

## CHAPTER 1

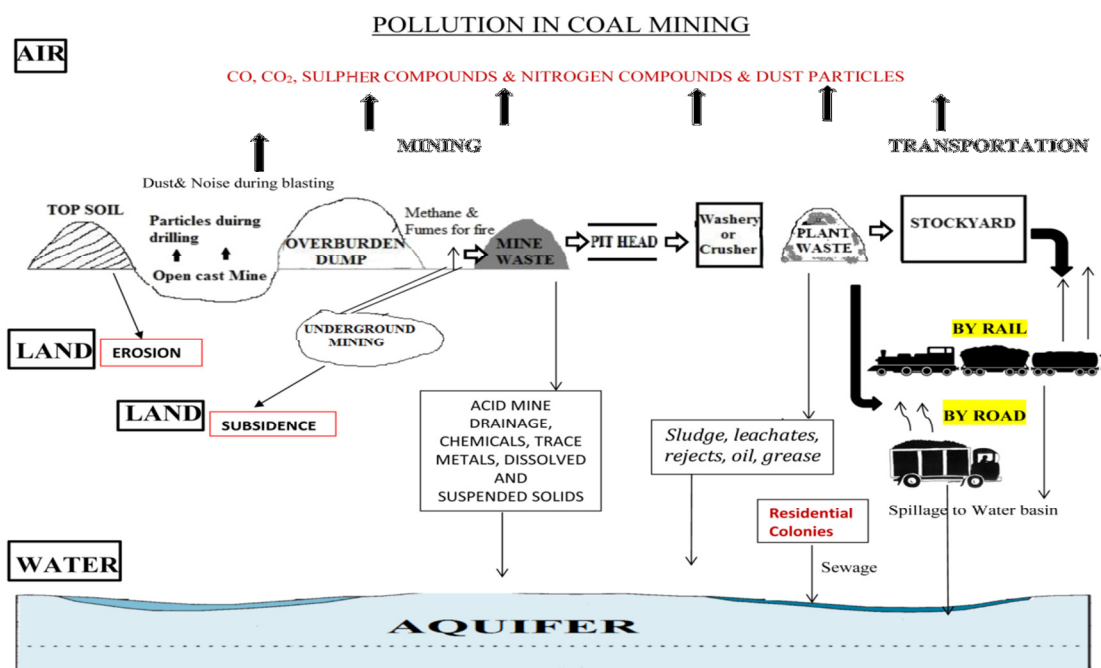
### INTRODUCTION

Minerals are valuable natural resources which are finite and non-renewable. Mineral exploration and development is closely linked with the development of the country's economy. However, as it interferes with the environment and social structure, harmony and balance are to be maintained between extraction and conservation in the interest of sustainable development.

Article 48 A of the Constitution of India brings out that the State shall endeavour to protect and improve the environment. Further Article 51(A)(g) of the Constitution enjoins upon the citizens of India to protect and improve the natural environment. Also, the Government of India (GoI) enacted the Environment (Protection) (EP) Act, 1986 for protection and improvement of the environment.

### 1.1 Sources of Pollution

Coal, a fossil fuel, composed mainly of carbon, 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 the washeries or to railway siding. Extraction of coal, therefore, involves serious environmental and social concerns, including air, noise and water pollution, land degradation and far reaching consequences on local bio-diversity. The concerns are further compounded in the Indian context as most of the coal reserves are located in river basins which are rich in forest cover and are habitats of precious wild life and indigenous tribal communities.



The life cycle of a coal mine involves phases viz. prospecting, exploration, development, exploitation, and finally closure. The impact of coal mining on environment is maximum during the exploitation phase. In the process of coal mining, transportation and other allied operations, different types of mining pollutants are generated. Mining must, therefore, be carried out in a wise, socially responsible and environmentally sustainable manner.

