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## **An Environmental Concerns of Cement Factories in Jaiñtia Hills District, Meghalaya**

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### **Abstract**

It's interesting to see that industry came up in the state so quickly. It acts as a source of employment opportunities not only for those who are setting up these industries or factories but for the local people as well. However, there is also a concern about the impact of these industries to the nature and the environment. The loss of natural resources, natural beauty of the areas and the loss of mineral resources is the main concern of this period. When the world is encouraging the people to avoid and not to destroy the environment and try to find out a solution to make the country and the economy a sustainability, but due to the increasing demand for the products by the increasing population, it was a very difficult trade-off situation for the state and country's decision on developmental purposes. In this paper, a study is made, to find out the impact of these industries and how far they could save and protect the environment. According to their missions, they claimed that they could save, protect, promote and preserve the land and environment. They could make the economy a sustainable development oriented ones and act as an employable force for the local people.

**Keywords** – Environment, Factory, Industry, Mineral resources, Pollution, Sustainable development.

### **Introduction**

Meghalaya is rich in natural resources. Almost all types of resources are available in the state of Meghalaya. These resources are sometimes considered as a blessing for the state's economy and its development. Huge amount of revenues are generated from these resources by exporting to other countries, such as Bangladesh, etc. and also within the country to cater to the needs and requirements of various types of industries.

Many industrialists are eager to venture into the state to start their businesses. Cement companies are the examples. Big and small cement plants have been setup in the state, especially in the Jaintia hills district of Meghalaya because of the present and easy availability of the resources, that is coal and limestone. The cements that these factories are producing are considered to be one of the best qualities in the country. Meghalaya within no time is included in the map of cement producing's state because of the present of these cement companies. Cements produced by these factories from the district are highly demanded and consumed not only within the state but from outside the state also. Everyday huge quantities of cement have been produced and supplied to the markets. Jobs and employment opportunities have been created and provided to the people. Many got jobs to work at the factories, the mines, transportation of goods and raw materials from mines and factories, coal and limestone suppliers, etc. Shops, restaurants and tea stalls come up along the national highway and roadsides. The local people also swarmed at the roadsides and sell their produce to earn their incomes and make their livelihoods a better. Is this a life cycle? The answer is yes because this is the process of economic development in any underdeveloped state, including Meghalaya.

Thus, industrial development is the main focus of the state to improve faster the rate of growth of the economy's development. Industry is considered as the growth centre of an economy because it acts as a centric force for the economy to move, work and function smoothly and properly. However, the state's Net State Domestic Product (NSDP) per capita income declined

from Rs 1,02,672 in 2019-20 to Rs 95,644 in 2020-21, that is US\$ 1285 as compared from India's average of US\$ 2191[1]. The decline in NSDP per capita income in this period may be due to the impact of Covid-19 pandemic. On the other hand, the Gross State Domestic Product (GSDP) of Meghalaya at current prices reached Rs. 0.35 trillion (US\$ 4.79 billion) in 2019-20. The state's GSDP (in Rs.) increased at a compound annual growth rate (CAGR) of 6.74% between 2015-16 and 2020-2 [2].

From all the good news that the district and the state are enjoying for quite some time, there is a curse also impacted and affected by these factories. Due to the presence of these cement factories in the areas, it has become as an eye opener for the people in the areas and in the state. There is an environmental concerns and issues about the destruction of the resources. The resources are exploited and used rampantly without thinking and caring about the pains and sufferings that the nature endured. Greed of the people exploded in their minds and to satisfy their own desires are unmeasurable. The future generations have to be ready and prepared to live in a virtual world full of fantasies.

Not only the next generations that they will encounter these problems of unjustified utilization of the resources but even the present generation also will be the ones who will feel the real brunt of the impact of these industries carelessness. In fact, these companies/ industries are boasting around that they are getting the permission and clearance from the government to start and setup the factories in the areas. They have their own missions to protect and preserve the environment and it's ecosystem and make the economy a sustainable development. But the problem here is, why you wake up the resources, which are lying dormant in these areas for centuries? Sad to say that these resources will vanish from our eyes, from our areas, from our state and from our country forever. What is left is only the trail of footprints of damages, destructions, shaky grounds, deformed lands and environmental degradation. Good to say that these places will one day become a tourist spot and tourist destination for the future generations, to watch, wonder and ponder at the rampant destruction and exploitation of the state's treasures by the present generation.

Therefore, in this paper, the main focus of the study is on environmental concerns caused by these cement factories, who are exploiting the mineral resources, which includes coal and limestone. Even these factories claimed that they are protecting the environment but the author finds some doubts about the way they conducting with their businesses. No one would believe that these factories will not affect or impact the environment, when tonnes and tonnes of resources are exploited, extracted and consumed everyday.

