

Revisiting Environmental and Legal issues of Rat-hole Coal Mining in Meghalaya

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ABSTRACT: Coal mining has been most extensively practiced in most of the districts of Meghalaya, northeast India. As a result, the original lush green landscapes have been transformed into mine spoils. Some of the obvious environmental consequences of coal mining include large-scale deforestation, scarcity of water, pollution of air, water, and soil, and degradation of agricultural lands. The total deposit of coal in Meghalaya is estimated to be around 576 million tons, spread out over patches of various sizes. Individual landowners have control over mining activities in the state. Coal extraction in the state is done by primitive sub-surface mining method commonly known as 'rat-hole' mining. Such method of mining has a significant impact on the environment, landscape and biological communities of the earth.

In the light of this background, this paper examines the impact of Rat-hole Coal Mining on the environment in Jaiñtia Hills of Meghalaya as well as the legal aspects of this mining method. The methodology adopted for the study would be descriptive and analytical based on both primary and secondary sources.

KEYWORDS: Rat-hole Coal Mining, Environment, Water Resources, Meghalaya

I. INTRODUCTION

Rat-hole coal mining is a method carried out manually, which is crude, uneconomical, vulnerable and unscientific. This method entails felling of trees, digging a pit of 5 to 100 m² till coal layer is reached, making a side way tunnel, and finally extraction of coal from the pit by wheelbarrows. The unconsolidated and consolidated materials, which comprise mainly sand and gravels, are manually brought out from the tunnels along with coal. Coal is dumped in the adjacent un-mined land after it has been sorted. Unscientific mining of minerals poses a serious threat to the environment, resulting in reduction of forest cover, erosion of soil at a larger scale, pollution of air, water and land and biodiversity loss.

The indiscriminate and unscientific mining, as well as absence of post-mining treatment and management of mined areas are making the fragile ecosystems more vulnerable to environmental degradation hence resulting to large scale land cover/ land use changes. Because of the complex (traditional) landholding systems in the state, the government has limited control over the land. Therefore, mining is done under customary rights and is not covered by any mining act, rule or any other legislation.

Due to the land holding pattern in Meghalaya, licenses and MOUs are not mandatory for any form of mining activity, unless it is an industrial unit. As a result, almost all coal-mining activities fall into the unorganised sector. Individuals engage in coal mining have been granted the status of cottage industries and are accepted by both state and central governments. In short, these undertakings are not subjected to any mining law that apply in other parts of the country.

II. BACKGROUND OF MEGHALAYA

Meghalaya was created as an Autonomous State within the State of Assam on April 2, 1970 with the two erstwhile Districts of Assam, viz. the United Khasi and Jaintia Hills District and the Garo Hills District. On January 21, 1972, the Autonomous State was upgraded into a full-fledged State, with Shillong as its capital. The State has a geographical area of 22,429 sq. kms. and is divided into 11 Districts. It is one of the smallest states in India, situated in the north-east between 25° 5" and 26° 10" north latitudes and between 98° 47' and 97° 47' east longitudes. According to the 2011 census, the total population of the State was 29,66,889.

III. DISTRIBUTION OF COAL IN MEGHALAYA

Coal deposits can be found in the districts of Garo Hills, West Khasi Hills and Jaintia Hills. This coal contains low ash content and its calorific value ranges from 6,500 to 7,500 kcal/kg. The coal

is mainly of sub-bituminous type with medium to high sulphur and can be used in a variety of industries ranging from power, fertilizer, cement and textile to paper, rubber, brick burning and pottery-based industries. The coal obtained here has a low ash content, high volatile matter and also high calorific value. However, it has a drawback of high sulphur content. It is rather difficult to ascertain the actual reserves of the deposits due to the inconsistent nature of the coal seams combined with complicated geological structures in some areas. As a result of exploration carried out up to the maximum depth of 1200m by the GSI, CMPDI, SCCL and MECL etc, a cumulative total of 576 million tonnes of Coal have so far been estimated in the state as on 1.4.2018.

