# Prospective Research to Investigate the Socioeconomic Sketch of Coal Mine Territory: An Integrated Scrutiny

Subhajit Bandopadhyay Indian Institute of Technology Bombay Bombay, India

Abstract—Coal is the primary fossil fuel in India which is a vital source of energy in current as well as from the past decades. Coal mining in India first started in Raniganj in the year of 1774. The principal aim of research is to investigate the socio-economic reality of Raniganj coal mine belt. It was observed during the time of study that features of a mining society region is always somehow different with the conditions of normal society. Mining has a large impact on human society as well as to the daily lives. This research is entirely based on the intensive field investigation, literature review and little bit of data analysis. Extensive mining activities in Raniganj & Asansol blocks of Burdwan district, West Bengal, have changed the overall socio-economic condition & land use pattern of the area. In this paper the socio-economic status basically covered with more or less all aspects of social life in integrated society such as like, family and occupation structure, education, demographic profile etc. On the other hand it deals with the mining impact with the environment and how it is make a serious punch on human health. Due to intensive mining and its impact on the environment people are mainly infected with nerves system problems, cardiovascular problems and respiratory diseases in this area. This research also try to capture the changing pattern of the socio-economic practices over few decades. It is a matter of hope that Government has thought out some effective schemes for the development of the livelihood of the local people and besides that some NGOs have also come forward to stand beside these people. It's our duty to save coal with decreasing consumption in our daily life as well as government should take care of the people and society in this areas like Raniganj, those who are intensively join with this mining activity.

Keywords— Coal mining, Raniganj, Socio-economic status, West-Bengal, Environmental Degradation

## I. INTRODUCTION (*Heading 1*)

Geography varies its nature with multi-disciplinary and interdisciplinary approach, because it constitutes an interface between natural science on one hand and social science on the other. The main objective of this kind study is exploration of facts or refreshes interpretation of facts which is already known. The principal aim of research is to investigate the reality, i.e. the actual scenario, and establish theories about observation including theoretical and empirical. In other words a Geographer has to carry out environmental survey to find out the extent and pattern of the environmental impact upon the human life and society of certain areas. The role of research is thus both developmental and evaluative. Dr. Krishnandu Gupta Visva-Bharati University Santiniketan, India

This endeavors to discover new horizons of knowledge in social ground as well as to employ the existing knowledge for the benefit of the man and his community.

The coal mining industry makes a key contribution to the Eastern coal field limited (ECL) and India economies, and is the underlying driver of employment and economic conditions in many local and regional communities. The socio-economic indicators for examining under-development are used in this study as outcome variables. Access to educational and health facilities and practitioners are important indicators as they directly impact the health and welfare of the population and are therefore useful proxies for under-development. To identify the socio-economic scenario, the parameters of "socio-economic" must be defined. For the purposes of this research, to investigate socioeconomic conditions with rich, median, low household income, demography, employment and age related issues. A massive exploitation of coal without a proper technical handling for reclamation can cause environmental degradation. This condition will make impact socio-economic development sustainability. This work uses a Social survey analysis with the impact of the coal mining industry on the economy and to formulate policy scenarios on the coal industry that are suitable for socio-economic improvement and environmental sustainability. Coal Mining activities, in general, generate large social costs in the form of displacement, loss of livelihood, and social exclusion etc. The number of people displaced as a result of mining of all minerals has been estimated at 2.55 million, of whom 55% are members of schedule tribes (Sethi 2006; Bhushan 2007, as cited in Chikkatur and Sagar 2007). As per the MoC (2005), a minimum of 1, 70, 000 families involving over 8, 50, 000 people are likely to be affected by future coal projects. To understand the social scenarios of coal mining and the effectiveness of the policies, a perception survey was conducted by Department of Geography, Visva-Bharati central university, Santiniketan.

Some important facts about coal industry in India are as follows:

- India is the third largest producer of coal in the world.
- Coal is one of the primary sources of energy.
- India has some of the largest reserves of coal in the world " Indian coal has high ash content (15-45%) and low calorific value.

- With the present rate of around 0.8Mt average daily coal extraction in the country, the reserves are likely to last over a 100 years.
- The energy derived from coal in India is about twice that of energy derived from oil, as against the world, where energy derived from coal is about 30% lower than energy derived from oil.
- Coal India Limited (CIL) is the largest company in the world in terms of coal production

## II. OBJECTIVES OF THE STUDY

The main objective of the study was to investigate upon the social status of coal mining region. Most of the people have traditionally based their economic life upon service. This paper try to find out the socio-economic status.