Limestone production in Meghalaya stood at 6.9 million tonnes in the financial year 2020 [2], which is accounted. But the unaccounted limestone which comes directly from the mines to the industry is unimaginable and unthinkable. It has been noticing that the landscape has changed, the beauty of the nature has disturbed, the air, water has been polluted by the waste materials from the sites and the factories. The villages and the villagers are the worst affected. Their lands, agricultural lands, forest and forest covers have been encroaching to explore and extract the resources to feed and to meet the daily demands and requirements of these factories. Millions and millions tonnes of lime stones are dug up everyday from the areas not only for the requirements of the cement factories in Jaintia Hills but those factories, which are located in the state and outside the state also. Coal and limestone from Jaintia Hills district are considered to be the best and biggest sources and become the main feeder and supplier to those industries and factories, which are located outside the areas and the state. In one day, they could eat up even a whole mountain.

Therefore, there is a great concern about the destruction of the environment affected by these factories. They captured the sizeable plots of the land for setting up the factories, approached roads and its connectivities, levelling of the land and its surrounding. Trees and vegetation are uprooted to make the sites more comfortable, accessible and beautiful. However, in returns, degradation and depletion of land, forests and forest covers has been affected and done to a large extent. Soil and soil erosion happened, water contaminations, water qualities declined, pollution increased, air pollution, noise pollution, etc disturbed and hampered the environment, ecosystem and it's biodiversity. Therefore, it is important to highlight here in the paper about the importance of these factories, the problems that they are causing to the environment and the suggestions and policy implications that should be incorporated in the study. Further, this paper will throw some lights on the adverse effects of cement factories to the economy in the long run due to the lack and shortage of resources or raw materials.

### Data and Methodology

Secondary data are collected from various sources that are available in the form of books, journals, articles, news items, which is useful and suitable to use in this paper. Video clips also are found to be useful to use and apply in this paper. Primary data is very difficult to collect because of the lockdown and restriction of movement of the people, due to the impact of Covid-19 pandemic. Thus, the materials are extracted and drawn mainly from the internet-based source. The method in the study is mainly done through observations. Personal informations and experiences also are applied and used.

### Results and Discussions

#### A Brief Description of Cement Company –

Some of the prominent cement companies which are operating in the district are mentioned in the table below. These companies are setup closed to the resources in the areas. Their nearness and proximity to the resources are highly beneficial for them to increase their productions per day and year.

Location of the Cement Companies and their Production Capacities [3-11]

Sl. No	Name of Company	Location	Capacity	Brand Names
1	Star Cement Ltd	Lumshnong	1.0 MTPA and 0.6 MTPA	Star Cement
2	Meghalaya Cements Ltd	Thangskai	2600 T/Day to 1.5 MTPA	Topcem Cement
3	Hills Cement Company Ltd	Mynkree	1 MTPA	Taj Cement
4	JUD Cement Ltd	Wahiajer, Narpuh	0.5 MTPA to 2 MTPA	Best Cement
5	Amrit Cement Ltd	Umlaper	1 MTPA	Amrit Cement
6	Goldstone Cements Ltd	Musiang Lamare	0.880 MTPA	Black Tiger Cement
7	Green Valliey Industries Ltd	Nongsning village	1 MTPA	Max Cement
8	Dalmia Cement Bharat Ltd	Thangskai, Lumshnong village	1.5 MTPA	Dalmia Cement

Note: MTPA means Million Tonnes Per Annum

#### Mission of the Cement Companies

Cement companies also have their own missions and visions before setting up the factories. Some of the missions may be summed up below:

- (i) To take up various corporate social responsibilities (CSR) activities and environmental protection and care.
- (ii) To take pride in creating new and exciting employment opportunities, fulfilling business obligations to the community, country and environment.
- (iii) To achieve a sustainable growth and development, which is the core of the business venture in the areas.
- (iv) To respect the environment and caring for communities.
- (v) To ensure sustainable development of economy and committed to improvement of its environmental performance and preserving the natural assets.
- (vi) To assure that there is no adverse impact on the environment.

## **Some Issues of Environmental Concerns of Cement Factories**

### **1. *Environmental and Social Issues***

The present of these cement companies or factories in the areas resulted to an environmental concerns and social issues. There is a fear of influx of the people from outside the state. This might lead to social unrests and disturbances in the areas. Criminal activities also might appear and crop up when various types of people are mingle together. It might lead to mix marriage and intermarriage of the local people with those people who are coming from outside the state. Further, the fear is that it might be polluted and diluted the life and culture of the local people. The identity of the tribal is at risk and it might lost at anytime. These are some of the reasons that it has caused social unrests in the areas, in terms of strikes and processions among the people, fighting against these cement companies.

