

**Investigation into Alleged Environmental Violations by  
Central Coalfields Ltd in Purnadih OCP:**

**Report of Committee appointed by Hon'ble National Green  
Tribunal in *Sanjay Chauhan vs CCL & Ors (OA 37/2020/EZ)*  
*vide order dt.22.06.2020***

Date of submission: 14 September 2020

## 1. INTRODUCTION

The North Karanpura coal belt in Jharkhand state straddles the districts of Ranchi, Chatra and Hazaribagh and contains a large number of coal mines of various vintages and size, as well as some coal washeries and thermal power plants. In spite of the existence of multiple environmental regulations, there has been public concern at the extent of environmental pollution in this region.

The Hon'ble National Green Tribunal is currently hearing a case (OA No. 37/2020/EZ) in which the petitioner (Sanjay Chauhan, a resident of Dakra village of Ranchi district) has complained of non-compliance of some environmental clearance (EC) conditions in the case of Purnadih Opencast Coal Mining Project (OCP) of M/s Central Coalfields Ltd.

The Tribunal, vide its order dt. 22.06.2020, constituted a committee to verify the factual position on the ground. The committee consisted of:

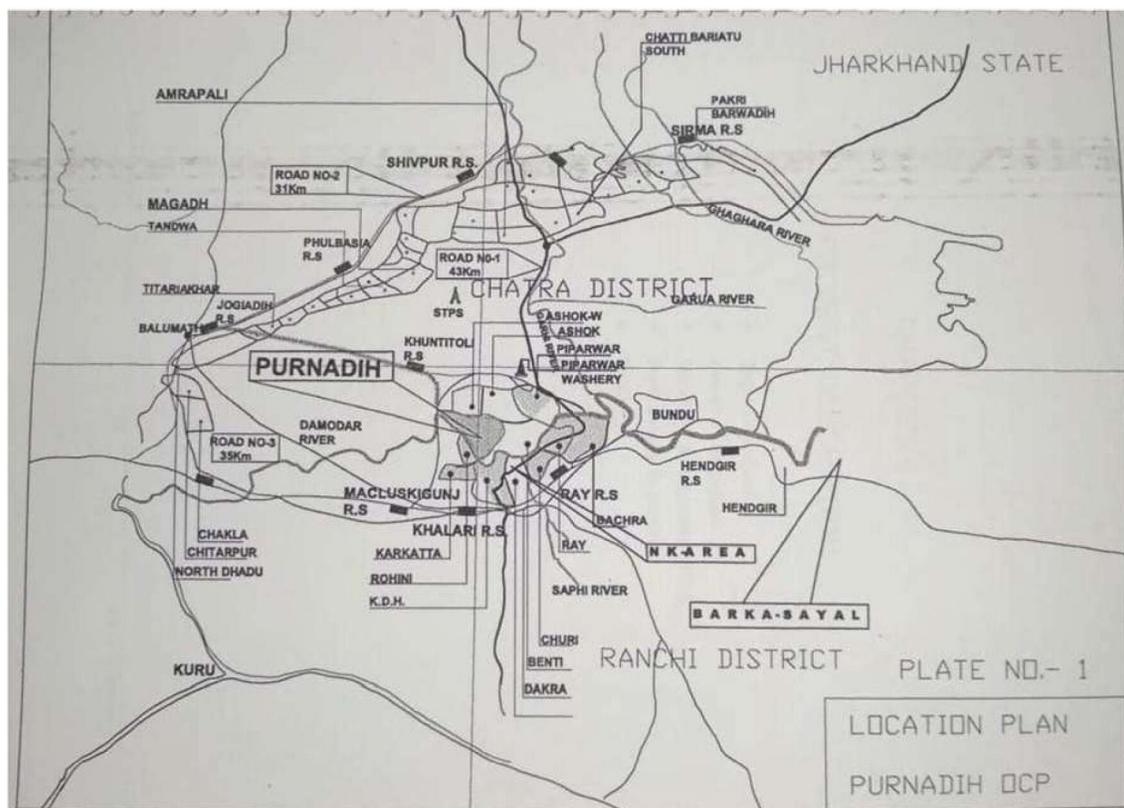
1. Dr. Sharachchandra Lele (Distinguished Fellow in Environmental Policy & Governance, ATREE, Bengaluru)
2. Shri. Rajeev Ranjan (Scientist E, representing Ministry of Environment, Forests and Climate Change (MOEFCC), Regional Office, Ranchi)
3. Dr. G. P. Singh (Scientist D, representing Central Pollution Control Board, Regional Office, Kolkata), and
4. Shri. A. K. Yadav (Regional officer, Hazaribagh representing Jharkhand State Pollution Control Board, which acted as the Nodal Agency).

