CHAPTER-1

BACKGROUND TO THE STUDY

Mining Industry both legal and illegal has repeatedly hit the headlines of leading newspapers and received lot of coverage in TV channels in the recent past. These reports have repeatedly called attention to the unholy nexus that exists between political party elites and bureaucrats in plundering the natural resources in Karnataka. Karnataka Lokayukta has exposed this racket. Mine mafia has been accused of financing elections and they seem to have paid lot of money to gullible voters in villages which have turned the electoral politics in favour of the present ruling political party in Karnataka. Karnataka has become a gateway for BJP to make headway in South India.

Various committees appointed by the Supreme Court have exposed large-scale illegal mining activities in the border districts of Bellary in Karnataka and Anantpur in Andhra Pradesh. Be the controversy as it may, common man in rural Karnataka and his predicament as a result of this has been taken for granted except showing lip sympathy by vested-interests at the time of elections. Taking this as a point of departure, the present study seeks to examine the impact of mining on common rural people whose sources of livelihood have been fast declining.

The term ‘environment’ simply means surroundings. It is used to refer to a wide-variety of conditions in which organisms live and thus consist of air, soil, water, sunlight which is the basic needs of all living beings and plant life. These are required to carry on their life functions. It is defined as ‘the sum of all social, economic, biological, physical or chemical factors which together constitute the surroundings of all living beings in general and man in particular. He is both a
creature and creator of environment. No one can ever understand environment and
dynamics of environmental change, if human beings and their activities are
excluded from the scope and purview of the study.

Human beings cannot live without changing the environment. They are
almost always involved in organized, unorganized activities which impact
environment. Both type activities undertaken for innumerable purposes by humans
inevitably led to environmental degradation, destruction and disturbances. So much
so, it has become the single most serious threat to human existence. Among other
things, this state of affairs has been reflected primarily in two ways; pollution and
steady depletion of natural resources. Pollution of soil, air, water and climate has
been widely known and has had adverse consequences and these are being
experienced by human beings almost everywhere and this has been sufficiently
well-documented and recorded. Needless to add this experience has been negative
and exposed humans of all age-groups to a wide variety of health-risks. Depletion
of natural resources led to levels of food insecurity, malnutrition and under
nutrition and the mal distribution of food and internecine conflicts over natural
resources not to speak of conflict between men versus animal.

Depletion of natural resources in general and ground water resources has
been going almost unchecked and has adversely affected the productivity of
agriculture. Aggravated by ever increasing population pressure on land has become
unprecedented, leading to food price inflation and food riots to this rendered planet
earth becoming increasingly vulnerable natural calamities and disasters.

Environment has all along been a subject of research of natural and physical
sciences. These studies have almost exclusively concentrated on what has come to
be known as ‘Environment Impact Assessment Studies’ (EAS) of development
projects. Naturally these studies confine to ‘aftereffects’ of all development projects which is no doubt important and significant only if the intended projects are modified and if necessary shelved if the impact is reported adverse. Social Science research goes to the far basic and fundamental level of environmental destruction. More often this pinpoints to human activities and human behaviour. The present study accordingly takes a departure and seeks to unravel basic questions – why do human beings engage in certain activities knowing fully well that these are going to destroy environment sooner or later? Mining is one such activity and the present study concentrates on the impact of legal and illegal mining on the life of people living in the surrounding areas.

‘Environment’ never figured as a serious sociological issue in the theories propounded by pioneers of sociology. Unbridled competition for profit that too private profit driven capitalists and industrialists to go overdrive on exploitation of natural resources even leading to misuse and abuse of natural resources. Urbanization and industrialization accelerated by over growth of population have made the human life miserable in cities. Increase craze on the part of people for material benefits incitebly led to unprecedented pressure on infrastructure, craving for sensual pleasure rendered life styles of people increasingly hostile to clean and healthy environment. Exodus of rural people to cities created lot of pressure on infrastructure- roads, transport, housing, drinking water, and electricity, lung space leading to unabated proliferation of slums in and around cities. All this added to environmental degradation in urban India. This is only one part of the story. The other equally important part is environment destruction wrought by over exploitation of natural resources by vested interests in rural India and rural Karnataka the mining industry. While the former has received much attention of the researcher the latter has hardly received serious attention. The present study by
concentrating on mining in rural Karnataka seeks to correct this imbalance in the research on environment.

Industrialization with capital intensive technologies led to over exploitation of natural resources with scant concern for conservation of protection and nature. In the developing world particularly in India abuse of natural resources by vested-interests has resulted in the destruction of environment. Both legal and illegal activities like, iron ore mining, sand mining and quarrying have rendered life in rural Karnataka miserable.

