MINUTES OF THE 72ND MEETING OF RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE ON ENVIRONMENTAL IMPACT ASSESSMENT OF THERMAL POWER AND COAL MINE PROJECTS

The 72nd Meeting of the reconstituted Expert Appraisal Committee (Thermal) was held during **April 22-23, 2013** at SCOPE Convention Centre, Lodi Estate, New Delhi. The members present were:

1.	Shri V.P. Raja	-	Chairman
2.	Dr. C.R. Babu	-	Vice-Chairman
3.	Shri T.K. Dhar	-	Member
4.	Shri J.L. Mehta	-	Member
5.	Dr. G.S. Roonwal	-	Member
6.	Shri M.S. Puri	-	Member
7.	Dr. S.D. Attri	-	Member
8.	Dr. Saroj	-	Member Secretary

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

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

The deliberations held and the decisions taken are as under:

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

The minutes of the 70th Meeting held on March 26, 2013 were confirmed with some minor corrections.

2.1 4000 MW Imported Coal Based UMPP of M/s Coastal Tamil Nadu Power Ltd. at villages Cheyyur Block B, Chitharkadu, Gangadevankupam, Panaiyur, Vedal, and Vilangadu, Taluk Cheyyur, District Kancheepuram, in Tamil Nadu- reg. Environmental Clearance.

The proposal was earlier considered in the 62nd and 66th Meeting held during December 4, 2012 and February 5-6, 2103 respectively, but was deferred due to shortcomings in the reports/documents submitted. In the 62nd meeting the project proponent gave a presentation and had provided the following information:

The proposal is for setting up of 4000 MW Imported Coal Based Ultra Mega Power Project at villages Cheyyur Block B, Chitharkadu, Gangadevankupam,

Panaiyur, Vedal, and Vilangadu, Taluk Cheyyur, District Kancheepuram, in Tamil Nadu. Land requirement will be 416.45 ha, out of which 342.62 ha is agriculture land, 9.83 ha is forest land and 64 ha is Poromboke and barren govt. land. Stage-I forestry clearance has been obtained. The co-ordinates of the site are located within Latitude $12^0$18'15.70" N to $12^0$19'15.38" N and Longitude $79^0$57'58.33"E to $79^0$59'17.91" E. Imported Coal requirement will be 12-14 MPTA at 90 %PLF. Ash and Sulphur contents in coal will be 10-12% and 0.8%. The GCV of coal will be within 5000-6000 Kcal/Kg. Water requirement of 30,575 cum/hr will be sourced from Bay of Bengal through a pipeline at a distance of about 4to 5 km from project site. Ash dyke area will be 90.36 ha and the co-ordinates of the ash dyke are located within Latitude $12^0$18'15.70" N to $12^0$19'15.38" N and Longitude $79^0$57'58.33"E to $79^0$59'17.91" E. Coal would be transferred from Port to power plant by closed conveyor system. There are no National Parks, Wildlife Sanctuaries, Heritage Sites, Tiger/Biosphere Reserves etc. within 10 km of the project site. Public Hearing was held on 30.07.2010. Cost of the project will be Rs 20,000.00 Crores.

It was also informed that 40% of the power produced will be given to Tamil Nadu. That unit configuration may be between 660 MW to 800 MW Super-Critical. That Expression of Interest for fly ash utilization has been floated in newspaper in May, 2011 and major cement producers have been approached.

The Committee in the said 62nd Meeting noted that AAQ data was collected during the period January – March to May, 2009; August to November, 2009; and December 2009 to February, 2010. That TOR was issued on 19.03.2009.

The Committee informed the project proponent that while technical appraisal has been the primary the focus of the Committee, sometimes there are cases of oversight with regard to procedural compliance due to paucity of time. The Committee therefore decided that the project proponent should examine some of the judgments of the National Green Tribunal such as the judgment delivered on 30.05.2012 in the matter of Appeal No. 12 of 2011 viz, Ossie Fernandes & Ors Vs MoEF & Ors, and with due diligence submit point-wise compliance with its observations with regard to the present project as applicable in their case.

The Committee also noted that not only has the marine EIA been submitted, but the project proponent was also not prepared for a presentation on the same, which is essential for assessment of impact on the biological fauna and the social impact on the fishing community, particularly traditional fishing families. The Committee therefore decided that the project proponent shall submit the marine EIA to the Ministry and the members of the EAC for their perusal. It was also decided that the project proponent shall submit detailed survey report of fishermen families in the study area and measures undertaken for their sustainable welfare.

The Committee further noted that about 193 land losers may be impacted due to the power project for which detailed R&R action plan need to have been provided which include details of population indirectly impacted due to loss of land not owned by them but were indirectly dependent on the land for sustenance.

The Committee also desired that the project proponent shall give response in writing to various issues raised in the Public Hearing and formulate Action Plan for implementation of the issues relevant along with responses made (including response to written objections received against the project).

On the issue to cumulative impact assessment, the Committee observed that on perusal of the documents available, neither in the presentation, nor in the EIA Report, the predicted cumulative impact on ambient air, water regime (marine and surface and ground) and soil seem to have been not carried out. It was therefore decided that cumulative impact assessment of these parameters due to proposed UMPP and other activities in the study area shall be submitted as an addendum to the EIA.

On the issue whether ISC3 1993 Dispersion Model reportedly used for prediction of ambient AAQ is appropriate or not - while some members felt that as pointed out in the previous day while deliberating the item no.1 i.e. 1320 MW Coal based thermal power plant of M/s Sindya Power Generating Company Pvt. Ltd. at villages Perunthottam & Agaraperunthottam, Sirkazhi Taluk, District Nagapattinum in Tamil Nadu, the Model adopted by the Project Proponent may not be the appropriate Model for a coastal project of such a nature. The Committee therefore decided that the project proponent shall submit documents to establish that the Model used for prediction of AAQ is appropriate or otherwise rework the AAQ impact assessment and submit it as an addendum to the EIA.

The Committee was also of the opinion that the project proponent does not seem to have fully complied with the requirements of information / study to be carried out as given in the TOR prescribed for the project. The Committee therefore decided that the project proponent shall fulfill the requirements of TOR point-wise and presentation shall be made TOR point-wise during deliberations / appraisal of the project. Accordingly the proposal was deferred for consideration at a later date.

On submission of clarifications the matter was again placed for re-consideration of the Committee in the 66th Meeting held during February 5-6, 2103.

The Committee in the 66th meeting had observed that the discussions made in the last meeting seem to be still unaddressed and the project proponent seem to be in a hurry to push through without having complied with what has been sought in the last deliberation. That the EIA report seem oblivious of the impact due to the setting up of the UMPP on a large lagoon which is located close by the

UMPP site, which is also home to large no. of migratory birds. That while considering the likely impact on water regime in the area, the project proponent seem to have not taken into consideration the impact due to activities associated with the UMPP to the lagoon. It was therefore observed that the project proponent while assessing the impact on the lagoon shall study impact i.e. biological flora and fauna of the lagoon due to setting up of the UMPP and on the social impact of habitations dependent on the lagoon either by fishing or any other activity.

In addition it was agreed that the project proponent shall prepare submit primary data of migratory birds and also prepare a conservation plan (with in-built mechanism of monitoring for appropriate implementation) for migratory birds.

On the issue whether grazing land is proposed to be acquired for the UMPP site, the project proponent could not submit detailed land use of the UMPP site. The Committee therefore decided that land use breakup of the UMPP site as per existing Revenue Records shall be placed before the Committee for its perusal. It was also decided that in case grazing land is being acquired the project proponent shall first identify and develop alternative grazing land for handing over to the community in the area.

The Committee observed that fishermen are traditionally present in the coastal areas and the documents submitted by the project proponent in its present form seem to have missed out on the issue. The Committee therefore decided that the project proponent shall list out villages with fishing community in the study area and shall make an assessment of the impact due to setting up of the UMPP on the livelihood of the fishing community. That while doing so the project proponent shall provide details on traditional fishing and commercial fishing as the case may be and the number of families likely to be affected.

On the issue whether appropriate model has been used for assessment of AAQ, the Committee decided that the project proponent shall also submit AAQ predictions based on coastal fumigation model in addition to the model presently adopted. While doing so, it was observed that, the project proponent shall submit comparative assessments of the predictions using different models shall be also submitted.

While deliberating the issues regarding brine generation in huge volume and the management action plan, the Committee noted that the project proponent needs to also explore possibility of salt manufacturing as some salt pans seem to be located in the area. It was also observed that the desalination shall be so designed such that it caters to supplying drinking water needs of the nearby villages in 3-5 kms of the UMPP site. It was further noted that the inlet velocity of sea water shall be so designed such that it does not exceed 0.06 m/s and the inlet is located at depth not less than preferably 10 m.

Deliberating the issues raised in the public hearing the Committee noted that a large number of issues seem to be valid which has been inadequately addressed. The Committee also noted that various representations from NGOs such as Coastal Action Network and Fishermen Groups need to be spelt out and the response and action plan for implementation with details of activities to be carried out shall be submitted. The Committee therefore decided that the project proponent shall list out issues raised, the responses made and the action plan for implementation with committed financial allocation activity wise submitted.

In view of the shortcoming noted above, the Committee had again decided that the proposal in its present form is pre-mature for consideration of environmental clearance. The proposal was accordingly deferred for reconsideration on submission of issues noted above.

M/s Coastal Tamil Nadu Power Ltd. submitted responses to the observations of the Committee vide its letter dated 08.04.2013, which was again taken up before the Committee for its perusal.

In reply to the Committee's observation on impact to the lagoon due to the UMPP, the project proponent stated that a study of the Cheyyur lagoon has been carried out by Centre for Advanced Study in Marine Biology (CAS), Annamalai University, Annamalai Nagar, Tamil Nadu and the ecological characteristics of Odiyur Lake known as Cheyyur lagoon was undertaken during February 2013. That representative samples were collected at 16 different locations covering fresh water realm to marine zone. That it was observed that the entire watershed of the lake remains pristine, unpolluted and healthy in nature. That however, this water body does not support any endemic species or invasive species. Also, migratory birds are found to be negligible in this lagoon. Being shallow, this water body is predominantly represented by flora and fauna typical of tropical coastal ecosystems. The livelihood option for the community adjacent to the lake depends primarily from the bio-resources of this lake. Therefore, any developmental activities should have adequate conservation measures besides developing additional / alternative livelihood options. That the CSR Plan for the area encompasses many activities for improvement of quality of life of various habitants in the study area. That further, adequate measures have been taken to ensure negligible runoff of flyash from the Main Plant into the Cheyyur Lake during monsoon.

In reply to the particular issue of fishermen community likely to be affected due to the power project, the project proponent provided the following explanation which is extracted as under:

> *"Since Tamil Nadu Fisheries Department has data covering entire district and not specific to any village, fisheries data within 10Km radius of the project area has been collected through direct interview with the fishermen*

of Kadappakkam, Mudaliyarkuppam, Thazrudhalikuppam, Panaiyur Periyakuppam & Panaiyur Chinnakuppam (which are the 5 villages located in the study area) in the presence of some village heads like Mr. Balasubramaniam, Mr. Kathavarayan, Mr. Marimuthu, Mr. Mathiarasan etc..; fishermen belong to six fishery societies (Alambara Fisherman Society, Utthukottai Fisherman Society, Thandumariamman Fisherman Society, Kadappakkam Fisherman Society, Thazrudhalikuppam Fisherman Society, Panayur Periyakuppam Fisherman Society & Panaiyur Chinnakuppam Fisherman Society).

The fishermen operate about 420 number of FRP boats of various outboard engine capacities in addition to 5 trawlers. These crafts were utilized for using different fishing gears like Trawl nets, gill nets, cast nets, hooks & line fishing. The gears like trawl nets of 5 numbers, Gillnets (7 types to catch specific variety of fishes) of 540 nos. are used in this area. The trawlers operate in deeper waters beyond 5Km from which small boats are used to carry the fish to the shore.

The total fish catch total to a maximum of 50 tonnes per month from these villages. Fish species include Groupers, Prawns, Perches, Seer fish, Sharks, Flying fish, silverbellies, Ribbon fish, catfishes, crabs were the contributors. Among these villages around 2000 members are dependent on fishing and 1500 dependent on allied fishing activities like transporting catches to market, auctioning, drying, etc.

It needs to be noted from the cumulative monthly catch is negligible and localized. The fish is primarily used for local consumption unlike other predominant fishing areas along Tamil Nadu coast. The fish species are general in nature and are NOT endemic or rare species.

However, not a single fisherman family will be displaced or affected due to the project. There is no activity in the port that will affect the fish population.

The breakwaters would be of detached type and enclose an area of 1.5 Sq. Km only. The approach trestle is provided on piles and therefore shall not interfere with boat movement beneath. There shall be vessel movement in the navigational channel guided by pilots and therefore any restriction to fishing boat movement would be only during vessel movement. It is also found that breakwaters provide tranquil environment for breeding and nurseries of juveniles of fishes due to the large spaces between the accropode units.

The brine plus cooling water shall be discharged from a submerged outfall in 14m water depths. The entire discharge line shall be embedded within the seabed and therefore shall not interfere with trawl nets. The system is

designed to enable meeting the ambient salinity and temperature levels within 500m of the outfall. The large ocean dilution capacity shall aid in this.

An elaborate plan has been designed for the two fishing villages located adjacent to the port area in the CSR plan".

Regarding grazing land (common land) the project proponent stated that out of total land requirement of 449.89 ha, about 18.64 ha of grazing land has to be acquired in Vilangadu and Gangadevankuppam villages. That in lieu of 18.64 ha of grazing land being acquired for Cheyyur UMPP, an alternate land of 18.64 ha has already been identified Kokrathangal and Poongunam villages and approved by the Animal Husbandry Deptt. and Govt. of Tamil Nadu. That the project proponent has already been paid reclamation charges of Rs. 2,79,600/- to concerned Panchayat to develop the alternate land into grazing land.

The Committee was informed of a representation received from an organization called EIA resource & Response Centre, bearing no registration number and address, on the possible impact due to setting up of the UMPP. The Committee perused the contents and observed that the same are mostly theoretical materials widely available in the internet and not substantiated with credible factual data. It was later learnt through another letter from the said organization that the organization is based at N-71, Lower Ground Floor, Greater Kailash-I, New Delhi – 110 048.

The said organization in its other letter have submitted that the Ministry is not complying with the order of the Central Information Commission, wherein it is required to place in public domain all relevant information of a project such as Form-I, EIA Report etc. It was clarified that during the past fortnight NIC is carrying out changes in its programme and hence affecting the uploading of information, which NIC representative at the Ministry had informed that the same will be sorted out shortly. The Committee was also informed of the inability to upload a number of CD received from the project proponent on account of technical issues in the format used and furnished. That despite these shortcomings and limited resources both in terms of staff and infrastructure available, there are hardly any major deviations from compliance of CIC order.

The Committee also discussed a representation dated 15.04.2013, received from one Shri M. Marimuthu, representing fishermen in the villages of Panaiyur Periakuppam. It was observed that the village fishermen community are aggrieved on account of possible acquisition of common lands used by these fishing villages and the area proposed for the port which are presently used for the fishermen boats to be stationed, dry the fishing nets and dry fish catch.

The Committee decided that a copy of the representation be given to the project proponent for submitting its response.

The project proponent also made an examination with some of the judgments of the National Green Tribunal and the position w.r.t. to the UMPP.