Due to the COVID-19 pandemic and the consequent restrictions on travel, the committee's field visit was delayed, and the committee requested and was granted time till 16 September 2020 to submit its report. The committee conducted its visit to Purnadih OCP on 3<sup>rd</sup> September 2020. This report presents the findings emerging observations made and discussions held with the petitioner and the respondent during the field visit, and perusal of related documents by the committee. We begin with a brief description of the coal mining project. We then summarise key points that emerged from recent inspection reports and/or notices issued by MOEFCC and

JSPCB, followed by our own field observations. Where we have observed significant non-compliance, we have given our estimates of the duration of non-compliance, and also added recommendations for how remediation may be carried for the immediate future. We end with a wider observation of the environmental trajectory of the region.

## 2. BASIC INFORMATION REGARDING THE PURNADIH OCP

The Purnadih Open Cast Coal Mine project (hereinafter Purnadih OCP) is located in villages Dembua, Henjda and Kutki of Tandwa block of Chatra District, Jharkhand (see Figure 1).



**Figure 1. Location plan of Purnadih OCP**

The mine has a (normative) production capacity of 3.0 MTPA within a mine lease area of 751.74 ha. The project was granted an EC on 19.05.2009 and commenced operations soon thereafter.

### **3. SUMMARY OF MOEFCC AND JSPCB REPORTS PRIOR TO THE NGT COMMITTEE'S FIELD VISIT**

The MOEFCC's Ranchi Regional office had recently site inspected/monitored the project on 14.02.2020 and submitted the inspection/monitoring report to MOEFCC New Delhi on 30.04.2020. Based on this monitoring report, the MOEFCC then issued a letter no F.No J-11013/26/2020-IA-I(M) dated 20.07.2020 in which it directed Project Proponent (PP) to "*ensure complete compliance as per the monitoring report of RO Ranchi*", and "*to submit the reasons for non-compliance and the deviation with respect to various parameters listed in Environment Management Plan submitted to Ministry within 45 days of the receipt of this letter before considering the matter for issuance of Show-cause notice under the provisions of Section 5 of EP Act, 1986*" (Annexure 1).

In brief, these inspection/monitoring reports and MOEFCC letter identified the following shortcomings in EC compliance (we are only summarising issues relating to those raised in the petition):

- a) Mixing of topsoil with overburden (OB) material, instead of creating a separate topsoil dump;
- b) No catch drain, retaining wall, grassing and vegetation for external OB dump;
- c) No catch drain, siltation pond and retaining wall around coal dump, resulting in risk of polluted runoff entering low-lying areas; coal dust from roads(from Purnadih OCP to KDH railway siding) and adjacent drains had chances of flowing into river Damodar if proper precautions not taken.
- d) Green belt inadequate around roads, and plantation on reclaimed lands inadequate; no plantation activity in last few years;
- e) KDH siding not in compliance with norms: coal dust emission at Feeder breaker area of KDH railway siding, inadequate green belt development around siding, and drains from KDH siding may carry pollution into nearby nallahs/streams unless preventive measures are taken.

- f) It was not clear how groundwater monitoring was being done: groundwater level data had not been submitted to MOEFCC, and piezometer did not appear to have been installed.

The JSPCB also raised a query on 10.12.2018 seeking clarification regarding forest diversion in Purnadih OCP.