## **1.2 Regulatory Framework**

### **Ministry of Environment, Forest and Climate Change**

**1.2.1** Ministry of Environment, Forest and Climate Change (MoEF&CC) is the nodal agency for planning, promoting, coordinating and overseeing the implementation of India's environmental and forestry policies and programmes. Mining of coal is to be carried out in conformity with stipulated environmental standards as prescribed under the relevant Acts and statutes. For new and existing mines (involving capacity augmentation), Environment Impact Assessment<sup>1</sup> and Environment Management Plan<sup>2</sup> (EIA-EMP) are formulated as per approved Terms of Reference (ToR) and involve public consultations. On the basis of EIA-EMP Environment Clearance (EC) is granted by the MoEF&CC. Where mining involves forest land, Forest Clearance (FC) is required to be obtained from the MoEF&CC for diversion of forest land for non-forest purposes.

### **State Pollution Control Board**

**1.2.2** Prior to establishment of the mining project, all new intending project proponents are required to obtain 'No Objection Certificate' (NOC) from the jurisdictional State Pollution Control Board (SPCB) in the form of 'Consent to Establish' (CTE). Subsequently, for carrying out operations, the units are required to obtain 'Consent to Operate' (CTO) from the respective SPCBs. SPCBs are expected to play oversight role through periodical inspections in order to ensure compliance of standards prescribed under the Acts / statutes.

## **1.3 Coal India Limited and its subsidiaries**

Consequent to the nationalization of coal mines in May 1973, Coal India Limited (CIL) was incorporated in November 1975 as a Central Public Sector Enterprise under GoI with its Headquarters (HQ) in Kolkata. North Eastern Coalfields (NEC), Margherita, Assam, is directly under the control of CIL. CIL has seven coal producing subsidiary companies (subsidiaries) under its fold as detailed below.

---

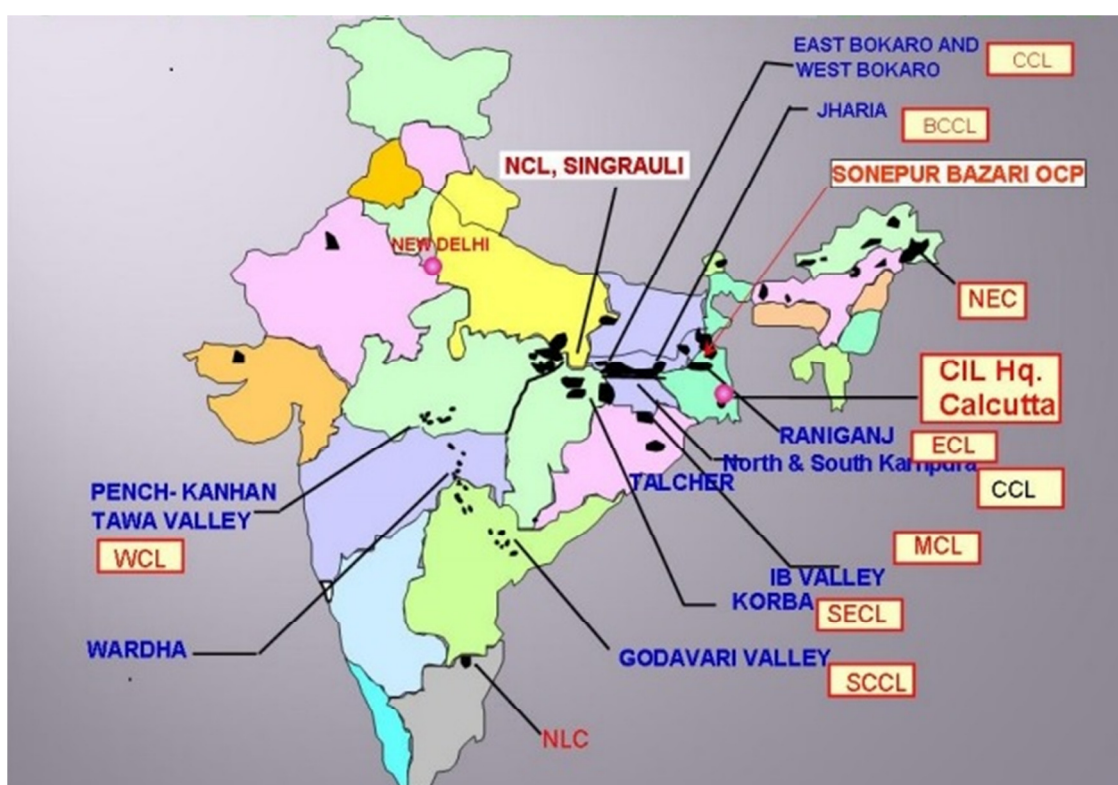
<sup>1</sup> EIA highlights the beneficial and adverse effects of coal mining on the environmental system.