The Committee also noted the responses made to the issues raised in the public hearing and the action plan formulated for compliance of the relevant issues. The issues raised and the responses made are tabulated as under:

S. No.	Issues raised	Responses made
1	**Thiru. Maduraiveeran, Ex Panchayat President, Chitharkadu.** We are affected due to acquisition of land which is essential for our livelihood. Compensation for the land acquisition to be fixed as per Market rate instead of Government Guideline value, for which the higher official who take necessary action in this record 90% of the people depending upon agriculture and only 10% educated and being unemployed. Hence employment has to be given to be unemployed educated youths and to provide basic amenities for our livelihood otherwise we will oppose the project.	The Resettlement and Rehabilitation Plan for the project affected families of the proposed thermal power project shall be formulated as per the provisions and/or guidelines as given in the National Rehabilitation and Resettlement Policy, 2007(NRRP – 2007) formulated by Ministry of Rural Development, Department of Land Resources, Government of India. Compensation for land under clause 2.3.3 and Employment under clause 2.3.1 shall be provided as per the rehabilitation and resettlement policy framework proposed for the project
2	**Thiru. Sekhar, Edalkazhinadu** We learnt that it is a prestigious thermal power project; hence we hope that all the measures will be implemented as per the project report falling which this area will become graveyard, further alternate land to be allotted for the land acquired for the project. Employment to be given to educated as well as qualified persons in the project area.	The site for the proposed Thermal Power Station (TPS) has been selected by Central Electricity Authority (CEA) based on the following criteria: i) Availability of suitable and adequate land with least R & R issues ii) Fuel availability and its transportation from the source of availability iii) Water availability within a reasonable distance iv) Road and Railway access v) Acceptability from the

S. No.	Issues raised	Responses made
		Environmental consideration vi) Availability of infrastructural facilities vii) Rehabilitation and Resettlement issues (R&R) viii) Proximity to Grid for Evacuation of Power Compensation for land under clause 2.3.3 and Employment under clause 2.3.1 shall be provided as per the rehabilitation and resettlement policy framework proposed for the project.
3	**Thiru. D. Babu, Chairman Cheyyur Village Panchayat** We welcome the establishment of the 4000 MW Ultra Mega Power Project at Cheyyur. Since our village is not located either in GST Road or in East Coast Road, no development has been achieved so far. Further I register that this project will lead further development in Cheyyur area as well as overcome the Power deficit in the state in future.	Welcomed the project in the area and expressed hope that it will lead to overall development of the area as well as the state.
4	**Thiru. Pon Ramlingam, Devarajanpuram** This National Power Project will overcome the power deficit and lead the growth of many industries in the state. Hence I welcome the project.	Welcomed the project in the area and expressed hope that it will lead to overall development of the area as well as the state. Welcomed the project in the area and expressed hope that it will lead to overall improvement in the power situation.
5	**Thiru. M. Jeeva, Coastal Action Network, Chennai – 15** We condemn the conduct of village special Grama Sabha meeting in this village during the conduct of public	Condemned the conduct of public hearing on the same day of special Gramsabha meeting. The response to

S. No.	Issues raised	Responses made
	hearing meeting for the project on the same day. Further conduct of public hearing is not correct since the enquiry on land acquisition for the project is under progress and also stated the following. 1) Saving of 30% Electricity loss during transmission by TNEB could avoid the setting up of such thermal power project 2) Solar energy may be utilized to generate electricity instead of relying on thermal energy. 3) Setting up of thermal power plant was technically outdated in the European and American Countries. Hence establishment of such thermal power plants in our country is incorrect. 4) During rainy season, ash generated will be washed away and affect the agricultural lands nearby. 5) Discharge of waste water into sea will affect the fishing wealth. 6) This project will affect the salt pan, fishing, agriculture activities, hence the project should be dropped.	the points raised are given as below: 4) About 0.39 million tonne per annum of fly ash is to be generated. Fly Ash will be collected at various Hoppers would be conveyed pneumatically to Fly Ash Storage silos. The air would be vented out to atmosphere after passing the same through bag filters to mitigate the Environmental Pollution. The dry Fly Ash collected in Fly Ash Silos would be either disposed off in dry or in wet form. The ash would be transported to the ash pond through ash slurry pipelines. The area identified for Ash Disposal is about 400 Acres which can accommodate around 24 million cu.m of Ash. This quantity can be easily accommodated in the proposed Ash Dyke with height lesser than CEA norms for Coastal Thermal Power Stations.100% utilization of Fly Ash is envisaged within 2-10 years in phases. 5) Impact assessment in the 10 Km vicinity of the power plant is estimated and no eco-sensitive zones are found in this region.
6	**Thiru. S. Perumal, Pondur** Ash generated from the project will affect the agriculture and the environment. Further there are no employment opportunities to the local people. Hence I oppose the project.	Ash generated will be properly collected and disposed. Hence, apprehension about damage to agriculture crops due to ash generated by the project is not envisaged. Employment under clause 2.3.1 shall be provided as per the rehabilitation and resettlement policy framework proposed for the project.
7	**Thiru. Kathivel, President, Amanthankarnai Village Panchayat** The project affects the bird's life in the Cheyyur marsh area. The project will have an impact on water, air and	Impact assessment in the 10 km vicinity of the power plant is assessed and no eco-sensitive zones are found in

S. No.	Issues raised	Responses made
	aquatic system. Further acquisition of grazing land will affect the livestock population and questioned that whether one third of the power generated from this project will be supplied to this area? Since the project will degrade the environment, I oppose the project.	this region. Hence, there will be no affect be on avi-fauna in the Cheyyur marsh area and grazing land. As a part of the project, no grazing land is to be acquired.
8	**Dr. R.S. Paul Mohan, Kannlyakumari** Sulphurdioxide emission from the Thermal Power Plant will lead to acid rain, which will affect the agricultural and salt pan activities. Hence the project to be dropped.	As per the norms of minimum stack height for 500 MW units would be 275 metres. A single multi flue stack of 275 m would meet the norms for the power plant has been proposed for effective dispersal of sulphur di-oxide. A detailed air quality modelling study has been done and the increase in SO_2 is not expected to lead to acid rain.
9	**Thiru. Ponnivalavan, Cheyyur** I welcome the project in this area, Ash generated from the project should be handled safely and disposed. Further, employment should be given to each family in this area accounting 60% of the total employment and rest 40% to be given to the public of Kancheepuram District.	Welcomed the project in this area, Ash generated from the project shall be safely handled. The same is described in section 2.13 of Chapter 2 of the EIA report. Employment under clause 2.3.1 shall be provided as per the rehabilitation and resettlement policy framework proposed for the project.
10	**Thiru. Dakshinamoorthy, AIADMK Agriculture Association, Devaraiapuram** For the sake of power requirement giving false statistics on land acquisition is incorrect. Land acquired for the project should be compensated as per market rate and to be settled in onetime payment. Further insisted to generate hydro power and not relying on thermal energy. Then questioned that whether proper employment will be given to the local public who have given land for the project.	The data on land to be acquired is as per the CEA norms. No false statistics for land acquisition have been given. The Resettlement and Rehabilitation Plan for the project affected families of the proposed thermal power project shall be formulated as per the provisions and/or guidelines as given in the National Rehabilitation and Resettlement Policy, 2007(NRRP – 2007) formulated by Ministry of Rural Development, Department of Land Resources, Government of India.

S. No.	Issues raised	Responses made
		Hydropower generation is not possible in the area, especially 4000 MW, due to slope, topographical, hydraulic head and water availability constraints. Compensation for land under clause 2.3.3 and Employment under clause 2.3.1 shall be provided as per the rehabilitation and resettlement policy framework proposed for the project.
11	**Thiru. Raja Devarajapuram, Cheyyur** We welcome this project in this area. Employment should be given to Land owners and salt pan workers. The project should be implemented without any impact to environment.	Welcomes the project in this area. A detailed Environmental Management Plan has been formulated to mitigate the adverse impacts on Environment. A detailed Environmental monitoring Programme has been suggested for implementation during project operation phase to foresee any adverse impacts as well. Employment under clause 2.3.1 shall be provided as per the rehabilitation and resettlement policy framework proposed for the project.
12	**Thiru. K. Raguraman, Cheyyur** Welcomed the project. Employment opportunities are to be given to the educated youths. Fisherman community and proper compensation to be paid to the land owners. Basic amenities to be provided in this area.	Welcomes the project. They suggest employment opportunities to the educated youths and fisherman community apart from basic amenities shall be provided as a part of R&R plan. The Resettlement and Rehabilitation Plan for the project affected families of the proposed thermal power project shall be formulated as per the provisions and/or guidelines as given in the National Rehabilitation and Resettlement Policy, 2007(NRRP – 2007) formulated by Ministry of Rural Development, Department of Land Resources, Government of India. Compensation for land under clause 2.3.3 and Employment under clause 2.3.1 shall be provided as per the rehabilitation and resettlement policy framework proposed for the project.

S. No.	Issues raised	Responses made
13	**Thiru. Tamilini, chitharkadu** We object to the project, since the Government is acquiring even small pieces of land from the dalit people for this project.	The project land is to be acquired on a contiguous basis. Specifically small pieces cannot be either deliberately left or acquired.
14	**Thiru. Moorthy, Cheyyur** Proper employment has to be given to the land owners, educated youths and to the salt pan workers.	Employment under clause 2.3.1 shall be provided as per the rehabilitation and resettlement policy framework proposed for the project.
15	**Thiru. V.Veeran, Vada Cheyyur** Salt Pan Activity will be ruined due to the project.	The effluent generated from various sources in the power plant will be suitably treated prior to disposal. There is no salt pan in and around the main plant area. The nearest salt pan is the Cheyyur. Salt pan located in village Cheyyur at a distance of about 5 to 6 km from the main plant site. Thus, no adverse impact on salt pan activities is envisaged.
16	**Tmt. Josphine, Devarajapuram** Agriculture, Salt pan, fishing activity will be affected due to this project. Cheyyur area will become another Bhopal when the project is implemented.	The effluent generated from various sources in the power plant will be suitably treated prior to disposal. As mentioned earlier in response to point no. 16, no adverse impacts on salt pan are envisaged. A detailed Disaster Management Plan has been formulated. Apprehension that the project will lead to another Bhopal is unfounded.
17	**Tmt. Dillibai, Women Agriculture Union** Ash generated from this project will affect the agricultural activity and the discharge of hot water into the sea will affect fishing wealth and hence the project may be dropped.	Ash generated will be properly collected and stored. The Fly Ash is proposed to be collected in Silos and most of it would be utilized/ marketed in dry form. The Fly Ash which cannot be utilized/ marketed would be disposed

S. No.	Issues raised	Responses made
		off to the Ash Dump area in slurry form or disposed by Trucks. The Fly Ash generated in Thermal Power Stations has commercial value because of its usage in Cement and Construction Industries. Fly ash generated from the proposed Power Plant would be commercially utilized to the extent possible. Agriculture area is not expected to be affected as ash generated shall be appropriately disposed in the designated ash disposal area.
18	**Thiru. Thiruvenkadam, Devarajapuram** Welcomed the project, as it will develop this backward area and generate employment for the poor.	Welcomes the project, as it will develop this backward area and generate employment for the poor.
19	**Thiru. Chitrarasu, Palaiyur** Large extent of land is being acquired for this project in Thannerpanthai. Land should be acquired atleast 500 meter away from the habitation area. Proper compensation has to be given to the land owners. Providing basic amenities like Road, Medical facility, drinking water supply should be done for agriculture community.	The land is being acquired is as per CEA norms for thermal power stations. A distance of atleast 500 meter from the habitation area shall be maintained. The Resettlement and Rehabilitation Plan for the project affected families shall be as per the provisions and/or guidelines as given in the National Rehabilitation and Resettlement Policy, 2007 (NRRP – 2007). Basic amenities have been suggested as a part of R&R plan outlined in the EIA report.
20	**Thiru. Murali, Cheyyur** The project will be successful one if they provide basic amenities like health, infrastructure, education, water supply facilities for this area.	Basic amenities have been suggested as a part of R&R plan outlined in the EIA report
21	**Tmt. Jesuratinam, Coastal Action Network**	

S. No.	Issues raised	Responses made
	Project Proponent has furnished false data regarding water usage and meteorological data in the Rapid Environmental Impact Assessment. Further EIA is silent on coat handling and port area for import of coal. Hence environmental clearance should not be given to this project and the project may be dropped.	The project proponent has not furnished any false data regarding water usage and meteorological data in the Rapid Environmental Impact Assessment. The data has been collected through detailed scientific studies. The EIA Report has been prepared as per the standard procedures with detailed primary and secondary data collection. The coal handling aspects has been covered in section 2.9, and 2.10 of chapter 2 in the EIA report. A separate EIA report for the port area is under preparation.
22	**Thiru. Arunachalam, Environmentalist** REIA report was prepared in urgent manner without providing any scientific proof. This project will affect the environment and it is cheating the public.	The REIA report has been prepared as per the standard procedures, with detailed primary and secondary data collection.
23	**Tmt. Saslkala, Chennai** This project will affect the livestock wealth, fishing activities and hence we oppose the project.	No major impact on livestock wealth, fishing activities is envisaged.
24	**Tmt. Gowri Kadapakkam** This project will affect fishing activities and agricultural activities in the Edaikazhinadu. Hence we oppose the project.	No major impact on fishing activities and agricultural activities in the Edaikazhinadu is envisaged, as effluents shall be properly treated prior to disposal.
25	**Thiru. Gowrilingam, Injampakkam** This project will have heavy impact on the fisherman communities and lead to sea erosion. Such sea erosion will affect Kalpakkam Nuclear Power Plant area. Hence we oppose the project.	No impact on sea erosion is envisaged as project does not entail any activity which can lead to soil erosion.
26	**Tmt. Usharani**	

S. No.	Issues raised	Responses made
	This project will affect agricultural activities. Hence we oppose the project.	No major impact on agricultural activities is envisaged, as the effluent/solid waste from the Cheyyur TPS shall be properly collected, treated and disposed.
27	**Thiru. Gopi Bannerjee, Pondicherry** Ecological sensitive area was selected for locating the project. Sea water intrusion will make the agricultural land infertile. Hence the project has to be relocated. The EIA is silent on the port and coal handling activities.	The site has been selected by CEA as per their norms for selection of sites for power plants. Sea water intrusion is not anticipated due to the project. Coal handling is addressed in section 2.9, and 2.10 of chapter 2 in the EIA report. EIA report for port which was under preparation at the time of public hearing has now been completed.
28	**Tmt. Gandhimathi, Coastal Action Net Work** This project will affect the Cheyyur back water area which is enroute for the birds to Vedanthangal bird sanctuary and also cause food insecurity to the local people. REIA is silent on the coal handling, port activities and SEZ area hence we oppose the project.	The Vedanthangal bird sanctuary is located about 30 km form the project site. Based on detailed modeling studies for ambient air quality, no impact on the sanctuary is envisaged. Coal handling is addressed in section 2.9, and 2.10 of chapter 2 in the EIA report. EIA report for port which was under preparation at the time of public hearing has now been completed.
29	**Tmt. Vennila, Kancheepuram** During the execution of the project, dredging will be carried out in the sea which will have impact on the fishing community hence we oppose the project.	Dredging may be required in the port area. However, adequate measures, if required will be formulated as a part of EIA report for the port. EIA report for port which was under preparation at the time of public hearing has now been completed.
30	**Thiru. R.K.Elango, Kancheepuram** This project will affect the agricultural activities. Hence we oppose the project.	No major impact on agricultural activities is envisaged, as the effluent/solid waste from the Cheyyur TPS shall be properly collected, treated

S. No.	Issues raised	Responses made
		and disposed.
31	**Thiru. Arungunam Vinayagam** This project will affect the salt pan activities and agricultural activities in Edaikazhinadu. Acquisition of grazing land will affect the livestock wealth. Hence I request to execute the project in Kovalam area in Chennai. Since the project is affecting the environment, we oppose the project.	No major impact on agricultural activities is envisaged, as the effluent/solid waste from the Cheyyur UMPP shall be properly collected, treated and disposed. *The site has been selected by CEA as per their norms for selection of sites for power plants*.
32	**Thiru. Ramesh, Devarajapuram** Welcomed the project and requested to execute the project without affecting the environment.	A detailed Environmental Management Plan has been formulated to mitigate the adverse impacts on Environment. A detailed Environmental monitoring Programme has been suggested for implementation during project operation phase to foresee any adverse impacts as well.
33	**Thiru. Saravanan, Cheyyur** We the local people welcome the project, only outsiders are objecting the project and requested to give job opportunity to local people.	The project is welcomed by locals whereas outsiders are objecting to the project.
34	**Thiru. Sundaramurthy** We welcome the project and requested to provide food, alternate shelter to make livelihood comfortable.	Welcomes the project
35	**Thiru.Ramalingam, Vedal** Adequate compensation has to be given to the land owner and while acquiring temple land, suitable alternate land has to be allotted.	The Resettlement and Rehabilitation Plan for the project affected families of the proposed thermal power project shall be formulated as per the provisions and/or guidelines as given in the National Rehabilitation and Resettlement Policy, 2007(NRRP – 2007).Compensation for land under clause 2.3.3 shall be provided as per

S. No.	Issues raised	Responses made
		the rehabilitation and resettlement policy framework proposed for the project. No temple is being acquired in the project area.
36	**Thiru. Senthil, Edalkzhinadu** Welcomed the project as it is giving employment	Welcomes the project as it is giving employment

On the issue raised by the NGO viz. Coastal Action Network regarding Gram Sabha meeting and date of public hearing coinciding, the Committee advised the project proponent to examine the notice of Gram Sabha meeting and other details such as subject listed, venue and time, in order to establish prima facie that people affected by the UMPP is not in a dilemma to attend which of the meetings.

