the presentation inter-alia, submitted the following information:


ii. Thereafter, the validity of environment clearance was extended upto 31.12.2017 vide Ministry’s letter dated 03.03.2017.

iii. The project proponent has submitted the present status of Unit-1 and Unit-2, with details as under:
   a. The Commercial Operation of Unit-1 was not allowed on the LILO. Hence efforts are made to complete the dedicated transmission line from the plant to Sundargarh pooling station
   b. Due to local disturbances and ROW issues the dedicated transmission line to Sundargarh got delayed and Line-2 could be completed only in May, 2017 and Line-1 in June, 2017.
   c. Due to change over works from LILO to dedicated line, construction of power plant got disrupted for about 4 months & also erection of Unit-2.
   d. The company is under severe financial crisis and resolving funding issues with lenders and investors are under way.
   e. PGCIL has not been given clearance for synchronization due to pending payments of POC charges.
   f. Unit-1 is expected to be ready for commercial operation by 31.12.2018 and complete balance activities of Unit-2 as soon as funding issues are resolved.

iv. The PP has requested for extension of validity of environment clearance further up to 31.12.2018.

(14.9.2) Committee after detailed deliberations, recommended for grant of extension of validity of EC by one year i.e. till 31.12.2018.

14.10 Expansion by addition of 1x225 MW Gas Based Combined Cycle Power Plant at village Khaikhera, in Kashipur Taluk in Udham Singh Nagar District in Uttar Pradesh by M/s Sravanthi Energy Private Limited. reg. extension of validity of EC.  
(File No.: J-13012/135/2010-IA II (T) & Online No.: IA/UK/THE/10382/2010)

14.10.1 Project Proponent (PP) submitted online application on 20.12.2017 for extending the validity of Environmental Clearance. PP made the presentation inter-alia, submitted the following information:

i. Environmental Clearance for Phase I (1x225 MW) and Phase II (1x225 MW) Gas based Combined Cycle Power Plant at Village Khaikhera in Kashipur
Taluk, District Udham Singh Nagar, Uttarakhand has been issued vide Ministry’s letter dated 09.03.2010 and 31.01.2011, respectively.

ii. The Phase-I Capacity of 225 MW has been commissioned and put in operation in the year of 2016 as GoI has allocated required Natural Gas and supplying the electricity to Uttarakhand Power Corporation Limited.

iii. The Environment Clearance for Phase II was valid for five years, i.e. upto 31.01.2016. The validity has been extended for a further period of two years, i.e. till 31.01.2018. Now, Sravanthi Energy Pvt. Ltd has requested MoEF&CC to extend the validity of Environmental Clearance of Phase II further for a period of 3 years with effect from 31.01.2018 (up to 31.01.2021).

iv. Major implementation activities of Phase II of the project has been completed, which includes 90% of construction activity, 85% of installation and erection of major supply systems i.e. Gas Turbines (GT), Steam Turbine (ST), Heat Recovery Generator (HRSG), Air Cooled Condenser (ACC), Transformers, switchyard, DM Plant etc. Only some auxiliary activities are yet to be completed like electric cabling, instrumentation, piping, etc.

v. The plant is in idle since March, 2012 and unfortunately, the phase -II (225 MW) of project not yet commissioned and remain in idle due to unavailability/non-supply of domestic Natural Gas by Govt. of India. In this regard, MoP, Govt. of India has also issued an advisory vide letter ID No: 4/5/2012-Th.1, dated 14.03.2012 with a statement of non-availability of domestic natural gas to run the power plants up to 2015-16.

vi. The project proponent has submitted that efforts are on to complete and commission the Phase-II, and the option of using LNG is also being considered. The PP has submitted to complete and commission the project soon.

vii. Further, the project proponent has stated that the progress reports are regularly being submitted to CEA and the six-monthly compliance reports to Environmental Clearance conditions are also being submitted regularly to the Regional Office of MoEF&CC.

(14.10.2) Committee after detailed deliberations, recommended for grant of extension of validity of EC for three years, i.e. till 30.01.2021.

14.11 2x660 MW Super Critical Coal based Thermal Power Project (Expansion) at Lalpania Village, Bokaro District, Jharkhand by M/s Tenughat Vidyut Nigam Limited (TVNL)- reg. discussion of Site Visit. File No: J- (File No.: J-13012/15/2017-I.A.I(T) & Online No.: IA/JH/THE/69754/2017)

(14.11.1) TVNL has proposed to establish the 2x660 MW Super Critical Thermal Power Project at the same location. The proposal for grant of Terms of Reference (ToR) has been considered by the EAC (Thermal) in its 11th meeting held on 26.10.2017. Considering the project is proposed near Tenughat Water Reservoir and representations received that the existing power plant is causing water pollution in Tenughat reservoir, EAC recommended that sub-committee comprising of shall conduct a visit the site to verify the land requirement, existing water consumption and effluent disposal mechanism, fly ash utilization pattern and disposal mechanism, proposed water consumption and its allocation, sensitive areas like water bodies, forests, protected areas, status of compliance to the directions issued by the different Statutory Authorities, etc. Accordingly, Ministry vide Order dated 29.11.2017. Accordingly, the sub-committee visited the site during 16th-17th December, 2017. The report of the sub-committee is enclosed as Annexure-A3.
(14.11.1) The Sub-committee made the following recommendations:

i. Address all the environmental issues and legal compliance raised in JSPCB show-cause, CPCB (inspection report and Directions) and the sub-committee observations immediately. Submit a comprehensive report to this Ministry and Regional Office, Ranchi after addressing all environmental issues for consideration of ToR.

ii. Strengthen the existing flyash bund with stone pitching and garland drains. Leakage of bund to be arrested. All along the bund, stone pitching shall be done.

