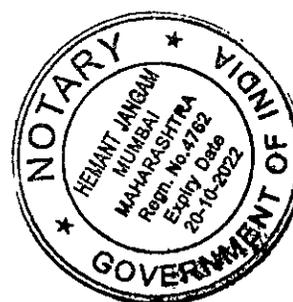


5.	Annexure A4 - Google Map showing the distance between the Adani Power project site and Dandi Mangrove Plantation Site	26
6.	Annexure A5 - Google Earth Images of the Site of the plant from 2010	27
7.	Annexure A6 - Google Earth Images of the Site of the plant from 2020	28
8.	Annexure A7 - Report of the GPCB which was annexed to an Affidavit of the GPCB dated 30 th August 2014	29 - 35
9.	Annexure A8 - Appendix 29 titled "Ash Utilization Plan" from the Comprehensive EIA Study Report	36 - 40
10.	Annexure A9 - order of the Hon'ble NGT dated in O.A. 117 of 2014 dated 12.02.2020	41 - 75
11.	Annexure A10 - relevant pages of the report on implementation of action plan to achieve 100% fly ash utilisation by Thermal Power Plants	76 - 93



BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

(Application under Section 18(1) read with Section 14 and 15 of the National Green Tribunal Act, 2010)

ORIGINAL APPLICATION NO. 481 OF 2018

(EARLIER O.A. NO. 27/2013(WZ))

IN THE MATTER OF:

CONSERVATION ACTION TRUST & ORSAPPLICANTS

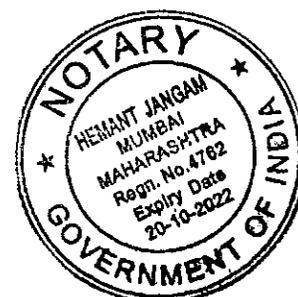
VERSUS

UNION OF INDIA & ORS RESPONDENTS

**ADDITIONAL AFFIDAVIT OF THE APPLICANTS IN REPLY TO THE
COMMITTEE VISIT REPORT**

I, Debi Goenka, Indian Inhabitant and Executive Trustee of Applicant No.1, aged 63 years residing at B 502, Glengate, Hiranandani Gardens, Powai, Mumbai 400076, the above Applicant No.2 above mentioned herein, do hereby solemnly affirm and state as under:

1. I am aware of the facts and circumstances of the present case and I am competent and authorised to depose thereto.
2. I have read a copy of the "Committee Visit Report" submitted before this Hon'ble Tribunal in compliance with the order of the Tribunal dated 18.08.2020 (hereinafter referred to as the "said Committee Report"). I



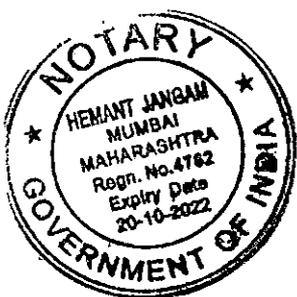
am filing this present affidavit by way of a reply to the said Committee Report.

- 3. I may not be deemed to have admitted any contentions, findings and conclusions of the aforesaid Committee Visit Report either by implication or otherwise unless specifically admitted by me herein. I say that nothing in the present affidavit should be treated as an admission of contents of the Committee Visit Report unless specifically admitted herein.
- 4. At the outset, I submit that during the course of writing the report, the Committee members met and were shown presentations by the Respondents No. 3 and 4 so that they may make their case to the Committee but no similar opportunity was given to the Applicants, fishermen organisations, nearby residents or other aggrieved persons in the case. On account of this, I humbly submit that the said Committee Report does not provide a complete picture of the existing conditions, environmental damage, violations, hardships to locals, etc. I humbly submit that the Applicants, fishermen organisations and locals also be given a similar opportunity of being heard before the Committee, inter alia, to comply with the principles of natural justice.
- 5. I say that even though the committee met either virtually or physically on 5 occasions, that is on 15.10.2020, 16.10.2020 (site visit), 18.11.2020, 08.12.2020 and 15.12.2020, only the Minutes of one meeting form part of the Report. The site visit Report is also not enclosed.

Without prejudice to what is stated above, I shall now deal with the report condition wise:

- 6. The clearance dated 25th April 2007, inter alia, provides as follows:

"The proposal has been examined in the Ministry of Environment & Forests and environmental clearance to this project is hereby



accorded subject to effective implementation of the following conditions:

.... (iv) "The fishing activities and movement of fishermen on the coast should not be affected. Appropriate measures such as bridges or walkways over the channel should be provided.

...

(xiv) *The intake and outfall systems should not cause any hardship to the local fishermen and should not interfere with the breeding and spawning grounds of fish and other marine fauna."*

7. I say that the building of a wall and the creation of "conditional access" by way of security gate manned by watchmen, as has been reported by the committee shows a direct violation of the condition.
8. The Applicants submit that the fisher folk are often delayed or harassed by the security guards at the gates, leading to a deterioration in their fish catch. A Report of an Independent Fact-finding Team on the Social, Environmental and Economic Impacts of Tata Mundra Ultra Mega Power Project, Kutch, Gujarat titled "The Real Cost of Power", inter alia, states as follows:

"Even the fact-finding team, when going to these bundars and settlements, were repeatedly stopped by the Tata Mundra security personnel, at three security gates. Each time we had to explain why we wanted to go to the coast/fishing settlements, at times forced to display our urban credentials.

The local fisher-folk and fish-traders were also repeatedly stopped and questioned."

Similarly, the Report of the Committee for Inspection of M/s Adani Port & SEZ Ltd. Mundra, Gujarat which was submitted to the Ministry of



Environment and Forests by the Centre for Science and Environment states as follows:

“However, at Bhadreshwar, the Committee met with fishers who had come from different settlements like Navinal and Luni. In this meeting, fishers explained how developments along the coast were impinging on their livelihoods. They explained that access to their settlements was often blocked. One specific instance, was the outfall channel of CGPL, which they said did cut off their access to the mainland and villages.

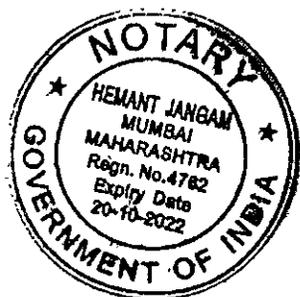
They also said that in all other cases the barriers prevented them to reach their settlements and often the guards did not recognize their identity cards.”

9. Further, due to an increase in distance by 4 km the fishermen are paying 3 times the price (from Rs.150 to Rs.450) to reach the coast, this increase in transport does not only have an effect on their business but even their standard of living. As recorded in the Report – “The Real Cost of Power”:

“Two years ago, we used to spend just Rs. 150 for our travel by auto rickshaws, from our village to Tragdi Bundar now we spend nearly Rs. 450 owing to the lengthy routes, road blocks and constructions.”

10. Unfortunately, the said Committee Report has not addressed these issues, inter alia, as locals and fishermen have not been heard. Further, though the Report mentions that there is an increase in the number of households along the outfall channel, there is no data to substantiate this assertion.

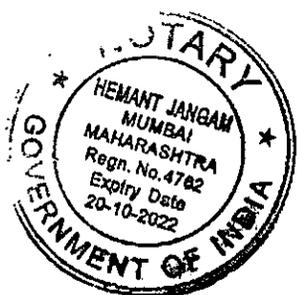
11. The Monitoring Committee has looked at fish catch data for the past 10 years (2010 to 2020) to determine if there has been any hardship to local



fishermen. At the outset, I say that this metric is not the correct basis to determine if the power plants are having any effect on the breeding of fish and other marine fauna. In any case, the Committee has considered the fish catch that is sold at the landing centres that come from areas away from the power plants. Annexed hereto and marked as **Annexure A1** is a copy of a Google Earth image indicating the Power Plants of the Respondent No. 3 and the different landing centres.

12. Additionally, any comparison of fish catch data ought to necessarily include data for a few years prior to 2007-08, as the construction for the power plants of Respondent No. 3 and 4 began around 2007-2008.
13. A comparison of the figures from the Marine Environmental Impact Assessment for Discharge Channel of 4000 MW Ultra Mega Power Project Near Mundra, Gulf of Kachchh dated February 2009 (hereinafter referred to as the "Marine EIA Report of 2009") and the statistics relied upon by the Committee shows a drastic fall in fish catch as explained below. The fish catch for the 2005-06 period in Jarpara was 3327 M.T. whereas in 2019-20 it dropped to 100 M.T., in Navinial it was 1070.1 M.T. whereas in 2019-20 it dropped to 800 M.T. There are large intervening periods where the catch is below 400 M.T. In Bhadreshwar it was 2159.5 M.T. whereas in 2019-20 it dropped to 500 M.T. For ease of reference, the above figures are also provided in a tabular form:

Landing centre	2005-06 [Source: Marine EIA Report of 2009]	2019-20 [Committee Report]	Percentage decrease in fish catch
Jarpara	3327.0 M.T.	100 M.T.	96.99%
Navinial	1070.1 M.T.	800 M.T.	25.24%



Bhadreshwar	2159.5 M.T.	500 M.T.	76.85%
-------------	-------------	----------	--------

Annexed hereto and marked as **Annexure A2** is the Table 4.5.17 which was part of the Marine EIA Report of 2009.

14. Further, the increase in the cost of transport for fishermen, due to the detour caused by the construction of the outfall channel, to reach the coast from Rs.150 to Rs.450 is an increase in cost which will reduce the profit made by the fishermen thereby increasing their hardship.
15. Further, it is evident from the data of fish catch in the two closest fish landing centres i.e., Tragadi and Modhava that there is an overall decrease in the fish catch over the 10 year period. In most cases cited by the committee, the fish catch has only seen an increase for 1 or 2 years in the 10 year period.
16. Moreover, it is unclear as to which months the fish catch data has been collected for. It is also clear from the Committee Report that the committee has not consulted the fishermen, nor the local NGOs who have been working with the fishermen, like the Machimar Adhikar Sangharsh Sangathan (MASS).
17. With regard to the temperature of the water at the outfalls, I say that the Committee appears to have accepted the data presented to them by Respondents 3 & 4 at face value.
18. I say that since the quantity of dissolved oxygen in the water is inversely proportional to the temperature, the need to follow the more stringent standards based on the 'precautionary principle' approach is all the more important. I say that an increase of water temperature by even 1 degree Celsius can have adverse effects on the aquatic ecology and marine life of the area. Coral reefs are especially sensitive to thermal discharges. A



study titled "*Thermal effluent from the power sector: an analysis of once-through cooling system impacts on surface water temperature*" by N. Madden, A. Lewis and M. Davis states:

"Due to the biological sensitivity of many aquatic organisms to water temperature, temperature increases caused by power plant discharges may have multiple impacts on aquatic ecosystems (Langford 2001, De Vries et al 2008, Hester and Doyle 2011). Aquatic organisms are highly dependent on specific thermal conditions in aquatic environments; water temperatures above or below optimal thermal regimes can cause stress or even death (Beitinger et al 1999, Caissie 2006).

.....

Another review of 48 studies found that on average, a 7 degree C change in temperature ($1T$) reduced biological processes such as growth, development, and reproduction for aquatic organisms by 50%, with a 10% reduction in biological processes occurring with a temperature change of only 1 °C (Hester and Doyle 2011)."

Further, a report titled "*Marine Ecological Habitat: A Case Study on Projected Thermal Power Plant around Dharamtar Creek, India*" states:

"The ambience around close vicinity of the discharge may exhibit sharp decrease in overall zooplankton abundance due to the raised temperature. Experimental data revealed that temperature affects the grazing of zooplankton (Capuzzo, 1980). Total mortality values of zooplankton were observed to be four times higher at water discharge site than the intake (Hoffmeyer et al., 2005). Thermal discharge may result into the disturbance in



physicochemical constituents of water body, affecting species composition."

Further, a report titled "Impact of Cooling Waters on the Aquatic Resources of the Pacific Northwest" states:

"The chemical and biochemical processes of an animal's body accelerate with increasing temperature; normally the metabolic rate doubles with each 19°F (11 °C) increase. As temperatures rise, an animal's respiration rate increases along with the heartbeat rate, which consequently increases the demand for oxygen. At higher temperatures the haemoglobin of the blood has reduced carrying capacity for oxygen. The combination of increased demand for oxygen and decreased efficiency for obtaining it causes a severe stress on the organism.

.....

The literature is replete with incidents relating high temperatures to serious parasitic and bacterial diseases among aquatic organisms.

.....

Spawning by marine animals may be stimulated by very slight differences in temperature. These changes may be as small as 1° or 2°C for some marine species. Truly oceanic species are usually more stenothermal (restricted to a narrow range of temperature) than estuarine species. A decrease in temperature usually delays spawning whereas an increase usually hastens spawning. Any alteration in spawning time could be harmful if the extremely critical balance of development, hatching, and availability of proper food for the young larvae is disturbed. Some marine species, when exposed



to higher than normal temperatures, do not spawn until returned to ambient temperatures; others may never spawn."

[Redo formatting of the quoted paras]

The Hon'ble Supreme Court in the Vellore Citizens Welfare Forum v. Union of India (1996) 5 SCC 647 case has also held that '*onus of proof*' is on the actor or the developer/industrialist to show that his action is environmentally benign. Further the Supreme Court has held that "Precautionary Principle" in the context of municipal laws means: (a) Environmental measures by the State Government and the statutory authorities must anticipate, prevent and attack the causes of environment degradation; (b) where there are threats of serious and irreversible damage, lack of scientific certainty should not be used as a reason for postponing measures to prevent environment degradation.

Further, the Committee has failed to consider that as per the standards stipulated by the International Finance Corporation (IFC) from whom the Respondent No. 3 has borrowed capital, the Respondent No.3 is obliged to follow the IFC standard which prescribe that the temperature of cooling water should not be more than 3° C higher than the ambient water temperature at the point of discharge. Only a degree of increase in the temperature of sea water due to discharge of cooling water can have a significant impact on the marine life, especially corals and algae. Thus, it is for Respondent No. 3 to show that the discharge of effluents above the 3 degree Celsius limit stipulated in the IFC standard is not causing any adverse effect on the marine life of the area.

19. With reference to condition (x), the condition states "*Mangroves in the area will not be destroyed in any manner*". It appears that the Committee Report has not reached a conclusion regarding destruction of mangroves either by Respondent No. 3 or 4. It appears that the



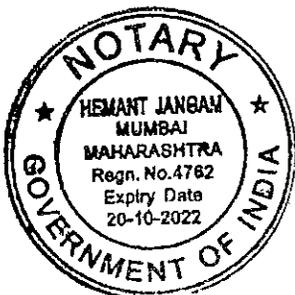
Committee has assumed that the increase in mangrove cover in the area around the outfall channel means that Respondent No. 3 has not destroyed any mangroves. I say that to the contrary, the mangroves that were destroyed whilst the outfall channel was constructed seem to have regenerated naturally.

20. Further, the committee states that it has been unable to establish if mangroves have been destroyed by the Respondent No. 4 as apart from CRZ maps, there are no satellite maps of the area. The Committee further goes on to state that the submission of latest satellite maps once in a year with reference to the satellite map of 2005 is one of the conditions of the Environment Clearance. This condition of the EC has not been met by the Respondent No. 4 for which the Committee has not suggested any action to be taken against the Respondent No. 4. It is unclear as to why the Committee could not compare the recent satellite data with the past satellite data to determine the destruction of mangroves. Further, the fact that mangroves were destroyed by the Respondent No. 4 has already been established by two Committees set up previously – the Report of the Committee for Inspection of M/s. Adani Port & SEZ Ltd. Mundra, Gujarat dated 18.04.2013 (hereinafter referred to as the "Sunita Narain Committee Report") and the Final report of the committee on mangroves appointed by this Hon'ble Gujarat High Court by its order dated 05/11/2015 in Civil Application (For Direction) No.9124/2011 in Writ Petition No.12/2011 dated 08.06.2016 (hereinafter referred to as the "Claude Alvarez Report").

21. With reference to conditions (viii) and (xi) which provide as follows:

"(viii) Mangrove plantation should be taken up along the channel.

...



Tree/Mangrove plantation in the vicinity of project site and particularly in the vicinity of pre-cooling channel area should be undertaken as it would enhance the rate of heat dissipation to atmosphere”.

I say that the plantation of mangroves being claimed to be done by the Respondent No. 3 is in Kantiyajal which is about 355 kms away from the project site, the planting of mangroves so far away do not give any benefit to the area where the project is ongoing. Further the exact locations for the plantations are not specified. Annexed hereto and marked as **Annexure A3** is a Google Map screenshot showing the distance between the CGPL project site and Kantiyajal.

22. Further, the mangroves plantation at Kantiyajal, Hansot Taluka, Bharuch is about 250 hectares. However, as per the information shared by the project proponent with the committee, 1,000 hectares of mangrove plantation has been undertaken. The recent Google Earth image shows that at one of the patches where it is stated that plantation was undertaken, the mangroves are getting sparser. The lack of any mangroves along the channel and in the vicinity of the project site show a violation of conditions (viii) and (xi) of the CRZ clearance.

23. I say the Respondent No. 4 has not carried out any Mangrove Plantation. The Committee has relied on plantations carried out by M/s Adani Ports & Special Economic Zone Ltd. and not M/s Adani Power Limited who is Respondent No. 4 and the project proponent. They claim to have carried out plantations in Dandi which is about 360 kms away from the project site. Further the exact locations for the plantations are not specified. Annexed hereto and marked as **Annexure A4** is a Google Map screenshot showing the distance between the Adani Power project site and Dandi.



24. Further, as per the Committee Visit Report, the plantation undertaken by project proponent at Dandi, Olpad, is 800 hectares. However, it seems from the Google Earth image that a plantation of about 400 hectares has been undertaken in this area. With regard to the plantations at Tada Talav, it is unclear where the plantation has been carried out. From the Google Earth image, plantations in the area can be observed in the year, 2009-10 and then in the year, 2013 also. It is unclear who has undertaken these plantations as Respondent No. 4 claims to have undertaken plantations in 2015-16. This needs to be examined further. Further in the Report titled "*Mangrove Restoration Through Public-Private Partnership, Gujarat, 2012*" by the Gujarat Ecology Commission, it can be seen that plantation at same locations have been undertaken for various other companies. I crave leave to refer to the report titled "*Mangrove Restoration Through Public-Private Partnership, Gujarat, 2012*".
25. The Committee further dealt with five allegations as was mentioned in the order, namely (a) land along the intake channel has been illegally reclaimed; (b) AAQ of the entire surrounding area has been impacted adversely due to the operation of the project; (c) coal dust and ash released by the operation of the project has adversely affected the villagers, as coal dust and ash released from the project cover the entire settlement in a fine layer of the coal dust; (d) fish put out to dry are coated with coal dust and, (e) the salt pan owners have complained of the salt manufactured in the vicinity of the plant being contaminated by coal dust and ash.
26. With reference to allegation (a), it appears that the Committee has not conducted any investigations to check if there has been any reclamation of land. The Committee appears to have accepted the submissions of Respondent No. 3 on face value, which is easily negated by a simple



look at the Google Earth images. Annexed hereto and marked as **Annexure A5 and A6** is the Google Earth Images of the Site of the plant from 2010 and 2020 respectively. If one looks at the area between the intake and outfall channels one can clearly see that there has been reclamation. . The Committee has erred in not analysing the satellite images of the Project site to determine if reclamation has taken place in the above case.

27. With reference to allegation (b), I say that there must be continuous monitoring of the AAQ provided to the GPCB and periodic reports submitted to the Regional Office of the Ministry of Environment & Forests as has been mandated in the Environment Clearance. Condition (xxv) of the Environmental Clearance states:

“Regular Monitoring of the ambient air quality shall be carried out in and around the power plant and records maintained. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Periodic reports shall be submitted to the Regional Office of the Ministry.”

28. I submit that if there was such periodic reporting as is required under the Environment Clearance the committee ought to have analysed that data instead of only relying on data over a 24-hour period supplied to them by the Respondents. During a previous site visit by the GPCB on 18th July 2014, the Inspection Report showed readings of SO₂ and NO_x recorded by the continuous gas analyser in the stacks to be above the prescribed standards. The SO₂ limit was violated by more than 200 per cent in two of the three units that were inspected and NO_x limit was violated by more than 264 per cent in one of the three units inspected. No action has still been taken by the GPCB for the above violations. Annexed hereto and marked as **Annexure A7** is the Inspection Report



of the GPCB which was annexed to an Affidavit of the GPCB dated 30th August 2014.

29. With reference to allegation (c), (d) and (e), I say that the Committee has analysed the Fly Ash utilisation during the last two years and has accepted the data submitted by the Respondent No. 4. Just a simple mathematic analysis of the data submitted by them leads to different conclusions as a simple mathematical calculation of the numbers show that they are not adding up. The calculations are shown below:

Particulars	Data Submitted by Respondent No. 4	Actual Calculations
Quantity in Ash Pond on 31.03.2018 (A)	112,542	112,542
Ash generation for the year 2018-19 (B)	772,462	772,462
Ash utilisation for the year 2018-19 (C)	796,285	796,285
Quantity remaining in Ash Pond on 31.03.2019 (A+B-C)	79,895	88,719

30. Further, as per the calculations done in the CSE Report, the Adani Power Plant at Mundra is supposed to generate a minimum of 2.3 Million Tonnes per Annum (MTPA) of fly ash while using imported coal. The calculations performed by the Sunita Narain Committee are:

Coal utilization for Phase I: 1.98 MTPA
Ash content in the coal: 8%
Therefore total ash content: 8% of 1.98 MTPA = 0.16 MPTA
80% of ash is fly ash: 80% of 0.16 MTPA = 0.13 MTPA

Coal utilization for Phase II: 6 MTPA
Ash content in the coal: 4%



Therefore total ash content: 4% of 6 MTPA = 0.24 MPTA
80% of ash is fly ash: 80% of 0.24 MTPA = 0.19 MTPA

Coal utilization for Phase III: 9.6 MTPA
Coal mix: 70% domestic (6.72 MTPA) and 30% international (2.88 MTPA)
Ash content in the domestic coal: 35%
Ash content in the international coal: 4%
Total ash content from domestic coal: 35%-45% of 6.72 MTPA = 2.4 – 3.02 MTPA
Total ash content from international coal: 4% of 2.88 MTPA = 0.12 MTPA

Total ash = 2.52 MTPA – 3.14 MTPA
80% of ash is fly ash: 80% of 2.52 MTPA = 2.02 – 2.52 MTPA

The total fly ash generated from the TPP (all phases) will range from 2.3 to 2.8 MTPA.

The total ash generated will be 2.8 to 3.4 MTPA.”

As per the submissions of Respondent No. 4, which has been relied on by the Committee, the Adani Power Plant is only producing around 0.77 Million Tonnes per Annum whereas as per the CSE Report it is an estimated 2.8 to 3.4 MTPA. This would mean that there is gross underreporting of Fly Ash generation and utilisation by Respondent No. 4 and this issue ought to be investigated further.

- 31. Further, in the Comprehensive EIA Study Report for Respondent No. 3's plant, Appendix 29 titled "Ash Utilization Plan" states that Fly Ash Generation for the plant should be 1.44 Million Tonnes per Annum. As per the submissions of Respondent No. 3, which have been relied on by the Committee they are generating around 0.75 Million Tonnes per Annum which is nearly half the expected amount. Again, there appears to be gross underreporting of Fly Ash generation and utilisation by Respondent No. 3 and must be investigated further. Annexed hereto and

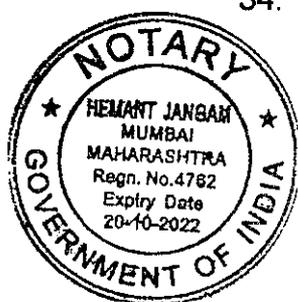


marked as **Annexure A8** is the Appendix 29 titled "Ash Utilization Plan" from the Comprehensive EIA Study Report.