The coalfields of Meghalaya are small and widely dispersed. Coal is mostly found in Mawsynram, Langrin, Lumdidom of Khasi hills, Bapung, Lakadong, Musiang-Lamare, Sutnga, Chyrmang, Mulang of Jaintia hills and East Darrangiri, West Darrangiri, Siju, Selsella of Garo hills. The unscientific extraction of coal in unorganized sector has been going on for a long time in these areas.

IV. RAT-HOLE COAL MINING VERSUS MINING POLICY

Before delving into the issue of legitimacy in Indian coal mining, let us first examine the legal and regulatory framework for coal (and other minerals) in India, as well as the licensing and policing systems. Then we will examine how responsive our legal and political structures have been to social and economic issues that have arisen in mining areas.

Apart from the Indian Mines Act of 1952, which primarily addresses labour welfare and safety and health issues, the Mines and Minerals (Regulation and Development (MMRD)) Act of 1957 is the primary legislation governing mineral prospecting, exploration, and mining. According to this act, "minerals" refers to all substances that can be obtained from the earth through various methods such as mining, digging, drilling, and so on, and also includes mineral oils, which include natural gas and petroleum.

The MMRD Act and any other mining development plans are guided by the overall National Mineral Policy (NMP) which was first outlined by the Government of India in 1993, and then revised in 2002. The objectives of the NMP are primarily "mineral development" through explorations of "mineral wealth" in the land and off-shore areas, development of wealth while taking into account the national and strategic considerations, and ensuring adequate supply and

best use. The NMP is intended to promote the mineral industry as well as research, training and development in minerals, while keeping the present needs and future requirements in view, but with minimal adverse effects on forest, environment and ecology, and to ensure safety and health of all concerned.

Clearly, the existing laws are neither comprehensive nor adequate to deal with the informal mining sub-sector, part of which is licensed but part of which is illegal, part of which has a long artisanal tradition extending back into pre-colonial days and part of which has been an offshoot of recent developments in mineral tracts. The illegal miners cannot lobby for recognition, and current laws provide very few practical options for them to mine coal legally, resulting in serious consequences for the well-being of local populations and the environment.

V. ENVIRONMENTAL IMPACT OF RAT-HOLE COAL MINING

Coal mining has a significant negative impact on the environment and ecology unless it is carefully planned and controlled. Some environmental consequences are felt immediately, while others are felt over time. The magnitude of the environmental impacts, on the other hand, varies depending on the mining method, scale and concentration of mining activities, geological and geomorphologic setting of the area, nature of deposits, land use pattern prior to the start of mining operations, natural resources, and so on. The following are the major environmental issues encountered during the mining process:

a. Destruction of forest & biodiversity

According to Goretta and Schejbal, waste materials spread out in coal mining areas due to unhealthy environmental conditions has resulted in the loss of plant vegetation and growth.

During the rainy season, soluble materials from the coal mine dissolve in rainwater, which then flows into nearby streams and paddy fields. The acidity of the soil and water at mining sites is typically high, affecting the majority of soil chemistry and lowering soil productivity. The pH value is used to measure acidity, and the lower the pH value, the higher the acidity. Heavy metals such as copper, lead, and mercury are dissolved in acid runoff from mines and end up in the ground or surface water. As a result, water pollution at mine sites depletes soil nutrients and degrades the aquatic environment.

Trees and shrubs are the first to be directly removed during mining. Land that is eroding is unable to support vegetation. A recent study on plant species composition in the Garo hills of

Meghalaya revealed that coal mining has an adverse impact on plant species composition. Mining activities pollute the water and air, resulting in the loss of top fertile soil. The loss of soil productivity and ground vegetation signals the impending transition to a desert state.

Mining sites are inherently hazardous workplaces. Workers in mines inhale large amounts of dust, flumes, and gases, which cause a variety of diseases such as influenza, asthma, emphysema, stomach and lung cancer, and hypertension. A large number of people died as a result of pneumoconiosis and bronchitis. All of the workers live in perilous conditions, in small makeshift huts on or near the work site. Due to mining activity and extremely high rainfall, the area in and around coal mines is invariably damp. Miners do not maintain proper personal hygiene due to work pressure and an absence of adequate sanitation facilities. According to one study, 77.88 percent of workers suffer from one or more types of illness. Approximately 71% of these people have more than one health issue. Similarly, more than half of the population suffers from low back pain.

