

Executive Summary

Indiscriminate utilisation of natural resources to meet development demands, rapid industrialisation and unplanned urbanisation adversely impact the environment. Dumping of wastes into rivers and lakes, diverting forest land for other purposes and increased emission of harmful pollutants into the environment contribute to degradation of environment.

Over the last few decades in India, protection and conservation of the environment and sustainable development have become increasingly important, in the light of climate change which had devastating consequences on the survival of humanity. Effective environmental governance is, therefore, of utmost importance. Accordingly, the thrust of this Audit Report is to highlight issues relating to the adequacy and effectiveness of the efforts made by the public sector coal companies to address important environmental issues like air pollution, water pollution, land degradation, *etc.*

Coal, a fossil fuel, is composed mainly of carbon. It is extracted predominantly through open cast mining (OCM). OCM disfigures the countryside and tends to pollute the atmosphere within the locality. The main activities involved in coal mining are drilling of bore holes, blasting and loosening of coal seams, extraction of coal reserve and transportation of coal from mines to railway siding or to washeries. Extraction of coal, therefore, involves serious environmental and social concerns, including, air, noise, water pollution, land degradation and far reaching consequences on local bio-diversity. Most of the coal reserves in India are located in river basins which are rich in forest cover and are habitats of precious wild life and indigenous tribal communities. In view of the above factors, a Performance Audit on “Assessment of environmental impact due to mining activities and its mitigation in Coal India Limited and its Subsidiaries” was conducted. The Report on the Performance Audit contains nine specific recommendations. The significant audit findings are discussed below:

Environment Management System

- i. The National Environmental Policy (NEP) was formulated by the Government of India in September 2006. The NEP enjoined upon all concerned - Central, State/UT and local - to prepare action plans on identified themes and formulate their own strategies to be consistent with the NEP. However, Coal India Limited (CIL) amended its original Corporate Environment Policy (CEP) and formulated a comprehensive Environment Policy only in March 2012, followed by a revised policy in December 2018 (Para 3.1.1).

- ii. Ministry of Environment, Forest and Climate Change (MoEF&CC) while according environment clearance (EC) for the projects of the subsidiaries from time to time, stipulated that a well laid down Environment Policy duly approved by the Board of Directors (BoD) of the subsidiaries needs to be in place. Six out of seven coal producing subsidiaries of CIL did not formulate a policy as mandated. Further, although guidelines containing the responsibility and delegation at different levels in environment discipline were formulated by CIL, the same were not dovetailed in their operating manual by the subsidiaries. (Para 3.1.2 & Para 3.1.3).

Air Pollution and Control Measures

- iii. According to the Environment Impact Assessment – Environment Management Plan of the mines, requisite number of air quality monitoring stations as specified in EC were to be established in core zone (within 3 km of the mining area) and buffer zone (within 10 km of the mining area) of each mine for monitoring air quality. In 12 of the sampled 30 operating mines/washeries, against 96 monitoring stations, only 58 (60 *per cent*) were established (Para 4.1.1).
- iv. Continuous Ambient Air Quality Monitoring Stations were to be installed and equipped with connectivity to the server of State Pollution Control Boards (SPCB) to facilitate online monitoring of ambient air quality. 12 mines of four subsidiaries did not comply with these directives (Para 4.2).
- v. The average ash content in the coal extracted by Hingula, Jagannath, Basundhara (W) and IB Valley mines of Mahanadi Coalfields Limited (MCL) ranged between 40.1 *per cent* and 43.8 *per cent*. Although MCL contemplated setting of four washeries as early as in March 2008 for supply of beneficiated coal to thermal plants, these have not been commissioned so far (November 2018). The ash content in the coal supplies executed by Central Coalfields Limited (CCL) also exceeded 34 *per cent*. (Para 4.3)
- vi. The National Ambient Air Quality Standards, 2009 (NAAQS) notified by MoEF&CC in November 2009 mandated monitoring of Particulate Matters (PM₁₀ and PM_{2.5}) on annual and 24 hour basis. Although these norms came into effect from November 2009, ambient air quality was monitored in Eastern Coalfields Limited (ECL) only from May 2015 for the cluster of mines. Further, six locations of ECL were monitored only till March 2015, although PM₁₀ level in these stations always exceeded the prescribed norm (100 µg/cum) under NAAQS (Paras 4.4.1 & 4.4.2).

