CHAPTER-5

Impact of mining on environment, rural population and sources of livelihood:

Nature, scale of mining industry in particular and other extractive activities of natural resources in general have been well recorded and there is a dependable body of knowledge and data available regarding its effects on the ecosystem. What is often conveniently taken for granted is its adverse effects on people in villages like agricultural–workers; forest workers and forest dwellers, small and marginal farmers, women who depend upon nature for their bread and butter. How exactly these people perceive the effects of mining in the context of large-scale destruction of nature and natural sources by vested interest is something that needs to be examined in detail. An attempt has been made in this chapter to do this by means of drawing material from secondary sources.

Both legal and illegal mining more of the latter with least regard to the safety, security of the common people have been going in Bellary district as well as elsewhere Karnataka has brought in to focus by the media, voluntary organization and local environmental movements and recently by the Karnataka Lokayukta and a host of other organizations. It has become the most contention issue often receiving the attention of highest judiciary-The supreme court of India. Time and again the existence of unholy nexus between powerful mine mafia, local politicians, officials and even politicians at the national level has been brought to light repeatedly.

An attempt in this chapter to assess the perception, attitude of the sample population and the manner in which they responded to the systematic looting of natural wealth in Rural Karnataka, people’s movements called environmental
movements have played a significant role in alerting people and thereby creating awareness among villagers, forest dwellers and those who have been dependent upon nature and natural resources for their survival since ages. But for environmental movements there is now some semblance of order and balance in nature. The geographical area of Bellary district is about 9885 sq.km. Out of which 698 sq.kms is forest area and remaining area is the agricultural and waste lands. 17.6% of the total forest area is dense forest mainly found in Sandur and Hospet Taluks. Maize, Bajara Grams, Onion, Groundnuts and some other millets and pulses are the major crops grown in the valleys and hill’s slopes in Sandur and Hospet taluks in patta lands. The impact of mining on the abiotic factors is quite high. The abiotic factors are influenced and altered to a great extent due to mining and related activities. This would result in threat to change in the composition of natural biota in the ecosystem due to change in the abiotic factors. This has also been observed in the study carried out by National environmental engineering research institute (NEERI), in this region wherein it was noticed that Simpsons Diversity Index (SDI) is quite low near mining areas (0.062) if compared to the maximum SDI found in Thimmappanagudi and other forest blocks.

To maintain a sustainable ecosystem there is a need to maintain the homeostasis of all the environmental factors (abiotic and biotic) and any change in this would lead to stress on the ecosystem. Due to direct influence of mining there would be variation in biotic factors like air, water, soil, temperature; humidity etc. and it would lead to change in composition of the species. Hence in this region, in the near future the composition of natural species would definitely get altered and slowly some exotic would replace the natives. The mining activities disturb the natural settings mainly induced by machinery used in mining, transportation, blasting, soil and water erosions etc. Due to increased mining activities the
disturbances in natural settings have already been set in motion and it would be too late to control the damage if it is not stopped forthwith. The mining was at a low rate in the last four decades (1960 to 2000) but has increased many folds due to “China Boom” in recent past and present.

Due to increase in the iron ore production which is approximately four times in this year if compared to the production of the year 1999-2000, the impact of mining has also increased accordingly. It is to be noted here that the recent sudden increase in iron ore production in some mines like SKME, VESCO, VNK and HGR, around the forest-rest house valley, the impact is well noticed. This valley has been declared as Medicinal Plant Conservation Area (MPCA) having the maximum numbers of medicine plant species. The movement of vehicles through the road passing this valley from the mine head of SKME, VESCO, VNK, HGR and other mines to railway stock yards and other places has led to increase in SPM (Suspended Particulate Matter). Further addition of any mine in the surroundings of this valley would result to reverse the ecosystem of the valley. This valley is a paradise of the National bird, the Peacock. A similar state is also in the offing and being reflected in many other similar valleys and hillocks of NEB, Kumaraswamy, Ramanamalai and other forest blocks.

Mining activities have disturbed environment in innumerable ways soil pollution, Air Pollution, water pollution, sound pollution have produced disastrous effects on the living conditions of the people. There is lot of empirical evidence to show mining activities have caused, soil erosion and deforestation in certain parts of the country. As mining activity is often carried out in forest regions, forests are cleared and timber is cut and is used for supporting the roof of mine galleries. Mining leases in India do not include a provision for soil conservation measures or refilling the land already abandoned by a large number of abandoned stone
quarries and mines they are lying in bad shape and are under extensive gully erosion.

Soil erosion and degradation:

The above photo is taken from Karnataka Lokayukta report-(2006).

Soil erosion and soil degradation due to a wide-range of environmental unorganized activities in general and mining in particular have been extensively investigated and documented by scholars and environmental activists. However, how exactly people in the surrounding village experience, perceive and actually
react to soil pollution and soil erosion has not been studied in detail. It is well known that due to mining agricultural and cultivable land has lost fertility to a large extent.

The soil digged from the mine is dropped from the height of 100 to 200 KM making the dust to disburse in the air and deposit on the land and this makes the soil sterile.

**Table No-5.1 Sample population perception of soil degradation.**

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Statement</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Top Soil Erosion</td>
<td>127</td>
<td>42.34</td>
</tr>
<tr>
<td>2</td>
<td>Existing land becomes unfit for cultivation due to dumping of solid waste</td>
<td>115</td>
<td>38.33</td>
</tr>
<tr>
<td>3</td>
<td>Standing crops are adversely affected since oil mixed dust disbursed in the air</td>
<td>58</td>
<td>19.33</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>300</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

**Diagram**

- **Top Soil Erosion**
- **Existing land becomes unfit for cultivation due to dumping of solid waste**
- **Standing crops are adversely affected since oil mixed dust disbursed in the air**
Data presented in the table shows that rural population have heightened awareness of the effects of mining industry. It can be seen in the table No-5.1 top soil erosion has a frequency of 42.34 percent, existing land become unfit for cultivation due to dumping of solid mining waste, as if its results in making the lands into desert. This has frequency of 38.33% as the standing crops are adversely affected since oil mixed dust disbursed in the air gets deposited on the leaves thus making the growth of plants stunted which has a frequency of 19.33 percent soil provides nourishment for the growth of plants. Management and improvement of soil fertility is vital for increase in the productivity agricultural activities. But the pressure of the mining activities, growing human and cattle population has seriously affected the soil resources. The total cultivable land area in India is about 304 million hectares. According to an estimate made by the Ministry of Agriculture in March 1980 as much as 175 million hectares of this land area is suffering from environmental degradation, deforestation, overgrazing, unscientific agricultural practices and desertification. Mining activities have accelerated the process of soil erosion (Sreedharaswamy.S, 2005).