The Committee observed that the action plan for implementation of relevant issues raised in the public hearing need to be separately spelt out and shall be submitted.

The Committee noted that there seem to be a channel blocked not by the project proponent but by some agencies over a period of time which may have affected the natural drainage system. It was decided that the project proponent shall restore the channel which seem to have been blocked and ensure that sustainable management of natural drainage system is maintained.

The Committee also recommended that while floating tender for its imported coal, the project proponent shall ensure that the coal characteristics shall be in accordance with the Circular issued by the Ministry of Environment & Forests on February 5, 2013 regarding MoU for imported coal for UMPP.

In view of the aforementioned shortcomings still observed despite clarification on issues raised earlier, the Committee deferred the proposal for re-consideration in the next meeting.

2.2 2100MW (6x350 MW) Combined Cycle Power Plant of M/s Urban Energy Generation Pvt. Ltd. at village Vangni Tarfe Taloja, Taluka Panvel, Raigad Distt., Maharashtra - reg. Environmental Clearance.

The proposal was earlier considered in the 46th Meeting held during April 9-10, 2012, wherein the project proponent gave a presentation and provided the following information:

The proposal is for setting up of 2100 MW (6x350 MW) Combined Cycle Power Plant of M/s Urban Energy Ltd. at village Vangni Tarfe Taloja, Taluka Panvel, Raigad Distt., Maharashtra.The plant is to be implemented in three phases of 2x350 MW each. Land requirement will be 420 acres, of which 360 acres is Government land and 60 acres is private land. The co-ordinates of the site are located within Latitude $19^0$05'3.26"N to $19^0$05'41" N and Longitude $73^0$11'5.88" E to 73^0'11'56.2" E. Gas Requirement will be 9 MMSCMD with calorific value of 8150 k. Gas will be obtained through spur of existing East-West Pipeline/ GAIL network which is at about 4 km distance from the site. Stacks of 75m each numbering 6 in total will be installed. Water requirement of 58000 m^3/day will be sourced from the Balganga Dam through a pipeline at a distance of about 45 km from the project site. Sea is at about 26 Kms distance. Palvel Creek is at about 17 Kms distance. There are no National Parks, Wildlife Sanctuaries, Heritage Sites, Tiger/Biosphere reserves etc. within 10 km of the site. Public Hearing was held on 28.07.2010. Cost of the project will be Rs.6510.0 Crores.

The Committee in the said 46th Meeting informed the project proponent of a Circular issued by the Ministry of Power regarding NELP Gas production and subsequent advice not to plan projects based on domestic gas till 2015-16.

The project proponent informed that they are aware of the circular and stated that the circular only mentions domestic gas and they may likely shift to RLNG/LNG in the event domestic gas is not made available. It was informed that the high cost of LNG is not going to last for a long time. *The project proponent also informed that power plants based on imported coal can be compared with those based on LNG in terms of economic viability. The project proponent further stated that 50% of the power to be generated shall go to the State Govt.*

It was noted that first phase of the project is based on harvested rain water. But no detail analysis of water availability and viability report has been submitted even though the proposal is for consideration of environmental clearance. The Committee observed that the fuel and water requirement of a power plant is also not clear. The surface water quality analysis report indicated low pH (about 5.75) and no satisfactory answer was provided. The Committee expressed serious reliability of the data presented.

It was also noted that with regard to AAQ, $PM_{2.5}$ and PM_{10} were not monitored even though it is a statutory requirement as per revised National Ambient Air Quality standards of 2009. The Committee also noted that the project site is in a valley and the impact on AAQ of the area particularly due to NO_x emission has been inadequately addressed.

The Committee noted that about 360 acres of land is to be allotted by the Govt. of Maharashtra for which land use pattern, socio economic profile and livelihood vocation of the land owners is not available. *The Committee therefore decided that the project proponent shall formulate detailed R&R plan along with time bound scheme for its implementation and shall submit land use details as per revenue records for the entire 420 acres of land involved.*

The Committee discussed the issues raised in the Public Hearing and the responses made by the project proponent. The major issues raised were regarding land acquired by Govt. and sold to private industry at cheap rate eventually land owners deprived of adequate compensation; demand for power supply; forest land in project area; return of land in the event industry does not procure land acquired through Govt.; area an eco-sensitive zone; employment of locals; training for youth for eventual employment; measures for local tribals in the area etc. The project proponent informed that there were no litigation pending pertaining to the power project.

In view of the above, the Committee in the 46th meeting had decided that information / documents on the following shall be for reconsideration of the proposal.

i) Study report including design details of water reservoir for storage of rain water for the use of first phase of the power project. In addition detailed analysis on the availability of water for the remaining phases especially during lean season taking into account the flow available in river from where water is to be drawn considering the riparian needs and the storage capacity for meeting the lean season requirement shall be prepared and report submitted;
ii) Permission for treatment of waste water at CETP, Taloja;
iii) Surface water quality needs to be rechecked as the values of pH reported are low.
iv) NOx emissions shall be achieved below 50mg/Nm^3 for which guarantee from supplier shall be obtained.
v) Action plan to undertake long term study on impacts due to NO_x on the chemistry of the upper atmosphere;
vi) Details of Flora and Fauna in the study area;
vii) Socio economic study of the study area with a CSR Action Plan and scheme to facilitate sustainable alternative livelihood of PAPs. In addition details of R&R plan along with time bound scheme of implementation shall be submitted along with land use details as per revenue records for the entire 420 acres involved;
viii) Details of forests land involved in the project site;
ix) Details of court case as mentioned in the Public Hearing;
x) Action plan for implementation of issues raised in the Public Hearing;
xi) AAI clearance for installation of Stacks;

xii) In view of the above details, EIA/EMP report should be revised and submitted to the Ministry.

The proposal was accordingly deferred for reconsideration at a later stage after receipt of the above information / documents sought.

On submission of clarifications sought the matter was again placed for re-consideration.

The Committee deliberating the issue of viability of the Phase-I project based on harvested rain water noted that the land sought for the thermal power project not only seem very large, but has also disproportionately sought 120 acres for water reservoir which seem absurd.

Dwelling further into the issue of land, the Committee observed that Panvel is near Mumbai and is under the MMRDA. The Committee was therefore of the view that details of MMRDA clearance need to be first submitted and scrutinized. The Committee also decided that copy of MMRDA plan and clearance from MMRDA for setting up the thermal power plant shall be submitted by the project proponent.

The Committee also observed that CIDCO plan need to be also examined by the project proponent and its integration vis-à-vis the project submitted.

The Committee deliberating the reply furnished with respect to the observations made in the last meeting i.e 46th Meeting held in April, 2012 observed that a lot of queries raised by the Committee has been inadequately addressed.

On the question earlier raised on study report including design details of water reservoir for storage of rain water for the use of first phase of the power project. In addition detailed analysis on the availability of water for the remaining phases especially during lean season taking into account the flow available in river from where water is to be drawn considering the riparian needs and the storage capacity for meeting the lean season requirement shall be prepared and report submitted, the proponent replied as under:

> The rain water harvesting report including design detail of water reservoir for storage of rain is presented in Annexure 11 of the EIA Report. As seen from the report, the water from reservoir will help us to meet complete water requirement of Phase-I for more than a year. For remaining Phases (Phase-II & III) water will be drawn from Dam on Balganga River. A letter from Govt. of Maharashtra, assuring supply of water from Balganga Dam is enclosed as Annexure 8 of the EIA.

Perusal of the relevant Annexure stated by the project proponent indicates not adequate information as sought. There is no adequate report to substantiate the availability of water for Phase-I through rain water harvesting not any report on water availability study for Phase-II&III. The project proponent is also silent on the water allocation from the Dam for agriculture, drinking water and industrial needs. The Committee observed that the reply seem a perfunctory approach and could not see any serious intent in furnishing information nor carrying out any study with the purpose of setting up the power project.

On the issue of land requirement the Committee observed that the land required for the gas power project should not be more than 220 acres as against 420 acres stated. It was also noted that AAI clearance is yet to be applied for leave alone obtained.

It was also deliberated that a number of power plants are stranded due to non-availability of gas. The necessity was therefore felt that the project proponent shall obtain clearance from the Ministry of Petroleum and Natural Gas and the Ministry of Power on the availability of gas for the power project prior to application of environmental clearance.

The Committee observed that the proposal in its present form suppress highly critical issues and is premature for consideration and accordingly decided that since the above task including completion of study reports sought will take some time the same be de-listed form the pending list.

2.3 Expansion by addition of 50 TPH FBC Boiler and 8 MW Steam Turbine Captive Power Plant of M/s Pasupati Acrylon Ltd. at village Mohammad Ganj, at Thakurdwara Taluk, Moradabad Distt., in Uttar Pradesh -reg. Environmental Clearance.

The proposal was earlier placed for consideration for environmental clearance in the 42nd Meeting held during February 6-7, 2012, wherein, the project proponent made a presentation along with its consultant M/s Eqms India Pvt. Ltd., Delhi and provided the following information:

This is a 'B' category project. As the project is located within 10 km of inter - state boundary, proposal has been considered by the Expert Appraisal Committee in the Ministry due to General condition of EIA Notification, 2006.

The proposal is for modernization by installation of 50 TPH CFBC Boiler and 8 MW Steam turbine Captive Power Plant at village Mohammad Ganj, in Thakurdwara Taluk, in Moradabad Distt., in Uttar Pradesh. The proposed activity is to be carried out within the existing working on premises of Acrylic Staple Fibre (ASF) unit. The existing power plant is an old and archaic

technology plant and was installed in 1990. Existing Boiler is of capacity 3x18 TPH and the existing steam turbine is 6.5 MW. It is now proposed to modernize the power plant by replacing the boiler with 1x50 TPH capacity and Steam Turbine of 8.0 MW. CFBC technology Boiler with multi fuel injection is proposed to be installed. Land requirement will be 0.12 hectares. The co-ordinates of the site are at Latitude $29^0$11'50" N to Longitude $78^0$52'41" E. Coal requirement will be 295 MT/day and Pet Coke requirement will be 170 MT/day. Coal will be obtained from ECL. Pet Coke will be obtained from Mathura/Jamnagar Refinery. About 70-75 Tonnes/day Ash pond/dyke will be generated. It is proposed to convert into gas based once gas pipe lines come in the area. A stack of 60 m is proposed. Water requirement will be 250 KLD, which will be obtained from ground water. There are no National Parks, Wildlife Sanctuaries, Tiger/Biosphere Reserves etc. within 10 km of the site.

The Committee was earlier informed during 10th Meeting held in March 14-15, 2011, while recommending of TOR that in the instant case, power generation through steam turbine is based on extraction-cum-condensing turbine by having a pressure drop from 67 kg/cm^2 to 12 kg/cm^2.

The Committee had in the 10th Meeting, had recommended that considering that the proposed modernization entails no additional land and consumption of fuel agreed to categorize the case as 'B2' and accordingly exempted the proposal from undergoing Public Hearing. The Committee however informed the project proponent that fuel option shall be finalized before applying for environmental clearance and accordingly concrete proposal shall be submitted. The Committee noted that the project proponent have come up with three options viz. 100% coal; 100% pet coke; and 50% coal and 50% rice husk. The Committee also noted that cumulative impact assessment has not been carried out and neither the existing nor the proposed sources of emissions were clearly presented.

The Committee had therefore decided that following information is required for reconsideration of proposal:

i. *Information regarding clear fuel linkage (coal: pet coke: rice husk) and mode of transport.*
ii. *Distance from the Jimcorbet National Park.*
iii. *Cumulative impact of the existing and proposed expansion.*

The Committee also decided that the project proponent shall come with specific TOR point-wise compliance when they come for re-consideration.

On submission of clarifications sought the matter was again taken up.

The project proponent stated that the project site is located at a distance of 26.2 Km from Jim Corbett National Park and submitted a letter from the Geo Spatial Data Centre, Uttarakhand & West U.P to this effect.

The project proponent also stated that no coal will be sourced from open market. The fuel mix shall be as follows: (i) Coal: 46620 TPA; (ii) Pet Coke: 17936 TPA; and (iii) Rice Husk: 2760 TPA. That coal will be obtained from Coal India Ltd., for which coal supply agreement is available and will be transported by rail till Kashipur and thereafter by truck to the project site for about 10 Kms. Subsequently after rail line is constructed will revert to rail transportation to the project site. Regarding Petcoke, it was informed that allotment has been made by HPCL-Mittal Ltd. and will be transported by road (500 km) from Bhatinda. Rice husk will be locally obtained from within a radius of 5-6 Kms from project site.

The project proponent also informed that ESP will be installed and that fly ash generated will be given to brick manufacturers in the region. It was also stated that 100% fly ash utilization from day one will be achieved.

Based on the information and clarifications provided, the Committee *recommended the project for environmental clearance* subject to stipulation of the following specific conditions:

i) Scheme for implementation for harnessing solar power within the premises of the plant particularly at available roof tops shall be prepared and status of implementation shall be submitted to the Ministry.
ii) Arrangement for transportation by rail for Petcoke from Bhatinda Refinery, from where Petcoke is proposed to be obtained, shall me made in consultation with the Railways within a reasonable period not exceeding three years.
iii) The project proponent shall undertake rain water harvesting measures and shall develop water storage for use in operation of the plant. Rain water harvesting system shall be put in place which shall comprise of rain water collection from the built up and open area in the plant premises. Action plan for implementation shall be submitted to the Ministry.
iv) Monitoring 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 be undertaken.
v) Waste water generated from the plant shall be treated before discharge to comply to the limits prescribed by the SPCB.
vi) Provision shall be made for dry fly ash extraction and storage facilities. High concentration slurry disposal systems for un-utilized ash shall be made.
vii) The emission of particulate matter from the proposed thermal power plant shall not exceed 50 mg/Nm^3 by installation of high efficiency ESP.

viii) An amount of Rs 0.30 Crore as one time investment during the construction phase of the project shall be earmarked for activities to be taken up under CSR. Recurring expenditure thereafter for CSR shall be Rs 0.08 Crores annually till the life of the plant.

ix) It shall be ensured that an in-built monitoring mechanism for the CSR schemes identified is in place and annual social audit shall be got done from the nearest Government institute of repute in the region. The project proponent shall also submit the status of implementation of the scheme from time to time besides putting their programs along with budgetary allocation on company's website.

x) An Environmental Cell shall be created at the project site itself and shall be headed by an officer of appropriate superiority and qualification. It shall be ensured that the head of the Cell shall directly report to the Head of the organization.

2.4 Expansion by addition of 1x660 MW coal based Super critical TPP of M/s UPRVUN Ltd. at village Panki, District Kanpur, in Uttar Pradesh- reg. TOR.