From research and policy point of view, ‘environmental degradation’ has emerged as a major social, economic and moral challenge. Environmental movements, the world over seek to check the onslaught of nature by vested interest. However, do not seem too succeeded in protecting nature even though they have been instrumental in raising the concerns of people: Peasant, tribal, small and marginal farmers, artisans and craftsmen who have been dependent on nature from time immemorial. It has been observed that contemporary forms of environmental degradation have been the most baffling things. There is a general agreement that rapid economic expansion of a century and half has had alarming consequences for the global environment. Depletion of the ozone layer, air pollution, loss of forests and bio-diversity, extinction of plant and animal species, loss of marine life, soil and water pollution have occurred at an alarming rate.

At a time when the field of environmental studies has been dominated by physical and natural sciences, Sociologists and social anthropologists came to evince some interest on the environment only recently. Two issues that received the attention of sociologists are:
The causes and consequences of environmental degradation

The role that environmental politics can play to curb environmental degradation.

The foregoing discussion boils down to the core issue of the thesis, namely: environmental degradation is a result of dynamic interplay of socio-economic, scientific and technological activities. Environmental changes may be caused by many factors such as technological changes, population growth, urbanization, and intensification of agriculture, rising energy use and transportation to mention but a few. Poverty in the midst prosperity continues remain a root cause of all imbalances. Environmental changes and their impact on the people involve an examination not only of how people react and respond to such changes but also the ways and means by which they cope with and sustain themselves.

As already adumbrated sociological study of environmental changes and their impact on humans and their culture is indeed the least explored area of current social science research in India. An attempt has been made to review the factors responsible for environmental changes much of this is already known though.

**Social Factors:-**

Population: -Development requires population as human resource but excess of it is detrimental to development and over consumption of resources by growing population generates lot of wastage which unless absorbed could become a grave health-risk. Looked at either way environmental degradation is the net result. Unless the relationship between the multiplying population and the life support system can be stabilized, development programmes, howsoever innovative are not
likely to yield desired results. Population impacts environment primarily through the use of natural resources and production of wastes and associated with environmental stress like loss of biodiversity air and water pollution and increased pressure on arable land.

In India the total population in 2001 is far from what it was in 1947. Given the linkages between population and environment, a vigorous drive for population control needs hardly be over emphasized.

According to Verma (2000) “environment is life sustaining system consisting of both living and non-living entities (air, water, soil, biota) many of which interact with each other and environmental pollution caused by man’s activities degrades these entities and makes them extinct (eg., loss of biodiversity) thus upsetting nature’s delicate balance”.

**Poverty:**

According to Malthus excess population is the cause of poverty. Poverty is said to be both cause and effect of environmental degradation. The circular link between poverty and environment is an extremely complex phenomenon. Poverty particularly in the form of the inadequate nutrition and malnutrition has presented a persistent problem for India. Although not a necessary outcome of a growing population it often comes about when there is a steady decline in the production of agricultural industrial goods and services that don’t keep pace with food demand and the aggregate production of the country is not being adequately distributed.
### Table No-1.1 Food Grains Production in Karnataka (in million tons)

<table>
<thead>
<tr>
<th>Year</th>
<th>Food grains (in million tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996-97</td>
<td>199.4</td>
</tr>
<tr>
<td>1997-98</td>
<td>192.3</td>
</tr>
<tr>
<td>1998-99</td>
<td>203.6</td>
</tr>
<tr>
<td>1999-2000</td>
<td>209.8</td>
</tr>
<tr>
<td>2000-01</td>
<td>195.9</td>
</tr>
<tr>
<td>2001-02</td>
<td>212.9</td>
</tr>
<tr>
<td>2002-03</td>
<td>174.2</td>
</tr>
<tr>
<td>2003-04</td>
<td>213.5</td>
</tr>
<tr>
<td>2004-05</td>
<td>198.4</td>
</tr>
<tr>
<td>2005-06</td>
<td>208.6</td>
</tr>
<tr>
<td>2006-07</td>
<td>212.2</td>
</tr>
<tr>
<td>2007-08</td>
<td>259.51</td>
</tr>
<tr>
<td>2008-09</td>
<td>233.28</td>
</tr>
<tr>
<td>2009-10</td>
<td>216.46</td>
</tr>
</tbody>
</table>

Another aspect is inequality in the ownership, control and use of resources. This provides sustainability because the poor who rely on natural resources more than the rich have become increasingly vulnerable due to deplete natural resources faster as they have no real prospects of gaining access to other types of resources. Moreover, degraded environment can accelerate the process of impoverishment because the poor depend directly on natural assets. Although there has been a significant drop in the poverty ratio in the country from 55% in 1973 to 36% in 1993-94, the absolute number of poor have, however, remained constant at around 320 million over the years. Acceleration in poverty alleviation is imperative to break this link between poverty and the environment.
Urbanization:

Lack of opportunities for gainful employment in villages, is pushing to an ever increasing number of poor families to towns. Mega cities are emerging and urban slums are expanding. There has been an eightfold increase in urban population over 1901-1991. During the past two decades 1971-91 India’s urban population had reached 300 million.