Table: 5.2. Mining related activities and their impact on land/soil

<table>
<thead>
<tr>
<th>Activity</th>
<th>Cause</th>
<th>Possible Effects</th>
<th>Nature of Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land acquisition &amp; vacating</td>
<td>Shifting of LULC from land to be mined, requiring excavation for construction etc Land use and land cover (LULC)</td>
<td>Aggravated erosion More siltation in Source of water (SW) bodies Decrease in irrigation potential, ground water (GW) recharge., Green</td>
<td>Loss of top soil and greenery growing potentiality The process works cyclically and gets accelerated speed as long it is not stopped</td>
</tr>
</tbody>
</table>
### Effects of Excavation

<table>
<thead>
<tr>
<th>Effect</th>
<th>Description</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Damage to greenery in the vacated land and the land to be used for setting the shifted land use and land cover (LULC)</td>
<td>Increase in barren period, barren land, erosion</td>
<td>The land proceeds towards degradation and desertification. Impacts are indirect long term not quantifiable, hence intangible but cumulative and gets compounded, hence of serious magnitude</td>
</tr>
<tr>
<td>Loss of top soil by getting mixed with sub-soil overburden Etc.</td>
<td>The effects from 1 to 4C repeats again and again Lowering of Wt and subsidence Drying up of land.</td>
<td>Intangible of serious magnitude as above</td>
</tr>
<tr>
<td>Pouring –contaminated water on land vacating pore spaces in land</td>
<td>Lowering of WT and subsidence Increased evaporation Damage to land quality</td>
<td>Same as above</td>
</tr>
</tbody>
</table>

*(The above table is taken from Ghosh-2000 P-54)*
Water Pollution:

The above photo is taken from Karnataka Lokayukta report-(2006).

Water pollution is causality, mining activity results in making on deep pits which intern causes ground water table going down; this is a frequency of 61.67%. Mining activity since located in the forest get destroyed deforestation leads to irregular erratic and insufficient rain for it also causes contamination of surface water which has been mentioned 22.67% times. Due to dumping of solid waste around mining areas existing tanks, rivulets, rivers, open wells, get filled up this disturbed sources of both ground water and surface water, which has been mentioned 15.66 percent
### Table No-5.3 sample population perception of water pollution

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Responses Category</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ground Water table going down</td>
<td>185</td>
<td>61.67</td>
</tr>
<tr>
<td>2</td>
<td>Contamination of surface water</td>
<td>68</td>
<td>22.67</td>
</tr>
<tr>
<td>3</td>
<td>Solid waste around mining areas existing tanks, rivulets, rivers, open wells get filled up</td>
<td>47</td>
<td>15.66</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>300</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Water is indispensable for all forms of loss. This fact is indicated by the common purpose ‘water is life’. It is essential for all industrial and developmental activities and is used by nature for maintaining climatic balance on the globe and by life forms for maintaining body temperature.
The contamination produced by mining and related activities is listed in table 5.4.

**Table-5.4 Water Contamination due to Mining (with preventive measures)**

<table>
<thead>
<tr>
<th>Nature of mining</th>
<th>Activity/Source</th>
<th>Contaminants</th>
<th>Preventive/Mitigative measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open cast mining</td>
<td>a) Removal of vegetarian</td>
<td>i) Suspended solids, Dissolved Solids, Heavy metals, Oil and grease, Acid/alkali</td>
<td>i) Catchment/garland drains around the mine&lt;br&gt;ii) Sedimentation ponds&lt;br&gt;iii) Minimum removal of vegetation in rains season&lt;br&gt;iv) Less blasting in rains&lt;br&gt;v) Proper machine maintenance&lt;br&gt;vi) Dump &amp; Stack management&lt;br&gt;vii) Treatment of mine water before discharge</td>
</tr>
<tr>
<td></td>
<td>b) Removal of top soil</td>
<td>Same as above</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) Drilling &amp; blasting</td>
<td>Same as above</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) Over burden – dumping, soil and coal stacks</td>
<td>Same as above</td>
<td></td>
</tr>
<tr>
<td>Mining Source</td>
<td>Water Source</td>
<td>Components</td>
<td>Control Measures</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------</td>
<td>------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>i) Suspended solids</td>
<td>Plugging of surface cracks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii) dissolved Solids</td>
<td>Proper machine maintenance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>iii) Heavy metals</td>
<td>Proper surface drainage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>iv) Acid/alkali</td>
<td>Cleanliness in UG working</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Treatment of mine water before discharge</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Provision of toilets at UG</td>
</tr>
<tr>
<td>Under ground mining</td>
<td>a) Strata water</td>
<td>i) Suspended solids</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii) dissolved Solids</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>iii) Heavy metals</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>iv) Acid/alkali</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) water from stowing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>i) Suspended solids</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii) dissolved Solids</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) water from surface</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>i) Suspended solids</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii) dissolved Solids</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>iii) Chemicals and fertilizers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>iv) Bacteria</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>v) Acid/Alkali</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) Other UG sources</td>
<td>i) Suspended solids</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii) dissolved Solids</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>iii) Oil and grease</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>iv) organic matter</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>v) Bacteria</td>
<td></td>
</tr>
</tbody>
</table>

(The above table is taken from Ghosh-2000, P-54)
Surface water body’s physical qualities get affected by soil erosion and sedimentation, a specific impact due to over burden dumps, whereas chemical quality get affected due to soluble elements and intensive truck washing. Depending on characteristics of overburden material especially, where overburden soil surface are high in pyrites the mineralized leachiest from these dumps contaminate the water body with pollutants viz. heavy metals, sulphides, fluoride and other cations and anions. Excessive concentration of chemicals renders it unsafe and unsuitable for designated uses. Run-off from graded or ungraded soil surface also get altered chemically the water body quality. This happens due to undesirable overburden materials are been disposed near by the mining areas.

