



Impact of Cobblestone Mining in Nagaland: A case study of Naginimora, Mon district.

Imtikokla Ozukum¹ and Longjai Konyak²

¹.Assistant Professor.Dimapur Government College.imtikoklao@gmail.com

¹.Student.Ba 6th semester(economics honours) 2021.Dimapur Government College.

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Abstract:

In this paper, the operation of Cobblestone mining and its impact in Naginimora Area of Mon District, Nagaland is discussed. Cobblestone Mining is operated for the last several decades in this small town. A large number of people are dependent on cobblestone mining activities for carrying their livelihood as it is one of the most important economic activities. Mining is indispensable for the individual, for the society and for the development of a nation. Unfortunately, the unplanned extraction and crashing of stones have detrimental effects on natural as well as human ecology of the area. This paper is an attempt to appraise the socio-economic impact of cobblestone mining in Naginimora town of Mon district in Nagaland, India.

Key words: Cobblestone mining, Naginimora, Mon district, economic impact and social life.

I. Introduction:

The extraction of minerals, stones and coals have provided a foundation for local economies in many parts of the world. Mining plays an important role in the development of human societies and economies. In most places, local communities are involved in extraction processes, although mining is responsible for bringing unanticipated changes to a region's economy and social fabric.

Mining has been practiced all over the world since time Immemorial. It is a major economic activity in many developing countries. Mining activities have been largely carried out in areas where mineral and power resources are found in abundance. This has led to economic development in these areas through increase in per capita income and national income. Meanwhile, along with economic development, mining activities has also raised concern for environmental conservation.

Statement of the Problem:

For the several decades, cobblestone quarrying or mining in Naginimora area has led to environmental degradation in the region. Over exploitation of the resources and poor method of technology in quarrying has left the landscape rugged and leaving a lot to desire.

Stocking of cobblestone in forest area has been unfavorable for the natural environment. The local workers suffered from health hazard by inhaling inorganic dust particles and polluted air. Therefore, it is needed to develop a tool for improved stone mining or quarrying and proper estimation on consumption to avoid overexploitation of the resources. Moreover, the workers as well as the general public need to be sensitized on its importance as well as on its negative consequences .

II. Literature review:

According to Vishwambhar Prasad Sati (2014),In his study on "impact on stone mining in Shivpuri district, Madhya Pradesh, India ",states that Stone mining has been practiced in a small scale from the British period in India and was the main source of income of the poor rural people. Along with expansion of mining technology, presence of high quality precious stone reservoir and availability of market, mining activities gained tremendous momentum and that has resulted in the economic development of the region as mining activities augmented employment and generated income which provided a suitable base for their livelihood.

Anunda C Nyakeniga(2017) in " An assessment of environmental impact of stone quarrying activities in Nyambara", states that the stone quarrying is an internal sector and is a major contributor to the growth and creation of jobs in Kenya and needs to be supported both financially and academically through education. Most stone miners lack enough skills in quarrying as the study show, those who engage in stone quarrying in Nyambara have not undergone training and this poses unhealthy



conditions to the environment. Diversification of resources is another factor which leads to environmental sustainability. Most people in Nyambera depend only on stone quarrying and this has led to over exploitation. It has also created congestion in the quarry to land fragmentation and rapid mass wasting of resources.

Bhatarcharjee Subhasis, Sittique Giasuttin and Roy Arindam (2018) in “Economic impact on stone quarrying in rural livelihood and its impact on environment” states that stone quarrying is one of the key economic activities in the Saltora CD block, west Bengal which supplies the bulk of stone of varying aggregates to the construction industry within the district and beyond. Concurrently, it has negatively influenced the ambient soil, air and water qualities and has degraded the entire environmental set up of the area. Such kind of destructive activities of human kind generally has raised serious environmental concern. Besides, it has adversely affected the health of the poor workers.

Worko Hailo (2018) in “Environmental and Socioeconomic impacts of cobblestone quarries in Addis Ababa and implication for resource use efficiency, environmental quality, and sustainability of land after-use” prescribes interventions that can assist in mitigating the negative impacts of mining. Employment of resource efficient and sustainable mining techniques, institutional, organizational and technical support from government, improvement in regulations and implications were suggested to solve the problem of cobblestone mining in Ethiopia.