32. Further, in accordance with an order of the NGT in O.A. 117 of 2014 dated 12.02.2020, the CPCB has also levied Environment Compensation on the Respondent No.4 for non-utilisation of 100 fly ash for the year 2018-19 but has failed to note that the Respondent No. 3 is calculating the fly ash utilisation from the month of August therefore the compensation was only levied for September 2018 to August 2019. The CPCB has failed to levy compensation for the years 2017-18, as per the order of the Hon'ble NGT, the cut-off date for determining compensation was 31.12.2017. The CPCB has not levied any compensation for the eight months of 2018 (January 2018 to August 2018) wherein the fly-ash utilisation of the Respondent No. 3 was 80.2 %. Annexed hereto and marked as **Annexure A9** is the order of the Hon'ble NGT dated in O.A. 117 of 2014 dated 12.02.2020.

33. Further I say that in O.A. 117 of 2014, the Respondent No. 1 has submitted a joint committee report that contradicts the data given by the Respondent No. 3 to in the said Committee Report. From the report filed in 2019-2020, the Respondent No. 3 has stated (Page 5, Sr. No. 27) that in the year 2018-19 it has utilised 100% fly-ash whereas it is evident from the Environment Compensation sought that that is not true. Further, this underutilisation of fly-ash and the subsequent fine levied by the CPCB was concealed during the final hearing of this present application by the Respondent No. 1, 2 and 3. Annexed hereto and marked as **Annexure A10** are the relevant pages of the report on implementation of action plan to achieve 100% fly ash utilisation by Thermal Power Plants.

34. I say that the Committee has not analysed the utilisation from the years prior to 2017 when the Reports alleging fly ash pollution were first published.



35. The Committee's visit to the fishing area surrounding the outfall channel was incomplete as they have not considered the previous instances of fly ash deposits being found on fish as was reported in the Report titled, "The Real Cost of Power".
36. They have not interviewed fishermen or fishermen organisations. Further they have not chemically analysed the fish and salt from the area for Fly Ash deposits, a mere visual inspection would not reveal a complete picture. It is also evident that there would be no visible signs of flyash deposition on freshly caught fish that have been hung out to dry along the beaches.
37. Further, the Committee has failed to consider the radioactive effects of fly ash on the surrounding areas and its population. The Report titled "The Real Cost of Power" found that:

"Although the project had only recently been commissioned and only one-fifth of the project is operational now, the fact-finding team recorded more than double the radiation dose level around 300-400 meters away from the ash pond than in the villages. Moving around in nearby villages, we found a reading varying from 0.08 to 0.09 micro-sievert/Hr, while from so far out of the ash pond – with its intervening wall in between – the reading climbed to 0.20 to 0.21 micro-sievert/Hr!

.....

Considering the existing knowledge in this area (even the US EPA has clear figures on this) this monitoring is an urgent necessity, and this lack of awareness should be considered a failure of IFC policies/guidelines"



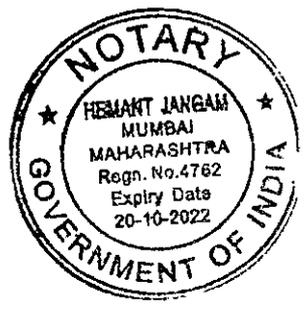
Further, a paper by R.C. Bhangare et al., "Distribution of Natural Radioactivity in Coal and Combustion Residues of Thermal Power Plant", concludes that:

"A coal fired thermal power plant produces large amount of coal ash containing trace levels of radioactive waste in the form of flue gases and particulates. With the growing number of power plants in India, the fly ash generation has become a major concern for environment. All the fly ash samples were found enriched with the radionuclides. Fine fraction of the particles in fly ash were found to have more enrichment of radionuclides than the coarse. As it was found that the finest fraction which escapes through the stack has higher enrichment of radionuclides than the arrested coarse fraction, it is important to monitor and regulate the release of this radioactivity to the environment though there was no significant exposure found due to fly ash as compared to the average world natural background radiation. Also, when the fly ash is utilised in purposes like construction materials, people are exposed to its radioactivity. It is thus necessary to evaluate the risk due to operation of these plants along with strategies for the proper disposal of the radioactive waste generated."

Further, a paper by Nancy E. Lauer et al, "Naturally Occurring Radioactive Materials

in Coals and Coal Combustion Residuals in the United States" states that:

"...the combustion of coal causes an enrichment of naturally occurring radioactive materials in coal combustion residuals that correlates with the Uranium and Thorium concentrations and ash content of the parent coals. Coals and corresponding coal



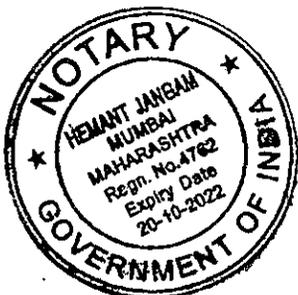
combustion residuals have distinct radioactivity. According to the paper, the CCRs in the U.S. have radioactivity typically 7-10 times the activities of coal and 3-5 times the activities of average U.S. soil.

.....

The results of this study serve to better quantify radionuclide concentrations and ratios in CCRs from the major U.S. coal basins and lay the groundwork for future research related to the human and environmental health impacts of coal combustion in the context of CCR radioactivity. Specifically, the results of this study are important for the future estimation of radionuclide concentrations in inhaled air containing suspended CCR particulates, calculation of inhalation doses to high-risk populations such as power-plant workers, and evaluation of radionuclide dissolution/adsorption and mobility in the environment near coal ash disposal ponds."

- 38. Further, as per the report titled, "Assessment of the Mercury Content in Coal fed Power Plants and study of Mercury Emissions from the Sector in India" prepared by the Central Institute of Mining & Fuel Research:

"Based on the projected coal consumption in power sector in the year 2016 and 2021, the Mercury emissions from this sector has been estimated using the developed Mercury emission factor of coal as 0.14 g/tonne" Hence for ever tonne of coal used, Thermal Power Plant would emit 0.14g of Mercury. Hence if the Respondent No. 4 is utilising 15.53 Million Tonnes of Coal as per its own admission in the fly ash compliance report, it is emitting 2174200g or 2174.2 kg of mercury in a year."



39. Without prejudice to what is stated above, I shall now deal specifically with the conclusions reached by the Committee. However, I am only doing so to the extent necessary and relevant and I am not dealing with each and every statement therein. I submit that I should not thereby be deemed to have admitted the correctness of any statement not specifically dealt with or traversed below. For the sake of brevity, I am not repeating the submissions already made above.
40. With reference to conclusion 1, in regard to the plant of Respondent No. 3, the map studied by the Committee is limited to a small portion of the outfall channel, the portion of the outfall channel that has been expanded has not been analysed by the Committee. Further, the Committee cannot reach a conclusion that there were no mangroves destroyed only by looking at an increase in mangrove cover in the area of the outfall channel. In regard to the plant of Respondent No. 4, the Committee has rightly held that there were mangroves near the outfall channel of Respondent No. 4 in 2006 and the years prior. The Committee has also rightly pointed out that Respondent No. 4 is in violation of the Environment Clearance by not submitting a copy of the latest satellite map once a year.
41. With reference to conclusion 2, the Committee has not carried on any independent investigation to reach the conclusion that there has been no reclamation. It is clear from the Google Earth images annexed that there has been reclamation along and between the intake and outfall channels.
42. With reference to conclusion 3, it is clear that Respondent No. 3 is blocking the access of fishermen to the coast and creating "Conditional Access" which goes against the conditions of the CRZ Clearance. I repeat the submissions made above.



- 43. With reference to conclusion 4, I repeat the submissions made above.
- 44. With reference to conclusion 5, the Committee has recognised the limitations of their one-day analysis and stated that *"The Kutch region is windy and therefore the possibility of re-suspension of present accumulated ash in the ash ponds cannot be ruled out."* This shows that their analysis of the ash deposit and AAQ of the area was limited and further studies are required to determine if the Respondent No. 3 & 4 have caused air pollution previously so the Committee may suggest steps to mitigate the same. I repeat the submissions made above.
- 45. With reference to conclusion 6, I deny that the Respondent No. 3 & 4 have not violated the conditions mentioned in the CRZ clearance.
- 46. In the light of the above facts and submissions, it is apparent that both Respondent Nos. 3 and 4 appear to be in violation of a list of conditions of the clearances, which, inter alia, require urgent attention and investigation. Among other things, further investigation is required on:
 - (a) Creation of a situation of "Conditional Access" and an increase in transport cost for the fisherman;
 - (b) Mangrove Plantations 600+ kms away from the project site and not planting any mangroves in the vicinity of the project site and along the channel area;
 - (c) destruction of mangroves;
 - (d) the reclamation carried out by the Respondent No. 3 as is seen from the Google Earth images annexed to this Affidavit between the intake and outfall channels;
 - (e) the decrease in the fish catch in fish landing centres around the Respondent No. 3 & 4's Power Plant;



- (f) ate of breeding of fish in the area around the power plant and compared with ideal data on the breeding of the fish from other parts of the Kutch.
- (g) the temperature data from the intake and outfall channel must be shared with the CPCB and must be made public on a regular basis for effective monitoring;
- (h) long-term investigation into the AAQ and Fly Ash pollution in and around the project site.

47. In the above facts and circumstances, it is submitted that this Hon'ble Tribunal pass such further and other orders as the facts and circumstances of the case require.

Solemnly affirmed in Mumbai,)
 On this **8 FEB 2021** of February, 2021)



Identified by me.



Hemant Jangam

Applicant No. 1

Hemant Jangam

Applicant No. 2

BEFORE ME
Hemant Jangam
 HEMANT JANGAM
 NOTARY, GOVT. OF INDIA
 MUMBAI, MAHARASHTRA

- 8 FEB 2021

Advocates for the Applicants.

Before me.



Reg. No. *Jan 11/2021*
 St. No. *496* Pg. No. *33*
 Date **8 FEB 2021**



TRUE COPY

Duli harka

Table 4.5.17: Month-wise marine fish landings (t) around Mundra during 2005-06

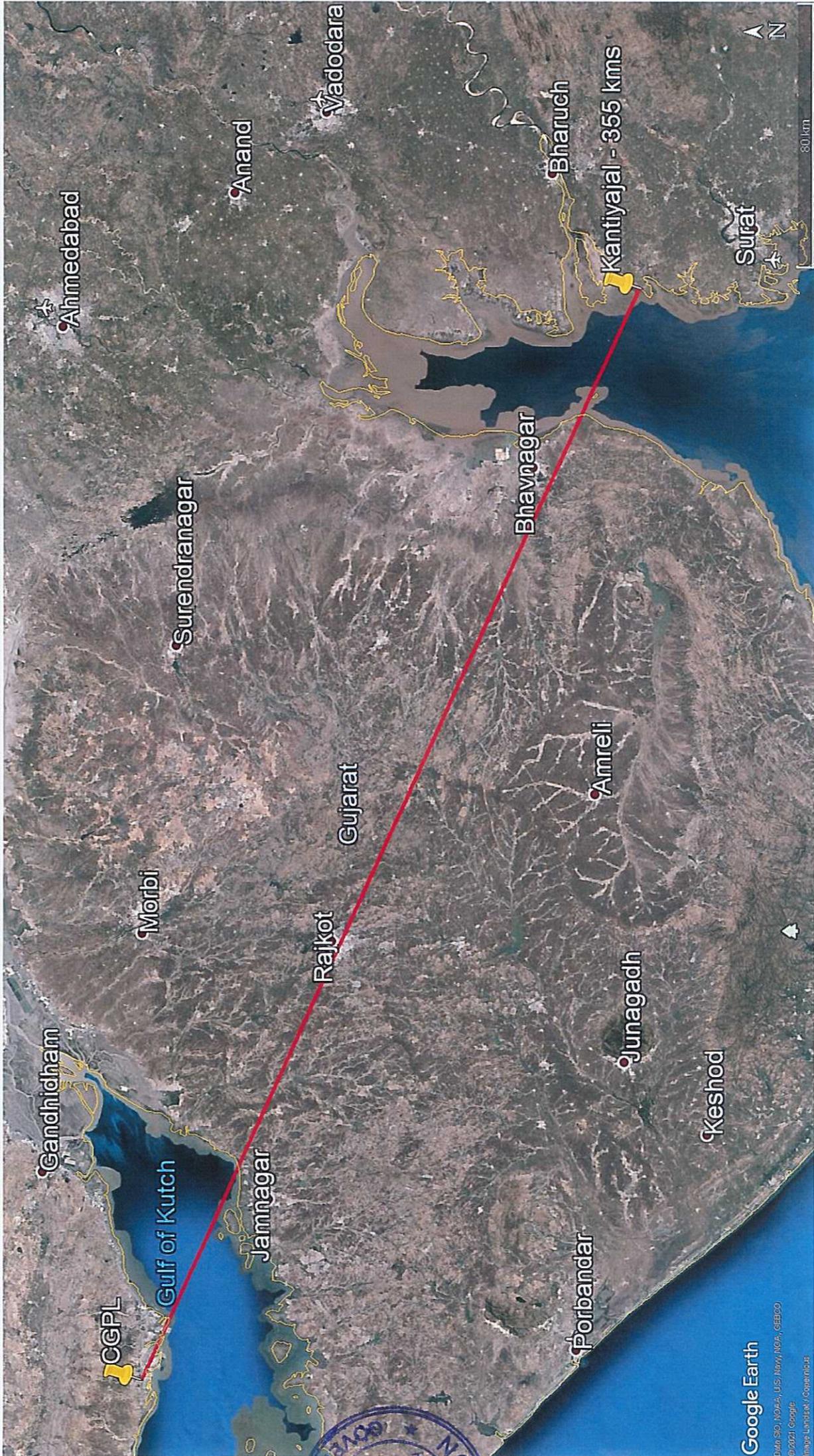
Landing centre	April 05	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan 06	Feb	Mar	Total
Navinal	39.0	74.4	9.0	6.9	18.1	20.7	8.6	267.1	226.5	178.6	86.4	134.8	1070.1
Jarpara	18.6	2.3	12.4	6.6	18.3	33.1	0	15.3	26.2	70.8	90.9	38.2	3327.0
Mundra	205.3	151.9	16.9	17.6	20.2	30.1	17.5	45.9	46.8	180.7	138.2	159.5	1031.0
Bhadreshwar	145.7	93.4	9.4	9.6	19.2	94.7	344.8	350.7	332.0	222.5	284.1	253.4	2159.5

Source: Department of Fisheries, Government of Gujarat



TRUE COPY

Dini Danti

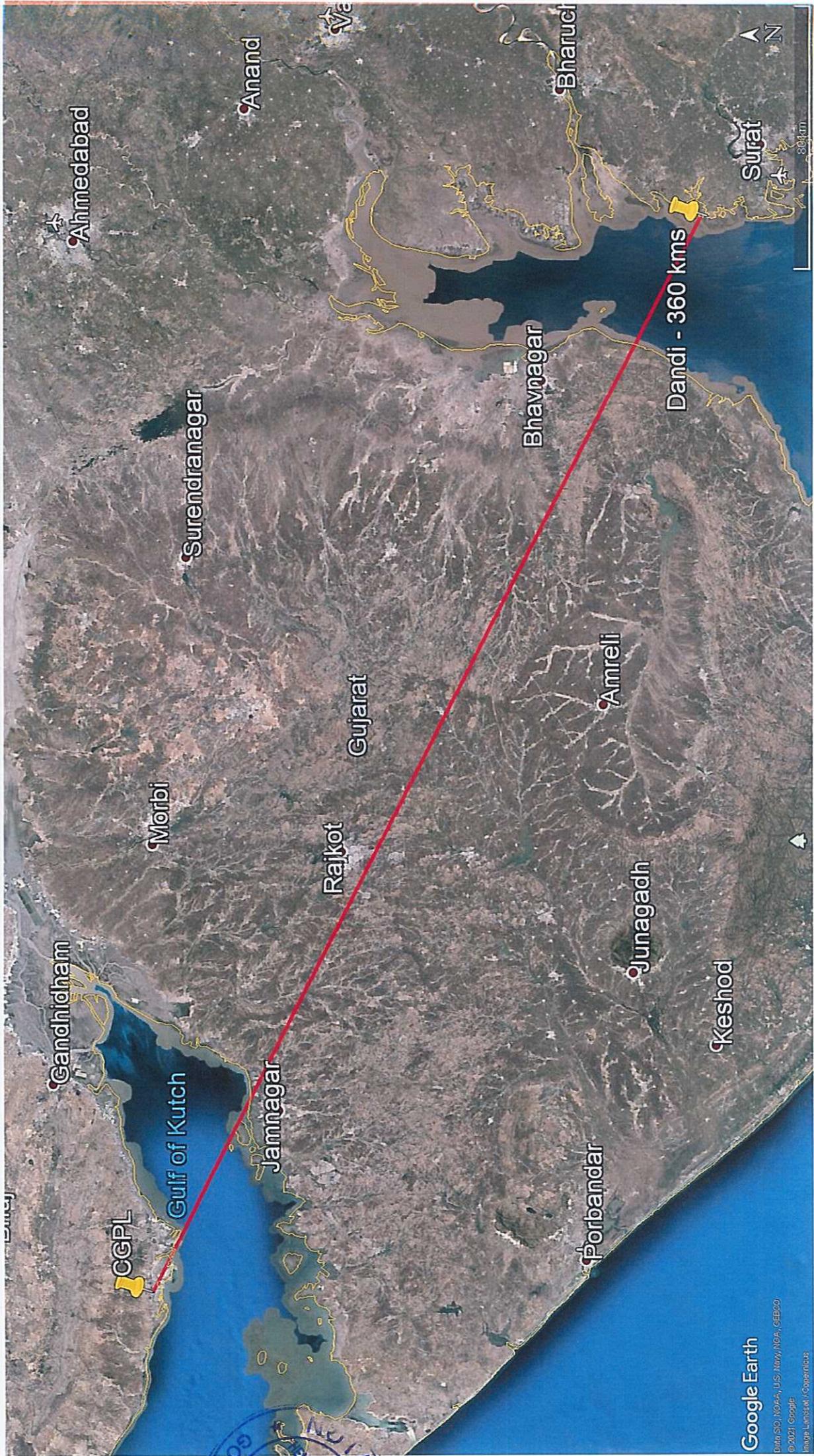


TRUE COPY

Dew. Bhat

Google Earth

Data SIO, NOAA, US Navy, NGA, GEBCO
© 2021 Google
Image Landsat/Copernicus



TRUE COPY

Duni Bante

Google Earth
 Data SIO, NOAA, U.S. Navy, NGA, GEBCO
 © 2021 Google
 Image Landsat / Copernicus



Google Earth

Image © 2020 Maxar Technologies



TRUE COPY

Dubi Anta



Google Earth
 Image © 2020 Maxar Technologies



TRUE COPY

Hemant Jangam

3



Gujarat Pollution Control Board

PCB Id: 19716

(Inspection Report) - Air, Water, Hazardous

(Under Section 23 of The Water Act 1974, Under Section 24 of The Air Act 1981 and Under Section 10 of EP Act 1986)

1	Industry Details Coastal Gujarat Power Ltd.	Outward No: 13416-30/07/2014																								
	Email : amit.tyagi@tatupower.com Telephone : 9099001907 Inspection Id : 300928 (H.O.Reference)	PLANT NO:- VILL:-TUNDA, TA:- MUNDRA, VILL:-TUNDA - 370435 DIST : Kutch, TAL : Mundra , SIDC : Not in Circle Ro Name : Bhuj																								
2	Type / Scale / Sector / Status : REID LARGE / Thermal Power Plants / In Operation																									
3	Inspection Dt & Time : 09/07/2014 10:30 / Air, Water, Hazd Person Contacted : Fatima(HSE)																									
4	Env Audit Detail : Sch : 1, Dharmsinh Desai University, Nadiad, Year : 2012, On Dt : 29/01/2013 Commissioned Dt : 11/11/2011 Production Start Dt : 07/03/2012 Applicability of CRZ Rules : Yes																									
5	Water Consumption in Kln Lts Per Day Ind : 5301108.000 Dom : 630.000 Borewells: 0																									
6	Waste Water generation / Discharge (klpd) : Ind : 5283914.000 Dom : 535.000 Tubewells: 0																									
7	Consumer No.(Electric Meter): Source of Water Supply: Intake channel from Arabian Sea																									
8	Disposal Mode of Industrial / Domestic : Sea / Irrigation																									
9	Discharge Pt / Final Receiving Body (Ultimate): Outfall Channel / Sea																									
10	Status of water consent Under the Water Act, 1974: AWH-54020-17/05/2016 Last Inward:57540-12/06/2012[GRIT]																									
11	Effluent Treatment plant (ETP) : Units, If provided and status : ETP Details : P-Chemical Dosing Tank, P-Clarifier, P-Collection Cum Equalization, P-Equalization Tank, P-Nueralization, P-Oil-Grease Trap, S-Sludge Holding Tank																									
12	Whether Industry is a member of CETP ? No																									
13	Boilers=6, DG Sets=5, Flue Gas =11, Process =0, ETP Cap = 7980, Capacity of All = 0 APCM Details : E.S.P.Low Nox Burner Fuel Used Coal, Diesel, Ldo Stack Attached to : Boiler, D.G. Sets																									
14	TSDI Name : Bhachau-Saurashtra Enviro Projects Pvt. Ltd																									
15	Lab Charges Pending: NIL Water Cess Charges Pending : Rs. 0.00																									
16	Last Env. Form V : 2012-2013 Water Cess Return : 2012-2013 HW Monthly Return : 2014-99																									
17	Last 3 Legal Action :																									
	<table border="1"> <thead> <tr> <th>Insp Dt</th> <th>Act</th> <th>Leg Dt</th> <th>For</th> <th>Insp ID</th> <th>IR-Leg</th> <th>Type</th> <th>Out No</th> </tr> </thead> <tbody> <tr> <td>04/05/2014</td> <td>SEN</td> <td>08/05/2014</td> <td></td> <td>293391</td> <td>SCN</td> <td>SCN</td> <td>212673</td> </tr> <tr> <td>01/02/2014</td> <td>SCN</td> <td>19/03/2014</td> <td></td> <td>280979</td> <td>SCN</td> <td>COM</td> <td>307611</td> </tr> </tbody> </table>	Insp Dt	Act	Leg Dt	For	Insp ID	IR-Leg	Type	Out No	04/05/2014	SEN	08/05/2014		293391	SCN	SCN	212673	01/02/2014	SCN	19/03/2014		280979	SCN	COM	307611	
Insp Dt	Act	Leg Dt	For	Insp ID	IR-Leg	Type	Out No																			
04/05/2014	SEN	08/05/2014		293391	SCN	SCN	212673																			
01/02/2014	SCN	19/03/2014		280979	SCN	COM	307611																			
	Monthly Patrak Data : Last Return : 201405 HAZD Waste Disposal : 3.848(0 Trucks)																									
	<table border="1"> <thead> <tr> <th>Electricity Units Consumed in month</th> <th>Water Consumed in month</th> <th>Effluent Discharged in month</th> </tr> </thead> <tbody> <tr> <td>Production - 172853934, ETP - 489, APCM - 2734939</td> <td>Meter Reading - 0, Kilo Litre - 371637000</td> <td>Meter Reading - 0, Kilo Litre - 11518495</td> </tr> </tbody> </table>	Electricity Units Consumed in month	Water Consumed in month	Effluent Discharged in month	Production - 172853934, ETP - 489, APCM - 2734939	Meter Reading - 0, Kilo Litre - 371637000	Meter Reading - 0, Kilo Litre - 11518495																			
Electricity Units Consumed in month	Water Consumed in month	Effluent Discharged in month																								
Production - 172853934, ETP - 489, APCM - 2734939	Meter Reading - 0, Kilo Litre - 371637000	Meter Reading - 0, Kilo Litre - 11518495																								
30/07/2014	1/7 (Through XGN)	N I C																								



TRUE COPY

Dsh. Gupta



Gujarat Pollution Control Board

PCB Id: 19716

(Inspection Report) - Air, Water, Hazardous

(Under Section 23 of The Water Act 1974, Under Section 24 of The Air Act 1981 and Under Section 10 of EP Act 1986)

One Time Updates

p	On East Direction of the location of the Company	---
p	On North Direction of the location of the Company	---
p	On West Direction of the location of the Company	---
u	Air - Water - Hazd ACTs Applicability ?	Air, Water, Haz
v	Production since (Date) or Proposed	07/03/2012
c	Electric Company Name (Power Supply)	self power plant
p	On South Direction of the location of the Company	---
g	Nos of Sucks (Flue Gas & Process)	5,2
fi	Regd with T.S.D.F	SEP-Bhachau-Sunashtra Enviro Projects Pvt. Ltd
f	Display Board Provided at the Entrance "	Yes
f	Name & Address of MAIN Re-Cycler	---
f	Recyclable Hazd Waste Disposal to	NA
k	Recycler Registration Valid ??	NA
n	Nos of Flow-Meters - W.C / W.W.G / ETP =	1, 1, 1
d	Is Industry ZERO DISCHARGE Catg (If Yes, HOW ?)	No. Primary
m	W.W.G Treatment thru Pn See Leftary	NA

General Observation

a	Is the Industry in Operation ??	Yes
a	R.O File No	KUT-1203
b	Industry Operating without CCA	No.
c	Has Production exceeded (last 3 MTHs) than CCA-Qty	No.
d	Any products-NOT in CCA, manufactured-Last 3 MTHs	No.
e	Foul Odour/Fugitive Emission/Bye Pass in Premises ??	No.
f	Industry Name CHANGED in recent times ??	No.
g	Has Regn with CETP or TSDF expired ??	NA
h	Separate Energy Meter for A.P.C.M ?	No.
h	Provision of any STAND-BY Pump ??	No.