It is commonly known that factors like surface hydrology, soil texture and terrestrial vegetation are controlled by the groundwater regime. Mining explorations if conducted below the water table, groundwater mine would be intercepted by the open cut, pumped out or lost by evaporation, and the water table will be lowered in the adjacent areas. This could result in dewatering of wells within a radius of few kilometers of the mine depending upon the internal land structure. Frequent and deep mine in the region would cause an irrecoverable loss to soil moisture of the hills which are responsible to support the forest vegetation in this area. The groundwater quantity would also be affected after mining is closed and reclamation done, if the mine is located in a groundwater recharge zone. The recharge characteristics would get affected by the backfill material, if it differs from the original characteristics of top soil and overburden of leased area. Hence the effect of mining is long lasting. The iron ore mines in the district are of open cast type and there are no direct discharges of wastewater generated from the mining activities (washing). Except the mine of National Mineral Development
Corporation (NMDC) at Donimalai, no other mine involve in washings of ore. Most of the mining operations involve dry crushing, sizing, sieving, storage, transport and dumping of overburdens, rejects etc. During monsoon, the fine material from dump site gets carried away along the hill slopes through surface run-off and find entry into the nearby surface water body, viz. dam, irrigation pond, through small streams. More than 100 mines of iron/manganese ores are located in BHS region which are responsible for erosion and transport of sediment to external drainage systems and become a potential threat. The magnitude of the problem is governed by the length and stability of this zone slopes or graded areas. The high frequency and intensity of rainfall is causing the exorability of soil surface materials and the types and density of vegetative cover on reclaimed area. Groundwater pollution has arisen in this region mainly from the top soil and overburden material containing soluble chemical constituents of heavy metals. These chemical constituents are getting leached away by the precipitation and percolation into the groundwater, thus polluting the nearby groundwater sources and rendering them unfit for human consumption. Most of the leases have not taken up the work to stabilize the overburden and other piles. The runoff from the mining area and from waste dumps are not arrested by creating cemented check dams, retaining wall etc.

There are about 4500 to 5000 trucks involved in transportation of iron ore in Tumkur, Bellary, Hospet and Sandur (TBHS) region. These trucks are being regularly washed at tanks, nalha, and other surface water storage bodies in the forest. In this act of working, the dust, oil and grease containing heavy metals like lead (Pb) etc. get mixed into the water. This results in water contamination in nalhas, natural streams and other water bodies in the forest area and affects the wild life directly. This is a very dangerous trend and will have to be stopped
forthwith. This is the result due to different activities of mining. Mining is an activity, which disturbs the land-water-ecosystem directly as well as indirectly by all its activities and related ones, and thus damages water resources of the region. The situations encountered may be listed as follows:

- Land acquisition.
- Vacating excavation overburden (OB).
- Dumping pumping out of mine water.
- Handling treatment.
- Transportation and its use.

Mining operations can affect ground water and its quality in several ways, the most obvious occurs in mining below the water table, either in underground workings or open pits. This provides a direct conduct to aquifers. Ground water quality is also affected when waters infiltrate through surface materials into ground water. Contamination can also occur when there is a hydraulic connection between surface and ground water.
Air pollution:

The above photo is taken from Karnataka Lokayukta report-(2006).

Air pollution is another causality of mining activities, blasting of land produces lot of dust which invariably mixes with air and this reduces and disturb oxygen portion and the air carries many toxic matter which prisoners and this support for 31.25 times. Polluted air carries more sulphur oxide which cuts the nutrients which are necessary for nurturing of plants and this also causes dropping of the leaves and the tress. This has a frequency of 18.75 percent polluted air causes wide range of respiratory disorders in people, children and old aged people.
are the worst affected. This has frequency of 21.87 percent. Mining activity disturb the beauty of nature. This has a frequency of 28.13 percent. All these things result imbalance in soil environment.

**Table No-5.5 Sample population perception of Air pollution:-**

<table>
<thead>
<tr>
<th>SI No</th>
<th>Statement</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mining activities like blasting of land produces lot of dust.</td>
<td>250</td>
<td>31.25</td>
</tr>
<tr>
<td>2</td>
<td>Polluted air carries more Sulphur oxide which destroy the nutrients that are necessary for nurturing of plants and trees.</td>
<td>150</td>
<td>18.75</td>
</tr>
<tr>
<td>3</td>
<td>Polluted air causes wide range of respiratory disorders in people</td>
<td>175</td>
<td>21.87</td>
</tr>
<tr>
<td>4</td>
<td>Mining activity disturb the beauty of nature</td>
<td>225</td>
<td>28.13</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>800</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
The air environment in the Tumkur, Bellary, Hospet and Sandur (TBHS) region has been highly affected due to mining activities. The quality of ambient air depends upon the concentrations of specific contaminants, the emission sources and meteorological conditions. The mining activities including heavy loaded truck transportation of iron ores do make great impact to these factors. In Bellary, Hospet and Sandur region the arterial network of roads which is compounded by adding of 181k.m. mined roads and continuous serial stretches of mines in Ramandurga, NEB and other forest blocks have almost destroyed the entire fabric of forest ecosystem and agriculture in the area. The entire area of NEB, Ramandurga, Swamymalai, Donimalai and other forest blocks are affected at highest order.

All the roads leading to mines from PWD roads are “kacha roads”, the movement of vehicles on these roads result into generating fine dust and it spreads and covers the surrounding forest and agriculture fields up to more than 500 meter all along the roads. Dust clouds cover the forest tree species, agriculture crops fully. Due to dust fall the color of the trees looks reddish-brown instead green even
in the rainy season. The agriculture crops get affected all along the so called mettled roads. Due to movements of over loaded trucks the roads are heavily damaged and the speed of the vehicles doesn’t go beyond 10 to 20km per hour. This leads to further increase in traffic on roads especially at nights.

As per the study carried out by NEERI the Suspended Particulate Matter (SPM) and RSPM concentration was found quite high in the air throughout the year when the production was 12 Million tons in this region. Now the impact could be imagined in the region when the production has touched to 42 million tones and more.

Mushrooming of stock yards all along the roads have further added the impact manifold. Stock yards (legal or illegal) are formed almost on all the roads in Sandur Taluk and part of Hospet Taluk. In stock yards all the activities related to mining are repeated except blasting. The same results in further aggravated pollution and health hazards. The stock yards near the vicinity of human habitation have added to the ultimate pollution of all kinds and the voiceless suffering of the community are at peak.

