

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,**  
**Principal Bench, New Delhi**  
**In**  
**Original Application No. 104/2018**

**In the Matter of: -**

**Shivpal Bhagat & ors.**

**Applicant(s)**

**Vs.**

**Union of india**

**Respondent(s)**

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**Nazimuddin**  
Scientist 'E'

Central Pollution Control Board,  
Parivesh Bhawan, East Arjun Nagar,  
Delhi-110032

Place: Delhi

Date: 16<sup>th</sup> April, 2021

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

In the OA No. 104/2018

Shivpal Bhagat & Ors Versus Union of India & Ors

**Status Report by Oversight Committee appointed by Hon'ble NGT vide order dated  
27.02.2020**

Date- 07.04.2021

Hon'ble NGT vide its order dated 27.02.2020 in OA No 104/2018 has accepted the recommendations of the report submitted by its committee on 15.10.2019 in the same matter and directed this committee to serve as an Oversight Committee for the implementation of the recommendations as per Hon'ble NGT orders. The 2<sup>nd</sup> status report was submitted by the oversight committee on 17.11.2020 which was heard by Hon'ble NGT on 20.11.2020 and accordingly order was issued to induct collector Raigarh as member of the committee and also to consider the suggestions given the applicant by way of written submission filed on 18.11.2020, inter-alia to the effect that contaminated sites be seen, fly ash dumping in low lying areas be ensured and such dumping should not be in unscientific manner. The legacy fly ash dumps be remediated. Air and land pollution due to fire in coal mines be remedied. Coal transportation by trucks must be done on scientific basis and transportation by conveyor belts be preferred. Road maintenance be improved. Continuous Ambient Air Quality Monitoring Stations (CAAQMS) be installed. Steps be taken for recharge of the ground water. Water supply to the concerned villages be provided by pipes. In compliance of Hon'ble NGT order dated 20.11.2020 (**Annexure-I**), the 3<sup>rd</sup> virtual meeting of over sight committee was conducted on 27.11.2020. Copy of the minutes of this meeting is placed at **Annexure-II**.

As decided in the meeting, 3<sup>rd</sup> field visit of Gharghoda and Tamnar area in Raigarh

was conducted during 15-17<sup>th</sup> March 2021 to address the suggestions given by the applicant by way of written submission filed on 18.11.2020 and to assess progress on the ground in terms of compliance with short term recommendations. The Oversight committee has conducted meeting with applicant on 15.03.2021 in the meeting hall of Collector Raigarh. Sh. Bhim Singh, IAS, Collector Raigarh was also with other members of the Oversight Committee. As decided in the meeting on 27.1.2020 Sh. Shivpal Bhagat, (Applicant) was informed about schedule of the meeting through e-mail on 12.03.2021 and through phone on 15.03.2021. Copy of the mail is placed at **Annexure-III**. Three applicants out of six have attended the meeting viz Sh. Sriram Gupta S/O Mansha Ram Gupta (Applicant 4), Ms. Rinchin D/O Bina (Applicant 5) and Janki Sidar W/o Bharat Sidar (Applicant 6).

All three applicants were then invited to join the Oversight Committee in its field visit on 15<sup>th</sup> and 16<sup>th</sup> March 2021. Contaminated sites and fly ash disposal sites shown by the applicant were listed and course of action decided / recommended by the committee has also been recorded in field visit report. Copy of the field visit report is placed at **Annexure-IV**.

The compliance status of short term and long term measures are presented as under-

| S. No.    | Orders of the Hon'ble NGT from recommendations in the report, November 2019   | Compliance Review Status as on 15.03.2021   |
|-----------|---|---|
| <b>01</b> | <b>Short term measures</b>  |   |
| a)        | Requiring all coal mines in Raigarh district to accept fly ash for disposal through OB dump and back-filling. (Action by respective Coal mine companies). | Two SECL mines (IV/2,3) and one JPL mine (IV/1) are accepting fly ash. Letters were issued to SECL Chaal OC, Monnet Ispat, HINDALCO Limited and M/s Ambuja Cement Ltd. M/s HINDALCO mines informed about no OB dump because of continuous back filling of mined area with OB as per Approved mining |

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|    |   | <p>plan. M/s Monnet Ispat Mines has been taken over by SECL. No response received from M/s Ambuja Cement Limited.</p> <p><i>MoEF &amp;CC vide its notification dated 28<sup>th</sup> August 2019 has modified the conditions stipulated in the EC of TPP and coal mines in line with the fly ash notification and subsequent amendment. It has been mentioned in point no 7 that ministry has stipulated the conditions which prohibited the use of fly ash in abandoned mines/low lying area/ soil conditioner in agriculture following the guide lines prepared by CPCB.</i></p> <p><b>Accordingly CECB shall amend the consent conditions of all TPP and Coal Mine.</b></p> <p>More over CEA vide its letter dated 14.02.2020 has informed about declaration of abandoned mines on recommendation of task force. The list includes 24 abandoned OC mines of Chhattisgarh to be used for filling of fly ash generated from TPP. The committee has suggested to Chairman, Chhattisgarh Environment Conservation Board for constitution of State Level Committee to decide the mode and quantity of fly ash to be disposed in working/ abandoned mines/quarries in the State. The same committee may also look after the fly ash disposal issues in Raigarh also on priority. Copy of the letter issued to Chairman, CECB, Raipur, is placed at <b>Annexure-V.</b></p> <p><b>Action from CECB is awaited.</b></p> |
| b) | Given the seriousness of improper fly ash dumping in low lying areas, and the practical difficulty in rigorously monitoring the implementation of the recent SOP in the field, no further | District Collector of Raigarh has issued letter to concerned department for directing all gram panchayats for not issuing any NOC to use low lying area for disposal of   |

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|    | <p>disposal of fly ash in low-lying areas by TPP/CPP companies to be permitted and all Gram Panchayats in Raigarh district to be directed to stop issuing NOCs for the same.</p>  | <p>Fly Ash. During visit of the committee, disposal of fly ash in low lying area was observed but seems to be disposed before issue of the order by the collector.</p> <p><b>As per preconditions of SOP Power plant/ land owner/agency shall obtain statutory permission from regulatory authorities such as SPCB as per requirement.</b></p> <p>CECB is to submit list of the locations of low lying areas being used or earlier used for unscientific disposal of fly ash for which permission has been granted by local administration after getting NOC from CECB.</p>  |
| c) | <p>Requiring that whatever coal is being supplied to JPL and JSPL from Gare Palma IV/2&amp;3 should be transported through the already existing closed conveyor belts and no such coal transport should be allowed via trucks. (Action by SECL).</p>  | <p>It was informed by Regional officer CECB, Raigarh that Jindal Power limited (JPL) has received 44,25,66 MT coal in 2019-20 and 40,24,274 MT coal in 2020-21 through conveyor belt.</p>  |
| d) | <p>Establishment of monitoring cell by PHED to monitor water quality being used by the residents of villages and provide pre – treatment facility and removal of geogenic contaminants and anthropogenic contaminants before its use as drinking water. Specifically, the quality of water treatment in the mine-supported water supply system in village Kondkhel needs to be ensured by PHED as per drinking water norms.</p> | <p>PHED Raigarh has informed that water testing laboratories are functional at Gharghoda and Raigarh for testing of drinking water quality of the area. Moreover 12 hand pumps, 02 Power pumps and 01 tap water supply have been provided in Kondkel area. The residents of the village has informed about frequent lowering of ground water table due to UG mining activity. Representative of the PHED was also in concurrence with the observation of the villagers. In order to ensure regular and good water quality to villagers the committee has directed M/s Hindalco to provide tap water in village and ensure quality of water in coordination with PHED Raigarh.</p> <p>M/s Hindalco has submitted detail of mine quantity generation and its</p> |

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|    |  | <p>mode of treatment to committee. PHED is to submit the quantity of water required for kondkhel village.</p> <p>The committee has also suggested to obtain details from Central Ground Water Authority about water recharge points provided by the coal mines at the time of obtaining NOC.</p>  |
| e) | <p>Installation of adequate number of CCTV and CAAQM stations in coal mining area. Proper records under CCTV coverage shall be maintained by coal mines to ensure movement of covered trucks loaded with coals and regular and comprehensive operation of sprinklers in coal zone, stockyard and all mine roads. CAAQMS shall be connected to CECB/CPCB server, and also displayed on the mine gates for public information. (Action by respective coal mine companies).</p> | <p>As per field report by CECB, RO, Raigarh it seems that CCTV has been installed by M/s HINDALCO Industries, SECL Gare Palma IV/2 &amp; 3, SECL Chhal. SECL Gare Palma IV/1. At the time of visit M/s Monnet Ispat Mines were not found operational.</p> <p>In case of installation of CAAQMS committee has instructed Member Secretary, Chhattisgarh Environment Conservation Board to issue directions to all coal mines for installation of CAAQMS and its connectivity with CPCB/CECB server. Copy of the letter is placed at <b>Annexure-VI</b>. Status of the same is awaited from MS, CECB, Raipur.</p> |
| f) | <p>Proper repairing and maintenance of roads both inside and outside the mine area to ensure smooth movement of trucks and other load carrying vehicles. (Action by Public Works Department and respective mining companies). Indian Railways to be directed to submit a time-bound action plan for commissioning of the railway line in Tamnar and Gharghoda blocks to ensure all coal transportation by rail.</p>  | <p>EE PWD, Raigarh Sh R K Khurma has informed the committee about requirement of immediate construction of approximate 111 Km CC road (Raigarh to Dharmajay Garh about 76 Km and Punjipatra to Milupara about 35 Km) but due to budget constraint the work is pending since last several years.</p> <p>Letter issued to PS, PWD, S-1/03, Mahanadi Bhawan, Raipur by this office vide number RDB/ NGTOA-104/2018/553 dated 07.09.2020 and 6.01.2021 to sanction Rs. 335 crore for construction of 111 km CC road.</p> <p><b>No response has been received from PS, PWD, Chhattisgarh</b></p>                     |

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|    |   | <p><b>Government.</b></p> <p>IRCON International Limited, in reference to our letter dated 07.09.2020 has informed that 44 Km Railway line work from Kharsia-Gharghoda- Korichhapar has been completed and started transportation of coal. Work for 14 km rail line from Gharghoda- bhalumuda- Gare Palma will be completed by June 2021. IRCON has to construct 05 numbers of coal siding in Tamnar and Gharghoda area for increasing rail coal transportation.</p> <p><b>Compliance in Progress.</b></p>   |
| g) | Proper and free health care facilities with multispecialty treatment system may be provided in all coal mine-adjacent villages as per the recommendations of the committee report of 14.6.2019 in the Dukalu Ram (OA 314/2014 CZ) case. (Action by respective coal mine companies). | <p>Mitigation measure for health issues is to be overseen by the Principal Secretary, health, Govt. of Chhattisgarh. For this purpose, the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary Health, Govt. of Chhattisgarh is at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds.</p> <p><b>Collector Raigarh has assured to arrange the required medical facility in the area by way arranging health screening camps in all villages within next few months.</b></p> |
| h) | Strict vigilance by MOEF&CC for green belt development compliance as per EC conditions  | MoEF&CC has issued letters to all coal mines for submitting updated status of green belt developed. Responses received are being compiled and submitted in next meeting of the committee.  |
| i) | We also recommend that no further conversion of UG mines to Open Cast mines be permitted in Tamnar and Gharghoda, keeping in mind the   | Letter was issued in September 2020 to MoEF&CC (IA-Coal) for implementation of restriction on conversion of UG coal mines to OC  |

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|           | environmental costs in terms forest loss, major noncompliance in pollution control and social cost(rehabilitation).  | coal mines in Tamnar and Garghoda area of District Raigarh. MoEF&CC representative in the committee has now sent follow-up e-mails to IA division reiterating these recommendations.   |
| <b>02</b> | <b>LONG TERM MEASURES</b>  |  |
| a)        | Commissioning a detailed and comprehensive environmental load carrying capacity study (as mentioned in NGT order), to be carried out by a reputed environmental research institute over a 24 month period.   | CECB vide its letter dated 31.03.2021 has invited proposal from NEERI, Nagpur for conducting Carrying capacity study in Tamnar & Gharghoda Blocks of District Raigarh. The Technical and Commercial proposal is to be provided by NEERI, Nagpur within 15 days. <b>(Annexure-VII)</b>  |
|           | Mode of commissioning of this study may please be decided by the Hon'ble NGT and necessary directions may please be issued accordingly   |  |
| b)        | To reduce the pollution and other impacts caused by road transport of coal and other minerals directions may be issued that coal transport by road from coal mines or to thermal power plants in these two blocks will be permitted only for 1 year, after which transport must be done by rail of closed conveyor belt.   | As per report obtained from SECL it is evident 35% increase in daily average dispatch by rail in comparison to the FY-2019-20 after construction of new rail line between Kharsia-Gharghoda- Korichhapar. Coal dispatch from Korichhapar railway siding commenced in the FY-2019-20.<br><b>SECL and IRCON shall submit detail about total transportation of coal through Rail in FY-2020-21.</b> |
| c)        | Condition of green belt development may be incorporated at TOR stage of EC application to ensure that green belt work shall be in place at the time of final presentation for obtaining EC, which shall be verified by MoEF&CC. Further while granting TOR, EAC should specify the location of the green belt to provide buffer between coal mine and human settlements and specify sufficient width of the green belt for the same. | Copy of Hon'ble NGT order dated 27.02.2020 has been sent to IA-Coal on 18.09.2020 for further necessary action by MoEF&CC.<br><br>Continued non-compliance of green belt conditions from EAC of coal is observed. Strict monitoring and follow up action by MoEFF&CC is required.  |
| d)        | Ministry of coal be directed to include the necessary provisions to ensure the acceptance of fly ash in coal mines for   | Pursuant upon long deliberations by CPCB, Central Electricity Authority, NTPC and Ministry of Coal through   |

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|  | disposal through OB dump and backfilling as per fly ash notification of 2009. | <p>Task Force, list of 24 abandoned OC mines of Chhattisgarh had been submitted to be used for filling of fly ash generated from TPP including 3 in Gare Palma Block. Of these 3 only 01 is actually feasible.</p> <p><b>No progress reported from CECB for constitution of the State Level Committee as proposed.</b></p> <p><b>No progress reported by CMD, SECL, Bilaspur in spite of several communications from CECB, CPCB and Collector, Raigarh.</b></p> |
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### FIELD OBSERVATIONS-

1. Pursuant upon long deliberations by CPCB, Central Electricity Authority, NTPC and Ministry of Coal through Task Force, list of 24 abandoned OC mines of Chhattisgarh has been submitted to be used for filling of fly ash generated from TPP. The committee has written to Chairman, CECB, Raipur for constitution of State Level Committee for management of fly ash disposal in the state with implementation of SOP notified by CPCB. The co-operation of SECL is not satisfactory as many applications of TPP of Tamnar & Gharghoda area are lying unattended by SECL.
2. District collector, Raigarh has issued letter to concern departments for directing all gram panchayats for not issuing any NOC to use low lying area for disposal of Fly ash. During visit unscientific disposal of fly ash were observed at 1) Outside TRN Power ash dyke (By TRN Energy Private Limited) , 2) In Tenda village (By TRN Energy Private Limited) , 3) Outside the Mahaveer Energy ( By Mahavir Energy & Coal beneficiation Limited). Onsite observations reveal it as legacy fly ash dump.
3. PHED, Raigarh has proposed drinking water supply scheme (Rs. 1270.41 Lakh project cost) for 10 mining effected villages of Tamnar Block. The details

submitted by PHED, Raigarh was verified in Kondkel Village and found insufficient with respect to population of the village. The representative of PHED present during visit of the committee has informed that PHED has established 04 hand pumps, 04 Power pumps and 01 tap water supply have been provided in Kondkel area. The residents of the village has informed about frequent lowering of ground water table due to UG mining activity. Representative of the PHED was also in concurrence with the observation of the villagers. Hence it has been decided by the committee to obtain data of ground water recharge system in Gharghoda and Tamnar area, from central ground water authority, Raipur along with data of annual ground water level in the area.

4. Installation of CCTV system in mines of the area was reported complied by all mines whereas its proper operation and recording is to be ensured by SECL in its all mines located in Chhal and Gare Palma. RO CECB Raigarh was requested to physically verify the status of transport of coal in properly covered manner.
5. EE PWD, Raigarh has informed the committee about immediate construction of approximate 111 Km CC road (Raigarh to Dharmjaigarh about 76 Km and Punjipatra to Milupara about 35 Km) but due to budget constraint the work is pending since last several years. An amount of Rs. 335 Crore may be required to complete the construction of CC road in the area of Tamnar and Gharghoda. Hon'ble NGT in its order dated 20.11.2020 (point 5) has instructed PS, PWD to sanction the required fund and ensure execution before March 2021. During field visit execution of the work was not observed, hence the issue was further clarified with EE, PWD, Raigarh who informed as under-
  - Main high way connecting Raigarh to Dharamjaygarh has now been included in National Highway Scheme
  - Stretch from Chhal mines to Gharghoda has been approved for two lane
  - Stretch from Punjipatra to Milupara via Tamnar not yet approved.

In view of the above committee has instructed to EE, PWD, Raigarh to

identify badly damaged patches in this stretch and prepare a budget and get same approved so as to complete the work within three months. Stretch from Punjipatra to Milupara via Tamnar has also to be taken on highest priority because of the heavy traffic load on this route.

