

Mining, Environment and Biodiversity

Ms. Neha Yadav

Assistant Professor, Ramanujan College, University of Delhi

ABSTRACT

Mining has been an important economic activity of man since historical times for economic development of a region but only in recent decades the ecological impacts of mining have come into light. This paper relies on secondary sources for data which focuses on the mining activities in mineral rich states, impacts of mining operations on environment, degradation of resources and biodiversity with reference to the state of Jharkhand. It attempts to emphasize on the need of paying attention to the damage done to the ecology at the cost of economic development.

Keywords: Biodiversity, Degradation, Effluents, Minerals, Topography

INTRODUCTION

Mining refers to the extraction of minerals and metals from the earth. Minerals extracted through the process of mining includes various kinds of precious and base metals like gold, diamond, limestone, coal, rock salt, potash etc. The processes of modern mining creates various impacts on environment not only during the process of operation and extraction but even after closure of the mine. The mining industry creates a number of job opportunities which makes it a profitable business supported by the state but the harmful effects on the environment can be seen in various forms. To extract minerals, widespread deforestation is done to build infrastructure impacting the wild animals as their natural habitat is degraded and lost resulting into the death of species who fail to adapt to this change.

In addition to this, different kinds of chemical and toxic waste gets generated ending up in causing pollution of Air, water and soil. Along with the degradation of air and water quality the natural soil chemistry and composition is changed in the mining area making it an unproductive landscape.

How mining impacts the Resources

Water: A large quantity of water is used in the mining sector. Some mines reuse the water but majority do not. During the process sulphur containing minerals are thrown in the air causing oxidation and reaction to make sulphuric acid which further degrades the ground and surface water resources.

Air: Dust is produced from blasting operations during surface mining. Methane, a potent greenhouse gas is released during coal mining. Heavy metals released during improper smelting operations also degrades air quality.

Land: During the process of surface mining, land is severely impacted by the overburden and rock movements causing the incidences of land subsidence in mining areas.

Health Hazards: Underground mining is more dangerous than surface mining due to the threats of underground fire, rock fall, land subsidence. Laborers working in mines suffer from various kinds of respiratory problems. For Instance, Asbestosis, Silicosis etc.

Case Study of Jharkhand



Fig 1.

The state of Jharkhand lies in the eastern part of India, came in existence in the year 2000 after carving out the state of Bihar. Jharkhand share borders with the states of Uttar Pradesh, Chhattisgarh, Bihar and Orissa in east west north and south respectively. Prominent geographical feature of chhotta Nagpur plateau gives rise to many rivers flowing through the state supporting rich forest cover and hence biodiversity. Huge deposits of coal and iron ore have contributed to the growth of Bokaro, Jamshedpur and Ranchi. Other mineral resources of the state includes limestone, Graphite, Bauxite, Mica, Uranium etc.

Biodiversity losses in the state

Hilly , Mountainous terrain, high rainfall and rich forest cover makes Jharkhand one of the biodiverse region of India . 30% of the total geographical area of the state is covered with forests but the occurrence of 51% of nations total minerals in the state indicates future threats of mining to the regions rich biodiversity.[1]

The constantly expanding mining activities and decreased forest cover has given rise to growing human elephant conflicts. clearances to the various mining projects and expansion of existing mines is drastically impacting the elephant habitats. The district of saranda due to elephant richness was once declared an elephant reserve in 2000 has recorded a decrease in elephant population from 400 to 300.[2] High noise levels from the use of machines from the use of machines in operation, blasting and transportation is causing the death of sensitive flora and fauna .birds Noise from the Trucks scares the elephants. Devegetation in the state has pressurized the animals to move out of their habitats .High levels of dust in the area is hampering the development of sensitive species .Soil is damaged and degraded with altered chemistry due to dumping of waste.

Forest losses in the state

As per the estimates, forests occupy 30% of the total geographical area of the state feeding a large of population of cattle and wild animals but uncontrolled mining has converted the resource rich forests into wastelands. Asia's largest forest of sal in saranda is being destroyed due to rampant mining activities in the state[3].

The local and tribal communities are also forced to migrate due to the vanishing forest cover and livelihood losses. As per the forest report of the state around 3000 ha of forest has been lost in 1998 and 2000 in singhbhum district of jharkhand and 8000 ha has been lost in other ditricts between 2000 and 2002. As per the 1997 assessment report ,the forest cover of the state has decreased from 2.5 million ha to 2.0 million ha in 1999.[3]

Environmental Impacts of mining

Since pre independence time only numerous industries have come up Jharkhand due to its richness in minerals and metals and availability of cheap labor from the state and outside but the negative impacts of industries are visible in

the form of environmental degradation. With an increase in the number of industries, large areas have been cleared, productive agricultural land submerged. Rivers and streams have become polluted threatening the survival of people.

Agricultural land has been put to Non agricultural uses, for constructing roads and railways and other infrastructure. Unplanned mining has led to degradation and wastage of land resources. Land has become unsafe for the purpose of habitation. Due to underground fires and mining of coal incidences of land subsidence are on the rise. Mining areas of the region are experiencing man induced water and soil erosion due to widespread deforestation in the state. Altered topography due to open cast mining is further accelerating the rate of erosion.

Sinkholes have been found in the region where limestone and carbonate rocks exist. Dissolution of the mineral increases the risk of land subsidence. Pollution of water has been caused by mining waste. Rain water carries the toxic mining waste into the nearby water bodies. The added waste makes water unfit for human and animal use as a result of altered chemistry.

State of Rivers

Among all the rivers, Damodar is the most polluted river of Jharkhand attributed to the effluents and tanneries waste discharged into mostly by the government owned industries of the state. Every day it receives about 120 million liters of effluents from industries and 60 million tons of waste water from the domestic sector.

Similarly Subarnarekha river is polluted with more dangerous metallic and toxic waste released from Jamshedpur. All the drains of Jamshedpur city are joining the river at various points. Radioactive waste from uranium mining also find its way into the Subarnarekha river. As per studies, faecal coli form levels have also been found drastically high in the river [4]

CONCLUSION

Many analytical studies have been carried out on the Mining and Environment which clearly indicated that Environmental degradation and biodiversity losses are a direct result of intensive mining. But very little attention has been paid to the negative aspects of mining. It is understood that for the economic growth and development of state mining activity has to take place but a proper strategy needs to be adopted to reduce the damages done to the ecology of the state.

REFERENCES

- [1] http://www.jharkhand.gov.in/New_Depts/health/Web%20Site/HEALTH%20WEBSITE/html/forest.htm
- [2] http://www.jharkhand.gov.in/New_Depts/mines/mines_fr.html
- [3] <http://jharenvis.nic.in/pollution.html>
- [4] Singh, J. (1985), Upper Damodar Valley: A study in Settlement Geography, Inter-India Publication, New Delhi.
- [5] Citizens report- Rich lands and poor people (2008), Centre for Science and Environment, New Delhi.
- [6] Nirmal Kumar Bhuyan, Baidhar Sahu, Swoyam P Rout, Assessment of Water Quality Index in Subarnarekha River Basin in and around Jharkhand Area, IOSR Journal of Environmental Science, Toxicology and Food Technology, Volume 8, Issue 11 Ver. I (Nov. 2014), PP 39-45
- [7] "Subarnarekha, Jalaka flowing above red mark". India Environment Portal.
- [8] Subarnarekha Project – Singhbhum's Sorrow". : 2194–2196. JSTOR 4400253