**1. Introduction**

Mining is defined as the extraction of minerals form land for the purpose of producing them commercially, and includes processing and treating ore. mineral means any substance that occurs naturally as part of the earth’s crust including oil shale and coal including their hydrocarbons and mineral oil, betonies, fine clay, kaolin, lignite, quartz crystals, zeolite, or minerals in alluvial form and excludes water, stone, peat or petroleum.

The process involved in the mining industry is such that if appropriate measures are not taken , it may lead to pollute air and or water besides impact on land, soil, flora and fauna. Therefore, it is mandatory that mining unit must be established only after seeking proper consent under air (prevention & control of pollution) act , 1981 (air act) and or water prevention & control of pollution act , 1974 (water act). Likewise , after getting established , the unit must be put to operation only after valid constant to operate under the above mentioned laws.

**Bauxite mining**

Human being have used minerals almost ever since they existed. The ages of human development have coincided with the use of mineral. The modern urban industrial economy cannot survive without mineral and metals, so we cannot wish away mining. The bauxite mining, an ore for alumina ( aluminium oxide ), provides employment to people especially the locals.

**OBJECTIVES AND HYPOTHESIS**

**: Objective:**

1. To study of effects of air pollutants from mining on environment.
2. To study impact of bauxite mining in Kolhapur region.

**: Hypothesis :**

1. Mine deposition responsible to air pollution.

2. peoples working in this area are suffering from various diseases.

3.

**2. METHODOLOGY**

Methodology of the present study was restricted to field observation. Social survey of the locals and interwction with government officials and mine officials. Visit were made to respective mining site for field observation with local to understand the ground reality for studying the ecological and social impact for mining on neighbouring villages, survey of people from 5 villages near mining sites namely Udgery , Giegaon, Ringewadi (Burambai), Dhangarwadi, and manoli was carried out.The sample size for the SIA (social impact Assessment) questionnaire survey was125 comprising of from Udgiri (40), Girgaon(20), Ringewadi (Burambal) (20) and Manoli (25). For the questionnaire survey, stratified random sampling method was followed in which 75% males and 25% females were covered. The stratified sampling was also done on the basis of age, which included youth below 25 years (25%), adults between 25 to 50 years (50%) and seniors above 50 years (25%).

**Table 1. A brief profile of the mines in the upper catchment in warna river basin**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sr no** | **Name & address of unit** | **Production** | **Mining area ha** | **status** |
| **1** | **m/s swati minerals vill-udgiri,tal-shahuwadi,kolhapur** | **Bauxite-3,37,000 MT/Yr** | **776,78** | **In operation** |
| **2** | **M/s prakash anadrao gaikwad/Gavandi,vill- udgiri,tal-shahuwadi,kolhapur** | **Bauxite-60,000 MT/Yr** | **254,51** | **In operation** |
| **3** | **M/s Bhartesh Construction Company Villeage -Girgaon. Tal – shahuwadi,Kolhapur.** | **Bauxite-**  **25,000**  **MT/Month.** | **140.20** | **In operation** |
| **4** | **M/s Shivram Minerals**  **Gat.No.64,village- Burambal Tal- Shahuwadi,Kolhapur.** | **Bauxite—**  **73.000MT/Yr.** | **243.72** | **In operation** |
| **5** | **M/s Hindalco industries Ltd.Dhangarwadi,Taluka-Shahuwadi,Kolhapur** | **Bauxite** | **122.63** | **In operation** |
| **6** | **M/s Shri vasant Krushna vatkar Mouje-Manoli,Taluka Shahuwadi,Kolhapur.** | **Laterite/iron ore** | **143.95** | **Proposed** |

Collector Office.kolhapur2007

**Table 2. profile of the mining villages in warna basin, shahuwadi taluka,dist- Kolhapur**

|  |  |  |  |
| --- | --- | --- | --- |
| Name of village | Forest (Ha) | Total population | households |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

(\*data not available) (Kolhapur District census,2001)

A) STUDY AREA:

The study area of this paper is a small representative part of the Western Ghats in Kolhapur district in Maharashtra state. The area consists of the upper catchment of the warna river basin. The main study area in the basin covers the five bauxite mines at udgeri,

1)Udgeri (1705:N730 52”E)

Udgeri is about 64 km nw of Kolhapur and is approachable by a fair weather motorable road from Amba which is on Kolhapur – Ratnagiri state road.