#### **4. OBSERVATIONS REGARDING CURRENT NON-COMPLIANCE AND RECOMMENDATIONS FOR THE FUTURE**

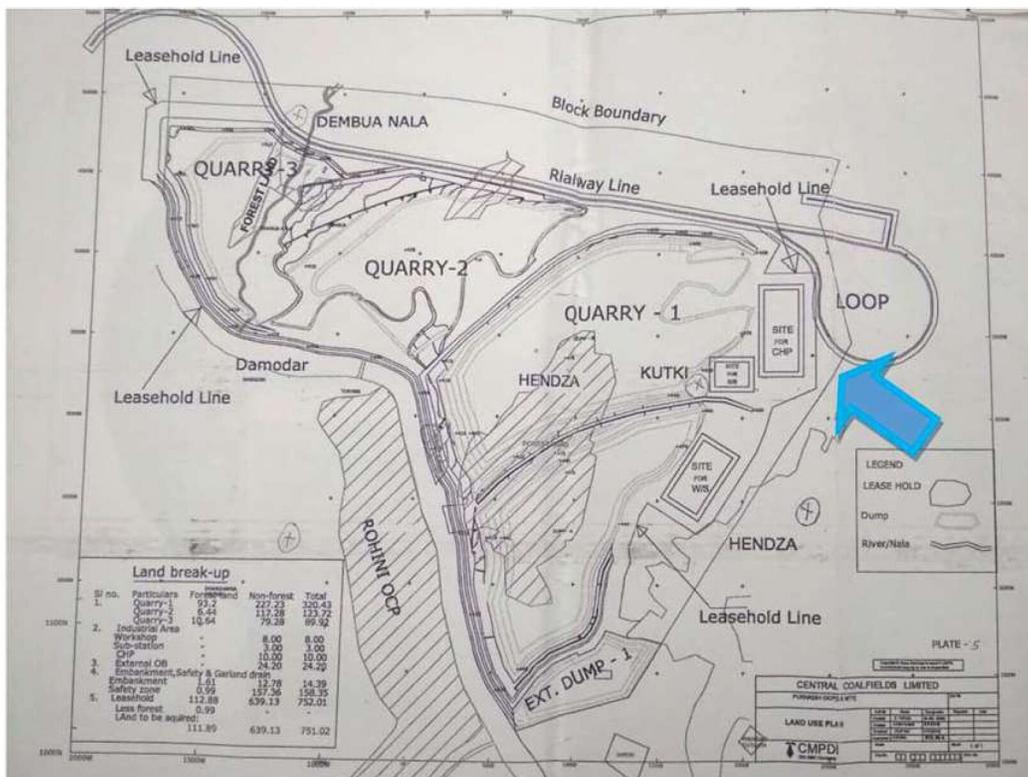
##### **4.1 Major issues:**

##### **1) Coal Handling Plant and Coal Transport**

**Petitioner's allegation:** Non-construction of Coal Handling Plant (CHP) and non-compliance with the condition that "Mineral transportation from mine to washery shall be by rail".

##### **Requirement as per EC conditions:**

*[At the outset, it must be clarified that the issue of Coal Handling Plant (CHP), and final transport of coal are integrally linked generally. In a system where CHPs are proposed to be used, conveyor belts bring the coal from the mine pit or from coal dump area very near to the mine pit to the CHP, which includes a covered crusher and a silo into which the crushed coal is automatically loaded. The silo is supposed to sit astride a railway siding so that it can drop the coal into the railway wagons. Bag filters, water spraying/dry fog/misting arrangements at transfer points, loading, unloading points can be provided in the CHP system. This entire arrangement minimises the fugitive emission of coal dust. The CHP is supposed to be equipped with sprinklers to further minimise dust emissions. Note that the CHP cannot be operated meaningfully if the siding is not available and coal transport is being done by road. When trucks are used for transport, they are loaded using JCBs or front loaders. Thus, the requirement to construct a CHP goes hand-in-hand with the requirement to construct a railway siding to despatch the coal from the CHP and to construct conveyor belts to bring coal to the CHP.]*



**Figure 2. Map (land use plan) of Purnadih OCP as given in the EIA document of 2008, showing location of CHP, railway line including loop (blue arrow).**

In order to understand clearly what coal transport arrangements were proposed for Purnadih OCP, and what was finally approved, it is important to read the EC in conjunction with the EIA/EMP report.