Environmentalists and nature lovers also worried about the present of these factories. The damage caused by these cement factories in the Jaintia hills district of Meghalaya have been reported worldwide by the news agencies. The researchers and research scholars also have done their studies and researches on mining of limestone and coal and its impact on the environment. The Jaintia Students Union (JSU), which is one of the organisations in the areas, are fighting hard against these cement companies not to allow to destroy the nature and the environment was a very commendable job.

The National Green Tribunal (NGT) also took up the matter and challenged against the government of Meghalaya and its Ministry of Environment, Forest and Climate Change for the approval given mainly to the Star Cement company to extent and expand its mine and quarry to Brishynot, the place where the resources are available in plenty. The Brishynot quarry currently covers 42 hectares in East Jaintia Hills district and has a limestone capacity of 2.5 million tonnes per year [12].

It has also reported that Meghalaya Cement, Star Cement and Amrit Cement have been accused of illegally mining 1.8 million tonnes of limestone in Meghalaya between 2013 and 2018. Further, it has been mentioned that these companies mined the limestone in a tribal area of the state without environmental, forest or wildlife clearance or No Objection Certificates. Local cement producers also allegedly owe the state government around US\$ 40 millions in related limestone mining licence fees. It is also alleged these companies bribed the local political party in terms of donations with the sole intention to grasp the resources in the areas.

There is also an allegation that two of the cement factories in the areas have polluted two local rivers, Wah Lukha and Wah Lunar. The former river allegedly turned deep blue due to pollution and contamination. The fishes and other species in these rivers also died of pollution and contamination of the water [12] and [17].

The local NGOs and Organizations strongly expressed their opposition and demanded that the permission should not be granted to the cement companies to extent the extraction of coal and limestone. However, the cement companies challenged against this order and claimed that coal is a major fuel used by the cement plants in the region and its non-availability of the resource, means that they have to close their plants. Further, it has been mentioned that these cement companies threatened and said that coal and limestone demanded by cement plants are huge and if there is no supply, all the cement companies will have no other option but to shut down their plants and who would bear the loses.

### **2. *Issue on Depletion of Forestlands in the Areas***

It has been observed and also reported that the forest and forest covers in the areas have been lost due to the presence of these cement factories. Extensive encroaching to the forestlands have been done not only on the sites of the factories but on those places around the mines. Trees and vegetation disappeared. Stocks, stockyards of limestone, dumping and disposing of limestone is a great concern for the forest and environment. Soil erosion and degradation happened during rainy seasons. All the top soils are washed and carried away by the current and flow of water, which further endangered the environment. Land,

water and air are affected and their qualities declined. This further hampered the production and productivity of the land, water pollution and air pollution in the atmosphere.

There is another allegation that the problem arising because cement plants have been effectively allowed to mine limestone in forested areas. The NGOs and Organizations demanded from the state government that these cement companies in Jaintia Hills should compensate and contribute to the state's afforestation in the areas. The government also should set a tone for future reforms in environmental governance. The reforms should be in the context of the environment, especially for those mining or projects involving the use of forestlands.

### **3. Issue on Agriculture and its Allied Activities**

Agriculture is the main occupation of the people not only in the areas of study but in the whole state of Meghalaya. Present of cement factories is a major concern for the agriculture and agricultural activities in the areas. They had affected the agricultural production and productivity. They also affected the allied agricultural activities such as livestock, fishery, horticulture, beekeeping, etc. to a large extent. The smog, dust particles, sediments, waste materials produced and emitted by the factories polluted the air and atmosphere, lands and rivers, trees and forests, herbs and vegetations. Protection and control of these pollutants is a distant dream for the people, factories and even the governments. Seasonal rains did their best duties to clean the air and atmosphere. Land and environment prepare the home and ready to welcome the enemies, that is the dusts and pollutants. This is the man made disaster. Thus, this is an environmental concern and issue of the people in the areas.

Most of the farmers of the villages are ignorant about the causes and effects of cement factories. Therefore, to increase their productions and productivities from their lands, manures and fertilizers are applied and they are satisfied at the results and outcomes they derived. However, this process and method of cultivation will further harm the land and the soil. More and more pollutants are accumulated and absorbed into the soil, water and rivers, making the environment and ecosystem a hostile and fragile ones. So in the long run, the agricultural lands are deteriorating and the fertility, quality and productivity decline. This will automatically hamper and affect the livelihoods of the people who are engaging and depending in the agriculture and allied activities.