<sup>2</sup> EMP details all mitigation measures to be undertaken for item-wise activity during the construction, operation and the entire life cycle of the coal mines to minimise adverse environmental impacts.

**Table 01: Coal producing subsidiaries of CIL**

Sl. No.	Name of the subsidiary
1.	Bharat Coking Coal Limited (BCCL), Dhanbad
2.	Central Coalfields Limited (CCL), Ranchi
3.	Eastern Coalfields Limited (ECL), Sanctoria
4.	Mahanadi Coalfields Limited (MCL), Sambalpur
5.	Northern Coalfields Limited (NCL), Singrauli
6.	South Eastern Coalfields Limited (SECL), Bilaspur
7.	Western Coalfields Limited (WCL), Nagpur

The major coalfields of India are depicted in the following map:



(Source: Energy Statistics 2015, Central Statistics Office, National Statistical Organisation, Ministry of Statistics and Programme Implementation)

With an average consolidated annual production of 523.38<sup>3</sup> million tonnes (MT) of coal during 2013-14 to 2017-18, CIL operates through 82 mining areas spread over eight provincial states of India, besides owning and operating 15 coal washeries through its subsidiaries. About 95 per cent of coal production in India is through OCM. The choice of the particular method of mining, i.e. underground (UG) or opencast (OC), depends on the depth, extent, quality and geology of the deposit. While OCM is much safer than

<sup>3</sup> Source: Computed based on the data available in the Annual Report of CIL for the year 2017-18.

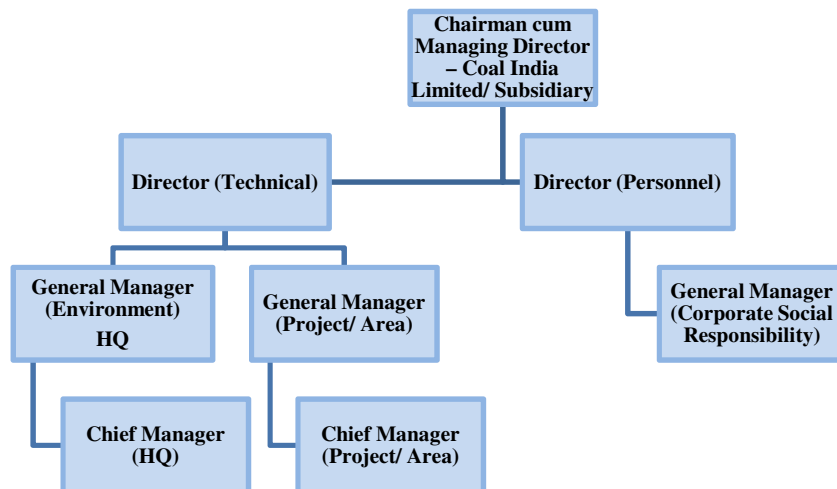
UG, it creates much more pollution. CIL was accorded Maharatna status in April 2011 and six of the coal producing subsidiaries (except ECL) enjoy Miniratna status.

### 1.3.1 Role of Central Mine Planning & Design Institute Limited

Central Mine Planning & Design Institute Limited (CMPDIL), Ranchi, established (November 1975) as a subsidiary of CIL, is an agency accredited by Quality Council of India for carrying out environmental monitoring as specified in the EP Act. CMPDIL functions through seven<sup>4</sup> Regional Institutes (RIs) each catering to one of the seven coal producing subsidiaries. CIL and its subsidiaries avail of the technical expertise of CMPDIL for environmental monitoring, processing and award of works relating to environmental monitoring, selection of monitoring stations and compliance of statutory requirements.