- In the EIA/EMP of 2008 (in the land use plan) it is clearly shown that a CHP was to be constructed in Purnadih project in area of 10 ha (see Figure 2), along with a dedicated rail line with loop to the CHP.
- Further, on page 54 of the EIA/EMP report, it is mentioned that “CHP [will] convey the coal from feeder breaker/crusher to loading point” and describes several arrangements to be made along the conveyor belt, transfer house, and wagon loading point to suppress dust.
- On page 16 on the EIA/EMP report, it is stated that “Railway siding has been planned to serve Ashoka East OCP, Piparwar OCP and this (Purnadih) project, which would run on northern side of the (Purnadih) project. .... However,

presently this siding would not serve this project. Coal would be transported across the Damodar to either Churi siding or K.D.Hesalong (KDH) siding”.

- d) However, in the EC issued on dt.19.05.2009, it is clearly mentioned in the preamble that “Mineral transportation of 9,100 TPD [tonnes per day] of coal to the Ashoka Coal Washery located at a distance of 0.5 km would be by belt conveyor and thereafter by rail from railway siding adjacent to Purnadih OCP”.
- e) Finally, specific condition (x) requires that “mineral transport from mine to washery shall be by rail. ... Green belt shall be developed at the Railway Siding”. Clearly, it is the washed coal that was to be transported eventually from the railway siding, and the coal transport from mine to Ashoka washery and CHP was to be by conveyor belt (which, as mentioned in EC’s preamble above, is the normal procedure).

**This combined reading of the EIA/EMP and EC indicates that a CHP, including conveyor belt, transfer house and arrangements to load rail wagons was an integral part of the project.**

**Observations by this Committee:**

- a) **CHP and railway line/siding as shown in the land use plan (Figure 2) have not been constructed. Since 2009 till date, the coal is being transported on trucks to KDH railway siding located approx. 5 km from the mine.**
- b) Furthermore, the field visit showed that road transport of coal was resulting in much spillage of coal on the road. **This coal dust was observed to be flowing off the road into drains, nallahs and even into river Damodar** (see Figure 3-left). In the dry season, this dust will also create serious air pollution.



**Figure 3. Water with coal dust from road connecting Purnadih project to KDH siding flowing from roadside channels into Damodar river (left); water with coal dust from coal dump flowing into local nallahs near weighbridge area (right).**

- c) Finally, the KDH railway siding is only in partial compliance with CPCB's 2015 guidelines for environmental management of railway sidings. Though fixed water sprinklers at KDH railway siding were in operational condition (see Figure 4-right), the siding and track were layered with coal dust (see Figure 4-left). Greenbelt development around the siding was not satisfactory. Due to absence of catch drains, siltation ponds coal dust would flow from KDH railway siding area to nearly low lying area and ultimately to river drainage system. Inadequate tarpaulin covering was observed on some of the coal transportation trucks at KDH railway siding (see Figure 5). This was the likely reason for coal spillage on the roads, which will result in serious air pollution during the dry season and is clearly resulting in water pollution during the wet season.



**Figure 4. Status of KDH siding: thick layer coal dust on platform and tracks and no windscreen (left), operation of fixed water sprinklers (right)**



**Figure 5. Photo of inadequate tarpaulin covering over coal transportation trucks, resulting in coal spillage over the roads.**

## 2) Plantation and green belt:

**Petitioner's complaint:** The development of green belt in and around the mine site is completely inadequate, in violation of Specific Condition No. (vi).

**Requirements as per EC conditions:** The EC of 2009 specifically mentions green belt development and plantations. Specific Condition (x) requires that "Green belt shall be developed on both sides of the roads. Green belt shall be developed at the Railway siding". Specific Condition (xiv) requires that "The total area that shall be brought out under afforestation at the time of mining closure shall not be less than 637.74 ha, which includes dump 24.20 ha), back filled area (467 ha) along ML [mine lease] boundary, embankment, safety zone and construction area along

roads and infrastructure, green belt (146.54 ha) and in township outside the lease by planting native species in consultation with the DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha”.