IRCON International Limited, has informed that work for 14 km rail line from Gharghoda – Bhalumuda – Gare Palma will be completed by June 2021. IRCON has to construct 05 numbers of coal siding in Tamnar and Gharghoda area for increasing rail coal transportation. As on date of committee visit IRCON has completed 04 coal siding and made 01 siding operational. *As per data received from major mining company of the area i.e. SECL, it is reported that 35% coal transport increase has been observed in comparison to last financial year 2019-2020. (Annexure-VII) It is assumed that coal transport by rail may increase by 50% in addition to earlier transport after completion of the project.*

**SECL and IRCON shall submit detail about total transportation of coal through Rail in FY-2020-21.**

6. CECB vide its letter dated 31.03.2021 has invited proposal from NEERI, Nagpur for conducting Carrying capacity study in Tamnar & Gharghoda Blocks of District Raigarh. The Technical and Commercial proposal is to be provided by NEERI, Nagpur within 15 days. **(Annexure-VII)**
7. The committee has also discussed the issues in meeting with Collector, Raigarh to expedite the required development as directed by Hon'ble NGT in its order. The outcome of the meeting has been considered in the recommendations.
8. In order to make information of the Oversight Committee's work public domain, Collector Raigarh agreed to host a webpage on the Raigarh District website and directed the District information officer (Raigarh) to coordinate with the committee regarding the same.

In view of the above field observations, the recommendations of Oversight Committee are as under-

#### **RECOMMENDATIONS -**

1. Chhattisgarh Environment Conservation Board shall prepare list of areas where unscientific disposal of fly ash has occurred with specific remark of status about permission granted.
2. Chhattisgarh Environment Conservation Board shall also generate data about total quantity of coal mined in Raigarh, total quantity of coal being used by the industries in Raigarh and quantity of locally mined coal available for TPPs and other industries of Raigarh.
3. In order to ensure development of health facilities in the villages of mining affected areas, Principal Secretary, Health Chhattisgarh Government may be advised to keep informing the Oversight Committee about development made in health facilities.
4. Hon'ble NGT may like to direct Principal Secretary, PWD, Chhattisgarh Government to sanction budget for 111 km road from Raigarh to Dharamjaygarh and Punjipatra to Milupara via Tamnar and ensure its execution within three months. In this context time bound action plan shall be submitted to ensure timely execution of the work.
5. Directions from Hon'ble NGT may also be issued to Chhattisgarh Environment Conservation Board, Raipur for constitution of State Level Committee to look in to Scientific Utilization of fly ash in the Chhattisgarh State.
6. Directions from Hon'ble NGT may also be issued to CMD, SECL, Bilaspur to expedite disposal of fly ash in abandoned coal mines declared by Central Electricity Authority, Ministry of Power, Government of India vide letter no.

1/8/27/Task Force/ 2013-2019/TCD/230-338 dated 14.02.2020. in consultation with CECB and complete within three months.

(Dr.P.R.Pujari)  
Senior Principal Scientist,  
NEERI, Nagpur  
(Member)

(Dr. Sharachchandra Lele)  
Distinguished Fellow  
ATREE. Bengluru  
(Member)

( Dr. P.R. Sakhare )  
Scientist-D, MOEF&CC, Nagpur  
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Regional Director  
CPCB, Bhopal (Nodal Officer)

(Bhim Singh)  
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Senior Principal Scientist,  
NEERI, Nagpur  
(Member)

(Dr. Sharachchandra Lele)  
Distinguished Fellow  
ATREE, Bengluru  
(Member)

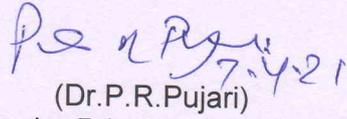
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(S.K.Verma )  
Regional Officer, CECB, Raigarh  
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( P. Jagan )  
Regional Director  
CPCB, Bhopal (Nodal Officer)

  
(Bhim Singh)  
IAS  
Collector, Raigarh

1/8/27/Task Force/ 2013-2019/TCD/230-338 dated 14.02.2020. in consultation with CEGB and complete within three months.

  
7.4.21

(Dr.P.R.Pujari)  
Senior Principal Scientist,  
NEERI, Nagpur  
(Member)



(Dr. Sharachchandra Lele)  
Distinguished Fellow  
ATREE, Bengluru  
(Member)

Do not agree to para 6 on page 10, which has not at all been discussed in the Committee.

( Dr. P.R. Sakhare )  
Scientist-D, MOEF&CC, Nagpur  
(Member)

(S.K.Verma )  
Regional Officer, CEGB, Raigarh  
(Member)

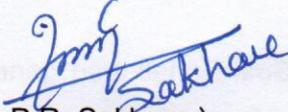
( P. Jagan )  
Regional Director  
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(Bhim Singh)  
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1/8/27/Task Force/ 2013-2019/TCD/230-338 dated 14.02.2020. in consultation with CECB and complete within three months.

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( P. Jagan )  
Regional Director  
CPCB, Bhopal (Nodal Officer)

(Bhim Singh)  
IAS  
Collector, Raigarh

Item Nos. 02 & 03

Court No. 1

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

Original Application No. 104/2018  
(M.A. No. 279/2018, M.A. No. 858/2018 & I.A. No. 382/2020)  
WITH  
Execution Application No. 05/2019  
(With report dated 17.11.2020)

Shivpal Bhagat & Ors.

Applicant(s)

Versus

Union of India & Ors.

Respondent(s)

Date of hearing: 20.11.2020

**CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON  
HON'BLE MR. JUSTICE SHEO KUMAR SINGH, JUDICIAL MEMBER  
HON'BLE DR. SATYAWAN SINGH GARBYAL, EXPERT MEMBER  
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER**

Applicant(s): Mr. Saurabh Sharma, Advocate

Respondent(s): Mr. Kush Sharma, Advocate for CPCB

**ORDER**

1. The issue for consideration is the remedial action against pollution caused by the Thermal Power Plants, the coal washeries in Tamnar and Gharghoda blocks of Raigarh District in Chhattisgarh, including M/s Jindal Power Limited, M/s Jindal Power and Steel Limited, M/s TRN Energy Private Limited, M/s Mahavir Energy & Coal Benefaction Limited, M/s. Hindalco Industries Limited and M/s. Monet Energy Limited, SECL. The operation of the said units is resulting in contamination of air, water and land and having adverse impact on the environment and the habitants. Water and soil have toxic metals having potential for health

hazard requiring monitoring of emissions, making the polluter accountable and regulating the polluting activities.

2. The matter has been considered earlier and under direction of this Tribunal, an Expert Committee furnished its report dated 14.10.2019 after visiting the sites and considering earlier reports on the subject. The Committee considered the mitigation measures required to be adopted by the Thermal Power Plants and the coal washeries. The Committee found that the issue of ground water depletion, soil pollution, forest loss and livelihood loss were required to be addressed for which short term and long terms measures were suggested. The Tribunal directed remedial action for dealing with the deficiencies having potential for damage to the environment. Further direction was to review the existing arrangements and furnishing a further report. The operative part of directions in the order dated 27.02.2020 is as follows:

*“3. Accordingly, a report dated 14.10.2019 has been filed by the CPCB on behalf of the Committee on 15.10.2019. The Committee visited various sites and considered the earlier reports, including maps and the data of air quality as well as water pollution. The Committee then considered the mitigation measures prescribed and their current status including installation of Electro-Static Precipitators (ESPs) and Fluidized Gas Desulfurizers (FGDs) in the Thermal Power Plants. The committee also considered ground water depletion, soil pollution, forest loss and livelihood loss and after detailed study of various aspects made following recommendations:*

**“4. RECOMMENDATIONS:**

*Based on the above observations, the committee recommends a set of short-term and long-term measures.*

**4.1 Short-term measures**

- a. Requiring all coal mines in Raigarh district to accept fly ash for disposal through OB dump and back-filling. (Action by respective Coal mine companies).*
- b. Given the seriousness of improper fly ash dumping in low lying areas, and the practical difficulty in rigorously monitoring the implementation of the recent SOP in the field, no further disposal of fly*

*ash in low-lying areas by TPP/ CPP companies to be permitted and all Gram Panchayats in Raigarh district to be directed to stop issuing NOCs for the same.*

- c. Requiring that whatever coal is being supplied to JPL and JSPL from Gare Palma IV/2&3 should be transported through the already existing **closed conveyor belts** and no such coal transport should be allowed via trucks. (Action by SECL).*
- d. Establishment of monitoring cell by PHED to monitor water quality being used by the residents of villages and provide pretreatment facility and removal of geogenic contaminants and anthropogenic contaminants before its use as drinking water. Specifically, the quality of water treatment in the mine-supported water supply system in village Kondkhel needs to be ensured by PHED as per drinking water norms.*
- e. Installation of adequate number of CCTV and CAAQM stations in coal mining area. Proper records under CCTV coverage shall be maintained by coal mines to ensure movement of covered trucks loaded with coals and regular and comprehensive operation of sprinklers in coal zone, stockyard and all mine roads. CAAQMS shall be connected to CECB/CPCB server, and also displayed on the mine gates for public information. (Action by respective coal mine companies).*
- f. Proper repairing and maintenance of roads both inside and outside the mine area to ensure smooth movement of trucks and other load carrying vehicles. (Action by Public Works Department and respective mining companies). Indian Railways to be directed to submit a time-bound action plan for commissioning of the railway line in Tamnar and Gharghoda blocks to ensure all coal transportation by rail.*
- g. Proper and free health care facilities with multispecialty treatment system may be provided in all coal mine-adjacent villages as per the recommendations of the committee report of 14.6.2019 in the Dukalu Ram (OA 314/2014 CZ) case. (Action by respective coal mine companies).*
- h. Strict vigilance by MOEFCC for green belt development compliance as per EC conditions.*
- i. We also recommend that **no further conversion of UG mines to Open Cast mines** be permitted in Tamnar and Gharghoda, keeping in mind the environmental costs in terms forest loss, major*

noncompliance in pollution control and social cost (rehabilitation).

#### 4.2 Long-term measures

**a) Based on evidence summarised above, the committee is of the opinion that the Tamnar-Gharghoda block region is close to exceeding its environmental carrying capacity. However, the precise extent of current environmental load and the likely impacts of future mining and industrial activities has to be worked out through a detailed and comprehensive **environmental load carrying capacity study, to be carried out by a reputed environmental research institute or a consortium of such institutes over a 24-month period.****

i) The study must cover dimensions of air pollution (especially PM2.5), water pollution and ground and surface water depletion, soil contamination, forest and biodiversity loss, and social and health impacts.

ii) Moreover, given the geography of the region, the study must assess the carrying capacity separately for two different subregions: the northern Tamnar (coal mining related) block and Gharghoda block. Moreover, since Chhal open cast mine located in southern Dharamjaigarh block is located on the bank of Mand River and therefore in an eco-sensitive zone, a baseline study of this region may also be carried out. The southern Tamnar subregion has already been studied for environmental load carrying capacity by IIT Kharagpur (report submitted to CECB in 2018) and it has already recommended strict regulation of any further industrial development in particular parts of the sub-region through a high-level committee.

iii) Mode of commissioning of this study may please be decided by the Hon'ble NGT, and necessary directions may please be issued accordingly.

**b) To reduce the pollution and other impacts caused by road transport of coal and other minerals, directions may be issued that coal transport by road from coal mines or to thermal power plants in these two blocks will be permitted only for 1 year, after which transport must be done by rail or closed conveyor belt only.**

**c) Condition of greenbelt development may be incorporated at TOR stage of EC application to ensure**

*that greenbelt work shall be in place at the time of final presentation for obtaining EC, which shall be verified by MOEFCC. Further, while granting TOR, EAC should specify the location of the greenbelt to provide buffer between coal mine and human settlements, and specify a sufficient width of the greenbelt for the same.*

- d)** *Ministry of Coal be directed to include the necessary provisions **to ensure the acceptance of fly ash** in coal mines for disposal through OB dump and back-filling as per fly ash notification of 2009.”*

4. *We find that the recommendations are based on relevant studies and need to be implemented by the concerned power plants and mines in the area for protection of environment and the public health and the environmental rule of law.*

5. *The applicants have, while broadly expressing satisfaction with the report, made certain suggestions. First suggestion of the applicants is that carrying capacity assessment must be expeditiously carried out and till such assessment is done, expansion and new projects should be only after thorough evaluation. Further suggestion is that there should be a mechanism to oversee the remedial measures, including oversight of health mitigation measures suggested by the Committee.*

6. *We are of the view that since serious deficiencies have been found and there is potential for damage to the environment as observed in the report, the ‘Precautionary’ and ‘Sustainable Development’ principles require that any further expansion or new projects in the area should be allowed after thorough evaluation only and mechanism for remedial measures should be in place, including oversight of measures for health mitigation. The Committee already constituted in terms of order of this Tribunal dated 22.07.2019 will act as an Oversight Committee. The nodal agency for the purpose will be the CPCB. Meeting of the Committee may be held atleast once in two months or at such interval as may be decided by the Committee. Mitigation measures for health issues may be overseen by the Principal Secretary, Health, Govt. of Chhattisgarh. For this purpose, the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary, Health, Govt. of Chhattisgarh will be at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds. The Committee may give a status report on the issue as on 30.06.2020 by 15.07.2020 by e-mail at [judicial-ngt@gov.in](mailto:judicial-ngt@gov.in). The Oversight Committee may issue appropriate directions to the project proponents for other remedial measures.*

7. *The above report may be looked into and acted upon by the Ministry of Coal as well as MoEF&CC for such further action as may be necessary.”*

3. Accordingly, report has been filed by the CPCB on 17.11.2020 giving the status of compliance of the recommendations in a tabular form as follows:

| <b>S. No.</b> | <b>Orders of the Hon'ble NGT from recommendations in the report, November 2019</b>   | <b>Compliance Review Status on 09.11.2020</b>  |
|---------------|--|--|
| <b>01</b>     | <b>Short term measures</b>   |  |
| a)            | Requiring all coal mines in Raigarh district to accept fly ash for disposal through OB dump and back-filling. (Action by respective Coal mine companies).  | Three SECL mines are found complying. Letters were issued to SECL Chaal OC, Monnet Ispat, HINDALCO Limited and M/s Ambuja Cement Ltd. M/s HINDALCO mines informed about no OB dump because of continuous back filling of mined area with OB as per Approved mining plan. M/s Monnet Ispat Mines has been taken over by SECL. No response received from M/s Ambuja Cement Limited. More over CEA vide its letter dated 14.02.2020 has informed about declaration of abandoned mines on recommendation of task force. The list includes 24 abandoned OC mines of Chhattisgarh to be used for filling of fly ash generated from TPP. Process of allocation no of these mines to TPP of Chhattisgarh is under taken by CECB and is on advance stage. Annexure-II |
| b)            | Given the seriousness of improper fly ash dumping in low lying areas, and the practical difficulty in rigorously monitoring the implementation of the recent SOP in the field, no further disposal of fly ash in low-lying areas by TPP/ CPP companies to be permitted and all Gram Panchayats in Raigarh district to be directed to stop issuing NOCs for the same. | District Collector of Raigarh has issued letter to concerned department for directing all gram panchayats for not issuing any NOC to use low lying area for disposal of Fly Ash. During visit of the committee, disposal of fly ash in low lying area was not observed. Annexure-III   |
| c)            | Requiring that whatever coal is being supplied to JPL and JSPL from Gare Palma IV/2&3 should be transported through the already existing closed conveyor belts and no such coal transport should be allowed via trucks. (Action by SECL).  | Based on the observation of CECB, RO, Raigarh, it seems to be complied.  |
| d)            | Establishment of monitoring cell by PHED to monitor water quality being used by the residents of villages and provide pre -  | The representative of PHED present during visit of the committee has informed that PHED established water testing  |

|    |  |  |
|----|--|--|
|    | <p>treatment facility and removal of geogenic contaminants and anthropogenic contaminants before its use as drinking water. Specifically, the quality of water treatment in the mine-supported water supply system in village Kondkhel needs to be ensured by PHED as per drinking water norms.</p>  | <p>laboratory at Gharghoda and Raigarh for testing of drinking water quality of the area. Moreover 12 hand pumps, 02 Power pumps and 01 tap water supply have been provided in Kondkel area. (Annexure-IV) The residents of the village has informed about frequent lowering of ground water table due to UG mining activity. Representative of the PHED was also in concurrence with the observation of the villagers. In order to ensure regular and good water quality to villagers the committee has directed M/s Hindalco to provide tape water in village and ensure quality of water in coordination with PHED Raigarh.</p> |
| e) | <p>Installation of adequate number of CCTV and CAAQM stations in coal mining area. Proper records under CCTV coverage shall be maintained by coal mines to ensure movement of covered trucks loaded with coals and regular and comprehensive operation of sprinklers in coal zone, stockyard and all mine roads. CAAQMS shall be connected to CECB/CPCB server, and also displayed on the mine gates for public information. (Action by respective coal mine companies).</p> | <p>- As per field report by CECB, RO, Raigarh it seems that CCTV has been installed by M/s HINDALCO Industries, SECL Gare Palma IV/2 &amp; 3, SECL Chhal. SECL Gare Palma IV/1. At the time of visit M/s Monnet Ispat Mines were not found operational.</p> <p>- In case of installation of CAAQMS all the mines have informed that as per mandatory conditions of EC and CTO fixed location ambient air Quality monitoring is being conducted by the units and reports are regularly submitted to MoEF&amp;CC and CECB.</p>   |
| f) | <p>Proper repairing and maintenance of roads both inside and outside the mine area to ensure smooth movement of trucks and other load carrying vehicles. (Action by Public Works Department and respective mining companies). Indian Railways to be directed to submit a time-bound action plan for commissioning of the railway line in Tamnar and Gharghoda blocks to ensure all coal transportation by rail.</p>  | <p>- Letter issued to PS, PWD, S1/03, Mahanadi Bhawan, Raipur by this office vide number RDB/ NGTOA-104/2018/553 dated 07.09.2020. EE PWD was present before committee to appraise the status of PWD roads in the area. Committee has observed very bad road condition in Tamnar and Gharghoda area which seems to be one of the major factors for deterioration of ambient air quality. EE PWD Sh. Khamra has informed the committee about requirement of immediate construction of approximate 111 Km CC road (Raigarh to Dharmajay Garh about 76 Km and Punjipatra to Milupara</p>  |