2)Girgaon (160N:730 51”):

Bauxite deposits occur on an elongated plateau about 1090m abive msl,2.5km NE of girgaon village. Deccan basalts are capped by laterite containing zones of bauxite horizon averages 2.5 m though at places it is as much as 5m

3) ringewadi (burambal ) (16051N:730 58”E)

The deposit is located at a distanc of 48 km NW of Kolhapur at 1001m above msl. And it consists of group of discontinuous plateau south of village ringewadi.

4) dhangarwadi (16056”N : 730 53”E,)

It is located about 56km NW of Kolhapur at 1012 msl. The atea was prospected in detail by the DGM and G.S.I bauxite forms a sheet like body of variable thickness below the overburden of laterite.

5) Manoli (16 57” N: 73 47”E)

It is located 3km west of amba town I,e, about 75km NW of kolhapur.

Weather road from amba to vishalgad a famous historical and religious tourism destination.

**B) ENVIRONMENTAL IMPACT OF BAUXITE MINES IN STUDY AREA:**

1. **DUST POLLUTION:**

A majority (over 75% ) of the respondents from all sites agreed that mining has led to increase in dust pollution in he area. The response was more stronger by the licals from girgaon (95%)ad byrambal (90%) while at udgiri (60%) and dhangarwadi(55%) it was relatively less intense. A majority of these respondents (66%) said that the transportation activity was the main source of dust pollution. However only 20%of the respondents from dhangarwadi opined that transportation leads to dust pollution.

This may be due to fact that the transportation of bauxite ore has not yet begun in Dhangarwadi and only removal of ore on site is going on. Whil 50% of all respondents were of the opinion that mining site operations are the other major source of dust pollution.

This may be due to fact that the transporation of bauxite ore has not yet begun in Dhangarwadi and only removal of are on site is going on.While 50% of all respondents were of the opinion that mining site operations are The other major sources of dust pollution.

When enquired about impacts of dust pollution, 65% of the respondents opined that the pollution has lead to accumulation of mines dust on their houses . however , almost 90% of the respondents from girgaon complained of respiratory problems associated with the dust pollution . the main reason for this is that the roads leading to mines sites at girgaon are very close to the houses.

1. IMPACT ON WATER RESOURCE :-

In the recent times water scarcity has become a chronic problem in the heavy rainfall atea. In general majority of locals (62%) complained about water scarcity in the region, according to many it is due to mining. Out of those who confirmed the scarcity more females (66%) than males (61%) were sensitive about this problem.

Intrestingly over 85% of the respondents from Dhangarwadi , 95% From Giragaon and 70% from Burambal were of the view that as a result Of mining activity they are experiencing scarcity of water . Contrary some (30%) of the respondents from udagiri reported about the similar problem Many(46%) respondents complained about water scarcity throughout the year while a majority of them (51%) reported that the water level has decreased in the recent years .

One of the problems that are associated with mining operations is the release of pollutants to both surface water and groundwater . Many activities and sources associated with a dumpsite can contribute toxic and non – toxic materials to waters. As the area receives high rainfall the mobility of pollutants may increase to a large extent .

Impact to water include the build-up of sediments that may contaminate with heavy metals or other toxic products, degradation of aquatic habitats and contamination of drinking watyer supplies ( plate 2 , image 2 ). Near all mining sites , within a radius of 10 Km distance , there are more than one dams.

3 . PRESSURE ON LOCAL RESOURCES :-

As per majority of the respondents (61%) the mining companies use water from local villages for consumption by staff and also sprinkling it on roads. Conversely all respondents from udgiri confirmed that the mining company uses its own water source and not from the village.