Air Related

a	Fuel Type confirmative with CCA ?	Yes
b	Av. Fuel Consumption EXCEEDING CCA limits	No.
c	APC Measures confirmative with CCA conditions ??	Yes
d	ALL APCMs are in operation	Yes
e	SMF availability	Provided
f	Thick Smoke observed in Flue Gas/Processes ??	No.
g	ph of Scrubbing Media as per requirement ??	Yes
h	Ultimate Disposal of Scrubbing Media	FTP
i	Nos of Samples : Stack & Ambient	1, 1

Haz Waste Related

a	Haz waste Catg confirmative with CCA	Yes
b	H.W generation exceeding CCA limits	No.
c	Collection, Storage, Treatment, Disposal Facility Adequate ??	Yes
d	Reusing or Recycling of Haz Waste by Industry ?	No

30/07/2014

2/7 (Through XGN)

N I C





Gujarat Pollution Control Board

PCB ID: 19716

(Inspection Report) - Air, Water, Hazardous

(Under Section 23 of The Water Act 1974, Under Section 24 of The Air Act 1981 and Under Section 10 of EP Act 1986)

c	LogBook / XGN Manifests / Disposal Records TALLYING	Partially
f	Stock of Haz-Waste (at premises) Whether EXCESS?	---
Water Parameter		
b	Source of Water Supply	Intake channel from Arabian Sea
c	W.W.G is EXCEEDING the CCA Limits	No.
d	W.W Disposal as per the Consent Conditions ?	Yes
e	Was the ETP in operation ?	Yes
f	Treatment System ADEQUATE to handle existing effluent	Adequate
g	Did u observe ANY ILLEGAL Discharge ??	No
h	Nos of Samples collected	2

Remarks :

Note: EIA 2008 / SEIAA / E.C / MOEF Applicable : Yes

Site Observations during Inspection ; PCB-ID: (19716)

30/07/2014

3/7 (Through XGN)

N I C





Gujarat Pollution Control Board

PCB Id: 19716

(Inspection Report) - Air, Water, Hazardous

(Under Section 23 of The Water Act 1974, Under Section 24 of The Air Act 1981 and Under Section 10 of EP Act 1986)

Unit is visited with instruction from H.O. Industrial plant is found in operation during visit. Out of five units, three units are found in operation during visit. CGPL is having five units of 800 MW + 30 MW (waste heat recovery method) = 830 MW each. Unit is having cca for 4000 MW and having installed capacity 4150 MW hence instructed to amend the cca. During visit unit no -20, 30, 40 are found in operation at 828, 821, 739 MW load resp.. Sea water is used for cooling purpose through intake channel. Intake channel sea water temperature is 31.9 degree centigrade. This cooling water is disposed in to sea through pakka outfall channel through once cooling system only. Unit has provided online temperature meter in outfall channel, during visit reading noted is 36.3 degree centigrade. Online temperature and DO analyser display is in main control room. During visit one sample from intake channel and one sample from outfall channel is collected. Unit is having ETP for effluent generated from washing, DM reject, other utility, turbine drain & coal piling run off, storm water drain. Treated effluent is used for spraying/gardening within premises. Unit has also provided STP for domestic sewage and treated sewage is used for gardening & plantation within premises. Unit is having ESP & 285 mtr ht stack with all five boilers. Unit is utilising imported coal as a fuel in boilers. During visit apem (ESP) of all operative plants boilers are found in operation. Unit has provided online opacity meter & continuous gas analyser with all plant stacks. Reading noted during visit are as follows. (Unit-20) : spm-50.38 mg/nm3, so2-339.7 ppm, Nox- 182.8 ppm, Co-6.02 ppm, Co2- 1.65 ppm., Unit-30 : pm-50.2 mg/nm3, so2- 309.5 ppm, Nox- 115.2 ppm, Co- 12.23 ppm, Co2- 1.15 ppm., Unit-40 : pm- 35.63 mg/nm3, so2-127.5 ppm, Nox- 67.58 ppm, Co- 11.99 ppm, Co2- 0.39 ppm. Hence their nox concentration is still higher than permissible limit. Unit has also provided one continuous ambient air quality monitoring station within premises. Reading noted during visit is : pm 10- 52 ug/nm3, pm 2.5- 1.1 ug/nm3, so2- 6 ug/nm3, Nox-4 ug/nm3, Co- 1 mg/nm3. Following two samples are collected i.e 1) One AAQM on terrace of Main Gate (2) One flue gas emission sample is collected from stack attached to Unit-20 through ESP. Unit is having flyash storage silos. Unit is also having two ash pond and generated ash is sold out to cement manufacturers & traders. coal conveyer belt are found covered. Provided 9 mt high wind breaking wall at coal storage yard is found torned out at few places. water sprinkling at coal storage area is going on, however coal burning is also observed at some places in coal storage yard hence fugitive emission is observed. Written instructions are given to unit in gujarati. [529]-18/07/2014 ~ RO Query to Staff: pl. discuss [283]-24/07/2014

W.C Notings: -----[521-AEE]-

Specific Instructions given to Industry at the time of visit, for Pt to Pt Compliance

6) સી.સી.એ 4000 મેગા વોટ ની ફોઈ 1150 મેગા વોટ (1150 મેગા વોટ રેગીયુલેશન) વાટે Ammendment ની અરજી કરવી. એક પોઈ નુ સીપેક બધા કરવા. ઓનલાઇન મોનીટ રીંગ સીસ્ટમ બા. મા ના નુ XGN બધા બા મા. 1) કોલ સ્ટોરેજ ઓઈડલ્સ નુ પાલન કરવા માં મસકો ફો કુઈન વાત કરવા. એક સાઈલ ના લડીયા પાઈટ કરવા કરવા. કોલ બરબીંગ ન થાય તે માટે રેલુલર વોટર નુ પ્રેસર્સ નુ સચુ.

Compliance Observed in this Inspections.





Gujarat Pollution Control Board
(Inspection Report) - Air, Water, Hazardous

PCB Id: 19716

(Under Section 23 of The Water Act 1974, Under Section 24 of The Air Act 1981 and Under Section 10 of EP Act 1986)

Instructions in Previous Visits and Reply	Insp Det'	Instruction Status
	297789(08/06/14)	Fully Complied
એશ પોલ્ડ પર ડ્રાય એશનો સ્ટોરેજ કરેલ છે તે તાત્કાલિક પોલ્ડમાં લઇ લેવું	293291(04/05/14)	Partial Compliance
કોલ ચાર્જમાં હીપની ઉંચાઈ ૬ મીટરથી વધારે રાખવી નહી અને સમયાંતરે પાણીનો છંટકાવ કરવો	293291(04/05/14)	Partial Compliance
એશનો નિકાલ ડાઈકમાં કરવાને બદલે વધુમાં વધુ ડ્રાય રીતે અને સિમેન્ટ મેનુફેક્ચરને યાજ્ઞ તેરીતે કરવું	293291(04/05/14)	Partial Compliance
પ્રાણી કબરોના કામ સમયે શરૂ કરવું	293291(04/05/14)	Partial Compliance
ઇન્ટેક યેનલમાં ટેમ્પરેચર મીટર લગાડવું	293291(04/05/14)	Pending !! Reminded AGAIN
ફ્લાય એશ લાઈન પર શામકરણ કરવું.	280979(01/02/14)	Fully Complied
ફ્લાય એશ સાઈલો નજીક યંત્ર ડસ્ટિંગ બંધ કરવું.	280979(01/02/14)	Partial Compliance
અગાઉની મુલાકાત તા.૩૦/૦૯/૧૩ના રોજ આપવામાં આવેલ સૂચના ધોનલાઈન સ્ટેક મોનીટરીંગ ફેટા Xgn સાથે લીલ્ડ કરવાનું તાત્કાલિક પાલન કરવું.	280979(01/02/14)	Pending !! Reminded AGAIN

30/07/2014

577 (Through XGN)

N I C





Gujarat Pollution Control Board

PCB Id: 19716

(Inspection Report) - Air, Water, Hazardous
(Under Section 23 of The Water Act 1974, Under Section 24 of The Air Act 1981 and Under Section 10 of EP Act 1986)

Annexure Details - Air, Stack, Hazardous Waste & Samples PCB-4D: (19716)

A Sample Details

Sr	Act	PH/Temp/Air Sampled	Time	Type	Sampling Point	Col-Cond
1	W-4	@7-8 on ph strip / 36.3	1330-1330	REP	from outfall channel	Colourless
2	W-4	@7-8 on ph strip / 31.9	1300-1300	REP	from intake channel	Colourless
3	A-3	for ppm (60 ltr. 100 nos) (60 ltr.) / 143	1200-1230	REP	stack attach to boiler - boiler of unit-20	T.No:15 In. No: 147711
4	A-4	spmn & spml (262 ltr.) / 25	1330-1730	REP	# ambient sampling point - on terrace of main gate	PP No:751In No:277381

B Process Stacks

C Flue gases Stacks

Sr	Stack attached to	Mts	Remark	APCM	Fuel	Consp-Unit	SMF
1	Boiler	275	Boiler for unit 10	ESP, LNH	Coal	300TPH	YES
2	D.G. Sets	30	Will run during outage	N.A	Diesel	423 LPH	YES
3	Boiler	60	During outage, Aux. boiler	LNH	Ido	1000 LPH	YES
4	D.G. Sets	30	During Outage unit 20	N.A	Diesel	423 LPH	YES
5	Boiler	275	Boiler for unit 20	ESP, LNH	Coal	300 TPH	YES
6	Boiler	275	Boiler for unit 30	ESP, LNH	Coal	300 TPH	YES
7	D.G. Sets	30	During Outage unit 30	N.A	Diesel	423 LPH	YES
8	Boiler	275	Boiler for unit 40	ESP, LNH	Coal	300TPH	YES
9	D.G. Sets	30	During Outage Unit 40	N.A	Diesel	423LPH	YES
10	Boiler	275	Boiler for Unit 50	ESP, LNH	Coal	300TPH	YES
11	D.G. Sets	30	During Outage unit 50	N.A	Diesel	423LPH	YES

D Details about Hazardous Waste Management :

Sr	Source of Hazardous Waste	Catg	Qty/Year	HW Disposal Management
1	Used Spent Oil	1 - 5.1	255,000 - M.T.	COL, DSS, REU, STO, RRE, TRA
2	Wastes Residues Containing Oil	1 - 5.2	20,000 - M.T.	C1W, COL, DSI, DSS, STO, RRE, TRA
3	Spent Solvents	1 - 20.2	10,000 - M.T.	COL, DSI, STO, DST, TRA
4	Copper Etching Residues	1 - 12.7	20,000 - M.T.	COL, STO, DST, TRA
5	Discarded Asbestos	1 - 15.2	10,000 - M.T.	COL, STO, DST, TRA
6	Discarded Containers / Barrels / Liners contaminated with Hazardous Wastes/Chemicals	1 - 33.3	110,000 - M.T.	COL, DEC, DSS, REU, STO, DST, TRA
7	Chemical Sludge From Waste Water Treatment	1 - 34.3	750,000 - M.T.	COL, STO, DST, TRA
8	Spent ion exchange resin containing toxic chemicals	1 - 34.2	130,000 - M.T.	COL, STO, DST, TRA

E Products :

Sr	Product Name	NOC Qty	CCA Qty	Applied Qty	Inspection Remark
1	Electricity	800,000	800,000 - MWH	1600,000	13.1 MW and 470.24 MW in July-Aug-12 of Unit-2
2	Electricity	4000,000	4000,000 - MWH	4000,000	524.56, 159.09 MW during June-July-12 of Unit-1

F Raw material :

Sr	Raw Material Name	Capacity - Unit / Month
1	coal	16963200.000 - M.T.
2	fuel oil	60000.000 - M.T.
3	fuel oil	3000.000 - M.T.
4	LDO	45,000 - M.T.
5	Ido	27,000 - M.T.
6	water	5624640000.000 - M.T.

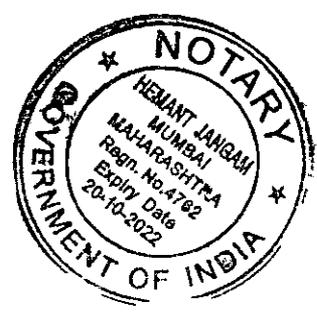
G Water Consumption & Generation Break up

Sr	Water Code (Qty in klpd - Kilo Ltr per Day)	WC :	WWG :	Water Source	Remark
		5301738.000	5284449.000		
1	Boiler Feed	3780.000	0.000	Sea Water	
2	Cooling Water	14992500.000	14992500.000	Sea Water	
3	Domestic Purpose	630.000	535.000	Borewell	
4	Mn/g Process	127500.000	102000.000	Sea Water	
5	Others	21815.000	2400.000	Sea Water	

30/07/2014

6/7 (Through NGN)

N I C



35

9



Gujarat Pollution Control Board

(Inspection Report) - Air, Water, Hazardous

(Under Section 23 of The Water Act 1974, Under Section 24 of The Air Act 1981 and Under Section 10 of EP Act 1986)

PCB ID: 19716

H Solid Waste

Inspection Team : Y.D. Suthar, DFE - H M Surathia, JSA(M)

Signature By (Y.D. Suthar, DFE)

30/07/2014

77 (Through XGN)

N C

TRUE COPY

Dev. Suthar



APPENDIX – 29
ASH UTILIZATION PLAN

Ash utilization is the need of time that check the degradation of environment and helps in meeting the stipulated environmental regulations. Ministry of Environment and Forest's notification on Ash Utilization dated 14.09.1999 stipulates that new thermal power plants shall have to utilize ash to the extent of 30% in first 3 years of commissioning and to attain 100% utilization by 9th year. Keeping in view, the above stipulation CGPL/ Power developer would consider the brief study for maximum utilization of fly ash.

The study has revealed, inter alia, there will be an annual production of 14.4 crores bricks considering 10% fly ash in making bricks. If Fal-G bricks, which utilizes pozollanastic properties of fly ash without any requirement of sintering, thus saving valuable energy as well as requirement of sintering, thus saving valuable energy as well as topsoil of this fertile land being used in making conventional clay bricks, can be economically produced and marketed. Market survey will be done at appropriate time for use of manufactured bricks through Fal-G technology.

The average annual generation of ash from the 5 x 800 MW Coastal Gujarat Power Limited Mundra shall be as under:

Coal Consumption (85% PLF)	: 11-13	Tons/annum(average:12Million Tons/annum
Ash content in coal	: maximum 15%	
Fly Ash generation	: 1.44 Million Tons/annum	
Bottom Ash generation	: 0.36 Million Tons/annum	

Projected year wise utilisation of ash for proposed UMPP at Mundra is shown in Figure – A. While manufacturing Fal-G products including bricks the fly ash collected in ESP hoppers from 2nd field onwards are to be used in making Fal-G mix, while coarser fly ash from other hoppers can be used as aggregate. The Bottom Ash, which normally contains more un burnt carbon and clinkers, is not suitable for conversion into useful products and, as such, can only be used for land-fill for which there is not much requirement in the area. While designing the power station, separate handling system and silos will be provided for storing bottom ash, fly ash from the hoppers of Economiser, Air heater and the 1st field of ESP, and that from the hoppers of 2nd field of ESP onwards separately.

This is expected that existing manufacturers of clay bricks within the target zone may not be adverse to switch over to Fal-G brick making provided the technology is made available to them and the new product is patronized by the Government



TRUE COPY

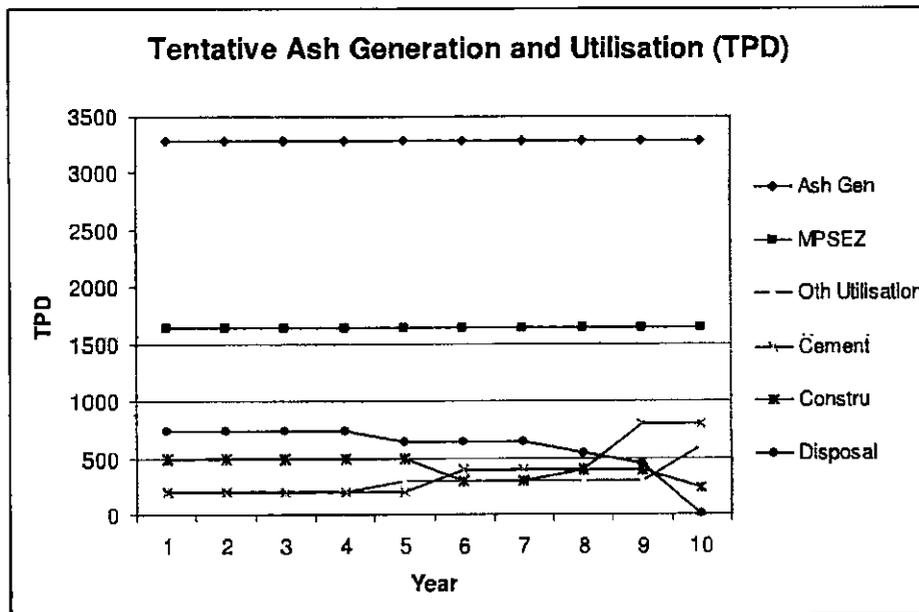
Du. Anbu

Departments as well as certain financial incentives offered to them for the change over. Fal-G brick making process relieves the manufacturers from hassles like scarcity and high cost of coal, ever increasing cost of land and labour, large involvement of working capital, variation of weather, etc.

In fact, workshop organized at country level on Fal-G brick making evoked very positive response from the local brickmakers. If the existing brickmakers and the labour involved in the industry can be converted to Fal-G brick making it would insure against loss of employment to lakhs of labour engaged in this trade while gainfully utilizing the solid waste from the power station with the consequent protection of environment.

The approximate consumption of fly ash, both for making Fal-G mix and for using as aggregate, in manufacture of Fal-G bricks as well as for admixing in cement manufacturing grinding units are shown below. As may be seen from the calculations, 1.0 lakh MT of FA-II (ie. fly ash obtained in ESP hoppers of 2nd field onwards) and 1.67 lakh MT of FA-I (ie. fly ash of coarser variety), ie. 2.67 lakh MT of fly ash can produce 12.91 crores of Fal-G bricks of standard size (230 x 100 x 75 mm) and 3.9 Lakh MT of fly ash can produce 13 Lakh MT of cement. In order to utilize the fly ash generated at the power station as per the guidelines of the Ministry of Environment and Forest, the year-wise production of Fal-G bricks would be 12.91 crores per Lakh MT of fly ash. Tentative flysh utilisation plan is shown in following Figure:

Figure - A
Tentative Ash Utilization Plan For 5X800 UMPP



It may be considered a good prospect of utilizing total fly ash to be generated at

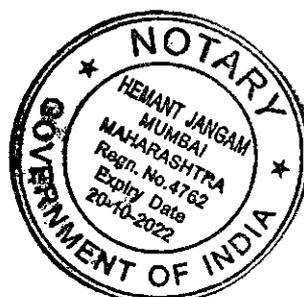


the power station in manufacturing Fal-G bricks as well as in manufacturing of cement with its positive impacts on economy and ecology besides saving the degradation of agricultural land. However, certain logistical problems like the process available to the existing brick makers will have to be solved, technology to be made available, a certain amount of market awareness created and government patronage provided to the existing brickmakers for switching over to Fal-G brick making to make it a success.

CGPL/Power developer has to envisaged the following strategies towards achieving the objective:

I. Fly Ash utilisation in manufacturing of bricks:

- (i) Fly ash will be supplied free of cost from the plant silos to any brickmaker wishing to commence Fal-G brick making.
- (ii) Basic technology as well as initial expert advice for Fal-G brick making will be provided to local brick makers free of cost.
- (iii) Seminars and workshops will be organized at CGPL cost to create market awareness in the large urban conglomerates like Bhuj, Mundra, Mandvi, Gandhidham etc.
- (iv) The State Government will be approached to offer certain financial incentives, in line with some other States who have already done it, to the Fal-G brickmakers as well as ensuring use of Fal-G bricks in public works to the fullest extent possible. We intend to pursue the matter to bring it to a logical conclusion.
- (v) CGPL/power developer intend to use Fal-G bricks in construction of our township as well as the boundary walls, various plant/non-plant buildings of our project to instill confidence in the minds of the local consumers and to provide the initial fillip to Fal-G brickmaking activity in the area from now itself. CGPL/power developer has to establish the contact to local prospective areas, so that fly ash is provided free of cost to the intending brick makers and are in the process of arranging with some of the local brick makers to produce Fal-G bricks with guaranteed that if it materializes, the local brick makers will be induced to switchover to Fal-G brick making once fly ash is available from the Power Station. This practice will enable less consumer resistance towards accepting the new product.
- (vi) CGPL/power developer feels that the major constraint in spreading adoption of this technology will be availability of fly ash as well as lime and gypsum to the brick makers who are scattered all over the area. The State Government can provide valuable assistance in this respect by creating depots near large



consumption centers under its auspices.

The power stations may be directed to make available the fly ash in dry form to be loaded directly on brick manufacturer trucks. This practice will reduce handling cost of fly ash for brick manufacturer. The impact of this activity on power cost will be nominal only but the activity would certainly boost fly ash utilization.

The Ministry of Environment and Forests and State pollution Control Board can play a vital role in the matter by coordinating with other concerned ministries and the State Government in taking policy level decisions.

II. Fly Ash utilisation in cement grinding units:

Fly ash utilization in cement admixing is gaining momentum and now a days cement manufacturers are setting their grinding / blending plants near thermal power stations to ensure easy procurement of fly ash. Number of such plants may come out in the future. M/s Sanghi Cement and Adani's may be the potential users of fly ash for cement manufacturing.

III. OUTLINES OF FAL-G TECHNOLOGY

Basic Technology

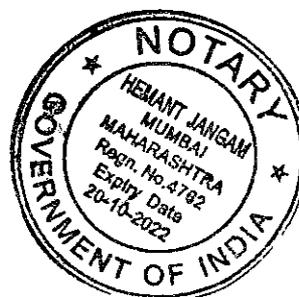
Fal-G is a ground blend of fly ash, lime and calcined gypsum in suitable proportions, which, upon hydration, yields strengths in the range of 200-400 kg/cm², rendering a water impervious hard matrix, similar to that in Portland cement.