**Observations by this Committee:**

- a) Green belt development in the project was less than satisfactory. Project authorities did not do any plantations for last three-four years. Project authorities showed old plantations done on OB dump that had been carried out long back.
- b) Grassing and vegetation have come up in some portions of external O/B dump in Purnadih project (see Figure 6). But in other portions O/B material was still exposed and there was no grassing and vegetation there.



**Figure 6. Partial grass and vegetation over external OB dump**

**Overall, plantation and green belt development was not found to be satisfactory. Project authorities have not done plantations as per their commitment in EIA/EMP report and as laid down in the EC.**

**3) Preventing silt movement from OB and pollutants runoff from coal dumps/heaps into low lying areas/streams**

**Petitioner’s allegation:** Non-compliance of Specific Condition (vii) of the EC.

**Requirements as per EC conditions:** Specific Condition (vii) of EC of 2009 requires that that “Catch drains and siltation ponds of appropriate size shall be constructed to arrest silt and sediment filled from soil, OB and mineral dumps. The water so collected shall be used for watering the mine area roads, green belt development etc. The drain shall be regularly desilted and maintained properly”.

**Observations by this Committee:**

- a) It was observed that mouth of pucca drains constructed by project authorities along the road used for coal transport were let into the Damodar river without any effective arrangement for preventing coal dust flowing into the river (see Figure 3-left).
- b) From one of the coal dumps in the project site, the surface runoff was flowing out without any catch drain, siltation ponds, etc. (see Figure 7)
- c) In the weighbridge area there was coal heaps/ dump but no catch drain or siltation ponds had been provided around it. There was a seasonal nallah adjacent to those coal heaps/dump in which coal dust would flow (see Figure 8)).
- d) Coal dust also flowed down into the seasonal nallah from the pucca drains constructed by project authorities along the road leading to the KDH siding (see Figure 3-right).
- e) Due to absence of catch drains and siltation ponds, coal dust would flow from KDH railway siding area to nearly low lying area and ultimately to river drainage system (see Figure 4-right).
- f) Catch drains and siltation ponds were not made around the external OB dump in the Purnadih mine project (see Figure 6).



**Figure 7. Coal dump in Purnadih OCP with runoff flowing into low lying areas**



**Figure 8. Coal/shale dump/ heaps without catch drain or siltation ponds and incomplete toe wall, just adjacent to a seasonal nallah**

Overall, in spite of attention being drawn in the monitoring report by MOEFCC's Ranchi Regional Office, there continues to be non-compliance/partial compliance with the conditions relating to control of soil erosion and prevention of silt and coal dust runoff from the OB and coal dumps.

#### 4) Water management/Groundwater recharge:

**Petitioner's allegation:** Non-compliance of specific condition xvii of EC.

**Requirements as per EC conditions:** Specific condition (xvii) of the EC dt. 19.05.2009 requires that "Regular monitoring of ground water level and quality shall be carried out by establishing a network of existing wells and construction of new piezometers. The monitoring for quality shall be done four times in a year in pre-monsoon (May), monsoon (August), post- monsoon (November) and winter (January) seasons and for quality in May. Data thus collected shall be submitted to the Ministry of Environment & Forest and to the Central Pollution Control Board quarterly within one month of monitoring." **As such, this condition is about groundwater monitoring, and not about groundwater recharge.**



**Figure 9. Borehole for measuring groundwater level (left); water stored in sump created in mined out area (right)**

#### **Observations by this Committee:**

- a) Project authorities showed one borehole (see Figure 9-left) from where ground water level measurement is done.

- b) Water was observed in the sump of mine (see Figure 9-right). There was a large water body in the previously mined-out pit in the project.
- c) Furthermore, as per details submitted by Project Proponent to this Committee of groundwater monitoring is done by CMPDI in a network of wells. Project Proponent has submitted monitoring data of the year 2016, 2017, 2018 (Pre and Post monsoon) and 2019, 2020 (Pre Monsoon), and the same is reproduced in Table 1 below.