A study of environmental pollution caused by subsurface coal miners discovered that emissions of particulate matter and gases such as methane (CH₄), sulfur dioxide (SO₂), oxides of nitrogen (NO_x), and carbon monoxide (CO) harmed workers as well as nearby residents and wildlife.

b. Land degradation

The most serious effect of coal mining operations is land degradation. The degradation of land caused by open cast mining is much greater than that caused by underground mining. Large tracts of land have been degraded as a result of activities such as excavation, stacking of waste dumps, discharge from workshops, construction of tailing ponds, and so on, with a strong emphasis on large-scale mechanized opencast mining in India. Underground mining operations also cause land subsidence, as well as changes in topography and drainage patterns.

c. Stress on water resources

Coal mining has a negative impact on the environment, particularly on water. It degrades water quality by increasing the levels of suspended particulate solids, total dissolved solids, and some heavy metals as well as lowering the pH of the surrounding water resources. Furthermore, the overburden generated contaminates the surrounding water bodies and raises heavy metal concentrations, particularly of Fe, Cu, Mn, and Ni, reducing the utility of water for domestic purposes.

VI. AREAS OF CONCERN: HEALTH AND ENVIRONMENT

The rampant and unscientific coal mining in this unorganised sector has led to serious environmental disasters. Little is known about the health of the workers who have swamped the area after migrating from other regions. Health and safety regulations have been ignored in the pursuit of profit.

Mine owners are unconcerned about their employees or the environment. Accidents and fatalities continue to go unreported, and it is unclear whether compensation is provided or not. Workers and the environment will continue to be exploited indiscriminately in the absence of laws.

In the past, large volumes of timber trade from the region significantly reduced forest cover to less than 40% in the area. The rapid expansion of coal trade and stockpiling has resulted in serious environmental issues.

Rivers and streams had degraded to the point where they were no longer suitable for fisheries or aquatic life. The air quality in coal mining areas, which are classified as residential, rural, and other areas under the national ambient air quality standard, had also degraded to some extent. It has been discovered that coal mining operations have had such a negative impact on water quality that rivers, streams, and groundwater have become highly acidic.

VII. NATIONAL GREEN TRIBUNAL BAN ON RAT-HOLE MINING IN MEGHALAYA

Coal mining in Meghalaya is done by local individuals in the form of a long narrow tunnel known as “rat-hole” mining. Unscientific mining of minerals poses a serious threat to the environment, resulting in reduction of forest cover, erosion of soil, pollution of air, water and land as well as reduction in bio diversity. As a result, National Green Tribunal (NGT) has ordered a ban on rat-hole coal mining across Meghalaya on 17 April 2014. The order of the NGT, dated April 17, 2014 stated that such illegal and unscientific method can never be allowed in the interest of maintaining ecological balance of the country and safety of the employees. Acting on the orders of the Tribunal, the state government banned the rat-hole mining and coal transportation throughout the state in May 2014. Illegal coal mining operations, on the other hand, allegedly continue to flourish in Meghalaya despite a ban imposed upon its extraction in the state seven years ago. The state government prefers to remain silent about illegal coal mining operations and transportation because the majority of these rat-hole

mines are controlled by powerful bureaucrats, ministers, coal barons, and contractors. Earlier, in December 2018, at least 15 coal miners were reportedly killed in an illegal coal mine in the same district after the pit in which they were working was flooded with water, thereby refocusing attention on allegations of rampant illegal coal mining. On 21 January 2021, six people were killed in an accident at an underground mining pit in the same district of Meghalaya. This accident occurs in the wake of state government claims that no illegal extraction activities are taking place in Meghalaya and that there was no unlawful movement of coal-laden trucks. The state government also claimed that no leases have been awarded for coal mining anywhere in the state.

More recently, on 30 May 2021, four labourers from Assam and one from Tripura were trapped in the coal pit after a dynamite blast led to the flooding of a coal mine in the East Jaintia Hills district of Meghalaya. These incidents support the claim of several activists that the coal mafia is extracting coal through illegal rat-holes despite the NGT ban.