This mix can find the following use:

- (i) As an argillaceous raw material in the manufacture of Portland cement
- (ii) As a pozzolona in the manufacture of Portland Pozzolona Cement (PPC);
- (iii) In making different types of bricks and other building components;
- (iv) As one of the ingredients of concrete mix;
- (v) In the manufacture of sintered aggregates for making light-weight concrete, etc.

Fal-G Brick Manufacturing Process

Fly Ash, Lime and calcined gypsum are mixed in a Pan Mixer in the ratio of 60:30:10 approximately. This mix is then moulded into bricks either manually or mechanically kept in the open for 1-2 days for drying and then water is sprinkled intermittently for the next few days. The brick becomes ready for transportation in 6/7 days time. Brick made of pure Fal-G as above may have compression strength in the range of 275-300 kg/cm². which may be difficult to work within normal construction activity. Some aggregate, therefore, is usually mixed with the



Fal-G mix to arrive at a strength of around 150 kg/cm². These aggregates can be coarse sand, crusher dust, clay or even coarse fly ash (with low carbon content).

The quality of Fal-G mix will depend on the quality of fly ash to be used. It has been found that fine partials of fly ash from modern thermal power plants where abrupt cooling of flue gas takes place in economizer/air heater zone, and collected by dry process is best suited for the mix design. Fly ash collected from economizer/air heater and 1st field of ESP, which is generally coarse, can be used as aggregates in making of Fal-G bricks.

IV. Conversion of Fly Ash into Fal-G Brick

The mix ratio of Fal-G is Fly Ash: Lime: Gypsum : : 60:30:10

Therefore, 1 tonne of Fly Ash will produce $1/0.6=1.67$ tonnes of fal-G

Or, 1.00 lakh MT of Fly Ash will make 1.67 lakh MT of Fal-G mix:

Using coarse fly ash as aggregate in proportion of 1: 1, this mix will consume further 1.67 lakh MT of Fly Ash.

The density of this mix considered to be 1.5 gm/cc.

∴ The resultant mix of 3.34 lakh MT will produce brick of volume:

$$3.34 \times 10^5 / 1.5 = 2.226 \text{ lakh cu.m.}$$

The volume of each brick of standard size is

$$:230 \times 100 \times 75 \text{ mm} = 1725 \text{ cc} = 0.001725 \text{ cu.m.}$$

∴ 1 cu.m. of mix will produce $1/0.001725 = 580$ nos. bricks.

∴ 2.226 lakh cu. m. of mix will produce $2.226 \times 10^5 \times 580$

$$= 1291 \text{ lakh bricks}$$

$$= 12.91 \text{ crore bricks}$$

3288 TPD for 5X800 MW TPP units

CGPL : $3333 \times 360 = 1.2$ MTPA

10 % of generated fly ash has been considered for brick manufacturing = 0.12 MTPA

Therefore, total number of bricks production per year = 12.91×0.12 MTPA = 1.55 Crore bricks



TRUE COPY

Dati hute

Item Nos. 02 to 04

Court No. 1

**BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI**

Original Application No.117/2014
WITH

Original Application No. 499/2014
WITH

Original Application No. 102/2014
(M.A. No. 168/2019, M.A. No. 12/2020 & M.A. No. 13/2020)

(With report dated 10.01.2020)

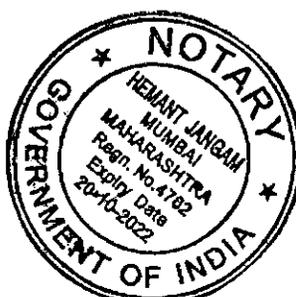
Shantanu Sharma		Applicant(s)
	Versus	
Union of India & Ors.		Respondent(s)
	WITH	
Anupam Raghav & Anr.		Applicant(s)
	Versus	
U. O. & Ors.		Respondent(s)
	WITH	
Sandplast (India) Ltd. & Ors.		Applicant(s)
	Versus	
MoEF & Ors.		Respondent(s)

Date of hearing: 27.01.2020
Date of uploading on the website: 12.02.2020

**CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE S.P WANGDI, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER**

ORDER

1. This order may be read in continuation of order dated 20.11.2018 on the subject of management of fly ash generated by the Thermal Power



42

Plants (TPPs). This Tribunal considered impact of non-utilization and proper disposal of fly ash by the TPPs on air quality, surface water, ground water, health and environment. After considering the notifications issued by the Ministry of Environment and Forest & Climate Change (MoEF&CC) requiring 100% utilization of fly ash by 31.12.2017 and applicable norms for utilization of fly ash, this Tribunal directed preparation of action plans to achieve 100% utilization of fly ash and for its scientific disposal. The Committee comprising MoEF&CC, CPCB and IIT Roorkee was to determine the liability of the TPPs for damages on 'Polluter Pays' principle.

2. We may note only the case set out by the applicant in O.A. No. 117/2014 as the grievance in other connected matters is identical. It is submitted that non-utilization and improper disposal of fly ash leads to increase in air pollution and causes severe health problems. It also affects horticulture and agricultural crops. As at present, there is an increase in ash pond areas and increased height of ash dykes. Apart from air pollution, there is pollution of surface water and ground water. Major pollutants in fly ash are Arsenic and Mercury. Both the said pollutants are injurious for the land and the water bodies. Thus, there is need for 100% utilization of fly ash by all possible means such as conversion to ash based products, preventing its washing away or flying in the air.

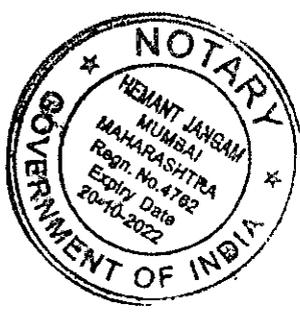
3. In substance, case of the applicant is that air pollution and water pollution is continuing against mandate of law for which no remedial action was being taken. MoEF&CC has failed to ensure proper monitoring and compliance mechanism inspite of issuing notification



on the subject. This is also resulting in failure to enforce the mandate of law under Air Act, 1981; Water Act, 1974 and Environment (Protection) Act, 1986 (EP Act), apart from damage caused to the environment and public health. This is also infringement of 'Sustainable Development' and 'Precautionary' principles. As a consequence of continuing air and water pollution, 'Polluter Pays' principle also needs to be invoked.

4. Notification dated 14.09.1999 was issued by the MoEF&CC which required use of atleast 25% of the ash for clay bricks or tiles or blocks for use in construction activities. The Delhi High Court vide judgment dated 05.08.2004 in Writ Petition (C) No. 2145/1999 directed the Government to make use of fly ash mandatory in roads apart from using it in bricks for construction. Land, electricity and water is required to be made available for promoting ash based production units. Vide amendment dated 03.11.2009, provision was made for its use in manufacturing of building material and in construction activity to preserve top soil. Since quantum of fly ash has increased, the extent of fly ash required to be used in terms of above notification was also increased.

5. In view of the rising concern on account of failure of efficacy of the measures already taken, a Working Group was constituted by the Department of Industrial Policy and Promotion, Ministry of Commerce and Industry, Govt. of India. In its report submitted in the year 2011, the said group *inter-alia* observed that increase in generation of fly ash has led to increase in requirement of land and thus target has to be of 100% utilization as against 60%. The disposal process lacked



transparency and it was necessary that each thermal power plant displays complete information in terms of compliance to environmental norms. Other measures adopted include policy of financial institutions to require compliance of fly ash as a condition for grant of loan and incentives in terms of excise duty. The applicant has also referred to the report jointly published by the World Bank and the Department of Economic Affairs, Govt. of India pointing out the deficiencies in pro-active government policies on the subject.

6. We may now refer to the Notifications on the subject. We have already mentioned that vide Notification dated 14.09.1999, the MoEF&CC issued directions requiring manufacturers of clay bricks or tiles or blocks or construction activities to mix atleast 25% of ash which is to be ensured by the Pollution Control Boards/Committees by canceling the consent order for brick kilns or mining leases. Every thermal power plant was required to make available such ash and phase out dumping and disposal in three years to the extent of 30%, and the remaining in six years. This applied to plants permissions being issued subject to Environmental Clearance prescribing such conditions. The remaining are required to be phased-out in 15 years compliance regarding which made necessary to be furnished to the Central Pollution Control Board and the concerned State Pollution Control Boards/Committees. The Electricity Boards, NTPC and the management of the power plants are to facilitate making available land, electricity and water for manufacturing activities and also to provide access to the ash lifting area and furnish annual implementation report. Manufacturers of ash based products such as cement, blocks, brick panels were to operate as per the guidelines



laid down by the Bureau of Indian Standards, Indian Bureau of Mines, Indian Road Congress, Central Building Research Institute, Roorkee, Central Road Research Institute, New Delhi, Building Materials and Technology Promotion Council, New Delhi, Central Public Works Department, State Public Works Departments and other Central and State Government agencies. The said authorities are to prescribe the use of ash and ash based products in schedules of specifications. Local authorities are to specify such requirement in building bye-laws.

7. Vide Notification dated 27.08.2003, certain amendments were made particularly to the effect that construction agencies were required to use the fly ash to the extent of 100% in a phased manner upto 31.08.2007.

8. Next Notification is dated 03.11.2009, revising the timelines and the period for implementation. The revised timelines apply to the construction agencies as well as thermal power plants as per details mentioned in the said Notification. The said Notification also provided for shifting of the fly ash by filling empty mined voids by stowing.

9. In its reply, the MoEF&CC has referred to the Notifications issued from time to time to deal with the problem. In respect of thermal power stations in its operation before 03.11.2009, extent of requirement of fly ash utilizations is as per following table:

Sr. No.	Percentage Utilization of Fly Ash	Target Date
1.	At least generation 50% of fly ash	One year from the date of issue of this notification.



2.	At least generation 60% of fly ash	Two years from the date of issue of this notification.
3.	At least generation 75% of fly ash	Three years from the date of issue of this notification
4.	At least generation 90% of fly ash	Four years from the date of issue of this notification
5.	At least generation 100% of fly ash	Five years from the date of issue of this notification

10. For those commissioned after 03.11.2009, the extent of requirement of fly ash utilization is as follows:

Sr. No.	Percentage Utilization of Fly Ash	Target Date
1.	At least generation 50% of fly ash	One year from the date of issue of commissioning.
2.	At least generation 70% of fly ash	Two years from the date of issue of commissioning.
3.	At least generation 90% of fly ash	Three years from the date of issue of commissioning.
4.	At least generation 100% of fly ash	Four years from the date of issue of commissioning.

11. Conditions prescribed for utilization of fly ash are as follows:

"(a) the pond ash should be made available free of cost on "as is where is basis" to manufacturers of bricks, blocks or tiles including clay fly ash product manufacturing unit(s), farmers; the Central and the State road construction agencies, Public Works Department, and to agencies engaged in backfilling or stowing of mines.

(b) at least 20% of dry ESP fly ash shall be made available free of cost to units manufacturing fly ash or clay-fly ash bricks, blocks and tiles on a priority basis over other users and if the demand from such agencies falls short of 20% of quantity, the balance quantity can be sold or disposed of by the power station as may be possible;

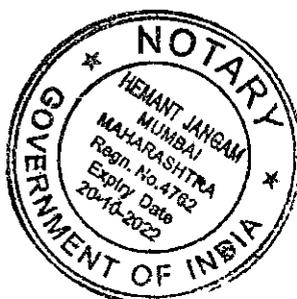
Provided that the fly ash obtained from the thermal power station should be utilized only for the purpose for which it was obtained from the thermal power station or plant



failing which no fly ash shall be made available to the defaulting users."

12. Under the above notification, a Monitoring Committee is to be constituted in every State/Union Territory under the Chairmanship of the Secretary, Department of Environment with representatives from Department of Power, Department of Mining, Road and Building Construction Department and State Pollution Control Board. The Committee is required to deal with any unresolved issue by Dispute Settlement Committee in addition to the monitoring and facilitating the implementation of the notification. Monitoring Committee constituted by the MoEF&CC is to have members from Ministry of Coal, Ministry of Power, Central Pollution Control Board, Central Electricity Authority, Head, Fly Ash Unit of the Department of Science and Technology and Building Material Technology Promotion Council.

13. It is further stated in the affidavit of the MoEF&CC that as per the information received from Central Electricity Authority (CEA), during a meeting, the fly ash generation from 138 thermal power plants is reported to be 163.56 million tons during the year 2012-13. The overall utilization of fly ash was 100.73 million ton, which is about 61.37% of the total fly ash generated. During the year 2012-13, out of 138 (one hundred thirty-eight) thermal power stations for which data was received, 66 (sixty-six) power stations have achieved the targets of fly ash utilization as stipulated in the notification dated 03.11.2009. The remaining 33 (thirty-three) plants have achieved the level of fly ash utilization up to 75%. The 19 (nineteen) plants have achieved the level of fly ash utilization up to 60%.



14. CPCB has given a chart showing progress of fly ash generation and utilization from 1996 to 2012. Some of the State Pollution Control Boards/Committees have filed their affidavits indicating the extents to which utilization of fly ash has taken place.

15. Vide Notification dated 27.01.2016, further amendment was made to the Notification dated 14.09.1999 mainly to the effect that the area within which the fly ash is to be utilized has been increased to 300 kms. The time period to comply with the requirements of 100% utilization of fly ash was extended to 31.12.2017.

16. The matter has been considered on several dates in the last five and a half years. Reference may be made to some of the orders passed.

17. Vide order of this Tribunal dated 06.01.2016, the MoEF&CC, the State Governments/Union Territories were required to furnish the details of the Monitoring Committees and if such Committees were not constituted as per the mandate of the Notification, the same were directed to be constituted. On 03.01.2018, the States/Union Territories were directed to furnish their action plans for utilization of fly ash produced and generated by thermal power plants in accordance with the Notification. On 16.02.2018, it was noted that only eight States have submitted their action plans. MoEF&CC was directed to expedite the collection of action plans from the concerned States. On 20.03.2018, the Chief Secretaries of the States, who had failed to submit action plans, were again required to do so. On 12.07.2018, it was stated that 20 States have submitted their action plans out of which 13 were not complete or satisfactory. The



MoEF&CC was directed to monitor the compliance of the earlier orders referred to above and submit a status report.

18. The matter was thereafter reviewed on 20.11.2018 in the light of the status report filed by MoEF&CC on 07.09.2018. The Tribunal observed as follows:-

"1to25 xxx xxx xxx

26. Accordingly, status report has been filed before this Tribunal on 07.09.2018 by the MoEF&CC stating that no fly ash is generated in 15 States/UTs namely, Goa, Himachal Pradesh, Jammu & Kashmir, Kerala, Manipur, Mizoram, Nagaland, Sikkim, Tripura, Andaman and Nicobar, Chandigarh, Daman & Diu, Dadra & Nagar Haveli, Lakshadweep, and Pondicherry. Accordingly, the said States and Union Territories and their authorities be deleted from the array of parties.

27. Twenty States have given their action plans. Only State of Arunachal Pradesh has not furnished any action plan. Since there is nothing to show that there is any fly ash generation in the said State, the said State or its authorities are also deleted from array of parties. We do not understand why deletion of unnecessary parties was never sought.

28. The position of each of the remaining twenty States has been mentioned. It may be noted that though the last date for achieving 100% utilization was 31.12.2017 and the said date has not been extended, the States have sought extension of time by 2 to 5 years, upto the year 2023 which is wholly uncalled for. This Tribunal has no jurisdiction to grant any extension of time in conflict with the mandate of notification under the Environment (Protection) Act, 1986, particularly when such extension will enable harm to environment, in violation of statutory scheme. It is also stated by some of the States that action plans to achieve 100% utilization of fly ash has not even been furnished by some of the Thermal Power Plants.

29. We may also note that the NITI Aayog, vide order dated 12.06.2018, constituted a Committee headed by Joint Secretary, MoEF&CC, Govt. of India, to develop a focused strategy for best utilization of fly ash to manufacture end products. Issues to be gone into by the Committee are:- revisiting existing notifications / guidelines, transportation of fly ash, better utilization in MSME Sector, cement and allied industries, use of mobile app in data base, guidelines for ash parks, regulation of red bricks, incentives for 100% utilization,



incentives to TPPs for new innovations. Draft report was circulated by MoEF&CC on 16.10.2018. The Committee noted that the existing notification needed review and the same were not being fully implemented.

30. In view of the above, only question for consideration is the directions to be issued on account of failure of 100% utilization of fly ash which has admitted adverse impact on public health and to give effect to the 'Precautionary Principle' and the 'Polluter Pays' Principle to be applied under Section 20 the National Green Tribunal Act, 2010.

31. Since non-utilization of 100% fly ash, especially after 31.12.2017, the date fixed in the Notification of the MoEF&CC dated 25.01.2016, invites penal consequences under the provisions of the Environment Protection Act, 1986, liability in this regard is not only of the persons responsible for non-utilization but also for generators of the fly ash. The generator cannot avoid responsibility for due disposal of any residue pollutants on account of its activity. The principle of 'extended producer's liability' is well recognized as part of 'Sustainable Development'. Applying the 'Precautionary Principle', the permission to dump fly ash in the mined voids has to be subject to all precautionary measures necessary for environment protection. Area of utilization of fly ash has been extended to 300 kms, which may call for more stringent conditions to avoid damage to the environment.

32. The adverse effect of fly ash mismanagement is well acknowledged in decision of Courts¹ as well as by public authorities².

19. After above consideration, the Tribunal constituted a joint Committee to finalise action plan to achieve 100% utilization of fly ash and to determine the amount of damages to be paid for the violation by the TPPs and also directed interim compensation for the TPPs who are failed to dispose of 100% fly ash upto 31.12.2017. The operative part of the order is:-

¹Occupational Health and Safety Association v. Union of India &Ors. (2004) 3 SCC 547 ¶12-15
²<http://pib.nic.in/PressReleaseDctail.aspx?PRID=1520080>,
<https://economictimes.indiatimes.com/news/politics-and-nation/pmo-asks-agencies-to-increase-usage-of-fly-ash-by-10-times/articleshow/65814656.cms>,
<https://energy.economictimes.indiatimes.com/news/power/from-coal-production-to-renewable-power-obligations-niti-aayog-lays-down-its-3-year-agenda-for-indias-energy-sector/58486230>,
<http://pib.nic.in/newsite/PrintRelease.aspx?relid=179785>



33. We are of the view that a Joint Committee of the representatives of the Ministry of Environment, Forest and Climate Change, Central Pollution Control Board and IIT Roorkee and any other member considered necessary by MoEF&CC needs to be forthwith constituted to finalize action plan covering all aspects so as to not only achieve 100% utilization of fly ash but also to ensure its scientific and environmentally sound disposal. The Committee will also be required to determine the amount of damages to be paid for the violation of requirement of utilization of fly ash. Needless to say that statutory authorities under the Environment (Protection) Act, 1986, the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974 are entitled to assess and recover damages on 'Polluter Pay's Principle' in exercise of incidental powers to protect environment. The Committee may determine any other allied or incidental issue.

34. Accordingly, we direct constitution of such a Committee by the MoEF&CC forthwith. The Committee may give its report within two months from the date of its assuming charge to the MoEF&CC.

35. The report of the Committee may be complied with by all concerned, subject to any challenge to such report, in accordance with law.

36. Pending submissions of such report, we direct all Thermal Power Stations who have failed to dispose of 100% fly ash up to 31.12.2017, to deposit damages for environment restoration as follows:

Sl. No.	Capacity of the Thermal Power Plant	Cost of damages
1.	Thermal Power Plants upto the capacity of 500 MW	Rs. 1 Crore
2.	Thermal Power Plants upto the capacity of 1000 MW	Rs. 3 Crores
3.	Thermal Power Plants beyond the capacity of 1000 MW	Rs. 5 Crores

37. The above amount may be deposited with the CPCB within one month from today, failing which interest @ 12% p.a. will be payable for the delayed period. The amount may be spent on restoration and restitution of the environment.

38. No damages will be payable by the Thermal Power Plants which have utilized 100% of the ash generated by it in accordance with law up to 31.12.2017 and disposing it in scientific manner. In case, any such claim is found to be false by the Committee, the amount of penalty payable may be up to five times.



52

39. *The MoEF&CC may furnish an action taken report to this Tribunal on or before 31.03.2019 by e-mail at nqt.filing@gmail.com. All the applications are disposed of.*"

20. We may note that vide order dated 13.12.2018 in Diar̄y No. 46100/2018, *Association of Power Producers v. Sandplast (India) Ltd. & Ors.*, the Hon'ble Supreme Court gave liberty to the Association of Power Producers to move this Tribunal. This led to filing of M.A. No. 1798/2018 etc. for recall of order dated 20.11.2018 on the ground that some of the TPPs had not completed period of five years which was permissible for disposal of the fly ash. This plea was rejected in the light of the Notification dated 27.01.2016 fixing 31.12.2017 as outer limit for disposal of the fly ash, irrespective of date of commissioning of power plant. The applications were accordingly disposed of on 03.01.2019. M.A. No. 08/2019 etc. were disposed of on 22.01.2019 giving liberty to the TPPs in question to move the Committee for being heard on the quantum of compensation. M.A. No. 50/2019 and other applications were disposed of on 12.03.2019 giving liberty to the TPPs to move the Committee constituted by this Tribunal. Similar further order was passed on 02.05.2019 in M.A. Nos. 108/2019 to 119/2019.

21. Pursuant to order dated 20.11.2018, the joint Committee has filed its report on 20.12.2019 on the subject of action plan to achieve 100% fly ash utilization by the TPPs and liability of the TPPs to pay compensation. The report mentions the meetings held for the purpose and consideration of the enhanced utilization of fly ash by way of Ash based building construction material such bricks/blocks/tiles; road, flyover embankment construction, Development of low- laying areas,



53

Reclamation of abandoned mine voids, Ash utilization as soil conditioners of agriculture. As per CPCB, about 77% of total fly ash generated per annum is utilized. This indicates a gap in terms of 23% which needs immediate action. In terms of legacy waste, the total quantum is 1647 million tonnes as on 31.03.2019.

22. The Committee recommended one year time to achieve 100% utilization of fly ash where the utilization currently was more than 85% and two years for the remaining. The action plans of 118 individual units have been annexed. The compliance status is to be reviewed quarterly and on annual basis. On the subject of environmental compensation, it is recommended that compensation should be imposed only on non-pit head TPPs.

It has been recommended by the Committee that raising of ash dyke of ash pond may be considered as fly ash utilization during initial five years. Thereafter, TPPs can use fly ash for strengthening of ash dyke as per engineering requirement but can claim only 5-7% of fly ash generation as utilization.

With regard to breach sites at Vidhyanchal TPP and Essar TPP in Singrauli area, the Committee has recommended that MP Pollution Control Board to ensure effective restoration/remediation of affected sites urgently.

With regard to utilization of unutilized accumulated fly ash (pond ash), the recommendation is to permit three years for non-pit head TPPs and four years for pit head TPPs apart from current utilization w.e.f. April 2021. The recommendations pertaining to



Ministry of Power; Ministry of Coal; NTPC; CPCB; Central Electricity Authority; NHAI; MoEF&CC; Ministry of Housing and Urban Affairs; Ministry of Human Resource Development; Bureau of Indian Standards (BIS); Department of Consumer Affairs and IRC have been separately given. The Ministry of Power has also given its recommendations.