Awoke Endalew et al(2019) in “Environment and Social Impacts of Stone Quarrying “ are of the view that Cobblestone paving is labor-intensive, creates job opportunities for construction workers and entrepreneurs and Uses natural and local materials in the city suburb areas. Their study indicated that the major socio-environmental impacts of stone quarrying are loss of biodiversity, reduction of agricultural land, soil erosion, health related problems etc. Moreover, the cobblestone workers are unaware of the impact of stone quarrying on the environment and the society.

Objectives of the Study:

- 1.To study the impact of cobblestone mining on the society
- 2.To find out the percentages of the workers engaged in mining activities .
- 3.To know the awareness of the workers on the effects of cobblestone mining.

III. Methodology:

The present study is an empirical research conducted in Naginimora area of Mon district, Nagaland, India. The methodology of the present study includes field study and direct observation methods. This present study is based on the primary data collected through interviews and questionnaires from cobblestone miners, and from secondary sources such as research articles, Government publications, journals, newspapers etc. The field study was conducted in March 2022.

Profile of the study area:

Naginimora is a town in Nagaland India. It is situated 11 km away from Kongan Village in Mon district. It shares border with Bihubar in Assam on the economical corridor.

Naginimora is a sub-division of Mon district, Nagaland. This area which has been taken for the study is economically backward and stone mining is the backbone of their economy. According to 2011 census of India, the total population was 11,023 of which 6,092 are male and 4,931 are female. The population of Naginimora was 13,669 in 2021 and 14,109 in 2022¹.Naginimora is one of the biggest trading centers in Nagaland. The trade is mainly of cobblestone mining. The name of the town is originally derived from the words ‘NaginiMara or NaginiMora’, which means ‘the Death of a Naga Woman’, formally known as Lekan.

Naginimora is a sub-division in Mon district under an Additional Deputy Commissioner. It is on the bank of Dikhu River. The town population is predominantly inhabited by the Konyak tribe of Nagaland.A small but noisy town as one could see about 300 trucks plying ups and downs the streets everyday carrying river stones and coals from Kongan soil. The local weekly market held on Saturday witnesses a medley crowd of Assamese and Konyak nagas.²The only coalfield in Nagaland was founded in 1907 by the East India Company and is at Borjan and Kongan soil near Naginimora.Naginimora is the biggest trading center of Nagaland coal.³

Findings:

Cobblestone mining was operated in the year 1960s in Dikhu River. The mining was undertaken both by the government and private authorities. The quarry system was operated under the Government of

¹ Indiagrowing.com

² En.m. Wikipedia.org

³ ibid



Nagaland. There are Seven (7) quarries, where one quarry is equal to 1000 meters. The miners have to pay tenders earnest money to the government approximately 50-70 thousands for each quarry in every season. Whereas, under the private authority, there is no quarry system and tender earnest money is paid to government which also leads to illegal business of mining.

❖ **Impact analysis:**

Socio-demographic characteristic of the respondents

i. **Gender and marital status of the respondents:**

Figure 1 shows the gender and marital status of the respondents for the mining area in Naginimora. Out of the total were married and 30% were unmarried. respondents 85% were male and 15% were female. 17% respondents were married and 30% were unmarried.