It was also targeted through perception studies that what changes take place and what has been their impression over this rapid change that they are experiencing and certainly the way they have been reaching over this transformation of life style with the environment.

The principal aim of study has been to capture the social set up in origin in the area, the development in different geoenvironmental sphere that has taken place recently and finally to suggest some measure for overall growth, prosperity and development of area.

## III. STUDY AREA

The study area extends between  $23^{\circ}40'24.94''N$  and  $23^{\circ}40'37.80''N$  Latitude and  $87^{\circ}10'14.45''E$  and  $87^{\circ}11'50.85''E$  Longitude. The Lower kenda colliery is located with an average elevation of 232 meters (754 feet) (approx.) composed of undulating laterite region. This area lies between two mighty rivers of Damodar and Ajay. They flow almost parallel to each other – the average distance between the two rivers is around 30 km. For ages the area was heavily forested and infested with plunderers and marauders. The discovery of coal led to industrialization of the area and most of the forests have been cleared. The study area is under Dobrana Gram panchayats which is under Jamuria Panchayat Samiti. Table 1 gives the details of the study area below:

TABLE I. THE DETAIL	ILS OF THE STUDY AREA
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Country	India
State	West-Bengal
District	Burdwan
Sub-division	Durgapur
Police Station	Pandaveswar
Block	Bahadurpur
Gram Panchayat	Dobrana Gram Panchayat
Mouza	Khaskenda
J.L. NO.	79
Study Area	Lower Kenda colliery
Topo sheet No	73M/2



## IV. CHOICE OF THE STUDY AREA

Geographers consider that for the sake of a thorough and in depth study upon the environmental aspects of a place, a number of factors are to be considered. They must be the qualities of the concerned area-namely- (a) accessibility (b) manageable extent in area (c) availability of essential secondary data (d) having some uniqueness for study (e) people with accommodative and friendly mind that live in the study area. It can be said that all these five qualities are found positive and favorable to this researcher.

- Considering accessibility, Lower khas-kenda area is located only at a distance of 85.9 km away from university. It is accessible by Raniganj-Suri Road (NH-60). Raniganj coal mine belt is one of the important region which is closer to institute to access this socio-economic study. Total Lower khas-kenda colliery area is covered by just only 3 pits (4, 6, and 7).
- The area is not very large and the settlements under this area are closely spaced and also the number of houses in each village also not very high therefore it was easy to collect the data.
- The local ECL governance is very much helpful so, it is very much easy to collect data
- Another thing is that being a student and researcher of environmental geography it is our duty and responsibility to study and know nearest place first..

#### V. DATA SOURCE

For the purpose of this reconnaissance survey data has been collected from the following two sources:

A. Primary data

## B. Secondary data

Descriptive information related to physical set up, location, infrastructural status, decadal socio-economic indices have been obtain from 1:50000 topographical sheet, district census handbook, local ECL governance and other similar sources. The primary data have been generated through a field of questionnaire with multiple choice options. Fifty household have been selected randomly for the purposive manner for the primary survey. Different social, economic, cultural cross sections prevailing in the Mouza. Quantitative information regarding demographic character have been obtain from the Dobrana Panchayat office. Some individuals belonging to this area to this area had provided historical information, cultural identity and present status of the area.

## VI. METHODOLOGY OF RESEARCH

The methodology of research for the preparation of this work may be defined into three parts-

- Methodology applied for Pre field study.
- Methodology applied for Field Study.
- Methodology applied for Post-field Study.

The attributes contributing to the development of the existing physical environment and the society and daily life aspect of this area has been studied separately and systematically. During the period of field investigation, the pattern and characteristics of man and environment relationship have been studied carefully. Changes that have been taken place in the physical surrounding and the impact on the human environment have been studied using Primary and secondary data.

The entire research work is based on three folds, which are as follows-

#### A. Pre field Studied.

- Location of the study area was identified and Mouza map was collected.
- Prepared some questionaries' and a family survey table and some journals and books were studied to understand the environmental and Socio-cultural background of the area and its surroundings.