|    |  |   |
|----|--|---|
|    |  | <p>about 35 Km) but due to budget constraint the work is pending since last several years. More over SECL has paid an amount of 42 Crore to Raigarh PWD for construction of 19 kms, 7m wide tar road from Gharghoda to Jampali in compliance of Hon'ble NGT order.</p> <p>- IRCON International Limited, in reference to our letter dated 07.09.2020 has informed that 44 Km Railway line work from Kharsia- GharghodaKorichhapar has been completed and started transportation of coal. Work for 14 km rail line from Gharghodabhalumuda- Gare Palma will be completed by June 2021. Rail line work from Karichhapar - Kurumkela- Dharamjaygarh will be completed by December 2020. IRCON has to construct 05 numbers of coal siding in Tamnar and Gharghoda area for increasing rail coal transportation. As on date of committee visit IRCON has completed 03 coal siding and made 01 siding operational, 02 more siding will be made operational by December 2020. As informed by the representative of Indian Railway rest 02 sidings shall be completed by March 2021. (Annexure-V) <b>Compliance in Progress</b></p> |
| g) | Proper and free health care facilities with multispecialty treatment system may be provided in all coal mineadjacent villages as per the recommendations of the committee report of 14.6.2019 in the Dukalu Ram (OA 314/2014 CZ) case. (Action by respective coal mine companies). | Mitigation measure for health issues is to be overseen by the Principal Secretary, health, Govt. of Chhattisgarh. For this purpose, the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary Health, Govt. of Chhattisgarh is at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds.  |
| h) | Strict vigilance by MOEF&CC for green belt development compliance as per EC conditions   | MoEF&CC has started close monitoring for green belt development in all coal mines. <b>Compliance in progress.</b>   |
| i) | We also recommend that no  | Letter has been issued to   |

|           |   |   |
|-----------|---|---|
|           | <i>further conversion of UG mines to Open Cast mines be permitted in Tamnar and Gharghoda, keeping in mind the environmental costs in terms forest loss, major noncompliance in pollution control and social cost(rehabilitation).</i>  | <i>MoEF&amp;CC (IA-Coal) for implementation of restriction on conversion of UG coal mines to OC coal mines in Tamnar and Garghoda area of District Raigarh.</i>   |
| <b>02</b> | <b>LONG TERM MEASURES</b>   |   |
| a)        | <i>Commissioning a detailed and comprehensive environmental load carrying capacity study (as mentioned in NGT order), to be carried out by a reputed environmental research institute over a 24 month period.</i>   | <i>The matter was discussed with CPCB HO and got advised to include the project in State EC fund as defined by Hon'ble NGT. In order of this proposal for the same has been prepared by CECB and submitted to CPCB for compilation of all project and submission before Hon'ble NGT. Annexure-VI</i>  |
|           | <i>Mode of commissioning of this study may please be decided by the Hon'ble NGT and necessary directions may please be issued accordingly</i>   | <b>Compliance in progress.</b>  |
| b)        | <i>To reduce the pollution and other impacts caused by road transport of coal and other minerals directions may be issued that coal transport by road from coal mines or to thermal power plants in these two blocks will be permitted only for 1 year, after which transport must be done by rail of closed conveyor belt.</i>   | <i>As per report obtained from SECL it is evident 35% increase in daily average dispatch by rail in comparison to the FY-2019-20 after construction of new rail line between Kharsia-Gharghoda- Korichhapar. Coal dispatch from Korichhapar railway siding commenced in the FY2019-20. It is assumed that coal transport by rail may increase by 50% in addition to earlier transport in rail by December 2020.</i> |
| c)        | <i>Condition of green belt development may be incorporated at TOR stage of EC application to ensure that green belt work shall be in place at the time of final presentation for obtaining EC, which shall be verified by MoEF&amp;CC. Further while granting TOR, EAC should specify the location of the green belt to provide buffer between coal mine and human settlements and specify sufficient width of the green belt for the same.</i> | <i>Copy of Hon'ble NGT order dated 27.02.2020 has been sent to IA-Coal on 18.09.2020 for further necessary action by MoEF&amp;CC.</i>   |
| d)        | <i>Ministry of coal be directed to include the necessary provisions to ensure the acceptance of fly ash in coal mines for disposal through OB dump and backfilling as per fly ash notification of 2009.</i>   | <i>Pursuant upon long deliberations by CPCB, Central Electricity Authority, NTPC and Ministry of Coal through Task Force, list of 24 abandoned OC mines of Chhattisgarh has been submitted to be used for filling of fly ash generated from TPP. Process of allocation of these mines to TPP of Chhattisgarh is under taken by CECB and is on advance stage.</i>  |

”

4. The Committee has also made field observations and recommendations as follows:

**“FIELD OBSERVATIONS:**

- 1. Pursuant upon long deliberations by CPCB, Central Electricity Authority, NTPC and Ministry of Coal through Task Force, list of 24 abandoned OC mines of Chhattisgarh has been submitted to be used for filling of fly ash generated from TPP. Member Secretary CECB has informed about considering mine wise allocation of abandoned coal mines as declared by CEA vide its letter dated 14.02.2020. The co-operation of SECL is not satisfactory as many applications of TPP of Tamnar & Gharghoda area are lying unattended by SECL.*
- 2. District collector, Raigarh has issued letter to concern departments for directing all gram panchayats for not issuing any NOC to use low lying area for disposal of Fly ash. During visit committee has observed restriction on fly ash disposal in low lying areas particularly in agricultural fields of the villages.*
- 3. In compliance of letter issued by Nodal Officer of the committee on 07.09.2020 to PS, PHED, Raipur, it was informed that PHED has established water testing laboratory at Gharghoda and Raigarh for testing of drinking water quality of the area. PHED, Raigarh has also established 06 control rooms and circulated the contact numbers of the concern officers to manage any crisis of drinking water availability in Raigarh District. In order to provide proper treatment for removal of any geogenic contaminants PHED Raigarh has also provided 05 Electrolytic DE fluoridation (EDF) plants in 03 villages (Pata, Mudagaon, Saraitola) of Tamnar Block. Moreover 12 hand pumps, 02 Power pumps and 01 tap water supply have been provided in Kondkel area. In addition to above PHED, Raigarh has also proposed drinking water supply scheme (Rs. 1270.41 Lakh project cost) for 10 mining effected villages of Tamnar Block. The details submitted by PHED, Raigarh was verified in Kondkel Village and found insufficient with respect to population of the village. The representative of PHED present during visit of the committee has informed that PHED has established 04 hand pumps, 04 Power pumps and 01 tap water supply have been provided in Kondkel area. The residents of the village has informed about frequent lowering of ground water table due to UG mining activity. Representative of the PHED was also in concurrence with the observation of the villagers. In order to ensure regular and good water quality to villagers the committee has directed M/s Hindalco to provide tape water supply from mine in village and ensure quality of water in coordination with PHED Raigarh. M/s Hindalco Coal Mine shall also submit report on quantity of mine water generation from UG mines to make an assessment for water supply required from PHED.*

4. *Installation of CCTV system in mines of the area was reported complied by all mines whereas its proper operation and recording is to be ensured by SECL in its all mines located in Chhal and Gare Palma.*
5. *EE PWD was present before committee to appraise the status of PWD roads in the area. Committee has observed very bad road condition in Tamnar and Gharghoda area which seems to be one of the major factors for deterioration of ambient air quality. EE PWD Sh. Khamra has informed the committee about requirement of immediate construction of approximate 111 Km CC road (Raigarh to Dharmajay Garh about 76 Km and Punjipatra to Milupara about 35 Km) but due to budget constraint the work is pending since last several years. An amount of Rs. 335 Crore may be required to complete the construction of CC road in the area of Tamnar and Gharghoda. More over SECL has paid an amount of 42 Crore to Raigarh PWD for construction of 19 kms, 7m wide tar road from Gharghoda to Jampali in compliance of Hon'ble NGT order.*

*IRCON International Limited, in reference to our letter dated 07.09.2020 has informed that 44 Km Railway line work from Kharsia – Gharghoda – Korichhapar has been completed and started transportation of coal. Work for 14 km rail line from Gharghoda – Bhalumuda – Gare Palma will be completed by June 2021. Rail line work from Karichhapar – Kurumkela – Dharamjaygarh will be completed by December 2020. IRCON International Limited, in reference to our letter dated 07.09.2020 has informed that 44 Km Railway line work from Kharsia – Gharghoda – Korichhapar has been completed and started transportation of coal. Work for 14 km rail line from Gharghoda – Bhalumuda – Gare Palma will be completed by June 2021. Rail line work from Karichhapar – Kurumkela – Dharamjaygarh will be completed by December 2020. IRCON has to construct 05 numbers of coal siding in Tamnar and Gharghoda area for increasing rail coal transportation. As on date of committee visit IRCON has completed 03 coal siding and made 01 siding operational, 02 more siding will be made operational by December 2020. As informed by the representative of Indian Railway rest 02 sidings shall be completed by March 2021. As per data received from major mining company of the area i.e. SECL, it is reported that 35% coal transport increase has been observed in comparison to last financial year 2019-2020. (AnnexureVII) It is assumed that coal transport by rail may increase by 50% in addition to earlier transport in rail by December 2020.*

6. *In reference to instruction on point 2 (a) (ii) regarding carrying capacity study, CPCB has advised CECB to include the project cost in EC fund sponsored project and proposal for same has been prepared by CECB and submitted to CPCB for further essential action.*
7. *The committee has also discussed the issues in meeting with Collector, Raigarh to expedite the required development as*

*directed by Hon'ble NGT in its order. The outcome of the meeting has been considered in the recommendations.*

*In view of the above field observations, the recommendations of oversight committee are as under.*

**RECOMMENDATIONS :**

- 1. In order to ensure development of health facilities in the villages of mining affected areas, Principal Secretary, Health Chhattisgarh Government may be advised to keep informing the oversight committee about development made in health facilities.**
- 2. Hon'ble NGT may like to direct Principal Secretary, PWD, Chhattisgarh Government to sanction budget of Rs. 335 crore (@Rs 3.00 crore per km) for construction of CC road approximately 111 km length of 7m width (Raigarh to Dharmajay Garh about 76 Km and Punjipatra to Milupara about 35 Km) and ensure its execution before March 2021. In this context time bound action plan with bank guarantee of Rs. 35 Crore may be obtained from PWD, Chhattisgarh to ensure timely execution of the work.**
- 3. Directions from Hon'ble NGT may also be issued to CMD, SECL, Bilaspur to expedite allotment of abandoned coal mines in consultation with CECB and complete it before 31st December 2020.”**

5. From the above, it does appear that action so far taken is not adequate and further steps need to be taken in the light of the recommendations made. The Principal Secretary, Health and the PWD Department, Chhattisgarh Government and the South Eastern Coalfields Limited (SECL) may act as per recommendations of the Committee. Coal transportation by rail be increased for abatement of air and dust pollution.

6. Further, the applicant has given suggestions by way of written submission filed on 18.11.2020, inter-alia to the effect that contaminated sites be seen, fly ash dumping in low-lying areas be ensured and such dumping should not be in unscientific manner. The legacy fly ash dumps be remediated. Air and land pollution due to fire in the coal mines be remedied. Coal transportation by trucks must be done on scientific basis

and transportation by conveyor belts be preferred. Road maintenance be improved. Continuous Ambient Air Quality Monitoring Station (CAAQMS) be installed. Steps be taken for recharge of the ground water. Water supply to the concerned villages be provided by pipes. The submission of the applicant are:

“ ... .. ”

5. *That at the outset it is stated that the Committee did not meet with Applicants during their recent visit which was important as the Applicants would have shown the contaminated sites to the committee which are grossly missing in the present Report dated 17h November,2020. The Committee has only seen the sites which the CECB has shown to it. It is submitted that the Committee should plan an immediate visit after informing the Applicants so that the Applicants can help the Committee to identify the contaminated sites and resolve the environmentally problematic issues as mentioned in the Order dated27.02.2020 of this Hon’ble Tribunal.*

6. *That Overall the report does not provide any evidence (in the form of photos, lists of sites visits, descriptions, who did they meet etc) to back up its conclusions. For example in places where the committee has come up with conclusion that fly ash dumping in low lying areas have been restricted. It is stated that no proof has been given for the same. There are no photographs that have been attached or list provided of which sites they have visited and what information they have noted by the Committee. Also the local community members have provided a list of sites and photo documentation of how new fly ash dumping sites have been created in various parts of the region in violation of the Hon’ble NGT's Order/s however till date no action has been taken in any of these cases. The Applicants are annexing the recent photographs showing that the fly ash dumping is still taking place and nothing has been done with respect to removal of legacy fly ash dumps. The non-clean up of legacy fly ash dumps would lead to leachate when it comes in contact with water and would further lead to water and soil pollution.*

*Photographs alongwith GPS location and date are annexed herewith showing the Fly ash dumps which are annexed herewith as ANNEXURE-B (Collectively).*

7. *That it is also important to point out that the Coal mines of Gare IV/2 and Gare IV/3 is also witnessing air and land pollution due to fire in Coal mines of Gare IV 12 and Gare IV/3. Had the Committee contacted the local community members they would have shown the sites which are witnessing fire in Coal Mines. Recent Photographs showing the fire in Coal mines of Gare IV/2 and Gare IV/3 are annexed herewith as ANN EXURE-C (Collectively).*

8. *That on the issue of coal transportation by trucks, the committee has given a vague response of "seems to be complied" which does not make any sense, either the condition is complied or not to be complied. However the committee has once again not provided any details of the transportation of coal via conveyor belts such as trip sheets or how much quantum of coal has been transported by a conveyor belt to provide proof that the condition is being complied with. Mere vague statement of the committee in this regard cannot be accepted as proof.*
9. *That the direction about CAAQMS has NOT BEEN COMPLIED WITH. What is even more shocking that, the committee which has been appointed to oversee the implementation of the direction is justifying the non-compliance by advancing the industry's faulty logic in this regard, It is stated that EC and CTO condition is to provide regular monitoring data which is not the same as a24X7 and 365 day monitoring through OAAQMS.*
10. *That the committee itself observes bad road in the region hence it is clear that road maintenance direction has NOT been complied with.*
11. *That Directions regarding the mitigation measures of health issues in the region HAVE NOT been complied with. The Principal Secretary-Health, GoW. of Chhattisgarh has not been implementing any health related measures and local community health is in a very precarious situation which fact is observed in a recent Health Assessment RepoG 2019-2020 titled "HEALTH ASSESSMENT OF VILLAGERS OF TAMNAR BLOCK, DISTRICT RAIGARH (C.G.)" submitted to Indian Council of Medical Research, New Delhi, Year 2019-2020. Copy of relevant pages of this study is annexed herewith as ANNEXURE-D.*
12. *That on the issue of green belt development, the committee has pushed the responsibility on MoEF&CC. It is not clear in describing the actual status on the ground. there is no actual evidence provided by the committee to support their "compliance in progress" remark. The committee's vague remark without any submission of documents of the mine wise status of greenbelt development is nothing but mere bald assertions without any proof.*
13. *That regarding the water testing laboratories at Gharghoda and Raigarh for testing of drinking water quality there is no evidence on record that the same are in fit working condition. Similarly, on the issue of water testing, the Applicants state that in Saraitola area the water contains high fluoride content and there is no evidence on record to show that Electrolytic DE fluoridation(EDF) Plants in 3 villages (Pata, Mudgaon, Saraitola are in fit working condition). The Committee has failed to provide any testing results from the area as to what was found in the drinking water and whether the same was*

*in usable condition by the local villagers. There is no evidence or proof filed by committee regarding the sites where the drinking water is potable and where the same is not potable and need further treatment for the villagers to be used. There should be a timeline provided by the Committee to test the water quality in the Tamnar and Gharghoda blocks and a study regarding the sites of potable water needs to be done in coordination with PHED and the local villagers.*

14. *That the Committee has agreed that there is a problem of frequent lowering of ground water table due to mining activity at page 7 of the Report.*
15. *Inspite of acknowledging the problem of frequent lowering of ground water table due to mining there are no plans or action taken proposed for replenishing the fast depleting water table or curbing the future mining activity.*
16. *It also states that M/s Hindalco has been told to provide Tap water supply from the mine in the village and ensure quality of water in co-ordination with PHED Raigarh. It is stated that the same should be done for Neelupara and adjoining area where there are very few drinking water facilities. The Report is silent on new sites where drinking water facility has been provided.*
17. *That in the long term compliance section the details provided in Annexure VI for the carrying capacity study is grossly insufficient. The proposal of CECB is to just conduct a source apportionment study. A source apportionment study cannot be considered as a carrying capacity study. Source Apportionment (SA) is the practice of deriving information about pollution sources and the amount they contribute to ambient air pollution levels. The concept of carrying capacity describes the relationship between resources, environment and human activities to ensure sustainability. Carrying capacity is also defined as "the growth limits an area can accommodate without violating environmental capacity goals". The carrying capacity study will assess the maximum number of individuals/ industrial activities that an area's resources can sustain indefinitely without significantly depleting or degrading those resources or causing environmental or public health depletion. It is re-iterated that a proper detailed proposal on carrying capacity study has to be done and shared with the community before progressing with the compliance."*

The above suggestions may be duly considered by the concerned authorities and the Committee which may be coordinated by the CPCB.

