

Impact of toxics on Indigenous peoples of Assam, Northeast India

Assam (formerly Mung Dun Chun Kham), Northeast India is rich in its biodiversity and natural resources. Crude oil was discovered here in late 19th century and first oil well was dug in 1866. Digboi is known as the Oil City of Assam where the first oil well in Asia was drilled. The first refinery was started here as early as 1901. Digboi has the oldest oil well in operation. Coal in Assam was first recorded by British Surveyor Lieutenant Wilcox in year 1825. First coal mining was done by C. A. Bruce in 1828. Initially British authorities were less curious about Assam coal. Popularity of tea cultivation, extension of railway lines and increasing navigation through steamships, increased the demand of coal. The Assam Company, which was involved in tea cultivation, started to extract coal for their own requirement. Then incorporation of Assam Railways and Trading Company in 1881 resulted in opening up of the coal fields of Makum area. So, extensive development of Assam coal fields took place only after 1881. The major coal reserves of Assam are found in two coal belts: the Makum coal fields and the Dilli-Jaipore coal fields. Apart from them, some small deposits of coal also exist in the Karbi Anglong, North Cachar Hills and Dhubri district of Assam.

- 1. After Independence, The Indian government continued to explore Oil and Natural Gas on Indigenous Lands/Areas with no prior mandate on the interest of Indigenous people. Oil & Natural Gas are the property of the Central Government (National), control by The Ministry of Petroleum and Natural Gas. The Oil and Natural Gas explorations have created a huge ecological and climate crisis on the region. On the other hand, the government has not furnished a white paper on the explorations and profits from the same. Oil fields are being continuously sold and leased out to different private companies and even public sector companies are allowing third party companies to run certain oil rigs and oil pumps without prior public mandate. This whole process of Oil exploration and extraction by different companies has created a space of negligence towards the safety and security of the public. For instances cases like Baghjan Gas Leak, Oil leaks through pipes catching fire, oil spills on lands of Indigenous people are frequent happenings causing different biological and safety related crisis.**

Going into the details of Baghjan Gas Leak, Baghjan Oil Field in Baghjan, Tinsukia District of Assam in a very sensitive ecological zone which has a natural wetland namely Maguri Motapung Wetland and it's very close to the river forest reserve Dibru-Saikhowa National Park which have very rare and endangered species including the Gangetic dolphin, which is endangered, as well as herds of wild horses, tigers, capped langurs, hoolock gibbons, slow loris, and several rare butterflies and fish. The Dibru-Saikhowa National Park is also connected to Namdapha National Park via the Dehing Patkai National Park. These regions are part of the Indo-Burma Biodiversity Hotspot. But sad to say that the Baghjan Oil Field have 21 wells of which 4 natural gas and rest oil wells and also there is no prior environmental clearances for drilling operations. The Baghjan blowout occurred in the Well No. 5 on 27 May, 2020, leading to gas leak which created a complete a situation of havoc among locals and officials. Following the leak, 1610 local families, consisting of approximately 3000 persons were evacuated to relief camps. A safety zone consisting of a 1.5 km radius around the well was established. The leaked gas consisted of a naturally occurring mix of propane, methane, propylene and other gases. On 9 June 2020, the Well caught fire after efforts to cap the leak were unsuccessful. The fire occurred at the plinth of the well while cleaning operations were under way. Following the fire, people who had not yet been evacuated from the local area left, as the fire spread to local

grasslands. The fire quickly spread to a larger area and burned down nearby trees, crops and houses. The leaked gas condensate had affected local agricultural crops and plants, including bamboo, tea, bananas and betel nuts. Wind conditions had carried the leaked gas towards the Dibru-Saikhowa National Park as well. 4 persons were injured, and 50 houses destroyed in the resulting fire. The condensate from the gas leak in surrounding areas had made the locale more vulnerable to fire and had allowed the fire to spread faster. On 29 May 2020, the carcass of a Gangetic dolphin covered in condensed oil was found in the Maguri Motapung Beel, a local wetland, and sent for a post-mortem by the Tinsukia Wildlife Division, to establish the cause of death. Wildlife Division officials noted that because of rain immediately following the leak, local waterbodies had been contaminated by condensate from the leak. On 31 May 2020, Assam Government officials confirmed that the State Pollution Control Board was investigating environmental damage as a result of the leak. Following the leak, the State Forest Department had also asked Oil India Limited to account for its actions after reports of dead fish in local waterbodies. The Wildlife Institute of India, which operates under the Ministry of Environment, Forest and Climate Change issued a report in which they stated that Oil India Limited had failed to address security concerns after two previous leaks in Dikom and Naharkatia in Assam. Their report indicated that between 60 and 70 hectares of land had been damaged by the leak, and noted particular concerns about the biodiversity in the Tinsukia district. The Wildlife Institute of India's report stated that the leak would have "...prolonged ill effects on all life forms, including humans," in the area. On 10 June 2020, two firefighters, Durluv Gogoi and Tikheswar Gohain died fighting the fire. Their bodies were recovered from a water body near the site. It took OIL (OIL INDIA LIMITED) to snuff the fire and leak a long 6 months.