## B. Field Studied.

- Knowing about regional structure of the area
- On the basis of different questions, field data were collected including demographic characteristics, occupational types.
- Through random sampling people of different workshop were interviewed to understand the environmental changes and its impact on the society and life of them.
- Photographs also taken of the various aspect of the site.
- C. Post Field Studied.
  - The data generated of the field and collected from different sources as well as information gathered was compiled and analyzed using suitable statistical techniques.

- The complied data were graphically presented using Microsoft Office Excel and other software like Micro-Soft Office Word in the Computer.
- On the basis of information and records which collected from the field, different maps and chart were produced.

The criticism against the area study is as it mostly dependent upon basically a data base narrative as well as analytical, so availability or lack of data is a real problem. It is really a hard job because all the required data were not available and all the information may not be accurate.

## VII. HISTORICAL BACKDROP

## A. Coal Mining in India.

Coal mining in India has a history of over 200 years starting from Raniganj (West Bengal) in 1774. Coal is a prime source of energy, indispensable input in steel and chemical industries. About 60% of the national commercial power requirements are fulfilled by coal. Coal production in India has rapidly increased in the last four decades. The largest reserve of coal is found in Bihar state which covers about 33.53% of the total coal reserve in India, and the second largest coal producing state Orissa covers about 23.57% of the total coal reserves in India. About 90.3% of coal is found in the states of Bihar, Orissa, West Bengal and Madhya Pradesh. The major coalfields in India are: Raniganj, Jharia, East-Bokaro and West- Bokaro, Panch-Kanhan and Tawa valley, Singrauli, Talcher, Chanda-Wardha, Godavari valley, and Karnpura.

#### B. History of Raniganj Coal Mine.

Coal mining in India first started in Raniganj Coalfield. In 1774, John Sumner and Suetonius Grant Heatly of the British East India Company found coal near Ethora, presently in Salanpur community development block. The early exploration and mining operations were carried out in a haphazard manner.

Regular mining started in 1820, led by an agency house, Alexander & Co. In 1835, Prince Dwarkanath Tagore (Grandfather of Rabindranath Tagore) bought over the collieries and Carr and Tagore Co. led the field. For the entire 19th century and a major part of the 20th century, Ranigunj coalfields were the major producer of coal in the country.

At the behest of William Princep, Carr and Tagore Co. joined hands with Gilmore Hombray and Co. in 1843 to form Bengal Coal Co., which opened up coal mining activities. Their headquarters was at Sanctoria. Other mining companies included Birbhum Coal Co., Equitable Coal Co., Madhu Roy and Prasanna Dutta Co., Bird and Co., South Barakar Coal Co., Andrew Yule and Company Ltd. and Balmer Lawrie.

In 1886, W.W.Hunter wrote, "Raniganj Coalfield has been estimated at an area of 500 square miles. In this 'Black country of India', which is dotted with tall chimney stalks, many European companies are at work, besides many native firms. Though first coal was raised from open workings, but regular mining is now carried on, according to the system known as 'pillar and stall'... The miners are all drawn from the aboriginal races, chiefly Santals and Bauris, who are noted for their endurance and docility." The source of this information integrated from web, Local ECL Authority historical data and local community survey.

## C. Present Status

All non-coking coal mines were nationalized in 1973 and placed under Coal Mines Authority of India. In 1975, Eastern Coalfields Limited, a subsidiary of Coal India Limited, was formed. It took over all the earlier private collieries in Raniganj Coalfield.

Raniganj Coalfield covers an area of 443.50 square kilometers (171.24 sq. Mile) and has total coal reserves of 8,552.85 million tones'. Eastern Coalfields puts the reserves at 29.72 billion tones. That makes it the second largest coalfield in the country (in terms of reserves).

#### VIII. SOCIO-ECONOMIC ENVIRONMENT

#### A. Demograph

Lower kenda is an entirely rurban area located to the north east of Raniganj Township at a distance of about 8 kilometers .This area fall under the Dobrana Gram Panchayat, Jamuria police station and Asansol subdivision. A thorough study upon demographic profile of this area has considered very necessary to gather a comprehensive knowledge about the population, their family structure, educational status, occupation types and above all the socio economic and socio cultural dimensions. In order to do this 50 households selected randomly, were studied by interviewing the senior members of each family during the field work. The data generated thereby is presented in the table and the interpretation of the data as well as other information collected has been analyzed systematically in the ensuing part.

