



Hazardous effects of Coal Mining

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INTRODUCTION

Coal is an abundant fuel source that is relatively inexpensive to produce and convert to useful energy. However, producing and using coal affects the environment. Coal mining adversely affects the eco-system as a whole. On the unstable earth; the unresting mankind constantly uses a variety of resources for their daily lives. Coal is recognized to have been the main source of energy in India for many decades and contributes to nearly 27% of the world's commercial energy requirement. Coal is mainly mined using two methods—surface or "opencast" and underground mining. The geological condition determines the method of mining. Coal mining is usually associated with the degradation of natural resources and the destruction of habitat. This causes invasive species to occupy the area, thus posing a threat to biodiversity. Huge quantities of waste material are produced by several mining activities in the coal mining region. If proper care is not taken for waste disposal, mining will degrade the surrounding environment. The method of waste disposal affects land, water and air and in turns the quality of life of the people in the adjacent areas. This paper throws light on the burning issues of coal mines and its impact on the environment.

EMISSIONS FROM BURNING COAL

- Several principal emissions result from coal combustion:
- Sulfur dioxide (SO₂), which contributes to acid rain and respiratory illnesses
- Nitrogen oxides (NOX), which contribute to smog and respiratory illnesses
- Particulates, which contribute to smog, haze, and respiratory illnesses and lung disease
- Carbon dioxide (CO₂), which is the primary greenhouse gas produced from burning fossil fuels (coal, oil, and natural gas)
- Mercury and other heavy metals, which have been linked to both neurological and developmental damage in humans and other animals
- Fly ash and bottom ash, which are residues created when power plants burn coal

Coal mining is one of the core industries that contribute to the economic development of a country but deteriorate the environment. Being the primary source of energy coal has

become essential to meet the energy demand of a country. It is excavated by both opencast and underground mining methods and affects the environment, especially water resources, by discharging huge amounts of mine water. The mine water may be acidic or neutral depending upon the pyrite content in the coal as inorganic impurities. Acid mine drainage occurs in those mines in which sulphur content is found in the range of 1–5% in the form of Pyrite. It degrades the water quality of the region in terms of lowering the pH of the surrounding water resources and increasing the level of total suspended solids, total dissolved solids and some heavy metals. In non acidic mines, water quality shows high hardness, TSS and bacterial contaminants. The leachate water from overburden dump are found enriched in metal concentration especially Fe, Cu, Mn and Ni except in one of the clayey dumps. High values of hardness of mine water reduces it's utility in domestic purposes. The article illustrates the quality of acidic and non acidic minewater and leachate characteristics of opencast coal mining OBdumps. Pollutants such as TSS, TDS, oil and grease and heavy metalare found in the coal mining waste effluents. Management of these liquid waste at the primary level and secondary level have also been suggested to control the pollution level at the source.

The effects of mining coal on the environment

There are 2 ways to mine coal—Strip Mining and Underground Mining—both ways have their own impact to the environment and health. We know it but coal is such a cheap energy source that we don't want to let go of it.

The negative effects of coal mining cannot be disputed

Destruction of Landscapes and Habitats: Strip mining also known as surface mining, involves the stripping away of earth and rocks to reach the coal underneath. If a mountain happens to be standing in the way of a coal seam within, it will be blasted or levelled - effectively leaving a scarred landscape and disturbing ecosystems and wildlife habitat.

Impact of ecosystem destruction

Deforestation and Erosion: As part of the process of clearing the way for a coal mine, trees are cut down or burned, plants uprooted and the topsoil scraped away. This results in the destruction of the land (it can no longer be used for planting crops) and soil erosion. The loosened topsoil can be washed down by rains and the sediments get into rivers, streams and waterways. Downstream, they can kill the fish and plant life

and block river channels which cause flooding.

CONCLUSION

The clearing of trees, plants, and topsoil from mining areas destroys forests and natural wildlife habitats. It also promotes soil erosion and flooding, and stirs up dust pollution that can lead to respiratory problems in nearby communities. The major disadvantage of coal is its negative impact on the environment. Coal-burning energy plants are a major source of air pollution and greenhouse gas emissions. In addition to carbon monoxide and heavy metals like mercury, the use of coal releases sulfur dioxide, a harmful substance linked to acid rain.