The mining owners install crusher machines on the hills and break the ore into three parts which leads to the deposition of dust and fine soil on the leaves of plants and trees. This interferes photosynthesis in the plants. Mining activities affect the atmosphere in two ways. Firstly, the particulates entering into the atmosphere cause air pollution and secondly the micro-climate of the region changes due to modified landscape and air pollution.

During the course of open cast mining, drilling, blasting, dressing, trenching, loading and unloading, transportation of iron and manganese ore, lot of dust will be generated which is invisible, prolonged inhalation of the iron and manganese mine
dust result in damaging the respiratory system leading to certain diseases which are categorized as occupational diseases under Workman’s Compensation Act, called ‘siderosis’ and ‘Manganosis’.

Mining Dust and Air Pollution and Impact on health:

High volume sampler was used to collect air samples from different mining centers which gave solid particulate matter (SPM) values ranging from 411 to 467 meg/m$^3$. One sample was collected far away from the mining area to obtain the background quality of fresh air which gave SPM value of 199 Meg/m$^3$. Thus SPM values were found to be more than double leading to diseases such as bronchitis. Asthma (0.6%), TB (4.8%) and Malaria (49.7%), nearly 75/25% of the 300 households integrated showed dust related diseases like silicosis.

Due to increased mining activities in the region the community health is shattered i.e., poor sanitation, intestinal/enteric related disorders, political and social violence, working injuries, alcoholism, STDs, prostitution, traumatic injuries, skin diseases, lung cancer, malaria and other communicable diseases are prevalent. Because of bad air quality the decease related to respiration has
increased and skin deceases are at large. Due to Influx of migrated labourers tremendous biotic pressures have been caused on the forest. The theft of fuel would have increased resulting to loss of tree density and biodiversity. There is social unrest in the region due to immigration of labourers, (skilled, unskilled) machinery (trucks, other machines used in mining) hundreds of iron ore related trading/transportation companies (registered and unregistered) in Hospet, Bellary and Sandur Towns.

**Noise Pollution:**

Noise pollution is another serious effect. The ore filled lorries move in the middle of the village throughout the day and this has resulted in the noise pollution in the villages. Major source of noise, vibration pollution are by drilling, blasting, compressors, pumps, loading, hauling, processing plants will be created. Noise pollution cause a sudden rise in blood pressure, noise can cause stress, noise can cause muscles pain, and noise can cause changes in the diameter of the blood vessel and nervousness fatigue temporary or permanent hearing problems.

Polluted noise causes from used heavy machines this support for 65% noise and vibrations due to blasting and operation of the machines drive away the wild animals and birds from the nearby forests this as a frequency of 14.33 percent and noise pollution cause a sudden rise blood pressure,, nervousness, fatigue, temporary or permanent hearing problems which has a frequency of 20.67 percent.
Table No-5.6 Sample population perception of Noise pollution;

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Responses Category</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Noise pollution due to use of heavy machines.</td>
<td>195</td>
<td>65</td>
</tr>
<tr>
<td>2</td>
<td>Due to blasting and operation wild animals and birds run away from nearby forests.</td>
<td>43</td>
<td>14.33</td>
</tr>
<tr>
<td>3</td>
<td>Noise pollution causes a sudden rise in blood pressure and other health-risks.</td>
<td>62</td>
<td>20.67</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>300</td>
<td>100.00</td>
</tr>
</tbody>
</table>

The iron ore production has increased and crossed to 42 million tons in the year 2007-08 in Bellary district. Accordingly the activity involving in the production of lumps, fines, calibrated ores and transportation has also increased. The use of heavy machines has been increased manifolds. The increase in crushers at mine heads, stock yards and many other places which are working round the clock, the noise pollution have crossed all limits. The trucks movement on hilly
areas, bad roads and movement mainly in nights, the peace of the area has been completely lost. Most of the villages in Sandur, Hospet and Bellary Taluks and also beyond, which falls on the “iron route”, are highly affected. The impact of the movement of vehicles is felt up to Sea course in western and eastern part of the plateau. The roads in Western Ghats have been completely destroyed due to the movement of iron ore loaded heavy duty trucks.

In the Tumkur, Bellary, Hospet and Sandur region the equivalent noise level (EQL) have exceeded to Central Pollution Control Board standards in all the residential, commercial and silence zones. Due to mining activities the traffic density in the region has been increased. Hours together, traffic jams in the region is common in towns. Installation of heavy machinery in the mines use of heavy duty vehicles in transportation, the occupational hazard due to noise pollution has increased to alarming stage. The noise level in human settlements up to 2 km away from roads and mines has crossed the threshold level. The high level noise pollution is resulting into deaf and psychological disorders. The major noise generating sources are Dumpers, Excavators, Loaders, and Vibrators, Drilling Machine, Trucks and other machines used in mining activities.

Noise level measured using digital decibel meter, near the compression, drilling and blasting sites as well as in the mine areas where heavy truck and tractors are operating were found to range between 96-125db as against the permissible limits of 75db as prescribed by NPCC and WHO studies to date show that after 25 years of regular exposure to noise level of 80db, 10 percent of the people suffer from impaired hearing. Over the same period with regular exposure to 100db the percentage of persons having impaired hearing jumps to 33 and at 115db a whopping 94 out of 100 persons suffer from impaired hearing. Hence control measure and preventive devices should be adopted at every operating mine.
Climate Change:

The temperate climatic existed in the villages before mining has grown up to a tropical climate area. The most alarming of all man’s assaults upon the environment in the contamination of air, earth, rivers and sea with dangerous and even lethal materials – Rachel Carson pollution has been around as long as humans have organized societies and carried out mining activity, though its effects have varied enormously in history. Global climate change means changes that occur in climate globally and naturally. The earth’s natural climate has always been and is still constantly changing. The climate change we are seeing today differs from previous climate change both its rate and magnitude. There is a growing concern that human activities may affect the energy exchange balance between the earth, the atmosphere and space resulting into changes in the global climate.