We also direct the Collector, Raigarh will stand inducted as Member of the Committee. The applicant has also filed IA No. 382/2020 for a

direction that expansion of the project be allowed only after carrying capacity assessment is done. This aspect may be gone into by the Expert Appraisal Committee (EAC).

7. A further status report may be furnished after four months by e-mail at [judicial-ngt@gov.in](mailto:judicial-ngt@gov.in) preferably in the form of searchable PDF/OCR Support PDF and not in the form of Image PDF.

List for further consideration on 13.04.2021.

A copy of this order be forwarded to the MoEF&CC, NEERI, CPCB, State PCB, Dr. Sarat Chander Lele, EAC Member Coal and Thermal, MoEF&CC and the Collector, Raigarh by e-mail for compliance.

M. A. Nos. 279/2018 and 858/2018 which were filed in the year 2018, may be treated as disposed of in view of the above order. Execution Application 05/2019 also stands disposed of.

Adarsh Kumar Goel, CP

S.K. Singh, JM

Dr. S.S. Garbyal, EM

Dr. Nagin Nanda, EM

November 20, 2020

M.A. No. 279/2018, M.A. No. 858/2018  
& I.A. No. 382/2020 in OA No. 104/2018  
and EA No. 05/2019 IN O. A. No. 104/2018  
DV

**Minutes of the meeting of Oversight Committee appointed by Hon'ble NGT vide order dated 27.02.2020 in OA No. 104/2018 Shivpal Bhagat & Ors. Vs Union of India & Ors.**

## Background

Hon'ble NGT vide its order dated 28.07.2020 has given an extension of two month time for field visit and meeting with concerned authorities about development of health facilities, road conditions and drinking water supply. In order to formulate the visit plan and discuss the progress reported by various organisations, second meeting of the committee was convened on 16.10.2020 through VC. In accordance with unanimous decision taken by the committee field visit was conducted during 9-10 November 2020 for physical verification of progress reported by various organisation. Dr. Sharachchandra Lele, Distinguished Fellow, ATREE, Bengaluru could not join the field team due to his preoccupation on the day of visit. The committee met with representatives of various organizations like PHED, PWD, IRCON International Limited and collector Raigarh to discuss about progress made for remedial action made against pollution caused by various components of the area. Following the previous meeting of this committee on 16.10.2020 and the field visit during 9-10 November, a report was submitted to the Hon'ble NGT on 17.11.2020 and further, applicant has also filed a written submission presenting their views on the committee's report on 18.11.2020 inter-alia to the effect that

- Contaminated sites be seen
- Fly ash dumping in low lying areas be prevented.
- The legacy fly ash dumps be remediated
- Air and land pollution due to fire in the coal mines be remedied.
- Coal transportation by trucks must be done on scientific basis and transportation by conveyor belts be preferred.
- Road maintenance be improved
- CAAQMS be installed
- Steps be taken for recharge of ground water
- Piped water supply to the concerned villages be provided

A hearing was held on 20.11.2020 following which Hon'ble NGT issued orders expressing concern that action so far taken is not adequate and further steps need to be taken in the light of recommendations of the committee and asked the Principal Secretary (Health) and the PWD, Department of Chhattisgarh Government act as per recommendations of the committee and that steps be taken to increase coal transport by Rail. Further that the Hon'ble NGT directed this committee to consider the suggestions in the submission by the applicants. In order to discuss line of action on the issues as above third meeting of the committee was convened on 27.11.2020. The meeting was attended by the following members of the committee -

1. Sh. P Jagan , Regional Director CPCB, Bhopal
2. Dr. Paras Ranjan Pujari, Senior Principal Scientist, NEERI, Nagpur
3. Dr. Sharachchandra Lele, Distinguished Fellow, ATREE, Bangluru
4. Sh. A. K. Gedam, Regional Officer, CECB, Raigarh

Dr. Purushottam Sakhare, Scientist 'D' Regional Office, MoEF&CC, Nagpur (Could not join the meeting due to network connectivity during his field visit on the day)

The committee has long deliberations on the issues directed by Hon'ble NGT in its order dated 20.11.2020 which has already been included in short term and long term plan. The mandate of oversight committee has already been defined in the form of short term and long term plan. The discussion and decisions taken in this meeting are as under-

**1. Induction of Collector –Raigarh into the committee-**

At the outset, it was noted that, since only 7 days had elapsed after the NGT order, the order may not have reached the Collector, Raigarh, and hence he could not be included in the meeting. The Regional Officer, CECB Raigarh, was requested to communicate a copy of the order by hand to the Collector Raigarh, so as to enable his induction into the Committee. **[Action by: RO, CECB, Raigarh]**

**2. Responses to Suggestions by Applicants:**

- a. **That the Committee should meet with the applicants when conducting field inspections:** This suggestion was accepted, and it was decided to keep

the Applicants informed of future field visits, and to meet with the Applicants at the start of field visit to obtain their inputs after ensuring presence of newly inducted member i.e. Collector Raigarh. For that purpose, it is necessary to get the full contact information of the Applicants. Dr. Lele was requested to communicate with the Hon'ble NGT office to obtain this information directly from Registrar of Hon'ble NGT. **[Action by: Dr.Lele]**

- b. That illegal fly ash dumping in low lying areas continues, even after the NGT order and the Collectors' order banning such dumping:** The applicants have submitted photographs and GPS locations with their submission to the NGT dt. 18 Nov 2020. Since the Committee has not received a copy of this detailed submission, it was decided to request the Hon'ble NGT to share a copy so that the Committee may peruse and get verified; the evidence submitted and decides on a course of action. Dr. Lele was requested to communicate with the Hon'ble NGT office to obtain a copy of this submission. **[Action by: Dr.Lele]**. Based on the information provided by the Applicants, the RO-CECB Raigarh will conduct a field inspection along with representatives of the Applicants and local administration, and take necessary action. **[Action by: RO, CECB-Raigarh and ADM/SDM of the area concern]**. In accordance with point 6 of Hon'ble NGT order dated 20.11.2020 about scientific utilization/disposal of fly ash, the Committee shall write to Chairman, CECB, Raipur to constitute a state level committee comprising members from CPCB, CECB and local administration of concern area to permit utilization of fly ash for reclamation of low lying areas, and in stowing of abandoned mines/quarries only after ensuring the implementation of the guidelines prepared by CPCB for the same as per MoEF & CC notification No. S.O. 763 (E) dated 14th September 1999, last amended on 25th January 2016. The issues related to Raigarh area may also be over seen by the same committee. **(Action by: RD, CPCB, Bhopal)**. Finally, the issue of remediation of low lying areas where unscientific fly ash dumping has already occurred will be taken up for discussion in the next meeting of the Committee.

- c. **Fires in coal mines Gare Palma IV/2 and IV/3:** It was decided that RO, CECB Raigarh would conduct a field visit along with the Applicants and representatives of concerned mines to the locations of these fires and take appropriate action. **[Action by: RO, CECB Raigarh]**
- d. **Insufficient information on coal transport by conveyor belt to JPL and JSPL from Gare Palma IV/2&3:** The Committee's last report was based on field observations. Quantitative data on the amounts transported by closed conveyor belt to JPL and JSPL from GP IV/2&3 versus those by road were not available at that time. It was decided to contact the companies involved (JPL, JSPL and SECL) and obtain quantitative data on the transport of coal by different modes to these plants (JPL & JSPL) from GP IV/2&3 mine. **[Action by: RO, CECB, Raigarh]**
- e. **Direction regarding installation of CAAQMS:** Hon'ble NGT order of 20.Nov.2020 reiterates that installation of CAAQMS is required. Therefore, monitoring of air quality on a 24x7x365 basis by installation of CAAQMS at appropriate locations around the ML area (to be approved by this committee), connecting the same to CECB/CPCB servers to upload data, and public display of the readings from the CAAQMS at the mine gates must be implemented. Nine months have already elapsed since the NGT order of February 2020. CPCB, as the nodal agency for the Committee, shall ask CECB to ensure its installation in coal mines as mentioned in the order. **[Action by: RD, CPCB Bhopal]**
- f. **Further action regarding road condition:** The Committee's report of 17 Nov 2020 notes that the road condition is very bad. Accordingly, the Hon'ble NGT in its order dated 20.11.2020 has directed PS, PWD, Chhattisgarh Government to act as per recommendation of the oversight committee. The Committee shall follow up with the PS, PWD to expedite road improvements. **(Action by: RD, CPCB, Bhopal)**
- g. **Inadequate progress on health measures:** The NGT's order of February 2020 had indicated that "Mitigation measures for health issues may be overseen by the Principal Secretary, Health, Govt. of Chhattisgarh". Hence,

this action point had been left for follow-up by the PS-Health CG. However, in the order of 20.Nov.2020, the NGT has clarified that “The Principal Secretary Health may act as per recommendations of the Oversight Committee”. Accordingly, this Committee will hold a separate discussion in the near future on recommendations for addressing health issues, taking into consideration all materials submitted by the Applicants. **(Action: Next meeting).**

- h. **Exact status of green belt development:** Mine wise status of green belt development in coal mines of Tamnar and Gharghoda area will be prepared by MoEF&CC, Regional Office Nagpur and presented in next meeting of the committee. **(Action by: MoEF&CC, RO, Nagpur)**
- i. **Domestic water supply problems and water quality testing in Kondkhel area:** Committee during its visit on 09th November 2020 focused on water supply of Kondkhel area and instructed M/s Hindalco mines to ensure mine water supply to taps in the village that meets quality norms of PHED. M/s Hindalco should provide the Committee with month wise dewatering data of the UG mine, so that a detailed water budget can be undertaken to examine the modalities of its distribution to the Kondkhel village. The committee will also focus on the water problems faced by other villages in Tamnar during its next visit. As regards to water quality testing facilities, RO, CECB, Raigarh will collect more information from PHED about status of their laboratories, number of EDF pumps installed and status of implementation of proposed water supply scheme. Other suggestions of the Applicants will be taken up in the next meeting. **(Action by: RD, CPCB, Bhopal to write to Hindalco; RO, CECB, Raigarh to contact PHED)**
- j. **TOR for Carrying Capacity study:** Due to an oversight, the draft TOR submitted to the NGT on 17.Nov.2020, was incomplete and also incorrectly titled as a ‘source apportionment study’. The Committee requested Dr.Pujari and Dr.Lele to re-draft the TOR for a Carrying Capacity Study and circulate the same to the Committee members for comments. (Action by: Dr.Pujari and Dr. Lele).

3. **Conversion of UG mine to OCP:** It was brought in the notice of the committee by Dr. Lele that the EAC (Coal Mining) in its meeting of 17-18 August 2020, has considered TOR for conversion and expansion of Gare Palma IV mine, currently operated by M/s Hindalco as 0.56 MTPA Opencast and 0.44MTPA as UG, to 1.5 MTPA Opencast mine. However, from the EAC minutes of August 2020, it appears that the MOEFCC has not communicated to the EAC the NGT's orders of 27.Feb.2020 in which Short-Term measure (i) is 'no further conversion of UG mines to Open Cast mines'. It also appears that MOEFCC/EAC has not taken cognizance of the email sent by Dr.Lele on behalf on this committee on 6.Aug.2020 nor the letter sent by CPCB to MOEFCC IA Division on 18<sup>th</sup> September 2020. Representative of MoEF&CC on this Committee is requested to urgently communicate with Mo&CC and bring the Hon'ble NGT order and the oversight committee's view to their attention. **(Action by: MoEF&CC, RO, Nagpur)**
  
4. **Granting of EC for Gare Palma II:** It was brought in the notice of the committee by Dr. Lele that the EAC (Coal Mining) in its meeting of 28.Sep.2020 has recommended granting Environmental Clearance to M/s MSPGCL for commencing mining operations in Gare Palma II for 23.6 MTPA. The NGT's order of Feb 2020 to conduct a Regional Carrying Capacity study is based on its acceptance of the report of its Expert Committee, which states that "the Tamnar-Gharghoda block region is close to exceeding its environmental carrying capacity". In that context, granting environmental clearance to start such a large mine (23.4 MTPA) while the Regional Carrying Capacity study is going on, will vitiate the very purpose of the study, which is to determine the 'precise extent of the current environmental load and the likely impacts of future mining and industrial activities'. The representative of MoEF&CC on this Committee to communicate these concerns to the Ministry immediately and also inform the committee about the actual status of case. **(Action by: MoEF&CC, RO, Nagpur)**
  
5. **Transparency:** The Committee is of the opinion that, as an Oversight Committee appointed by the NGT to implement its orders, the work of this committee must be made transparent to the public in general and the people of the affected region in particular. As a first step, and following the example set by the NGT Committee for Bellandur & Varthur Lake Rejuvenation, this Committee would like to set up its own

website or display all relevant materials on the CPCB website (including field reports, minutes of meetings, NGT orders, etc.). The matter will be discussed with legal cell of CPCB and informed accordingly in the next meeting. **(Action by: RD, CPCB-Bhopal).**

6. **Honoraria:** The question of honoraria payable to expert members for the meetings of the Oversight Committee was discussed. RD, CPCB-Bhopal indicated there was lack of clarity, and agreed to get the matter clarified by CPCB Head Office or NGT as necessary. (Action by: RD, CPCB-Bhopal)
7. **Next meeting:** It was agreed that the next meeting of this Committee would be held in the last week of January 2020.

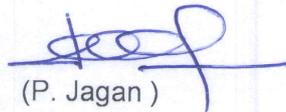
The meeting ends with thanks to Chairman.

(Dr. Sharachchandra Lele)  
Distinguished Fellow, ATREE (Member)

(Dr. P. R. Pujari)  
Senior Principal Scientist,  
NEERI (Member)

(Dr. P. R. Sakhare)  
Scientist-D, MOEF&CC, Nagpur  
(Member)

(Shri. A. K. Gedam)  
Regional Officer, CECB, Raigarh  
(Member)



(P. Jagan )

Regional Director, CPCB, Bhopal  
(Nodal Officer)

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Distinguished Fellow, ATREE (Member)

(Dr. P. R. Sakhare)  
Scientist-D, MOEF&CC, Nagpur  
(Member)

(P. Jagan )  
Regional Director, CPCB, Bhopal  
(Nodal Officer)



(Dr. P. R. Pujari)  
Senior Principal Scientist,  
NEERI (Member)



(Shri. A. K. Gedam)  
Regional Officer, CECB, Raigarh  
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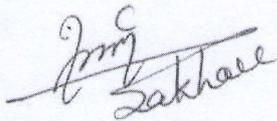


(Dr. Sharachchandra Lele)  
Distinguished Fellow, ATREE (Member)

[I do not agree with point 2-b:  
it misinterprets NGT & Applicant]

(Dr. P. R. Pujari)

Senior Principal Scientist,  
NEERI (Member)



(Dr. P. R. Sakhare)  
Scientist-D, MOEF&CC, Nagpur  
(Member)

(Shri. A. K. Gedam)

Regional Officer, CECB, Raigarh  
(Member)

(P. Jagan )  
Regional Director, CPCB, Bhopal  
(Nodal Officer)



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**Visit of oversight committee to Raigarh, CG**

1 message

**Regional Directorate, Bhopal** <cpcb.bhopal@gmail.com>

Fri, Mar 12, 2021 at 4:07 PM

To: shivpalbhagat2039@gmail.com

Cc: raigarh.cg@nic.in, Sharad Lele &lt;slele@atree.org&gt;, "Paras Ranjan Pujari (NEERI)" &lt;pr\_pujari@neeri.res.in&gt;, Purushottam ramdas Sakhare &lt;sakhare.pr@nic.in&gt;, Roraigarh Cpcb &lt;roraigarh.cpcb@gmail.com&gt;, Dr R P Mishra &lt;rpmishra.cpcb@gmail.com&gt;

Sir,

The oversight committee constituted in NGT O.A. No. 104/2018 in the matter of Shivpal Bhagat Vs Union of India, is to visit Raigarh, Chhattisgarh during 15-17 March, 2021.

The committee will have a meeting with the applicant at 11:00 AM on 15 March 2021 at Collectorate Office, Raigarh.

This is for information.