### **4. Issue on Scarcity of Fresh Water**

Scarcity of fresh water is another concern and issue in the areas where mining of coal and limestone are rampant. Adequate water supply become impossible not only for drinking purposes but for many other purposes also. Most of the sources of water disappeared in the areas that further accumulate the problem of water scarcity and water demand. Many villages in the district felt the burdens and hardships of availability of fresh water, especially during the winter season where all the sources and natural water are dried up. The water supply provided by the government (PHE) is inadequate and insufficient. Thus, lacking of fresh water for drinking and sanitation purposes is a real problem and trauma for the people.

It has been reported that in many areas of the district, people face real challenges and difficulties in fetching clean drinking water. Poor people are worst affected because they are depending mainly on the natural water sources. It has been mentioned that the entire coal mining area of the Jaintia Hills is dotted with mine pits and caves from where surface water percolates into the ground. As a result, smaller streams and rivers of the area, which served as lifelines for the people are either completely disappearing or becoming seasonal. Consequently, the area is facing an acute shortage of clean drinking and irrigation water either due to pollution of available water or due to the percolation of surface water into the ground [13] and [18].

Therefore, to avoid this problem of water scarcity and water shortage, the people prefer to purchase water from the private water suppliers and sellers through tankers at an exorbitant prices. So, this is the fate of the people in the areas at the costs of having and allowing the cement factories to operate randomly.

### **5. Issue on Noise Pollution**

Operation of big machines and technologies in the cement plants is a major concern for the health and well-being of the people and animals. However, noise pollution not a new thing in this world. Thus, controlling of noise pollution is necessarily and squarely importance because noise pollution is an unwanted sound as defined by various Dictionaries. It can have deleterious effects on human health, wildlife and environmental quality. It is generated commonly by the industrial facilities and workplaces [14]. Noise pollution produced by the industries gets dumped into the atmosphere and environment without regard to the adverse effects it may be having and causing. Therefore, it is considered as a disturbance to human beings, animals and other living organisms in the environment. Long term exposure to noise pollution is a major threat to human lives because it causes physiological effects and deafness [15] and [19].

Thus, long term exposure to noise pollution has caused a variety of health effects including annoyance, sleep disturbance, negative effects on the cardiovascular and metabolic system, as well as cognitive impairment in children. According to World Health Organization (WHO) findings, noise is the second largest environmental cause of health problems, just after the impact of air pollution [16].

### **Suggestions and Policy Implications**

The paper may be found useful for the policy makers and the researchers to refer and incorporate in their studies for policy making- frameworks, decisions, controls and measures. Some of the suggestions are mentioned here.

- (a) It is suggested that economic and social factors should be taken into consideration while setting up the industry or factory in any place or area to minimize the loss and its impact.
- (b) It is suggested that the principles of economic sustainability and environmental viability should be taken into consideration properly and effectively while setting up the industry and not to bypass it.
- (c) It is suggested that rules, regulations and guidelines should be laid down clearly and carefully while dealing with the project or industry in the tribal areas of the district, state and the country.
- (d) It is suggested that the environmental planning, management, policy, protection, assessment, etc should follow and implement strictly while setting up the industry or factory.
- (e) It is suggested that while setting up the industry, WHO and IUCN guidelines, directions, suggestions, etc should imbibe into their ambit so that the nature and environment will have less infliction.
- (f) It suggested that penalties and compensations should be imposed to those defaulters and polluters of the nature and environment.
- (g) It is suggested that the government and authority should be extra careful while giving permission to any company about the effects of destruction and degradation of the nature and environment, because repairing is beyond imagination.
- (h) It is suggested that the tribal people also should be made more aware about the importance of the Earth and the environment. They should know and understand the principles of conservation, preservation, protection, management of the environment and the ecosystem.

### **Conclusion**

Economic development is important for the poor state like Meghalaya to speed up the income and employment opportunities, to cater to the needs and requirements of the people in terms of goods and services. Easy availability of goods and services means that the welfare and well-being of the people increased. The standard of living and their livelihoods should improve, especially those poor people who are living in rural areas of the state. But the kind of development should not be affected or impacted the people, nature and the environment. Because what the author have been observed from the above experiences was the good

examples and explanations for the same. Sustainability is impossible once the resources are gone. The resources, especially coal and limestone are the non renewable natural resources. The quantity is fixed and when once it is used or exploited, it is lost forever. Thus, extra careful and judicious management is the need of the hours to make the earth a better place for a living. Therefore, the bottom line is you could not create or make a replica of Meghalaya in the Thar desert.

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