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Topic: Impact of Coal Mining on Forest Ecology: A Case Study of Dhanbad District-Jharkhand (1971-2001)

Abstract:

Key words - *Coal Mining, Forest Ecology, Land Use /Land Cover, Production*

Coal mining is one of the core industries that contribute to the economic development of India but deteriorate the forest ecology in particular and the environment in general. It is the primary source of energy and it became essential to meet the energy demand of India. Seventy percent of total electricity generation in India is from coal based thermal power plants. Although, various allied industries have been developed around the area due to mining, destruction of forests during mining operation is invariably accompanied by an extensive damage and loss to the system. The overburden of coal mines when dumped in unmined areas creates mine spoils which ultimately affects the surrounding vegetation. Conservation and exploitation goes side by side, yet in the recent years exploitation has outpaced conservation.

The present study covers the following objectives to assess the impact of coal mining on forest ecology in Dhanbad district.

1. To examine the Spatio- temporal change in the forest due to coal mining in Dhanbad District.
2. To assess the impact of coal mining on forest ecology.
3. To assess the role of government policies regarding afforestation & its implementation in mining area.

The present study is entirely based on secondary sources of data such as satellite data (1972 to 2011) and topographical maps on 1:50,000 scales which were obtained from Earth Explorer (USGS) & Survey of India (SOI). Other Secondary data were collected from published sources such as chronological record of Coal India Limited, Census of India and District Census Handbook of Dhanbad, Report of Ministry of Environment and Forest (MoEF) etc. The methodology for the assessment of LU/LC and NDVI using Digital Image

Processing (Arc GIS 9.3 and ERDAS-IMAGINE 9.2) has been followed with intensive field verification.

The change dynamics of land use /land cover over a period from 1972 to 2011 was examined. The result revealed that the area under agriculture and forest cover declined whereas the area under mining, water body and built up increased. Though, both agriculture and forest suffered due to extensive mining but the nature was little different. The agricultural area was largely converted into built up whereas the forest was damaged by mining activity.

The first chapter deals with detailed introduction of the present study which includes the statement of the problem, data base, methodology, objectives, literature review and a brief profile of study area.

The chapter second discusses about the dynamics of land Use/ land Cover in Dhanbad from 1971 to 2011. It also illustrates the development of mining industry which results in serious ecological degradation over the time period.

The chapter three examines the trend of coal production and its distribution that actually reflects the increasing rate coal extraction.

The chapter four measures the spatial distribution and changes of forest by demarcating the conversion from one spatial feature to another.

The chapter five is the core chapter which traces out the impact of coal mining on the forest ecology of Dhanbad district.

The chapter six represents an over view of policies and practices for the betterment of forest conservation and reforestation in the study area.

The chapter seven finally concludes the entire research work.