Regard,

P. Jagan

Regional Director

Central Pollution Control Board

Regional Directorate (Central)

Parivesh Bhawan, Paryavaran Parisar

E-5, Arera Colony, Bhopal - 462016

Tel: 0755-2775386/85

Telefax: 0755-2775587

Mobile: +91-9755559745

**FIELD VISIT REPORT  
OF  
OVERSIGHT COMMITTEE APPOINTED BY HON'BLE NGT**

In the OA No. 104/2018

Shivpal Bhagat & ors Versus Union of India &Ors

Date- 17.03.2021

Hon'ble NGT in its order dated 20.11.2020 inducted District Collector Raigarh as member of the Oversight Committee and directed to consider the suggestions given the applicant by way of written submission filed on 18.11.2020. In compliance of Hon'ble NGT order dated 20.11.2020, the 3<sup>rd</sup> virtual meeting of the Oversight Committee was conducted on 27.11.2020.

As decided in the meeting, 3<sup>rd</sup> field visit of Gharghoda and Tamnar area in Raigarh was conducted during 15-17<sup>th</sup> March 2021 to address the suggestions given by the applicant by way of written submission filed on 18.11.2020. Dr. R. P. Mishra Scientist "D" of Central Pollution Control Board represented Nodal officer in the field visit. Shri P.K. Gupta, DC, Raigarh was also present in field visit as a representative from Collector, Raigarh. The Oversight committee has conducted meeting with applicant on 15.03.2021 in the meeting hall of Collector Raigarh. Sh. Bhim Singh, IAS, Collector Raigarh has presided the meeting of the Oversight Committee. In order to ensure, due consideration to suggestions of the applicant Sh. Shivpal Bhagat, (Applicant) was informed about schedule of the meeting through e-mail on 12.03.2021 and through phone on 15.03.2021. Three applicants out of six have attended the meeting more over 1<sup>st</sup> Applicant Sh. Shivpal Bhagat was not present in the meeting.

Oversight committee has listed out the suggestions given by Sh. Shriram Gupta S/O Mansha Ram Gupta (Applicant 4), Ms. Rinchin D/O Bina (Applicant 5) and Janki Sidar W/o Bharat Sidar (Applicant 6). The applicants were invited to join the Oversight committee in field visit on 15<sup>th</sup> and 16<sup>th</sup> March 2021. Contaminated sites and fly ash disposal sites shown by the applicant were listed and course of action decided by the committee has also been recorded.



### FIELD OBSERVATIONS-

1. **Unscientific dumping of fly ash-** The committee has observed unscientific dumping of fly ash at several places, out of these few are temporary/ intermittent and few old dumping of legacy in nature.

- **Within GP IV/1, outside mine void:** Only fly ash dumping as part of backfilling of mine void along with overburden is permitted. No dumping is permitted in open areas; such dumping is leading to ash flying away into human habitation and ecosystems.



(Pics- 01-04)

**Action:** As this constitutes violation of EC conditions, CECB to direct JSPL to clean up the unauthorised dump within 7 days and dispose the





fly ash in the mine void through the backfilling process. The process of covering fly ash with overburden/ sweet soil appears to be very slow. JSPL shall ensure that fly ash is covered within 07 days to extent possible and also to ensure daily watering or covering up the flu ash during

backfilling process.

- **Within GP IV/2-3 outside mine void:** Only fly ash dumping as part of mine void covered with overburden is permitted. No dumping without cover by overburden is permitted in open area as such dumping may lead to ash flying away into human habitation and ecosystem. ( Pics-



5-6)

**Action:** As this constitutes violation of EC conditions, CECB to direct JSPL to clean up the unauthorised dump within 7 days and dispose the fly ash in the mine void through the backfilling process.

- **Leakage of fly ash slurry from JPL ash dyke:** The ash dyke IIA and IIB of JSPL was observed full and representative of the industry has informed that application for permission to raise the ash dyke height is submitted in MoEF&CC. At the time of visit leakage in the exiting ash dyke was observed and ash laden water was found up to toe drain. Hence possibility of ash dyke breach in future cannot be ruled out. (Pics-07)



**Action:** In compliance of direction from Oversight Committee CECB has

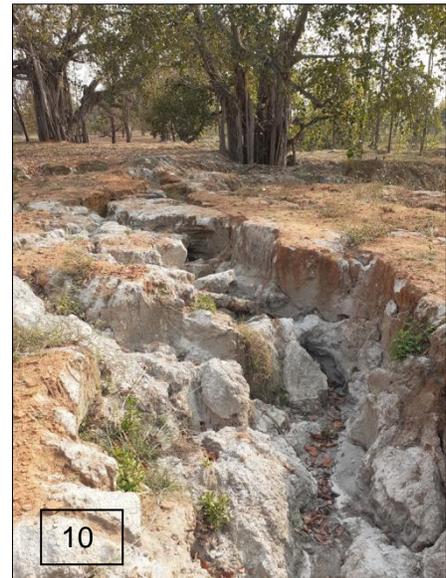
inspected the site and directions to the industry is being issued under section 33 of water act. Furthermore, JPL to conduct study through a research organisation of national repute to determine the stability of the existing ash dyke and take measures required to strengthen as needed. No permission for raising of ash dyke shall be given till safety of the dyke is assured.

➤ **Outside TRN Power Ash dyke:** TRN power has created an ash dump outside its ash dyke in the village of Nawapara Tenda( Pic- 08). The top of dump is at least 10 feet above the GL. This is not as per definition of dumping in low lying area. Moreover, fly ash utilisation report April 2020 – Jan 2021 provided by TRN Power shows that they



have continued to dump fly ash in low lying areas during May, June and July 2020. There are physical evidences for breaching of mud wall leading to fly ash flowing in to adjoined fields (Pic-9). More over the situation to ash flying into neighbouring habitants and ecosystem could not be ruled out.

The dumping of fly ash in Tenda Village is seems to be a legacy dump (Pre-February 2020). This unscientific dumping is visibly eroding in the rain and may flow in to nearby fields and water streams. (Pic-10)



**Action:** CECB to instruct TRN power to desist from any further dumping, to strengthen the mud dykes, to regularly watering the dump to prevent fly ash dispersal by wind, to prevent any erosion by covering the dump with soil. Actions for the long term remediation of this legacy dump will be determined once

mine voids are made available for fly ash disposal.

➤ **Outside Mahaveer Bio Energy Premises:**

Mahaveer Bio energy has created an ash dump behind its premises. (Pics- 11) The top of the dump is at least 10 feet above the GL and does not confirm to the SOP for dumping in low lying area. More over there is not even a proper retaining wall around the dump creating a public hazard.



**Action:** CECB shall issue show cause notice for improper disposal of fly ash and instruct for removal of the fly ash within 07 days.

➤ **Fire in coal mine/coal dump:** The committee observed smoke in gare Palma IV/2-3 (SECL). (Pic-12) SECL assured the committee that they have followed instructions provided by CIMPHER but measure advised as covering with clay have not worked. Fires/ smoke is constant hazard in coal mining. Nevertheless,



fires close to human habitation need to be immediately put on to prevent pollution and health hazard.

**Action:** CECB to direct SECL to arrest all fire within 500 m of kausampalli and Sarasmal village within 7 days and approach DGMS immediately for obtaining better solution to deal with issues.

- **Discharge of untreated waste water-** The committee has observed discharge of untreated water from mine of M/s HINDALCO Industries Limited at Gare Palma IV/4 in to a drain leading to agriculture fields (Pic-13). The mine owner



has also not demarcated mining lease area that OB dump activity could be assessed.

**Action:** As this constitutes a violation of EC conditions, CECB shall direct M/s Hindalco to immediately stop the discharge of effluents, and to install

necessary wastewater treatment facilities and have them inspected by CECB within 1 month, show that it meets discharge quality standards set in the EC, and seek approval of neighboring village Gram Sabha before releasing any further (treated) wastewater out of its mine lease area.



The committee also received public representation in field to the effect that the captive coal washery with in the JPL premises was releasing untreated effluents in to the Kelo River that adjoins it. The committee could not visit the visit the site to examine the situation.

**Action:** CECB has visited the site and reported non-operational status of coal washery, however water samples from River Kelo has been collected and final report will be submitted after completion of sample analysis.

2. **Green belt and safe distance from public road/settlement-** The committee has found green belt issue and indiscriminate storage of OB dump in CSPGCL

(Chhattisgarh State Power Generation Company limited) mine at Gare Palma sector  
3. It was observed that dumping of OB was done on both sides of public road without safe distance.

**Action:** Committee has instructed CECB to inspect the GP III mine and verify the actual location of OB dump as per mining plan. In case of any deviation found strict action shall be initiated in consultation with state mining department as well as Director General of Safety and Mines (DGMS). Regarding Gare Palma IV/5 MoEF&CC to verify and issue appropriate direction.

3. **Making abandoned mines available for disposal of fly ash- Update:** Ministry of power has identified 3 mines for fly ash dumping in Tamnar-Gharghoda region. Chhaal mine is actually not available because it is being worked. Mand mine is an UG mine has already been decommissioned. It is not easy to reuse it for fly ash dumping. DGMS will be requested to suggest ways in which it can be made available for fly ash dumping. OCP mine at Domnara is found suitable for disposal fly ash available for which SECL, Raigarh has moved the letter to its HO at Bilaspur office seeking permission. In case of permission granted for Domnara mine preference shall be given to TRN Energy Private Limited and some other power producers that generate fly ash and have limited area for fly ash disposal.

**Action:** Collector Raigarh shall pursue the matter with CMD, SECL, Bilaspur for an early outcome.

4. **Public health facilities and disease screening-** The committee has also discussed about requirement of health infrastructure and status of available facilities in Gharghoda and Tamnar area. Collector Raigarh has informed the committee that there are adequate facilities available at Tamnar CHC and at the Fortis-JPL multi-speciality hospital at Tamnar. Collector Raigarh has also assured to organise 'health camps' within the next 3 months in all villages surrounding the mines areas in T & G blocks, and then ensure regular screening after that on a yearly basis.

**Action:** CECB RO Raigarh with DC, Raigarh to reconfirm that JPL hospital is open to all villagers for free of cost treatment.

5. **Improve Road quality to reduce spillage and air pollution-** Gharghoda and Tamnar area of Raigarh is extremely rich in coal mineral and extensively mined by SECL and other private companies. It was observed that very less percent of coal produced in the area is available for exiting industries of Raigarh. Most of the coal mined is being transported to nearby areas in Chhattisgarh and other states. Hence road condition of Raigarh plays an important role in deterioration of ambient air quality. In order to ensure better ambient air quality an statistical balance is to be developed between road transport and rail transport. It was found satisfactory that development of rail network with five coal siding in the area are at the stage of completion. Hence it is required to decide a time line for transportation of coal by rail only especially being dispatched to other states. Road transport of coal shall be limited for those power plants operational in Raigarh.

EE, PWD, Raigarh has informed the committee that main highway connecting Raigarh to Dharamjaygarh has now been shifted to NH scheme. Stretch from Chhal mines to Gharghoda has been approved for two-lane and its strengthening. Stretch from Punjipathra to Milupara via Tamnar (25 km) and Stretch from Milupara to Lailung not yet approved.

**Action:** Since the actual process of constructing the NH will take at least two years, PWD is instructed to identify badly damaged patches in this stretch and prepare a budget and get the same approved and acted upon immediately (within 3 months). As far as constructions of other stretches are concerned PWD shall take highest priority because these are the stretches with heaviest traffic density.

6. **Inadequate quality of drinking water supply to Kondkhel village-** This could not

be verified in this visit, but Hindalco was already instructed to stop providing water from Bendra nala, and to provide water from coal mine after proper filtration and treatment. Hindalco has yet to comply.

**Action:** Direction from collector Raigarh may be issued to M/s HINDALCO and PHED, Raigarh for compliance within three months.

(Dr.P.R.Pujari)  
Senior Principal Scientist,  
NEERI, Nagpur  
(Member)

(Dr. Sharachchandra Lele)  
Distinguished Fellow  
ATREE. Bengluru  
(Member)

( Dr. P.R. Sakhare )  
Scientist-D, MOEF&CC, Nagpur  
(Member)

(S.K.Verma )  
Regional Officer, CECB, Raigarh  
(Member)

( P.K. Gupta )  
Deputy Collector  
Raigarh

(Dr. R. P. Mishra)  
Scientist "D"  
CPCB, Bhopal

Signed by DC  
(Bhim Singh)  
IAS  
Collector, Raigarh

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Scientist-D, MOEF&CC, Nagpur  
(Member)

  
(S.K.Verma )  
Regional Officer, CECB, Raigarh  
(Member)

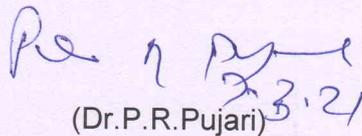
  
( P.K. Gupta )  
Deputy Collector  
Raigarh

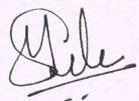
(Dr. R. P. Mishra)  
Scientist "D"  
CPCB, Bhopal

(Bhim Singh)  
IAS  
Collector, Raigarh

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**Action:** Direction from collector Raigarh may be issued to M/s HINDALCO and PHED, Raigarh for compliance within three months.

  
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Senior Principal Scientist,  
NEERI, Nagpur  
(Member)

  
(Dr. Sharachchandra Lele)  
Distinguished Fellow  
ATREE, Bengluru  
(Member)

( Dr. P.R. Sakhare )  
Scientist-D, MOEF&CC, Nagpur  
(Member)

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Raigarh

  
(Dr. R. P. Mishra)  
Scientist "D"  
CPCB, Bhopal

Signed by DC  
(Bhim Singh)  
IAS  
Collector, Raigarh



ANNEXURE-V

क्षेत्रीय निदेशालय ( मध्य ), भोपाल  
Regional Directorate (Central), Bhopal  
केन्द्रीय प्रदूषण नियंत्रण बोर्ड  
Central Pollution Control Board  
( पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार )  
(Ministry of Environment, Forests & Climate Change,  
Government of India)

RD/BPL/NGT OA-104/2018/ 202

Date: February 26, 2021

To,

The Chairman  
Chhattisgarh Environment Conservation Board  
Paryavas Bhawan  
Sector-9,  
Naya Raipur- 492002

**Subject:** Constitution of State Level Committee for utilization of fly ash for reclamation of low lying areas, and in stowing of abandoned mines/quarries – reg.

Sir,

Hon'ble NGT (PB) vide order dated 27.02.2020 in O.A. No. 104/2018 "Shivpal Bhagat & Ors. Vs. Union of India & Ors." has constituted an oversight committee to ensure implementation of direction passed by Hon'ble NGT in the order.

The oversight committee in its 1<sup>st</sup> meeting dated 11.05.2020 had decided to direct Collector, Raigarh to issue instructions to all gram Panchayat to stop issuing NOC for disposal of fly ash in low lying areas of Raigarh. Accordingly Collector, Raigarh vide its letter dt. 09.07.2020 has directed to concerned officer to instruct all Gram Sarpanch for not issuing any NOC for disposal of fly ash in low lying areas.

Further Hon'ble NGT vide order dated 20.11.2020 has instructed to ensure only scientific utilization of fly ash in low land area. In this context, oversight committee in its meeting dated 27.11.2020 has decided that Chhattisgarh Environment Conservation Board (CECB) should constitute a state level committee comprising of members from CECB (Nodal agency), CPCB and Local Administration of concerned area to permit utilization of fly ash for reclamation of low lying areas, and in stowing of abandoned mines/quarries only after ensuring the implementation of guidelines prepared by CPCB for the same as per MoEF&CC notification No. S.O. 763(E)/ dated 14<sup>th</sup> January, 2016. The issues related to fly ash utilization in Raigarh area may also be overseen by the same committee on priority.

In view of the above, it is requested to constitute the above said committee with intimation to this office so that progress could be submitted in Hon'ble NGT about the mechanism adopted by the state for utilization of fly ash.

Yours faithfully,

  
(P jagan)  
Regional Director

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ANNEXURE-VI

क्षेत्रीय निदेशालय ( मध्य ), भोपाल  
Regional Directorate (Central), Bhopal  
केन्द्रीय प्रदूषण नियंत्रण बोर्ड  
Central Pollution Control Board  
( पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार )  
(Ministry of Environment, Forests & Climate Change,  
Government of India)  
दिनांक: 26 फरवरी, 2021

क्षे.नि.भो./एन.जी.टी.ओ.ए.-104/2018/1509

प्रति,

Speed Post

Hon'ble NGT Matter

सदस्य सचिव  
छत्तीसगढ़ पर्यावरण संरक्षण मण्डल  
पर्यावास भवन, सैक्टर-9  
नया रायपुर, छत्तीसगढ़-492002

विषय: माननीय राष्ट्रीय हरित अधिकरण द्वारा OA No. 104/2018 में दिनांक 27.02.2020 एवं 20.11.2020 को जारी आदेशों के अनुपालन के संबंध में।

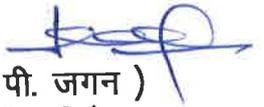
महोदय,

माननीय राष्ट्रीय हरित अधिकरण द्वारा दिनांक 27.02.2020 (OA No. 104/2018) को जारी आदेश के अनुपालन में गठित Over Sight Committee की बैठक दिनांक 27.11.2020 को सम्पन्न हुई जिसमें माननीय राष्ट्रीय हरित अधिकरण द्वारा दिनांक 20.11.2020 को जारी आदेश पर विस्तारपूर्वक चर्चा की गई एवं कोलमाइन्स द्वारा जनित प्रदूषण का प्रबोधन 24x7x365 के आधार पर किए जाने का निर्णय लिया गया। मॉनिटरिंग के आंकड़ों का ऑनलाइन डिस्प्ले कोलमाइन्स के गेट पर किया जाना है एवं इसे सी.पी.सी.बी. एवं सी.ई.सी.बी. की वेबसाइट से भी कनेक्ट किया जाना है।

इस बाबत छत्तीसगढ़ पर्यावरण संरक्षण मण्डल द्वारा रायगढ़ में स्थापित सभी कोलमाइन्स में CAAQMS लगाया जाना आवश्यक है।

अतः निवेदन है कि उपरोक्त के संबंध में रायगढ़ के तमनार एवं घरघोड़ा क्षेत्र में स्थापित सभी कोलमाइन्स में CAAQMS लगवाये जाने हेतु निर्देश जारी करने का कष्ट करें।

भवदीय

  
( पी. जगन )  
क्षेत्रीय निदेशक



**HEAD OFFICE**  
**CHHATTISGARH ENVIRONMENT CONSERVATION BOARD**  
**PARYAWAS BHAWAN, SECTOR- 19**  
**NAVA RAIPUR ATAL NAGAR, RAIPUR (C.G.)**  
**Email - hocecb@gmail.com**

No. / TECH / H.O. / CECB / 2021  
 To,

Raipur, Dated: / / 2021

The Director  
 NEERI,  
 Nehru Marg, Vasant Nagar,  
**Nagpur, Maharashtra - 440020**

- Sub. :- Carrying Capacity (CC) and Source Apportionment (SA) Study in Tamnar and Gharghoda, Blocks of Raigarh District of Chhattisgarh State – Invitation of Proposal.
- Ref. :- Hon'ble NGT Principal Bench, New Delhi, order dated 20/11/2020 in Original Application No. 104/2018.