The proposal was considered for determination of Terms of Reference (TOR) for undertaking EIA/EMP study as per the provisions of EIA Notification, 2006. The project proponent gave a presentation along with its consultant M/s Bharat Heavy Electricals Ltd., Haridwar and provided the following information:

The proposal is for expansion by addition of 1x660 MW coal based Super critical TPP at village Panki, District Kanpur, in Uttar Pradesh. Land requirement for the expansion will be 235 acres and same is already available in the premises of existing power project. Existing capacity is 220 MW (2x110 MW). The co-ordinates of the site are located in between Latitude $26^0$28'14" N to $26^0$28'44" N and Longitude $80^0$14'08" E to $80^0$14'47" E. Blended Coal (70% Domestic : 30% Imported) requirement will be 3.34 MTPA at 85 % PLF. Ash pond area will be 127 acres for the proposed expansion project. Water requirement of 1840 m^3/ hr will be sourced from lower Ganga canal through a pipeline adjacent to the project site. There are no National Parks, Wildlife Sanctuaries, and Tiger/Biosphere Reserves etc. within 10 km of the site.

The Committee noted that the area where the project is located is in a critically pollute area where moratorium exists. The Committee therefore declined to appraise the proposal in the view of the moratorium reportedly still in place.

2.5 2x100 MW HESS Coal Based TPP of M/s India Power Partners Pvt. Ltd. at village Panangudi, District Nagapattinum, in Tamil Nadu - reg. TOR.

The Committee noted that neither the project proponent nor its representative were present in the meeting. The matter was accordingly deferred for re-consideration at a later stage.

2.6 1x600 MW (Unit-II of Phase-I) of 2000 MW Coal based STPP of M/s Essar Power (Jharkhand) Ltd. near Chandwa, Dist. Latehar, in Jharkhand- reg. Change in Source of Coal.

M/s Essar Power (Jharkhand) Ltd. was accorded environmental clearance for its 1x600 MW (Unit-II of Phase-I) of 2000 MW Coal based STPP near Chandwa, Dist. Latehar, in Jharkhand on 08.05.2009.

M/s Essar Power (Jharkhand) Ltd. have informed the Ministry that the EC for Chakla Coal Block is kept pending for want of stage-I clearance of FC and FC has been stuck because of Go-No Go area issues. Due to delay in grant of FC for coal block, the Project Proponent now requested the Ministry for allowing to go ahead with the project (1x600 MW Unit No.1 of Phase-I) based on imported coal from Indonesia/Australia/South Africa for an interim period till captive coal block becomes operational. M/e Essar Power Jharkhand Ltd. has also requested according environmental clearance for its Unit-II of Phase-I i.e 1x600 MW as which was earlier recommended for EC in October, 2010 by the EAC. They have also stated that the imported coal from Indonesia/Australia/South Africa is for an interim period till captive coal block becomes operational.

The matter was placed before the Committee for its views.

The Committee observed that with regard to Chakla Coal Block, there seem to be surmountable problem with regard to forest clearance and is unlikely to be resolved in the early. The project proponent however stated that unlike Mahan Coal Block, where, forests cover constitutes about 70% of the coal block, the Chakla Coal Block has only about 40% forests cover.

The Committee also noted that the MoU for imported coal submitted seem have been entered into a trading company and need to be examined in depth. The Committee therefore advised the project proponent to furnish a copy to Shri J.L. Mehta, Member, EAC for his perusal and observations.

The Committee noted that the project was conceived with coal to be sourced from Chakla Coal Block and the project is located Latehar District, in Jharkhand. That the viability of the project based on imported coal does not seem to be convincing and therefore advised that a scenario building exercise shall be carried out and presented taking into accounts all possible bottle necks.

On the issue of uncertainty in coal (including imported coal from Indonesia), the Committee observed that in order to avoid dis-service to financial institutes by creating stranded assets, the issue of firm fuel and water availability not only need to be deliberated at length but also need to be confirmed to its satisfaction. It was therefore decided that the project proponent shall make due diligence in studying the viability of the project based on imported fuel source for running the power project (2x600 MW Unit-I & II of Phase-I).

The issue of coal transportation from the country of origin to the TPP site and the bottle necks of Port and Railways were also noted as a concern. The Committee therefore decided that details on the same as submitted to the Ministry and the members of the Committee, need due diligence by the project proponent. It was also decided that the project proponent shall list out the details on account of delay in COD and its impact, in a tabular form for the perusal of the Committee. It was also decided that PPAs entered into shall be submitted, which was duly done during the course of the deliberation.

In view of the missing gaps of information the Committee decided that the project proponent can come up with details sought above and present their case in the next meeting. Accordingly the matter was deferred.

2.7 3x660 MW Coal Based Thermal Power Plant of M/s Talwandi Sabo Power Ltd. at village Banawala, in District Mansa, in Punjab- reg. Extension of Validity of EC.

M/s Talwandi Sabo Power Ltd. was accorded environmental clearance for its 3x660 MW Coal Based Thermal Power Plant at village Banawala, in District Mansa, in Punjab on 11.07.2008.

M/s Talwandi Sabo Power Ltd. has informed that the construction work of power project is in full swing but project is getting delay due to uncertainty of fuel supplied by M/s Coal India Ltd., which provides only 80% of LOA coal quantity in contradiction to commitment earlier given. That the terms and conditions of FSA are in contradiction with PPA signed with PSEB. M/s Talwandi Sabo Power Ltd. has therefore requested for extension of validity period of the environmental clearance for a period of further five years. The project proponent also informed that LoA has not been translated into FSA due to ownership clause in the FSA.

The request was placed before the Committee for its views.

The Committee noted that the project proponent shall submit copy of PPA and desired that any issue pending with the Regulatory Commission shall be also submitted. It was further decided that the matter can be taken up in the next meeting.

2.8 2x500 MW (Stage-I) Mauda Thermal Power Project of M/s NTPC Ltd. at District Nagpur, in Maharashtra- reg. Amendment in EC

M/s NTPC Ltd. was accorded environmental clearance for its 2x500 MW (Stage-I) Mauda Thermal Power Project at District Nagpur, in Maharashtra on 25.01.2008.

M/s NTPC Ltd. vide its letter dated 19.02.2013 had informed that for Stage-I (2x500 MW) one unit has already been commissioned and trial operation is in progress and the other unit is ready for commissioning in March, 2013. It was also stated that the coal Linkage for stage–I will be obtained from Ib Valley Coalfields and to be transported through rail only. That the coal transportation system envisaged for Mouda STPP, Stage-I consists of the following:

1. From Ib Valley Coalfields to Chacher Railway station (located at about 9 km. from the project) by Indian Railway System- Howrah Mumbai Main Line.
2. From Chacher railway station to Mouda STPP Plant through NTPC Railway Network System.

It was also stated that the implementation of NTPC Rail Network System is in progress and more than 90% of the track laying works is completed. That however, due to new safety issues raised by Commissioner of Railway Safety, Kolkata (In January, 2013), a stretch of about 100 meters track linking and inter-connection with main railway network is held up at Chacher railway yard. That as this completion of this work is likely to take another four to six months. That after completion of NTPC Rail Network System, the regular coal supply to the plant will be taking place through railways and NTPC Rail Network System.

Further, it was stated that as the NTPC Rail Network System is not ready for use, NTPC Mouda has arranged coal initially from Gondegaon Mines of WCL through e-auction mode. Now NTPC Mouda has arranged alternate source of coal from Kamptee mines of Western Coalfields Limited (through MOU route) located at about 35 km. from the project and adopted coal transportation by roads for trial operations of Unit-I. The coal is loaded directly inside the mine area and unloaded in the plant coal stock yard area only. NTPC has taken all measures to ensure that there is no fugitive dust emission during road transportation of coal by taking action like wetting of coal before transportation and covering of open surface appropriately.

The first unit of Stage-I (500 MW) has been commissioned and trial operation is in progress. Due to delay in completion of NTPC Rail Network, the CERC was approached for grant of extension for declaration of commercial operation of

Unit No.1. CERC vide its order dated 08.02.2013 has extended the time for declaration of commercial operation up to 28.02.2013 only. This necessitates NTPC Mouda (Unit-I) to start commercial production from 28.02.2013. NTPC has also committed to Government of Maharashtra and to western region states to start sustained production from unit No.1 of Mouda from 28.02.2013 onwards to fulfill power demands during incoming summer.

That the second unit of Stage-I is being made ready for commissioning by March, 2013. The coal linkage for the second unit has now been granted by Coal India Limited from Western Coalfields Limited.

In view of the above, M/s NTPC Ltd. has requested that an amendment to the environmental clearance of Mouda STPP, Stage-I may please be accorded for the following:

1. Sourcing of coal for NTPC Mouda form Kamptee Mines of Western Coalfields Ltd. located at a distance of about 35 km., by road transportation as a contingency measure, till the completion and stabilization of NTPC Rail Network System for a period of four to six months.
2. Change in coal source for Unit No. 2 to Western Coalfields Ltd. of Coal India Ltd. in place of Ib Valley Coalfields.

The matter was placed before the Committee for its views:

M/s NTPC Ltd. informed the Committee that Unit-I has achieved COD on 13.03.2013. That as stated in their letter coal will now be from WCL for both Unit-I and Unit-2.

The Committee noted that there seem to be mismatch of information submitted and desired that details need be provided for further consideration. The Committee further informed M/s NTPC Ltd. that the matter can be taken up in the next meeting and M/s NTPC shall present full details of the power project and the coal issue. Accordingly the matter was deferred.

2.9 2x660 MW coal based Super Critical TPP of M/s NTPC Ltd. near village Selda, Tehsil Barwah, District Khargone, in Madhya Pradesh- reg. Extension of validity of TOR.

M/s NTPC Ltd. was prescribed TOR for its 2x660 MW coal based Super Critical TPP near village Selda, Tehsil Barwah, District Khargone, in Madhya Pradesh on 09.12.2010. M/s NTPC Ltd. has now informed that the Public Hearing for the project was conducted by MP State Pollution Control Board on 24.01.2012 but due to non-availability of firm coal linkage, final EIA/EMP report could not be submitted to MOEF. M/s NTPC Ltd. has therefore requested the Ministry for extension of validity of TOR for one year.

The matter was placed before the Committee for its consideration.

The Committee noted that the issue of coal is a matter in public domain and the project proponent cannot be held responsible for matters not in their control. The Committee therefore recommended that the Ministry may extend validity of the TOR for further period of one more year.

2.10 Change in configuration from 1x660 MW to 2x660 MW Super critical TPP of M/s Sona Power Pvt. Ltd. at villages Mudpur, Kachanda, Khisora and Salkhan, district Janjgir-Champa, in Chhattisgarh- reg. Amendment in TOR.

The Committee noted that neither the project proponent nor its representative were present in the meeting. The matter was accordingly deferred for re-consideration at a later stage.

2.11 1x660 MW Super critical Coal based TPP of M/s Nitin Thermal Power Pvt. Ltd. at village Chaddana, Taluk Teothar, in Rewa District, in Madhya Pradesh- reg. Extension of validity of TOR.

The Committee noted that neither the project proponent nor its representative were present in the meeting. The matter was accordingly deferred for re-consideration at a later stage.

DATE: 23.04.2013

2.12 Expansion by addition of 1x600 MW (Phase-II) Imported Coal Based Thermal Power Plant of M/s Korba West Power Company Ltd. at villages Bade Bhandar, Chote Bhandar, Sarvani & Amali Bhona, in Taluk Pussore, District Raigarh, in Chhattisgarh- reg. Environmental Clearance.

The proposal is for consideration for environmental clearance. The project proponent made a presentation along with its consultant M/s J.M Environet Pvt. Ltd., Gurgaon and provided following information:

The project proponent informed that since domestic coal is not available they have now decided to go ahead with imported coal from Indonesia for an interim period till the time domestic coal is available.

The proposal is for expansion by addition of 1x600 MW (Phase-II) Coal Based Thermal Power Plant at villages Bade Bhandar, Chote Bhandar, Sarvani &

Amali Bhona, in Taluk Pussore, District Raigarh, in Chhattisgarh. Environmental clearance was granted for 1x600 MW (Phase-I) on 20.05.2010. The land required for Phase-II will be 402.86 acres, out of which 4.52 acres comprises of water bodies; 199.19 acres agriculture land; 179.86 acres fallow land; and 40.69 acres Open land. The co-ordinates of the site are located within Latitude $21^0$43'54.57" N to $21^0$44'53.37" N and Longitude $83^0$15'55.52" E to $83^0$16'45.37" E. Total land requirement for Phase-I&II will be 889.82 acres. Coal requirement will be 2.77 MTPA. Imported Coal will be transported from Indonesia and FSA have been signed with M/s Coal Trade Services International Pvt. Ltd. Ash and sulphur contents in coal will be 8% and 0.5% respectively. Gross Calorific value of the imported coal will be 4000 kcal/kg. About 0.178 MTPA of fly ash and 0.045 MTPA of bottom ash will be generated. High Concentration Slurry disposal system for disposal of bottom ash will be proposed. Ash pond area for phase-II will be 101.17 acres and co-ordinates of the ash pond site is located within Latitude $21^0$44'01.24" N to $21^0$44'22.94" N and Longitude $83^0$16'02.88" E to $83^0$16'1924" E. MoU have been signed with M/s Biltech Building Elements Ltd. for taking of flyash for manufacturing of ash based buildings and utilization in cement industry. Water requirement of 16.8 MCM for Phase-II will be sourced from the Mahanadi river through a pipeline at a distance of about 5 km from the project site which same as for Phase-I. Permission for 20 MCM per annum has been obtained from Department of Water Resources, Bilaspur vide letter dated 20.03.2008 and permission for 15 MCM has also obtained from Department of water resources, Raipur vide letter dated 10.02.2011. Natural draft cooling system will be installed. There are two rivers i.e. Mand River (3 km, SW) and Mahanadi River (5 km, S) within the 10 km of the project site. There are no National Parks, Wildlife Sanctuaries, Heritage Sites, Tiger/Biosphere reserves etc. within ten km of the project site. Public Hearing was held on 09.02.2012. Cost of the Phase-II project will be Rs.2926.0 Crores.

The project proponent informed that for Phase-I, out of 2.8 MTPA coal required, 2.0 MTPA will come for linked coal and remaining will be sourced through e-auction.

The Committee noted that while scoping the expansion proposal for TOR it was stated that diversion of about 60.17 acres of forests land and acquisition of 96.34 acres of tribal land will be involved. That the total land required for Phase-II stated then was 398.17 acres. *The Committee observed that the information now provided on land requirement is mismatched with what has been earlier stated. The Committee further noted that details revenue records for the power project site shall be submitted and the mismatch in formation clarified.*

On the issue of tribal land, the project proponent presented that Phase-II will involve 108.55 acres of tribal land and that these have been acquired in compliance with the tribal rights as per Central and State legislations. *The*

Committee observed that the project proponent shall identify tribal rights involved and the details of acquisition of the land shall be submitted.

The Committee was also informed of a representation forwarded by the Communist party of India, Central Office, at New Delhi on the expansion project. That the representation was sent to the Regional Office of the Ministry at Bhopal on 13.09.2012. That the R.O, Bhopal have subsequently forwarded the same to the Member Secretary, Chhattisgarh Pollution Control Board for submission of factual report and the same is still awaited. The Committee recommended that copy of the representation shall be furnished to the project proponent also for their response and the State Govt. may be perused for submission of an early report.

Deliberating the status of compliance to the conditions stipulated in the environmental clearance of Phase-I, the Committee noted that a lot need to be answered and there seem to be may areas not suitably addressed. As an example the Committee noted that on the condition stipulated requiring submission of detailed hydro-geological study to be conducted and submitted within six months from an institute of repute / organization to assess the impact of surface water regime, the project proponent informed that a study has been carried out by the consultant viz. M/s J.M Environet Pvt. Ltd., Gurgaon, which is unacceptable.

The Committee also discussed the TOR point-wise and noted that many of the conditions stipulated in the TOR have been inadequately addressed. It was specifically observed that replies to TOR point Nos.9, 10, 11, 12, 19, 25 were inadequate and detail study reports etc. sought shall be submitted.