23. The Committee has given a mechanism for assessment of environmental compensation for non-compliance of targeted fly ash utilization by thermal power plant vide Annexure A-II of the said report and has proposed the scenarios viz. EC for plants commissioned before 03.11.2009 and EC for plants commissioned after 03.11.2009. The formula suggested by the joint Committee is as follows:-

3. Determination of Environmental Compensation (EC)

3.1 CPCB on the direction of the Hon'ble National Green Tribunal (NGT), Principal Bench in the matter of OA No. 593/2017 (WP (CIVIL) No. 375/2012) Paryavaran Suraksha Samiti & Anr. Vs. Union of India & Ors. has formulated following formula for levying the environmental compensation penalty due to non-compliance of the environmental standards/ violation of any directions, by industries;

$$EC = PI \times R \times N \times F \times LF$$

$$= ₹ 30000 \text{ per day } (80 \times 250 \times 1.5) \times N \times LF$$

EC = Environmental compensation/penalty (₹);

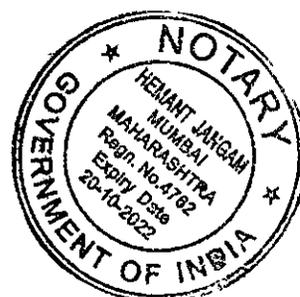
PI = Pollution Index of industrial sector (80 for red category of industries)

R = Rs in per day (₹ 250)

N = Number of days of violations.

F = Scale of operation of industrial sector, small 0.5, medium 1.0 and large 1.5

LF = Location factor, 1.5 if industry is located in critically polluted area/urban area/ ecologically sensitive area; otherwise 1



3.2 In light of the above environmental compensation (₹ 30000 per day×330 days per year = ₹ 9900000, say 1 crore per year), it is proposed that, EC may be imposed based on annual basis for compliance of flyash notification after December 31st, 2017 as below:

3.2.1 EC for plants commissioned before 3.11.2009

A: EC for year 2018 and 2019

EC = ₹ 1 crore/ year × C × P × LF

C : Capacity factor 1 for 500 MW and MW/500 for other capacity

P : Non-compliance during the year i.e. (100-% utilization during the year/100)

LF = Location factor, 1.5, if industry is located in critically polluted area/ urban area/ecologically sensitive area; otherwise 1

B: Annual EC for year 2020 onwards

EC= ₹1 crore/year C × P' × LF

P' : Overall non-compliance in terms of multiple factor of annual generation i.e. total accumulated flyash at the end of year divided by annual flyash generation at full capacity.

LF : Location factor, 1.5 if industry is located in critically polluted area/urban area/ ecologically sensitive area; otherwise 1

3.2.2 EC for plants commissioned after 3.11.2009

A : EC for year 2018

EC= ₹1 crore/year C × P × LF

C : Capacity factor 1 for 500 MW and MW/500 for other capacity

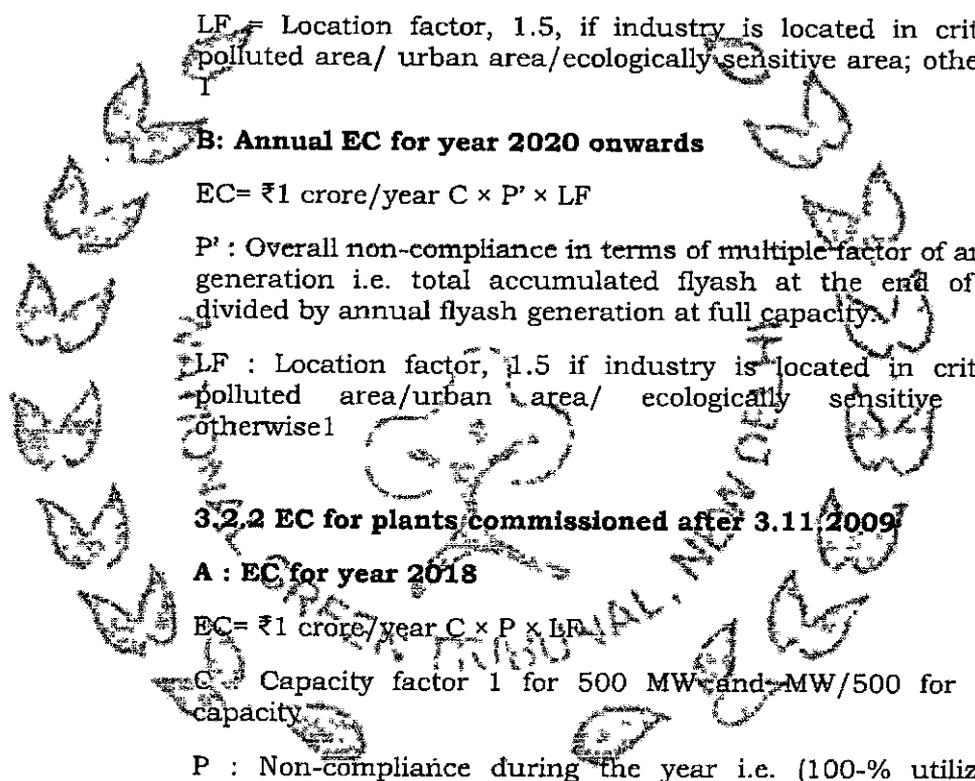
P : Non-compliance during the year i.e. (100-% utilization during the year/100)

LF : Location factor, 1.5 if industry is located in critically polluted area/urban area/ ecologically sensitive area; otherwise 1

B: Annual EC for year 2019 onwards

EC= ₹1 crore/year C × P' × LF

P' : Overall non-compliance in terms of multiple factor of annual generation i.e. total accumulated flyash at the end of year divided by annual flyash generation at full capacity.



LF : Location factor, 1.5 if industry is located in critically polluted area/urban area/ ecologically sensitive area; otherwise 1

3.3 Temporary storage upto 90 days of generation of fly ash shall be allowed and no environmental compensation will be imposed for accumulated quantity.

24. We may now consider the above report and further course of action.

In the first instance, the mechanism for assessment of Environmental Compensation has over looked certain scientific aspects and hence cannot be agreed to in totality. Location factor should be taken to 1.5 for all situations as the principal contributor to the environment degradation in the area is the TPP. Further, the Capacity Factor has been taken 1 for 350 MW and MW/350 for other capacity, instead of taking 500 MW as a base. Thus, the formula needs to be revised as follows:-

$$EC = PI \times R \times N \times F \times LF$$

$$= ₹ 30000 \text{ per day } (80 \times 250 \times 1.5) \times N \times LF$$

EC = Environmental compensation/penalty (₹)

PI = Pollution Index of industrial sector (80 for red category of industries)

R = Rs in per day (₹ 250)

N = Number of days of violations.

F = Scale of operation of industrial sector, small 0.5, medium 1.0 and large 1.5

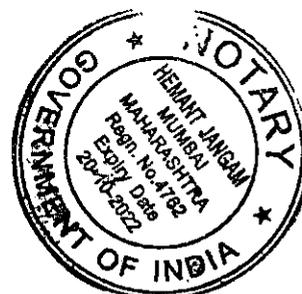
LF = Location factor, 1.5 for all situations as the principal contributor to environmental degradation in area is TPP.

Therefore, for 330 days per year, the said figure would come to ₹ 9900000 or say ₹ 1 crore per annum. In addition to above, the EC may be imposed on the basis of compliance of Fly Ash Notification after 31.12.2017 as below:

EC for 2018 & 2019:

$$EC = ₹ 1 \text{ crore/ year} \times C \times P \times LF$$

C : Capacity factor 1 for 350 MW and MW/350 for other capacity instead of taking 500 MW as a base.



P : Non-compliance during the year i.e. (100-% utilization during the year/100)

LF = Location factor, 1.5 for all situations as the principal contributor to environmental degradation in area is TPP.

EC for 2020:

EC = ₹ 1 crore/year × C × P' × LF

P' : Overall non-compliance in terms of multiple factor of annual generation i.e. total accumulated fly ash at the end of year divided by annual fly ash generation at full capacity

LF = Location factor, 1.5 for all situations as the principal contributor to environmental degradation in area is TPP.

Note: Temporary storage upto 90 days of generation of fly ash shall be allowed and no environmental compensation will be imposed for accumulated quantity.

25. Secondly, since as per applicable binding regime in terms of notification dated 27.01.2016 mentioned above, 100% fly ash utilization has to be ensured by 31.12.2017, there cannot be any time limit in conflict with the statutory notification. Further, there cannot be unlimited time for disposal of accumulated fly ash (legacy fly ash). Provisions of the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974 certainly attracted, apart from concepts of Sustainable Development, Precautionary and Polluter Pays principles, which are to be enforced under Section 20 of the National Green Tribunal Act, 2010 (NGT Act) but also are part of right to clean environment and, thus, right to life. While compensation has to be recovered for the damage caused, there cannot be any right to continue to damage the environment. Activity causing damage to the environment has to be prohibited, apart from action for prosecution for the violators of law,



2

including the Chief Executive Officers of the TPPs in question for continued violations.

26. Thirdly, we may also note that this Tribunal has noticed repeated and continuous defaults by the TPPs resulting in damage to the environment and public health for which compensation has been assessed by the experts under orders of the Tribunal.

In O.A. No. 453/2019, vide order dated 11.10.2019, this Tribunal considered reports of the MPPCB and UPPCB in respect of pollution by the TPPs in districts Singrauli and Sonbhadra respectively. It was found that damage was being caused to the water bodies including Rihand reservoir, surface and ground water and rivers like Son, Renu, Bijul, Kanhar, Gopad, Pankagan, Kathauta Kachan, etc. and streams/nalas like Ballia Nala, Chatka Nala, Kahuwa Nala, Tippa, Jharia, Dongia Nala, etc. water was contaminated by toxic effluents discharged and was not fit for consumption.

MPPCB furnished its report dated 21.08.2019 recording a finding that pollution was taking place and recommending compensation as follows:-

“Details of imposed Environmental compensation

*As per the Environmental Compensation guidelines framed by CPCB in compliance of order 31.08.2018 in O.A. 593/2017 the maximum environmental compensation is Rs. 30,000/- per day of non-compliance. The total amount of **56,08,50,000/- (Fifty Six Crore Eight Lac Fifty thousand rupees)** may be imposed upon the 03 TPP & 08 NCL mining project against the non-compliance of the major notification, direction & recommendations issued since 2014.*

Summary of the days of non-compliance & Environmental compensation therefore is as tabulated below:



S. No.	Thermal power plant & Northern Coalfield Mine	Days of Non-compliance	Environmental Compensation in Rupees @ 30000/day
1.	M/s Essar Power MP Limited, Singrauli, MP	01	30,000/-
2.	M/s Sasan Power Limited, Singrauli, MP	1247	3,74,10,000/-
3.	M/s NTPC, Vindhyachal, Singrauli, MP	1389	4,16,70,000/-
4.	NCL, Nigahi, Singrauli	1825	5,47,50,000/-
5.	NCL, Gorbi Block-B, Singrauli	1843	5,52,90,000/-
6.	NCL, Khadia Project,	1825	5,47,50,000/-
7.	NCL, Amlohri area, Singrauli	2185	6,55,50,000/-
8.	NCL, Bina project	1825	5,47,50,000/-
9.	NCL, Dudhichua area	1825	5,47,50,000/-
10.	NCL, Jayant Project	2455	7,36,50,000/-
11.	NCL, Jhingurda area	2275	6,82,50,000/-

Likewise, UPPCB also found pollution by the TPPs in its report dated 28.08.2019 and compensation was recommended as follows:-

"Abridged Status of Environmental Compensation (EC)

S.No.	Name of Industry (M/s)	EC in Rs.
1.	NTPC Thermal Power Plant, at Shaktinagar, Sonbhadra (U.P.)	27,00,000
2.	Northern Coal Fields Limited (NCL) Project Dudhichua, Sonbhadra (U.P.)	1,30,20,000
3.	Northern Coal Fields Limited (NCL) Project Khadia, Sonbhadra (U.P.)	1,24,80,000
4.	Northern Coal Fields Limited (NCL) Project Krishnashila, Sonbhadra (U.P.)	6,11,40,000
5.	Northern Coal Fields Limited (NCL) Project Bina, Sonbhadra (U.P.)	64,50,000



6.	Northern Coal Fields Limited (NCL) Project Kakri, Sonebhadra (U.P.)	64,50,000
	NTPC Thermal Power Plant at Rihandnagar, Sonebhadra (U.P.)	45,90,000
7.	U.P. Power Corporation Ltd, Thermal Power Plant, Qbra, Sonebhadra (U.P.)	6,11,40,000
8.	U.P. Power Corporation Ltd, Thermal Power Plant, Anpara, Sonebhadra (U.P.)	6,11,40,000
10.	LANCO Anpara Power Ltd, Thermal Power Plant, Anpara, Sonebhadra (U.P.)	23,70,000

Apart from recommendation for compensation, the UPPCB also recommended remediation measures and study of carrying capacity as follows:-

"11. Recommendations

In order to suitably address the critical issues of potential concerns to environment in the Singrauli Area, the Committee proposes following Recommendations subject to approval of Hon'ble NGT:

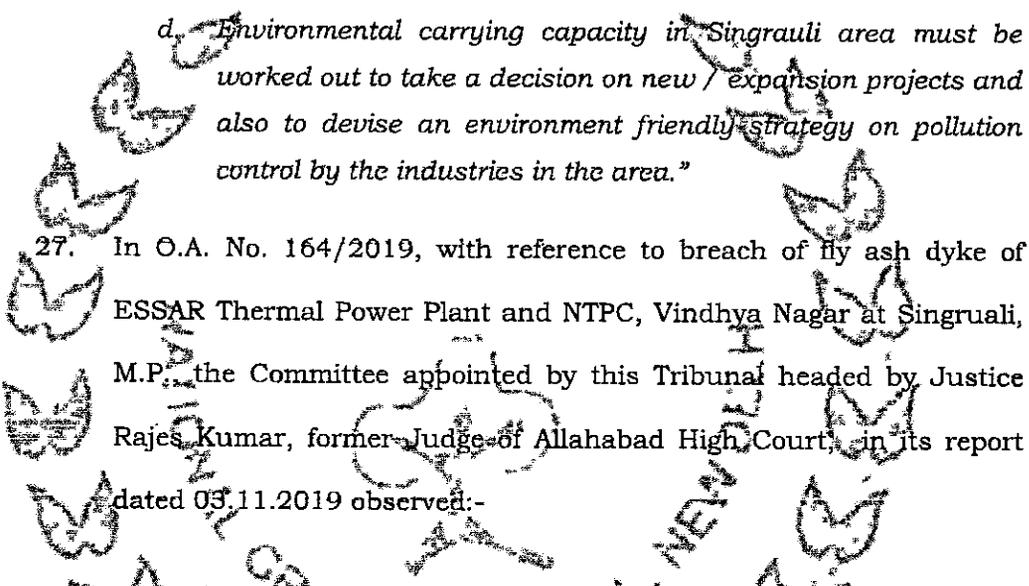
- a. *In keeping with the strict compliance of this referenced Order of Hon'ble NGT, the Statutory Authorities may take note of the findings of this report and ensure appropriate action for recovery of Environmental Compensation due to damage caused to environment.*
- b. *Considering complexity of study components and required expertise in related field / discipline, estimation of environmental damage and cost of remediation be worked out by a consortium of reputed institutions namely National Institute of Hydrology (NIH), Roorkee, National Geophysical Research Institute (NGRI), Hyderabad; National Institute of Occupational Health (NIOH), Ahmedabad; National Botanical Research Institute (NBRI), Lucknow and Indian Institute of Toxicology Research (IITR), Lucknow or such other institutions*



of repute. U.P. Pollution Control Board and M.P. Pollution Control Board may be nodal agencies for execution of the above activities in their respective jurisdiction.

c. Irrigation Department in U.P. State is required to come out with status of silting in the reservoir impacting adversely on the water holding capacity of the reservoir and possible threat (if any) on the structure of the Rihand dam as the latter was designed to hold water column and is expected to practically holding a significant column of silt due to discharge of industrial effluents.

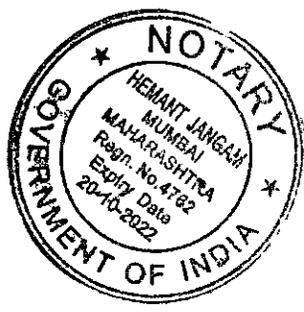
d. Environmental carrying capacity in Singrauli area must be worked out to take a decision on new / expansion projects and also to devise an environment friendly strategy on pollution control by the industries in the area."



27. In O.A. No. 164/2019, with reference to breach of fly ash dyke of ESSAR Thermal Power Plant and NTPC, Vindhya Nagar at Singrauli, M.P., the Committee appointed by this Tribunal headed by Justice Rajes Kumar, former Judge of Allahabad High Court, in its report dated 03.11.2019 observed:-

"(2) By persuasion and monitoring, the Fly Ash disposal by the Thermal Power Plants has been increased but 100% disposal could not be achieved. Disposal of stocked Fly Ash has not yet been started. An exclusive meeting of the Thermal Power Plants has been held on 22nd October 2019. The meeting was very successful. Some positive suggestions have come out to deal with the Fly Ash. Copy of the Minutes has already been sent by email. It is stated that the Fly Ash is the main cause of the air pollution in the Singrauli-Sonbhadra area. Since the installation of the Thermal Power Plant(s) from the year 1981 onwards, no sincere effort was made by the Thermal Power Plants for the disposal of Fly Ash. It is only because of the sincere effort made by the Committee and regular monitoring, the Thermal Power Plants have started taking steps for disposal of Fly Ash.

(3) Construction of the Fly Ash Dyke and its maintenance was not found technically sound and proper. Recently, two Fly Ash Dykes - one of ESSAR Thermal Power Plant and another of NTPC, Vindhyanagar were



breached, causing heavy environmental damages. The Committee has taken serious note about this happening and has given direction to all Thermal Power Plants to get the certificate of the third party expert about the construction and stability of the Fly Ash Dyke. The Committee is seriously monitoring.

(4) Since long, the industrial effluents have been drained in the Rihand Reservoir. The Fly the Fly Ash has also been drained by some of the Thermal Power Plants, Ash travelled to the Rihand Reservoir, polluting the water of the Rihand Reservoir, which is only source of water. The committee has taken a very serious note of this issue and directed the U.P. Pollution Control Board to prepare a DPR for de-silting of sludge in order to purify the water and to increase the capacity of the Rihand Reservoir which has been substantially reduced due to drainage of affluents and fly ash.

(8) Shri Ashwani Kumar Dubey has filed one Application seeking the various reliefs on account of the environmental damages being cause by the breach of Fly-Ash Dyke of ESSAR Thermal Power Plant. The enquiry in pursuance thereof is going on. Shri Ashwani Kumar Dubey has also filed a second Application seeking various reliefs on account of the breach of the Fly Ash Dyke of NTPC Vindhyanagar causing environmental damages. The enquiry in this regard is going on and is pending."

28. While the above report is yet to be considered, the matter was examine on 05.11.2019 with reference to an earlier report as follows:-

Generation and storage of Fly-ash in Thermal Power Plants is becoming a great cause of concern affecting the environment. Due to the regular storage of Fly-ash in Fly-ash Dykes since long, affecting air pollution, has led the Ministry of Environment, Forest and Climate Change, Government of India to declare the Sorbhadra and Singrauli area as a most critically polluted area. No proper roadmap has been presented for its proper disposal by the Thermal Power Plants.

It has been noticed that in recent times there had been breach of Ash Dykes of two Thermal Power Plants in Singrauli district of Madhya Pradesh, which has resulted in discharge of Ash slurry to the river as well as to Rihand Reservoir adversely affecting their water quality. These Ash Dyke pertains to Thermal Power Plants (TPPs) namely Mjs Essar Power Ltd and NTPC, Vindhya Nagar. These incidence are of serious concern and indicates improper and non scientific design of Ash Dykes. The Oversight Committee constituted by Hon'ble NGT has taken this matter very seriously and also discussed in the previous meeting. In this regard a meeting of the Committee is convened on October 22, 2019 at 11:00 AM in Circuit House at



Prayagraj to discuss various issues related to handling of Ash and their disposal. The agenda of the meeting is as below: -

All Thermal Power Plants have to talk about the structural design of their Ash Dykes to prove that their Ash Dykes are proper and scientifically designed.

- 1. To discuss with all the Thermal Power Plants about structural details of their Ash Dykes and their adequacy for handling of Fly Ash generated. Whether submitted the details of ash dykes to SPCBs and taken permissions from SPCBs.
- 2. All Thermal Power Plants have to talk about the structural design of their Ash Dykes to prove that their Ash Dykes are proper and scientifically designed.

Submission of affidavit by TPPs in compliance of decisions taken in the last meeting of Committee regarding adequacy of Fly Ash Dyke. The status will also be shared about the action taken by TPPs for third party assessment of Ash Dyke of their plants through expert institutions like NEERVIITs.

- 3. Thermal Power Plants may submit their roadmap for the future disposal of the stored Fly-Ash as well as the currently generated Fly-Ash.

4. What effort has been made to fill up the Fly-Ash in the abandoned Coal Mines and Stone Mines? Whether any letter has been written to the Mine-owners or to the concerned Authority in this regard, seeking permission in light of the discussion in the earlier meeting(s)?

- 5. To provide opinion about option of developing mounts of Ash Dyke as done by NTPC Thermal Power Plant, Dadri, where green cover has been developed by covering it with the top soil.

- 6. Submission of status by NTPC-Vindhyā Nagar about necessary clearance from Madhya Pradesh Pollution Control Board about Gorbi mines and disposal of Fly Ash.

- 7. Preparation of DPR for project of desilting the Rihand Reservoir and bearing of such expenditure by Thermal Power Plants of the area on polluter pay principle.

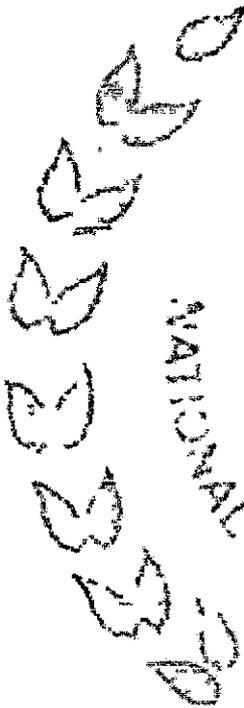
All the Thermal Power Plants situated in the State of U.P. and M.P., Members of the Committee, District Magistrate of concerned districts may be informed to attend the meeting with relevant information as per Agenda."



"8. The deliberations of the Committee have been summed up as under:

"Thermal Power Plants — Ash Utilization:

NTPC-Vindhyanager: Shri V.K. Maurya, Deputy General Manager (Civil_Design) NTPC, New Delhi along with Shri Debashis Sen, Executive Director (Vindhyanager) states that they could not comply the direction given by the Committee in the earlier meeting and could not submit the affidavit till today. They could not file any reply to the points raised in the Agenda of notice. However, Shri V.K. Maurya tried to explain that their Fly Ash Dyke was constructed in accordance to the norms and time to time, when the height of the Dyke was raised, the technical advices were also taken from the experts. However, no evidence in this regard has been produced before us. Despite asking from us that whether they have brought any reply to the points detailed in the agenda, Mr. Jain another officer states that they have everything. The periodical inspection has been made by the various internal department officers but he admitted that no assessment or report by third party agency has been obtained with regard to Fly Ash Dyke. **Prima facie, the Committee is off the view that the officers of the NTPC are still not serious. They have not complied with the direction given by the Committee in the earlier meeting. The affidavit has not been filed. Recently, we came to know that there was a breach of Fly Ash Dyke on 06.10.2019 due to which huge quantity of fly ash slurry travelled alongwith the ground causing damage to crops and the fly ash travelled up to the Rihand Reservoir. If as per the version of Mr. Jain and Mr. Maurya everything was perfectly all right and time to time dykes have been checked why this incident happened. The incident itself shows that there was some deficiency in the construction of Fly Ash Dyke. The whole purpose for asking the affidavit in the earlier meeting was to get their dykes checked properly from the third party experts inasmuch as these dykes were originally constructed much earlier, in the present case in the year 1981. Plant is not able to produce any roadmap for the disposal of the stocked Fly Ash and the currently generated Fly Ash. A continuous process of stocking the Fly Ash is going on, which is causing environmental effect every day. In this view of the matter, the Committee is of the view that the Plant is liable for the compensation/penalty for causing environmental damage every day.**



Later on, at the end, they have provided an affidavit. The averments made in the affidavit are vague and casual. The paragraphs are sworn on the 'personal knowledge' and not on the basis of documents. We



are not satisfied with the averments made in the affidavit. Sri Jain submitted that some time may be allowed to get the Fly Ash Dyke inspected by the third party agencies. He prays and is allowed one month time to get the Fly Ash Dyke inspected by the third party agencies like IIT or any other agencies, who are experts on the subject. He further submitted that he may be allowed a week's time thereafter to give the reply of each and every point of the agenda of the meeting.

