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People living near mining activities at increased risk of diseases, says study

- A latest government study has found that mining activities in the coal-rich Tamnar area of Chhattisgarh have put the local population, mainly tribal people, at an increased risk of acute respiratory diseases and tuberculosis.
- The study reveals that in the case of tuberculosis, the disease burden rate in Tamnar is nearly double the national rate and almost triple the rate in the state, highlighting the adverse impact of mining.
- However, experts feel a similar story plays out in all resource-rich areas of India where local people suffer in absence of proper checks and balances on mining activities.

Raigarh is one of the crucial places for coal mining in Chhattisgarh, the central-eastern state which accounts for over 18 percent of the country's coal production. The massive mining is silently taking a toll on the health of those living in and around Raigarh and similar areas.



A recent study that assessed the health of the villagers in Tamnar block of Raigarh, where there are several coal mines, revealed that nearby mining activities have put the “tribal population of Raigarh at increased risk of acute respiratory infection (ARI), tuberculosis, road traffic accident (RTA), etc.” The study was by Madhya Pradesh-based health research institute Indian Council of Medical Research-National Institute of Research in Tribal Health (ICMR-NIRTH) which conducted the cause of death survey in the 33 villages of Tamnar block between December 1, 2018 to November 30, 2019. For health assessment of villagers, the survey 1,713 individuals from 984 households from 33 selected villages of Tamnar block for clinical examination.

According to the study, the investigation included the collection of data on demographic and socio-economic particulars of the households, anthropometry, clinical examination for general morbidity and nutritional deficiency disorders. pulse, blood pressure, random blood sugar were measured.

The study emphasised that apart from environmental health hazards, “undernutrition increases the risk further for various diseases.” It noted that among non-communicable diseases, “cardiovascular diseases were the leading cause of death” while “tuberculosis was the major cause of death in infectious and parasitic diseases category.”

According to the study, hypertension (30 percent) was the leading pre-existing disease followed by diabetes (12.6 percent), stroke (8.3 percent), tuberculosis (4.3 percent), chronic respiratory disease (three percent) and – together contributing to over 50 percent of the disease burden in the area.

It found “excessively high levels of malnutrition among children and adult population in the region.” It held that among the pre-school children “acute respiratory infection/ upper respiratory tract infection (20.9 percent) constituted the most common morbidity” while, among the adults, hypertension (21.8 percent) was found to be the most common morbidity.

The study revealed that the tuberculosis burden among the study population was nearly double (363/100,000 population) the national rate (199/100,000) and triple the notification rate of Chhattisgarh (103/100,000).

The report also found a high rate of prevalence of fungal infection in the people of the area and noted that “various causes such as environment, overcrowding, diabetes mellitus, bathing in contaminated water and poor living conditions may be major factors.”

Rajesh Tripathi of Raigarh-based Jan Chetna Manch, a social group working for the mining-affected people, said the report itself highlights that “Kelo river in Tamnar is polluted due to waste disposal from mining activities.”

“I have been working in this area for about 30 years now – since 1991 – but people of this area that’s crucial for the government in terms of coal reserves, have rarely undergone any health survey. The miners that are active in the area promise in their applications that health facilities will be provided to the local villagers but all that exists on paper only,” Tripathi told Mongabay-India.

In fact, the data from local police reveals that every month, at least 70 people die in road accidents in Tamnar and the leading cause of those accidents is the high traffic of heavy vehicles due to coal mining, Tripathi said.

He noted that an increase in disease burden among people living close to mining areas is not a new phenomenon as repeated studies across India and the world have revealed the same but authorities still don't take it seriously.

To improve the situation, the study recommended strengthening of the programme for anaemia and malnutrition, improvement in health facilities and filling up of the vacant post of specialist doctors and trained health workers along with laboratory facilities in the community and primary health centres, provision for safe drinking water especially in two villages Mudagaon and Saraitola and intervention programmes for non-communicable diseases especially for hypertension and other cardiovascular diseases.



Coal is among the most important minerals in India's

mining sector. Photo by ECSP/Flickr.

A similar story of ill impacts of mining on health in other areas

While the country and the world transition to cleaner sources of energy, the transitions for the people that have been impacted by coal mining, have not been smooth. The damages, in terms of environment and living conditions, in resource-rich areas around the country, are often irreversible due to the lack of intervention.

The situation may only get worse as India plans to massively increase coal production over the next five years. For instance, the coal production of Coal India Limited (CIL), which produces the majority of India's coal and is considered the largest coal producer in the world, is projected to further increase from 630 metric tons (Mt) to 1000 Mt in the next four years.

A major increase in production is expected to come from coal-rich areas like Korba Raigarh, Talcher etc. Over the years, the "resource curse" in many of such mineral-rich areas has been well documented across India where the impact of unchecked and uncontrolled mining took a toll on predominantly poor or tribal people.