On the issue of R&R, the project proponent stated that no R&R is required as no displacement of population is involved. *The Committee observed that whereas, the land acquired may not involve homestead oustees but that there certainly may have involved marginalized farmers whose livelihood / sustenance were earlier dependent on the land acquired for the project. The Committee therefore desired that details of such landless farmers who have been further marginalized shall be identified and full details submitted.*

The Committee also discussed the issues raised in the public hearing and the responses made by the project proponent. The major issues raised were regarding employment to local unemployed youths; employment to the land losers after giving technical education; details for the storage of flyash; safety measures proposed to avoid the explosion of chlorine gas cylinder; measures taken to protect the surrounding environment from pollution; details of CSR activities for the development of the region; plans for socio-economic development of the local people; plans for advancement of agriculture in nearby areas etc. The project proponent also informed that there are no litigations in any courts w.r.t the proposed power project.

The Committee noted that the presentation now made with regard to issues raised and responses made by the project in the public hearing have been clubbed with action plan proposed resulting into no clarity on actual responses provided then. *The Committee therefore decided that the project proponent shall clearly state all issues raised and the responses made then and also submit action plan for implementation of relevant issues.*

The Committee noted that FSA for Phase-I is yet to be signed and is held up due to want of PPA. That even after signing FSA, there still may be shortage of coal and there seem to be no detailed plan of action submitted to the Ministry/EAC for its appraisal. *The Committee therefore desired to know the status of PPA and advised the project proponent that the steps taken for PPA and status thereof shall be submitted.*

The Committee also noted that as described in the TOR water availability report need to be submitted. That in doing so it shall be ensured that water availability for 12 months need to be satisfactorily addresses indicating the water available data for last decade in all seasons in river Mahanadi. The Committee further stated that the impact due to drawl of water on other competing sources such as irrigation, drinking downstream of the tapping point shall be submitted.

Further it was observed that a large number of thermal power projects are being planned in Raigarh District, and these TPPs are to source water from the same river Mahanadi, the Committee therefore decided that a cumulative impact due to drawl of water on other competing sources such as irrigation, drinking downstream shall be carried out and details submitted. It was also felt that since Narmada river is an inter-state river, clearance from the Central Water Commission need to be submitted for perusal by the Committee.

The Committee also advised the project proponent to go through the judgments of the National Green Tribunal of some power projects and integrate it with the present proposal listing out the applicable issues.

The Committee felt that in view of the large gaps of information as noted above the present proposal is pre-mature for further appraisal and accordingly deferred the proposal for re-consideration at a later stage.

2.13 2x600 MW Imported Coal Based Super-Critical TPP of M/s Aryan M.P. Power Generation Pvt. Ltd. at villages Musamudhi and Bhumka, Taluk Majhauli, District Sidhi, in Madhya Pradesh- reg. Environmental Clearance.

The proposal was considered in the 38th Meeting of the EAC (T) for prescribing TORs for 4x300 MW Sub-Critical technology Coal Based TPP with 100%

Domestic Coal. TORs were prescribed for 4x300 MW on 10.02.2009. The project proponent later chose to revise its configuration to 2x600 MW Super-Critical Technology. The proposal was placed for environmental clearance in the 65th Meeting of the Committee held during February 12-13, 2010, but neither the project proponent nor its representative was present in the Meeting. No information / request for deferring the proposal were also received. The matter was therefore deferred for re-consideration at a later stage.

The proposal was again placed for re-consideration for environmental clearance in the 1st meeting of the Committee held during July 7-9, 2010, wherein the Committee deliberated the proposal and observed that the present proposal is for 12th Five Year Plan period and there is no concrete proposal. The submission now for 100% imported coal seem only a strategy for obtaining environmental clearance. It was therefore advised that the project proponent shall first firm up its proposal regarding source of coal and the quantum of blending and accordingly submit revised Form-I and other requisite documents (including revised EIA/EMP Report). The Committee agreed that the proposal in its present form is premature for consideration of environmental clearance and therefore decided that the matter be deferred for re-consideration at a later stage.

On submission of clarifications the proposal was again placed for consideration for environmental clearance. The project proponent made a presentation along with its consultant M/s Mahabal Enviro Engineers Pvt. Ltd., and provided following information:

The proposal is for setting up of 2x600 MW Imported Coal Based Super-Critical Technology TPP at villages Musamudhi and Bhumka, Taluk Majhauli, District Sidhi, in Madhya Pradesh. The land required for the project will be 950 acres and 100 acres for the rehabilitation of PAH's. Ash pond area will be 200 acres. No diversion of forest and tribal land will be involved. The co-ordinates of the site are located within Latitude $24^0$7'52" N to $24^0$9'16" N and Longitude $81^0$51'7" E to $81^0$52'34" E. Imported Coal requirement will be 4.55 MTPA. Imported Coal will be obtained from Indonesia and FSA have been signed with M/s Param Mitra Coal Resources PTE Ltd., Singapore. Ash and sulphur contents in coal will be 8% and 0.5% respectively. Gross Calorific value of the coal will be 5000 kcal/kg. About 0.36 MTPA of fly ash and 0.09 MTPA of bottom ash will be generated. Water requirement of 909m^3/hr will be sourced from the Banas river through a pipeline at a distance of about 40 km from the project site. Water allocation of 44 cusecs has already been granted by MP state WRD vide letter dated 18.05.2010. Air cooled condensors will be installed for both the units. There are Tikari Reserved (5km, NE), Daria RF (7km, N), Kachodar RF (8km, S) and Deoban RF (9km, NE) within 10 km of the project site. Public Hearing was held on 07.10.2009. Public hearing was held on 07.10.2009. Cost of the project will be Rs.5809.09 Crores.

The Committee noted that the basic information questionnaire now submitted mentions the land required as 427.6 ha, as waste land, which is questionable. The Committee therefore decided that detail revenue records of the land shall be submitted. It was also noted that the land requirement stated seem too large and is unacceptable. *The Committee therefore decided that the project proponent shall revise its layout by optimizing the land requirement at maximum 850 acres and submit the same.*

The Committee observed that TOR was prescribed on 10.02.2009, whereas the AAQ Data was collected during December 2008-February, 2009. The project proponent clarified that they had applied for TOR and scoping by EAC for TOR was first carried out in the 36th EAC meeting held on 16.12.2008 and it was stated in that meeting that in order to capture the winter data AAQ data will begin from December 1st, 2008, which the EAC had agreed. That later the project was re-considered for TOR in the 37th Meeting held during January 12-13, 2009 and TOR was granted on 10.02.2009. That baseline data have been revalidated based on AAQ Data collected during December 2011- February, 2012.

It was observed that the AAQ predictions is profoundly unrealistic and the project proponent need to have also carried out cumulative impact assessment taking into account all possible existing and proposed source of emissions.

Coming to MoU of imported coal submitted, the Committee noted that the project proponent have submitted two varying MoU viz. one purportedly signed in the year 2010 and circulated to the members and another purportedly signed in November 2012, which is being placed for consideration. That these MoU have varying terms and conditions and other details.

Regarding issue of uncertainty in coal (including imported coal from Indonesia), the Committee observed that in order to avoid dis-service to financial institutes by creating stranded assets, the issue of firm fuel and water availability need to be deliberated at length and need to be confirmed to its satisfaction. It was therefore decided that the project proponent shall submit documents to submit viable of the project based on fuel (coal) from Indonesia for running the power project in a land locked place like Sidhi District, in Madhya Pradesh.

The issue of coal transportation from the country of origin to the TPP site and the bottle necks of Port and Railways was also observed to have been not dealt with and details on the same need proper scrutiny.

The Committee also observed that over and above financial viability of using imported coal from Indonesia, the project proponent shall submit details on PPA entered into or proposed to be signed with the distribution company.

Regarding water availability, the Committee noted that the project proponent have to establish that the power project is self-sufficient in its water requirement, necessary study report for availability of water from Banas river based on past few decades of data need to be submitted along with necessary water conservation practices proposed to be done. The Committee also clarified that water is a critical issue and unless it is satisfied fully on the availability of sustainable water source for a power project without compromise or conflict of interest with other competing sources, recommendation for environmental clearance cannot be made even if all other issues have been addressed. The Committee therefore decided that the project proponent shall furnish full details on the source of water i.e Banas River, the details of down stream recipients from the point of tapping for the power project and the flow data of the river for the last few decades.

The Committee observed that there are too many discrepancies in the documents / data made available and the proposal in its present form is grossly inadequate for recommendation for environmental clearance. The Committee further observed that the public hearing was also held in October, 2009 and a lot of deviations in the project from what has been made available to the stake holders seem to have been now brought out, without adequate reason. The Committee therefore recommended that the project proponent shall go for fresh public hearing and come back after following due process. Accordingly the proposal was dropped. It was also decided that the proposal may be now de-listed from the pending list.

2.14 Expansion by addition of 2x660 MW (Unit 5&6) Imported Coal Based TPP of M/s Lanco Amarkantak Power Ltd. in Korba Tehsil & Distt., in Chhattisgarh – reg. EC reconsideration.

The proposal was earlier considered in 46th and 58th EAC meeting held during April 9-10, 2012 and October 8-9, 2012 wherein the project proponent gave a presentation and provided the following information:

The proposal is for expansion by addition of 2x660 MW (Units 5-6) Imported Coal Based Supercritical TPP at village Pathadi, in Korba Tehsil & Distt., in Chhattisgarh. There are two units under operation viz. Unit –I and Unit-II consisting each of 1x300 MW. Unit-III & IV (2x660 MW) are under implementation. Additional land requirement will be 550 acres, which is a single crop agriculture land, comprising of 250 acres of land for ash pond, 250 acres for water reservoir and 50 acres for external facilities. Total land requirement for 3240 MW will now be 1945 acres. The co-ordinates of the site including all six units and ash pond of Units-1,2,3&4 are located within Latitude 22^{0}13'12.76" N to 22^{0}14'55.36" N and Longitude 82^{0}43'17.77" E to 82^{0}44'9.37" E. Coal requirement will be 5.06MTPA at 85% PLF. Imported Coal

will be obtained from Australia. FSA has been signed with M/s The Griffin Coal Mining Company Pty Ltd. Ash and sulphur contents in imported coal will be 10% and 0.5% respectively. About 0.506 MTPA of ash will be generated. Fly ash will be supplied to M/s ACC Keymore Cement Works of Katni, M/s Vedant Infrastructures, M/s KJSL Coal & Power Ltd. Infrastructures, M/s Gajanan Ash Bricks, M/s Ganpati Ash Bricks, M/s Ultratech Cements etc. Ash pond area will be 250 acres and co-ordinates of the ash pond site is located within Latitude $22^0$12'41.75" N to $22^0$13'9.44" N and Longitude $82^0$42'19.82" E to $82^0$43'19.28" E. Twin flue Stack of 275m shall be provided. Natural Draft cooling system will be installed. Water requirement of 85848 m^3/day (31.33 MCM) will be sourced from the Hasdeo River through a pipeline at a distance of about 2.4km from the project site. Approval from Water Resource Department, Govt. of Chhattisgarh has been obtained. Sakti Reserve forest is at a distance of 10.7 km from the plant site. There are no National Parks, Wildlife Sanctuaries, Heritage Sites, Tiger/Biosphere reserves etc. within ten km of the project site. Public Hearing was held on 07.01.2012. Cost of the project will be Rs.7062.0 Crores.

In the 46th meeting, the Committee discussed point-wise compliance of TOR and the status of compliance of the conditions stipulated in the environmental clearance accorded for the earlier units. *The Committee desired that the status of compliance to the conditions stipulated in the environmental clearance for the earlier units shall be submitted to the Ministry within a fortnight.*

On the question of cumulative impact assessment of AAQ in the study area, the project proponent clarified that the assessment has been done based on their existing and proposed units. It was informed that no other source of air pollution in the 10 Km area exists or is proposed to be coming up as per the records available.

The Committee also discussed the issues raised in the Public Hearing and the responses made by the project proponent in the 46th Meeting. The Committee noted that major issues raised were regarding compensation for land acquired; employment of PAPs; community development; discharge of effluents into Jogi nallah affecting human and animal; noise pollution due to operation of existing units; fly ash/ dust falling on houses of villages and also affecting nearby agricultural land; non willingness of some villagers to part with land; adverse impact on ground water used for construction of plant etc. That these issues were addressed and committed by the proponent. The project proponent had also informed that no litigation was pending / filed pertaining to the power project.

On the issue of drinking water for villages and contamination of Jogi nalla, which was also an issue raised in the Public Hearing, the proponent informed that they are adopting a zero discharge system.

The Committee had also advised the proponent that radio activity in coal and ash needs be studied on a long term basis and mitigative action should be taken based on the outcome of the study. The project proponents were advised to avoid the acquisition of tribal land. That, however, in the event of extreme necessity, the relevant rules should be followed and then only carried out.

The Committee sought information regarding status of compliance to the conditions stipulated for the earlier phases of the project; cumulative impacts on the ambient air quality within 15 km of the plant; report on the transportation of coal, including coal handling capacity at ports and railway rolling stacks availability; report on the water availability in Hasdeo River; action plan for implementation of issues raised in Public Hearing and CSR plan and point wise response to representation received by MEF.

The proponent have submitted a detailed information on the above issues. As per the information shared the proponent appears to have complied with conditions stipulated in the environmental clearance granted for the previous phases. High efficiency electrostatic participators have reported to have been installed to control particulate emission below 50mg/Nm^3; space provision has been made for installation of FGD; cooling towers with closed cycle cooling are installed. The company is achieving zero discharge and environment lab has been set up.

Cumulative impacts on the Ambient Air Quality (AAQ) have reported to have been assessed within 20 km distance of the plant site. That the only power plant which is in operation within 15 km radius is the 1120 MW power station of Chhattisgarh State Electricity Board. The other thermal power plants which are operating near Korba are more than 15 km distance from the Lanco Power Station are 2600 MW of M/s NTPC at Korba; 2010 MW of M/s Balco ; and 840 MW of CESB at Korba West. The overall ground level concentration at a distance of 20 km radius taking into account all the power plants of PM_{10}, $PM_{2.5}$, SO_2 and NOx is 69.28 µg/m^3, 26.02 µg/m^3, 56.5µg/m^3 and 33.5µg/m^3 respectively. The values are noted to be within the prescribed standards.

Regarding coal transportation, it was informed that the coal will be imported from Griffin Coal Mining Pty Limited, Australia. The fuel supply agreement is for 5 MTPA. The coal will be imported to Vishakhapatnam Port or Gangawaram Port and then to the plant augmentation site at Korba in BOXN rakes. The company has submitted a letter of comfort to handle 2 MTPA of coal from Vishakhapatnam Port Trust. Company would also transport coal from the Gangawaram Port which has handled 14 MT of coal in 2011- 2012 and it is proposed to enhance the cargo handling capacity to 45 MT in next two years. The current handling capacity is 24 MT. As regards, the rail transportation from ports, rails rakes from both the ports are available. The company has submitted an application to railways for Rail Traffic Clearance (RTC). To meet the transportation requirement, the proponent will need 4 rakes per day on

average. As per the report submitted, the requisite rakes for the transportation to Amarkantak unit 5 & 6 will be easily available.

As regards the water availability from Hasdeo River, the lean season capacity of the storages from Hasdeo Barrage at Korba up to the confluence of Hasdev with Mahanadi is reported to be 99.949 MCM. While the lean season allotment to the power plants and industries are reported to be 86.952 MCM (after considering a cushion and net positive balance of 12.997 MCM). As per the hydrology study of the area, the construction of dams, barrages, anticuts and canals has resulted in storage of sufficient quantity of water for use during the lean months. The flow profile of Hasdeo River during lean months has increased with the construction of the water storage facilities and to meet the water requirement of Lanco Amarkantak Power project and other power plants / industries in the area.

A detailed action plan for implementation of issues raised during Public Hearing and CSR plan has been submitted. The issues raised in the representation received by the Ministry regarding employment and resettlement, environment conservation, pollution in the area and EIA report based on the old facts have been addressed. As per the information furnished, M/s Lanco have provided employment to 317 affected persons. One time capital CSR expenditure of Rs. 25 Crore, to be raised to 28 Crore, till the commissioning of the plant and annual CSR budget thereafter to be Rs. 5.60 Crores till the operative life of the plant. Annual Social Audit to be conducted by a reputed University in the vicinity. There is no displacement of families. Regarding environment conservation, high efficiency ESPs are in operation and there is no discharge of effluent outside the plant. Continuous monitoring for stack emissions is being carried. Green belt has been developed in 75 acres of plant area. The ground water analysis carried shows that the levels of various parameters are within the prescribed standards. Lanco Amarkantak project is located at a distance of 13 km from Korba and does not fall in the critically polluted area. The AAQ data has been collected in the post monsoon season from September - November, 2010 subsequent to issuance of TOR. As discussed during the meeting, the project proponent may explore the possibility of setting up of a cement plant capacity to consume bulk fly ash.