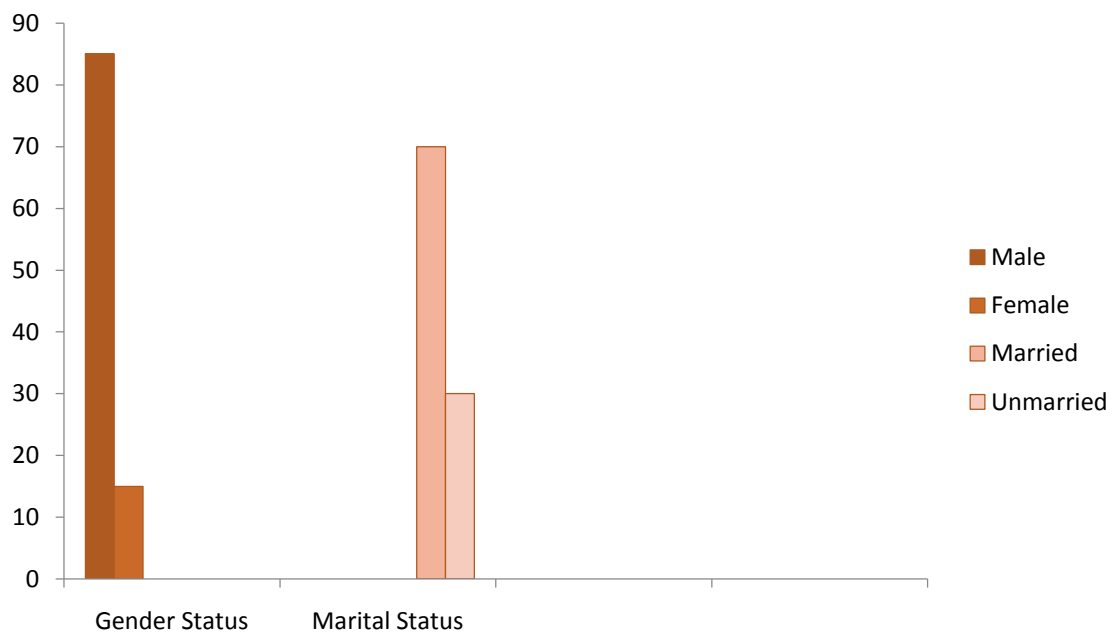


Fig.1: The gender and marital status of the respondents.

ii. **Educational Status of the respondents:**

Education status of people in Naginimora mining sites is depicted in fig.2. Total 60% of men and 25% of women respondents were illiterate and literacy level is very poor. 25%, 45% and 20% men

are educated till primary secondary and graduate levels respectively. And only 10%, 35%, and 14% women are educated at all the three levels respectively.

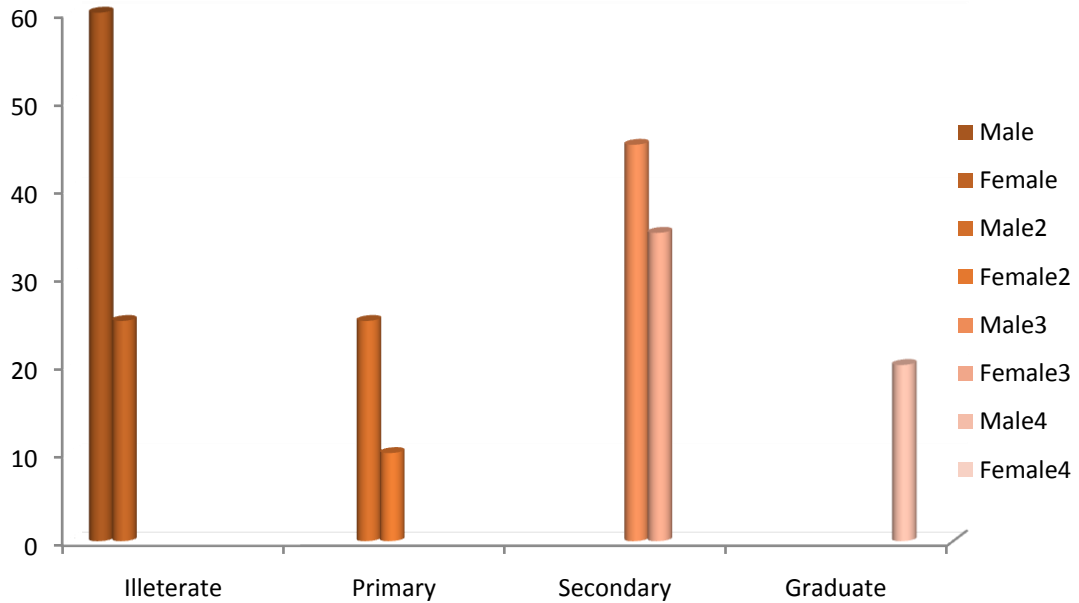


Fig.2: Education of the respondents

iii.Occupation of the respondents: As shown in fig.3, majority of the respondents (50%) were engaged in farming as their main occupation. The second most important occupation was laborers in mining (35%). Only 5% were engaged in services and about 4% were engaged in business and trading. The remaining 6% were students.