-----:00:-----

Please refer the Hon'ble NGT Principal Bench, New Delhi, order dated 20/11/2020 in Original Application No. 104/2018 in Shivpal Bhagar and others Vs Union of India & others. Copy of Order is Enclosed as **Annexure – I**. As per para 17 of the order “That in the long term compliance section the details provided in Annexure – VI for the carrying capacity study is grossly insufficient. The proposal of CECB is to just conduct a source apportionment study. A source apportionment study cannot be considered as a carrying capacity study. Source Apportionment (SA) is the practice of deriving information about pollution sources and the amount they contribute to ambient air pollution levels. The concept of carrying capacity describes the relationship between resources, environment and human activities to ensure sustainability. Carrying capacity is also defined as “the growth limits an area can accommodate without violating environmental capacity goals”. The carrying capacity study will assess the maximum number of individuals/ industrial activities that an area’s resources can sustain indefinitely without significantly depleting or degrading those resources of causing environmental or public health depletion. It is reiterated that a proper detailed proposal on carrying capacity study has to be done and shared with the community before progressing with the compliance”.

In view of the above, Chhattisgarh Environment Conservation Board (CECB) intends to undertake the Carrying Capacity (CC) and Source Apportionment (SA) Study in Tamnar and Gharghoda, Blocks of Raigarh District of Chhattisgarh State. There are number of Coal Mines, Some Power Plant and Sponge Iron Plant are in Operation in these blocks. The Board needs your expertise and institutional support to make detailed study on Load Carrying Capacity and Source Apportionment of above region.

In this connection, please find enclosed herewith the Scope of Work along with the terms and conditions (Enclosed as **Annexure-B**) for the above mentioned project for your perusal. Scope of work for above study may be finalised with mutual discussion and understanding. You are requested to kindly submit your technical as well as commercial proposal within a period of 15 days, so that further action may be taken at our end.

An early response is anticipated.

**Enclosed :- As above.**

**Member Secretary**  
Chhattisgarh Environment Conservation Board  
Nava Raipur Atal Nagar, Raipur (C.G.)

Endt. No. 11547 TECH / H.O. / CECB / 2021

Raipur, Dated: 31/03/2021

Copy to :-

✓ Regional Director, Regional Directorate (Central), Central Pollution Control Board, Bhopal, Parivesh Bhawan, Paryawaran Parisar, E-5 Arera Colony, Bhopal (M.P.) 462016 for information and necessary action please.

**Member Secretary**  
Chhattisgarh Environment Conservation Board  
Nava Raipur Atal Nagar, Raipur (C.G.)

Item Nos. 02 & 03

Court No. 1

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

Original Application No. 104/2018  
(M.A. No. 279/2018, M.A. No. 858/2018 & I.A. No. 382/2020)  
WITH  
Execution Application No. 05/2019  
(With report dated 17.11.2020)

Shivpal Bhagat & Ors.

Applicant(s)

Versus

Union of India & Ors.

Respondent(s)

Date of hearing: 20.11.2020

**CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON  
HON'BLE MR. JUSTICE SHEO KUMAR SINGH, JUDICIAL MEMBER  
HON'BLE DR. SATYAWAN SINGH GARBYAL, EXPERT MEMBER  
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER**

Applicant(s): Mr. Saurabh Sharma, Advocate

Respondent(s): Mr. Kush Sharma, Advocate for CPCB

**ORDER**

1. The issue for consideration is the remedial action against pollution caused by the Thermal Power Plants, the coal washeries in Tamnar and Gharghoda blocks of Raigarh District in Chhattisgarh, including M/s Jindal Power Limited, M/s Jindal Power and Steel Limited, M/s TRN Energy Private Limited, M/s Mahavir Energy & Coal Benefaction Limited, M/s Hindalco Industries Limited and M/s. Monet Energy Limited, SECL. The operation of the said units is resulting in contamination of air, water and land and having adverse impact on the environment and the habitants. Water and soil have toxic metals having potential for health

hazard requiring monitoring of emissions, making the polluter accountable and regulating the polluting activities.

2. The matter has been considered earlier and under direction of this Tribunal, an Expert Committee furnished its report dated 14.10.2019 after visiting the sites and considering earlier reports on the subject. The Committee considered the mitigation measures required to be adopted by the Thermal Power Plants and the coal washeries. The Committee found that the issue of ground water depletion, soil pollution, forest loss and livelihood loss were required to be addressed for which short term and long terms measures were suggested. The Tribunal directed remedial action for dealing with the deficiencies having potential for damage to the environment. Further direction was to review the existing arrangements and furnishing a further report. The operative part of directions in the order dated 27.02.2020 is as follows:

*"3. Accordingly, a report dated 14.10.2019 has been filed by the CPCB on behalf of the Committee on 15.10.2019. The Committee visited various sites and considered the earlier reports, including maps and the data of air quality as well as water pollution. The Committee then considered the mitigation measures prescribed and their current status including installation of Electro-Static Precipitators (ESPs) and Fluidized Gas Desulfurizers (FGDs) in the Thermal Power Plants. The committee also considered ground water depletion, soil pollution, forest loss and livelihood loss and after detailed study of various aspects made following recommendations:*

**"4. RECOMMENDATIONS:**

*Based on the above observations, the committee recommends a set of short-term and long-term measures.*

**4.1 Short-term measures**

- a. *Requiring all coal mines in Raigarh district to accept fly ash for disposal through OB dump and back-filling. (Action by respective Coal mine companies).*
- b. *Given the seriousness of improper fly ash dumping in low lying areas, and the practical difficulty in rigorously monitoring the implementation of the recent SOP in the field, no further disposal of fly*

ash in low-lying areas by TPP/ CPP companies to be permitted and all Gram Panchayats in Raigarh district to be directed to stop issuing NOCs for the same.

- c. Requiring that whatever coal is being supplied to JPL and JSPL from Gare Palma IV/2&3 should be transported through the already existing **closed conveyor belts** and no such coal transport should be allowed via trucks. (Action by SECL).
- d. Establishment of monitoring cell by PHED to monitor water quality being used by the residents of villages and provide pretreatment facility and removal of geogenic contaminants and anthropogenic contaminants before its use as drinking water. Specifically, the quality of water treatment in the mine-supported water supply system in village Kondkhel needs to be ensured by PHED as per drinking water norms.
- e. Installation of adequate number of CCTV and CAAQM stations in coal mining area. Proper records under CCTV coverage shall be maintained by coal mines to ensure movement of covered trucks loaded with coals and regular and comprehensive operation of sprinklers in coal zone, stockyard and all mine roads. CAAQMS shall be connected to CECB/CPCB server, and also displayed on the mine gates for public information. (Action by respective coal mine companies).
- f. Proper repairing and maintenance of roads both inside and outside the mine area to ensure smooth movement of trucks and other load carrying vehicles. (Action by Public Works Department and respective mining companies). Indian Railways to be directed to submit a time-bound action plan for commissioning of the railway line in Tamnar and Gharghoda blocks to ensure all coal transportation by rail.
- g. Proper and free health care facilities with multispecialty treatment system may be provided in all coal mine-adjacent villages as per the recommendations of the committee report of 14.6.2019 in the Dukalu Ram (OA 314/2014 CZ) case. (Action by respective coal mine companies).
- h. Strict vigilance by MOEFCC for green belt development compliance as per EC conditions.
- i. We also recommend that **no further conversion of UG mines to Open Cast mines** be permitted in Tamnar and Gharghoda, keeping in mind the environmental costs in terms forest loss, major

noncompliance in pollution control and social cost (rehabilitation).

#### 4.2 Long-term measures

- a) **Based on evidence summarised above, the committee is of the opinion that the Tamnar-Gharghoda block region is close to exceeding its environmental carrying capacity.** However, the precise extent of current environmental load and the likely impacts of future mining and industrial activities has to be worked out through a detailed and comprehensive **environmental load carrying capacity study, to be carried out by a reputed environmental research institute or a consortium of such institutes over a 24-month period.**
- i) The study must cover dimensions of air pollution (especially PM2.5), water pollution and ground and surface water depletion, soil contamination, forest and biodiversity loss, and social and health impacts.
  - ii) Moreover, given the geography of the region, the study must assess the carrying capacity separately for two different subregions: the northern Tamnar (coal mining related) block and Gharghoda block. Moreover, since Chhal open cast mine located in southern Dharamjaigarh block is located on the bank of Mand River and therefore in an eco-sensitive zone, a baseline study of this region may also be carried out. The southern Tamnar subregion has already been studied for environmental load carrying capacity by IIT Kharagpur (report submitted to CECB in 2018) and it has already recommended strict regulation of any further industrial development in particular parts of the sub-region through a high-level committee.
  - iii) Mode of commissioning of this study may please be decided by the Hon'ble NGT, and necessary directions may please be issued accordingly.
- b) **To reduce the pollution and other impacts caused by road transport** of coal and other minerals, directions may be issued that coal transport by road from coal mines or to thermal power plants in these two blocks will be permitted only for 1 year, after which transport must be done by rail or closed conveyor belt only.
- c) **Condition of greenbelt development** may be incorporated at TOR stage of EC application to ensure

that greenbelt work shall be in place at the time of final presentation for obtaining EC, which shall be verified by MOEFCC. Further, while granting TOR, EAC should specify the location of the greenbelt to provide buffer between coal mine and human settlements, and specify a sufficient width of the greenbelt for the same.

- d) Ministry of Coal be directed to include the necessary provisions **to ensure the acceptance of fly ash** in coal mines for disposal through OB dump and back-filling as per fly ash notification of 2009.”

4. We find that the recommendations are based on relevant studies and need to be implemented by the concerned power plants and mines in the area for protection of environment and the public health and the environmental rule of law.

5. The applicants have, while broadly expressing satisfaction with the report, made certain suggestions. First suggestion of the applicants is that carrying capacity assessment must be expeditiously carried out and till such assessment is done, expansion and new projects should be only after thorough evaluation. Further suggestion is that there should be a mechanism to oversee the remedial measures, including oversight of health mitigation measures suggested by the Committee.

6. We are of the view that since serious deficiencies have been found and there is potential for damage to the environment as observed in the report, the 'Precautionary' and 'Sustainable Development' principles require that any further expansion or new projects in the area should be allowed after thorough evaluation only and mechanism for remedial measures should be in place, including oversight of measures for health mitigation. The Committee already constituted in terms of order of this Tribunal dated 22.07.2019 will act as an Oversight Committee. The nodal agency for the purpose will be the CPCB. Meeting of the Committee may be held atleast once in two months or at such interval as may be decided by the Committee. Mitigation measures for health issues may be overseen by the Principal Secretary, Health, Govt. of Chhattisgarh. For this purpose, the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary, Health, Govt. of Chhattisgarh will be at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds. The Committee may give a status report on the issue as on 30.06.2020 by 15.07.2020 by e-mail at [judicial-ngt@gov.in](mailto:judicial-ngt@gov.in). The Oversight Committee may issue appropriate directions to the project proponents for other remedial measures.

7. The above report may be looked into and acted upon by the Ministry of Coal as well as MoEF&CC for such further action as may be necessary.”

3. Accordingly, report has been filed by the CPCB on 17.11.2020 giving the status of compliance of the recommendations in a tabular form as follows:

| S. No.    | Orders of the Hon'ble NGT from recommendations in the report, November 2019  | Compliance Review Status on 09.11.2020   |
|-----------|--|--|
| <b>01</b> | <b>Short term measures</b>   |  |
| a)        | Requiring all coal mines in Raigarh district to accept fly ash for disposal through OB dump and back-filling. (Action by respective Coal mine companies).  | Three SECL mines are found complying. Letters were issued to SECL Chaal OC, Monnet Ispat, HINDALCO Limited and M/s Ambuja Cement Ltd. M/s HINDALCO mines informed about no OB dump because of continuous back filling of mined area with OB as per Approved mining plan. M/s Monnet Ispat Mines has been taken over by SECL. No response received from M/s Ambuja Cement Limited. More over CEA vide its letter dated 14.02.2020 has informed about declaration of abandoned mines on recommendation of task force. The list includes 24 abandoned OC mines of Chhattisgarh to be used for filling of fly ash generated from TPP. Process of allocation no of these mines to TPP of Chhattisgarh is under taken by CECB and is on advance stage. Annexure-II |
| b)        | Given the seriousness of improper fly ash dumping in low lying areas, and the practical difficulty in rigorously monitoring the implementation of the recent SOP in the field, no further disposal of fly ash in low-lying areas by TPP/ CPP companies to be permitted and all Gram Panchayats in Raigarh district to be directed to stop issuing NOCs for the same. | District Collector of Raigarh has issued letter to concerned department for directing all gram panchayats for not issuing any NOC to use low lying area for disposal of Fly Ash. During visit of the committee, disposal of fly ash in low lying area was not observed. Annexure-III   |
| c)        | Requiring that whatever coal is being supplied to JPL and JSPL from Gare Palma IV/2&3 should be transported through the already existing closed conveyor belts and no such coal transport should be allowed via trucks. (Action by SECL).  | Based on the observation of CECB, RO, Raigarh, it seems to be complied.  |
| d)        | Establishment of monitoring cell by PHED to monitor water quality being used by the residents of villages and provide pre -  | The representative of PHED present during visit of the committee has informed that PHED established water testing  |

|    |  |  |
|----|--|--|
|    | <p>treatment facility and removal of geogenic contaminants and anthropogenic contaminants before its use as drinking water. Specifically, the quality of water treatment in the mine-supported water supply system in village Kondkhel needs to be ensured by PHED as per drinking water norms.</p>  | <p>laboratory at Gharghoda and Raigarh for testing of drinking water quality of the area. Moreover 12 hand pumps, 02 Power pumps and 01 tap water supply have been provided in Kondkel area. (Annexure-IV) The residents of the village has informed about frequent lowering of ground water table due to UG mining activity. Representative of the PHED was also in concurrence with the observation of the villagers. In order to ensure regular and good water quality to villagers the committee has directed M/s Hindalco to provide tape water in village and ensure quality of water in coordination with PHED Raigarh.</p> |
| e) | <p>Installation of adequate number of CCTV and CAAQM stations in coal mining area. Proper records under CCTV coverage shall be maintained by coal mines to ensure movement of covered trucks loaded with coals and regular and comprehensive operation of sprinklers in coal zone, stockyard and all mine roads. CAAQMS shall be connected to CECB/CPCB server, and also displayed on the mine gates for public information. (Action by respective coal mine companies).</p> | <p>- As per field report by CECB, RO, Raigarh it seems that CCTV has been installed by M/s HINDALCO Industries, SECL Gare Palma IV/2 &amp; 3, SECL Chhal. SECL Gare Palma IV/1. At the time of visit M/s Monnet Ispat Mines were not found operational.</p> <p>- In case of installation of CAAQMS all the mines have informed that as per mandatory conditions of EC and CTO fixed location ambient air Quality monitoring is being conducted by the units and reports are regularly submitted to MoEF&amp;CC and CECB.</p>   |
| f) | <p>Proper repairing and maintenance of roads both inside and outside the mine area to ensure smooth movement of trucks and other load carrying vehicles. (Action by Public Works Department and respective mining companies). Indian Railways to be directed to submit a time-bound action plan for commissioning of the railway line in Tamnar and Gharghoda blocks to ensure all coal transportation by rail.</p>  | <p>- Letter issued to PS, PWD, S1/03, Mahanadi Bhawan, Raipur by this office vide number RDB/ NGTOA-104/2018/553 dated 07.09.2020. EE PWD was present before committee to appraise the status of PWD roads in the area. Committee has observed very bad road condition in Tamnar and Gharghoda area which seems to be one of the major factors for deterioration of ambient air quality. EE PWD Sh. Khamra has informed the committee about requirement of immediate construction of approximate 111 Km CC road (Raigarh to Dharmajay Garh about 76 Km and Punjipatra to Milupara</p>  |

