Study of various issues of Coal mining sector in our Environment

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Abstract

Coal mining is a one of the development activities in India which is the second-largest producer and importer of coal in the world. It bound to damage the natural resources by its activities either directly or indirectly. Our government has rapidly growing on coal mining sector to revive the economy. This sector is providing good opportunities to generate revenues for any company but on other hand coal mining generates negatives impact on environment and our society especially near to mining areas. They have faced a lot of problems in each steps of the mining process starting from its excavation to loading and unloading coal by producing dusts and radiation. All these activities are directly affected to their health because natural resources like air, land, forest, noise from sound are affected. Here I have tried to explore the impact of mining on our society.

Keyword: Coal mining, environment, issues, society.

1. Introduction

According to the official website of Government India, Ministry of Coal, The production of coal from all over India was 728.72 million tons in 2018-19 while during 2019-20 it was approximately 729.10 million tons which indicates that it was 0.05% positive growth because we know that large contribution of energy generation to worldwide is coal energy production system which consists of coal mining. The Indian government has rapidly improved on the coal mining sector to revive the economy. In June 2020, Honorable Prime Minister Mr. Narendra Modi has launched 41 commercial coal mines and said that India will turn the COVID-19 crisis into an opportunity for making the country self-reliant in the energy sector, but how can implementing to achieved this goal simply acquired the large areas of forest, agriculture land, blasting mountain, and other Natural resource which will be used for these projects. Due to expansion of the coal mines all these resources are converted into colonies, established factories, stations and

other things obviously all these things will affect to our society especially near to coal mining surrounding areas. In this paper we will discuss about various issues of the coal mining in our society.

1.1 Effect on Environment

We know that coal is main source of energy in India from many times. Basically there are two methods of mining one is surface mining (strip mines) and other underground mining based on geological condition but in both cases nature has damaged and natural resources has lass. Suppose we are talking about surface mining in this mining there are following operations involved.
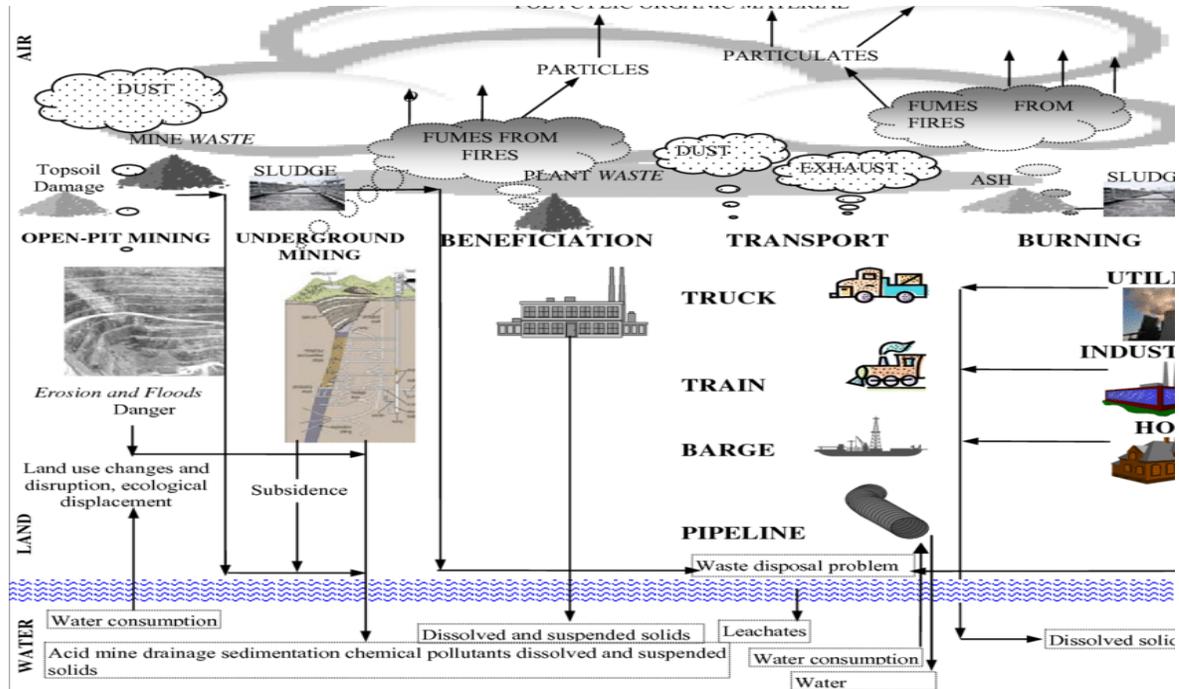
(a) Cleaning the land shown in figure-1.

(b) Removing the soil and rock above the coal deposits.

(c) Drilling the hard strata over the coal seam.

(d) Blasting or fragmenting the hard strata.

(e) Cleaning the top of the coal seam.

Figure-1 Loss of Tree

All these activities damage to the Nature for example cleaning the land, it has done by acquired the agricultural land or forest which reflect negative impacts in our society like loss of forest areas[14], less of cultivable land, pollution in air, decrease in rainfall, damage in water quality, loss of river and lake. Again during drilling, blasting, loading and unloading, coal produces dusts, radiations [12] which have a direct negative impact on health of surrounding communities. The burning of coal releases harmful substances such as sulfur dioxide, carbon dioxide with particles [5,6] of dust and ash which have been recorded in coal burning areas. It is globally accepted that coal mining adversely affects the local societies. We know that coal washing requires large water but in future water is a big problems for each country so it can turn toward a save water and free washing systems in Coal Mining.

