



## **Ecological Degradation, Displacement and Protest Movements in North Eastern Coal Fields: A Study in Margherita Coal Fields, Assam**

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### **Abstract**

*Coal is essential for development and industrialization. As a developing country India is closely concerned with the developmental process through the natural resources like coal but the coal mining (both open cast and underground mining) has challenged our livelihood and also provide accelerator in the creation of a lot of problems like displacement and rehabilitation, ecological degradation etc. The Coal industry of Margherita, Tinsukia, Assam is a pioneer and primary coal industry of a large magnitude in the easternmost part of India is also deeply related with developmental process in one hand and poses a threat to the livelihood of the people by degrading the natural environment on the other. So a number of protest movements have been organized by the various local organizations in this region. In other words, a close examination of the people's protests over the mining projects show two major concerns: One, the effect of mining on the physical environment and health of local people which has been repeatedly spelt by the studies made by different researches, and two, the issue of compensation and relocation of the affected people which depicts the issue of human rights overland and livelihood. The mining operations in North East India thus go through similar experience as is found in case of the rest of the states of India as well as the world. Coal mining exerts a long lasting impact on landscape, ecosystem and socio-cultural economic considerations though there were protests against the environmental degradation in the region caused by the destructive practice of coal mining. Although coal mining is a cause of environmental degradation but development, environment and mining all have become complimentary to each other and none of them can be separated or ignored in the interest of the development of a particular country.*

*This article makes an attempt to analyze the positive and negative impact of coal mining of Margherita Coal Field and also analyze the various aspects of coal mining which may help to systematize the management system of any Colliery of Coal India Limited.*

**Key Words: Coal, Development, Mining, Environment, Degradation, Livelihood.**

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### **Objectives of the Study**

- **To investigate various causes of environmental degradation in the Margherita Coal Fields under NECF.**
- **To analyze and evaluate various protest movements as a means of democracy against the ecological degradation in the research area.**

### **Introduction**

**The North Eastern Coal Fields**, a division of the Public Sector giant **COAL INDIA LTD. (CIL)** having its headquarter at Guwahati is looking after the coal mining activities in the Northeastern Region operating in states of Assam, Nagaland and Arunachal Pradesh. North East region consists of 7 states; only Assam, Meghalaya, Arunachal Pradesh and Nagaland are endowed with moderate coal reserves. It also took over the private mines spread in North Eastern states i.e. Assam, Meghalaya, Nagaland and Arunachal Pradesh. It is a labour oriented industry with manpower **2864** employees. **NECF** engaged in carrying out coal mining operations in the North Eastern (NE) Region of India. Coal reserves in this region are spread in **17** coalfields out of which **9** are major coalfields of the region. These coalfields are located in hilly areas dissected by numerous rivers and streams forming deep valleys and gorges. **NECF** operates through its area at Margherita looking after the coal mining activities in the state of Assam. As a developing country India is closely concerned with the developmental process through the natural resources like coal but the coal mining (both open cast and underground mining) has challenged our livelihood and also provide accelerator in the creation of a lot of problems like displacement and rehabilitation, ecological degradation etc. The Coal industry of Margherita, Tinsukia, Assam is a pioneer and primary coal industry of a large magnitude in the easternmost part of India is also deeply related with developmental process in one hand and poses a threat to the livelihood of the people by degrading the natural environment on the other. So a number of protest movements have been organized by the various local organizations in this region. In other words, a close examination of the people's protests over the mining projects show two major concerns: One, the effect of mining on the physical environment and health of local people which has been repeatedly spelt by the studies made by different researches, and two, the issue of compensation and relocation of the affected people which depicts the issue of human rights overland and livelihood.