Urbanization in Karnataka:

The table below gives details regarding total number of urban agglomerations and towns from 1901 to 2001, growth of urban population in Karnataka, (Karnataka State for the Censuses of 1901 to 2001). This statement brings out the trends in Urbanization since 1901. It is seen from the statement that the proportion of urban population in the State has increased from 12.59 per cent in 1901 to an all time high of 33.98 percent in 2001.

The decennial growth rate during 1941-51 has been the highest ever viz., 61.19 percent. This is due to the increase in the number of towns from 213 in 1941 to 289 in 1951. Similarly the urban population recorded a growth rate of 50.65 percent during 1971-81 due to a higher number of places classified as towns and also due to higher growth rates recorded by some of the towns. There is a fall in the decennial growth rate from 29.62 percent in 1991 to 28.85 percent in 2001 although acceleration of urban population during 1991-2001 is of higher order.
Table No-1.2 Trends in Urbanization in Karnataka, 1901-2001

<table>
<thead>
<tr>
<th>Census Year</th>
<th>Total Number of UAs/Towns</th>
<th>Total Population</th>
<th>Total Urban Population</th>
<th>Percentage urban Population</th>
<th>Decennial growth</th>
<th>Annual exponent -ial growth rate (urban)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>Absolute</td>
</tr>
<tr>
<td>1901</td>
<td>219</td>
<td>13,054,754</td>
<td>1,642,994</td>
<td>12.59</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1911</td>
<td>184</td>
<td>13,525,251</td>
<td>1,570,570</td>
<td>11.61</td>
<td>-72,424</td>
<td>-4.1</td>
</tr>
<tr>
<td>1921</td>
<td>198</td>
<td>13,377,599</td>
<td>1,845,819</td>
<td>13.80</td>
<td>+275,249</td>
<td>17.53</td>
</tr>
<tr>
<td>1931</td>
<td>216</td>
<td>14,632,992</td>
<td>2,245,684</td>
<td>15.35</td>
<td>+399,865</td>
<td>21.66</td>
</tr>
<tr>
<td>1941</td>
<td>213</td>
<td>16,255,368</td>
<td>2,762,861</td>
<td>17.00</td>
<td>+517,177</td>
<td>23.03</td>
</tr>
<tr>
<td>1951</td>
<td>289</td>
<td>19,401,956</td>
<td>4,453,480</td>
<td>22.95</td>
<td>+1,690,619</td>
<td>61.19</td>
</tr>
<tr>
<td>1961</td>
<td>231</td>
<td>23,586,772</td>
<td>5,266,493</td>
<td>22.33</td>
<td>+813,013</td>
<td>18.26</td>
</tr>
<tr>
<td>1971*</td>
<td>230</td>
<td>29,299,014</td>
<td>7,122,093</td>
<td>24.31</td>
<td>+1,855,600</td>
<td>35.23</td>
</tr>
<tr>
<td>1981*</td>
<td>250</td>
<td>37,135,714</td>
<td>10,729,606</td>
<td>28.89</td>
<td>+3,607,513</td>
<td>50.65</td>
</tr>
<tr>
<td>1991*</td>
<td>253</td>
<td>44,977,201</td>
<td>13,907,788</td>
<td>30.92</td>
<td>+3,178,182</td>
<td>29.62</td>
</tr>
<tr>
<td>2001*</td>
<td>237</td>
<td>52,733,958</td>
<td>17,919,858</td>
<td>33.98</td>
<td>+4,012,070</td>
<td>28.85</td>
</tr>
</tbody>
</table>

Rapid and unplanned expansion of cities has resulted in degradation of urban environment. It has widened the gap between demand and supply of infrastructural services such as energy, housing, transport, communication, education, water supply and sewage and recreational amenities thus depleting the precious environmental resources base of the cities. The result is the growing trend in deterioration of air and water quality, generation of wastes, the proliferation of
slums and undesirable land use changes, all of which contribute to urban poverty. Poverty in any form is the worst pollutant.