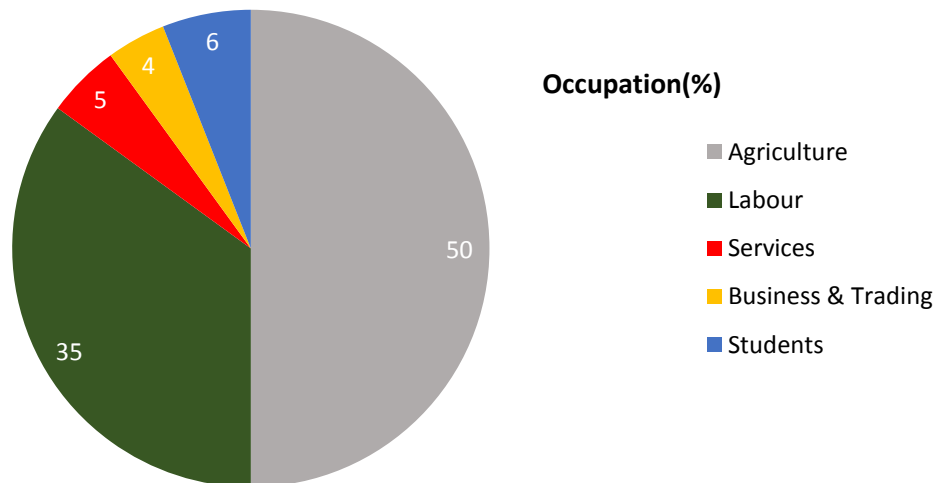


Fig.3: Occupation of the Respondents

ii. Awareness of the forestry programs:

Regarding the awareness of the forestry programs, most of the respondents (70%) were aware about the program run by Forest Department and 30% were unaware about the forestry department (Fig.4)



Awareness of the Forestry Dept.

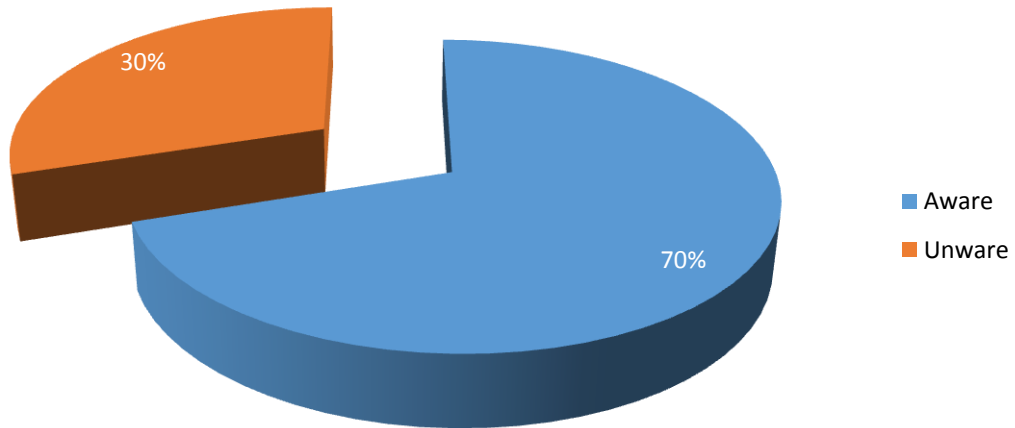


Fig.4: Awareness about forestry program

v.Awareness about Disputes in mining and illegal mining:

Mining is responsible for the generation of several disputes. Major disputes were related with ownership and demarcation related problems

(97.78%), While small portion (2.22%) was related with economic exploitation of labor involved in mining, (Fig.6). Regarding the illegal mining, about 99% respondents responded in 'Yes' and 1% answer 'No' (Fig.5)