- Average family size: 4.48%
- Male female ratio: 120:114
- Literacy Rate: 45.98%
- Population passed from school: 50
- Earning in the family: 2.43

## B. Family Profile and Occupation Structure

A socio-economic survey was conducted in the field by this researcher based upon random sampling upon 50 households. The result has been given in Table and its supporting diagram. The study explored that most of the workers engaged in service sector while very low are in business, some are daily labour, and other activities. This analysis revels that lower kenda is still in good economic condition .But still Therefore economic development should be the prime must be needed.

## C. Sanitation System

As per as drainage is concerned this colliery area have both types of drainage pattern. 1. Pakka drainage, 2. Kaccha drainage (Nala). No such planned scientific sanitation system and sewerage exist here. The present status of this area is not considerably not so good, that's why people in this region are likely to suffer with health problems. In the case of ECL quarters houses a particular drain is connected with the main big drain. Drainage system in this area are classified into three categories viz, closed drainage, open drainage, no drainage. All types of systems are available here.

#### D. Education

Now the country is moving towards rapid development in terms of education but there are still many places remain in India which are not literally developed and lower kenda fall among them. From my survey I came to know that education system which prevails in lower kenda is not sufficient to develop their standard of living. I have gone through random sampling upon 50 households. The total number of persons is 224 out of that 53 males and 35 females are literate. The total number of persons passed from school is 50. The number of graduates is only 21. Actually there is proper accommodations for education. Again after certain age the boys and girls are involved in various activities to support their family. There is a primary school in this local area. For further studies student are going Chinchuria and Kenda high school. College students are going to nearest Raniganj town.

## E. Types of Occupation

#### 1) Primary sector:

*a)* Agriculture: In primary sector people is mostly in agriculture. But in this lower kenda area very less people are working in Agriculture.

b) Daily labour: Some people of this area are in the field of Daily labour doing their job in the pits of lower kenda colliery.

#### 2) Secondary and Tertiary sector:

*a) ECL service:* is the principal occupation among the people of lower kenda. Most of the people near about 69% are engaged in service sector.

*b)* Business: Nearly 15% of people is in business. Various types of small shops and a market area are building up along NH-60.

## F. Settlement Prototypes

Both types of kaccha and pacca houses are found in my study area. Mainly the entire area settled by ECL quarters. Here we also found some disparities. High class people who have more salary are lived in class typed of quarters. Lower class mazdurs (Labour) are lived in low class residential quarters. Good quality quarters are made by cement but some quarters are as bester roofed. The shape of the houses is like rectangular. Vertical extended houses are also found.

## G. Religious faith of employee

A strong believes has been found among the employees of lower kenda colliery. They are very much religious and faithful in Gods. Especially goddess kali is very much famous among the underground labourers. Before they entering into the underground, worshiped kali. Some small kali temples have been found just beside the underground way. They strongly thought that goddess kali protects them from any kind of natural catastrophe in underground.

## H. Age of Marriage

Age of marriage of the male persons in the family as has been studied is given in the following bar diagram. Due to lack of data unable to represent age of marriage status of women population.



## I. Banking and Credit Facility

Available banking and credit facility found in lower kenda colliery belt. A co-operative credit society set up for the employees of the colliery. More or less all the employees are member in this organization. Deposit, savings, withdrawal facility with any time Lon facility in minimum interest's available here. Again a public sector bank has been set up just beside NH-60 providing a huge banking facility to not only for lower kenda people but also the surrounding people of this area.

## J. Labour Status

Daily labour class workers are mostly found in this area. They have very poor economic status. Most of them are very much involved in alcoholic activities. That's why they are suffering with various types of in-curable diseases such as like cancer, asthma etc.

## K. Local Culture

There are so many occasions are celebrating in this area. But Durga puja is most famous among all. All types of people without any beerier joined in this occasion. Local Durga mandir on road side is became main epicenter during Duraga puja.

Some other festivals are Chat puja, Dewali, Maharam is very famous here.

## IX. MINING AND PUBLIC HEALTH

People living in this area often lack facilities and thus are found to suffer from various diseases caused by mining. All the employees and contractual workers will be sent for regular health checkup for the diseases like Silicosis, Pneumoconiosis, etc., which are prevalent in the mining industry and tests like optometric, blood tests, chest X-rays, sputum test, audiometric test, lung test, cardiovascular etc. are done. The frequency for the periodic medical checkup will be maintained as per the DGMS norms. Presence of 0.3 to 0.5 micron coal dust particles is harmful for lungs.