In a 2010 paper, *Under-mining health: Environmental justice and mining in India*, that focused on health impacts of iron-ore mines in Keonjhar in Odisha,

researchers found that those living closer to mines reported a higher incidence of respiratory illness and more workdays lost due to malaria.

“Essentially, we hypothesised that there is a potential environmental pathway from mining to the health impacts,” study’s co-author Subhrendu K. Pattanayak of Duke University, USA, told Mongabay-India. “For malaria, this would be through mosquito ecology – in a disturbed landscape (e.g., when land is torn up, puddles form and this is what mosquito larvae need to hatch),” he said.

For respiratory illness, this would be through air pollution-related to the mining and the transportation of ores. “Our statistical analysis of villages more exposed (close to mines) compared to villages less exposed (far from mines) confirms these hypotheses. Those more exposed, had higher rates of diseases, compared to those less exposed. There were also occupational channels – i.e., you are exposed in the mine itself. And indirect channels – income from mining allows you to invest in protection. We found weak or mixed evidence on these other channels,” said Pattanayak, Oak Professor Environmental and Energy Policy at Duke University.

Shubhayu Saha, Rollins School of Public Health, Emory University, Atlanta, who was a co-author of the Odisha study said evidence on adverse health consequences of mining continues to grow around the world.

“Worth noting is the increase in the literature related to mental health impacts, besides respiratory and vector-borne illness (like malaria) that we highlighted in our paper. Unregulated mining and destruction of natural habitats more often than not force the displacement of communities living in these areas for generations. Not only does it lead to adverse economic and dietary impacts, but also to a deep sense of loss related to the cultural and emotional connection of these people with the environment that had sustained them,” Saha told Mongabay-India.

A recent exploratory study to determine the health and livelihood conditions of coal workers in the Jaintia Hills in Meghalaya where rat hole mining is prominent finds respiratory problems as the most prevalent disease. As many as 511 household members were surveyed, out of which 266 respondents were coal labourers (coal digger, cutter, cart puller, owner, and others). Cholera and malaria, typhoid, skin disease were also reported. Tuberculosis was found to be relatively low, followed by vision defects and broken bones. The occurrences of these diseases in the mining areas were due to inhalation of dust particles and subsequent use of contaminated water. It is also important to note that majority of the household members are prone to suffer multiple diseases at a time, the authors note in the paper.

Mining, as typically practised (unless there are sufficient safeguards) generates environmental problems that have health and other implications, the researchers said.

Benefits of mining to locals may not outweigh the burden of health impacts

Among other things, one of the basic defence of policymakers, to continue mining, is that resource crunch is vital for the development of the nation as well as of the local areas where mining is done.

However, social workers like Tripathi, who have been working in mining dependent areas like Tamnar states that the locals who are impacted by mining the most rarely get the benefit of that mineral even as they pay the highest cost of that activity.

“No matter which state you take, the story is the same everywhere,” said Tripathi.

For instance, the coal-rich Korba region of Chhattisgarh and Singrauli in Madhya Pradesh, considered the energy hub of the country, are facing similar “resource curse”. People living close to power plants fail to get electricity while it is supplied to distant parts of the country, their water bodies get contaminated due to polluted water from mining and power generation activities, and the air quality is very poor leading to respiratory problems.

“Of course, if the livelihood, income, and other benefits are large, these are costs one may choose to accept. However, often there is a disconnect between who is bearing the costs (e.g., economically impoverished and politically disenfranchised) and who is gaining the benefits,” said Pattanayak adding that India fails on the policy and legislation at a few levels.

He explained that unless the government and the mining companies are operating in good faith (which is not common), the country does not have good policies or laws to either minimise the environmental damage – pollution, land degradation, etc. or to compensate those directly impacted so they can protect themselves or take other adaptive actions.

Pattanayak also said, even when the government and companies are aware and committed, the laws and policies are “toothless”, indicating that they exist only on paper and are difficult to implement.

“Essentially the health impact is what ‘academic economists’ would call an externality – the buyer wants the ore, the company incurs a cost in getting the ore to the market and so charges the buyer for this ore. But the collateral damage on the people in and around the mines is no one’s cost,” he said.

“Maybe the buyer would be willing to pay extra to help reduce the costs or compensate for the costs, in which case

the seller would be willing to charge for it and take extra precautions in the extraction process. These needn't be direct financial costs ... they could be indirect costs because of avoiding fines and penalties and or indirect benefits such as schools and hospitals built in the affected region. In most settings, neither side has any incentive because these are health costs to 'others'," Pattanayak explained.

However, those working on the ground like Rajesh Tripathi believe otherwise. "Until people are made partners in mining activities they will continue to suffer as no one will ensure that promises made on paper while setting up such activities and seeking clearance for them are fulfilled. We have been demanding the involvement of people in the whole process so that we can ensure that the welfare of local people is taken care of and we will continue to do so until we achieve that."