**Table 1. Groundwater level data as monitored by CMPDI on behalf of Purnadih OCP**

Sl. No	Villages*	Water Level (meter BGL)				
		Pre-2016	Post-2016	Pre-2018	Post-2018	Pre-2020
1	Dembua	4.40	Not mentioned	6.52	3.15	4.28
2	Benti	7.10	6.0	8.95	6.30	8.50
3	Kusumtoli	7.90	7.60	9.20	7.90	8.60
4	Jamdih	3.28	2.48	4.38	3.58	5.10
5	Barwatola	10.2	8.40	10.0	7.70	10.10

\*Villages mentioned above are inside Purnadih project or near to the project area.

**It is clear from the above that groundwater monitoring is being carried out as per EC conditions. Whether the monitoring data indicate a secular decline in groundwater levels (after rainfall effects are factored out) and whether the extent of decline is a matter for further analysis by the competent authority.**

#### **4.2 Other observations**

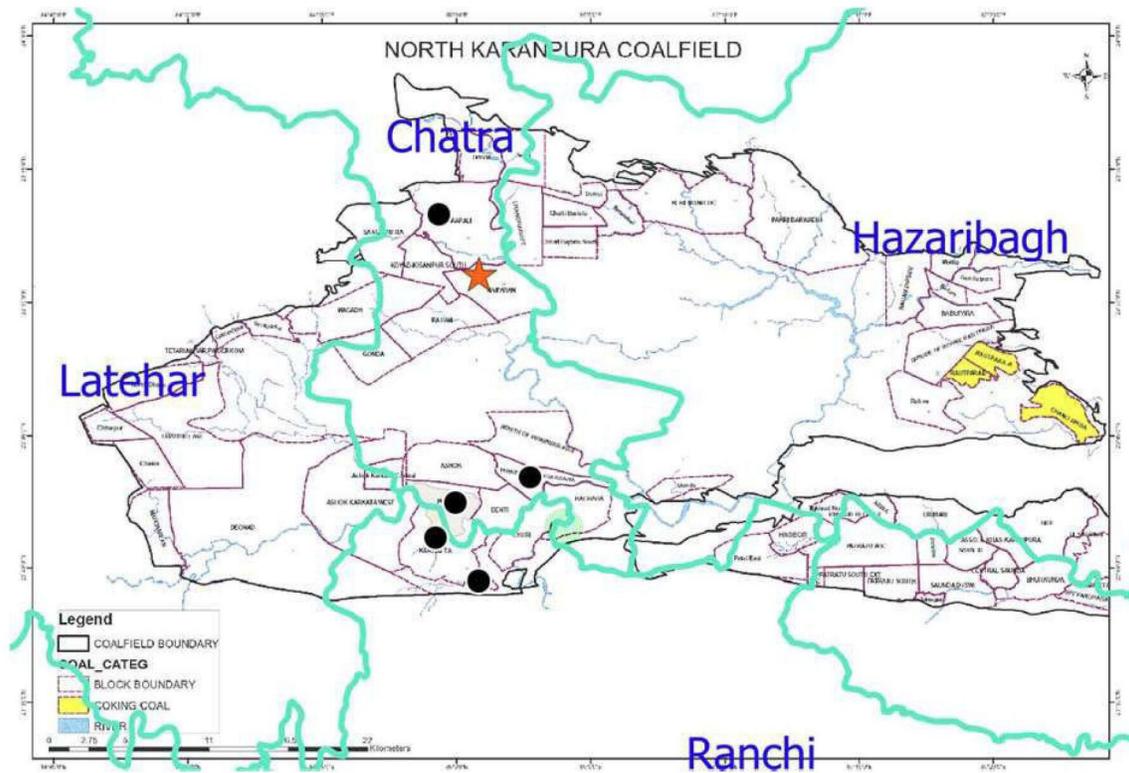
In coal dumps inside the Purnadih mine, spontaneous combustion was observed with lot of smoke emissions continuously (see Figure 10), although we visited the mine during the rainy season.