Bauxite mining has led to the influx ofof labour force from outside which include truck drivers , labourers , workers on heavy machinery and labour in roadside services . These workers and theirs families rsinding on the mining sites and nearby labours camps, depend heavily on forest for fuel wood and water resources .

Their dependence on fuel wood has led to large scale thinning of the adjoining forest and deforestation in some area after prolonged stay on the mining site . Also the company daily requires about 25m3 of water for sprinkling on roads at Udagiri site alone . This puts an additional pressure on the locally available meager water resources , particularly during summer months .

NOISE POLLUTION :-

In conbentional open cast bauxite mining operations noise pollution is one of the environmental hazards. Particularly it can have serious ecological consequences on wildlife in the mining activity significantly contributed to the noise pollution.

IMPACT OF MINING ON AGRICUL TURE :-

Farming being the main occupation in the area, atound 48% respondents involved exclusively in agriculture. Out of them a majority

(62%) confirmed the negative impact of mining on agriculture .

VI) IMPACT ON SOIL AND BIODIVERSITY:-

Soil erosion caused by the open cast mining through its overburdens

is a common phenomenon in the Western Ghats . This was also reflected

in the response from the respondents where majority (78%) confirmed

the reason . Other prominent reasons for soil erosion as quoted by the

respondents were rainfall (64%) , deforestation (36%) and bauxite ore

transport by truck (23%)

**Biodiversity loss**

VII) IMPACT OF ROADS :-

The roads leading to mine sites , going through forest on the Western

Ghats plateaus , are not all weather and are specially made and maintained

Every year . For example road to Udgeri mines has a length of about 50 Km

Through hills and passes through dense evergreen and semi evergreen

Forest along the Ghats . Heavy vechicle such as trucks , dumpers , earth

Movers continuously operate on this road during the season .

WASTELAND GENERATION :-

C) GASEOS POLLUTANTS IN MINE AREA:-

Gaseous pollutant showed maximum concentration along major road

Sides followed by minor road side ,over burden that in the residential area.

High level of SO and NO at road site may be attributed to continuous movement of heavy duty vehicle for transporting coal from the mining place to distribution or dumping. concentration of primary pollutants in the ambient air are generally proportionally to the frequency of emission sources.

D) USE OF MONITORING EQUIPMENT TO ASSESS A POTENTIAL DUST PROBLEM

The spatial and temporal coverage of monitoring should be based upon well –defined objectives and tempered by the expense of the long term operation of extensive monitoring networks.

**3.OBSERVATION:**

The revelation by the respondents surveyed about environmental impacts of bauxite mining activity, from the four mining sites from the upper catchment in warna basin namely Udgiri, Dhangarwadi, Girgaon and Ringewadi, is summarised below it was observed that literacy level in the study area was very low as over half of the respondents (56%) from the study villages i.e. Udgiri, Dhangarwadi, Girgaon, and Ringewadi were iilliterate.

4)Questionary

1.Does the mining industry affect the Environment?

-Yes-80%

-No-20%

2.Air pollution is caused only due to mining industry?

-No-100%

Yas-0%

3.Can we control air pollution?

-Yas-70%

No- 30%

4.Are all people aware about air pollution cause due to mining

-No-60

-Yes-40

5.Have this project made aware you about air pollution

-Yes-90

-No-10%

**Summary:**

Human beings have used minerals almost ever since they existed. The ages of human developments have coincided with the use of minerals. The modern urban industrial economy cannot survive without minerals. The modern urban industrial economy cannot survive without minerals and metals, so we cannot away mining.

5 Conclusion :

Mining being a temporary economic activity it leaves long-term social, Economic and environmental footprints. Although mining may provide temporary employment to few locals, it is for a short period of time. When the mine closes all the economic opportunities cease with it.

**REFERENCE**

1. Anonymous, Census of india (1981), Maharashtra,District census
2. Handbook of Kolhapur district,103-109 p
3. Anonymous, census of india (2001), series 28,Maharashtra, District census Handbook of Kolhapur district,114-139 p