## 1.4 Organizational Structure for Environmental Activities

CIL and subsidiaries implement their environmental activities at their HQ and at project sites where mining and related activities are actually carried out. The organization chart relating to the environment activities is as follows:



## 1.5 Audit Framework

### 1.5.1 Audit Objectives

The objectives of the Performance Audit were to:

- (i) examine whether CIL / subsidiaries adhered to the relevant laws, rules and regulations as prescribed for environmental protection under the EP Act for prevention of pollution;

<sup>4</sup> RI (Asansol), RI-II (Dhanbad), RI-III (Ranchi), RI-IV (Nagpur), RI-V (Bilaspur), RI-VI (Singrauli) and RI-VII (Bhubaneswar).

- (ii) assess the implementation and effectiveness of sustainable development measures taken up by CIL / subsidiaries for environment protection in the mining area; and
- (iii) assess whether adequate monitoring mechanism existed in CIL / subsidiaries for taking up remedial measures to control environmental degradation.

The Performance Audit also sought to examine the effectiveness of measures adopted for mitigation of land degradation, land reclamation, hazardous substance management, Corporate Social Responsibility (CSR) and occupational health and safety that impinge on environmental aspects.

### **1.5.2 Audit Criteria**

The performance of CIL and its subsidiaries was evaluated with reference to the following criteria:

1. EP Act 1986 and related Rules, Notifications and Circulars
2. Water (Prevention and Control of Pollution) Cess Act, 1977.
3. Public Liability Insurance Act, 1991.
4. Standards prescribed by Bureau of Indian Standards in 2012.
5. Environmental Policy 2012 of CIL.
6. CIL guidelines issued in March 2014 for personnel of Environment Department deployed in mines and guidelines issued in November 2015 by Central Ground Water Authority.
7. Mine closure guidelines 2009 and 2013
8. Environment Impact Assessment and Environment Management Plan.
9. EC of Mines and washery projects and conditions attached to EC accorded by MoEF&CC.
10. Conditions stipulated by SPCB / CPCB for CTE and CTO.
11. Approved Raniganj and Jharia Action Plans (2009).

### **1.5.3 Audit Scope, Coverage and Methodology**

We conducted Performance Audit of CIL and its subsidiaries for the period from 2013-14 to 2017-18. Out of 500 mines and 15 washeries, 41 mines and 2 washeries (representing 8 *per cent* and 13 *per cent* of mines and washeries respectively) were taken up for detailed scrutiny based on random sampling, keeping in view the type of mines which are more prone to environmental damage, geographical locations and availability of audit resources. The share of the sampled operating mines to the total production of the respective subsidiaries during 2017-18 ranged between 10 *per cent* and 65 *per cent*. The sample selected was heterogeneous and comprised of UG, OC,

mixed and closed mines. The total production of sampled mines was 226.03 million tonne and the total production of CIL and its subsidiaries was 567.37 million tonne during the year 2017-18. Besides, we also reviewed the records of CMPDIL relating to the technical support services provided to CIL / subsidiaries.

We conducted (April / June 2018) Entry Conference with the Managements of CIL / subsidiaries wherein the Audit objectives and scope of audit were explained. We examined the records maintained at their HQ, operating mines and washeries. Based on the examination of records, preliminary observations were issued to the Management. Their replies and the deliberations in the Exit Conference held with them in November 2018 have been considered in firming up the report. The draft PA Report was issued to the Ministry in December 2018 and the reply received in April 2019 were incorporated in the draft PA Report. The Exit Conference with MoC was held on 21 May 2019 wherein Audit observations and recommendations of the draft PA Report were discussed and views expressed in the Exit Conference have been duly considered while finalising the Report.

## **1.6 Acknowledgement**

We acknowledge the co-operation provided by CIL and the subsidiaries which facilitated the completion of this Performance Audit.

## **1.7 Audit Findings**

Audit findings are discussed in the succeeding paragraphs.