NTPC Shaktinagar: Shri Debashish Chattopadhyay, Chief General Manager submitted an affidavit in respect of the Fly Ash Dyke. From perusal of the affidavit it appears that the averments are vague and general in nature. The averments are sworn on the basis of personal knowledge and not on the basis of the documents. The Committee is not satisfied with the affidavit. Let the Plant may file a fresh affidavit after getting the report from the third party technical agency. He further submitted that due to the breach of the Fly Ash Dyke of NTPC Vinidhyanager and on account of the heavy pressure, their recycled water pipeline has been damaged resulting overflow of the water from the Dyke. **He fairly admitted that some quantity of the over-flown water is going to Rihand Reservoir.** He, however, assured that within a week the recycled water pipeline will be repaired and they may also get the technical structural stability report about their Fly Ash Dyke from third party agencies namely IIT etc. He submitted that he will submit the Affidavit within a period of one month giving reply of each and every point raised in the agenda.



NTPC Rihand: Shri Ranjan Kumar, G.M. NTPC Rihand submitted an affidavit. The averments made in the affidavit are vague and casual. The paragraphs are sworn on the personal knowledge and not on the basis of documents. **We are not satisfied with the averments made in the affidavit.** He states that their Plant has already engaged IIT, Kanpur for the inspection and report in respect of the Fly Ash Dykes. The report may likely be obtained within one month. **The Committee is of the view that let one opportunity may be given to the Plant to file a better affidavit along with the documents to demonstrate the action taken by the Plant in this regard and also the report of the third party agency in regard to the structural stability of the Fly Ash Dykes.**

Lanco Anpara & U.P. State Power Corporation Ltd.: An affidavit has been submitted by the Anpara Thermal Project, a Unit of U.P. State Power Corporation Ltd. The affidavit is vague and general in nature. In support of the averments in the affidavit, no document has been annexed. There is no report of the third party technical



agency. They are directed to give a better and detailed affidavit. It is stated that they have only one Fly Ash Dyke in which their fly ash as well as the fly ash of Lanco are being drained. The maintenance of the said Fly Ash Dyke is the responsibility of the Anpara Thermal Project, U.P. State Power Corporation Ltd. In this way, so far as the construction, stability and maintenance of the Fly Ash Dyke is concerned, Lanco is not responsible. The entire responsibility is upon U.P. State Power Corporation Ltd. The officer of U.P. State Power Corporation Ltd. submitted a report of 2018 wherein the structural stability of the Fly Ash Dyke has been examined. In the said report, it is approved that their Fly Ash Dyke is suitable for further raising of height up to 5 meters. The copy of the said report has been submitted before us. The Committee is of the view that after raising the height, the Plant may get a further report in respect of structural stability in order to overrule any possibility of technical flaw. Shri A.K. Rai, Executive Engineer states that in the Fly Ash Dyke the rainy water of the catchment area also flows and in such a situation during the rainy season when the Fly Ash Dyke is full of water due to heavy rainfall etc. **Sometimes the fly ash along with the water also flows to Rihand Reservoir. The Management of the Plant is very serious about this issue and has asked the District Administration to divert the Nala of the catchment area to somewhere to avoid any flow of fly ash in the Rihand Reservoir.** The District Magistrate, Sonbhadra states that the Administration is very serious and taking all possible steps to get the Nala diverted. The work is likely to be completed within two months. Both Lanco and U.P. State Power Corporation Ltd. are directed to furnish their reply by filing a fresh affidavit in regard to each and every point of the agenda of the meeting.

Essar Power: The officers of the Company submitted the affidavit regarding their Fly Ash Dykes. They submitted that 80% of the fly ash which had flown due to the breach of the Fly Ash Dyke have been removed and 20% fly ash lying on the earth shall be removed within a period of one month. They submitted that for the assessment of the environmental damage they have engaged NEERI, Nagpur. The document relating to their engagement has been produced before the Committee. They stated that NEERI has asked for six months time to assess the environmental damage. They further submitted that for the structural stability of the Dyke and making it technically sound they have taken the advices from two professors of the IIT Roorkee, namely, Prof. K.S. Hariprasad and Prof. Narendra K. Samadhia. They have visited the spot. They are likely to give their report within a period of fifteen days. On the basis of their report, they may proceed to reconstruct their Fly Ash Dyke. It has also



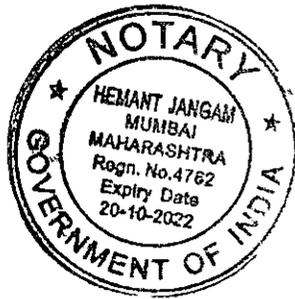
been informed to the Committee that there was a joint inspection done by the officers of the Central Pollution Control Board and the officers of the M.P. Pollution Control Board and on the inspection the report has been submitted wherein they found that the Plant has removed 80% fly ash and they are in the process of removing the remaining 20% of the fly ash. **The Committee directs the Plant to submit the report of the IIT within fifteen days and thereafter also submit the progress report, of the steps being taken to reconstruct the Dyke. On the report being received from NEERI, the environmental compensation shall be assessed. Let the Company may give detailed reply of each and every point of the agenda of the meeting by filing an affidavit within one month.**

Shasan Power Ltd.: The representative of the Plant submitted the affidavit. However, the report of the third party agency certifying the structural stability of the Fly Ash Dykes has not been submitted. They have also not submitted the reply of each and every point raised in the agenda. The representative states that they will get the report about the structural stability of the Fly Ash Dykes and give the reply of each and every point raised in the agenda within one month.

Hindalco Industries — Mahan Aluminum Project: The Company is engaged in the manufacturing of Aluminum from Alumina and has a Power Plant of 900 MW capacity. It is submitted that they have 02 Fly Ash Dykes, one dyke has been completely filled to the capacity and the other is being used now. For the purposes of raising height of the Fly Ash Dykes they have engaged the BHU for technical advice and on the basis of the advice they will proceed further in the matter. **The Committee is of the view that they may also get the report from the third party agency about the initial structural stability of the two Fly Ash Dykes. The Company has submitted an affidavit. The averments in the affidavit are general in nature. They are also directed to file a fresh affidavit giving reply of each and every point raised in the agenda within one month.**

Bajaj Energy: The representative of the Plant stated that they have received copy of the agenda very late. Therefore, they could not collect the necessary documents. They sought time to furnish the details. **Let the Plant may submit an affidavit relating to the structural stability of the Fly Ash Dykes and also give the reply of each and every point raised in the agenda, supported by the certificate from third party agency in this regard. They are directed to give the reply of each**

NATIONAL
 ENVIRONMENTAL
 DEFENCE
 FUND



and every point of the agenda within a period of one month.

M.P. Power Generating Co. Ltd.: There are 04 (four) Units of this Company, namely:-

- (1) ATPS, Chachai, District Anuppur, established in 2007.
- (2) SGTPS, Birsinghpur, District Umariya, established in 2015.
- (3) STPS, Sarni, District Betul — two Plants established in 2013 and 2017.
- (4) SSTPP, Dongalia, District Khandwa, established in 2018.

A consolidated Paper Book has been submitted in respect of all the Units. However, they have not submitted any Affidavit with regard to the Fly Ash Dykes and also the Certificate of the third party agency who are the Technical expert. The officers of the Company pray for one month time to submit the affidavit and the certificate. They have also submitted a roadmap for the disposal of the Fly Ash. A perusal of the roadmap reveals that in comparison to the other Power Plants, their Unit-wise disposal are quite satisfactory.

RECEIVED
NATIONAL

However, they admit that even after more than 90% disposal, the stock of Fly Ash still remains and they are making efforts to dispose it by negotiating with the Cement Plants and approaching the Government for permission to fill the Fly Ash in the abandoned Mines. It is submitted that they are hopeful to achieve the target shortly. Let the Company may file the affidavit and the certificate in respect of the structural stability of the Fly Ash Dykes within one month.

MB Power (Madhya Pradesh) Ltd. The Company has submitted a presentation in the form of small paper book. However, they have not submitted any Affidavit with regard to the Fly Ash Dykes and also the Certificate of the third party agency who are Technical expert. The officers of the Company pray for one month time to submit the affidavit and the certificate. The representative of the Company states that their disposal of Fly Ash is at present more than 100% and there is very little stock of Fly Ash lying in the Plant. For the further disposal of Fly Ash, they have approached the Southern Coalfields Ltd., Bilaspur to provide abandoned Mines for the purposes of filling of the Fly Ash. He stated that they are continuously approaching the Southern Coalfields Ltd., Bilaspur but they are not giving any reply. A copy of the letter has also been given to the Ministry of Coal, Govt. of India and also



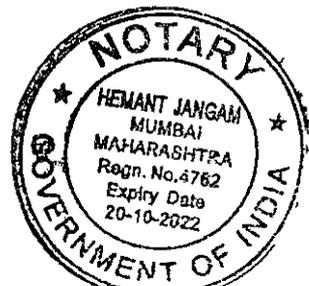
to the Madhya Pradesh Pollution Control Board. Sri Hemant Sharma, Director, MPPCL states that he will look into the matter and do the needful. The Committee further directs the Southern Coalfields Ltd., Bilaspur to look into the request of the Plant and if it is feasible and there is no impediment, they may allow the filling of their Fly Ash in the abandoned Mines. Let the Company may file the affidavit and the certificate in respect of the structural stability of the Fly Ash Dykes within one month.

Obra Thermal Power Plant, Obra: The representative of the Plant submitted an affidavit in pursuance of the direction given by the Committee in the earlier meeting. We have perused the affidavit. The manner in which the affidavit has been submitted is not acceptable. It is, in fact, not an affidavit and nothing has been stated properly, supported by any document, as required by the Committee. Let the Company may file a fresh affidavit stating that their Fly Ash Dykes are structurally stable and there is no possibility of any breach, and also annexing the certificate in respect of the structural stability of the Fly Ash Dykes from a third party technical agency. The representative submitted that the Plant is raising the height of the Fly Ash Dykes after taking the advice from the IIT Roorkee. Committee directs that after the completion of the work, they will further get their Dykes inspected by the third party technical agency, namely, NEERI to get the certificate that the Dyke is fully structurally stable and there is no possibility of any breach. He submitted that although at present the Fly Ash Dykes is not operational but the Plant has negotiated with the NHAI and also got allotment of abandoned mines from the concerned Authorities. After getting the N.O.C. from the Department, they will fill the Fly Ash in the abandoned mines. In this way, they will be able to dispose off sufficient quantity of the Fly Ash. Let the Company may file a fresh affidavit, supported by documents, stating their Fly Ash Dykes are structurally stable and technically sound and also submit reply of the issues raised in the agenda within one month.

RECEIVED
NATIONAL

Prayagraj Thermal Power Plant: The representative states that although they have two Fly Ash Dykes but since their disposal of Fly Ash is at present 100%, there is no occasion to store the Fly Ash. The Plant is not facing any problem with regard to the Fly Ash Dyke. The Plant is, however, not operating in full capacity due to lack of coal in adequate quantity. Since their disposal of Fly Ash is to the nearby Industries, there may not be much problem of storage of fly ash in the Dykes.

Jaypee Bina Thermal Power Plant: The representative of the Company filed an affidavit. We have perused the affidavit. Let the Company may file a fresh affidavit

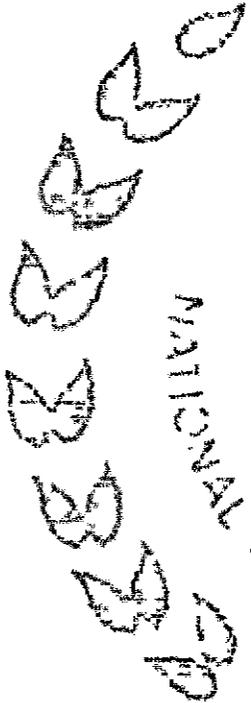


within one month enclosing the certificate from the third party technical agency that their Fly Ash Dykes are structurally stable and there is no possibility of any breach. They may also submit the reply to each and every point of the agenda in the said affidavit.

Jaupee Nigrie Thermal Power Plant: The representative of the Company states that there is 100% disposal of the Fly Ash. There is no stock of Fly ash in the Dykes. Only bottom ash is filled in the Fly Ash Dykes. At present, there may be about 3.9 Lac MT bottom ash in the dykes. He stated that they have sought permission from the concerned Authority to fill up the old lying Ash for filling up in 04 abandoned Stone mines, which are also leased out to them for the quarry of stone. The total capacity of the mines is about 15 lac MT. On the permission being granted, they will be able to consume the entire stock of the bottom fly ash, stored in the Fly Ash Dykes. Let the Company may file a fresh affidavit within one month enclosing the certificate from the third party technical agency that their Fly Ash Dykes are structurally stable and there is no possibility of any breach. They may also submit the reply to each and every point of the agenda in the said affidavit.

NTPC Meja : The representative of the Plant stated that their Plant has been commissioned in the year 2019. After commissioning of the Plant, the production of the Plant has not been properly carried on initially for the shortage of the coal and at present due to technical fault. The production may likely to start very soon. Therefore, they are not facing any problem relating to the Fly Ash.

NTPC Dadri: The representative of the Plant states that there is no Fly Ash Dyke in their Plant. In the Plant premises, they have developed a huge Fly Ash Mount wherein they are directly sending dried fly ash from the Plant to the Fly Ash Mount through the pipeline. The permissible height of the Fly Ash Mount is 55 Meters. The Fly Ash Mount is full of trees which works as a binding of fly ash and avoids any damage during the rainy season. The creation of the Fly Ash Mount is a continuous process. There is no effect of Fly Ash effluents and affecting any air pollution and environment. On the contrary, due to heavy growth of plantation, which is about 2,00,000, over the Fly Ash Mount, the entire area is full of greenery and creates a better environment."



"9. In view of above, the Committee observed that the fly ash could be managed by developing a fly ash mount. The Committee has made following recommendations:



(1) All the Thermal Power Plants are directed to get their Fly Ash Dykes inspected by the third party agencies who are Technical expert to certify that their Fly Ash Dykes are technically sound and structurally sustainable and file an affidavit in this regard along with the certificate of the third party agencies.

(2) All the Thermal Power Plants may make a serious effort for 100% disposal of the currently generated Fly Ash and also for the disposal of the stocked Fly Ash.

(3) All the Thermal Power Plants may approach the District Administration with the request to allot abandoned mines (stone and coal) to them for the permission to fill the Fly Ash.

(4) Generation of Fly ash is a continuous process in all the Thermal Power Plants which is causing pollution of every day - Why the environment compensation on per day basis or month-to-month basis may not be imposed and recovered for the continuous pollution of air and water?

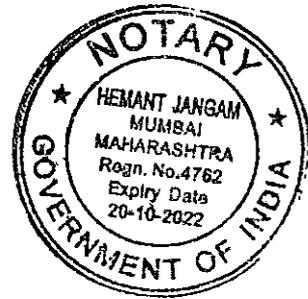
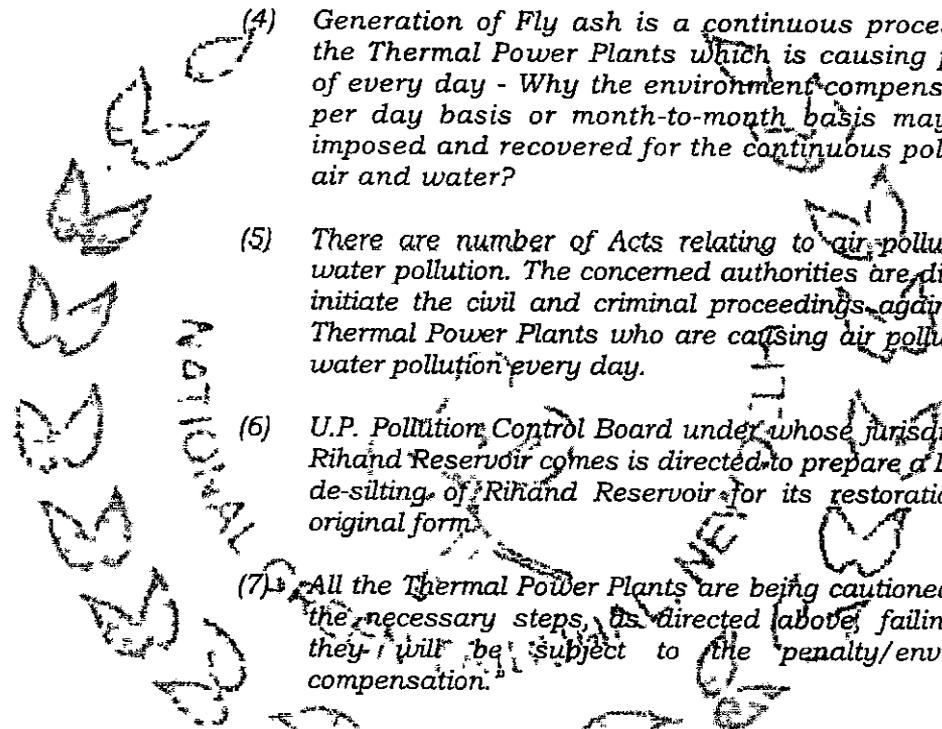
(5) There are number of Acts relating to air pollution and water pollution. The concerned authorities are directed to initiate the civil and criminal proceedings against these Thermal Power Plants who are causing air pollution and water pollution every day.

(6) U.P. Pollution Control Board under whose jurisdiction the Rihand Reservoir comes is directed to prepare a D.P.R. for de-silting of Rihand Reservoir for its restoration to its original form.

(7) All the Thermal Power Plants are being cautioned to take the necessary steps, as directed above, failing which they will be subject to the penalty/environment compensation.

10. We are of the view that the recommendations on the subject of development of fly ash mounts and filling up of abandoned mines are issues which need to be examined by experts with regard to the safeguards necessary in the process, after studying the impact of environment. It is only after such a study that the development of mounts and filling up of abandoned mines can be undertaken. If there are pre-existing guidelines of MoEF&CC/CPCB on the subject, the same may be followed.

11. As regards desilting of Rihand reservoir, the same needs to be undertaken on scientific basis and cost recovered in the manner apportioned by CPCB. Apart from desilting, structural improvement of the dykes needs to be simultaneously taken up. CPCB may ensure



22

that an action plan is prepared by the power plants whose dykes have breached. The issue of developing fly ash mounts and filling up of abandoned mines may also be got examined by the CPCB from its Expert Committee.

12. The CPCB has given report dated 26.09.2019 in response to order dated 19.07.2019. The CPCB has recommended payment of compensation of Rs. 155,42,85,300/- (One hundred fifty five crore forty lac eighty five thousand three hundred). Since it is pointed out that vide order dated 04.11.2019 the Hon'ble Supreme Court has directed deferment of the proceedings, we defer the proceedings till the matter is decided by the Hon'ble Supreme Court."

In view of above, while the matter has to be taken seriously and directions are necessary to be issued, the present order will be subject to any proceedings pending before the Hon'ble Supreme Court and where there is stay in operation, this order will not operate till such stay continues and thereafter abide by orders of Hon'ble Supreme Court.

29. This Tribunal has to enforce the mandate Section 20 of the NGT Act and require compliance of principle of Sustainable Development, Precautionary and Polluter Pays principles.

30. We have considered the written submissions filed by the individual TPPs. In view of earlier orders dealing with the contentions of the TPPs, there is no merit in the stand that the said plants are not liable for 100% fly ash disposal. Difficulties pointed out are of no relevance as the same are to be resolved by the administration and not by the victims of pollution whose rights are being affected. Environment cannot be violated against statutory norms. Violation of statutory notifications needs to be visited sternly in terms of enforcing the same, recovering compensation and prosecuting the violators.



Whatever be the individual circumstances, it cannot be a ground to disobey law and to commit criminal offence under the Water Act, Air Act and EP Act. There is no discretion available with this Tribunal to dispense with the mandate of law. Statutory provisions are binding on every TPP without any exception. It is, thus, not necessary to go into the justification or otherwise of such impermissible defence of the TPPs.

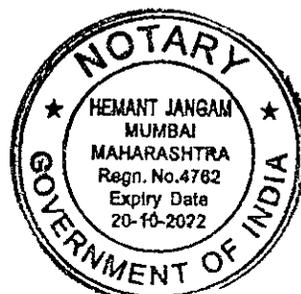
31. In view of above, all TPPs must take prompt measures for disposal of both current and accumulated fly ash. In respect of non-compliant TPPs, Polluter Pays principle has to be applied from the cut-off date of 31.12.2017, apart from other statutory consequences for continued violations.

32. Thus, our directions are as follows:-

a. The TPPs may take prompt steps for scientific disposal of fly ash in accordance with the statutory notification issued by the MoEF&CC under the provisions of EP Act requiring 100% utilization and disposal of fly ash.

b. For the non-compliant TPPs, environmental compensation needs to be determined w.e.f. the cut-off date of 31.12.2017 as stipulated in the Notification dated 27.01.2016.

c. CPCB may accordingly compute and levy Environmental Compensation in accordance with the formula referred to above w.r.t. individual TPPs in accordance with law and



submit compliance report to this Tribunal before the next date.

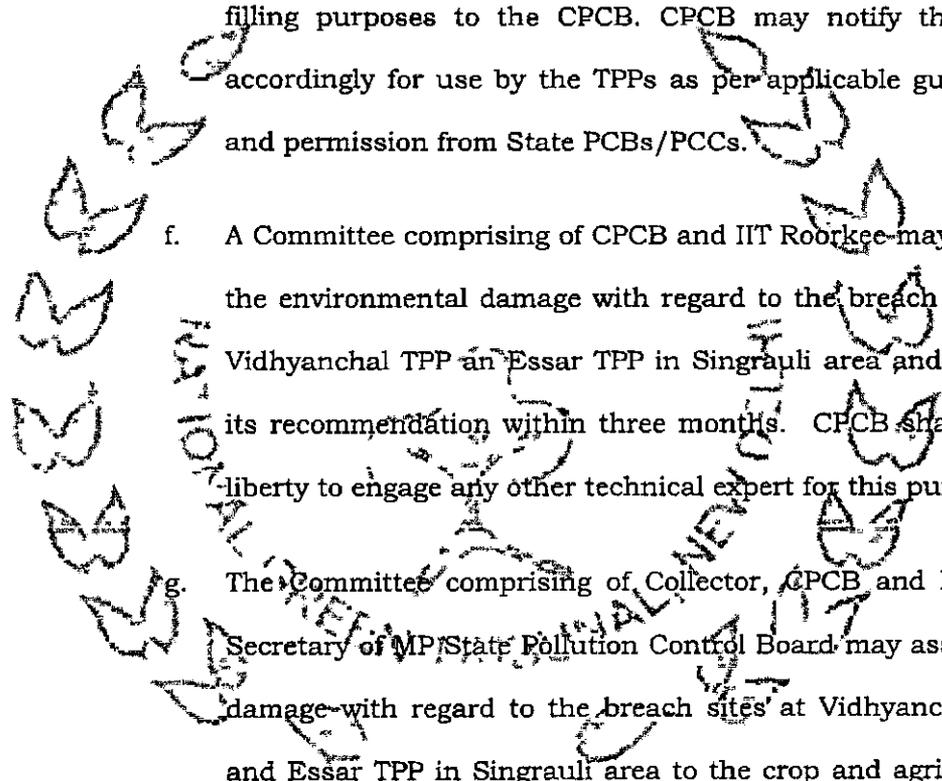
d. CPCB Guidelines of May 2019 for Utilization/Disposal of Fly ash for Reclamation of Low Lying Areas and in Stowing/Back filling of Abandoned Mines/Quarries may be complied.

e. Task Force of Ministry of Power and Ministry of Coal may recommend list of abandoned mines/quarries for mine back filling purposes to the CPCB. CPCB may notify the same accordingly for use by the TPPs as per applicable guidelines and permission from State PCBs/PCCs.

f. A Committee comprising of CPCB and IIT Roorkee may assess the environmental damage with regard to the breach sites at Vidhyanchal TPP and Essar TPP in Singrauli area and submit its recommendation within three months. CPCB shall be at liberty to engage any other technical expert for this purpose.

g. The Committee comprising of Collector, CPCB and Member Secretary of MP State Pollution Control Board may assess the damage with regard to the breach sites at Vidhyanchal TPP and Essar TPP in Singrauli area to the crop and agricultural productivity and ensure effective restoration/remediation of affected sites within three months.