|    |   |  |
|----|---|--|
|    |   | <p>about 35 Km) but due to budget constraint the work is pending since last several years. More over SECL has paid an amount of 42 Crore to Raigarh PWD for construction of 19 kms, 7m wide tar road from Gharghoda to Jampali in compliance of Hon'ble NGT order.</p> <p>- IRCON International Limited, in reference to our letter dated 07.09.2020 has informed that 44 Km Railway line work from Kharsia- Gharghoda Korichhapar has been completed and started transportation of coal. Work for 14 km rail line from Gharghodabhalumuda- Gare Palma will be completed by June 2021. Rail line work from Karichhapar - Kurumkela- Dharamjaygarh will be completed by December 2020. IRCON has to construct 05 numbers of coal siding in Tamnar and Gharghoda area for increasing rail coal transportation. As on date of committee visit IRCON has completed 03 coal siding and made 01 siding operational, 02 more siding will be made operational by December 2020. As informed by the representative of Indian Railway rest 02 sidings shall be completed by March 2021. (Annexure-V) <b>Compliance in Progress</b></p> |
| g) | Proper and free health care facilities with multispecialty treatment system may be provided in all coal mine adjacent villages as per the recommendations of the committee report of 14.6.2019 in the Dukalu Ram (OA 314/2014 CZ) case. (Action by respective coal mine companies). | Mitigation measure for health issues is to be overseen by the Principal Secretary, health, Govt. of Chhattisgarh. For this purpose, the existing arrangements in the local areas may be reviewed and further strengthened to meet the requirements. The Principal Secretary Health, Govt. of Chhattisgarh is at liberty to issue appropriate directions to the concerned project proponents also for their initiatives out of CSR funds.   |
| h) | Strict vigilance by MOEF&CC for green belt development compliance as per EC conditions  | MoEF&CC has started close monitoring for green belt development in all coal mines. <b>Compliance in progress.</b>  |
| i) | We also recommend that no   | Letter has been issued to  |

|           |   |   |
|-----------|---|---|
|           | <p>further conversion of UG mines to Open Cast mines be permitted in Tamnar and Gharghoda, keeping in mind the environmental costs in terms forest loss, major noncompliance in pollution control and social cost(rehabilitation).</p>  | <p>MoEF&amp;CC (IA-Coal) for implementation of restriction on conversion of UG coal mines to OC coal mines in Tamnar and Garghoda area of District Raigarh.</p>   |
| <b>02</b> | <b>LONG TERM MEASURES</b>   |   |
| a)        | <p>Commissioning a detailed and comprehensive environmental load carrying capacity study (as mentioned in NGT order), to be carried out by a reputed environmental research institute over a 24 month period.</p>   | <p>The matter was discussed with CPCB HO and got advised to include the project in State EC fund as defined by Hon'ble NGT. In order of this proposal for the same has been prepared by CECB and submitted to CPCB for compilation of all project and submission before Hon'ble NGT. Annexure-VI<br/><b>Compliance in progress.</b></p>   |
|           | <p>Mode of commissioning of this study may please be decided by the Hon'ble NGT and necessary directions may please be issued accordingly</p>   |   |
| b)        | <p>To reduce the pollution and other impacts caused by road transport of coal and other minerals directions may be issued that coal transport by road from coal mines or to thermal power plants in these two blocks will be permitted only for 1 year, after which transport must be done by rail of closed conveyer belt.</p>   | <p>As per report obtained from SECL it is evident 35% increase in daily average dispatch by rail in comparison to the FY-2019-20 after construction of new rail line between Kharsia-Gharghoda- Korichhapar. Coal dispatch from Korichhapar railway siding commenced in the FY2019-20. It is assumed that coal transport by rail may increase by 50% in addition to earlier transport in rail by December 2020.</p> |
| c)        | <p>Condition of green belt development may be incorporated at TOR stage of EC application to ensure that green belt work shall be in place at the time of final presentation for obtaining EC, which shall be verified by MoEF&amp;CC. Further while granting TOR, EAC should specify the location of the green belt to provide buffer between coal mine and human settlements and specify sufficient width of the green belt for the same.</p> | <p>Copy of Hon'ble NGT order dated 27.02.2020 has been sent to IA-Coal on 18.09.2020 for further necessary action by MoEF&amp;CC.</p>   |
| d)        | <p>Ministry of coal be directed to include the necessary provisions to ensure the acceptance of fly ash in coal mines for disposal through OB dump and backfilling as per fly ash notification of 2009.</p>   | <p>Pursuant upon long deliberations by CPCB, Central Electricity Authority, NTPC and Ministry of Coal through Task Force, list of 24 abandoned OC mines of Chhattisgarh has been submitted to be used for filling of fly ash generated from TPP. Process of allocation of these mines to TPP of Chhattisgarh is under taken by CECB and is on advance stage.</p>  |

4. The Committee has also made field observations and recommendations as follows:

**"FIELD OBSERVATIONS:**

1. Pursuant upon long deliberations by CPCB, Central Electricity Authority, NTPC and Ministry of Coal through Task Force, list of 24 abandoned OC mines of Chhattisgarh has been submitted to be used for filling of fly ash generated from TPP. Member Secretary CECB has informed about considering mine wise allocation of abandoned coal mines as declared by CEA vide its letter dated 14.02.2020. The co-operation of SECL is not satisfactory as many applications of TPP of Tamnar & Gharghoda area are lying unattended by SECL.
2. District collector, Raigarh has issued letter to concern departments for directing all gram panchayats for not issuing any NOC to use low lying area for disposal of Fly ash. During visit committee has observed restriction on fly ash disposal in low lying areas particularly in agricultural fields of the villages.
3. In compliance of letter issued by Nodal Officer of the committee on 07.09.2020 to PS, PHED, Raipur, it was informed that PHED has established water testing laboratory at Gharghoda and Raigarh for testing of drinking water quality of the area. PHED, Raigarh has also established 06 control rooms and circulated the contact numbers of the concern officers to manage any crisis of drinking water availability in Raigarh District. In order to provide proper treatment for removal of any geogenic contaminants PHED Raigarh has also provided 05 Electrolytic DE fluoridation (EDF) plants in 03 villages (Pata, Mudagaon, Saraitola) of Tamnar Block. Moreover 12 hand pumps, 02 Power pumps and 01 tap water supply have been provided in Kondkel area. In addition to above PHED, Raigarh has also proposed drinking water supply scheme (Rs. 1270.41 Lakh project cost) for 10 mining effected villages of Tamnar Block. The details submitted by PHED, Raigarh was verified in Kondkel Village and found insufficient with respect to population of the village. The representative of PHED present during visit of the committee has informed that PHED has established 04 hand pumps, 04 Power pumps and 01 tap water supply have been provided in Kondkel area. The residents of the village has informed about frequent lowering of ground water table due to UG mining activity. Representative of the PHED was also in concurrence with the observation of the villagers. In order to ensure regular and good water quality to villagers the committee has directed M/s Hindalco to provide tape water supply from mine in village and ensure quality of water in coordination with PHED Raigarh. M/s Hindalco Coal Mine shall also submit report on quantity of mine water generation from UG mines to make an assessment for water supply required from PHED.

4. Installation of CCTV system in mines of the area was reported complied by all mines whereas its proper operation and recording is to be ensured by SECL in its all mines located in Chhal and Gare Palma.
5. EE PWD was present before committee to appraise the status of PWD roads in the area. Committee has observed very bad road condition in Tamnar and Gharghoda area which seems to be one of the major factors for deterioration of ambient air quality. EE PWD Sh. Khamra has informed the committee about requirement of immediate construction of approximate 111 Km CC road (Raigarh to Dharmajay Garh about 76 Km and Punjipatra to Milupara about 35 Km) but due to budget constraint the work is pending since last several years. An amount of Rs. 335 Crore may be required to complete the construction of CC road in the area of Tamnar and Gharghoda. More over SECL has paid an amount of 42 Crore to Raigarh PWD for construction of 19 kms, 7m wide tar road from Gharghoda to Jampali in compliance of Hon'ble NGT order.

IRCON International Limited, in reference to our letter dated 07.09.2020 has informed that 44 Km Railway line work from Kharsia - Gharghoda - Korichhapar has been completed and started transportation of coal. Work for 14 km rail line from Gharghoda - Bhalumuda - Gare Palma will be completed by June 2021. Rail line work from Karichhapar - Kurumkela - Dharamjaygarh will be completed by December 2020. IRCON International Limited, in reference to our letter dated 07.09.2020 has informed that 44 Km Railway line work from Kharsia - Gharghoda - Korichhapar has been completed and started transportation of coal. Work for 14 km rail line from Gharghoda - Bhalumuda - Gare Palma will be completed by June 2021. Rail line work from Karichhapar - Kurumkela - Dharamjaygarh will be completed by December 2020. IRCON has to construct 05 numbers of coal siding in Tamnar and Gharghoda area for increasing rail coal transportation. As on date of committee visit IRCON has completed 03 coal siding and made 01 siding operational, 02 more siding will be made operational by December 2020. As informed by the representative of Indian Railway rest 02 sidings shall be completed by March 2021. As per data received from major mining company of the area i.e. SECL, it is reported that 35% coal transport increase has been observed in comparison to last financial year 2019-2020. (AnnexureVII) It is assumed that coal transport by rail may increase by 50% in addition to earlier transport in rail by December 2020.

6. In reference to instruction on point 2 (a) (ii) regarding carrying capacity study, CPCB has advised CECB to include the project cost in EC fund sponsored project and proposal for same has been prepared by CECB and submitted to CPCB for further essential action.
7. The committee has also discussed the issues in meeting with Collector, Raigarh to expedite the required development as

*directed by Hon'ble NGT in its order. The outcome of the meeting has been considered in the recommendations.*

*In view of the above field observations, the recommendations of oversight committee are as under.*

**RECOMMENDATIONS :**

- 1. In order to ensure development of health facilities in the villages of mining affected areas, Principal Secretary, Health Chhattisgarh Government may be advised to keep informing the oversight committee about development made in health facilities.**
- 2. Hon'ble NGT may like to direct Principal Secretary, PWD, Chhattisgarh Government to sanction budget of Rs. 335 crore (@Rs 3.00 crore per km) for construction of CC road approximately 111 km length of 7m width (Raigarh to Dharmajay Garh about 76 Km and Punjipatra to Milupara about 35 Km) and ensure its execution before March 2021. In this context time bound action plan with bank guarantee of Rs. 35 Crore may be obtained from PWD, Chhattisgarh to ensure timely execution of the work.**
- 3. Directions from Hon'ble NGT may also be issued to CMD, SECL, Bilaspur to expedite allotment of abandoned coal mines in consultation with CECB and complete it before 31st December 2020."**

5. From the above, it does appear that action so far taken is not adequate and further steps need to be taken in the light of the recommendations made. The Principal Secretary, Health and the PWD Department, Chhattisgarh Government and the South Eastern Coalfields Limited (SECL) may act as per recommendations of the Committee. Coal transportation by rail be increased for abatement of air and dust pollution.

6. Further, the applicant has given suggestions by way of written submission filed on 18.11.2020, inter-alia to the effect that contaminated sites be seen, fly ash dumping in low-lying areas be ensured and such dumping should not be in unscientific manner. The legacy fly ash dumps be remediated. Air and land pollution due to fire in the coal mines be remedied. Coal transportation by trucks must be done on scientific basis

and transportation by conveyor belts be preferred. Road maintenance be improved. Continuous Ambient Air Quality Monitoring Station (CAAQMS) be installed. Steps be taken for recharge of the ground water. Water supply to the concerned villages be provided by pipes. The submission of the applicant are:

5. *That at the outset it is stated that the Committee did not meet with Applicants during their recent visit which was important as the Applicants would have shown the contaminated sites to the committee which are grossly missing in the present Report dated 17th November, 2020. The Committee has only seen the sites which the CECB has shown to it. It is submitted that the Committee should plan an immediate visit after informing the Applicants so that the Applicants can help the Committee to identify the contaminated sites and resolve the environmentally problematic issues as mentioned in the Order dated 27.02.2020 of this Hon'ble Tribunal.*

6. *That Overall the report does not provide any evidence (in the form of photos, lists of sites visits, descriptions, who did they meet etc) to back up its conclusions. For example in places where the committee has come up with conclusion that fly ash dumping in low lying areas have been restricted. It is stated that no proof has been given for the same. There are no photographs that have been attached or list provided of which sites they have visited and what information they have noted by the Committee. Also the local community members have provided a list of sites and photo documentation of how new fly ash dumping sites have been created in various parts of the region in violation of the Hon'ble NGT's Order/s however till date no action has been taken in any of these cases. The Applicants are annexing the recent photographs showing that the fly ash dumping is still taking place and nothing has been done with respect to removal of legacy fly ash dumps. The non-clean up of legacy fly ash dumps would lead to leachate when it comes in contact with water and would further lead to water and soil pollution.*

*Photographs alongwith GPS location and date are annexed herewith showing the Fly ash dumps which are annexed herewith as ANNEXURE-B (Collectively).*

7. *That it is also important to point out that the Coal mines of Gare IV/2 and Gare IV/3 is also witnessing air and land pollution due to fire in Coal mines of Gare IV 12 and Gare IV/3. Had the Committee contacted the local community members they would have shown the sites which are witnessing fire in Coal Mines. Recent Photographs showing the fire in Coal mines of Gare IV/2 and Gare IV/3 are annexed herewith as ANN EXURE-C (Collectively).*

8. *That on the issue of coal transportation by trucks, the committee has given a vague response of "seems to be complied" which does not make any sense, either the condition is complied or not to be complied. However the committee has once again not provided any details of the transportation of coal via conveyor belts such as trip sheets or how much quantum of coal has been transported by a conveyor belt to provide proof that the condition is being complied with. Mere vague statement of the committee in this regard cannot be accepted as proof.*
9. *That the direction about CAAQMS has NOT BEEN COMPLIED WITH. What is even more shocking that, the committee which has been appointed to oversee the implementation of the direction is justifying the non-compliance by advancing the industry's faulty logic in this regard, It is stated that EC and CTO condition is to provide regular monitoring data which is not the same as a24X7 and 365 day monitoring through OAAQMS.*
10. *That the committee itself observes bad road in the region hence it is clear that road maintenance direction has NOT been complied with.*
11. *That Directions regarding the mitigation measures of health issues in the region HAVE NOT been complied with. The Principal Secretary-Health, GoW. of Chhattisgarh has not been implementing any health related measures and local community health is in a very precarious situation which fact is observed in a recent Health Assessment RepoG 2019-2020 titled "HEALTH ASSESSMENT OF VILLAGERS OF TAMNAR BLOCK, DISTRICT RAIGARH (C.G.)" submitted to Indian Council of Medical Research, New Delhi, Year 2019-2020. Copy of relevant pages of this study is annexed herewith as ANNEXURE-D.*
12. *That on the issue of green belt development, the committee has pushed the responsibility on MoEF&CC. It is not clear in describing the actual status on the ground. there is no actual evidence provided by the committee to support their "compliance in progress" remark. The committee's vague remark without any submission of documents of the mine wise status of greenbelt development is nothing but mere bald assertions without any proof.*
13. *That regarding the water testing laboratories at Gharghoda and Raigarh for testing of drinking water quality there is no evidence on record that the same are in fit working condition. Similarly, on the issue of water testing, the Applicants state that in Saraitola area the water contains high fluoride content and there is no evidence on record to show that Electrolytic DE fluoridation(EDF) Plants in 3 villages (Pata, Mudgaon, Saraitola are in fit working condition). The Committee has failed to provide any testing results from the area as to what was found in the drinking water and whether the same was*

*in usable condition by the local villagers. There is no evidence or proof filed by committee regarding the sites where the drinking water is potable and where the same is not potable and need further treatment for the villagers to be used. There should be a timeline provided by the Committee to test the water quality in the Tamnar and Gharghoda blocks and a study regarding the sites of potable water needs to be done in coordination with PHED and the local villagers.*

14. *That the Committee has agreed that there is a problem of frequent lowering of ground water table due to mining activity at page 7 of the Report.*
15. *Inspite of acknowledging the problem of frequent lowering of ground water table due to mining there are no plans or action taken proposed for replenishing the fast depleting water table or curbing the future mining activity.*
16. *It also states that M/s Hindalco has been told to provide Tap water supply from the mine in the village and ensure quality of water in co-ordination with PHED Raigarh. It is stated that the same should be done for Neelupara and adjoining area where there are very few drinking water facilities. The Report is silent on new sites where drinking water facility has been provided.*
17. *That in the long term compliance section the details provided in Annexure VI for the carrying capacity study is grossly insufficient. The proposal of CECB is to just conduct a source apportionment study. A source apportionment study cannot be considered as a carrying capacity study. Source Apportionment (SA) is the practice of deriving information about pollution sources and the amount they contribute to ambient air pollution levels. The concept of carrying capacity describes the relationship between resources, environment and human activities to ensure sustainability. Carrying capacity is also defined as "the growth limits an area can accommodate without violating environmental capacity goals". The carrying capacity study will assess the maximum number of individuals/ industrial activities that an area's resources can sustain indefinitely without significantly depleting or degrading those resources or causing environmental or public health depletion. It is re-iterated that a proper detailed proposal on carrying capacity study has to be done and shared with the community before progressing with the compliance."*

The above suggestions may be duly considered by the concerned authorities and the Committee which may be coordinated by the CPCB. We also direct the Collector, Raigarh will stand inducted as Member of the Committee. The applicant has also filed IA No. 382/2020 for a

direction that expansion of the project be allowed only after carrying capacity assessment is done. This aspect may be gone into by the Expert Appraisal Committee (EAC).