Table No-5.7 Sample Population Perception of Climate Change

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Statement</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Increasing the natural calamities from rapid mining activity</td>
<td>191</td>
<td>63.67</td>
</tr>
<tr>
<td>2</td>
<td>Spoiled plants and biodiversity from mining activities</td>
<td>83</td>
<td>27.67</td>
</tr>
<tr>
<td>3</td>
<td>Increasing global warming</td>
<td>26</td>
<td>8.66</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>300</td>
<td>100.00</td>
</tr>
</tbody>
</table>
It can be seen in the table No-5.7 increasing the natural calamities from rapid mining activity has a frequency of 63.67 percent and spoiled plants and biodiversity from mining activities this a frequency of 27.67 percent. Increasing global warming from mining and other related activities which as a frequency of 8.66 percent the forest topography of the Tumkur, Bellary, Hospet and Sandur region is highly undulating and now traversed with “kacha mine roads”. The hill ranges of Sandur are ranging from 900m to 1100m altitude while the adjoining plain areas are at an elevation ranging from 550 to 690m. The local topography has a significant effect on the climate of the region. The temperature remains in between $10^\circ$C to $44^\circ$C with an annual average $28^\circ$C. The relative humidity varies from 35% to 68% with an average of about 50%. An average rainfall is around 700mm per annum. Major rainfall comes from southwest monsoon while about one-fourth from northeast monsoon but not regular.
Green House Effect:

The term Green house effect was coined by J. Faurier in year 1827. Green house is constructed for plants mainly in the cold countries where total isolation at least during winter season is not sufficient enough to support plant growth. The glasses of green houses are such that these allow the visible sunlight to enter but prevent the long range infrared rays to go out. The green house effect on earth means progressive warming-up of the earth’s surface due to the blanketing effect of manmade carbon dioxide in atmosphere. The green house effect is also known as global warming excessive dust, smoke and hot sun makes it difficult to raise crops, plants and trees so artificial greenhouse needs to be constructed.

Impacts of greenhouse effect:

Rising sea level: if the overall temperature of the earth increases by just a few degrees, there could be a major melting of glaciers changes in precipitation pattern: The precipitation pattern will change causing some areas rains storms and snow may cause flooding in other areas. The frequency and intensify May also increase. Changes in precipitation pattern could cause more effect on availability and quality of fresh water in many locations. Effects on organisms: In case of human beings more severe heat waves due to increased CO2 amount in atmosphere will cause an increase in the number of heat related illness and deaths during summer months. There could be an increase in mosquito population, hence spreading malaria, dengue, yellow fever etc. Animal species which will not be able to bear change in temperature will migrate to other suitable places. Increase in desert formation – Desertification.
Ozone layer:

Ozone, a deep blue gas made up of chemically bonded oxygen atoms, is a minor constituent of the earth’s atmosphere. The stratosphere contains a layer of ozone that shields the surface from much of the ultraviolet radiation coming from the sun. Due to building of more green houses use of modern tools and machines the transparent ozone layer existing in the atmosphere is melting. This has lead to the increase in temperature.

Causes of ozone depletion: The primary cause is the group of compounds called chlorofluoro carbons. Chlorofluoro carbons are used as a coolant in air conditioners, refrigerators etc – as a coating in Teflon coated utensils. These compounds move up to the stratosphere where UV radiation breaks them down releasing chlorine. A single chlorine molecule can break many thousands of ozone molecules. Human produced pollution is not the only cause of ozone depletion; volcanic eruptions also accelerate ozone loss because of the sulphur aerosols they emit in the atmosphere.

Effect of Ozone depletion: With depletion of the ozone layer, higher levels of Ultra Violet radiations reach the surface of earths excessive exposure to UV radiation is linked to several health problems in human including eye cataracts, skin cancer ad weekend immunity. Crop damage also occurs due to exposure to high levels of UV radiation nature and magnitude of impact on fauna, flora and forest resources Surface mining of coal, iron and manganese ore, limestone and dolomite and majority of the minerals result in huge removal of overburden and mineral wastes. Large excavations of iron ore processing, erosion of land and denudation of vegetation lead to reduced forest and agricultural areas, silting and pollution of water bodies and streams. Alteration and degradation of land resulting
from mining operations takes place essentially as a consequence of deforestation, large scale excavation and disposal of waste or overburden and subsidence of land. Besides, discharges of effluents from the mines and concentration plants often cause pollution of adjoining land adversely affecting productive use and productivity of crop lands, quality of crop/vegetation and its effects on grazing animals and human beings (R.N. Trivedi, 2001) Plants: Many kind of plants are lost. The crops are destroyed due to the deposition of mining dust on the plants. The hilly areas are covered by deciduous forests, trees like neem, tamarind, mango, teak, Sandal wood and bamboos are largely seen in this mining area. Due to the advent of mining activities and also increase in the population, the marginal lands are converted into cultivation fields. The process of deforestation has lead to soil erosion and siltation of the reservoir in turn causing the ecological imbalance. The Sandur forests are also the abode of wildlife. Earlier the fauna was rich with tigers, panthers, porcupines, wild bear, various deer’s, monkeys, langurs along with colorful birdlife. Owing to rapid mining operations coupled with inhuman hunting the wildlife is slowly reaching extinction.

As the mined soil falls from the height of 100 to 200 feet height, the dust raising from it has fallen on the leaves of coconut, acre nut, mango, tamarind, jackfruit, banyan trees and these leaves are drying and falling down.

The surface and open caste mining is destroying both the plant and animal kingdom. The ruthless destruction of plants by the mining concerns and the removal of valuable top soil would adversely affect the rainfall of mining area; change the vegetation of the Chikkanayakanahalli mining belt. The impact of mining activities on wild animals like cheetah, fox, Bear, wolf, deer, wild pig used to wander freely here as the forest are lost due to mining these wild animals do not have shelter. They have started to flee towards the human habitats. The
Chikkanayakanahalli Iron and Manganese ores are known all over the Karnataka. Large scale mining of iron and manganese ores is carried out by both private and public sectors and a few other medium to small owners of this area. The mining operations have adversely affected the topography of the area, vegetation and fauna. Domestic animals have reduced in number. Mining has led to the deposition of dust on the plants, grass and crops therefore the plants and crops are affected by diseases. Hence, the animal’s wealth has reduced. The diary undertaking has weakened. Cows, Buffalos, sheep and goat in the villages are only in countable numbers.