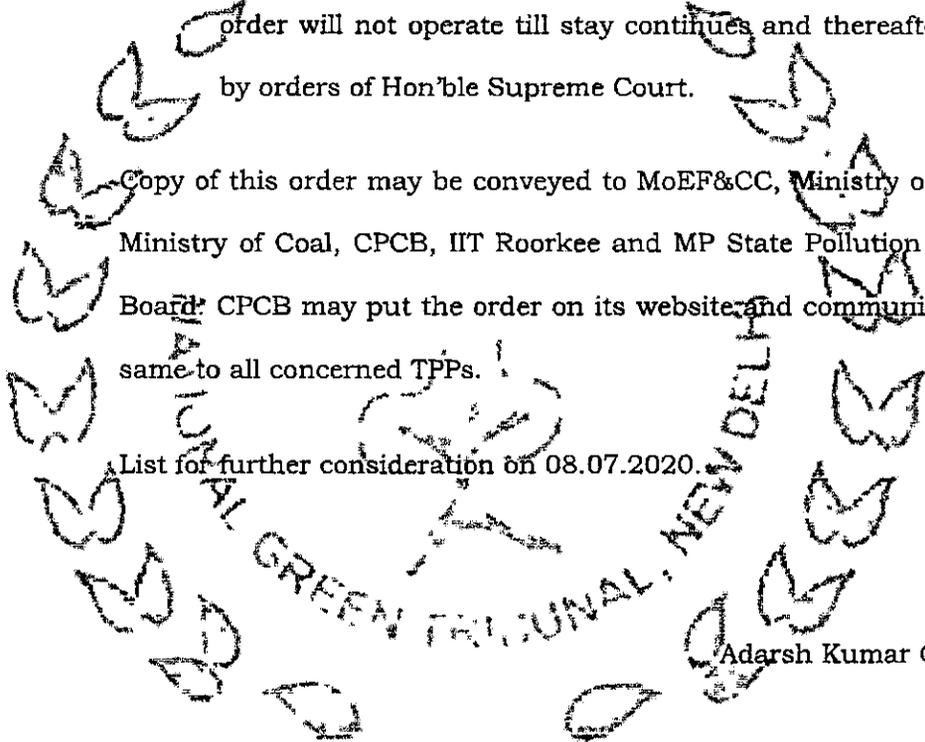
h. CPCB may ensure implementation of action plans approved by it in accordance with timeline as provided in the statute.



- i. A joint Committee comprising of MoEF&CC, CPCB, IIT Roorkee and any other member considered necessary may submit quarterly progress report on recommendations of Expert Committee of Niti Aayog for enhanced utilization of fly ash in various sectors: mines, roads, cement, industries and bricks etc., along with its implementation status.
- j. The present order is subject to proceedings pending before the Hon'ble Supreme Court and where stay is operative, this order will not operate till stay continues and thereafter abide by orders of Hon'ble Supreme Court.

Copy of this order may be conveyed to MoEF&CC, Ministry of Power, Ministry of Coal, CPCB, IIT Roorkee and MP State Pollution Control Board. CPCB may put the order on its website and communicate the same to all concerned TPPs.

List for further consideration on 08.07.2020.



Adarsh Kumar Goel, CP

S.P Wangdi, JM

Dr. Nagin Nanda, EM

February 12, 2020
O.A. No. 117/2014 & other connected matters
A

TRUE COPY

Adarsh Kumar Goel



Report on implementation of action plan to achieve 100% fly ash utilisation by the Thermal Power Plants (TPPs)

Background

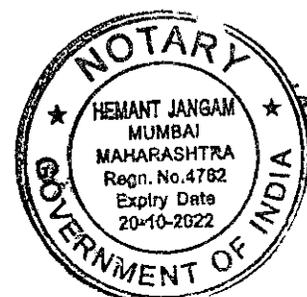
Hon'ble National Green Tribunal (NGT) vide its orders dated 20.11.2018 and 12.03.2019 in the matter of Sandplast (India) Ltd. & Anr. Vs. MoEF&CC & Ors. in O. A. No. 102 of 2014 directed MoEF&CC to constitute a joint committee comprising the MoEF&CC, CPCB, IIT Roorkee and any other members considered necessary for implementation of action plan to achieve 100% fly ash utilisation by the Thermal Power Plants (TPPs) and its final report is to be submitted by MoEF&CC.

In pursuance of Hon'ble NGT order, MoEF&CC has constituted a joint committee under the chairmanship of Joint Secretary (HSMD) comprising the following members to review the fly ash utilisation and finalise action plan to achieve 100% utilization of fly ash generated from each TPP in an environmentally sound manner:

- (i) Member Secretary, Central Pollution Control Board;
- (ii) Representatives of IIT Roorkee;
- (iii) Representatives of Ministry of Power;
- (iv) Representatives of Ministry of Coal;
- (v) Representatives of Ministry of Housing and Urban Affairs;
- (vi) Representatives of NHAI;
- (vii) Representatives of Odisha State Pollution Control Board.

Four meetings of Joint Committee were convened on 18th April, 17th – 18th July, 30th September, 2019 and 11th December, 2019 respectively. Details of deliberations of the meetings and recommendations of the joint committee are as follows:

1. The Ministry of Environment, Forest and Climate Change (MoEF&CC) issued the first Fly Ash notification on 14th September, 1999, which has subsequently been amended in 2003, 2009 and 2016. The Fly Ash notification (1999) mandates the use of fly ash for the purpose of manufacturing ash-based products such as cement, concrete blocks, bricks, panels or any other material or for construction of roads, embankments, dams or for any other construction activity within a radius of 300 km from thermal power stations (TPPs). Besides, it is also mandatory to use fly ash in the external overburden, mines backfilling or stowing of mines within a distance of 50 km. It is also mandatory for all construction agencies/Government Departments undertaking road projects, fly over/ bridges as well as local authorities to make provisions for use of fly ash in their tender documents and schedule of material and rates. The notification also prescribes the targets for Fly Ash utilization in a phased manner for all Coal/Lignite based TPPs in the country so as to achieve 100% utilization of fly ash. The amended notification (2016) provides that the cost of transportation of ash up to 100 km distance shall be borne by the TPPs and for distance between 100 km to 300 km, cost will be shared equally between the user and TPPs. The notification further prescribes to constitute a Monitoring Committee at the Central level and State level to monitor the implementation of provisions of fly ash notification.



2. Various efforts made for enhanced utilisation of fly ash in the following sectors:

i. Ash based building construction material such bricks/blocks/tiles.

Use of fly ash in manufacture of fly ash bricks is technically well established and being utilized in large scale in some part of country. However, the extent of fly ash utilization under this sector is about 9% only and it needs enhancement.

In order to enhance fly ash utilization, MoEF&CC has issued the following necessary directives through its gazette notification dated 25-01-2016:

- a. Mandatory use of fly ash based products for construction activity by every construction agency within a radius of 300 km from coal/lignite based power plants.
- b. Power plant to bear transportation cost of fly ash up to radius of 100 km and beyond radius of 100 km to 300 km, it shall be borne equally by the fly ash users and power plants.
- c. Coal based power plant to bear entire cost of transportation of fly ash up to radius of 300 km in asset creation program of Government involving construction of building, roads, Dams.

Further, to maximize fly ash utilization in this sector, MoEF&CC has also issued draft amendment vide gazette notification dated 26-02-2019 inviting public comments, wherein the following provisions have been proposed:

- i) No new red clay brick kiln shall be installed within radius of 300 km of power plant.
- ii) Existing red clay brick kiln within radius of 300 km of power plant shall be converted to fly ash bricks/ blocks / tile manufacturing units.
- iii) To encourage conversion, thermal power plant should provide fly ash at nominal rate of Rs. 1 per ton and bear full transportation cost up to 300 km to such units.
 - a. At least 20% fly ash shall be made available to units manufacturing fly ash bricks, blocks and tiles on priority basis over other users at rate Rs. 1 per ton, even, thermal power plants achieve 100% ash utilization.

ii. Road / flyover embankment construction.

This is one of the area that utilizes deposited ash of ash pond. Presently, about 3% of total ash produced is being utilized in this sector. This area envisages large quantity utilization of deposited ash but it is one time use till the road project construction is over.

To maximize ash utilization in this area, MoEF&CC has given necessary directives to thermal power plants and construction agency/ organization undertake construction of road/ fly over embankment through its gazette notification dated 25-01-2016, which are as given below:

- a. Mandatory use of ash in road embankment/ fly over embankment construction within 300 km radius of coal/ lignite based thermal power plant.
- b. Power plant to bear transportation cost of ash up to radius of 100 km and beyond radius of 100 km to 300 km shall bear equally between fly ash users and power plant.
- c. Coal based power plant to bear entire cost of transportation of ash up to radius of 300 km in asset creation program of Government involving road construction projects under PMGSY, construction of building, roads, dams and embankments.

It is expected that use of ash in this sector will increase further.

iii. Development of low-lying areas.



Development of low lying area with ash is one of the area where ash is being used mostly by thermal power plants in the vicinity. Presently about 11% of total ash produced is being utilized in this segment. This is also the area wherein mostly pond ash is used so that no fugitive dust emission during the ash filling activities.

For maximizing ash utilisation in this segment, MoEF&CC through its gazette notification dated 03-11-2009 given directives that " No agency, person or organization shall within a radius of three hundred kilometers of a coal or lignite based thermal power plant undertake or approve or allow reclamation and compaction of low-lying areas with soil; only fly ash 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". In the revised directive, the distance has been increased from 100 km to 300 km and therefore, ash utilization will increase in this segment.

iv. Reclamation of abandoned mine voids

Ash is being used in reclamation of abandoned coal mine voids by many pithead thermal power stations. This is one of areas where large quantity of ash produced by pithead and remotely located power plants can be utilized on sustainable basis. Huge size of pits developed due to coal mining can be converted in to developed land for afforestation and other useful purposes. However, present utilization is limited to about 6% only.

The provisions in the MoEF&CC gazette notification dated 03-11-2009 stipulate that atleast 25% ash can be mixed with Overburden material for filling in the coal mines and other mines of mineral and metals. Mixing of fly ash along with over burden material and filling in operating coal mine is not being accepted by Coal India Limited (CIL) and Ministry of Coal (MoC) due to mine safety issue. However, CIL and MoC are allowing ash back filling in abandoned mine voids.

In order to identify the abandoned coal mine voids so that same will be given to thermal power plant for backfilling with ash, a task force having members from various stake holders has been constituted by Ministry of Power to identify the abandoned coal mine voids and other mines mineral and metals. The identified mine voids will be allocated to thermal power plants for taking up ash backfilling. CPCB has also formulated the guidelines/ Standard Operating Procedure (SOP) so that ash filling will be carried out in environment friendly manner by thermal power plants. This will help to achieve 100% ash utilization by pithead power plants.

v. Ash utilisation as soil conditioner in Agriculture

Fly ash is used as soil conditioner in agriculture. Present use in this segment is limited to 1% only. Amendment fly ash notification dated 25-01-2016 prescribes that the Ministry of Agriculture may consider the promotion of ash utilisation in agriculture as soil conditioner. This will help to enhance fly ash utilization.

3. **Finalisation of action plan as well as time frame to achieve 100% fly ash utilisation by Thermal Power Plants.** The Committee has recommended a period of 1 year to achieve 100 % utilization for non-compliant coal based thermal power plants having fly ash utilization more than 85% and a period of maximum 2 years may be given to achieve 100% fly ash utilization for non-compliant TPPs having fly ash utilization below 85%. Details of TPP wise action plan are as under:

Table: Status of Action Plan submitted by non-compliant Thermal Power Plants to achieve 100% fly ash utilisation



S.N	Name of TPS	Installed capacity	% Fly ash utilisation		Time frame to achieve 100% fly ash utilisation		Remarks
			2017-18	2018-19	2019-20	2020-21	
1	Dr. N.T.R (Vijawada), APGENCO (Andhra Pradesh)	1760.00	90.7	103	104		Action plan annexed
2	KOTHAGUDEM-VI, TSPGCL (Telangana)	500.00	91.8	4	56.04	100	Action plan annexed
3	MUNDRA TPS, APL (Gujarat)	4620.00	99.4	100	--	--	Already achieved 100% fly ash utilisation
4	BARKHERA, BEPL (UP)	90.00	99.8	100	--	--	Already achieved 100% fly ash utilisation
5	KHAMBER KHERA, BEPL (UP)	90.00	99.9	100	--	--	Already achieved 100% fly ash utilisation
6	KUNDARKI, BEPL (UP)	90.00	99.9	100	--	--	Already achieved 100% fly ash utilisation
7	MAQSOODAPUR, BEPL (UP)	90.00	99.9	100	--	--	Already achieved 100% fly ash utilisation
8	UTRAULA, BEPL (UP)	90.00	99.9	100	--	--	Already achieved 100% fly ash utilisation
9	MUTIARA, COASTAL ENERGEN PVT. LTD (Tamil Nadu)	1200.00	99.4	100	100		Action plan annexed
10	D.P.P.S., DPL (West Bengal)	660.00	93.9	95.52			Not submitted
11	DHARIWAL INFRASTRUCTURE Ltd., Dhariwal Infrastructure Ltd. (Maharashtra)	600.00	91.0	90.33	100	100	Action plan annexed
12	GMR Chhattisgarh, GMR Chhattisgarh Energy LTD. (Chhattisgarh)	1370.00	90.1	78.48	100		Action Plan Annexed
13	VIJAYANAGAR, JSW Energy Limited (Karnataka)	860.00	95.6	100	100		Action Plan Annexed



14	DERANG TPP, JINDAL INDIA THERMAL POWER LIMITED (Odisha)	1200.00	91.1	97	100		Action Plan Annexed
15	DANGAMAHUA CAPITIVE POWER PLANT, JINDAL STEEL AND POWER LIMITED (CHHATTISHGARH)	576.00	99.8	100	100		Action Plan Annexed
16	MCCP BANDHAKHAR, Maruti Clean Coal and Power Limited (Chhattisgarh)	300.00	93.6	100	100		Action Plan Annexed
17	NEYVELI-I EXPN, NLC LTD (Tamilnadu)	420.00	99.9	100	100		Action Plan Annexed
18	UNCHHPINDA R.K.M. POWERGEN PVT. LTD (PGCIL) Chhattisgarh)	1080.00	99.7	90	100		Action Plan Annexed
19	AMRAVATI TPS, RATTANINDIA POWER LTD. (Maharashtra)	1350.00	97.1	115	100		Action Plan Annexed
20	CUDDALORE, TAQA NEYVELLY POWER CO. PVT. LTD. (Tamil Nadu)	250.00	99.9	91			Action plan no submitted
21	HARDUAGANJ U.P.R.V.U.N.L. (U.P.)	610.00	90.3	96	100		Action plan annexed
22	BAKRESWAR, W.B.P.D.C.L (W.B.)	1050.00	99.3	116	150		Action plan annexed
23	SAI WARDHA POWER LTD., WARORA, WPCL (Maharashtra)	540.00	99.6	91	--	--	Not operational during 2019-20
24	RAYALSEEMA, APGENCO (Andhra Pradesh)	1650.00	74.1	84	90	100	Action Plan submitted
25	SRI DAMODARAM SANJEEVAIAH, APPDCL (Andhra Pradesh)	1600.00	75.6	65	85	100	Action Plan submitted
26	TIRORA, ADANI POWE LTD. (Maharashtra)	3300.00	80.9	84	100	100	Action plan annexed
27	MUNDRA UMPP, CGPL (Gujarat) Tata	4000.00	80.2	100			100 % utilization achieved
28	BOKARO 'B', D.V.C. (Jharkhand)	710.00	84.4	36	100		Action plan annexed
29	DURGAPUR STEEL, D.V.C. (West Bengal)	1000.00	73.7	76	77	100	Action plan annexed
30	KODERMA, D.V.C. (Jharkhand)	1000.00	71.9	98.3	100		Action plan annexed



31	UKAI, G.S.E.C.L. (Gujarat)	1110.00	75.8	82	85	100	Action plan annexed
32	WANAKBORI , G.S.E.C.L. (Gujarat)	1471.00	70.5	88.33	100		Action plan annexed
33	HISAR, H.P.G.C.L. (Haryana)	1200.00	84.8	60	100		Action plan annexed
34	MAHATMA GANDHI, JHPL (Haryana)	1320.00	76.4	89.06	100		Action plan annexed
35	O.P. Jindal Super TPP (Stage-I), JPL (Chhattisgarh)	1000.00	75.6	102	100		Action plan annexed
36	O.P. Jindal Super TPP (Stage-II), JPL Chhattisgarh)	2400.00	77.1	102	100		Action plan annexed
37	KMPCL (AKALTARA), KSK Mahanadi Power Company Limited (Chhattisgarh)	1800.00	88.4	70	95.91	100	Action plan annexed
38	LALITPUR, LALITPUR POWER GENERATION COMPANY LIMITED (UP)	1980.00	85.8	104	108		Action plan annexed
39	SANJAY GANDHI, M.P.P.G.C.L. (M.P.)	1340.00	73.3	71	100		Action plan annexed
40	BHUSAWAL, M.S.P.G.C.L. (Maharashtra)	1210.00	85.5	95	95		Action Plan not submitted
41	LEHRA MOHABAT, P.S.P.C.L. (Punjab)	920.00	71.4	71	92.5	100	Action plan annexed
42	PRAYAGRAJ TPS, PRAYAGRAJ POWER GENERATION COMPANY LTD. (U.P)	1980.00	81.0	93	100		Action plan annexed
43	ROSA PHASE-I, RPSCL (U.P.)	1200.00	75.5	97.05	77		Action Plan not submitted
44	RATIZA TPS, SPECTRUM COAL & POWER LTD (Chhattisgarh)	100.00	86.7	77	100		Action plan annexed
45	JOJOBERA, T.P. CO. (Jharkhand)	547.50	87.8	92.77	100		Action plan annexed
46	METTUR-II, T.N.G & D Corporation (Tamil Nadu)	600.00	74.0	80	100		Action plan annexed
47	KAKATIA (Stage-I), T.S.G.E.N.C.O (Telangana)	500.00	78.3	101	100		Action plan annexed
48	RAIGARH TPP, TRN ENERGY Pvt. Ltd. (Chhattisgarh)	600.00	76.2	92	93		Action plan not submitted
49	TENUGHAT TPS, TENUGHAT VIDHYUT NIGAM LIMITED	420.00	89.0				Action plan not submitted



	(Jharkhand)						
50	M/s TALWANDI SABO POWER LTD, TALWANDI SABO POWER LTD (PUNJAB)	1980.00	72.6	109	10		Action plan annexed
51	INDIRA GANDHI, APCPL (Haryana)	1500.00	68.9	103	100		Action plan annexed
52	BALLARI, K.P.C.L. (Karnataka)	1700.00	50	73	99	108	Action plan annexed
53	RAICHUR, K.P.C.L. (Karnataka)	1720.00	57	70	87	100	Action plan annexed
54	AMARKANTAK, M.P.P.G.C.L. (M.P.)	210.00	56.5	66	100		Action plan annexed
55	SHREE SINGAJI, M.P.P.G.C.L. (M.P.)	1200.00	60.3	16	70-80	100	Action plan annexed
56	JHABUA POWER LIMITED (SEIONI TPP), M/S JHABUA POWER LIMITED	600.00	66.1	70	80	100	Action plan annexed
57	VALLUR, NTPC TAMIL NADU ENERGY COPMANY LTD {(NTECL) (Tamil Nadu)}	1500.00	65.0	67	81	100	Action plan annexed
58	FARAKKA, NTPC LTD. (W.B.)	2100.00	52.9	76.97	84	100	Action plan annexed
59	MOUDA TPS, NTPC LTD.	2100.00	699.9	93	100		Action plan annexed
60	SOLAPUR, NTPC LTD. (Maharashtra)	660.00	59.8	100			Already achieved
61	KUDGI, NTPC LTD. (Karnataka)	1600.00	50.0	62.23	77	100	Action plan annexed
62	IB VALLEY, O.P.G.C.L. (Odisha)	420.00	55.4	33	70	100	Action plan annexed
63	TUTICORIN, T.N.G & D Corporation (Tamil Nadu)	1050.00	59.5	100	100	100	Action plan annexed
64	KAKATIA (Stage-II), T.S.G.E.N.C.O. (Telengana)	600.00	62.0	101	100		Action plan annexed
65	PARICHHA, U.P.R.V.U.N.L. (U.P.)	1140.00	57.4	87.53	96	100	Action plan annexed
66	SAGARDIGHI, W.B.P.D.C.L. (W.B.)	1600.00	65.5	93	85	100	Action plan annexed
67	RAMAGUNDAM'B', TSPGCL (Telengana)	62.50	27.8	126	100		Action plan annexed
68	NABINAGAR, Bharatiya Rail Bijlee Company Limited (Bihar)	500.00	28.2	34	92	100	Action plan annexed



69	KOTHAGUDEM V, TSPGCL (Telengana)	500.00	0.0	20	56	100	Action plan annexed
70	MARWA TENDUBHATA, C.S.P.G.C.L (Chhattisgarh)	1000.00	33.9	24	100	100	Action plan annexed
71	DSPM, C.S.P.G.C.L (Chhattisgarh)	500.00	20.4	32	64	100	Action plan annexed
72	KORBA (WEST), C.S.P.G.C.L (Chhattisgarh)	1340.00	16.0	50	73	100	Action plan annexed
73	DURGAPUR, D.V.C. (West Bengal)	210.00	4.4	7.26	23	100	Action plan annexed
74	RAGHUNATHPUR, D.V.C. (West Bengal)	1200.00	2.3	9.76	23		Action plan not submitted
75	Vizag TPS, Hinduja National Power Corporation Limited (Andhra Pradesh)	1040.00	13.0	256	69	100	Action plan annexed
76	MUZAFFARPUR TPS, KANTI BIJLEE UTPADAN NIGAM LIMITED (Bihar)	610.00	34	40	72	100	Action plan annexed
77	AMARKANTAK TPS, LANCO AMARKANTAK POWER LIMITED. (Chhattisgarh)	600.00	43.4	50.5	100		Action plan annexed
78	SATPURA, M.P.P.G.C.L: Sami (M.P.)	1330.00	28.8	16.78	100		Action plan annexed
79	CHANDRAPUR, M.P.P.G.C.L. (Maharashtra)	2920.00	26.3	36	58	100	Action plan annexed
80	KHAPARKHEDA, M.P.P.G.C.L. (Maharashtra)	1340.00	35.5	30.52			Action plan not submitted
81	KORADI, M.P.P.G.C.L. (Maharashtra)	2600.00	13.1	14.05			Action plan not submitted
82	PARAS, M.P.P.G.C.L. (Maharashtra)	500.00	38.3	43	100		Action plan annexed
83	ANUPPUR TPS, M.P.P.G.C.L. (Maharashtra)	1200.00	48.6				Action Plan not submitted
84	SINGRAULI, NTPC LTD. (U.P.)	2000.00	30.2	35	50	100	Action plan annexed
85	RIHAND, NTPC LTD. (U.P.)	3000.00	31.1	31	60.74	100	
86	KORBA, NTPC (Chhattisgarh)	2600.00	43.0	50.19	65	100	Action plan annexed
87	VINDHYACHAL, NTPC LTD. (M.P.)	4760.00	24.6	51	51	100	Action plan annexed
88	SIPAT, NTPC (Chhattisgarh)	2980.00	18.6	40.44	69	100	Action plan annexed