iii. Water balance diagram containing details of consumption of fresh water, generation of waste water and quantity of discharge. Effluent treatment (including ash pond overflow) and monitoring of water quality at all discharge points shall be done. Action plan for Zero Liquid Discharge to be submitted.

iv. Ash dumped in the open areas to be immediately removed. Utilisation plan shall be submitted.

v. Fugitive dust emissions from ash pond and coal transfer points shall be controlled. Fixed water sprinklers shall be installed both at ash pond and coal stack yard. Garland drain shall be constructed around the coal stack yard also.

vi. A water tanker was plying on the road as can be seen from photo but more water tankers are needed for the whole plant/project. Log book of water tankers must be maintained in which their running hours, kilometre reading, maintain hours, driver’s name, etc. should be recorded. A copy of the log book must be sent to Regional Office, Ranchi of the Ministry.

vii. Also, green belt be developed in and around the TVNL by using the indigenous broad-leaved species for absorbing the dust.

viii. Road transportation of coal shall be done by tarpaulin covered trucks.

ix. All observations made above shall be addressed and action taken report to be submitted to Ministry and its Regional Office.

Based on the observations made during the visit, committee felt that there is a serious environmental threat due to existing plant operations. Committee recommended that all the environmental liabilities/issues to be addressed and then seek for the Terms of Reference for proposed power project (2x660 MW). Till such time, the proposal for issued of ToR may be kept in abeyance.

(14.11.2) Committee deliberated on the observations and recommendations mentioned in the report of the sub-committees. Committee noted the serious violations of the existing project and further found that plant is now running without CTO since last two years. CPCB also issued closure directions recently. Committee opined that the Ministry may forward the site visit report of the Sub-committee to the Govt. of Jharkhand for immediate remedial action. Further, the Committee recommended that the present proposal shall not be considered before the EAC till all the issues are addressed duly by the PP.

14.12 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.
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.
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.

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.

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.

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.

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.

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.

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.

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.

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.

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.
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.

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.

Detailed plan for rainwater harvesting and its proposed utilization in the plant shall be furnished.

Feasibility of near zero discharge concept shall be critically examined and its details submitted.

Optimization of Cycles of Concentration (COC) along with other water conservation measures in the project shall be specified.

Plan for recirculation of ash pond water and its implementation shall be submitted.

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.

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.

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.

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.

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$_{10}$, PM$_{2.5}$, SO$_{2}$, 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.

xlii) Radio activity and heavy metal contents of coal to be sourced shall be examined and submitted along with laboratory reports.

xliii) Fuel analysis shall be provided. Details of auxiliary fuel, if any, including its quantity, quality, storage etc should also be furnished.

xliv) 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.

xlv) 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.

xlvi) 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.

xlvii) 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.

xlviii) 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.

xliv) 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\textsubscript{2} 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.
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$^3$ 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 report of the sub-committee for the “Proposed 2x660 MW Super Critical Coal based Thermal Power Project (Expansion) at Lalpania Village, Bokaro District, Jharkhand by M/s Tenughat Vidyut Nigam Limited (TVNL)” During 16th-17th, December, 2017”.

1.0 Introduction:

Tenughat Vidyut Nigam Limited (TVNL) is operating 2x210 MW (Phase-I) Thermal Power Plant located at Lalpania Village, Bokaro Dist., Jharkhand since September, 1996 and September, 1997 respectively for Unit-1 and Unit-2.

TVNL has now proposed to establish the 2x660 MW Super Critical Thermal Power Project at the same location. The proposal for grant of Terms of Reference (ToR) has been considered by the EAC (Thermal) in its 11th meeting held on 26.10.2017. Considering the project is proposed near Tenughat Water Reservoir and representations received that the existing power plant is causing water pollution in Tenughat reservoir, EAC recommended that sub-committee comprising of shall conduct a visit the site to verify the land requirement, existing water consumption and effluent disposal mechanism, flyash utilisation pattern and disposal mechanism, proposed water consumption and its allocation, sensitive areas like water bodies, forests, protected areas, status of compliance to the directions issued by the different Statutory Authorities, etc. Accordingly, Ministry vide Order dated 29.11.2017 (Annex-IV) nominated following members to conduct the site visit and submit the report. It has also been requested a Scientist from the RO-MoEF&CC, Ranchi to accompany the sub-committee for the visit.

i. Shri Gururaj P. Kundargi (Member-EAC) - Chairman
ii. Shri Mohan Karnat (Member-EAC) - Member
iii. Dr. S. K. Paliwal, CPCB (Member-EAC) - Member
iv. Shri N. Subrahmanyam, MoEF&CC - Member Secretary

Accordingly, the sub-committee visited the site during 16th -17th December, 2017. Dr. S. K. Paliwal, CPCB, could not be present for the visit due to his preoccupation with other activities. Shri Rajeev Ranjan, Scientist ‘D’, RO-MoEF&CC, Ranchi was present during the visit. Committee members have unanimously decided that Shri Rajeev Ranjan also be co-opted as the member of the sub-committee. Sub-committee held brief meeting with the TVNL officials (Annex-I: Attendance) and visited the ash pond area & ashwater discharge point, ash disposal areas around the plant, cooling water discharge channel, intake water point from the reservoir, DM water plant, waste water discharge point, coal handling area (Wagan loading area & transportation through conveyors), ESP control room, Power Plant Control room, Stack Monitoring, Boiler & Turbine area, Continuous Online Ambient Air Quality System on 16.12.2017. Coal stack yard could not be visited on 16.12.2017. However, it was visited on 17.12.2017. TVNL representatives were assisting throughout the visit and furnished the following documents:

i. Environmental Clearance vide dated 2.2.1989 for Phase-II: 3x210 MW.


vi. Documents pertaining to proposed 2x660 MW Power Project which were submitted for issue of ToR.