**Impact of Mining on Forest:**

*The above photo is taken from Karnataka Lokayukta report-(2006).*
Mining is always accompanied with environmental disturbances more so, in open cast mining. Opencast mining contributes towards land degradation, vegetation degradation destruction of productive land in addition to effecting river flow, siltation, water pollution, deforestation etc. in many cases, valuable ore bodies are in forest or adjacent to it. This is truer in Karnataka and Bellary, Sandur, Chikkanayakanahalli (Tumkur) in particular open cast mining amounts to deforestation in a big way. Development of infrastructural facilities for any type of mining results in destruction of trees and vegetation.

**Population:**

The mining has affected the population also. There are changes in the birth, death and refugee areas. The mother and the child are facing many problems. The duration of birth process has increased. The nature of new born babies has changed. The child mortality is likely to increase as people have to migrate to new places in search of jobs.

Millions of people loss livelihoods because of mining and it is the root cause of social turmoil widespread human rights abuses, poisoning of people and environment, deforestation and forest degradation. It is true that humanity needs certain amount of minerals to satisfy its basic needs and it is also equally true that over-consumption by one part of humanity is destroying the livelihood and environments of the other humanity at the receiving end of mining. Mining is an activity that needs to be strictly controlled at all stages. Above all, people living in mining areas should have the capacity to take fully-informed decisions on the permission to mine in the territories or decide on how to carry out the activity and ensure environmental conservation and social justice.
Lokaayukta Karnataka state has made the following observation; a group of about 50 residents of Sandur met at the forest lodge and expressed their difficulty because of the transportation of iron ore. According to them they are unable to keep their doors and windows of their house open even for few minutes during the day or night and drinking water sources as well as vegetation have been covered by mineral dust. Consequently people of Sandur have been suffering from various ailments and the people who are indulging in mining activities have absolutely no concern for the welfare of the local people. “Researcher found a lot of justification” in their complaint. Having noticed the various aspects of illegal mining during my visit to the three districts of Bellary, Chitradurga and Tumkur, researcher also noticed that damage to the environment and suffering of the people because of illegal mining is not confined to the people of Bellary district. If the same is not put an end to, the day is not very far when this suffering will spread to Tumkur and Chitradurga districts, if not already affected”.

**The impact of Mining on Women Population:**

Mining has adverse effects and added burden on women. Mining companies usually enter into negotiation only with men. Women are often excluded from the loyalty and compensation payments and have little or no control over the access to benefit of mining developments, especially money and employment. The women are deprived of the traditional means of occupation too as large scale mining entails replacement of subsistence economy which have nurtured generations of communities and the indigenous peoples with a cash based economy. Market based economy eroded the traditional values and customs which have been crucial in sustaining community, tribal, clan and family solidarity and unity. Women become marginalized as the traditional roles as food gather, water providers, care-givers and nurturer are very much affected. Many women are pushed to enter into
informal economy to find additional sources of income as the destruction of the environment the productivity of the fields and poisoned- wild foods, marine life and animals.

Alcohol abuse, drug addiction, prostitution, gambling, incest and infidelity increased in many mining communities which worsened cases of family violence against women, active and often brutal discrimination of the women in the workplace that is often sanctioned or ignored by judicial and political institutions.

The child labours are increasing at an alarming rate. Most of the children are migrant labours. They are working in highly hazardous and painful conditions in the mines and related ‘ancillary ‘activities and the situation calls for urgent action. The mining industry is violating all national and international standards, laws and human rights of children. These children are susceptible to chronic health problems as they handle toxic materials and are exposed to high levels of dust (Centre for child Rights -2005)

Health:

The large amount of dust raised from mining had resulted in the influx of number of diseases blood pressure. Diabetes, asthma, skin diseases, allergy are the gifts of ‘mining’. Degradation of human health is another major issue to be looked into. Red Alert a documentary made by non-governmental organization (NGO) saki, records the health problems of mine workers. According to a mine worker, they always have stomach pain with every gulp of tea as they take in dust. The mining area has high incidence of lung infections, heart problems of dust deering transportation and as there are no basic standards fixed action can be taken according to Karnataka State Pollution Control Board environment officer. Villages using the contaminated Tunga Bhadra Water complain of stomach
ailments (as in Hirehalli in Bellary) and Soil Infertility (in Kamalapura at Hampi). In Bellary, Hospet and Sandur about 25,000 mining labourers in the private sector work 14 hours a day for rs.60 a week.

The labour-intensity nature of India’s mining industry. Which is going on to continue as such, with further intensification despite mechanization efforts and leads for serious and sincere efforts in this vital field of environmental problem. Important factors that affect the health of workers in this regard are;

a) Generation of dust more particularly irrespriable dust.

b) Workplace environment and conditions.

c) Noise and vibrations, the later particularly hand-transmitted.

Investigations on this subject by CMRs (Central Mineral Resources) in some coal mines and industrial areas of Jharia and Raniganj coal fields have revealed that 19-20% of population is suffering from respiratory diseases (Silicosis) and 23.25% from gastro-intestinal problems. Diseases like malaria pneumonia, tuberculosis, fever etc account for another 16%. (R.N.Trivedi- 2001).

**Occupation:**

There is lot of influence of mining on occupation and jobs also. The agrarian or agricultural occupation has lost its charm. Agriculture is facing shortage of laborers. The agricultural labourers are tempted by more wage given by mining owners then the wage given by a farmer, further more the dust depositing on the crops has reduced the production of crops. Consequently interest in agriculture with people has reduced.
The mining and associated activities offer opportunities of employment to the eligible people from the ethnic population. The project affected people (PAPs) are given jobs and are trained for self employment as a result of the provisions in the rehabilitation and resettlement (R & R) schemes. People also get employment in the other developmental activities and also the mineral based activities in and around the complexes.

Increased economic activities and influence brings in more addictions in the society. In the tribal areas the ethic people may also get affected by additional addictions. Industrial and economic activities in mining complexes bring about economic disparity among the population living in the complexes. The people employed in the organized activities usually earn more than those employed otherwise. This economic disparity leads to the development of frustrations in the poorer class of the people.