**Industrialization:**

The manufacturing technology adopted by most of the industries has placed a heavy load on environment especially through intensive resource and energy use, as is evident in natural resources depletion (fossil, fuel, minerals, timber) water, air and land contamination, health hazards and degradation of natural eco system. With high proportion fossil fuel as the main source of industrial energy and major air polluting industries such as iron and steel, fertilizers and cement growing industrial sources have contributed to a relatively high share in air pollution. Large quantities of mining industries and hazardous wastes brought about by expansion of chemical based industry have compounded the wastes management problem with serious environmental health implications.

The phenomenon of environmental degradation in the form of pollution of air, water, soil and noise – primarily due to enormous increase in vehicular traffic, discharge of effluents by industrial units and generation of unlimited unwieldy solid wastes not to speak of rapid depletion of resources due to rapid growth of population. Industrialization, urbanization and health are associated problems of population growth in developing countries. When people start migrating from rural to urban centers they may cause severe environmental and social problems in urban areas; like moral degradation, urban crime, commercial sex, faulty disorganization, community disorganization, personality disorganization, slums. Sanitary conditions will be poor, solid waste remain un-removed, food and drinking water will be contaminated, noise level will also be higher and migrant peoples are involving in many anti-social activities. All these things adversely affect the lives of the urban population. Most of the industrial wastage is toxic and
hazardous, which released to the environment untreated. These unhygienic waste disposals dumped in open places fouls the surface, ground water, land practices in urban areas spread diseases.

According to survey undertaken by Department of Mines and Geology, states that 85 percent of water discharge brings infectious diseases such as diayhrea, malaria, schistomiasil and gastroenteritis. Rural-urban migration has created large number of in and around cities and towns.

Transport:

Transport activities have a wide variety of effects on the environment such as air pollution, noise from road traffic and oil spills from marine shipping. Transport infrastructure in India has expanded considerably in terms of network and services. Thus road transport accounts for a major share of air pollution load in cities such Delhi, Mumbai, Bangalore, Hyderabad and Chennai Port and harbor projects mainly impact on sensitive coastal eco system. Their construction affects hydrology, surface water quality, fisheries, coral reefs and mangroves to varying degrees; while this being the nature of environmental degradation in urban India the situation in rural India is no less severe although for different reasons.

Agriculture:

Agricultural development involves modernization and this impacts environment adversely. It arises from farming activities which contribute to soil erosion, land salivation and loss of nutrients in the soil. The spread of green revolution has been accompanied by over exploitation of land and water resources and extensive and intensive use of fertilizers and pesticides have increased many-fold. Shifting cultivation has added to land degradation. Extensive use of pesticides
and fertilizers resulted in contamination of water bodies. Intensive agriculture and irrigation contribute to land degradation particularly salivation, alkalization and water logging.

Due to rapid increase in population most of the cultivable area has been diverted for non-farm activities. In order to increase agricultural production farmers have taken recourse to farm technology in their limited farm size. Agricultural production did not match with rapidly growing population. As a result, enormous deaths in Asia and Sub-Saharan African countries can be attributed directly/indirectly to malnutrition and hunger and most of those who die are children. Due to climatic changes countries like India will experience reduction in agricultural yield and face a high risk of hunger. Closely related to agriculture is Mining. Mining activities have adverse effects on the environment. Mining areas often have a monochromatic appearance. Coal mining areas are depressingly black, iron ore brown and red, ore lends a yellow color and limestone make everything chalky white. Fine particles of ore are spread as a uniform layer of dust on every available surface in these areas. Mining operations may be categorized as either surface or underground. Surface mining may be broadly defined to encompass open pit, open cast, quarry, strip, dredging and placers mining. Underground methods include block caving and long well mining.

Most of these mining operations share a number of common stages activities, each of which has potentially adverse impact on the natural environment. Social and cultural conditions of the health and safety of mine workers and communities in the environs of the mine are causalities. Some mining operations like; exploration, disposal of overburden and waste-rock, ore processing and plant site operations, Tailings, containment, treatment and disposal infrastructure, access to energy construction and operational sites. The potential adverse impacts of each
of these activities includes impacts on air quality, hydrology and water quality, ecology and bio-diversity, social and cultural conditions, human health and natural resources. Mining activities have thrown up many issues which have been a bone of contention: Availability of land for mining operations and issues of compensation to farmers or tribal peoples, concerns about the degradation of air, water, lands and forests. Post-mine closure issues including unemployment, income and potential migration rates and environmental cleanup. Affected Human and Physical environment in the region: Education, basic amenities, rent-sharing with locals, training opportunities and health care facilities. Social and Community relations: Nongovernmental organizations interference, political interference, media under reporting of problems, cosmetic attention to problems and consultation. Effective administration: rule enforcement goals achieved and accountability have been the main issues.