1.1 Phase-I: 2x210 MW: Sub-committee noted that the power plant with capacity 2x210 MW (Phase-I) which is under operation does not have environmental clearance. Thermal Power Plants with the Capital Investment more than Rs.50 Crores require prior Environmental Clearance under EIA Notification, 1994. TVNL representatives stated that there is no EC available for existing power plant (Phase-I: 2x210 MW).

Further, Jharkhand State Pollution Control Board has accorded the Consent to Operate (CTO) for the period 1.1.2015-31.12.2015. From the Consent accorded by JSPCB, the project investment for 2x210 MW is mentioned as Rs.915 Crores. TVNL authorities have submitted renewal of the Consent for the period 2016-17. However, JSPCB is yet to accord the renewal of Consent. The plant is operating without valid Consent from JSPCB. It is also observed that the plant does not have ‘Hazardous waste Authorisation’ from JSPCB.

1.2 Phase-II: 3x210 MW: Subsequently, TVNL proposed Phase-II Power Project with capacity of 3x210 MW for which Environmental Clearance has been obtained vide MoEF file no.13011/57-86/IA/ dated 2.2.1989. The validity of the said EC has been extended for five years. It has been informed by the project authorities that the Phase-II (3x210 MW) project could not be implemented due to various reasons.

1.3 Proposed Project- 2x660 MW: TVNL proposed 2x660 MW power project in the same premises. PP plans to use the common facilities such as coal handling, water intake water facilities, etc. TVNL is in possession of total 1038 acres out of which vacant land (which includes low lying areas) will be used for proposed power plant. Though, specific land break-up could not be provided, the proposed ash pond area will be located adjacent to the existing ash pond.

2.0 Sub-Committee observations:

2.1 Sub-committee observed that the power plant is surrounded by Ghats, forests, water bodies (Damodar river, Tenughat reservoir and nallahs) and Tenughat Dam. Sub-committee visited the various facilities of the site and made the following observations:

i. **Existing Ash pond area:** 60-70% of the ash pond periphery is surrounded by Tenughat water reservoir and other water bodies (nallahs and water ponds). The existing ash pond is almost full and exhausted. The exact volume and quantity of the fly ash/bottom ash disposed in the ash pond is not known. As per the documents provided by TVNL authorities, the coal consumption in the FY 2016-17 is 10 Lakhs Ton and the ash generation is 4.3 Lakh Tons (at 40% ash content) It was mentioned in their document that a total of 9.6 Lakh tons of ash in FY
2016-17 was utilized for filling of low lying areas nearby TTPs Lalpania within 5 km lead. Sub-committee walked along the bund which separates Tenughat reservoir side/ water bodies. The flyash/bottom ash is completed filled to the bund height. The height of the bund needs to be raised (keeping in view the safety requirements) to hold the further ash disposal. Ash water which is overflown through hume pipes is discharged into the water bodies and finally meets the reservoir. There is no treatment or monitoring of quantity/quality of ash water before letting into the water body. Leakage/seepage of ash water was observed at the bottom of the bund on water body side which is making way into the water body. At many places the embankment of the ash pond/dyke was observed to be made of flyash. These bunds contain mix of ash and other earth material at some places. Construction of these embankments using flyash especially in the outer portion of the embankment should not be done since there are every chances of the flyash being carried away along with rainwater to the nearby river/nala & ultimately to reservoir. Western side of the ash pond is low lying area which is filled with flyash. However, there is no control arrangement for arresting flyash along with runoff during rainy season. Further, it was noticed that huge dust clouds raised from ash pond are continuously moving towards Tenughat Reservoir and the adjoining forest area in SE direction due to wind currents. The flyash cloud is ultimately polluting & silting the reservoir/water bodies and adjoining forests. There must be some control arrangement such as dedicated permanent & fixed type of water sprinklers on the dry flyash bed in the pond to prevent fugitive dust emissions. The bund needs to be strengthened to avoid leakages. The height of the bund must be raised (keeping in view the safety requirements) to control overflow of flyash into the reservoir side. Greenbelt along the bund is required to be developed to prevent erosion. The flyash dumped in the open areas on West of the ash pond shall be removed to prevent erosion/runoff during monsoon. Else, stone pitching and garland drain shall be constructed. Stone pitching along with garland drain shall be constructed all along the bund. Spillage and thick layer of ash and on road adjacent to ash pond is observed which will cause heavy dust emissions due to movement of vehicles. Transportation of flyash in trucks from plant to ash pond shall be done in controlled manner to avoid spillage and fugitive emissions. There was a village near the ash pond area. A green belt barrier must be made around the ash pond/dyke area to protect the villagers. Water sprinkling must also be done regularly to minimize/eliminate dust pollution.

ii. **Proposed ash pond area:** TVNL proposed that the area adjacent to the existing ash pond on South & West side will be made as new ash pond for proposed 2x660 MW power plant. Sub-committee observed that the area identified for proposed ash pond is low lying area and is very close to the water bodies and Tenughat Reservoir. Committee felt that this area is not feasible for proposed ash pond though the land is in the possession of TVNL.

iii. **Cooling water discharge:** Cooling water is taken through open channel with approximate length of 1.5 km and discharged into the Tenughat Reservoir on North side of the plant. It is felt that there should be monitoring of water quality
and discharge quantity daily to conform that discharge quality is in within safe limits.

iv. **Open dumping of ash and other waste material:** It is observed that the ash and other waste materials have been openly dumped in heaps on North and NE side of the power plant. This can be clearly seen through google satellite imagery as there are white patches which are indication of open ash dumping. This open dumping of flyash poses serious threat to the water reservoir as the runoff during monsoon will carry flyash and heavy metals and eventually joins the reservoir. Siltation ponds must be made there to prevent runoff into the reservoir as these dumps were close to reservoir & catch drains. Further, it was observed that children have gathered at ash dumps to collect metal scrap. It is also observed that goats are feeding on these waste dumps. All the waste dumps could not be visited due to inaccessibility and lack of time. These waste dumps shall be immediately removed and kept in a controlled pond. TVNL authorities shall strive for utilization instead of open dumping. Otherwise, construct an ash dyke and store it to prevent leakage.