**Livelihood:**

Mining has eaten up the livelihood of many people. People who had depended on agriculture all these days have reached low standard of life. Forest which provided livelihood to many people has lost their sources of livelihood because of mining. The sand domes of mining have replaced the places of number of trees. The ethnic people living in the designated areas depend generally for their livelihood on the land. Since, in mining areas the land is taken for mining and associated activities these people lose their livelihood. Resources are not far difficult to seek. Definition of the living conditions of our farmers has become a matter of serious concern for the plight of farmers. One reason which can be ignored at our period is the environmental degradation that has been taking place in villages. Lack of regular rainfall and lack of assured canal irrigation compounded
further by lack of employment opportunities in the non agricultural sector in villages led to serious consequences. The rich and powerful have gone about ruthless in exploiting the natural resources like for instances mining, quarrying, removal of sand and for soil brick industries and a host of other organized, unorganized human activities exerted unprecedented. Pressure on natural resources resulting in the depletion of resources on the one hand and loss of sources of livelihood on the other for the landless small and marginal farmers. Variety numerically small castes and tribes have been dependent on the natural resource and forest resources have become increasingly distressed.

Given total dependence of poor on natural resources it is the poor who are won’t affected by environmental destruction. Even today the vast majority of the rural households in the world meet their daily household needs through biomass/biomass related products, which are mostly collected freely from the immediate environment. In short, they live within what can be called a biomass based subsistence economy, food, fuel, fodder, fertilizer, building materials, herbs and clothing are all biomass products and fresh water is another crucial product for survival. Once the forest disappear, the local ponds silt up, the village wells dry up and the perennial streams get reduced to seasonal ones. The water balance is totally upset by the destruction of vegetation.

**Loss of Common Property Resources:**

Common property resources (CPRs) broadly speaking, are the resources accessible to the whole community of a village and to which no individual has exclusive property right. In the dry regions of India, they include village pastures, community forests, wastelands, common threshing grounds, waste dumping places, watershed-drainages, village ponds, tanks, rivers/rivulets and river beds.
The mine owners and middle man have destroyed the property and resources of many people. They have acquired community land (Gomala) and tanks. This has caused lot of inconvenience to the public. Water is not collected in the tanks now, even water collected in the tanks is polluted because of the deposition of dust on the surface. Forests are destroyed to bring forth deserts. Decline of CPRs can take three forms: Physical loss of resources such as the submission of grazing land in a newly constructed irrigation dam or area of CPR covered by roads and buildings.

Deterioration of physical productivity of resources as revealed by degradation of pastures or forest lands. Reassignment of usage and property rights as indicated by transfer of CPR lands to private ownership. In the dry areas we studied, CPRS mostly occupy sub-marginal land with undependable water supply. With increased resource scarcity, it can however be expected that common property rights will be infringed on or substituted by dejure or defacto private property rights (Ramachandra Guha, 2006).

**Loss of Biodiversity:**

Mining gas damaged the biodiversity of birds, animals, medicine plants, insects, flies, reptiles, sponges etc. According to study on “Amphibian assemblages in undisturbed and disturbed areas of Kudremukh National park, Central Western Ghats India” by Krishnamurthy (2003) mining activities have fragmented amphibian habitats and affected amphibian diversity and distribution in Kudremukh area. Similarly more than 40 quarries are operating around Bannerghatta area in Bangalore Rural District for building stone and granites. It is closer to National Park and affects the flora and fauna of the region. Since 2002 the Bellary district has lost 180 hectares of forest cover around 200 hectares of scrubs.
Presently an area of 307 hectares is under mining activities, which covers 156 hectares of forest land.

As per the NEERI Report of Tumkur, Ballary, Hospet and Sandur (TBHS) region, a total of 194 plant species were recorded, out of this, 90 are tree species, 36 shrub species and 68 herb species. There are 61 plant species (28 trees, 23 herbs, 10 shrubs) having medicinal properties found in this region. This comes out 30% of total plant species. Conservation and preservation of species in balancing mode are most important in forest areas because each and every species is having its own ecological niche and they are related one or the other way in eco-system through food chain. Since the ore production has increased more than four times since 1999-2000, the impact of mining has also increased accordingly on the forest, agriculture, aquaculture and human life. It has been observed that SDI is reducing in the areas where the mining activities are more. Continuous serial stretches of mines on its hill tops in Ramdurga block, NEB block and also in other blocks have brought a sea change in the surrounding ecosystem. It is observed that most of the lessees are using exotic species for planting to rehabilitate the dumps and also other leased area, thereby creating monoculture and resulting to change the existing ecosystem in near future. A sizable numbers of wild animals comprising 16 species of mammals, 145 species of birds, 9 species of reptiles have been reported by the NEERI in its study during 2001-02. All these species are now at run due to noise, air, water and soil pollution generated through mining and related human disturbances. The continuous mining activities in nights have further added fuel to the fire to desert wild animals from the forest area.

The fine dust generated due to mining activities including transportation, fall on the flowers, fruits, leaves etc. and inhibit setting of seeds would result to loss of biodiversity of the region
Infrastructure:

If agriculture and industry are regarded as the body and the bones of the Indian economy transport and communications constitute it nerves which help the circulation of men and materials. The transport system helps to broaden the market for goods and by doing so, it makes possible large-scale production trough division of labour. It is also essential for the movement of raw materials, fuel, machinery etc. to the places of production. The more extensive and continuous the production in any branch of activity, the greater will be the need for transport facilities. Transport development helps to open up remote regions and resources for production. Regions may have abundant agricultural, forest and mineral resources but they cannot be developed if they continue to be remote and in accessible.

Transport – Mineral transport and particularly road traffic, poses the same threat to public safety as transport arising from other sources. Most commonly this becomes an issue of importance when a mine is established in a rural area and the volume of traffic generated considerably exceeds previous levels.

Roads – Roads are damaged due to the frequent movements of ore filled lorries. Deep pits are formed on the roads making old peoples, children and women difficult to walk. In rainy season people have fallen breaking their legs because they are not able to recognize the watch filled pits.

Transport activities have a wide variety of effects on the environment such as air-pollution, noise from road traffic. Frequent movement of ore filled lorries in the village has created lot of congestion and movement of public transport difficult. The bad condition of the road has obstructed the movement of public transport vehicles and the villagers have to walk many kilometers to get buses. There are about 4500 to 5000 trucks involved in transportation of iron ore in Tumkur,
Bellary, Hospet and Sandur region. These trucks are being regularly washed at tanks, nalha, and other surface water storage bodies in the forest. In this act of working, the dust, oil and grease containing heavy metals like lead (Pb) etc. get mixed into the water. This results in water contamination in nalhas, natural streams and other water bodies in the forest area and affects the wild life directly. This is a very dangerous trend and will have to be stopped forthwith. Sanjevani the leading Kannada news paper in South Karnataka reported on Jan-1-2007. illegal mining activity in Tumkur district Turuvekere. Every day the loaded mining lorries moving on the road, destroy the road and crops are polluted drinking water was polluted etc. Apart from noticing generally wherever mining is permitted, the extent of damage done to the neighboring areas, huge damage is also caused to the various roads used by mineral carrying vehicles. In Hospet and Sandur there are practically no motor-able passenger vehicles, because of the heavy load and frequency of the vehicles carrying minerals and also in view of the fact that these vehicles carry minerals in open bodied vehicles, on either side of the road, vegetation has been damaged heavily.