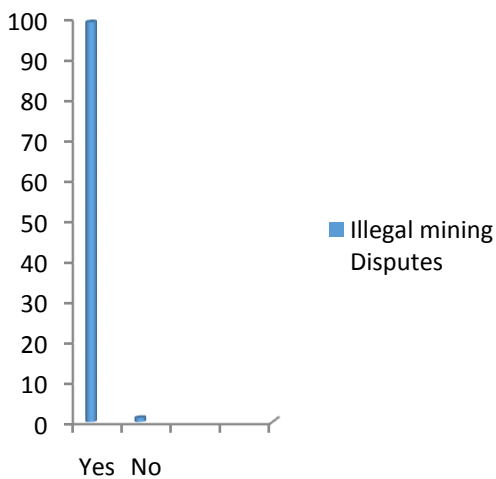


Fig 5:disputes in illegal mining.

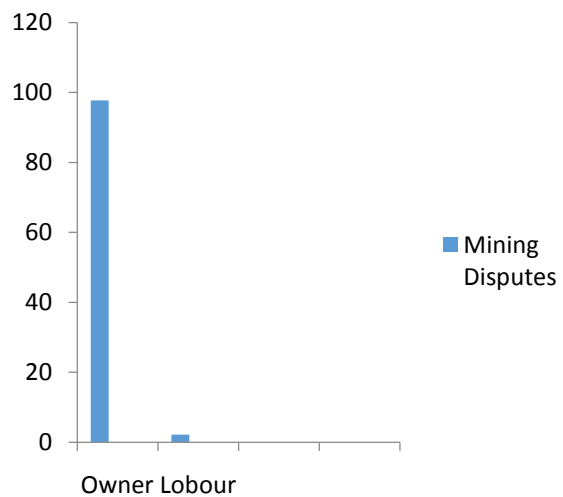


Fig 6:disputes in mining



vi.Dependency of local populace on mining:

About 60% people were dependent on mining for their livelihood and 40% depends on other sources for their livelihood (Fig.7). As far as type of dependency on mining was concerned, out of this

60%, about 2.22% were involved as laborers, 27.78% as transporters, 9% as mine owners and 21% were dependents on mining in various ways, either involved as middle man for selling etc. (fig. 8).