v. **Water intake point:** Committee visited the water intake point. TVNL authorities submitted the water allocation document by the State Govt. for allocation of 300 cusecs vide dated 6.9.1974 where in it was mentioned that average annual inflow of Tenughat dam is 1.5 M.a.ft whereas the storage in the Dam is 0.67 m.a.ft which is only a 43% of the average annual runoff. It is mentioned that there is a scope for creation of further storage in the valley. Committee felt that the additional storage area as planned by State Govt. may also contain the area which adjacent to existing ash pond. Committee also felt that a fresh water allocation approval from the State Govt. is required.

vi. **Effluent discharge:** It has been observed that all effluents (boiler blow down, floor wash water, waste water from coal handling area, etc.) are mixed in single drain and discharged in to the Tenughat Reservoir. Online monitoring is done for pH, TSS, BOD and COD. During the visit, it was observed that all parameters are within the limits. It was observed that there is only one drain available for effluent discharge and there are no separate drains for storm water and effluent discharge. At the ultimate water discharge point, ash was observed in the drain as can be seen from photos annexed (Annex-III) to the report. It means water with ash in it gets carried away in reservoir. It is suggested to settle the water at some pond/reservoir, allow the ash to settle, treat it and then reuse it in the plant, thus following a Zero discharge concept.

vii. **ESP Functioning and Stack Monitoring:** It has been observed that both ESPs are functioning. Each ESP contains 28 fields out of which 3 fields were not functioning during the visit. Stack emissions are continuously monitored for SO2 and NO and the values observed during the visit are 71 ppm and 58 ppm respectively. However, there is no continuous monitoring available for Particulate Matter (PM) in the stack emissions. It has been informed by the TVNL authorities that Central Institute of Mining and Fuel Research (CIMFR), Dhanbad is monitoring stack, effluent and ambient air quality once in a month. However, the monitoring reports could not be made available during the visit. In addition, water
quality of Tenughat reservoir shall be monitored at various locations to cross check for any impact/pollution from the power plant.

viii. **Plant Operations:** During the visit, it was observed that Unit-1 is running at 166 MW (at 79% PLF) load and Unit-2 at 170 MW (at 80% PLF). Coal consumption is approximately 125 T/hr and 127 T/hr for Unit-1 and Unit-2 respectively. The coal consumption during first shift (8 hrs) on 16.12.2017 is 2428 MT.

ix. **Coal Handling Plant and Stack Yard:** There is an arrangement for wagon unloading from bottom of the wagon. The coal is collected from the chutes placed in the bottom and subsequently, it is transported to the plant through conveyor belt. During the visit, committee did not observe any wagons unloading. It was mentioned by the TVNL authorities that presently coal is being obtained through trucks and stored in stack yard. Committee visited the transfer points and observed fugitive dust emissions in large quantities. The sprinkler arrangement made at transfer point is not sufficient. Dry fog sprinkling system should be installed to arrest the fugitive dust emissions. It is also observed that the coal from the conveyor at transfer points is spilled on the ground which also results in fugitive emissions. The coal spillage should be controlled. It is also observed that coal is transported through open trucks with capacity of 17/27 Ton trucks. In absence of coal through rail, approx. 200-300 trucks are required and there is a considerable transportation impact due to road transportation. The coal is stored in heaps and water sprinkling to suppress fugitive dust is done during the visit. However, there is no drain around the coal stack yard to prevent runoff. It has been advised to make garland drain around the stack yard to prevent coal dust mixing with runoff.

x. **Other issues:** Committee observed that scrap material is dumped in the open area. Insulation material over duct carrying hot gases which connects between ESP and Stack is not there and duct is exposed to open air. ESP structure needs maintenance as can be seen photograph. A daily water balance chart is to be maintained for keeping a record of water consumption at various facilities/sources and effluents discharged from various process/facilities. In-house monitoring should also be conducted. A department of Environment shall be opened by recruiting specialists in Environmental Science/Engg., Chemical Engineers/Chemists for implementation of Environmental Protection Measures. Environmental Policy is to be prepared and the environmental compliance and implementations shall be reviewed by the Board of Directors periodically. Third party environmental audit shall be conducted. Continuous Online Ambient Air quality Monitoring has been installed in the Hospital premises near Lalpania Village.

xi. **CPCB Directions:** Sub-committee sought Dr. S.K. Paliwal whether CPCB has conducted any inspection for the power plant. He has provided the latest CPCB Zonal Office, Kolkata inspection report and the latest directions issued by CPCB to TVNL. CPCB Zonal Office conducted inspection on 10.10.2017 and monitored wastewater & stack emissions. Following are the major observations:

   a. **Power station is running without valid consent.** Renewal of consent has been refused by JSPCB due to non-compliance of conditions of earlier
CTO. In this regard, **JSPCB also has issued show-cause notice to the plant.**

b. Wastewater from DM plant is treated in neutralization pit and mixed with other effluents thereafter for final discharge.

c. Online and monitored values at the discharged point are not matching.

d. Wastewater from flyash pond is allowed to be discharged in to the river without treatment.

e. Stack emissions are not meeting the standards. The measured values are as follows:

<table>
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<tr>
<th>Parameter</th>
<th>Unit-I</th>
<th>Unit-II</th>
<th>Combined</th>
<th>Standard</th>
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<tr>
<td>PM (mg/Nm³)</td>
<td>316</td>
<td>532</td>
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<td>33</td>
<td>-</td>
<td>600</td>
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f. Industry has not installed online monitoring system for ambient air quality, stack emission and effluent quality from the flyash pond.

g. Wastewater is discharged to Murmalwa Nala leading to River Damodar.

h. The industry should submit a time bound action plan to achieve zero discharge and install online analysers.