It was brought to the notice of the Committee that Chhattisgarh Environment Conservation Board (CECB) had issued show cause notice to the proponent for not complying with the conditions for green belt development and utilization of fly ash.

The Committee had therefore decided that the proponent should first provide the details regarding the show cause notice issued by the State Pollution Control Board before taking decision regarding the project.

On submission of the clarification the matter was again placed in its 58th meeting of EAC (Thermal) held during October 8-9, 2012 for re-consideration. The project proponent gave a presentation and informed the following:

That Unit–I & II (based on domestic coal) have been commissioned in November, 2010 and March, 2011 respectively. That Units-III & IV (based on domestic coal) are in advance stage of construction.

- That they have replied to the Show Cause Notice issued by Chhattisgarh Environment Conservation Board, which pertains primarily to emission of particulate matter; action plan for fly ash management; and action plan on green belt.
- That they have now decided to adopt 'Zero Discharge' concept and accordingly R.O System will be installed.
- That ammonia injection for SO_2 reduction is being undertaken.

In the said 58th meeting, the Committee observed that action plan undertaken for the issues mentioned in the Show Cause Notice of the CECB prior to the notice received and thereafter action plan for implementation in compliance to the notice shall be submitted. That the pollution data not only for particulate matter but also for SO_2 prior to and after replying to notice shall be submitted. It was also decided that the details of R.O System including solid waste generated from R.O System handling and management shall be submitted. With respect to SO_2 reduction through ammonia injection, the project proponent need to submit details of SO_2 emission prior to adoption of the same and henceforth after adoption of the same. The Committee also expressed its concern regarding advisability of SO_2 injection and observed that the project proponent need to examine issue of oleum formation.

With regard to compensation and employment, the Committee noted that the Minister of Environment & Forests, while making an observation of a letter received from the Minister of State for Agriculture and Food Processing pertaining to the power project have desired that evidences on record shall be submitted.

The Committee observed that the project proponent need to submit action taken in specific to the issues raised in the public hearing.

The Committee also decided that details mentioned above shall be submitted in the form of an affidavit duly signed by an officer of appropriate seniority and notorised.

It was decided that the project proponent shall first establish compliance to the conditions stipulated for Units-I to IV and submit detailed compliance report vetted by the R.O of the Ministry and other agencies as applicable.

The Committee also decided that the project proponent shall introduce a Management Information System which indicates the environmental conditions / effective compliance monitoring of environmental conditions. Accordingly, the Committee decided that the project proponent need to submit details and action plan in this regard.

The Committee finally decided that the project proponent shall come with the compliance of the observations stated in the above preceding paragraphs and shall also prepare point-wise compliance of its earlier observations made in the 46th Meeting. Accordingly the proposal was deferred.

On submission of the clarification the matter was again referred to the Committee.

The project proponent made a presentation on the clarification sought in the 46th and 58th meetings and the status of compliance to the conditions stipulated in the environmental clearance of Unit-1 & 2 i.e 2x300 MW.

The project proponent informed that as on date total operational coal based thermal power capacity of the Lanco Group in India is about 3000 MW.

Discussing the issue of Show Cause Notice issued by CECB, the Committee felt that the status and action plan for implementation relevant with the show cause notice need to have been presented. It was also noted that the compliance report submitted by the Regional Office of the Ministry indicates that w.r.t green belt development the power station is non-compliant. The Committee noted the clarification provided by the project proponent that because of delay in land allotment and due to construction activities, the green belt development was behind schedule and hence revised action plan was submitted to CECB for issuing Consent for Operation of Units-1&2. *The Committee observed that concrete action plan with material evidence to establish credible action taken in executing seriously the green belt development and management plan shall be submitted first.*

The Committee also advised the project proponent to examine some of the orders of the National Green Tribunal related to thermal power projects for which environmental clearances accorded by the Ministry have been stayed / cancelled. The Committee advised the project proponent to examine these judgements and integrate it with the project and submit its comparative analysis vis-à-vis the present proposal placed for consideration of the Committee.

The Committee also revisited the coal transportation study submitted by the project proponent. It was noted that the letter dated 15.07.2011 submitted, purportedly from the Port Authority mentions its capacity of catering only 2.0 MTPA as against the requirement of 5.0 MTPA. The Committee therefore sought detailed clarification on the issue.

The Committee also observed that cumulative impact assessment need to be re-assessed and submitted. It was also advised that the sulphur balance shall be re-worked and details submitted.

On the issue of firm water availability for 12 months for the power project, the Committee noted that the lean season allotment to the power plants and industries are reported to be 86.952 MCM, after considering a cushion and net positive balance of 12.997 MCM, which need to be examined further.

It was earlier reported in the last meeting that as per the hydrology study of the area, the construction of dams, barrages, anticuts and canals has resulted in storage of sufficient quantity of water for use during the lean months. That the flow profile of Hasdeo River during lean months has increased with the construction of the water storage facilities and to meet the water requirement of Lanco Amarkantak Power project and other power plants / industries in the area. The Committee felt that these statements need be duly explained with supporting records.

The Committee also clarified that water is a critical issue and unless it is satisfied fully on the availability of sustainable water source for a power project without compromise or conflict of interest with other competing sources, recommendation for environmental clearance cannot be made even if all other issues have been addressed. The Committee therefore decided that the project proponent shall furnish full details on the source of water i.e Hasdoe River, the details of down stream recipients from the point of tapping for the power project and the flow data of the river for the last few decades.

On the issue of additional land of about 550 acres required for the expansion project, the Committee observed that even if the land proposed to be additionally acquired does not involve homestead oustees, it certainly may have involved marginalized farmers whose livelihood / sustenance are dependent on the land to be acquired for the project. The Committee therefore desired that details of such landless farmers who may be further marginalized shall be identified and details shall be submitted. In doing so the Committee advised that the project proponent may consult District Census data (2011).

The Committee also highlighted the study reportedly carried out by some International NGO, linking child mortality with thermal power plants. The Committee desired that information on such cases may be complied, as may be available, and place before the Committee for its information and perusal.

The Committee recommended that the Ministry may like to initiate 'Carrying Capacity Study for regions like Korba and Raigarh in Chhattisgarh and Singrauli in U.P-M.P.

In view of the additional clarifications/reports ought, the Committee deferred the proposal for re-consideration at a later stage.

2.15 Dumping of Flyash generated from 410 MW TPP of M/s Bhushan Steel Ltd. into mine void of Jagannath OPC of M/s Mahanadi Coalfields Ltd., in Talcher Coalfields, Distt. Angul, Orissa.

Dumping of Flyash generated from 460MW Talcher TPS of M/s NTPC Ltd. into mine voids of South Balonda OPC of M/s Mahanadi Coalfields Ltd., in Talcher Coalfields, Distt. Angul, Orissa.

Modernisation of ash disposal system in 1200MW CPP of M/s NALCO by adopting lean slurry disposal method in abandoned coal mines void of M/s Mahanadi Coalfields Ltd., Bharatpur (South), Talcher Coal Field, in Distt. Angul, Orissa.

The above items are considered in sequel as the issues are same and the area where proposed fly ash stowing is to be carried out is also in the same coalfields.

The issues were an outcome of the discussions held in the 47th Meeting of the EAC (Coal), wherein it was decided thatthese would be further deliberated by the EAC (Thermal Power) as the environmental clearance was granted by MOEF on the basis of the recommendation by EAC (Thermal Power) for Thermal Power Project of M/s Bhushan Steel Ltd. It was hence decided that the matter of generation and dumping of flyash from the Thermal Power Projects required further consideration by the same Committee. The EAC (Coal) had also decided that similar cases of M/s NTPC and M/s NALCO would also be considered by EAC (Thermal Power) in the context of ECs recommended by that EAC (Thermal Power) for their power projects generating the flyash. Similar cases of flyash dumping received henceforth of power projects granted EC would also be taken up by EAC (Thermal Power).

The extracts of the aforementioned 47th meeting of EAC (Coal Mining) is extracted as under:

"The proposal is for dumping flyash generated from their 410 MW TPP of M/s Bhushan Steel Ltd in the decoaled abandoned coal mine voids of Jagannath OCP of M/s Mahanadi Coalfields Ltd. Both M/s Bhushan Steel Ltd and M/s Mahanadi Coalfields Ltd. made a joint presentation. It was informed that the proposal is for utilisation of fly ash generated from 410 MW TPP (2x150 + 1x33 MW + 1x77 MW) of M/s Bhushan Steel Ltd. into abandoned coal mine void of Jagannath OCP of M/s Mahanadi Coalfields Ltd., in Talcher Coalfields, Dist. Angul, in Orissa. The ash generation is about 3234T/month. The ash is proposed to be filled in quarry No. IV of Jagannath OCP of MCL.

The proposal was considered in EAC (T&C) meetings held during January 3-4, 2012 and February 21-22, 2012 respectively. It was recalled that in the meetings, M/s Bhushan Steel Ltd. had informed that it has carried out physical analysis, chemical analysis and leaching studies, Hydrogeological studies of Jagannath OCP by using remote sensing and GIS techniques. M/s Bhushan Steel informed that the flyash is alkaline in nature and not acidic. It was informed that the Institute of Minerals and Materials Technology, Bhubaneswar also carried out leachability analysis and submitted its report on 14.10.2011. It was informed that the ground water level varies from 3.89-8.56m bgl during pre-monsoon and 1.85 to 5.26m bgl post monsoon. The aquifers depth ranges from 100m to 120m bgl. It was informed that the levels of heavy/toxic metal content in the leachates of ash proposed to be dumped in quarry No. IV of Jagannath OCP of MCL, Talcher are well within limits of potable water standards. It was informed that the underneath geological strata is impervious due to alternate beds of sands and shale with intercalation of clay. It was informed that the reports of these detailed studies have been submitted to SPCB, Orissa. It was further informed that BARC has been given work for determining long-term heavy metal toxicity studies on aquifer life system. The proponent had also informed that TPP operations are being curtailed due to paucity of land for dumping of flyash.

The matter had been brought before the EAC (T&C) for further consideration in view of reported studies carried out by M/s Bhushan Steel Ltd. as presented to the EAC in the meetings earlier.

The EAC (T&C) discussed the matter with reference to the MOEF Notification dated 03.11.2009 on Flyash Utilisation, the relevant extracts of which are reproduced below:

> *(7) "No agency, person or organisation shall within a radius of hundred kilometres of a coal or lignite based thermal power plant undertake or approve or allow reclamation and compaction of low lying areas with soil, only flyash shall be used for compaction and reclamation and they shall also ensure that such reclamation and compaction is done in accordance with the specifications and guidelines laid down by the authorities mentioned in sub-para (1) of para (3).*
>
> *(8) (i) No person or agency shall within fifty kilometres (by road) from coal or lignite based thermal power plants, undertake or approve stowing of mine using at least 25% of flyash on weight to weight basis, of the total stowing materials used and this shall be done under the guidance of the Director General of Mines safety (DGMS);*
>
> *Provided that such thermal power stations shall facilitate the availability of required quality and quantity of flyash as may be*

decided by the expert committee referred in sub-paragraph (10) for this purpose.

(ii) No person or agency shall within fifty kilometres (by road) from coal or lignite based thermal power plants, undertake or approve without using at least 25% of flyash on volume to volume basis of the total materials used for external dump of overburden and same percentage in upper benches of backfilling of opencast mines and this shall be done under the guidance of the Director General of Mine Safety (DGMS).

Provided that such thermal power stations shall facilitate the availability of required quality and quantity of flyash as may be decided by the expert committee referred in sub-paragraph (10) for this purpose."

The EAC observed that the stowing of flyash into mine voids vide the aforesaid provisions appears to be for operating mines only and the approval of DGMS is from safety angle alone to ensure that the dumps do not collapse due to problems of instability. The matter of environmental hazards of leaching and long-term impacts of flyash dumping on environment which are very important have not been brought out through Guidelines or Technical Guidance Manual on the use of flyash under the MoEF Notification dated 03.11.2009. The Committee further observed that insofar as dumping of flyash of M/s Bhushan Steel Ltd is concerned, it is planned to dump 100% of flyash slurry (without mixing with OB) into abandoned decoaled mine voids of Jagannath Opencast Coalmine, which are not operational. The Committee also noted that long-term studies on the impacts of this large-scale dumping of flyash have not been carried out. The Committee's attention was drawn to a news item of Indian Express dated 24.04.2012 of a study conducted by Department of Geology, University of Delhi, which has observed high levels of heavy metal Arsenic (5 times beyond WHO safety limits) in the groundwater due to dumping of flyash generated from Thermal Power Stations of Delhi in the flood plains of River Yamuna in Delhi, during their operation. The Committee reiterated that M/s Bhushan Steel Ltd has not explored other options of utilisation of flyash, such as use of flyash for clinker production in cement plants. The Committee stated that flyash is also being exported to other countries and this option has also not been explored by the company. The Committee observed that the proponent has opted for the easiest method of disposal without fully examining the negative externalities and the likely long-term health hazards.

The Committee after discussions had decided the following:

(i) The studies got carried out by M/s Bhushan Steel Ltd should be forwarded to ITRC, Lucknow for their detailed analysis and comments.

(ii) The concerns of EAC on the long-terms impacts of flyash dumping into mine voids should also be referred to the Expert Committee under Ministry of Coal vide para (10) of the Flyash Notification dated 03.11.2009 seeking their response on the overall environmental issues of dumping of flyash in mine voids".

The matter was again placed before the EAC (Thermal) in its 56th Meeting held during September 3-4, 2012, wherein, the Committee noted that the recommendations made in the 47th Meeting of EAC (Coal) has not been fulfill addressed by the project proponents and hence does not have merits for consideration in its present form. The Committee also decided that the project proponents may be provided copies of the sub-group's visit report to M/s NALCO site at Angul and seek para-wise comments. It was also decided that the study sponsored by M/s NTPC and undertaken by BARC need to be further deliberated.