Displacement of the people is an immediate causality. Open cast as well as underground mining, it requires to clear the surface of all the buildings and structures along with the vegetation not only in the area designated for mining purposes but also in a large area nearby which is required for making external dumps and placing associated activities. Therefore, all the people living in this area get displaced and this creates wide-spread unrest.

Ethnic people living in the designated areas depend generally for their livelihood on the land and other natural resources. In mining areas the land is taken for mining and associated activities. As a result people living in that area will lose their livelihood as land was the primary sources of living. Mining activities lead to changes in the dynamics of population.
Invariably almost all the managerial, skilled and semi-skilled manpower required for mining and associated activities comes from outside. As such trained manpower is usually not available in ethnic population. In addition people come to the mining areas for trade. It follows population dynamics of the area undergoes a major changes resulting in dilution of the ethnic population and their culture and religion, reduction in sex ratio, unemployment and underemployment leads to serious social problems.

Another effect of mining is that majority of people in villages being dependent on agriculture and forests and usually have a lower level of economic improvement. Development of industries and other associated activities in such areas increase the level of economic activities manifolds. Increased industrial and economic activities generate more money and increase in the buying power of the people directly and indirectly associated with these activities. This leads to an increase in the cost of living which adversely affects the local people, including ethnic people, who are not associated with these activities. The existing socio-economic equalities get further aggravated leading to rural unrest and social turmoil.

In general mining activities are accompanied by a variety of environmental changes leading inevitably to environmental degradation. With extraction of minerals in land degradation and addition of pollutants to air, water and vegetation continues even as the mineral is bifurcated and further processed. The noise and vibration problem adds to effects of mining on people living nearby. In addition, mining operations led to various socio-economic and cultural changes and they have adverse visual impact by disfiguring the natural landscape.
During the mining activity most of the mining owners show least interest for maintaining the quality of the environment and their only aim is to maximize their returns. Hence, the waste materials are never backfilled into the mine pits from where they were excavated. Due to this large waste dump in the area will be created and the huge void left after the excavation of overburden. Also most of the extractions were done very indiscriminately without much concern about the impacts on vegetation because vegetation cover is the first sufferer. Unlike the other states in the country the Karnataka has fairly rich mineral resources and distributed over its territory and particularly with its sensitive Western Ghats region. Iron ore production in the state represents 56.3% of total value of the overall production of minerals in the state during 1993-94. The Western Ghats region is also endowed with good metallic mineral resources and the very same hilly areas are by and large richly covered by forest and water resources. The forest cover of Western Ghats governs the conservation of soil and water resources of South Indian peninsula and also controls the flood as well as drought conditions of the region. The health of Western Ghats often quoted as health of peninsular India. Due to man’s intervention in the form of extraction of minerals, plantations of hydro-electric projects along with expanding mining activities are a matter of concern for protection of biological environment of Western Ghats and other mining areas. Due to massive expansion of agriculture and consequent shifting cultivation, over grazing, mining, hydel projects, irrigation, excessive exploitation of leaf litter, firewood, timber etc, most of the tropical rain forests between the west coast and the foot of Western Ghats of south India had been cleared and degraded due to the biotic pressures, only a few inaccessible patches of forests on the slopes of Western Ghats have remained somewhat free from the human pressure.
The nature of environmental impacts of mining depends upon the nature of mineral deposits and the method of mining. Besides the topography, ground condition machinery sued, blasting ore production disposal of waste material. The most spectacular aspect of mining activity is that the degradation of land and water resources which has resulted in the loss of flora and fauna in the mining areas. The Western Ghats of Karnataka are especially important due to mining potential in the ecologically sensitive areas which have a variety of plants and trees. The prominent fauna in the region are elephants, spotted deers, sambars, bison, tigers and panthers are common. Due to the growth of industries river valley projects and extraction of minerals, there is a rise in human activity in the Western Ghats. Some of the prominent mining activities are taking place particularly in northern and central section of the region.

Agricultural cultivation is affected over a period of time as the entire area of Bellary got covered in mine waste. There is a drastic change in the productivity of land. The cropping pattern has changed from banana, betel nut and paddy to Jowar, millets and cotton. In addition there has been increase in use of fertilizers after 1990’s and even then the yield has decreased. Recently, out of the 35 mega units which have been given permission for setting up operations in the state in the last 18 months, nine iron and steel units that will withdraw water from the dam will affect about 65% of the districts agriculture.