Further, based on the inspection report, CPCB issued following directions under Section 5 of E(P) Act, 1986 vide letter dated 21.11.2017 (**Annex-II**) to TVNL:

a. Close down the operations of both units with immediate effect and shall remain closed till renewal of consent from JSPCB.


c. Augment the efficiency of ESP connected to Unit-1 so as to comply with emission limit of 100 mg/Nm³ for Particulate Matter and submit to action plan to comply with revised emission norms dated 7.12.2015.

d. Install and establish 24x7 connectivity immediately for online monitoring system for stack emission, ambient air quality, ash pond overflow, ETP/STP as per CPCP guidelines.

e. Ensure regular calibration of OCEMS and transmission of data to CPCB.

f. No effluent is discharged outside the plant premises under any condition and submit a time bound action plant to achieve Zero Liquid Discharge (ZLD) within 15 days.

g. Install ash water recirculation system at its flyash pond to recycle/reuse the effluent and under any circumstances, ash pond overflow shall not be discharged into Water bodies.

**3.0 Recommendations of the sub-committee:** The committee made the following recommendations:

i. Address all the environmental issues and legal compliance raised in JSPCB show-cause, CPCB (inspection report and Directions) and the sub-committee observations immediately. Submit a comprehensive report to this Ministry and
Regional Office, Ranchi after addressing all environmental issues for consideration of ToR.

ii. Strengthen the existing flyash bund with stone pitching and garland drains. Leakage of bund to be arrested. All along the bund, stone pitching shall be done.

iii. Water balance diagram containing details of consumption of fresh water, generation of waste water and quantity of discharge. Effluent treatment (including ash pond overflow) and monitoring of water quality at all discharge points shall be done. Action plan for Zero Liquid Discharge to be submitted.

iv. Ash dumped in the open areas to be immediately removed. Utilisation plan shall be submitted.

v. Fugitive dust emissions from ash pond and coal transfer points shall be controlled. Fixed water sprinklers shall be installed both at ash pond and coal stack yard. Garland drain shall be constructed around the coal stack yard also.

vi. A water tanker was plying on the road as can be seen from photo but more water tankers are needed for the whole plant/project. Log book of water tankers must be maintained in which their running hours, kilometre reading, maintain hours, driver’s name, etc. should be recorded. A copy of the log book must be sent to Regional Office, Ranchi of the Ministry.

vii. Also, green belt be developed in and around the TVNL by using the indigenous broad-leaved species for absorbing the dust.

viii. Road transportation of coal shall be done by tarpaulin covered trucks.

ix. All observations made above shall be addressed and action taken report to be submitted to Ministry and its Regional Office.

Based on the observations made during the visit, committee felt that there is a serious environmental threat due to existing plant operations. Committee recommended that all the environmental liabilities/issues to be addressed and then seek for the Terms of Reference for proposed power project (2x660 MW). Till such time, the proposal for issued of ToR may be kept in abeyance.

(Signature)
(Shri Mohan Karnat)
Member

(Signature)
(N. Subrahmanyan)
Member Secretary

(Signature)
(Shri Rajeev Ranjan)
Member & representative of RO,Ranchi

(Signature)
(Shri Gururaj P. Kundargi)
Chairman

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Representatives of TVNL, Ranchi during site visit by Sub-committee (EAC) on 16.12.2017

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<tr>
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<tr>
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<td>2</td>
<td>Shri Sanatan Singh</td>
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<td>General Manager cum Chief Engineer</td>
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<td>Shri Ghanshyam Ravidas</td>
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<td>Shri Dharmendra Kumar</td>
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<td>Shri Suvas Prasad</td>
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SPEED POST

B-33014/07/2017-18/IPC-II/118

November 21, 2017

To

M/s Tenughat Thermal Power Station,
Tenughat Vidyut Nigam Limited,
P.O. Tenughat, Lalpania,
Bokaro - 829149, Jharkhand

Sub: Directions under Section 5 of the Environment (Protection) Act, 1986 to M/s Tenughat Thermal Power Station (TTPS) of TVNL-Closure thereof.

WHEREAS, Thermal Power Plants are identified as one of the 17 categories of highly polluting industries in the country and have been discharging environmental pollutants directly or indirectly into ambient air and water, which pose constant threat to cause adverse effect on air and water quality; and

WHEREAS, for strengthening the monitoring and compliance through self-regulatory mechanism, online emission and effluent monitoring systems need to be installed and operated by the developers and the industries on ‘polluter pays principle’; and

WHEREAS, a direction under section 18 (1) (b) of the Water (Prevention & Control of Pollution) Act, 1974 and the Air (Prevention & Control of Pollution) Act, 1981 was issued on February 05, 2014 to all the State Pollution Control Boards (SPCBs)/ Pollution Control Committees (PCCs) for installation of online effluent monitoring systems; and

WHEREAS, the CPCB has prepared and uploaded guidelines for online continuous monitoring system for effluent at CPCB website; and

WHEREAS, considering the requests/ representations received from industries/ industrial associations/ SPCBs / PCCs, an extension of time up to June 30, 2015 for installation of online monitoring systems was granted vide direction dated March 02, 2015 under section 18 (1) (b) of the Water (Prevention & Control of Pollution) Act, 1974 and the Air (Prevention & Control of Pollution) Act, 1981; and

WHEREAS, a letter vide dated May 29, 2015 was issued by the Chairman CPCB to all SPCBs/PCCs informing that no further extension of time will be given after June 30, 2015 and withdrawal of consent to operate along with forfeit of bank guarantee of non-complying units will be the only option; and

WHEREAS, it is presumed that concerned SPCB/PCC has also issued a direction under section 33 (A) of the Water (Prevention & Control of Pollution) Act, 1974 to your unit to install the online effluent monitoring system; and

WHEREAS, directions under section 5 of the Environment (Protection) Act, were issued on July 21, 2015 to M/s Tenughat Thermal Power Station (TTPS) for installation of Online Continuous Emission & Effluent Monitoring Systems (OCEMS) for parameters namely PM, SO2, NOx & pH, TSS, Temperature, flow and submission of the status; and

WHEREAS, a team from Regional Directorate-East, Kolkata carried out an inspection of M/s TTPS on 10.10.2017 to verify the compliance. The team made the following observations:

[Signature]
1. M/s TTPS is operating without valid consent under Air (Prevention & control of Pollution) Act, 1981, Water (Prevention & control of Pollution) Act, 1974 since 01.01.2016 and has not also obtained Hazardous Waste Authorisation from JPCB.