### **Ecological Degradation in Margherita Coal Fields**

The **Coal industry of Margherita**, Tinsukia, Assam is a pioneer and primary coal industry of a large magnitude in the easternmost part of India. Being located in the extreme remote area of North Eastern part of India and that too in public sector, this industry has been entrusted with some responsibilities of acting as a nucleus for future industrialization of this region and thus plays its assigned role in the **socio-economic and cultural** development of the people of this region. This has not only been contributing a huge amount of revenue in every year to the nation made historic contribution to create a developed society. People from the different parts of the country **migrated** to this area and have strengthened the socio-economic and cultural integrity of this region. The unit came into existence in **1975** after **Nationalization** of coal mines in India. At present, there are **five** working mines **three underground and two opencast** mines under this unit. The coal mining activity (both underground and open cast) in Margherita has resulted significant **ecological degradation** in the area. Although coal was discovered in the northeastern region more than 250 years ago, systematic mining of coal was started only in **1888** by the erstwhile **AR & T Co. (Assam Railways and Trading Company)**. Mining was first -started at **Makum coalfields** near Margherita. In the following years many new collieries were started in the nearby areas.

Coal in Margherita Coal Fields like any other mineral, lies in the earth's body and extraction of coal by mining, is carried out in either of the two ways –

### **Open Cast Mining & Under-Ground Mining**

Among the collieries of the North Eastern Coalfields under Margherita, "**Tikak**" and "**Tirap**" mines use opencast mining method and in the rest underground mining system is used. Presently,

two more OCPs (Open Cast Mining) namely “Ledo” & “Tikak Extension” are being developed to augment the production capacity. Coal shares over **61.6%** of total commercial primary energy sources in India (as estimated in 1991- 92) and hence coal is essential for development and progress of a nation. Development, Environment and Mining all have become complimentary to each other and none of them can be separated or ignored in the interest of the development of a particular country. Environmental problems, related to coal mining activities, start from extraction, continues during beneficiation, during transportation of the minerals to the users and during ultimate use. Process of coal mining, thus, is not the only one, which creates environmental problems. During the use of coal and other fossil fuels also, emissions of gases take place resulting in greenhouse effect and other related environmental problems. Coal mining operation though, particularly opencast mining always causes certain environmental degradation. The Environmental damages associated with coal mining are as follows:

**a) By Open Cast Mining Method:**

- Damages to the landscape and topography.
- Dumping of mine waste/ overburden in an unplanned manner.
- Loss of topsoil and greenery due to disruption of topography.
- Effect of rainfall in eroding and transporting topsoil/ OB material with consequent siltation in downstream of watercourses and water bodies.
- Potential health hazard due to storage of water in abandoned quarries.

**b) By Underground Mining Method:**

- Loss of productive land and property due to subsidence and surface/ underground mine fires.
- Lowering of ground water bodies.
- Adverse effect on surface water through release of polluted effluents etc.
- Noise, vibration and occupational health problems etc.

Besides, release of solid and gaseous pollutants to the atmosphere disturbs the air to be breathed. All the above adverse effects of mining may cause environmental degradation and ecological imbalance through disturbances to atmosphere, hydrosphere, lithosphere and biosphere. To protect and safeguard the environment against the resultant effects due to multiple activities, various stringent laws, rules and regulations at National and International levels have been framed and are being enforced by Environment Ministries, Pollution Control Boards and other similar organizations. In order to curb the adverse effects of the above mentioned problems, the management of North Eastern Coalfields, has taken various measures for Pollution control and given a new thrust in the direction of environmental restoration to confine better mining scenario vis-à-vis environment. Suitable studies were initiated to generate data on existing status of the environment; a number of measures have been adopted to prevent degradation due to **deforestation, soil erosion, water and air pollution** etc., and at the same time provide concrete and exemplary works of land restoration to establish the credibility of the company’s intention of environmental management. As part of the Environmental Management programme of NEC- Margherita and to keep an eye on the state of the environment at the collieries and their adjacent residential areas, periodical Ambient Air Quality monitoring is carried out at the collieries of **Tikak, Tirap, Tipong, Baragolai** and **Ledo** together with the **Central Hospital** in Margherita. Water quality monitoring is also being carried out for Effluent (raw and treated) and Drinking water available from different

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sources in and around the collieries. Noise level monitoring is also conducted at some selected locations.