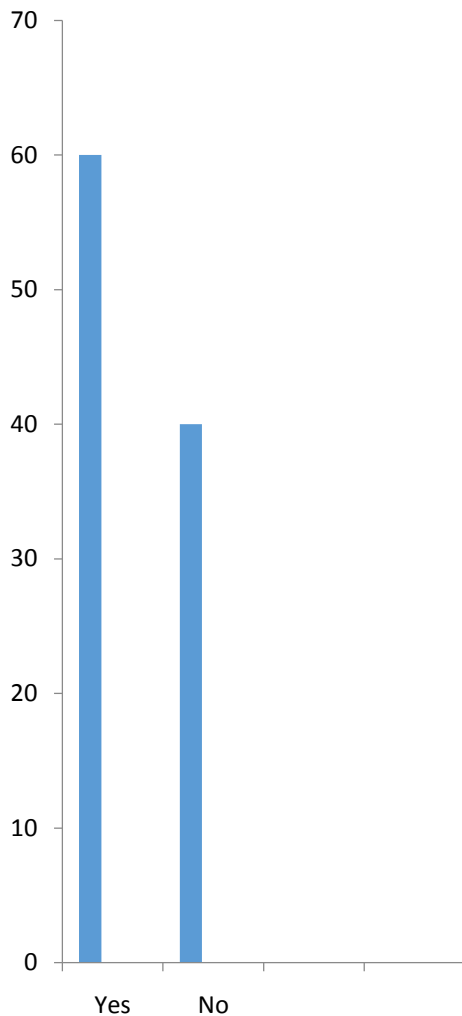


Fig.7: Dependency on mining for livelihood

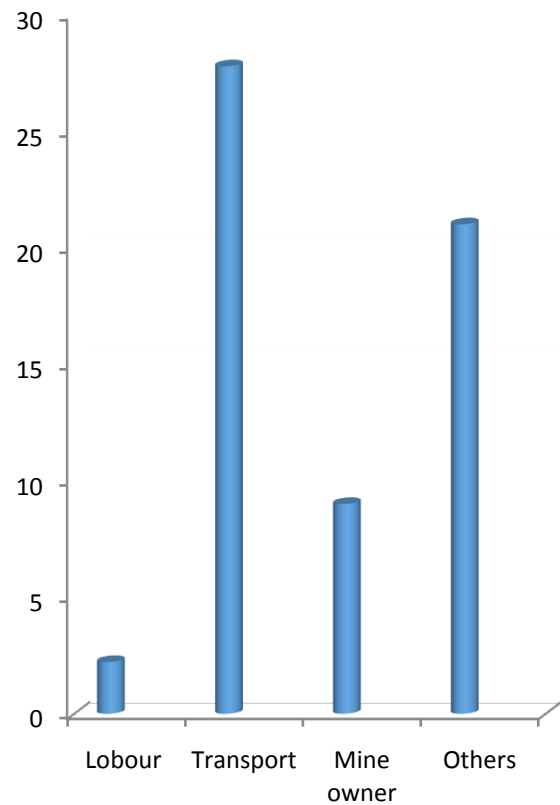


Fig.8: Types of dependency on mining for livelihood



vii. Health hazard on workers

The poor workers have suffered from health hazard especially various types of respiratory diseases caused by inorganic dust particles as consequences of a long period of

exposure in the quarrying sites. The main health problems complained about include respiratory diseases like lung cancers and asthma (35%), eye problems (14%), muscle pain (25%), skin disease (18%), malaria (5%) etc in fig.9.

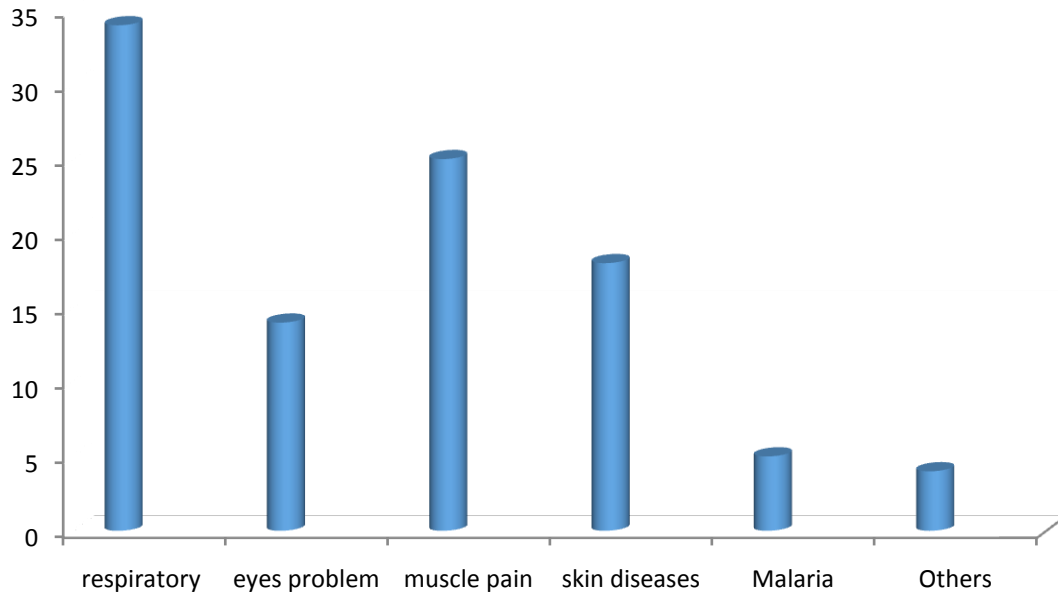


Fig. 9: Health related problems due to mining

viii. Problems faced by workers:

Though cobblestone mining is the backbone of the economy in Naginimora area and the process of mining is seasonal based, the workers faced serious consequences in the following ways-

1. Health related and medical problems
2. Household management
3. Quality of education
4. Financial issues
5. Unemployment problems

In addition, movement of heavy duty trucks generates dusts and creates air pollution and turns the roads into potholes. The rejected khadans or holes also leads to loss of innocent lives among the local people and it ultimately turns into wasteland.

iii. Positive impact on society

In Naginimora, stone quarrying and crushing have generated an alternative source of employment and earning. It is a slow and continuous process. Cobblestone mining is a seasonal activity and therefore it is a part time employment. Mining is not only the means of income in Naginimora but it is the only job which provide immediate income to the workers.