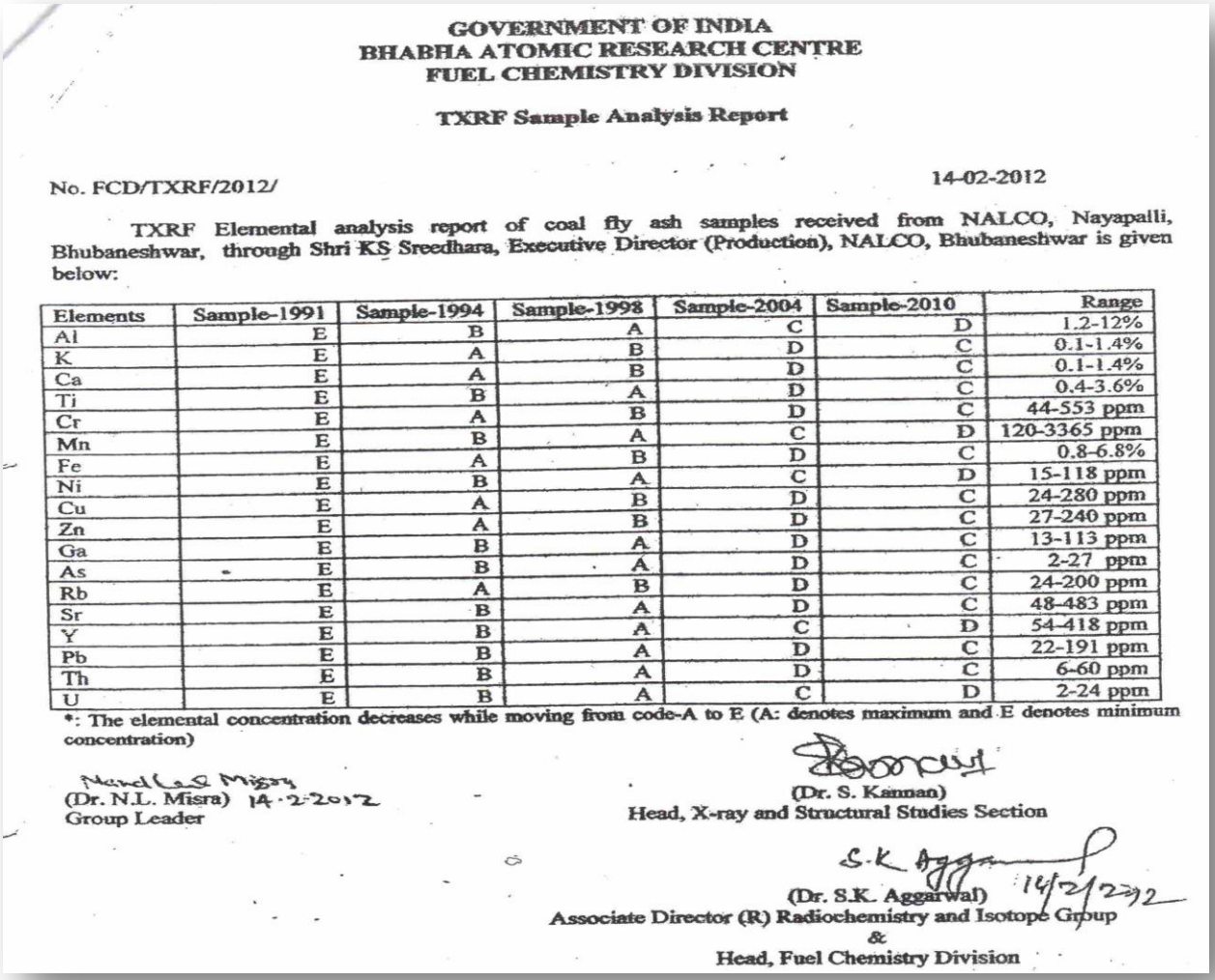
On submission of documents on TCLP report from IIMT, Bhubaneswar; comments on M/s Nalco site visit report by the sub-group of the Committee, the matter was again placed before the Committee on February 6, 2013, wherein M/s NALCO made a presentation and provided the following information:

The EAC while deliberating the issues earlier had advised NALCO:

- To establish the true porosity and permeability of the formation surrounding the mine void by more studies preferably from agencies like NGRI.
- To establish the impact of ageing on the ash with reference to concentration of heavy metals and radionuclide.
- To seek the views of Principal Scientific Advisor to Hon'ble Prime Minister of India on 2 above.

That M/s NALCO had accordingly contacted Dr. R. Chidambaram, Principal Scientific Adviser to Hon'ble Prime Minister, Govt. of India for advice and opinion. Based on his guidance, collected ash samples from the ash core dykes built using ash of different periods. 5 samples during the years of generation in 1991, 1994, 1998, 2004 and 2010 were collected and sent to BARC for analysis. The Principal Scientific Adviser to Hon'ble Prime Minister also advised Dr. RM Tripathy, Head Environmental Assessment Division, BARC to study the results along with other data made available by NALCO for views on the analysis w.r.t. heavy metal concentration and radio nuclides. That thereafter M/s Nalco contacted NGRI for measurement of true porosity and permeability. The institute citing pre occupation, equipment problems, etc. declined the request. Thereafter MECL Nagpur (a PSU under MoM, GoI) was contacted and had agreed to get the true porosity and permeability measurement to be carried

out at University of Petroleum & Energy Studies (UPES), Dehradun. A sample analysis submitted by MARC is placed below:



GOVERNMENT OF INDIA
BHABHA ATOMIC RESEARCH CENTRE
FUEL CHEMISTRY DIVISION

TXRF Sample Analysis Report

No. FCD/TXRF/2012/ 14-02-2012

TXRF Elemental analysis report of coal fly ash samples received from NALCO, Nayapalli, Bhubaneshwar, through Shri KS Sreedhara, Executive Director (Production), NALCO, Bhubaneshwar is given below:

Elements	Sample-1991	Sample-1994	Sample-1998	Sample-2004	Sample-2010	Range
Al	E	B	A	C	D	1.2-12%
K	E	A	B	D	C	0.1-1.4%
Ca	E	A	B	D	C	0.1-1.4%
Ti	E	B	A	D	C	0.4-3.6%
Cr	E	A	B	D	C	44-553 ppm
Mn	E	B	A	C	D	120-3365 ppm
Fe	E	A	B	D	C	0.8-6.8%
Ni	E	B	A	C	D	15-118 ppm
Cu	E	A	B	D	C	24-280 ppm
Zn	E	A	B	D	C	27-240 ppm
Ga	E	B	A	D	C	13-113 ppm
As	E	B	A	D	C	2-27 ppm
Rb	E	A	B	D	C	24-200 ppm
Sr	E	B	A	D	C	48-483 ppm
Y	E	B	A	C	D	54-418 ppm
Pb	E	B	A	D	C	22-191 ppm
Th	E	B	A	D	C	6-60 ppm
U	E	B	A	C	D	2-24 ppm

*: The elemental concentration decreases while moving from code-A to E (A: denotes maximum and E denotes minimum concentration)

(Dr. N.L. Misra) 14-2-2012
Group Leader

(Dr. S. Kannan)
Head, X-ray and Structural Studies Section

(Dr. S.K. Aggarwal) 14/2/2012
Associate Director (R) Radiochemistry and Isotope Group
&
Head, Fuel Chemistry Division

Note: In the five samples for the years 1991, 1994, 1998, 2004, 2010 there is no fixed trend in terms of decrease in concentration with age of the samples.

M/s Nalco also submitted its conclusion based on the above report of ash analysis by BARC as under:

- Heavy metal content depends upon the type of coal used.
- Heavy metal concentration doesnot decrease during storage, unless weathering/ leaching of Ash takes place.
- In the five samples collected during the years 1991, 1994, 1998, 2004, and 2010, there is no fixed trend in terms of decrease in concentration with age of the samples.
- For radiological issues, the major radionuclides of concern are uranium, thorium and 40K.

- There is no mention of naturally occurring radionuclide's in the leaching study carried out by CMPDI.
- CMPDI report summarizes that there is no impact on ambient air quality, surface & ground water with the prescribed operating conditions during fly ash back filling of the mines (Rapid EIA volume-I, Page 114 to 116)
- The Toxicity Characteristic Leachate Procedure(TCLP) study carried out by CMPDI for mine sump water simulates the actual condition of de-coaled pits to be filled up with fly ash.
- The study indicated that the presence of trace metals in the leachate is within and much below the permissible & desired limits.
- The radionuclides are having very long Radiological half lives in the order of billions years. Hence, their decay in a short span of 20 to 30 years is ruled out.
- Hence, decrease in concentration of the above radionuclides is not expected due to radiological decay.

M/s NALCO also stated that from the mine void floor RL is at 62 MRL. That all 4 bore holes drilled and permeability tests conducted show a result of "very low" to "low" and occasionally "medium" range of permeability results. Ash is very fine to medium coarse material and by nature fly ash is pozzolonic having binding /sealing property. That long experience in fly ash handling has indicated that ash itself plugs the pore space thus reducing or minimizing porosity and permeability. Thus back filling of coal mine void by ash is preferred as a natural pore plug material compared to any other sealing material. That moreover the void is filled with over burden from the operating mine partially and by large volume of water and it is impractical to decant this large volume for sealing of the mine void. That in the light of studies advised, and undertaken by NALCO and conclusions drawn thereof, it is evident that filling ash in the mine void will not have any adverse impact on the quality of ground water. That ash filling will help blocking the porosity and permeability of the exposed mine face and back filled area. That ash filling is an approved process for mine void filling for land reclamation and restoration as per MoEF notification -1999 under EP Act 1986.

In conclusion thereof, M.s NALCO stated that they may be permitted to undertake mine void filling in the instant mine void at Bharatpur under review / consideration, as it is also established that leachate would not have any adverse effect on the quality of water in saturated and unsaturated rocks in Bharatpur OCP area.

M/s Bhusan Steel Ltd. and M/s NTPC Ltd. also substantiated the report/ finding of M/s NALCO and also submitted the study report/result carried out by Institute of Minerals & Materials Technology, a CSIR Institute on heavy metals contents of fly ash samples.

While a member of the Committee noted that there seem to be some discrepancy in the sampling procedures in the BARC test result above indicated as the variation seem quite large in many parameters. The members also mentioned about the water in the mine void at Bharatpur OCP whether it is acidic or not. It was also stated that there are human habitations in 5 kms radius and the villagers had indicated to the members of the sub-group during the visit, their desire to use the mine void water for various purposes.

The Committee noted the observation made by the esteemed member and was of the opinion that the report/result submitted by the Principle Scientific Advisor to the Hon'ble Prime Minister needs to be taken on Board and that certainly while making the observations as indicated in the documents of test results from different institutes, the pH of the mine void water must have been taken into account.

The Committee therefore decided that the following additional information need to be submitted:

i) Population village-wise around 5 kms, 10 kms, 15 kms and 20 kms shall be detailed out using 2011 Census data;
ii) Identify source of drinking water in these areas and carry out testing of water samples for chemical toxicity and heavy metals through a reputed laboratory preferably CSIR Lab;
iii) Identify agricultural activities in these regions and test agriculture produce / samples for chemical toxicity and heavy metals through a reputed laboratory preferably CSIR Lab;
iv) Identify cattle population in these regions and examine possibility of food chain contamination by heavy metals from fly ash;
v) Explore other options of 100% Fly Ash utilization as well.

The Committee also decided that on submission of the above the matter can be further deliberated and a recommendation made. The matter was accordingly deferred for re-consideration at a later stage.

On submission of the clarification sought above the matter was again taken up.

The Committee observed that whereas the mine void water in the case of M/s NTPC and M/s Bhusan Steel are non-acidic, the void mine water w.r.t M/s Nalco seem acidic. M/s Nalco is therefore required to regularly carry out monitoring of acid leaching in ground water in nearby areas and take immediate preventive action.

The Committee decided that as endorsed by the Principle Adviser to the Prime Minster, the request can be agreed subject to the following conditions:

a) *The mine void filling shall be permitted for a period of **one year** as a demonstration pilot project and not as precedence. M/s Nalco, M/s NTPC and M/s Bhusan Steel Ltd. shall within one year jointly commission a study from a competent independent institute like IITs; RRL, Bhubaneswar; Institute of Physics, Bhubaneswar etc. to assess the impact of fly ash dumping to the mine voids and submit the report to the Ministry. The study shall collect baseline data of fly ash to be dumped, identify elements in fly ash and analyze its radio activity contents. The Ministry may on receipt of the said report in consultation with the Expert Appraisal Committee (Thermal Power) decide on allowing continuation or otherwise of mine void filling by fly ash;*

b) *M/s Nalco, M/s NTPC and M/s Bhusan Steel Ltd. shall submit the monitoring results of mine voids water sample analysis to the Orissa State Pollution Control Board (OSPCB) and the Regional Office of the Ministry regularly and in public domain in their websites;*

c). *The OSPCB shall regularly collect mine void water samples of all the three cases and analyse the results and take / suggest action as required;*

d) *M/s Nalco, M/s NTPC and M/s Bhusan Steel Ltd. shall install adequate number of piezometers, both at confined and unconfined aquifers, around the mine voids in consultation with the OSPCB;*

e) *Fly ash dumping shall be atleast 1.0 m below the general ground level and clay layer of 1.0 m on top of filled in dump shall be ensured; and*

e) *M/s Nalco, M/s NTPC and M/s Bhusan Steel Ltd. shall submit alternative action plan for fly ash utilization (if any).*

f) *Report submitted by the Sub-Group of the EAC shall be implemented as applicable in respective case.*

2.16 6x660 MW Ultra Mega Power Project of M/s Coastal Andhra Power Ltd. at village Krishnapatnam, in SPSR Nellore District, in Andhra Pradesh - reg. Extension of validity of Environmental Clearance.

M/s Coastal Andhra Power Ltd. was accorded environmental clearance for its 4000 MW Ultra Mega Power Project at village Krishnapatnam, in SPSR Nellore District, in Andhra Pradesh on 23.10.2007. M/s Coastal Andhra Power Ltd. has informed that the project is under implementation and considerable acheivements have been made in terms of financing nd fuel supply tie-up, award of EPC contract, completeion of substantial enabling works, pling work of chimney, TG foundation etc. That due to change in regulations by Govt. of Indonesia, leading to amendment of fuel supply agreement has now seem to have rendered the project commercially unviable. As a result, the project is unable to draw loan amount leading to temporary stoppage of work at site. The matter is before CERC & Delhi High Court for a resolution and are hopeful of resuming construction soon. M/s Coastal Andhra Power Ltd. has requested for extension of validity period of the environmental clearance for a period of further five years.

The request was placed before the Committee for its views.

The Committee noted the information furnished and decided that in accordance with the provisions of EIA Notification, 2006 a further extension of 5 years can be given under the circumstances as stated by the project proponent. The Committee therefore recommended that the Ministry may issue extension of validity period for further period of 5 years.

2.17 2x660 MW coal based TPP of M/s Flamingo Energy Ventures Pvt. Ltd. near villages Mangoli Kalgurki and Tallwad, Taluk Basavana Bagewadi, District Bijapur, Karnataka- reg. Change in Co-ordinates.

M/s Flamingo Energy Ventures Pvt. Ltd. was prescribed TOR for its 2x660 MW coal based TPP near villages Mangoli Kalgurki and Tallwad, Taluk Basavana Bagewadi, District Bijapur, Karnataka on 27.04.2011. M/s Flamingo Energy Ventures Pvt. Ltd. has now informed that the Karnataka Govt. initially notified Mulvad, Mangoli and Kalgurki villages of Taluk Basavana Bagewadi, District Bijapur, Karnataka as KIADB but now they have denotified Mangoli and Kalgurki villages which was their selected sites. That KIABD has now allotted land alternative land in Mulvad village which is about few kms away from the earlier site.

In view of the above M/s Flamingo Energy Ventures Pvt. Ltd. has requested for change in co-ordinates of site and extension of validity period of TOR.

The request was placed before the Committee for its views.

The Committee noted the request and decided that the site is a totally new site and the request cannot be acceded. The Committee therefore recommended that the Ministry may cancel the earlier TOR prescribed and the project proponent shall apply afresh for the new site along with two other alternative acceptable sites.

2.18 2x660 MW coal based TPP of M/s Luxor Energy Pvt. Ltd. near village Mulwad, Taluk Basavana Bagewadi, District Bijapur, Karnataka- reg. Extension of Validity of TOR.

M/s Luxor Energy Pvt. Ltd. was prescribed TOR for its 2x660 MW coal based TPP near village Mulwad, Taluk Basavana Bagewadi, District Bijapur, Karnataka on 11.02.2011

M/s Luxor Energy Pvt. Ltd. has informed that Govt. of Karnataka has already issued gazette notification on 03.10.2012 for the purpose of land acquisition

and M/s Luxor Energy Pvt. Ltd. has already made part payment towards land cost. That baseline studies has been completed during March-May, 2011. M/s Luxor Energy Pvt. Ltd. has requested extension of validity period of TOR by one year, as domestic coal is not available and approval for KIADB for land is taking time.

The request was placed before the Committee for its views.

The Committee noted that the non-availability of coal is an issue in public domain. The Committee therefore agreed that the request can acceded too and the Ministry may extend the validity period of TOR.

2.19 Expansion by addition of 1x660 MW (Unit –III)Coal Based TPP of M/s Haryana Power Generation Corporation Ltd. at DCRTPP, District Yamuna Nagar, in Haryana- reg. Extension of Validity of TOR.

M/s Haryana Power Generation Corporation Ltd. was prescribed TOR for its expansion by addition of 1x660 MW Coal Based TPP at Yamuna Nagar, in Haryana on 06.04.2010.