7. A further status report may be furnished after four months by e-mail at [judicial-ngt@gov.in](mailto:judicial-ngt@gov.in) preferably in the form of searchable PDF/OCR Support PDF and not in the form of Image PDF.

List for further consideration on 13.04.2021.

A copy of this order be forwarded to the MoEF&CC, NEERI, CPCB, State PCB, Dr. Sarat Chander Lele, EAC Member Coal and Thermal, MoEF&CC and the Collector, Raigarh by e-mail for compliance.

M. A. Nos. 279/2018 and 858/2018 which were filed in the year 2018, may be treated as disposed of in view of the above order. Execution Application 05/2019 also stands disposed of.

Adarsh Kumar Goel, CP

S.K. Singh, JM

Dr. S.S. Garbyal, EM

Dr. Nagin Nanda, EM

November 20, 2020  
M.A. No. 279/2018, M.A. No. 858/2018  
& I.A. No. 382/2020 in OA No. 104/2018  
and EA No. 05/2019 IN O. A. No. 104/2018  
DV

**INVITATION OF PROPOSALS**  
**FOR**  
**CARRYING CAPACITY (CC) INCLUDING SOURCE**  
**APPORTIONMENT (SA) STUDY IN**  
**TAMNAR AND GHARGHODA, BLOCKS OF RAIGARH**  
**DISTRICT OF CHHATTISGARH STATE.**



**CHATTISHGARH ENVIRONMENT CONSERVATION BOARD**  
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## **Terms of Reference**

### **1.0 Introduction**

Chhattisgarh Environment Conservation Board (CECB) intends to carry out Carrying Capacity (CC) including Source Apportionment (SA) study in Tamnar and Gharghoda, Blocks of Raigarh District of Chhattisgarh State.

#### **The study objectives are:-**

To conduct Carrying Capacity (CC) including Source Apportionment (SA) study for Tamnar and Gharghoda, Blocks to establish assimilative capacity with respect to air, noise, water, land, biological and socio-economic components of environment, development of emission inventory, source profiling and source apportionment using dispersion & chemical mass balance models and also supportive capacity analysis of the natural systems in the region, keeping in view the regional developmental activities.

### **2.0 Scope of Work**

#### **A) Carrying Capacity (CC) Including the Source Apportionment (SA) Study**

##### **i) Study Approach and Scope of Work**

The major components of the study would be the assessment of various activities in the region, source apportionment, estimation of assimilative capacity and supportive capacity leading to delineation of appropriate environment management plan for sustainable development of the region.

##### **ii) Assessment of Various Activities in Study Area/Region**

- Identification of various activities viz. industrial, commercial, residential, transport, construction etc. in the region.
- Quantification of waste generation due various activities.
- Prediction of impacts due to various activities on different receiving environments, viz. air, water bodies (rivers, lakes, ponds, reservoirs, ground water etc.), land (soil, agriculture, land use pattern).

##### **iii) Estimation of Regional Assimilative Capacity**

The major elements of work in the estimation of assimilative capacity are:

- Assessment of present level of pollution due to various activities (industries, commercial, residential, institutional, construction, transport etc.).

- Characterization of receiving environment (air, water & land) by predictive modeling.
- Delineation of sources of pollution and quantification of pollution loads.
- Validation of predictive models using data on present pollution loads and environmental quality status.
- Estimation of future pollution loads and pollution levels in the next 10 years.
- Assessment of congestion levels based on environmental standards for receptors.
- Delineation of environmental management plans to prevent and minimize pollution loads on environment.

#### **iv) Detailed Work Plan**

##### **a) Air Environment**

- Preparation of inventory of point, line and area sources.
- Development of detailed land-use map on a GIS platform and an updated (2 km x 2 km resolution) gridded GIS-based emission inventory for air pollutants (PM10, PM2.5, SO2, CO, NOx, volatile organic compounds (VOCs) and poly-aromatic hydrocarbons (PAHs) or any other pollutants specific to the study area / region should be prepared duly accounting seasonal variations.
- Appropriate, updated Emission Factors may be used for developing Emission Inventory. Specific efforts should be made to identify and quantify non-point fugitive sources including unauthorized activities in non-conforming areas.
- Emission inventory of industrial and other sources shall be prepared through primary surveys including data collected using Online Continuous Emission Monitoring Systems.
- Emission inventory should be periodically reviewed and validated using appropriate techniques such as, mass balance technique as far as possible.
- Monitoring of air pollutants, PM10, PM2.5, SO2, NO2, Benzene, Toluene, and Xylene, Analyse collected PM10 and PM2.5 mass for elemental composition, ions, elemental carbon, organic carbon, PAHs (Benzo[a]pyrene, Fluorene, Acenaphthene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Chrysene, Benzo(b)fluoranthene,

Benzo(k)fluoranthene, Dibenz(a,h)anthracene, Indeno (1,2,3-c d) pyrene, and Benzo(ghi)perylene) and other source-specific molecular markers.

- The ambient air quality monitoring should be carried out for pollutants specified in scope of work over a period covering two critical seasons (summer and winter) in a year for SA and all three seasons (summer, winter including pre & post monsoon) in a year, to get representative data on seasonal variations in meteorology as well as activities that have bearing on the air quality. The purpose of ambient air quality monitoring is not compliance verification.
- Updated methodology with respect to selection of sampling equipment and measurement methods along with model framework for conducting source apportionment studies is enclosed as below.
- The number of monitoring stations shall be as per IS 5182 (Part 14): 2000 "*Methods for measurement of Air Pollution (Part 14 Guidelines for planning the sampling of Atmosphere)*" of not less than 15 monitoring stations: Whichever is more.
- Minimum 15 air monitoring stations shall be installed at locations such as kerbside, residential, industrial, commercial and background including upwind and downwind directions. However, the number of monitoring stations can be increased depending upon the activity profile of a particular study area / region.
- In order to capture the diurnal variations of sources as well as the typical meteorological changes, one should conduct monitoring using standard monitoring protocol spread over 60 - 100 sampling days (all sampling sites combined) of a season to cover the all days of week and get fair representation of the seasons. The number of days of sampling at each site for each season should be 20 days. In case receptor modelling is carried out using PMF than monitoring of minimum 30 days at each site may be ensured.
- Monitoring of meteorological parameters should be carried out simultaneously preferably at each station or minimum at one location. Additional meteorological data for the study period shall be procured from IMD or other agencies or validated meteorological models.

- Appropriate, updated Source Profiles may be used. For a suitable model performance internationally developed profiles can also be used. Development of city (study area / region) specific PM<sub>2.5</sub> source profiles for other sources and molecular markers should be taken wherever required.
- With regard to dispersion modelling and intervention analysis, a suitable dispersion model and refined city (study area / region) - level emission inventory shall be used. All efforts should be made to validate the dispersion models against measured data.
- On completion of data collection, validation and interpretation of the assimilated information, a detailed road map shall be drawn considering all possible measures for air quality improvement.
- These measures shall be classified into short and long-term with due priority to low cost measures that give maximum benefits. Emission from sources in neighbouring districts may also be considered during formulation of action plan to lower pollution levels.
- Quantification of pollution load due to various activities with respect to different pollutants (particulate matter/dust and gaseous emissions) shall be carried out.
- Prediction of cumulative impacts of all the air pollution sources using appropriate mathematical models shall be carried out.
- Estimation of assimilative capacity of the region for various pollutants vis-à-vis air quality standards shall be carried out.
- Assessment of present pollution loads and environmental quality status and predicting the cumulative impacts under different future development scenarios shall be carried out.
- Delineation of environment management plans to minimize adverse impacts due to various air pollution sources shall be carried out.

**b) Water Environment**

- Assessment of water resources (surface and ground) with respect to quantity and quality in the study area shall be carried out.
- The selected agency shall carry out the sampling & analysis of surface & ground water as per the IS 3025 (Part I): 1987 "*Methods of sampling and test (Physical and Chemical) for water and wastewater: Part 1 sampling (First Revision)*" and CPCB guidelines/norms.

- Quantification and characterization of water pollution loads due to various existing activities shall be carried out.
- Impact of water withdrawal on surface and groundwater sources, if any shall be carried out.
- Assessment of present pollution loads and environmental quality status and predicting the cumulative impacts under different future development scenarios shall be carried out.
- On completion of data collection, validation and interpretation of the assimilated information, a detailed road map shall be drawn considering all possible measures for water quality improvement.
- Prediction and evaluation of impacts due to wastewater discharges from various activities on receiving water bodies, if any shall be carried out.
- Estimation of assimilative capacity of the water bodies (surface and underground) of the study area / region for various pollutants vis-à-vis water quality standards shall be carried out.
- Delineation of appropriate water environment management plan for the pollution sources shall be carried out.
- These management plan shall be classified into short and long-term with due priority to low cost measures that give maximum benefits.

**c) Land Environment**

- Assessment of existing land use pattern based on satellite imageries and field surveys shall be carried out.
- Quantification of municipal and industrial solid waste generation shall be carried out.
- Assessment of present solid waste disposal practices and its impact on the present receiving land environment shall be carried out.
- Collection of soil samples and analysis for physico-chemical and micro-biological characteristics shall be carried out.
- The number and location of monitoring stations shall be fixed by selected agency in consultation with CECB.
- Assessment of present pollution loads and environmental quality status and predicting the cumulative impacts under different future development scenarios shall be carried out.

- On completion of data collection, validation and interpretation of the assimilated information, a detailed road map shall be drawn considering all possible measures for improvement of land environment.
- Estimation of assimilative capacity of the land environment of the study area / region for various pollutants vis-à-vis standards shall be carried out.
- Inventorisation and management plan for municipal and industrial wastes, including Hazardous Waste and E-Waste shall be carried out.
- These management plan shall be classified into short and long-term with due priority to low cost measures that give maximum benefits.

**d) Noise Environment**

- Assessment of present noise levels due to various activities, work places, residential areas, state/national highways, transportation, commercial centers, hospitals, schools etc. in the study area/ region shall be carried out.
- Assessment of noise impacts due to various activities shall be carried out.
- The number and location of monitoring stations shall be fixed by selected agency in consultation with CECB
- Prediction and evaluation of impacts due to noise generation by existing and proposed developmental activities including transportation shall be carried out.
- Identification of high noise level zones requiring mitigation measures shall be carried out.
- Prediction of cumulative impacts of all the noise pollution sources using appropriate mathematical models shall be carried out.
- Delineation of source specific noise management plan to minimize the impact of noise & vibration
- These management plan shall be classified into short and long-term with due priority to low cost measures that give maximum benefits.

**e) Biological Environment**

- Study on flora and fauna in the region through field survey shall be carried out.

- Biodiversity study of avi-fauna and wild life in the study area/region, if any shall be carried out.
- Collection of information on terrestrial and aquatic ecosystems shall be carried out.
- Prediction of impacts due to existing various activities on the flora and fauna in the area with special reference to biological diversity shall be carried out.
- Identification of suitable native tree species for afforestation shall be carried out.
- Assessment of forest resource, economically important plants, medicinal plants, and perceived threat to rare and endangered species due to deforestation & construction activities shall be carried out.
- Mitigation measures to compensate the loss of forest cover/green cover shall be carried out.
- Identification of measures for protection and conservation of flora, fauna including wildlife, migratory avi-fauna, rare and endangered species, medicinal plants etc. shall be carried out.
- Identification of suitable native tree species for compensatory afforestation, green belt in the study area / region shall be carried out.
- Delineation of appropriate environment management plan for development of greenbelt/green cover in the study region.
- These management plan shall be classified into short and long-term with due priority to low cost measures that give maximum benefits.

**f) Development of Environmental Management Plan (EMP)**

On the basis of baseline data of different environmental components, identification, prediction and evaluation of impacts, appropriate strategies would be formulated under each environmental component for minimization of adverse impacts.

EMP would address details of scientific methods for the protection and conservation of environmental quality to achieve sustainable development.

### **3.0 Terms & Conditions**

1. The name of the work is Carrying Capacity (CC) and Source Apportionment (SA) Study in Tamnar and Gharghoda, Blocks of Raigarh District of Chhattisgarh State.
2. Monitoring, sampling and analysis work for aforesaid study shall be carried out by an approved laboratory as per relevant prescribed Indian Standards (IS) and CPCB guidelines/norms. All the instruments/ equipment/ glass-wares etc. to be utilized in monitoring work and analysis of samples, should be properly calibrated.
3. The monitoring shall cover peripheral area of 15 km radius from centre of study areas / region.
4. The selected agency shall follow the guidelines/norms/ framework of CPCB regarding the Carrying Capacity (CC) & Source Apportionment Study (SA).
5. The selected agency shall complete the activities as per "Project Timelines, Payment Terms and Deliverables" from the date of issue of work order.
6. The selected agency shall arrange required manpower, instruments/ equipment, accessories, chemicals, glassware and consumables etc. on their own for the monitoring/computation/assessment purpose.
7. The selected agency will submit monthly progress report and the selected agency has to present power-point presentation of quarterly progress.
8. The selected agency shall not assign/outsource any component of the work to any other agency.
9. The selected agency shall co-ordinate with the concerned Regional Office of CECB for the study. Regional Officer on behalf of CECB shall assist the agency for access to industrial units and other places of concern, if required for the study.
10. No amendment in "Terms and Conditions" shall be valid unless the same is made on agreement in writing by both the parties or their authorized representatives and specifically stating the same to be an amendment of this work order. The amendment shall be effective from the date on which they are made / executed, unless otherwise agreed to.
11. All the information and data generated or collected during the execution of the work shall be treated as confidential and sole property of CECB and the findings of the study shall not be published without prior and written permission of CECB.

12. The work order to be issued shall be operative until the completion of the project and acceptance of the final report by CECB.
13. The project shall be implemented as per the "Scope of Work" and "Terms and Conditions" mentioned above. CECB will not provide any additional fund on account of cost escalation or any other reasons during project implementation.
14. Cost escalation, if any, for the implementation of the project shall be borne by the selected agency.
15. CECB shall not bear any responsibility for the personnel/property engaged by the selected agency for implementation of this project.
16. During the course of implementation of the project, the selected agency shall provide information to the concerned Regional Officer of CECB regarding the methodologies, techniques etc. being adopted for implementation of the project.
17. The selected agency shall provide clarification on the queries raised by CECB, if any.
18. The selected agency shall submit tax exemption certificate to CECB, otherwise taxes as applicable shall be deducted at source.
19. In case of any dispute or disagreement, arising between CECB and agency under or in connection with this DOCUMENT, CECB and agency shall make every effort to resolve such issues amicably by direct informal negotiations.
20. If even after thirty (30) days from the commencement of such direct informal negotiations, CECB and agency are unable to resolve amicably a dispute; either Party may require that the dispute be referred for resolution to the formal mechanism specified in clauses below.
  - (a) In the case of a dispute or difference arising between CECB and agency relating to any matter arising out of or connected with this DOCUMENT, such dispute or difference shall be referred to the award of Arbitrator as indicated in this DOUMENT. The award of the Arbitrator shall be final and binding on the parties.
  - (b) The arbitration shall be conducted by an arbitral tribunal of one (01) arbitrator, jointly appointed by both the parties.
  - (c) The Arbitration and Conciliation Act, 1996, the rules made thereunder and any statutory modification or re-enactments thereof, shall apply to the arbitration proceedings.

- (d) The venue of arbitration shall be Raipur, Chhattisgarh, India.
- (e) No officer, director, shareholder, employee, representative or Relative of any party may be nominated or appointed as an arbitrator.
- (f) The language of the arbitration proceedings and that of all documents and communications between the parties shall be in English.

**4.0 Study Deliverables**

- Status of existing/baseline environmental quality related to air, water, noise, soil, solid wastes and biological in the study region.
- Identification of impacts on environment and resources due to present and proposed developmental activities in the region.
- Quantification of pollution loads for current as well as future growth scenarios in the next 10 years.
- Determination of assimilative capacity of the region for various pollutants in different environment media (e.g. air, surface water, groundwater, noise, soil, biodiversity, etc.).
- Determination of source apportionments (especially for air pollutants) amongst various sources and delineation of regional management plans and growth scenarios in terms of time and space to keep the impacts within the assimilative capacity of the region.
- Suggest preferred developmental scenario.

**5.0** The total number of Draft report copies will be 5 copies.

**6.0 PROJECT TIMELINES, COST, PAYMENT TERMS and DELIVERABLES:**

|                         |   |
|-------------------------|---|
| <b>Project Duration</b> | 15 months, if necessary period may be extended by mutual consents in writing  |
| <b>Payment Terms</b>    | 1st Instalment : 25% of project cost – Advance with the work order<br>2nd Instalment : 25% upon mobilization of field monitoring team<br>3rd Instalment : 25% of project cost – upon submission of the utilization certificate and Draft report along with power-point presentation<br>4th Installment : 25% of the project cost – Within one month of submission of the final report and acceptance by CECB. |
| <b>Project Reports</b>  | Draft Report: 5 copies (Hard and Soft copies).<br>Final report: 5 copies (Hard and Soft copies).<br>The final data shall be submitted in excel data base in soft & hard copy and should lend itself to be incorporated in a GIS Database, as and when required.   |