- vii. The concentration of PM₁₀ and PM_{2.5} in air exceeded the levels prescribed in NAAQS in six mines across three subsidiaries during 2013-18 (Para 4.4.3).
- viii. Shortcomings were noticed in the implementation of prescribed CIL guidelines (March 2014), in 17 out of the 28 operating mines selected for scrutiny (Para 4.6.1).
- ix. Construction of silo at Gevra OCM was completed belatedly in February 2016 at a cost of ₹ 138.85 crore. However, works relating to railway siding remained (November 2018) incomplete and coal produced from Gevra OCM continued to be transported through road, thereby contributing to dust generation. In Lingaraj and Lakhanpur projects of MCL, silo was not operationalised due to absence of railway connectivity and coal continued to be transported by road. In Block B mines of Northern Coalfields Limited, coal could not be dispatched through Coal Handling Plant due to absence of rail connectivity and, hence, coal continued to be transported by road beyond August 2016, thereby contributing to air pollution. (Paras 4.9.1, 4.9.2 and 4.9.3).

Water Pollution and Control Measures

- x. During 2013-18, out of 28 mines selected for audit scrutiny, in eight mines across three subsidiaries, the pollutants exceeded the limits prescribed by Bureau of Indian Standards (BIS) (Para 5.1).
- xi. During 2013-18, 62 lakh Kilo-litre (KL) of untreated water was discharged in nearby water bodies by Lakhanpur (2.95 lakh KL) and Basundhara (W) mines (59.05 lakh KL) of MCL thereby contaminating ground water. Further, CCL, Bharat Coking Coalfields Limited (BCCL) and South Eastern Coalfields Limited (SECL) continued to use ground water for their mining operations without obtaining No Objection Certificate (NOC) from Central Ground Water Authority (CGWA) (Paras 5.2.1 & 5.8.1).
- xii. The subsidiaries did not install Sewage Treatment Plant (STP) at the residential colonies of the collieries, thereby contaminating the ground water (Para 5.6).
- xiii. Due to absence of mechanical brooming / industrial cleaner in Piparwar OCM, the spillage from overloaded trucks / dumpers accumulated along the sides of the bridge of Safi River, was not cleaned periodically. These eventually drained into the river thereby contaminating the river water. Further, rejects of Kathara washery of CCL was found to be contaminating Damodar River (Paras 5.7.1 & 5.7.2).

- xiv. NCL did not get the coal seam samples analysed for mercury content on annual basis. Further, no analysis of coal seam samples was made beyond June 2016, thereby, thwarting the measures for occupational health and safety (Para 5.9).

Land Management – Mitigation of Land Degradation and Reclamation

- xv. Out of 23 OC/mixed mines selected for audit, in 13 mines across five subsidiaries, though topsoil was stacked in the earmarked area and reported periodically, basic records of topsoil indicating the quantity and areas of stacking were not maintained. As at the end of March 2018, in three mines of Western Coalfields Limited (WCL), although 75.30 lakh cum of topsoil was stacked at earmarked sites, it remained unutilised since 2013-14 (Paras 6.1.1 & 6.1.2).
- xvi. Director General of Mines Safety (DGMS) suspended (June 2017) operations in a patch of Rajmahal OCP as the Overburden (OB) benches in coal II and III seams did not conform to the norms specified in the Regulations. DGMS suspended (January 2017) operations in Quarry 3 of Sonepur Bazari OCP also as the height of the benches of R-VIII coal seam deviated from the Regulation (Para 6.2.1).
- xvii. ECL did not set year-wise internal targets for biological reclamation of mined out area through plantation activities. Against the de-coaled area of 3922.85 ha, MCL biologically reclaimed only 2024.73 ha (51.61 *per cent*) as at the end of March 2018 (Para 6.3.1).