The number of workers engaged in mining activity is 2.22%, out of this 1.42% are male labors and 0.81% are female labors (table 1). The workers are around the age of 20-35 who had already been engaged in a stone mining for about 3-7 years. Majority of them are unmarried. It is a low paid daily income. The total annual income of the labors is 50-70 thousand. It is briefly shown in the table 1.

Mining place	Labor percentage (%)	Age of workers	Working experiences(in Years)	Total annual income of workers
Naginimora	2.22	20-35	03-07	50-70 thousand

Table 1: Impact on society



The following are some impact of cobblestone mining on the society :-

1. Economically, it is very beneficial and helpful for the local community as well as for the government . Mining of stone not only helped in infrastructural development but also exporting mined stone will boost the local economy.

2. Cobblestone mining is the backbone of economy and it is helping the development of the local community because it increases the working population and also it is a way for illiterates to earn money. Moreover successful miners tend to experience a business boom due to which they contribute to the society. In order to transport the goods, proper roads and bridges are also constructed.

3. It is an income source for the local people which improved their standard of living.

4. It helped to increase employment opportunities and support for local business and organization.

5. Although, most of the locals are not full term employees and does not have a regular income, mining helps them to earn for their daily expenses and make their living.

Impact on the environment

i. Air pollution- Air quality is adversely affected by mining operation. It causes air pollution due to the production of dust particles during their processing and its transportation.

ii. Water pollution- Water quality is highly altered because heavy machineries are used in the water bodies. The physical and chemical properties of water get deteriorated by the surface run off of contaminated water from the quarry sites or due to the precipitation of dust particles ejected by the quarrying or crushing units. The contaminated water effects the quality of groundwater.

iv.Land degradation- The creation of landscape blots like open pits and piles of waste rocks due to mining operation can lead to the physical destruction of the land at the mining sites. The mining areas have turned into heaps of hillock by the excavated earth and the mining holes turned to ponds filled with dark acid water emitting foul smell⁴. Forest land is also cleared leading to deforestation.

iv.Lose of biodiversity- Often, the worse affects of mining activities are observed after the completion of the mining process. Mining leads to massive habitat lose for a diversity of flora and fauna ranging from soil micro-organisms to large mammals.

iv.Long term effects of mining- A landscape affected by mining can take a long time to heal. Sometimes, it never recovers and species might be lost permanently.

Suggestions

The study recommends the following strategies –

i. Alternate route should be constructed away from main town for loaded truckers. Open defecation of laborers should be strictly banned.

ii. Hunting by the laborers and the public should be banned.

iii. Stone mining near dwelling places or town should be completely stopped or banned by the authority.

iv. Stone crushing machines should be installed far away from the residential areas to avoid noise pollution.

v. Planting of more trees should be encouraged to maintain the quality of air and water that has being deteriorated due to mining.

vi. Using alternate renewable resources should be encouraged for sustainable development.

vi. Educate the people about the pros and cons of mining. Quality education inclusive of the importance of environment and health should be imparted in educational institutions.

viii. Illegal mining should be strictly prohibited. Government need to implement certain policy measures in this regard.

ix. Awareness programs should be conducted among the public by the Government, NGOs and all stack holders of the society.

The study, therefore mainly recommends promotion of sustainable development through legal mining activity and safeguarding the health of the people and the environment and increase employment opportunities to the people living in Naginimora area.

Conclusion:

Although, mining activities brings drastic economic development in Naginimora area, it also causes the environmental degradation. Although the communities understand the negative impact of quarrying, remedial action has not yet been conducted individually as well as collectively.

The illegal extraction of cobblestone should be stopped and preservation of the ecological resources need to be encouraged. Therefore, action should be taken by all relevant stake holders in minimizing the negative impact of mining for further sustainable growth and development.

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⁴ Morung Express.Nagaland.28th February 2014.



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