**Figure 10. Spontaneous coal combustion observed at different coal dumps in Purnadih OCP.**

## **5. THE LARGER ENVIRONMENTAL CHALLENGE IN THE NORTH KARANPURA COAL MINE BELT**

As the map in Figure 11 shows, the North Karanpura region has a large number of coal deposits, and even though some old mines are being closed down, mining activity is likely to expand very significantly in the coming years with the opening of new large mines (Sanghamitra OCP, Ashoka West OCP, Purnadih Expansion OCP, and so on). Equally important, attracted by the coal deposits, the region is seeing an expansion in coal-based thermal power plants (TPPs). The 2400 MW Tandwa TPP by NTPC is about to be commissioned, and several TPPs are planned in a 25km radius of Dakra.



**Figure 11. Overview of North Karanpura Coal field region showing all the notified coal blocks. Black dots indicate the mines of Amrapali (northernmost dot), and Piparwar, Purnadih, Rohini and Dakra; red star indicates Tandwa TPP. Green lines indicate district boundaries and blue lines indicate rivers.**

The **cumulative environmental impacts** of these developments cannot be understood through individual EIAs or investigations of individual projects. In particular, coal transport occurs outside project premises on public roads or via common railway sidings used by multiple projects. Similarly, in a region rich in rivers, the impact of cumulative forest loss and mining activity on rivers and groundwater hydrology can only be understood at the catchment or sub-basin scale. The public health and socio-economic impacts of such large-scale mining and TPP activity again will be non-linear and complex.

Experience from elsewhere, such as Dhanbad (Jharkhand), Singrauli (Madhya Pradesh/Uttar Pradesh), Jharsuguda (Odisha), and Tamnar-Ghargoda (Chhattisgarh), shows that, in the absence of forethought, such coal-rich regions quickly end up as “**critically polluted areas**”, with enormous damage to public health and the wider environment, unending environmental litigation, and social conflict.

To avoid this region having a similar fate, we urge that a wider and long-term perspective be adopted, that a process for **region-scale environmental carrying capacity estimation** be carried out, and that future project planning and environmental clearances be based on such an understanding and through some mechanisms for region-scale coordination.

Signed by.



(Dr. Sharachchandra Lela)  
Distinguished Fellow, ATREE



(Shri. Rajeev Ranjan)  
Scientist E, MOEFCC, Ranchi

\* 

(Dr. G. P. Singh)  
Scientist D, CPCB, Kolkata

I am not agree with point no-5.



(Shri. A. K. Yadav)  
Regional Officer, JSPCB, Hazaribagh

\* I don't agree with region scale environmental carrying capacity estimation. It would be better to ensure 100% compliance of Existing EC conditions along with compliance of order of Hon'ble NGT (OA. 284/2019 dated 19.9.2019) which states all mines in the nearby area using road for coal transportation should maintain a free board of minimum 5 cm in all loaded vehicles along with properly covering with impervious material to prevent escape of fines.

## **ANNEXURES**

1. Copy of MOEFCC's letter dt. 20.07.2020 directing the Project Proponent to ensure full compliance with EC conditions, based on monitoring report.

F.No. J-11013/26/2020-IA-I (M)  
Government of India  
Ministry of Environment, Forest and Climate Change  
(I.A. Division)

Indira Paryavaran Bhavan  
Jor Bagh Road, Aliganj  
New Delhi-110 003  
E-mail: shuruti.raai@nic.in  
Dated: 20<sup>th</sup> July 2020

To,  
Project Officer,  
Purnadih OCP, M/s CCL  
North Karanpura area,  
P.O- Dakra, District Ranchi,  
Jharkhand- 829210.