2. The renewal of consent has been refused by JPCB due to non-compliance of conditions of earlier CTO. In this regard, JPCB has also issued a show cause notice to the plant.

3. Unit- 2 was found non-operational due to shortage of coal and Unit-1 was found operating at 76.19% load.

4. The concentration of PM (420.72 mg/Nm³) from Unit-1 was found to be exceeding the limit of 100 mg/Nm³ during manual monitoring.

5. M/s TTPS has not installed OCEMS for monitoring of stack emission and effluent for ash pond. EQMS installed at outlet of neutralisation pit is also not connected with CPCB server.

6. The concentration of pH, BOD, COD, TSS and O&G was observed as 7.4, < 2.5 mg/l, 12 mg/l, < 2 mg/l and < 5 mg/l respectively, whereas online monitoring values for pH, BOD, COD and TSS were 6.6, 22.31, 52.36 and 21.01 respectively. The effluent parameters were found complying with prescribed standards. However, the deviation between manual and online data for BOD, COD & TSS was found to be 792%, 336% and 950% which seems to be very high.

7. The overflow from fly ash pond is discharged into Murmanawa Nala which finally meets River Damodar. The sample could not be collected for monitoring due to approach being inaccessible. Thus, M/s TTPS is not recycling/reusing to maintain close circuit as per CTO.

WHEREAS, an order has been passed by Hon’ble NGT, Principal Bench, New Delhi vide dated 24.10.2017 in the matter of Central Pollution Control Board v/s General Manager/Chief Engineer of Thermal Power Plants & Others (OA No. 409/2017) filed by CPCB not installation of OCEMS by thermal power plant. Hon’ble NGT has stated that “Central Pollution Control Board and all the State Pollution Control Boards to act in accordance with law. Law provides enough powers including power to direct closure and ensure closing of the defaulting industries. Concerned State Administration shall provide all assistance to the Boards for ensuring execution of their orders”.

WHEREAS, emission from Unit 1 was found exceeding the emission limit and effluent from overflow of ash pond poses serious threat to environment.

WHEREAS, Ministry of Environment & Forests, Government of India, vide Notifications No. S. O. 157 (E) of 27.02.1996 and S. O. 730 (E) dated 10.07.2002, has delegated the powers vested under Section 5 of the Environment (Protection) Act, 1986 (29 of 1986) to the Chairman, Central Pollution Control Board, to issue directions to any industry or any local body or any other authority for violations of the standards and rules notified under the Environment (Protection) Rules, 1986 and amendment thereof.

NOW, THEREFORE, in exercise of the powers vested under Section 5 of the Environment (Protection) Act, 1986, M/s Tenughat Thermal Power Station, P.O. Tenughat, Lalpania, Dist. Bokaro, Jharkhand is hereby directed to ensure compliance of following directions:

1. That M/s TTPS shall close down the operations of Unit -1 & 2 with immediate effect and shall remain closed till renewal of consent to operate from JPCB.

2. That M/s TTPS shall obtain Hazardous Waste Authorization under Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016 from JPCB.
3. That M/s TTPS shall augment the efficiency of ESP connected to Unit-1 so as to comply with emission limit of 100 mg/Nm² for particulate matter submit an action plan to comply with the new emission norms vide notification dated 07.12.2015.

4. That M/s TTPS shall immediately install and establish 24×7 connectivity of online monitoring system for stack emission, ambient air quality, ash pond overflow, ETP/STP as per CPCB guidelines.

5. That M/s TTPS shall ensure regular calibration of OCEMS and transmission of data to CPCB server on regular basis. The unit shall also inform to CPCB immediately whenever OCEMS are not in operation either due to non-operation of plant or any other reason.

6. That M/s TTPS shall ensure no effluent is being discharged outside plant premises under any condition and submit a time bound action plan to achieve Zero Liquid Discharge (ZLD) within 15 days of issue of the directions.

7. That M/s TTPS shall install Ash Water Recirculation System (AWRS) at its fly ash pond to recycle/reuse the effluent and under any circumstances, ash pond overflow shall not be discharged directly or indirectly into River Ganga or its tributaries.

M/s Tenughat Thermal Power Station of Tenughat Vidyut Nigam Limited is hereby directed to comply the directions listed at Sr. No. 1-7. Action taken report shall be submitted within 15 days from the date of issue of these directions. In case of failure to comply with the said directions, the Board will be constrained to initiate action as may be deemed necessary and appropriate in the circumstance of the case under the Environment (Protection) Act, 1986.