89	KAHALGAON, NTPC LTD. (Bihar)	2340.00	45.8	46.09	85	100	Action plan annexed
90	BARH SUPER TPS, NTPC LTD. (Bihar)	1320.00	39.1	50	77	100	Action plan annexed
91	TALCHAR(KAN), NTPC LTD. (Odisha).	3000.00	47.5	46.96	80	100	Action plan annexed
92	BONGAIGAON, NTPC LTD. (Assam)	250.00	4.5	30	74	100	Action plan annexed
93	YERAMARUS TPS, RAICHUR POWER CORPORATION LIMITED (Karnataka)	1600.00	0	32	70	100	Action plan annexed
94	SEMBCORP ENERGY INDIA Ltd., SEMBCORP ENERGY INDIA Ltd. (Formerly Thermal Powertech Corporation India Ltd) (Andhra Pradesh)	1320.00	30.8	75	80	100	Action plan annexed
95	SASAN UMPP, RELIANCE POWER LIMITED (Madhya Pradesh)	3960.00	29.6	30	70	100	Action plan annexed
96	METTUR-I, T.N.G & d Corporation (Tamil Nadu)	840.00	41.1				Action plan not submitted
97	NORTH CHENAI-I, T.N.G & d Corporation (Tamil Nadu)	630.00	39.7	66	96.6 (one quarter)		Action plan not submitted
98	NORTH CHENAI-II, T.N.G & d Corporation (Tamil Nadu)	1200.00	40.1	63.69	98.77 (one quarter)		Action plan not submitted
99	KOTHAGUDEM (Stage I to IV), T.S.P.G.C.L (Telangana)	720.00	39.5				Action plan not submitted
100	ANPARA 'A' & 'B', U.P.R.V.U.N.L. (U.P.)	2630.00	1.6	3.18	100		Action plan annexed
101	OBRA, U.P.R.V.U.N.L. (U.P.)	1000.00	20.7	12.77	10	100	Action plan annexed
102	Essar Power MP Ltd.	1200	61	86	83	100	Action plan annexed
103	Vedanta Ltd. Jharsuguda	2400	108	120	100		Action plan annexed
104	Vedanta Ltd. Jharsuguda	1215	114	112	100		Action plan annexed
105	Balco, Balco Nagar	1740	60	102	83	93	Not submitted
106	NALCO, Angul, Odisha	1200	75	75	75	100	Action plan annexed
107	Chandrapura Thermal Power Plant, DVC	630	140	97	100		Action plan annexed



108	Durgapur Thermal Power Station, DVC	210	4.5	8.5	74	100	Action Plan annexed
109	Mejia Thermal Power Plant, DVC	2340	106	74	97	100	Action Plan annexed
110	Raghunathpur Thermal Power Plant, DVC	1200	2.52	9.76	23	100	Action Plan annexed
111	Anpara C, Lanco Power Sonebhadra	1200	6.9	22%	54	100	Action Plan annexed
112	Adhunik Power Natural Resources, Jharkhand	540	98	99	100		Action Plan annexed
113	D B Power Ltd	1200	71.6	72	100		Action Plan annexed
114	Korba East	240	47	100	80	100	Action Plan annexed
115	Kota Super Thermal Power Station, Kota	1240	104	99.4	92	100	Action Plan annexed
116	Nabha Power Ltd, Rajpura	1400	111	91	100		Action Plan annexed
117	TPS Parli	1170	64.52	83.73	100		Action Plan annexed
118	SKS Power Generation, Chhattisgarh	1200	32	70	100		Action Plan annexed

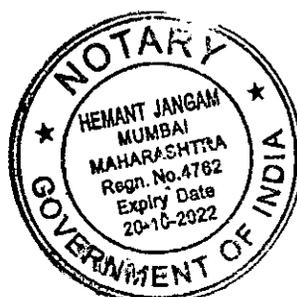
It was decided that action plan received from TPPs would be forwarded to Central Pollution Control Board and Central Electricity Authority. Both agencies should review status quarterly and annual basis. Quarterly status should be forwarded to MoEF&CC. CPCB should take appropriate action against the non-compliant TPPs, which have not submitted the action plan/revised action plan so far. It was also decided that all pollution control measures (air and water) should be adopted by the TPPs and user agencies while handling, transportation and disposal of fly ash. CPCB may issue appropriate directions in this regard.

4. Draft proposal submitted by CPCB for determining environmental compensation (EC)

CPCB has submitted a draft proposal for determining environmental compensation (EC), which is annexed as **Annexure – II**. The committee recommended that environmental compensation should be imposed on non-pit head thermal power plant only as pit head plant has some genuine issues of massive fly ash generation and unavailability of user agencies nearby the Power Plant. The most viable solution for pit head plant is utilisation of ash in abandoned coal mines. But declaration of coal mines as abandoned is the major issue. Coal Ministry may be requested to expedite the allocation of abandoned mines especially for 100% fly ash utilisation. It was recommended that CPCB/SPCB should ensure that collected EC should be mobilised for utilisation of ash in the respective TPPs as far as possible.

5. Exclusion of ash dyke raising of ash pond as fly ash utilisation from action plan for 100 % fly ash utilisation.

Keeping in view of recent incidents of ash dyke breach at Vidhyanchal TPP and Essar TPP in Singrauli area, it was discussed that ash dyke raising of ash pond should be considered as fly ash utilisation during initial 5 years. Thereafter, TPPs can use ash for strengthening of



ash dyke as per engineering requirement but can claim only a maximum of 5-7% of fly ash generation as utilisation. This will prevent ash dumping at ash pond.

With regards to breach sites at Vidhyanchal TPP and Essar TPP in Singrauli area, the Committee decided that CPCB should direct MP Pollution Control Board to ensure effective restoration/remediation of affected sites urgently. Action Taken report should be furnished to this Ministry within a week.

6. Utilisation of unutilized accumulated fly ash (pond ash)

For non-pit head plant, the balance unutilized fly ash accumulated (the difference between the generation and the utilization target) shall be utilized progressively over next three years in addition to 100% utilization of current generation of fly ash w.e.f. April 2021.

With regard to pit head plant, the balance unutilized fly ash accumulated (the difference between the generation and the utilization target) shall be utilized progressively over next four years in addition to 100% utilization of current generation of fly ash w.e.f. April 2021.

7. Review of action taken report on recommendations of Expert Committee for enhanced utilisation of fly ash.

An Expert Committee was constituted by Niti Aayog on 12.06.2018 for developing a focused strategy for best utilisation of fly ash to manufacture end products. The recommendations of the Expert Committee for enhanced utilization of fly ash in the various sectors i.e. mines, roads, cement industry, bricks, etc and its implementation status are as under:

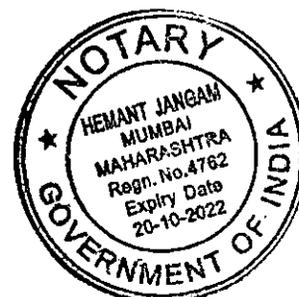
(a) Following are the recommendations of the Expert Committee pertaining to Ministry of Power

- i. The Task Force constituted vide O.M. dated 29th September, 2011 of Ministry of Power comprising representatives of CIMFR, CMPDI, DGMS, etc. for taking up pilot project for utilisation of fly ash in operational mines should be revitalized and additional members representing Ministry of Mines and State Pollution Control Boards should be included in the aforesaid Task Force. The Task Force could meet quarterly to review and update the list of operational mines or abandoned mines/quarries. Backfilling should be started on the existing list of abandoned mines/quarries that have already been examined and recommended by the Task Force.

Action Taken:

MoP vide letter dated 14.03.2019 and 10.04.2019 has constituted the Task Force to review and recommend a list of abandoned mines/quarries in the country for mine backfilling purpose. NTPC Ltd. has been made the Convenor of the Task Force. MoP vide letter dated 19.08.2019 also forwarded the list of Mines as identified by task force, giving preference particularly for pit head plants.

- ii. Tender/auction for sale of fly ash should be done by TPPs initially for end user/industry and not for traders. If fly ash is not taken by the end user/industry, then it could be given to traders. TPPs should also consider entering into longer term contracts with end users.



- iii. TPPs may explore the possibility that once a tender for utilisation of fly ash is allotted to a company, any unit /plant of the same company should be allowed to purchase and utilise the fly ash and TPPs can also directly raise the invoice to such Unit/Plant.
- iv. TPPs should give incentive to entities which can (through R&D) come up with fly ash products with ash content of at least 75% and established sustainable application of those fly ash products in the industry. The incentive could be given from the money available with the TPPs from auctioning of fly ash.
- v. Creation of fly ash parks/hubs on public-private-partnership mode. Such parks will act as facilities for enabling quality control of fly ash made products, generate employment and also act as models which will promote use of innovative fly ash products which can be replicated at other locations.

Action taken:

MoP vide letter dated 26.03.2019 requested CEA to circulate and give wider publicity /circulate these recommendations of the Expert Committee to all thermal power plants/State Gencos for necessary action. Accordingly, CEA vide letter dated 17.07.2019 has circulated the same to all power utilities for taking appropriate action on these recommendations of Expert Committee.

In the Joint Committee Meeting held on 11.12.2019, it was decided that Ministry of Power should follow up with State Government for necessary compliance.

- vi. Ministry of Power should come up with incentives/awards for TPPs that come up with innovations in fly ash disposal keeping all the environment and pollution norms in consideration.

Action taken:

The issue is under consideration in Ministry of Power/CEA.

(b) Following are the recommendations of the Expert Committee pertaining to Ministry of Coal

- i. Ministry of Coal should identify list of abandoned mines for utilisation of fly ash in mines backfilling.

Action taken:

A list of seven abandoned mines has been communicated by Ministry of Coal for utilisation of fly ash in mines backfilling. Details are as under:

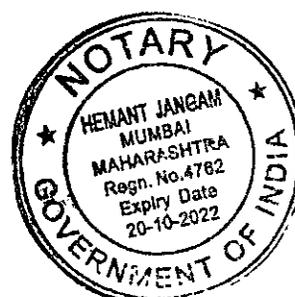
SECL: Bistrampur OC and Dugga OC

MCL: South Balanda Mine

NCL: Gorbi OC

WCL: Naveen Kunada OC; Telwasa OC & Dhorwasa OC

- ii. The Task Force constituted vide O.M. dated 29th September, 2011 of Ministry of Power comprising representatives of CIMFR, CMPDI, DGMS, etc. for taking up pilot project for



utilisation of fly ash in operational mines should be revitalized and additional members representing Ministry of Mines and State Pollution Control Boards should be included in the aforesaid Task Force. The Task Force could meet quarterly to review and update the list of operational mines or abandoned mines/quarries. Backfilling should be started on the existing list of abandoned mines/quarries that have already been examined and recommended by the Task Force.

- iii. Ministry of Coal should expedite the permission of Jingurda mine of NCL, Gevra & Dipika Mines of SECL, Kaniha mine of MCL, and OCP-1 & RG-1 of SCCL for fly ash backfilling/stowing.

Action taken:

Ministry of Coal has informed that all the above mentioned mines at S.N. iii are not declared as abandoned mines and the same are operation mines.

- iv. It is reported that fly ash is being used for mines backfilling in some mines. Mining Companies should share their experiences of mines backfilling to enhance fly ash utilisation in this sector.

Action taken report is awaited on the above recommendation at sl. no. iv.

(c) Following are the recommendations of the Expert Committee pertaining to NTPC

- i. **All Thermal Power Plants (TPPs) should comply with the provision in the fly ash notification of giving subsidies on the cost of transportation to brick manufacturing units so that utilization of fly ash could be further enhanced.**

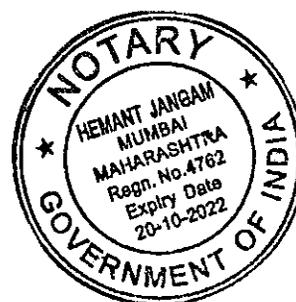
Action taken:

NTPC informed that with regards to bearing/ subsidies on the cost of transportation to brick manufacturing units, subsidy of Rs. 150/- per MT towards transportation cost of fly ash for brick manufacturers in compliance of OSPCB directive is being given at Talcher Th, Talcher Kaniha. Fly ash Park has been set up at Varanasi and Rewa. Fly ash is being made available to users. Such depot are being set up at Bhubaneshwar and Pune. Rate contract for supply of fly ash to fly ash brick manufacturers has been awarded by the Vindhyachal TPP.

- ii. **Tender/auction for sale of fly ash should be done by TPPs initially for end user/industry and not for traders. If fly ash is not taken by the end user/industry, then it could be given to the traders. TPPs should also have to consider entering into longer term contracts with the end users.**

Action taken:

NTPC informed that NTPC's Ash Policy has been modified in line with the recommendations of Expert Committee and is being implemented at stations. Process has been initiated for charging a nominal amount Rs. 1/- per ton to fly ash brick/



blocks/ tile manufacturers from 12 stations where fly ash is being issued on price. It is expected to start from Oct'19 onward progressively. Long term tie up with end users are being tied up. At - Dadri, Unchahar, Farakka, Kahalgaon, Tanda and Khargone have already signed long term MoU. It is in process at Rihand/ Vindhyachal, Barh.

- iii. **TPPs may explore the possibility that once a tender for utilisation of fly ash is allotted to a company, any unit /plant of the same company should be allowed to purchase and utilise the fly ash, and TPPs can also directly raise the invoice to such Unit/Plant.**

Action taken:

NTPC informed that necessary provisions have been made in Ash Utilization policy by NTPC to allow any unit / plant of same company who have been issued contract to for fly ash, at same price along with requisite invoice.

- iv. **NTPC and NHAJ should come out with suitable guidelines for payment of transportation cost.**

Action taken:

NTPC informed that presently, payment is being made to NHAJ based on the State SoR rates. CERC order dated 05-11-2018 stipulates that actual additional expenditure incurred by NTPC towards transportation of ash in terms of MoEF & CC notification is admissible under "Change in Law" as additional O&M expenditure subject to (a) Award of fly ash transportation contract through a transparent competitive bidding procedure; (b) Alternatively, the schedule rates of the respective State Governments. Efforts are being made to supply ash for road projects through transparent bidding process.

- v. **TPPs should give incentive to entities which can (through R&D) come up with fly ash products with ash content of at least 75% and established sustainable application of those fly ash products in the industry. The incentive could be given from the money available with the TPPs from auctioning of fly ash.**

Action taken:

NTPC informed that necessary provision has been made in Ash Utilization policy of NTPC.

- vi. **Fly Ash based Sintered Light Weight Aggregates (SLWA) manufacturing technology, which is approved by BIS may be replicated in other TPPs in a time bound manner.**

Action taken:



NTPC informed that NTPC is setting up LWA plant at Sipat and such activity will be promoted at other stations based on the success of the plant and product. In addition to this, to promote fly ash based nano-concrete aggregate (light weight aggregate), a demonstration building is under construction at Simahdri so as to assess its performance.

- vii. **Alternate mode of transportation such as BTAP (Bogie Tank for Alumina Powder) wagons may be used for bulk transportation of ash through rail for distant users and transportation through Barge.**

Action taken:

NTPC informed that NTPC has placed order to M/s Texmaco Rail & Engineering Ltd, Kolkata for manufacture and supply of three BTAP rakes. NTPC has also signed an agreement with Railway Administration for bulk transportation of fly ash from its remotely located Rihand and Vindhyachal TPS to the cement plants of Satna/ Maihar/ Katni belt. Signing of MoU with Cement Industries through BTAP is in process. Rail loading facilities for bulk transportation already existing at Rihand, Kahalgaon & Ramagundam. It is in progress at Sipat, Simhadri, Mouda, Barh & Vindhyachal and planned at all upcoming stations.

- viii. **Awareness needs to be created among building construction agencies (such as PWD, CPWD, NBCC, etc.) for the use of Bottom Ash as replacement of Fine Aggregate (sand) in Cement Concrete.**

Action taken:

NTPC informed that for use of bottom ash in cement concrete, a R&D project has been carried out in association National Council for Cement & Building Material (NCBM), Ballabgarh. Recommendation of NCBM has been sent to BIS for issuing code.

(d) Following are the recommendations of the Expert Committee pertaining to Ministry of Central Pollution Control Board

- i. CPCB should come out with the guidelines for reclamation of low lying area and abandoned mines.
- ii. SPCBs should direct all TPPs in their respective States to link with the CEA's Mobile Phone App.

Action taken:

CPCB informed that as per status informed by NTPC who is providing technical inputs with respect to linking the plan data to the App, 170 plants are linked with the App, of which 120 plants are regularly updating the data. The Committee recommended that CPCB shall initiate action against coal based thermal power plants, which have not been linked with the App.



- iii. CPCB should come out with guidelines based on Odisha SPCB experience for reclamation of low lying areas and abandoned quarries with ash.

Action taken:

CPCB has issued guidelines for disposal/utilisation of flyash for reclamation of Low Lying Areas and in stowing of Abandoned mines/Quarries.

(e) Following are the recommendations of the Expert Committee pertaining to Ministry of Central Electricity Authority

- i. CEA's app should have additional features like quarterly trends of production & utilization of fly ash.
- ii. Public Awareness Campaign should be undertaken for CEA's app in the media (newspaper, etc.) for public dissemination at the level of generators and users.

Action taken:

Action taken report is awaited on the above recommendations at S.N. i & ii. The Joint Committee has recommended that CEA shall include an 'alert' notification in the feature of 'Ash track' for quarterly and annual non-compliance by the TPPs.

(f) Following are the recommendations of the Expert Committee pertaining to Ministry of National Highway Authority of India

- i. NHA should compulsorily use fly ash in their projects. They should verify their project at regular intervals regarding utilisation of fly ash in their projects.
- ii. NHA should approach to the nearest TPPs with respect to road project for supply of ash for road construction.
- iii. NHA and NTPC should come out with suitable guidelines for payment of transportation cost. State SOR or CPWD SOR could be the norms that could be used for fixing the costs.

Action taken:

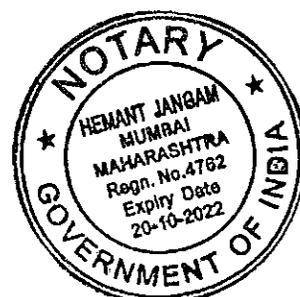
NHA has informed that status of ash requirement and utilisation of NHA is as under:

FY	Ash required	Ash Utilised
2019-20	34.6 lakh ton	12.12 Lakh Ton
2018-19	0.42 Lakh ton	6.70 Lakh ton

(g) Following are the recommendations of the Expert Committee pertaining to Ministry of Environment, Forest and Climate Change:

- i. MoEF&CC should revisit the conditions stipulated in the existing environmental clearance of Thermal Power Plants for fly ash utilisation and modify them in consonance with the fly ash notification.
- ii. Appropriate conditions need to be incorporated in the environmental clearance for utilisation of fly ash in mines backfilling/stowing.

Action taken:



MoEF&CC vide OM dated 28th August, 2019 has issued amendment in the EC's conditions of Thermal Power Plants and Coal Mines in line with the fly ash notification, 1999 as amended from time to time.

- iii. Fly ash manufacturing units should be given minimum 20% fly ash even if the TPP has achieved 100% utilisation.
- iv. District Level Monitoring committee under the Chairmanship of District Magistrate may be formed for effective monitoring for implementation of fly ash notification.
- v. Red clay brick kilns located within 300 km need to be converted into fly ash based brick manufacturing unit. One-year time frame should be given for conversion of such brick units. To encourage the conversion, TPPs should provide fly ash free of cost and bear the full transportation charges upto 300 km to such units. To encourage the conversion, capital subsidy to the brick units for converting to fly ash may be provided by the Ministry of Power / MSME or a long-term, low-interest scheme may be provided by Banks/SIDBI. The money available with TPPs from auctioning of fly ash should be used to give transportation subsidy.

Action taken:

Draft amendment to fly ash notification has been issued on 25.02.2019. Around 35,000 comments/suggestions have been received from the various stake holders on the draft notification. Out of these, around 33,000 comments/suggestions have been received stating objections/ opposing the ban on red clay brick kilns. MoEF&CC is examining the matter.

(h) Following is the recommendations of the Expert Committee pertaining to Ministry of Housing and Urban Affair:

- i. State Governments should offer incentive of additional 5 % FAR for the building construction projects that are not using red clay bricks and only using fly ash based building products

Action taken:

MoHUA has issued advisory vide OM dated 18.14.2019 to all Urban Development Department in States and UTs.

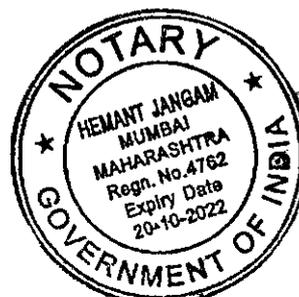
(i) Following is the recommendations of the Expert Committee pertaining to Ministry of HRD:

- i. Ministry of HRD may be requested to include use of fly ash in the curriculum of civil engineering and architecture degree.

Action taken:

All India Council for Technical Education vide letter dated 26.04.2019 has informed that the matter is referred to AICTE all India Board of Under Graduate Study in Engineering and Technology for its consideration.

(j) Following is the recommendations of the Expert Committee pertaining to BIS:



- i. BIS should make relevant standards for use of fly ash in geo-polymer concrete and extend the use of Bottom Ash as replacement of Fine Aggregate (sand) for concrete beyond lean concrete in IS 383:2016, after considering the report of R&D being carried out at NCB, Ballabgarh.
- ii. The BIS should examine the request of the cement industry to increase fly ash use to 45% and take a suitable decision after considering the report of R&D being carried out at NCB, Ballabgarh.

Action taken report is awaited.

(k) Following is the recommendations of the Expert Committee pertaining to IRC:

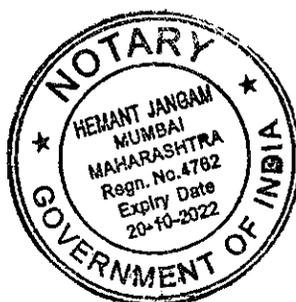
- i. Use of fly ash in geo-polymer products can be commercialised after notification of relevant standards by IRC. Awareness needs to be created among road making agencies such as NHAI, PWD, Border Road Organisation, etc.

Action taken report is awaited.

Encl.:

- 1. Copy of minutes of 1st meeting of Joint Committee held on 18th April, 2019 is annexed as annexure.
- 2. Copy of minutes of 2nd meeting of Joint Committee held from 17th to 18th July, 2019 is annexed as annexure.
- 3. Copy of minutes of 3rd meeting of Joint Committee held on 30th September, 2019 is annexed as annexure.
- 4. Copy of minutes of 4th meeting of Joint Committee held on 11th December, 2019 is annexed as annexure.

.....XXXX.....



TRUE COPY

Dhruv Raut

**BEFORE THE HON'BLE
NATIONAL GREEN
TRIBUNAL
PRINCIPAL BENCH, NEW
DELHI**

(Application under Section
18(1) read with Section 14
and 15 of the National Green
Tribunal Act, 2010)

**ORIGINAL APPLICATION
NO. 481 OF 2018
(EARLIER O.A. NO.
27/2013(WZ))**

**IN THE MATTER OF:
CONSERVATION ACTION
TRUST & ORS**

.....APPLICANTS

VERSUS

UNION OF INDIA & ORS
..... RESPONDENTS

**ADDITIONAL AFFIDAVIT
OF THE APPLICANTS IN
REPLY TO THE
COMMITTEE VISIT REPORT**