M/s Haryana Power Generation Corporation Ltd. has informed that on the recommendation of the Committee in its 42nd meeting held during February 6-7, 2012, the validity period of TOR was extended by one year on 04.04.2012. That a further extension of one more year may be given in view of the non-availability of coal. M/s Haryana Power Generation Corporation Ltd also informed that over and above coal linkage applied for, they have also applied for exclusive coal block for the power station and is rigorously pursuing the case with the Ministry of Coal.

M/s Haryana Power Generation Corporation Ltd further stated that public hearing for expansion project has been conducted on 08.09.2011.

The request was placed before the Committee for its views.

The representative of the Ministry informed the policy decision taken by the Ministry vide its Circular dated 22.03.2010.

The Committee noted that the non-availability of coal is an issue in public domain and the project proponent cannot be penalized for matters not in their control. The Committee therefore agreed that the request can acceded too and the Ministry may extend the validity period of TOR as may be necessary.

2.20 Expansion by addition of 30 MW (Stage-II) Co-generation biomass based power plant of M/s Davangere Sugar Company Ltd. at

Davangere District, in Karnataka- reg. Extension of Validity of TOR.

M/s Davangere Sugar Company Ltd. was prescribed TOR for its expansion by addition of 30 MW (Stage-II) Co-generation biomass based power plant at Davangere District, in Karnataka on11.02.2011

M/s Davangere Sugar Company Ltd. has informed that all the studies and preparation of EIA and EMP report are under progress and it will take some more time. Therefore, M/s Davangere Sugar Company Ltd. has requested the Ministry to extend the validity of TOR by another six months.

The Committee noted that the request can be acceded too. The Committee therefore agreed that the request can acceded too and the Ministry may extend the validity period of TOR as may be necessary.

2.21 Expansion by addition of 2x660 MW (Phase-II) Super Critical Coal Based Thermal Power Plant of M/s MB Power (Madhya Pradesh) Ltd. at villages Murra, Belia, Guwari, Amgawan, Takuli & Jaithari, in Jaithari & Annupur Taluks, in Annupur Distt., in Madhya Pradesh - reg. Extension of Validity of TOR.

M/s MB Power (Madhya Pradesh) Ltd. was prescribed TOR for its expansion by addition of 2x660 MW (Phase-II) Super Critical Coal Based Thermal Power Plant at villages Murra, Belia, Guwari, Amgawan, Takuli & Jaithari, in Jaithari & Annupur Taluks, in Annupur Distt., in Madhya Pradesh on 20.04.2011

M/s MB Power (Madhya Pradesh) Ltd. has informed that coal linkage has not been granted by MoC till yet but the project has been short listed for grant of coal linkage as per the list published in the web site of MoC on 1st March 2013. M/s MB Power (Madhya Pradesh) Ltd. has requested the Ministry for extension of validity of TOR for one year.

The matter was placed before the Committee for its consideration.

The Committee noted that the non-availability of coal is an issue in public domain and the project proponent cannot be penalized for matters not in their control. The Committee therefore agreed that the request can acceded too and the Ministry may extend the validity period of TOR as may be necessary.

There being no agenda item left, the meeting ended with a vote of thanks to the Chair. It was also decided that the next meeting of the Committee will be held during May 20-21, 2013.

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ANNEXURE- A1

Terms of Reference (TOR) :

i) Vision document specifying prospective long term plan of the site, if any, shall be formulated and submitted.

ii) Status of compliance to the conditions stipulated for environmental and CRZ clearances of the previous phase(s), as applicable, shall be submitted.

iii) Executive summary of the project indicating relevant details along with recent photographs of the approved site shall be provided. Response to the issues raised during Public Hearing and to the written representations (if any), along with a time bound Action Plan and budgetary allocations to address the same, shall be provided in a tabular form, against each action proposed.

iv) Harnessing solar power within the premises of the plant particularly at available roof tops and other available areas shall be formulated and status of implementation shall be submitted to the Ministry.

v) The coordinates of the approved site including location of ash pond shall be submitted along with topo sheet (1:50,000 scale) and confirmed GPS readings of plant boundary and NRS satellite map of the area, shall be submitted. Elevation of plant site and ash pond with respect to HFL of water body/nallah/river shall be specified, if the site is located in proximity to them.

vi) Layout plan indicating break-up of plant area, ash pond, area for green belt, infrastructure, roads etc. shall be provided.

vii) Land requirement for the project shall be optimized and in any case not more than what has been specified by CEA from time to time. Item wise break up of land requirement and revised layout (as modified by the EAC) shall be provided.

viii) Present land use as per the revenue records (free of all encumbrances of the proposed site, shall be furnished. Information on land to be acquired) if any, for coal transportation system as well as for laying of pipeline including ROW shall be specifically stated.

ix) The issues relating to land acquisition and R&R scheme with a time bound Action Plan should be formulated and clearly spelt out in the EIA report.

x) Satellite imagery or authenticated topo sheet indicating drainage, cropping pattern, water bodies (wetland, river system, stream, nallahs, ponds etc.), location of nearest villages, creeks, mangroves, rivers, reservoirs etc. in the study area shall be provided.

xi) Location of any National Park, Sanctuary, Elephant/Tiger Reserve (existing as well as proposed), migratory routes / wildlife corridor, if any, within 10 km of the project site shall be specified and marked on

the map duly authenticated by the Office of the Chief Wildlife Warden of the area concerned.

xii) Topography of the study area supported by toposheet on 1:50,000 scale of Survey of India, alongwith a large scale map preferably of 1:25,000 scale and the specific information whether the site requires any filling shall be provided. In that case, details of filling, quantity of fill material required; its source, transportation etc. shall be submitted.

xiii) A detailed study on land use pattern in the study area shall be carried out including identification of common property resources (such as grazing and community land, water resources etc.) available and Action Plan for its protection and management shall be formulated. If acquisition of grazing land is involved, it shall be ensured that an equal area of grazing land to be acquired is developed alternatively and details plan shall be submitted.

xiv) A mineralogical map of the proposed site (including soil type) and information (if available) that the site is not located on economically feasible mineable mineral deposit shall be submitted.

xv) Details of 100% fly ash utilization plan as per latest fly ash Utilization Notification of GOI along with firm agreements / MoU with contracting parties including other usages etc. shall be submitted. The plan shall also include disposal method / mechanism of bottom ash.

xvi) Water requirement, calculated as per norms stipulated by CEA from time to time, shall be submitted along with water balance diagram. Details of water balance calculated shall take into account reuse and re-circulation of effluents which shall be explicitly specified.

xvii) Water body/nallah (if any) passing across the site should not be disturbed as far as possible. In case any nallah / drain has to be diverted, it shall be ensured that the diversion does not disturb the natural drainage pattern of the area. Details of diversion required shall be furnished which shall be duly approved by the concerned department.

xviii) It shall also be ensured that a minimum of 500 m distance of plant boundary is kept from the HFL of river system / streams etc.

xix) Hydro-geological study of the area shall be carried out through an institute/ organisation of repute to assess the impact on ground and surface water regimes. Specific mitigation measures shall be spelt out and time bound Action Plan for its implementation shall be submitted.

xx) Detailed Studies on the impacts of the ecology including fisheries of the river/estuary/sea due to the proposed withdrawal of water / discharge of treated wastewater into the river/creek/ sea etc shall be carried out and submitted alongwith the EIA Report. In case of requirement of marine impact assessment study, the location of intake and outfall shall be clearly specified along with depth of water drawl and discharge into open sea.

xxi) Source of water and its sustainability even in lean season shall be provided along with details of ecological impacts arising out of

withdrawal of water and taking into account inter-state shares (if any). Information on other competing sources downstream of the proposed project. Commitment regarding availability of requisite quantity of water from the Competent Authority shall be provided along with letter / document stating firm allocation of water.

xxii) Detailed plan for carrying out rainwater harvesting and its proposed utilisation in the plant shall be furnished.

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

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

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

xxvi) Detailed plan for conducting monitoring of water quality regularly with proper maintenance of records shall be formulated. Detail of methodology and identification of monitoring points (between the plant and drainage in the direction of flow of surface / ground water) shall be submitted. It shall be ensured that parameter to be monitored also include heavy metals.

xxvii) Socio-economic study of the study area comprising of 10 km from the plant site shall be carried out by a reputed institute / agency which shall consist of detail assessment of the impact on livelihood of local communities.

xxviii) Action Plan for identification of local employable youth for training in skills, relevant to the project, for eventual employment in the project itself shall be formulated and numbers specified during construction & operation phases of the Project.

xxix) If the area has tribal population it shall be ensured that the rights of tribals are well protected. The project proponent shall accordingly identify tribal issues under various provisions of the law of the land.

xxx) A detailed CSR plan along with activities wise break up of financial commitment shall be prepared. CSR component shall be identified considering need based assessment study. Sustainable income generating measures which can help in upliftment of poor section of society, which is consistent with the traditional skills of the people shall be identified. Separate budget for community development activities and income generating programmes shall be specified.

xxxi) While formulating CSR schemes it shall be ensured that an in-built monitoring mechanism for the schemes identified are in place and mechanism for conducting annual social audit from the nearest government institute of repute in the region shall be prepared. The project proponent shall also provide Action Plan for the status of implementation of the scheme from time to time and dovetail the same with any Govt. scheme(s). CSR details done in the past should be clearly spelt out in case of expansion projects.

xxxii) R&R plan, as applicable, shall be formulated wherein mechanism for protecting the rights and livelihood of the people in the region who are likely to be impacted, is taken into consideration. R&R plan shall be formulated after a detailed census of population based on socio economic surveys who were dependant on land falling in the project, as well as, population who were dependant on land not owned by them.

xxxiii) Assessment of occupational health as endemic diseases of environmental origin shall be carried out and Action Plan to mitigate the same shall be prepared.

xxxiv) Occupational health and safety measures for the workers including identification of work related health hazards shall be formulated. The company shall engage full time qualified doctors who are trained in occupational health. Health monitoring of the workers shall be conducted at periodic intervals and health records maintained. Awareness programme for workers due to likely adverse impact on their health due to working in non-conducive environment shall be carried out and precautionary measures like use of personal equipments etc. shall be provided. Review of impact of various health measures undertaken at intervals of two years shall be conducted with an excellent follow up plan of action wherever required.

xxxv) One complete season site specific meteorological and AAQ data (except monsoon season) as per MoEF Notification dated 16.11.2009 shall be collected and the dates of monitoring recorded. The parameters to be covered for AAQ shall include SPM, RSPM (PM10, PM2.5), SO_2, NO_x, Hg and O_3 (ground level). The location of the monitoring stations should be so decided so as to take into consideration the pre-dominant downwind direction, population zone, villages in the vicinity and sensitive receptors including reserved forests. There should be at least one monitoring station each in the upwind and in the pre - dominant downwind direction at a location where maximum ground level concentration is likely to occur.

xxxvi) A list of industries existing and proposed in the study area shall be furnished.

xxxvii) Cumulative impact of all sources of emissions (including transportation) on the AAQ of the area shall be well assessed. Details of the Model used and the input data used for modelling shall also be provided. The air quality contours should be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any. The wind roses should also be shown on the location map as well.

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

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

xl) Quantity of fuel required, its source and characteristics and documentary evidence to substantiate confirmed fuel linkage shall be furnished.

xli) Details of transportation of fuel from the source (including port handling) to the proposed plant and its impact on ambient AAQ shall be suitably assessed and submitted. If transportation entails a long distance it shall be ensured that rail transportation to the site shall be first assessed. Wagon loading at source shall preferably be through silo/conveyor belt.

xlii) For proposals based on imported coal, inland transportation and port handling and rolling stocks /rail movement bottle necks shall be critically examined and details furnished.

xliii) Details regarding infrastructure facilities such as sanitation, fuel, restrooms, medical facilities, safety during construction phase etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase should be adequately catered for and details furnished.

xliv) EMP to mitigate the adverse impacts due to the project along with item - wise cost of its implementation in a time bound manner shall be specified.

xlv) A Disaster Management Plan (DMP) along with risk assessment study including fire and explosion issues due to storage and use of fuel should be carried out. It should take into account the maximum inventory of storage at site at any point of time. The risk contours should be plotted on the plant layout map clearly showing which of the proposed activities would be affected in case of an accident taking place. Based on the same, proposed safeguard measures should be provided. Measures to guard against fire hazards should also be invariably provided.

xlvi) The DMP so formulated shall include measures against likely Tsunami/Cyclones/Storm Surges/Earthquakes etc, as applicable. It shall be ensured that DMP consists of both on-site and off-site plan, complete with details of containing likely disaster and shall specifically mention personnel identified for the task. Smaller version of the plan shall be prepared both in English and local languages.

xlvii) Detailed plan for raising green belt of native species of appropriate width (50 to 100 m) and consisting of at least 3 tiers around plant boundary (except in areas not possible) with tree density of 2000 to 2500 trees per ha with a good survival rate of about 80% shall be submitted. Photographic evidence must be created and submitted periodically including NRSA reports.

xlviii) Over and above the green belt, as carbon sink, additional plantation shall be carried out in identified blocks of degraded forests, in close consultation with the District Forests Department. In pursuance to this the project proponent shall formulate time bound Action Plans along

with financial allocation and shall submit status of implementation to the Ministry every six months.

xlix) Corporate Environment Policy

a. Does the company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.
b. Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.
c. What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions. Details of this system may be given.
d. Does the company has system of reporting of non compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders at large? This reporting mechanism should be detailed in the EIA report.

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

l) Details of litigation pending or otherwise with respect to project in any court, tribunal etc. shall invariably be furnished.

ANNEXURE- A2

Additional TOR for Coastal Based TPPs:

Over and above the TOR mentioned in **Annexure- A1**, the following shall be strictly followed (as applicable):

a) Low lying areas fulfilling the definition wetland as per Ramsar Convention shall be identified and clearly demarcated w.r.t the proposed site.

b) If the site includes or is located close to marshy areas and backwaters, these areas must be excluded from the site and the project boundary should be away from the CRZ line. Authenticated CRZ map from any of the authorized agency shall be submitted.

c) The soil levelling should be minimum with no or minimal disturbance to the natural drainage of the area. If the minor canals (if any) have to be diverted, the design for diversion should be such that the diverted canals not only drains the plant area but also collect the volume of flood water from the surrounding areas and discharge into marshy areas/major canals that enter into creek. Major canals should not be altered but their bunds should be strengthened and desilted.

d) Additional soil for leveling of the sites should be generated as far as possible within the sites, in a way that natural drainage system of the area is protected and improved

e) Marshy areas which hold large quantities of flood water shall be identified and shall not be disturbed.

f) No waste should be discharged into Creek, Canal systems, Backwaters, Marshy areas and seas without appropriate treatment. The outfall should be first treated in a guard pond (wherever feasible) and then discharged into deep sea (10 to 15 m depth). Similarly, the intake should be from deep sea to avoid aggregation of fish and in no case shall be from the estuarine zone. The brine that comes out from desalinization plants (if any) should not be discharged into sea without adequate dilution.

g) Mangrove conservation and regeneration plan shall be formulated and Action Plan with details of time bound implementation shall be specified, if mangroves are present in study area.

h) A common **Green Endowment Fund** should be created by the project proponents out of EMP budgets. The interest earned out of it should be used for the development and management of green cover of the area.

i) Impact on fisheries at various socio economic level shall be assessed.

j) An endowment of **Fishermen Welfare Fund** should be created out of CSR grants not only to enhance their quality of life through creation of facilities for fish landing platforms / fishing harbour / cold storage, but also to provide relief in case of emergency situations such as missing of fishermen on duty due to rough seas, tropical cyclones and storms etc.

k) Tsunami Emergency Management Plan shall be prepared and plan submitted prior to the commencement of construction work.

l) There should not be any contamination of soil, ground and surface waters (canals & village pond) with sea water in and around the project sites. In other words necessary preventive measures for spillage from pipelines, such as lining of guard pond used for the treatment of outfall before discharging into the sea and surface RCC channels along the pipelines of outfall and intake should be adopted. This is just because the areas around the projects boundaries is fertile agricultural land used for paddy cultivation.