Following the gas leak, demands were made to bring OIL under investigation by different local bodies, NGOs and government agencies for all the negligence in terms of safety and security, all the environment related violations of norms and clearances and outsourcing the operation of the Well No. 5 to a third party private company namely, John Energy. Litigations were filed in courts to investigate the cause of the disaster, to account for environment and local livelihood damages. Compensation for the same was ordered by The National Tribunal and to investigate the same but in reality OIL has delayed and showed no will to pay the appropriate amount to the locals. The government in this case, also didn't pay pressure on OIL to pay the compensation, although hollow promises were being made as always and was seen siding with OIL. Assam's State Pollution Control Board (SPCB) ordered Oil India Limited to shut down all production at the Baghjan Oil Field, following an investigation that revealed that the company had begun drilling operations there without obtaining prior environmental clearances, but Oil objected to the notice of closure stating that it could potentially result in more blowouts at the wells. The closure notification was withdrawn three days after it was issued and operation is still going on today. No white paper on the damages, loss and compensation were produced by OIL or the government till today and the whole incident went into oblivion.

- 2. Coal is the property of the Central Government (National), control by Ministry of Coal. North Eastern Coalfields, a unit of the Coal India Limited (CIL) a government owned company has been extracting coal in Assam since the 80s but halted in 2020 due to environmental issues. But on Saturday, 26 March, 2022 Union Minister of Coal and Mines and Parliamentary Affairs Pralhad Joshi along with the Chief Minister of Assam Dr Himanta Biswa Sharma inaugurated the operations at Tikak Colliery of NEC at Margherita in Assam's Tinsukia district commencing its reoperation. Along with CIL, private parties both**

legal and illegal are extracting coal, as demand for coal has increased due to high demands in industries in mainland India like iron, steel and cement segments in the last four decades. Other smaller consumers include fertilizer, textile (including jute and jute products), paper and the brick industry.

Northeast India has a good deposit of sub-bituminous tertiary coal. Mining of Coal has caused a total reduction of forest cover and loss of biodiversity, soil erosion and pollution of air, water and land. The primitive and unscientific 'rat-hole' method of mining adopted by private operators and related activities have caused large-scale environmental degradation and severe ecosystem destruction. Moreover, the northeast Indian coals have unusual physico-chemical characteristics such as high sulfur, volatile matter and vitrinite content, and low ash content. In addition, many environmentally sensitive organic and mineral bound elements such as Fe, Mg, Bi, Al, V, Cu, Cd, Ni, Pb, and Mn etc. remain enriched in these coals. Such characteristics are associated with more severe environmental impacts due to mining and its utilization in coal based industries. Environmental challenges include large scale landscape damage, soil erosion, loss of forest ecosystem and wildlife habitat, air, water and soil pollution.

Acid Mine Drainage (AMD) are intensely localized in the coalfields of northeast India, where ecology of the surrounding area is badly disrupted. The rejects and coals dumped near the pit entrance are exposed to the environment. Being highly enriched with sulfur, pyrite present in these materials is oxidized and hydrolysed and therefore is well known for the generation of AMD. Highly acidic mine water with high sulphate (up to 1500 mg/L) and Fe (40 mg/L) were reported in Margherita group of mines in Assam (Reported pH of 3.9, 3.10 and 4.3 in Ledo, Tirap and Bargolia mines of Assam). Based on a similar study carried out in Makum coalfields in Assam, it was found that the mine discharges were highly acidic (up to pH 2.3) to alkaline (up to pH 7.6) in nature with high concentration of SO_4^{2-} and mine water was highly enriched with Fe, Al, Mn, Ni, Pb and Cd. In addition, ground water close to the collieries and AMD affected creeks were highly contaminated by Mn, Fe and Pb.

The Assam public health and engineering department has indicated that coal mining in Nagaland may be the cause of high levels of manganese in the Bhogdoi river, which flows down from the Naga Hills through Jorhat in Assam and falls into another river, which finally falls in the Brahmaputra. In 2019, the Union Ministry of Environment, Forest and Climate Change declared Bhogdoi as one of the most polluted rivers in Assam and also in the country. In many cases, dead fishes were sighted in several areas along the banks. These deaths were linked to contamination. Locals in Jorhat city, Assam and neighbouring Mariani complained of water turning sticky and murky. Coal mining in Nagaland introduced high levels of manganese in the river, an investigation conducted by the Public Health and Engineering Department (PHED) of Jorhat division indicated. The department also suggested decontaminating the water before supplying to towns and testing several times before supplying for consumption.

The above mentioned toxicants/toxicity resulting from coal mining has become a huge threat to the lives of the indigenous peoples living in the near/outskirts of coal mines, living near rivers flowing down from coal mining areas as well as people involved in mining. Above all depletion of ecology and biodiversity in Assam, NE India has irked different social organizations in demanding the government to stop overall coal mining operations many times; however the government shows no urgency/interest.