1.2 **Effect on Society:** Coal is one of the most available fossil fuels around the globe and fills a major part of energy. We know that Coal India Limited is one of the largest coal producers in the word which is aiming to cross one billion tons of coal production for import (fig 2, A typical coal mining area is affected by air, water, soil pollution and land structure. Apart of this, some important areas are missing which is health of society, damage environment and losing natural resources for which all the researcher in this field should find the good solutions. Here I have tried to explore the impact of mining on local environment and our society. In the first stage, I have focused on all those villages which are near the mines and found many issues for examples regular disposal of millions of wasted water into the nearby water bodies is the main cause of water pollution in drinking water for a society. Due to the coal mining activity[4] both surface water and ground water are becoming dangerous of health, shown in figure-2

1.1.2 Issues of coal mining on our society.

Following are the various issues due to coal mining on our society in India.

1. Since a large number of casualties happened by coal mining inside the coal mine's company which is a serious issues of the society, continuous increasing depth in coal mines accidents becomes more and more serious, which prevent by using recent technology,

2. There are some negative impacts from coal mining in our society like loss of forest areas, less of cultivable land, pollution in air, decrease in rainfall, damage in water quality, loss of river and lake.

3. During drilling, blasting, loading and unloading, coal produces dusts, radiations which have a direct negative impact on health of surrounding communities.

4. Burning coal is the most polluting method for producing electricity which produces carbon dioxide and other harmful gasses which have a direct impact on environment and health.

2. **Review:** There are many recent literature reviews which have been published for various issues by coal mining on our society and environment. There are various models have been proposed for solutions of these issues yet our society has been suffered a lot of problems especially near to coal mining areas and other side environment are also damaging regularly,

no proper solutions have been fount now days. Therefore following are given some review on various issues.

a. Authors presented a case study[7] from Jharia coal field. They have Focused on the various impact on Air, Water, Soil. Agricultural land, vegetation, topography etc. Therefore the Authors have carried out a systematic study on environmental effects both direction either positive or negative of the coal mining which indicate that how can effect coal mining to historical, our culture and social aspects. They have found that a consequence of ignorance of environmental impacts, lack of rigorous impact assessment and inefficient technologies, India coal mining sector is not on a sustainable path. Therefore Improving environmental performance is an essential step towards attaining sustainable mining practices Monitoring system [10], security system, health caring, smart class for education, voice and face recognition systems and smart wheel-chair, smart stick for blind human and many more for disable human. In the world, there are ten billion people around are either blind, deaf or dumb for which it is a challenging task for Engineers [11] to develop a device which establish a communication between a disable person and a normal person. Following are discussed of literature reviews for the same.

b. A recent literature review by Lars Barnewld, Bernd G. Lottermoser (6), focus on smart mining using IoT applications which has reduced costs, improve business productivity with safe environment. Currently there are 107 different IoT and digital technologies are pursued in the mining sector which monitors to leading consultancy agencies for better practices and strong industrial growth. Today, the mining sector faces the implementation of digital innovations, the internet, different software which change the whole business model with safe society.

c. Authors tried to explore (8) the impact of coal mining on local environment, as per the official confirmation of ministry of mines, the country is bestowed with 87 minerals which provide the prime contributors in mica, coal, lignite, iron ore, bauxite, manganese, aluminum and crude steel.   It has mostly focused on sociological impact of mining in air, water and noise pollution. Indian mining sectors are plying a vital role to generate employment opportunities but there are some negative impacts on local air and water quality, depletion of natural resources, decrease in rain fall, loss of cultivable land.

d. A review by Sribas Goswami (9), Author has explained that coal mining adversely affects the eco-system as a whole. Coal is recognized that it is the main source of energy in India because it is a development activity , but it has various issues which affects to our society like air, water, health, and damage to natural resources although it contributions toward economic development of the India but it has various effects on the human health. It focuses on the identification of various sites in different places of India where minerals exist. It also focuses on large vicinity of forest, farming land and pasture land has been transformed into colliery colonies or into uncultivated land due to rapid expansion of the coal mining.

3. Proposed Work

Due to coal mining the local communities have been shifted from their own land or houses, therefore they have loosed their social structure and some of faces health issues and hence our society has affected by coal mining. On other hand local environment has been damaged near to coal mining areas so these are my testing parameters which we will consider for unit test. Coal mining is a development activity, which is bound to damage the natural ecosystem starting from land acquisition [12] to coal beneficiation. My work is focused to explore the impact of coal mining on local environment. It is mostly focused on sociological impact of mining in air, water and noise pollution. Since Indian mining sectors are plying a vital role to generate employment opportunities but there are some negative impacts on local air and water quality, depletion of natural resources, decrease in rain fall, lass of cultivable land[13]. We know that every coal mine accident may cause a large number of casualties and loss of environmental damage. The continuous increase of mining depth in different sites of coal mining is most serious issues to solve. Therefore my work if focused to develop an Intelligent mining or smart mining in which digitalization is used in mining sectors for reducing costs, improve business productivity with safe environment for our society in India[14]. During the research work, First step includes the collection of research material by field survey that is I will visited various coal mining companies and will discuss with local communities, workers, officers and various society. Second step focus on secondary data collection. It will be collected from Institute records, journals of Indian Institute of coal management, book and research papers related to each mining, after that I will develop a hybrid approach to full-fill my objectives.

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