**Sub: Purnadih Opencast Expansion Coal Mine Project (3.00 MTPA with a peak production of 3.45 MTPA) located in Villages Dembua, Henjda and Kutki, in Block Tandwa, in Chatra Dist, Jharkhand.- Non-Compliances- reg.**

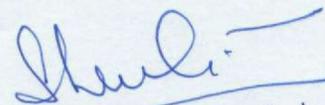
**Ref: Ministry's EC letter No. J-11015/36/2007-IA.II(M) dated 19.05.2009.**

This has reference to the Environmental Clearance (EC) granted to M/s Central Coalfields Ltd., for project titled 'Purnadih Opencast Expansion Coal Mine Project (3.00 MTPA with a peak production of 3.45 MTPA) located in Villages Dembua, Henjda and Kutki, in Block Tandwa, in Chatra Dist, Jharkhand.' vide letter No J-11015/36/2007-IA.II(M) dated 19.05.2009.

2. The project was monitored for ascertaining compliance to the conditions stipulated in the aforesaid environmental clearance by Ministry's Regional Office at Ranchi on 14.02.2020. The monitoring report has been submitted by Regional Office to the Ministry vide its letter dated 30.04.2020 (Copy enclosed). The same has been examined in the Ministry and observed there are non-compliances.

3. In view of the foregoing, the project proponent is hereby directed to ascertain complete compliance as per the Monitoring Report of RO. Further, PP is also directed to submit the reasons for non-compliance and the deviation with respect to various parameters listed in the environment management plan submitted at the time of seeking EC to the Ministry within 45 days of the receipt of this letter before considering the matter for issuance of Show-Cause Notice under the provision of section 5 of the Environment (Protection) Act, 1986.

This issues with the approval of Competent Authority.



(Dr. Shrutu Rai Bhardwaj)  
Addl. Director/Scientist 'E'

**Copy to:**

1. The Addl. Principal Chief Conservator of Forests (Central), Ministry of Environment, Forest and Climate Change, Regional Office (ECZ), Bungalow No. A-2, Shyamali Colony, Ranchi - 83400

- 2. The Member Secretary (Coal), Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi-03
- 3. Deputy General Manager & HOD (Environment), M/s Central Coalfields Ltd., Darbhanga House, Ranchi. Jharkhand- 834001.

Indira Paryavaran Bhawan  
 Jor Bagh Road, New Delhi-110 003  
 E-mail: ipb@nic.ni.ni  
 Dated: 20th July 2020

To  
 Project Officer,  
 Paradip O.C. M/s CCL  
 North Karimganj area,  
 P.O. Dabra, District Ranchi,  
 Jharkhand - 832110

Subj: Paradihp O.C. expansion Coal Mine Project (2.00 MTVA with a peak production of 2.42 MTVA) located in Village Dabra, Karimganj and Khatia in District Ranchi, Jharkhand. Non-compliance report.

Ref: Ministry's FC letter No. 111915/20/2007-DA(II) dated 12.02.2020.

This has reference to the Environment's Compliance (EC) issued to M/s Central Coalfields Ltd. for project Paradihp O.C. expansion Coal Mine Project (2.00 MTVA with a peak production of 2.42 MTVA) located in Village Dabra, Karimganj and Khatia in District Ranchi in Jharkhand. The letter No. 111915/2007-DA(II) dated 12.02.2020.

The project was submitted for environmental clearance to the competent authority in the above mentioned capacity by Ministry's Regional Office at Ranchi on 14.02.2020. The monitoring report has been submitted by Regional Office to the Ministry vide its letter dated 10.04.2020 (copy enclosed). The same has been examined in the Ministry and observed that there are non-compliances.

In view of the foregoing, the project proponent is hereby directed to ascertain complete compliance for the Monitoring Report of FC (Form 1) is also directed to submit the reasons for non-compliance and the details with respect to various parameters listed in the environment management plan submitted at the time of getting EC to the Ministry within 45 days of the receipt of this letter before commencing the project for breach of show-cause notice under the provision of section 2 of the Environmental Protection Act 1986.

This issue with the approval of Compliance Authority.

  
 (Dr. Suman Lal Bhowmik)  
 Addl. Director/Secretary

Copy to:

1. The Addl. Principal Officer, Government of Jharkhand (Central), Ministry of Environment, Forest and Climate Change, Regional Office (E-2), Rangpur, No. A-2, Alkhandi Colony, Ranchi - 834001.