## A. Health effects from coal mining include

• The release of methane (CH4), a potent greenhouse gas estimated to account for 18% of the overall global

warming effect triggered by human activities (CO2 is estimated to contribute 50%).

- The release of carbon-monoxide (CO) from explosives, which pollutes the air and poses a health risk for mine workers.
- Coal dust and coal particles stirred up during the mining process, as well as the pollution released during coal transport, which can cause severe and potentially deadly respiratory problems.
- Drastic alteration of the landscape, particularly with mountaintop removal, which can render an area unfit for other purposes, even after coal mine reclamation. 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

## B. Coal combustion & physical health

Coal combustion affects not only the human respiratory system, but also the cardiovascular and nervous system

1) Respiratory Effects: Coal combustion contributes to smog through the release of oxides of nitrogen, which react with volatile organic compounds in the presence of sunlight to produce ground-level ozone, the primary ingredient in smog. Air pollutants such as nitrogen dioxide (NO2) and fine particulate matter adversely affect lung development. Exposures to ozone and PM are also correlated with the development of and mortality from lung cancer, the leading cancer killer in both men and women.

2) Cardiovascular Effects: Air pollution is known to negatively impact cardiovascular health. The mechanisms have not been definitively identified, but studies in both animals and humans suggest they are the same as those for respiratory disease: pulmonary inflammation and oxidative stress. Pollutants produced by coal combustion can lead to cardiovascular disease, such as artery blockages leading to heart attacks, and tissue death and heart damage due to oxygen deprivation.

3) Nervous System Effects: According to the PSR report, the nervous system is also a target for coal pollution's health effects, as the same mechanisms thought to mediate the effect of air pollutants on coronary arteries also apply to the arteries that nourish the brain. These include stimulation of the inflammatory response and oxidative stress, which can lead to stroke and other cerebral vascular disease.

## X. CHANGING PATTERN OF SCENARIOS

The study area has undergone rapid changes in the present day, both in physical, socio economic and cultural environments. The reason is particularly due to increasing influx of development, per capita income and lastly people conception about modern world.

## A. Changing perception of the people on village

Within the last 20 years society has undergone tremendous changes in these localities. The people of lower kenda area are now fit to adjust themselves with the most

dynamic and modern world. The idea of people regarding female literacy ,participation in sports ,competition ,music and dance educational program ,reproduction and family planning , occupation etc. have got changed, so thanks to the developmental works by governmental and nongovernmental agencies.

## B. Demographic Change

The population in this region has undergone a number of changes in the recent years mostly to keep pace with the ongoing environmental modifications. The changes are observed in terms of male and female dependency ratio has got altered. Now the female person in the family are found to indulge themselves more in the earning process and there by promoting the economic prosperity of the family. The literacy rate has gone high especially the females are involved themselves in various types of public or private sector jobs. Besides, the number of higher educated people has also increase in recent years and recent Panchayat statistics supports this fact.

## C. Socio Economic Change

The study area has been experiencing a gradual change in its both demographic and socio cultural profile.

The first change is marked in the form of shift of the people from perceptional viewpoint. The unemployed publics involved themselves in Daily labour worker, private tutors, sellers, also in private companies. The per capita income of the people has increased to some extent last few years.

## D. Change of Education Status

Now a day the education level of this area has changed but not significant .Most of the children are engaged in various economic activities to support their family. Therefore most of them are not able to complete their education in proper way. Here Government plays a vital role to improve the education level in this area. Various programs like "Sarvo Siksha Avian" (Education for All). Mead day meal system etc. attracts the children to go to the school.

## E. Changes in the Use of Modern Appliance

Here five type of variable such as cycle, radio, television, fan, pressure cooker taken as indicator to show the standard of living of the persons live in this area. More or less the entire coal field area of lower kenda colliery is modernized a lot. High per capita incomes increase the demand that's why more and more modern applications are found in the families. It's universally true that increasing per capita income, increasing standard of living.

## F. Changes in Coal mining practice

In this field a rapid change has been noticed within 4-6 years. As our world changing rapidly moves towards a technological progression, coal mining activity also comes under this situation. Due to huge Demand of coal in different sectors many new machines are imposed for producing more and more coal from underground. In this case ECL gives tender to private companies.

#### G. Changes in coal Transportation Mode

Coal transportation mode in ECL rapidly changed within 10 years. Some years ago mainly low capacity dumpers, car track were used. Presently this system changed a lot. High capability Trucks, dumpers, mainly used for transportation purpose. On the other hand Indian Railway giving his too much help to ECL for transportation of coal for far away distance cases. Railway wagons are used for large amount Transportation of coal from miles distance.