**Communication:**

The communication system comprises posts and telegraphs, telecommunication systems, broadcasting, television and information services. By providing necessary information about the markets and also supplying necessary motivation, the communication system helps to bring buyers and sellers, together effectively and helps to accelerate the growth of the economy. Accordingly, the modern communication system has become an integral part of the development process. The dust has deposited on communication mediums like computers, television and dish plates.
**Sanitation:**

The sanitation has been completely damaged. People are suffering from many diseases because of the deposition of fine dust everywhere. The mining area has high incidence of lung infections, heart ailments, and cancer. The problem of dust during transportation goes unattended to as there are no basic standards fixed and action can be taken according to Karnataka State Pollution Control Board environment officers. Peoples are suffering from epidemic diseases due to mining activities. Pure drinking water, pure air, pure clean food has become a rare thing. The environment has lost its balance.

**Rural Tanks:**

Mining either by opencast or by underground methods damages the water regime and thus cause a reduction in the overall mining areas. In the sedimentary deposit mining areas the water table and aquifers are damaged and thus the availability of water from these sources reduces.

The mine owners and middlemen have destroyed the common property and resources of many people. They have acquired rural tanks, ponds, lake and Gomala’s. Thus has caused lot of inconvenience to the people/public water is not collected in the tanks now, even water collected in the tanks are polluted because of the deposition of dust on the surface. Tanks have become the private property of the rich and tanks are filled with sand. Making collection of water difficult.

Given the increasing population pressure and the pressure generated by the demands for a higher standard of living, it is evident that the already heavy pressure on the natural resource base results in further damage. Not only there is need to produce more biomass, but we also have to produce it on a sustainable
basis. The drainage pattern of Sandur hills of southwest and northwest terminates into small local ponds and hence do not confluence with regions bigger surface water bodies. This has resulted into local water body pollution and localized impact. Part of the run-off from the hilly watershed is carried away through Narihalla then to Ubbalagundi and Bhimanagundi gorges and ultimately to end into Daroji tank. The Narihalla and Daroji tanks receive larger portion of silt generated from the surrounding hills due to mining. The lives of these tanks are at high risk. Average annual precipitation is about 700mm, spread over rainy 40 days of 8 months in a year. Hence, there is direct impact of mining in the Narihalla tank, Daroji and other surface water bodies.

Mining dust has deposited on houses clothes, food, water everything has polluted. The dynamites used to break the stones and rocks has made cracks of the walls of the houses. people are living under fear.

**School:**

The effect of mining has not spared schools also. The ore filled lorries, trucks traveling in front of the roadside schools has made noise pollution. It is also depositing dust on the mid-day meal of the children. It makes midday meal only fit to be thrown outside.

Temples: Mining has harmed the beauty of temples by making dust to deposit on them. Temples meant to become places of peace and tranquility have lost their purpose. Now they are not fostering the unification of people.

Times of India a leading daily newspaper south India reported on August 28-2010. The mining lobby has not even spared God at Abbigeihills Chikkanayakanahally. The people in the taluk wanted miners to stay 2kms away
from the Lord Abbige Malleshwara Temple a top of the hill. As it was being violated and records were allegedly fabricated to prove that the temple was built in recent years, An advocate Ramesh Babu from Chickanayakanahally, filed a petition before the High Court in 2007. The court directed the Deputy Commissioner to look into the issue. AS nothing was done Babu has filed a contempt petition now.“The temple is many centuries old. It is the deity of the people here. It should be protected at any cost” said Nanjundaiah of Jogihalli.

Due to mining activities and allied industries there is a multi facial development in BHS region. The developmental factors have brought socio-economic and cultural change in the region. There may be certain monetary and employment gain to the locals but the socio-cultural environment in the region has adversely affected due to immigration of labours from various States like Assam, Bihar, Orissa, U.P., Rajasthan, Tamil Nadu, Andhra Pradesh and also from other States. The influx of floating population due to migration of labours has put a lot of pressure on the infrastructural facilities such as water, road, sanitary, residence and others. There has been shortage of housing for the weaker section of the society and adhoc slums have come up in almost all the villages and towns in this region. The sudden increase in the number of vehicles especially the trucks in and around the villages have occupied the open spaces in the villages and created unhygienic living conditions. The quality of life index (QOI) was around 0.4 during the 2001-02 when the production was around 12 million tones. Since then approximately four times increase in the production of iron ores in the same area, the QOI has further degenerated.

The local people of the community are “keen observers” to the money flow due to mining mainly after “China Boom”. There have been increases in the social unrest and due to this, lower class people have resorted to the illegal mining
activities to a large extent in the private holdings (patta lands), Government land and in forest land. The illegal mining activities at nights have increased manifold. To operate illegal mining in the distant places the temporary settlements in the remote areas have come up by raising poly huts by the migratory labourers. Their living condition in these huts are pathetic and beyond imagination. The middlemen ship has increased due to easy money making. Illegal transaction of unaccounted money has increased. This is not only causing loss to the State Exchequer but also creates a lawless society in the region.

Discussion of the impact of mining on the ecosystem in general and their living environment in particular almost inevitably leads to conclusion that large-scale illegal mining has produced adverse effect. In the ultimate analysis, vast mass of people in villages who used to find diverse source of living and livelihood since ages have been deprived of these and as result they have been rendered parasites and pushed to eke out a living either by working is daily wage labourers in the mines or get pushed out of their traditional villages and go in search of jobs in towns and cities lack of skills required to performs job available in towns and cities force them to get in to illicit morally and socially unhealthy activities like commercial sex, begging, petty crimes and a host of unorganized activities which are highly detrimental civilized living in the whole villages are the victims of these activities. Sooner an end to these activities is put the better for the village Karnataka.
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