Adherence to Other Regulatory Conditions for Protection of Environment

- xviii. 35 mines of ECL which were closed between April 1946 and July 2009 (including six mines which were closed prior to nationalization), did not have Mine Closure Status Report (Para 7.1.1).
- xix. MCL did not adopt a uniform policy for the dumping of fly ash. Between April 2009 and December 2014, ECL permitted five thermal power plants to dump 201.26 lakh cubic meter of fly ash in eight abandoned mines without consideration. Further, fly ash generated in the process of power generation by Kathara Captive Power Plant of CCL was dumped in the open space, posing environmental hazard (Para 7.1.3.2, 7.1.3.3 & 7.1.3.4).
- xx. Deputy Director of Mines, Odisha levied (June 2017) penalty of ₹ 50.97 crore invoking the provisions of the Mines and Mineral (Development and Regulation) (MMDR) Act for production of coal in excess of the mine plan. The violation of mining plan was affirmed (August 2017) by the Hon'ble Supreme Court (Para 7.2.2).

- xxi. As at the end of March 2018, 16 units relating to two subsidiaries comprising mines (13) and washeries (3) were being operated without valid EC in 9 units, Consent to Establish (CTE) in 1 unit and Consent to Operate (CTO) in 6 units. Consequently, the adequacy of the mitigative measures in vogue to handle environmental pollution as prescribed under various rules / regulations could not be assessed (Para 7.2.3).
- xxii. EC for Hurilong Underground (UG) coal project which was in close proximity to the Palamau tiger reserve, was rejected (August 1998) by MoEF. In advance of obtaining the EC, CCL acquired and destroyed 6.58 acre non forest land and constructed infrastructural facilities at a cost of ₹ 2.98 crore (Para 7.2.4).
- xxiii. MCL did not install meters and submit waste water analysis report as stipulated under the Cess Act and hence could not avail of concessional rates of cess. The saving it had to forego on account of this non-compliance was in the amount of ₹ 2.48 crore during 2013-18 (Para 7.3.3).

Rehabilitation and Resettlement for Mine Fire

- xxiv. Even after a lapse of nine years, since Jharia Master Plan was approved, BCCL did not formulate fire fighting activities as envisaged therein. Fire fighting activities commenced only in 25 projects (as against 45 projects identified). The fires thus continued to endanger the lives of the people residing in and around the fire area, besides adversely impacting the environment (Para 8.1.2).

Monitoring of Environmental Activities

- xxv. While the deployment of executives exceeded the sanctioned strength at CIL Headquarters (HQ) in all the years, it fell short at mines, during the period 2013-18. The extent of excess deployment in CIL HQ ranged between 20 *per cent* and 120 *per cent* of the sanctioned strength during 2013-18. North Eastern Coalfield (NEC) mines experienced shortage of executives ranging between 33 *per cent* and 100 *per cent*. There were inconsistencies in deployment of manpower for environmental activities in the subsidiaries also. (Para 9.1.1 and 9.1.2).
- xxvi. We observed that while the quality parameters relating to air and water were being monitored on fortnightly basis, the reports were prepared by Central Mine Planning and Design Institute Limited (CMPDIL) and reported to the subsidiaries on quarterly basis, thereby offering no scope for initiating remedial measures on the basis of adverse fortnightly readings recorded (Para 9.2).

Recommendations

1. The companies under coal sector may put in place an Environment Policy duly approved by their respective BoD as mandated by MoEF&CC.
2. The subsidiaries may adopt two-pronged strategy for pollution control. The capital works relating to pollution control measures may be completed expeditiously. The plantation works may also be taken up simultaneously and aggressively to increase green cover and restore ecological balance in and around the mines.
3. CIL should frame uniform and scientific policy towards use of fly ash in the mines so as to ensure environmental sustainability.
4. Corporate Social Responsibility (CSR) expenses may be dovetailed to ensure sustainable community development around specific mines as mandated under EC so as to avoid lopsided development.
5. Remedial actions for mitigating and arresting the adverse impact of subsidence and fire at Jharia Coalfields on the environment may be expedited.
6. Implementation of solar power project may be put on fast track so that the environmental benefits fructify as envisaged.
7. Manpower in the Environment Department of CIL and subsidiaries may also be rationalised and Environmental Manual be formulated to serve as a guide in the operations in specific mines under their control.
8. The monitoring mechanism in the subsidiaries may be strengthened by streamlining the existing reporting process for maintaining neutrality and to ensure proper checks and balances in the system of compliance mechanism. The oversight role of CIL be directed to ensure compliance to prescribed environmental standards.
9. Deficiencies observed in mitigation of environmental pollution were based on audit of sample mines which may be reviewed in other mines to ensure compliance of environmental rules and regulations.