

Jharia Underground Fire and Displacement : Impact On Livelihood Of The People

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Abstract:

Jharia is the one of the 10th largest town in the state of Jharkhand. It is located in Dhanbad district, Dhanbad is also known as “coal capital of India”. There are 23 large underground mines and 9 opencaste mines. Jharia economy is heavily dependent on the local coal fields used to make coke. Jharia plays a very important role in the economy and development of metropolitan area around Dhanbad city. In this paper, I will discuss about the mining activities in Jharia. Its causes and impact on various sector. There are several problems of people's due to displacement and underground fire. The mining activities in this coalfields started in 1894. The first fire was detected in 1916. Two of his collieries khaas Jharia and golden Jharia which work on maximum 260 foot depth shafts. However, fires in the coal fields area have made the city heavily polluted. So, The Government recommended relocation of the City.

Key words : Under ground, coal mining, Displacement, livelihood,

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Introduction:

Jharia is the neighborhood of Dhanbad and it is famous all over the world for its coal. Jharia coalfield is a large coal field located in the east of India in dhanbad district, Jharkhand. It has a population density of 1,316 inhabitants per square kilometre (3,410/sq mi). Its population growth rate over the decade 2001–2011 was 11.91%. Jharia represents the largest coal reserves in India having estimated reserves of 19.4 billion tonnes of coking coal. Jharia is notorious for one of the richest coal mines in India with the largest deposit of good quality coking coal. It is also TISCO and IISCO accredited for quality mining and washery. The coal field lies in the Damodar river valley and covers about 110 square miles and produced bituminous coal suitable for Coke. The flame of fire has been burning in the coal mine of Jharia from centuries. Due to which the people living there are scared. This underground fire has burnt a lot of coal and destroyed the mineral wealth. Burning coal remains a danger to the people living there. Underground fires in the coal fields

area have made the city heavily polluted . So, several government studies recommending relocation of much of the population to belgaria , and any other Nearby . Belgaria's distance from jharia coalfield is 7 km approximate.

Literature review:

- Jharia coal mine fires compelled the people to leave their abode since it becomes very difficult to live in this area. (A. Das, 2017). People face livelihood issues and forced to move to other place.
- The dislocation and the uncertainty concerning their future have made such displaced tribal population an easy target for the extremists.(Dr. M. Malkhandi , 2018).Large number of original denizens and ethnical population in jharia coal belt has displaced due to underground fire face socio economic problems.
- Underground fires ignited by natural causes or human error are responsible for atmospheric pollution, acid rain, perilous land subsidence and increased coronary and respiratory diseases.(R.kumar & G. chakravarty,2011). They consume a valuable energy resource, destroy floral and faunal habits and promote human suffering as a consequences of heat, subsidence and pollution.
- The fire poses a huge threat to the nearby infrastructure also once Indian railways have been taken the decision to close the 41km long rail route between dhanbad to chandrapura, thus cancelling 19 trains consisting of 6 passenger trains (pandey, 2017). But In view of present situation ,this railway line start again to solve the problem of transportation.
- Coal mining activities lead to environmental changes to a large extent such as degradation in quality of air , water, soil, changes in land form. (V. Saini, R.P. Gupta, M.K. Arora). Thus I can say that mining activities have significant impact on the environment.
- The coal mining industry is a future prospective for Indian economy to grow up with more rapid rate, the jharia coal field has immense important for prime coking coal .(J.pandey, D. Kumar, V.k.Singh &N.K Mohalik , 2016).
- The mining fire gases are the products of the oxidized coal. Due to mining fire activity, the gases are produced in enormous quantities, causing explosions and pollution in the region. (A.k singh, R.v.k.singh, M.p. Singh, H.chandra, N.k.shukla, 2006). Being a polluted region, people living there can become vulnerable to serious diseases.
- A good knowledge of local geology is used to interpret and Differentiate the coal fire induced anomalies more accurately from some low thermal inertia rocks.(G.Das, R. Das, 2016). The eastern part is always affected by the coal

fire. The cause of the increase in fire in the eastern area could be due to the presence of faults and fractures, which play an important role by allowing ambient oxygen to remain in contact with the fire.

- The jharia coal fires have been thoroughly investigated by teams of consultants from the United States and Canada representing the best expertise and technology available anywhere mitigation efforts outside the scope of the project have been identified that could ameliorate the effects of the fires and benefits the region its inhabitants and the mining industry.(S.R.Michalski,2003).

Objective :

The major objective of this paper to identify the problems that are facing the people's of jharia and our government in displacement due to coal mines fire. Also identify the impacts on these :-

- To identify the impact on socio – economic sector.
- To identify the impact on environment & health.
- Impact on livelihood & employment.