(S.P.S. Parihar)
Chairman
22-11-2017

Copy to:

1. The Chairman
   Jharkhand State Pollution Control Board
   T.A. Bldg., HEC, P. O.
   Dighwar, Ranchi-834 004 (Jharkhand)

2. The District Magistrate
   Collectorate, Bokaro, Jharkhand

3. The Addl. Secretary (CP Division)
   Ministry of Environment, Forests and Climate Change
   Prithvi Wing, 2nd Floor, Room No. 216
   Indira Paryavaran Bhawan
   Aliganj, Jor Bagh Road, New Delhi – 110003

4. The Regional Director – West,
   Central Pollution Control Board
   Southend Conclave, Block 502, 5th & 6th Floor
   1582, Rajdanga Main Road
   Kolkata – 700 107

5. The Divisional Head - IT, CPCB

(A. Sudhakar)
Member Secretary
1. Location Map of Tenughat Power Plant

2. Map showing Power Plant and its facilities
3. Ashwater discharge point

4. Ashwater overflow through hume pipe
5. Ash dumping in the low lying areas to the West of Ash Pond

6. Ash dumping in the low lying areas to the West of Ash Pond
7. Existing Ashpond filled to the surface

8. Fugitive dust emissions from ash pond
9. Flyash dust clouds due to winds

10. Water sprinkling on the road at the periphery of ashpond.
11. Flyash Spillage on roads

12. Low Lying area adjacent to ash pond proposed for new ash disposal
13. Cooling water channel and discharge point

14. Open Ash dumping on North side of Power Plant
15. Children picking up the metal scraps near open ash dumping on North side.

16. Animals feeding on the open ash dump on north side.
17. Open Ash dumping on North side

18. Water Intake Point
19. Power Plant

20. Wagon loading area
21. Coal transfer point

22. Effluent discharge point and Online monitoring
23. Online Emission Monitoring

24. Power Plant Control Room and ESP and its fields data
25. Coal Stack Yard

26. Members visiting the site
No. J-13012/15/2017-IA.I(T)
Government of India
Ministry of Environment, Forest and Climate Change

3rd Floor, Vayu Block,
Indira Paryavaran Bhawan,
Jor Bagh Road, Aliganj,
New Delhi-110003

Dated: 29.11.2017

OFFICE ORDER

Sub: 2x660 MW Super Critical Coal based Thermal Power Project (Expansion) at Lalpania Village, Bokaro District, Jharkhand by M/s Tenughat Vidyut Nigam Limited (TVNL)- reg. Site Visit.

Sir,

This has reference to the online application no. IA/JH/THE/69754/2017 dated 22.9.2017 submitted by M/s Tenughat Vidyut Nigam Limited (TVNL) and meeting of 11th Expert Appraisal Committee (Thermal Power) held on 26.10.2017 for grant of Terms of Reference for the above mentioned Project.

2. The EAC (Thermal) in its 11th Meeting held on 26.10.2017 recommended that a site visit to be carried out by sub-committee for verifying the land requirement, existing water consumption and effluent disposal mechanism, flyash utilisation pattern and disposal mechanism, proposed water consumption and its allocation, sensitive areas like water bodies, forests, protected areas, status of compliance to the directions issued by the different Statutory Authorities, etc.

3. In acceptance of the recommendations of the EAC (Thermal) in its meeting held on 26.10.2017, the Ministry hereby constitutes a sub-committee comprising of following members which would make site inspection and submit a report on findings with respect the concerned project of M/s Tenughat Vidyut Nigam Limited (TVNL). A representative from concerned Regional Office of MoEF&CC is also requested to accompany sub-committee for the site visit.

   i. Shri Gururaj P. Kundargi (Member-EAC) - Chairman

   ii. Shri Mohan Karnat (Member-EAC) - Member

   iii. Dr. S. K. Paliwal, CPCB (Member-EAC) - Member

   iv. Shri N. Subrahmanyan, MoEF&CC - Member Secretary

4. The Sub-committee shall make a site inspection in December, 2017 and submit the report within 15 days to the Ministry for further consideration.

5. TA/DA of the Sub-committee nominated by the Ministry for undertaking site visit shall be met by the Ministry of Environment, Forest and Climate Change as per rules.

   This issues with the approval of the Competent Authority.

Yours faithfully,

(Dr. S. Kerkertha)
Director

Copy to:-

1. Shri Gururaj P. Kundargi/ Shri Mohan Karnat/ Dr. S. K. Paliwal.
2. The Additional Principal Chief Conservator of Forests (C), Ministry of Environment, Forests and Climate Change, Regional Office (ECZ), Bungalow No. A-2, Shyamali Colony, Ranchi – 834002.

Page 1 of 2
3. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-
Office Complex, East Arjun Nagar, Delhi-110032.
4. The Special Secretary, Environment, Forest and Climate Change Department,
Govt. of Jharkhand, Ranchi.
5. The Chairman, Jharkhand State Pollution Control Board, T.A. Division Building
(Ground Floor), H.E.C. Dhurwa, Ranchi-834004.
6. The District Collector, Ramgarh District, Govt. of Jharkhand, Chhatarmaru,
Jharkhand- 825101.
8. Website of MoEF&CC.

(Dr. S. Kerketta)
Director
<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Name of Member</th>
<th>Signature</th>
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<tbody>
<tr>
<td>1</td>
<td>Dr. Navin Chandra Chairman</td>
<td>NavinChandra</td>
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<td>2</td>
<td>Dr. Narmada Prasad Shukla Member</td>
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<td>3</td>
<td>Sh. N. Mohan Karnat, IFS Member</td>
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<td>4</td>
<td>Dr. Sharachchandra Lele Member</td>
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<td>5</td>
<td>Sh. P. Siwal / Sh. N.S. Mondal, Member</td>
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<td>6</td>
<td>Dr. R.K. Giri, Member</td>
<td>RKGiri</td>
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<td>7</td>
<td>Dr. S.K. Paliwal, Member</td>
<td>Absent</td>
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<td>8</td>
<td>Prof. D.C. Panigrahi / Prof. S.K. Sinha / Prof. Om Prakash, Member</td>
<td>Absent</td>
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<td>9</td>
<td>Dr. Jai Krishna Pandey, Member</td>
<td>Jai1118</td>
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<td>10</td>
<td>Dr. Manjari Srivastava, Member</td>
<td>Absent</td>
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<td>11</td>
<td>Dr. Gururaj P Kundargi, Member</td>
<td>12-11-18</td>
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<td>12</td>
<td>Shri Suramya Dolaray Vora, IFS (Retd.) Member</td>
<td>SDV</td>
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<td>13</td>
<td>Dr. S. Kerketta Member Secretary, MoEFCC</td>
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<tr>
<td>14</td>
<td>Sh. N. Subrahmanyam Scientist – C, IA-1, MoEFCC</td>
<td>NSubrahmanyam</td>
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23/01/2018

Dear Dr. Kerketta,

I have gone through the final draft of the minutes of the meeting held on 12.01.2018. It is in order and you may now upload it on Ministry’s web site.