The mining has resulted in environmental damage of the Kudremukh region, to the Bhadra River and reservoirs, to agricultural land downstream, resulting from mining operations. Millions of farmers dependent on the river were in peril due to the impact of sediment from the mines brought down through the river.
Degradation of Human health is another major issue to be looked into by Red Alert, a documentary made by non-governmental organization Sakhi, (NGO-Hospet-2006) records the health problems of mine workers. According to a mineworker, they always have stomach pain with every gulp of tea as they take in duet. The mining areas has high incidence of lung infections, hear ailments and cancer. The problem of dust during transportation and as there are no basic standards fixed no action can be taken according to KSPCB (Karnataka State Pollution Control Board) environment officer. Villagers using the contaminated Tunga Bhadra water complain of stomach ailments and soil infertility in Bellary, Hospet and Sandur. About 25,000 mining labourers in the private sector work 14 hours a day for Rs.60 a week per head.

**Illegal Mining activities:**

According to the local mine owner Asha Farooq at Bellary illegal mining is taking place in forest land and the officials are not taking any action about it. The state forest minister recently admitted that 23 mining companies were going to be hauled up for violating the norms. The state has also decided to regularize encroachments of 14,000 hectares of forest land in the area (NDTV.com-news, 28 June 2005).

The child labourers are increasing at an alarming rate. Most of the children are migrant labourers. 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).
According to study an 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 Kudremuckh 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 and around 200 hectares of scrubs. Presently an area of 307 hectares is under mining activities, which covers 156 hectares of forestland.

Land degradation: Because of increasing pressure on cropped land and its expansion on physically unsuitable area, productivity of land is declining continuously. It is estimated that about 70000sqkm of cropped land has been abandoned each year because of its degradation and fertility of about 2 lakh sq km declined sharply. Quality of land deteriorated mainly through soil erosion. Usually production declines by 19 to 29 percent in rain-fed areas because of uncontrolled erosion. These are several reasons and form of land degradation, however, forest clearance extension of farming on pastures, uncontrolled overgrazing, agricultural practices and use beyond capability are major causes of land degradation.

Degradation of land due to these causes in different regions of the world is presented in the following table no: 1.3;
Table No-1.3 World: Causes of the Degradation of Agricultural Land in Different region (As percentage of degraded land of the region)

<table>
<thead>
<tr>
<th>Region</th>
<th>Deforestation</th>
<th>Overgrazing</th>
<th>Agricultural Practices</th>
<th>Over Exploitation</th>
<th>Bio industrial works</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>13.5</td>
<td>49.2</td>
<td>24.6</td>
<td>12.7</td>
<td>0.0</td>
</tr>
<tr>
<td>Asia</td>
<td>39.9</td>
<td>26.4</td>
<td>27.4</td>
<td>6.1</td>
<td>0.2</td>
</tr>
<tr>
<td>Australia</td>
<td>12.0</td>
<td>80.2</td>
<td>7.8</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>North America</td>
<td>11.3</td>
<td>24.0</td>
<td>57.2</td>
<td>7.3</td>
<td>0.2</td>
</tr>
<tr>
<td>South America</td>
<td>41.1</td>
<td>27.9</td>
<td>26.1</td>
<td>4.9</td>
<td>0.0</td>
</tr>
<tr>
<td>Europe</td>
<td>38.3</td>
<td>22.9</td>
<td>29.2</td>
<td>0.2</td>
<td>9.4</td>
</tr>
</tbody>
</table>


Not only removal of vegetation cover deteriorated the quality of land, even the faulty agricultural practices also reduce the potentiality of land. For instance, shifting agriculture accentuates the problems of soil erosion. Such farming is still prevalent in Africa and South-East Asia. Even western fertilizers, intensive
irrigation based mechanized farming leads to acidification, water pollution and alkalinity, thereby degrading the land quality. Such problems are witnessed in irrigated areas of the developing countries along with Europe and North America about 130 million hectares (45% of total area) is suffering from the problem of serious erosion in India. (H.S.Sharma, 2003)

Environmental movement sprang up in response to environmental destruction. Today hundreds of grassroots activist groups and organizations have been involved in the environmental issues, and their experiences and interests are extremely diverse; some are interested in preventing deforestation, while other are only interested in afforestation. There is the famous Chipko movement in the up Himalayan probably the oldest and most famous of all the groups, which has played a major role in bringing the issue of deforestation to the force of public opinion. And there it its counterpart in the South the appiko movement in the western ghats of Karnataka Dams like the silent valley and Bedthi have already been stopped because of strong people’s protests and there is a major campaign against the proposed bhopalapatnam and inchampalli dams on the borders of M.P Andhra Pradesh and Maharastra. The Kerala Sastra Sahitya Parishad has had a long acrimonious battle over the pollution of the Chaliyar river in Kerala by a reyon mill. The Mitti Bachao Abhiyan to organize the farmers against the water logging caused by faulty irrigation systems are the example peoples protest movements. While all these are relatively well known groups and have attracted varying degrees of media attention, there are many others in the country who are doing excellent work in mobilizing people both to prevent further ecological destruction and to bring about ecological regeneration.