## XI. EFFECTIVE SCHEMES FOR THE DEVELOPMENT OF THE AREA

It is a matter of hope that Government has thought out some effective schemes for the development of the livelihood of the local people and besides that some NGOs have also come forward to stand beside these people. As like other parts of India Govt. development schemes also running in Lower kenda area by the supervision of Dobrana panchayat. Some schemes which are chalked out with some beneficiary purposes are as follows:

## A. National Rural Employment Guarantee Act (NREGA)

Now known as National Rural Employment Guarantee Scheme (NREGS) ensures every villager to get 100 days job per year. This scheme was implemented by the UPA Govt. four years ago and it is purely central Govt. project.

## B. Indira Avaash Yojana (IAY)

A central Govt. scheme under which BPL families (income below Rs.35000 per year per family) will be helped to build low cost shelter with sanitation.

Besides this scheme with a joint collaboration of state Govt. and a private organization 'Anandalok' helps backward class people to build houses within Rs. 100000(out of which Rs. 25000 to be self-paid).

## C. Rastriyo Samabikas Yojana (RSY)

This scheme helps the self-help group with the motto 'same right in every work'.

## D. Prime Minister Gram Sarak Yojana (PMGSY)

Every rural area to be connected by metaled or concrete road with adjacent town.

## E. Integrated Tribal Development Project (ITDP)

Every man in every house hold get allowance of Rs. 500 per month from the state Govt. In 2010 Govt. announced that every man with age of 65 years or more will get Rs. 1000 per month.

## F. Indira Gandhi National Old Age Pension Scheme (IGNOAPS)

Aged persons over 65 years get an allowance of Rs. 500 per month from central Govt.

## G. SOHAY

An NGO working towards the target of eradication of beggary.

#### H. ASRAY

A state Govt. project to distribute land among landless people, but not implemented yet.

## CONCLUSION AND REMARKS

Coal mining will continue to expand in foreseeable future in India, and an attempt has been made to bring out the adverse effects to mining and associated activities on land use. Extensive mining activities in Raniganj & Asansol blocks of Burdwan district, West Bengal, have changed the overall socioeconomic condition & land use pattern of the area. It has also been highlighted that the effects are ultimately regional and invariably interfere with the natural regime of land, water and air. The analysis of primary data pertaining to the socioeconomic condition of the sampled households has revealed the impact of these changes. The main adverse impacts of such changes have been assessed in the field of water scarcity, water contamination and diseases. The study reveals that the forest ecosystem and socio environment of the area near to mines being disturbed due to open cast coal mining. These changes have been verified on the ground through the responses given by the local peoples. Mine fire is one of the serious problems of Indian Coal Mining industry and needs serious attention.

On the basis of the previous chapter we can assess some point regarding the area. Its location is very good in respect of geographical point of view, transport and communication, and near to Raniganj and Asansol. Here maximum people are engaged in ECL services. As most of the coal pits of lower kenda colliery is productive. The total amount of cultivation field is also decreases due to growth of new settlement. Literacy rate of this area is good. Male and female literacy is almost same. But higher educated people are few in number. Here only one primary school is situated. Medical facilities are moderately available for people. People go govt. hospital at Bahadarpur and Kalla ECL hospital. Local market is present here along NH-60. For marketing they go Raniganj and Asansol. Here people use tube wells & Tap for drinking water. Two metaled road passes outside the area. But the connecting road among the settlements is un-metalled. Power supply for Colliery purpose& domestic purposes is available. Few numbers of people has no sanitation facilities. All the development is confined to the higher class people. Illegal living in ECL quarters is a big headache for ECL authority. Some people after completing their service life in ECL forcefully living on Quarters. They can use free electricity and water provided by ECL. Politically this area generally quite peaceful minded and has no outside disturbance. Many people have no clear idea about the developmental projects. Lastly, opinion is that, think positive and takes care of all kinds of aspects significantly and take necessary action altogether, then it will be very easy to reach the goal.

It is high time and a great challenge for the scientists, academicians, and industry people for preparing appropriate strategies and action plan for dealing with mine fires to minimize its menace. It can not only help in saving a lot of valuable coal resources which is lost due to burning, but also in reducing the adverse impacts on the natural environments as well as social environment.

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