Coal mining exerts a long lasting impact on landscape, ecosystem and socio-cultural economic considerations. Mining and its subsequent activities have been found to degrade the land to a significant extent. Overburden removal from the coal field results in significant forest and top soil loss. Most of the mining wastes are inert solid materials and toxic in nature. These toxic substances are inherently present in the ore, e.g. heavy metals such as **iron, mercury, arsenic, lead, zinc, cadmium**, etc. These heavy metals leach out of the stored waste piles and contaminate immediate environment. However, some toxic chemicals are also found in waste, as they are added intentionally during extraction and processing. The major environmental impacts due to coal mining are changes in **soil stratification, reduced biotic diversity**, and alteration of structure and functioning of ecosystems; these changes ultimately influence water and nutrient dynamics as well atrophic interactions. Land degradation due to coal mining is the cumulative effect of air and water pollution, soil quality degradation and biodiversity loss. This process works through a cycle known as land degradation cycle. The magnitude and impact of mining on environment varies from mineral to mineral and also depends on the potential of the surrounding environment to attenuate the negative effects of mining, geographical disposition of mineral deposits and size of mining operations. A list of minerals has been prepared by Department of Environment, which is supposed to have serious impact on environment. These minerals include coal, iron ore, zinc, lead, copper, gold, pyrite, bauxite, chromate, dolomite, limestone, apatite and rock phosphate, fireclay, silica sand, kaolin, barites. Mineral production generates enormous quantities of waste/overburden and tailings.

### **Movement against Open Cast Mining in Margherita Coal Fields**

Activism against coal mining in upper Assam particularly in the Margherita coal Fields is perhaps one of the oldest of protest against mining in North East India. The coal discovered in Makum, in upper Assam has started the excavation process around and gradually Ledo became famous for the coal fields present in Assam. Coal was required by the Railways for its use as fuel for locomotives and workshops, traffic etc. Tea gardens and timber plants also required coal to generate power. Coal has received growing demand not only to meet the needs of the local industries, but also to meet the demand of industries outside the region and country. To meet the growing demand and to avoid the wood fuel, different collieries were set up in different places at Namdang in 1885, Ledo New West in 1903, Baragolai in 1909, Tipongpani in 1904 and Namdang Dip in 1904. All these mines were operated under the administrative control of Assam Railway and Trading Company till the date of Nationalization on May 1, 1973, under the control of "Coal Mines Authority Limited", a holding company on first day of November 1975. Since then the Makum coal field of Margherita area has been placed under North Eastern Coal fields controlled by Coal India Limited. There are presently six working coal mines in North Eastern Coal fields, Margherita and an exploratory mine at Simsang at Garo hills of Meghalaya. The six working mines of North Eastern Coal fields are Tipong Colliery, Baragoloi Colliery, Ledo Colliery, Jeypore colliery, Tikak Colliery and Tirap Colliery, out of which Tirap and Tikak are open cast mines and rests are underground mines.

While the underground mining is relatively a more environment friendly method, the open cast mining causes major scars to nature. Since underground mining is more expensive and has some limitation in Assam's soil condition, open cast mining has been the main method used by the mining

companies such as National Mining, Ashok Mining, Upadhyaya Mining engaged in mining operations in Margherita. There cannot be any doubt about the harmful effect of mining in the surrounding areas. The unsystematic and haphazard manner of coal mining followed in the Makum coal field has adverse effects on the surrounding eco system. Drainage of mine water from Lakowa and Geleki which is also known as 'Gaspani' in local language has damaged thousands of acres of crop fields causing them unsuitable for cultivating these lands. Though there are a number of protests against the destructive method of coal mining from the very time of nationalization of coal mining, no systematic and organized protests has been made to make it a successful movement. In the early 1980s when some students went to study the environmental condition in the coal mining areas of Patkoi hill, they were struck by the destructive effects of open cast coalmining on the land and people of nearby villages. These destructive effects were documented by the Students Science Society, an organization based in Guwahati. These reports were later published in the local newspapers to attract the attention of the people of Assam. Public meetings were organized in the affected villages by the society. But they failed to get mass support as most of the villagers were directly or indirectly dependent on the industry. Besides the *mafias* who patronized the mining activity also indirectly threatened the villagers whenever they tried to protest against mining. Despite the lack of support from the villagers, the protest initiated by the students managed to attract the attention of the State Government and an enquiry was ordered on the environmental condition of the region. This response from the government encouraged the Student's Science Society and to make the protest stronger they called upon the All Assam Students Union (AASU), Yuva Chatra Porisad (YCP) etc. to join hands with them. Faced with pressure from the different student's organizations the then Minister of Environment and Forest Mrs. Maneka Gandhi ordered an enquiry which brought out the destructive affect of mining on the environment. In response to the findings some measures were taken to restore the ecological condition of the region. Some plantations were done and the pits were filled by soil. Coal India also gave some compensation to the village People displaced by the mining operation. The movement against mining however failed to last. The fear of reprisal by the local *mafias* and the lack of support from people who were state intensified people's fear for their rights and subsistence.