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 bricks 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 resources and forest resource have become increasingly distressed.

Times of India the leading daily news paper South India reported on Dec17-2006. Economic growth and ecology must got together. Economist Philosopher Amartya Sen has underscored the need to maintain a healthy balance between development and ecological security. Speaking at an International Conference on Energy Environment and Development Amartya Sen emphasized that development need not always mean higher incomes on wealth, but better ecological heath too we should understand development in broad inclusive terms. It is about a robust environment and a better quality of life.

He suggested that the premise of man-environment relationships was largely unethical and this had to be reversed to make it more balanced. Development and environment are mutually dependent he noted. Amartya Sen pleaded for the need to climate (epidemics, malaria, poverty and hunger).

The New Indian Express, the leading daily news paper in South Indian reported on 8th February 2007 Climate change may will be the most significant not
just for its portentous consequences, which are severe but for its ability to test human kinds collectives conscience to take responsibility for a problem of its own making, India along with China, Brazil and others, argues that it is inequitable to ask developing countries which have played little part in creating the problem, to take on green house gas reduction commitments. There is legitimacy to this position. Countries like the US which with a more 4 percent of the world’s population are responsible for 24% of the world’s emission have rejected reduction commitments under the Kyoto protocol Indian with one sixth of the world’s population is responsible for a mere 4.7% of the world’s emissions.
Statement of the Problem:

Environmental degradation takes place due to dynamic interplay of socio-economic, geographic and technological activities. It has become a major social challenge affecting people in all possible ways. Attempts are being made world over to check this, but it is not enough given the magnitude of the problem. Lot of research material has gathered around the causes and consequences of environmental degradation. Lot of evidence has emerged that this has been principally due to anthropogenetic changes. Overtaken by greed economically and politically powerful people have recklessly exploited natural resources to the detriment of the common people such as, peasants, tribal people, artisans, agricultural labourers and a host castes and classes which have been almost exclusively dependent on natural resources – forest resources, ground water resources for their survival.

Mining in Karnataka in particular and other parts of the country in general provoked lot of controversy and contention. What is conveniently ignored but indeed causes of concern is the impact of mining on people – their sources of livelihood, their culture, social and cultural institutions and economic life – This, among much else constitute the hard core of the thesis. It has been observed that contemporary forms of environmental degradation present one of the most, if not the most, complex and catastrophic dilemmas of modernity. The phenomenon of environmental degradation in the form of pollution of air, water, soil and noise due to enormous increase in vehicular traffic, discharge of effluents by mining industrial units and generation of unlimited unwieldy solid waste, not to speak of rapid depletion of resources due to rapid growth of population in particular has become a stark reality.
The study mainly concerns with the impacts of mining activity on surrounding environment in the Chikkanayakanahalli and Gubbi taluk region of Tumkur district, Karnataka State. The distribution of metallic and non-metallic minerals over mining leased area and its impact on the environment is the main focus of the study.

It deals with the spatio-temporal growth of mining activity and its impact on land, vegetation, water, air, noise pollution, agricultural land, common property resources and how exactly some of these parameters are affected as mining is the main focus of study. To understand the exact impact of mining activity, a sample population was drawn from the villages of Tumkur region, particularly the iron ore mine site of Shivasandra, Musakondti, Gollarahlli, Bullenahalli and Honnebagi of Gubbi and Chikkanayakanahalli taluks.
Methods and tools of research:

Primary data from a sample of population drawn from the five villages had been collected by means of interview-schedule by the researcher in the villages. Interview schedule was prepared keeping in mind the main objectives of the study. Special attention was paid to include questions which concern the nature, magnitude of the environmental changes. Secondary source material includes, district Report, historical records, District gazetteer, records of the department of Mining and Geology, Karnataka-Lokayukta reports to mention but a few. Questions include mining activities particularly how the mining activities deprive the people of the main sources of livelihood apart from the long term impact in terms of pollution of natural resources. As already mentioned the universe of the study spread around five villages located around the border of Chikkanayakanahalli and Gubbi taluks of Tumkur district. Mining activities on large scale seems to be going on in these areas. The purpose is to examine the impact of these activities on the sources of livelihood food crops, animals, plants and trees, housing, drinking water, roads, transport and communication, education and health.