Findings and analysis:

Coal mining:

In modern time in India ,the commercial coal mining has been dictated by the needs of the domestic consumption and the growing needs of the steel industry , a push had to be given on systematic exploitation of coking coal reserves in Jharia coalfield.

In 1971 Indian coal industry was nationalised under coal India limited (CIL) and Bharat cooking coal limited (BCCL). BCCL is a subsidiary company of SAIL to manage the mines taken over by the government. BCCL showed interest in working underground fire, but suffered huge losses due to fire. There have been efforts by the government to know the causes of the fire and extinguish it but all such efforts till have been in vain.

Jharia underground fire :

Coal mine fire is a major problem in Jharia coalfield. Coalfield fire that has burned underground for nearly a century. A 2007 estimate, describe 37 million tons of coal consumed by the fires since their start and 1.8 billion more metric tons are inaccessible. The underground coal mine fire in jharia has led to many nearby

problem in the areas and to the locals. The intensity of the fire is so high that the walls of the houses in the area developed cracks. The fire never stop despite sincere efforts by mines department and Railway authorities.

The fire In the jharia coalfield has substantially been due to unscientific mining and extraction of coal in the history. The temperature range of fire affected overburden dump (OBD) was recorded from 67⁰c to 96⁰c .

Causes of coal fire:

There are two types of factors responsible for underground fire :-

- **Natural factors:**

Coal mine fires are caused due to spontaneous combustion of coal and carbonaceous matter in the rocks. All coal when exposed to air undergo natural oxidation of carbon forming carbon monoxide (co) or carbon dioxide(co₂) and producing heat. Occasionally, due to bacterial action some heat is generated which when reaches 35⁰c or 95⁰F, coal is automatically set to fire. This phenomenon is generally considered as spontaneous combustion of coil.

- **Man made factors :**

There are many man made factors responsible for this such as mining related activities, cutting of the mines through machines , sparks from welding , blasting which catches fire easily in the coals, electrical works which produces sparkles & makes the coal combustible. These activities can also be unintentional because of the lack of awareness.

Impact of mining :

Coal mine fires have several major adverse effects on socio – economic sector , environment & health and livelihood of the people.

Impact on socio – economic factor :

1. **Relocation & Displacement :**

Coal mine fires in jharia coal field have exerted some direct and cascading impact on society . In fact , the most common problems associated with coal fire is that of involuntary displacement .According to the state government this is the worst site of India, the town of Jharia is to be shifted due to the uncontrollable coal mine fires

, which have found to be undousable, leading to loss of property and lives. Coal worth Rs. 60,000 crore (US\$12 billion) is lying unmined, and the state government feels the stirring will help in exploiting this resource. The Jharia Rehabilitation and Development Authority is supposed to relocate much of the population to Belgaria and other towns nearby. However, as of 2017, the organization was facing considerable challenges in acquiring land and doing construction, and a 2016 book reporting on the relocation effort, found that the relocation was not accounting for Just Transition of jobs, or adequate high quality housing.

Raja Shiva Prasad College was established in 1951 at Bhagatdih, Jharia. It was shifted to Belgaria, 7 km away, in 2018, because of an underground mine fire. People are migrating because the fire is hindering in the Process of mining. Mining is the source of livelihood in the region along with daily wage earners and other labour works. The livelihood of the people has been greatly reduced because of the fire. Now the fire has made the working condition very difficult in the mines. This made the collection of coal very difficult and which reduced the coal production significantly.

Problems of displacement :

- Reduced employment opportunities.
- Loss of access to common property.
- Homelessness.
- Joblessness.
- Food insecurity.
- Social disintegration.

2. Infrastructure:

It has a significant impact on the social structure. Coal mine fire and subsequent subsidence drastically affect surface structures. The important surface structures and features, namely roads, rails, schools, colleges, government offices, eater supply lines, electric transmission lines, business units, residential areas, religious places etc.

Roads are broken down, railway tracks are also getting damaged because of the intensity of the fire. Dhanbad –Jharia – Sindri via Patherdih railway line has been permanently closed and dismantled .In the residential areas , roof and walls of the houses & government institutions have also cracked and damaged and may fall at any time. The new cracks develop with head of fire front and smoke , fumes and hot flame emanate through these cracks . water

supply pipes also burst from time to time. Looking at all damaged infrastructure of institutions, it can be said that jharia's underground fire destroyed everything.

Impact on environment and health:

Underground mining have to negative impact on environment & health. Coal mining operations destroy landscapes and lead to habitat loss. The pollution caused by these fires affect air, water and land . smoke from these fires contains poisonous gases such as oxides and dioxide of carbon, nitrogen and sulphur, which along with particulate matter are the causes of several lungs and skin disease. It causes deforestation and soil erosion. Creates health hazards for both humans and surrounding wildlife. Releases methane and carbon dioxide and carbon monoxide into the atmosphere, a potent greenhouse gas. Coal mining activities lead to the displacement of people and surrounding communities, Fires can break out in underground coal mines, which can burn for centuries.