This fear was strongly communicated in the Souvenir of the Frontier Tribes. As has been mentioned in the Souvenir, the Tenth Amendment of the Land and **Revenue Act of 1886** made in 1947 give the tribal legal right to the land of the region which came under the Excluded Areas during the British period. However gradual migration by the non-tribal from outside into the region amassing vast tracks of land for their tea and citronella cultivation led to a feeling of threat to livelihood and land among the people most of whom are peasant by occupation. They realized that such kind of exploitation can only be stopped if they possess strong administrative power and self-determination. The creation of **Tirap Autonomous District Council Demand Committee (TADCDC)** with its demand for the formation of Tirap Autonomous District Council was an outcome of this threat perception and fear of losing their land and livelihood. However loss of land was not the only issue of concern for TADCDC. The committee was equally concerned about the increasing degradation of the environment caused by open cast mining in the region. To strengthen their fight against the deleterious effect on the environment by opencast mining the TADCDC joined forces with **Ledo Open Cast Mining Protection Committee (LOCMPC)** but it failed to achieve its objective because of the conflict of interests. In another move TADCDC joined hands with **Patkoi Pahar People's Protection Committee (PPPPC)** which also protested against open cast Mining. The organization has been protesting against the mining along with other organizations

like **All Assam Tribal Sangha, Tribal Students' Federation, Assam, Ledo Sonali Pather Parichalona Samity** etc. Like TADCDC, PPPPC also did not have environment as the sole concern of its protest. Along with its demand to stop the excavation of coal by North Eastern Coal Fields, it also demanded the issue of *land patta* to the tribal people residing in the Makum Mouza, halting of eviction of Encroachers from these villages etc., which shows that this organization is also concerned with the right of the tribal people.

From the above discussion it has been seen that though there were protests against the environmental degradation in the region caused by the destructive practice of coal mining it could not generate much success due to the diversity of interests of the different action groups. While organizations like **Students 'Science Society and Ledo Open Cast Mining Protection Committee** were primarily interested on the issue of damage to the environment and people's life, the TADCDC tried to combine environmental issues with political autonomy and right to self-determination. Such conflicting interests have reduced the ability of this movement to emerge as a state level movement. Moreover, there were no coordinated efforts to bring different groups under common umbrella which also came in the way of development of the movement as a popular one and thus also came in the way of its success.

## **Conclusion**

Coal is essential for the development and industrialization. As a developing country India is closely concerned with the developmental process through the natural resources like coal but the coal mining both open cast and underground mining has been threatening our livelihood and also creates a lot of problems like displacement and rehabilitation, ecological degradation etc. In the North East Coal Fields, we have seen the how coal is closely concerned with developmental process in one hand and poses a threat to the livelihood of the people by degrading the natural environment on the other. So people in different time and situation have been organizing various protest movement through the above mentioned organizations and units. In other words, a close examination of the people's protests over the mining projects show two major concerns: One, the effect of mining on the physical environment and health of local people which has been repeatedly spelt by the studies made by different researches, and two, the issue of compensation and relocation of the affected people which depicts the issue of human rights overland and livelihood. The mining operations in North East India thus go through similar experience as is found in case of the rest of the states of India as well as the world. The region being highly inhabited by tribal people further suffers for meeting the need of compensation for each tribal family as the land belong to community and the distribution of land is highly made on communal ownership basis. As a result estimating the loss incurred by the individual family is very difficult and compensation for such loss is more complex. Again since the tribal land cannot be given to any private body the tribal people feel the move for mining operation as a conspiracy to alienate the tribal people from their forest land. This needs to be further understood by keeping the very nature of the society and the institution associated in the entire process.

### **Suggested Readings**

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