The NGT-appointed panel had documented extensive illegal coal mining in the state in the six reports that it had submitted to the NGT till December 2019. Subsequently, Justice B. P. Katakay stepped down from the aforementioned panel, citing the non-cooperative and adamant nature of state government officials. The state government of Meghalaya, however, has claimed that appropriate measures are being taken in order to curb instances of illegal mining in the state.

VIII. CONCLUSION

With mining falling outside the purview of any law, a few individuals continue to reap the benefits at the expense of others and with complete disregard for the environment. Because they operate in an unorganized sector, government offices and officials are unable to provide much information. Mining operations in Meghalaya lack scientific methods and use the most rudimentary mining methods. As a result, forest and agricultural lands were destroyed which affects the ecosystem and rich biodiversity making land reclamation difficult.

REFERENCES

- [1]. Sarma, K. 2005. Impact of coal mining on vegetation: a case study in Jaintia Hills district of Meghalaya, India. M. Sc. Thesis. International Institute for Geo-information Science and Earth Observation (ITC). Enschede. The Netherlands.
- [2]. UNESCO. (1985) Living in the Environment. UNESCO/UNEP.
- [3]. Tiwari, BK. (1996) "Impact of coal mining on ecosystem health in Jaintia Hills, Meghalaya", In Ramakrishnan PS, et. al. (eds.), Conservation and Management of Biological Resources in Himalaya, G. B. Pant Institute of Himalayan Environment and Development, Almora. Oxford IBH Co. New Delhi. Pp. 466-475.
- [4]. Anon. "Cottage coal mining in the state of Meghalaya and its impact on the environment", In Gupta, A. and Dhar, D.C. (eds.), Environment Conservation and Wasteland Development in Meghalaya, Meghalaya Science Society, Shillong, India, 1992.
- [5]. Available from <http://mines.nic.in/nmp.html> accessed on August 2, 2007.
- [6]. Arpita Asha Khanna, Governance in Coal Mining: Issues and Challenges, The Energy and Resources Institute, TERI-NFA Working Paper No. 9, August 2013.
- [7]. Goretti, K. K. M. (1998) The environmental impacts of underground coal mining and land cover changes analysis using multi-temporal remotely sensed data and GIS. Unpublished M.Sc. Thesis. International Institute Aerospace Surveys and Earth Sciences (ITC). Enschede: The Netherlands.
- [8]. Schejbal, C. (1995) "Problems of mines closure and reviving of landscape in the mining area", Proceedings of the International Conference, Beijing, China. pp. 681-691.
- [9]. Lyngdoh T (1995) Community dynamics and edaphic changes in relation to coal mining in Jaintia Hills, Meghalaya. Ph. D. Thesis, North Eastern Hill University, Shillong, India
- [10]. Lyngdoh T, Tripathi RS, Das AK (1992) Vegetation dynamics on coal mine spoils of Jaintia Hills in Meghalaya (north-east India) undergoing natural recovery. Acta Oecologia, 13, 767-775
- [11]. Sarma K, Yadav PK (2013) "Relentless Mining in Meghalaya, India", Conservation Science, Vol.1, pp. 5-12
- [12]. Pandey HN, Tripathi RS, Uma Shanker, Boral L (1993) "Study site, vegetation and soil", In: Studies on environmental impact of coal mining in Jaintia Hills District, Final Technical Report
- [13]. Rai RK (1996) "Environmental degradation due to coal mining in Meghalaya", Final Report of the project sponsored by Ministry of Environment and Forests, New Delhi.

- [14]. The Hindu, May 31, 2021
- [15]. Directorate of Mineral Resources Report, Government of Meghalaya.
- [16]. Majaw, Baniateilang, (2019) The Structural Problems of Rat-Hole Mining in Meghalaya, Economic and Political Weekly, Vol. 54, Issue No. 21.
- [17]. Ayaskant Das, Meghalaya: Scourge of Illegal Coal Mining Persists Despite Ban”, <https://www.newsclick.in/Meghalaya-Scourge-Illegal-Coal-Mining-Persists-Despite-Ban>
- [18]. First- Sixth Interim Report of the Independent Committee , Submitted to the National Green Tribunal, New Delhi.