Most of the air pollution can be attributed to incomplete burning of fossil fuels. In fire areas , as already stated CO and CO₂, concentrations are high and oxygen is very low. Smoky conditions are serious in winter season, which can affect visibility and causes eye irritation leading to accident. The affected area has high evapotranspiration rates, which affects the climate of regions.

Table :1 Effects of coal fire gases on human health :

Serial No.	Pollutants	Effects on human health
1	CO	CO poisoning, coma, death, reduces oxygen carrying capacity of lungs
2	CO ₂	Laboured breathing, headache, eventual loss of consciousness.
3	SO ₂	Irritation of respiratory, eye irritation, increased morbidity and mortality rate .
4	NO ₂	Pneumonia, lungs disease .
5	H ₂ S	Neurotoxin, eye irritation, headache and sleeplessness.
6	Hydrocarbon	Cancer, anemia, skin problem, eye irritation, odour problem, nerve damage.

7	Ozone	Skin problem, respiratory and throat infection, chest pain and coughing, eye irritation.
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Impact on employment & livelihood of the people :

Coal mining is a loud , day and night - long process that includes blasting, drilling and moving of heavy vehicles. These mining related activities have resulted in the emission of loud voice which has disrupted the lives of those in the surroundings , communities and has reduced the quality of life. Blasting which is done for coal extraction shakes the ground from some distance around the blast site . Residential properties around the quarry have experienced significant increases in the effects of blast . Villagers were very sad about the fact that they had invested astronomical amount of money for their houses but the vibrations which emerges out due to mining has given the villagers a big jolt. There is an atmosphere of fear among the people living there. Due to blasting caused by mining, people are living between their life and death under the torn roofs and walls.

The people living here have been given housing facility in Belgaria, 7 km away by the government, But there are no jobs available to earn a living . People have to wander here and there in search of work. Most of the people go to Jharia and Dhanbad daily from Belgaria to work. Many people migrates other state for searching good job. So we can say that the undermining fire of Jharia has badly affected the lives of the people living there. Jharia fire has spread the wind of unemployment in Jharia due to which many people have reached the brink of starvation. Jharia undermining fire has completely destroyed the regional economy of Jharia.

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References:

1. Das A. (2017) , jharia coal mine fire and its impact. Jharkhand Journal of Development and Management Studies, XISS, Ranchi, Vol. 15, No.3, September 2017, pp. 7439-7450.
2. Malkhandi.M.(2019) Employment Generation is a Big Issue for Dhanbad district of Jharkhand.
3. Malkhandi,M.(2018) displacement and Socioeconomic Plight of Tribal population in Jharkhand With special Reference to Jharia Coal Belt ,IRJMSH Volume 9(2) Page 96-105.
4. Michalski S.R (2003) The jharia mine fire control technical assistant project: an analysis. GAI Consultants, Inc., 570 Beatty Road, Monroeville, PA 15146, USA
5. Saini V., Gupta. R. P & Arora M. K (2016) Environmental impact studies in coalfields in India: A case study from jharia coal- field.
6. Kumar R. & chakraborty G.(2011) Impact of coal fires on environment.
7. Singh A.K., Singh R.V.K., Singh M.P., Chandra H., Shukla N.K.(2006) Mine fire gas indices and their application to indian underground coal mine fire. International Journal of Coal Geology, 69(3), 192–204.
8. Michalski S.R., Custer E.S. & Munshi P. L. (1997) Investigation of the jharia coal field mine fire : India. Proceedings 14th Annual Meeting of the American Society for Surface Mining and Reclamation, (CD-ROM), Austin, TX, May 10- 15.
9. Nakkeeran, N., 2001. The living graves of Dhanbad mines. Labor file: A Monthly Journal of Labor and Economic Affairs, vol. 7(2-5). The Information and Features Trust. February-May 2001.
10. Banerjee S.C. (1985) Spontaneous combustion of coal and mine fires. Oxford and IBH Publishing Co. Ltd, New Delhi. 160 pp.
11. Banarjee, Sukumar (1981) : Impact of Industrialization on the Tribal Population of Jharia –Raniganj Coal Field, Jharia, Calcutta: ASI ,P-160
12. Dutta, I. (2006, February 13). Jharia action plan: A win-win situation for all Stakeholders? The Hindu.
13. Roy, S. (2017, June 8). Burning for over 100 years, Jharkhand's underground fire affects 5 lakh people.
14. Chakrabarty, A, and Dhar.A. (2010).Dislocation and Resettlement in Development. London& Newyork: Routledge Studies in Development and Society.