Thanking you,
yours sincerely,

(NAVIN CHANDRA)

Dr. Navin Chandra,
Director General
M P Council of Science and Technology (MPCST),
Vigyan Bhawan, Nehru Nagar, Bhopal - 462003 (M.P.) India
Phone : 91-755- 2671800 (Office)
e-mail : dg@mpcost.nic.in
navinchandrarrl@yahoo.com, navinchandraampri@gmail.com

On Tuesday, January 23, 2018, 2:38:06 PM GMT+5:30, Dr S Kerketta <s.kerketta66@gov.in> wrote:

Sir,

Please find the draft minutes of the 14th EAC meeting for Thermal Sector held on 12.01.2018. The draft minutes have been prepared based on comments received from all the Members. May please approve the draft minutes.

regards,

Dr. S. Kerketta
Director- IA (Thermal, River Valley & HEP)
MoEF&CC, New Delhi
Phone: 011-24695314 (O), 26113096 (R)
### AGENDA OF 14th MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE ON THERMAL POWER PROJECTS

**DATE**: 12th January, 2018  
**TIME**: 10.30 A.M. ONWARDS  
**VENUE**: BRAHMAPUTRA MEETING HALL, VAYU WING, FIRST FLOOR, IPB, JORBAGH ROAD, NEW DELHI-110003.

<table>
<thead>
<tr>
<th>Item No. 14.0</th>
<th>CONFIRMATION OF MINUTES OF 13th EAC (Thermal) MEETING</th>
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<tbody>
<tr>
<td><strong>ITEM</strong></td>
<td>CONSIDERATION OF PROJECTS</td>
</tr>
</tbody>
</table>
| 14.1 | 3x800 MW Super-Critical TPP at village Annupurna Khamar, Taluk Kamakhyanagar, Dhenkenal Distt., Odisha by M/s ODISHA THERMAL POWER CORPORATION LTD.- reg. reconsideration of EC.  
**File No:** J-13012/03/2012-IA.II(T) & **Online no:** IA/OR/THE/10522/2012 |
| 14.2 | Expansion by addition of 1x350 MW Imported Coal based Thermal Power Plant (Phase II) at Village Kamalanga, in Odapala Taluk, in Dhenkanal Distt. in Odisha by M/s GMR Kamalanga Energy Ltd.- reg. reconsideration for amendment EC.  
**File No:** J-13012/73/2011-II (T) & **Online No.** IA/OR/THE/75/2008. |
| 14.3 | 1x660 MW (Unit-6) Proposed Bakreswar Super Critical Technology based Thermal Power Project at Bakreshwar, District Birbhum, West Bengal by M/s THE WEST BENGAL POWER DEVELOPMENT CORPORATION LIMITED (WBPDCCL)- reg. ToR.  
**File No:** J-13012/01/2018-IA.I(T) & **Online No.** IA/WB/THE/71165/2017 |
**File No:** J.13011/3/2007-IA.II(T) & **Online no:** IA/OR/THE/11812/2007 |
| 14.5 | 2x660 MW based on Super Critical Technology Village Fatatwadi Ahirwadi & Hotgi, Tehsil South Solapur, District Solapur, State Maharashtra M/s Solapur Super Thermal Power Project-reg. Amendment Environment Clearance.  
**File No:** J-13012/95/2008-IA.II (T)& **Online no:** IA/MH/THE/20423/2011. |
| 14.6 & 14.7 | 1x600 MW Coal Based Thermal Power Plant at villages Barela & Gorakpur, in Ghansore Tehsil, in Seoni Distt., in Madhya Pradesh M/s Jhabua Power Ltd.reg. Amendment Environment Clearance.  
**File No:** J-13012/105/2008-IAII(T) & **Online no:** IA/MP/THE/10294/2008 |
**File No:** J-13012/31/2008-IA II(T)& **Online no:** IA/OR/THE/12066/2009. |
| 14.9 | Expansion by addition of 1x225 MW Gas Based Combined Cycle Power Plant at village Khaikhera, in kashipur Taluk in UdhamSingh Nagar District in Uttarakhand by M/s SRAVANTHI ENERGY PRIVATE LIMITED. reg. extension of validity of EC.  
**File No:** J-13012/02/2018-IA.I (T) & **Online no:** IA/MH/THE/71692/2017. |
| 14.10 | 2x660 MW Super Critical Coal based Thermal Power Project (Expansion) at Lalpania Village, Bokaro District, Jharkhand by **M/s Tenughat Vidyut Nigam Limited (TVNL)**- reg. discussion of Site Visit. |

**Note:** If project documents are not submitted to Committee Members on time along with brief summary/basic information as per pro-forma, it will be the Committee’s discretion to consider the project. Project proponents shall bring shape file (.kml file) containing project boundaries & facilities and shall be saved on computer in the meeting hall. Project Proponents are required to bring hard copy (A0/A1 size) and soft copy (pdf) of a map showing project facilities superimposed on Survey of India Toposheet. Proponents shall submit the attendance form duly filled to the Member Secretary before starting the presentation.