The researcher has spent considerable amount of time in the villages collecting information pertaining their perception, the manner in which they responded and the ways of coping with the distress caused due to pollution of resources. Lot of qualitative data was collected by means of participating in the day to day activities of people in the sample villages. Villages selected for field work and the village profile of villages have been written in order to see the kind of environment that comes to prevail in the context of mining and quarrying activities. Focused interviews were held with leaders of farmers associations and some activists and political leaders like local MLA’s and Gramapanchayat leaders.
Table no: 1.4: Name of the village, sample population and total population.

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Name of the village</th>
<th>Sample population</th>
<th>Total Population</th>
<th>Percentage of total population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shivasandra</td>
<td>48</td>
<td>365</td>
<td>13.15</td>
</tr>
<tr>
<td>2</td>
<td>Musakondli</td>
<td>72</td>
<td>545</td>
<td>13.21</td>
</tr>
<tr>
<td>3</td>
<td>Gollarahalli</td>
<td>30</td>
<td>250</td>
<td>12.00</td>
</tr>
<tr>
<td>4</td>
<td>Bullenahalli</td>
<td>69</td>
<td>505</td>
<td>13.66</td>
</tr>
<tr>
<td>5</td>
<td>Honnebhagi</td>
<td>81</td>
<td>1102</td>
<td>07.35</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>300</td>
<td>2767</td>
<td></td>
</tr>
</tbody>
</table>

A sample of three hundred persons was chosen out of the total population of all the five villages. Exact portion of the sample taken from each of the sample villages differ depending upon the extent of the involvement of people with the mining activities. Respondents were chosen at random from the sample five villages.
Objectives of the study:

Modernization accompanied by industrialization and urbanization has generated environmental degradation, which caused a wide variety of health risks not to speak of steep decline in food resources due to depletion of natural resources. At the centre lie the risks and consequences of modernization, which are revealed as irresistible threats to the life of plants, animals and human beings. Today mining activity is a very long and complex process. It involves several steps between sampling of mineral ores. Concentration and excavation of final products. The entire process leads to a variety of environmental problems. The present study of mining activity and environmental degradation in the Gubbi and Chikkanayakanahalli region of Tumkur district has the following objectives;

1) The way of people organize their everyday life has to do with the existing physical, economic, social, cultural and ecological conditions. With a view to mapping out this it is necessary to make a benchmark survey of all the activities people in villages who are exposed to the effects of mining. This survey when conducted will help us to understand the ways in which people are able to survive the environmental degradation that the mining would engender.

2) Apart from the loss of resources which impinge upon their ability to rain food crops and to explore the non-agricultural activities. The mining industry disturbs the rhythm and routine of village life. Among other things, this causes anxiety, insecurity and fear of the future of village people. This in-turn creates social tensions and economic hardships. The study seeks to assess the perception of attitude, towards mining activities. The study attempts identify the health-risks that people living around mining sites are exposed to.
3) Common property resources have traditionally occupied an important place in the economic activities in the villages. Apart from creating a sense of community feeling among the villagers, it has been reported time and again that mining mafia have encroached upon these resources often with the convenience of local officials and other influential persons. The study seeks to assess how gomala lands, villages, lakes, local forests are misused by the vested interest and thereby depriving the landless, poor marginal sections of the benefits which they desire derived from common property resource.

4) Traditionally a large number of local social groups have been highly dependent upon and used to derive a lot of resources from local forest resources. Examples include honey gatherers, snake catchers, and bamboo mat weavers. There is some evidence to show these groups have been threatened with the loss of their livelihood. Faced with a lack of resources for their living, they started migrating to towns and cities. There they have been unable to take jobs offered by the urban labor markets because of a lack of requisite skills. They have been pushed to unorganized activities like sex trade, petty crime, and a host of immoral and unethical activities. This has added to the environmental degradation and deterioration in the quality of life of people in urban areas. The study seeks to examine the impact of mining on the loss of sources of livelihood of the people in rural Karnataka.

5) People living in and around mining sites have almost always responded to the negative effects of mining even though it has been not enough to check the mining mafia. It would be interesting to inquire into how exactly people adversely affected have been coping with distress arising out of the failure of crops and declining fertility of the lands.
6) The manner in which people react to environmental degradation depends upon the extent to which they are environmentally conscious. Environmental consciousness helps people to get mobilized against vested-interests. The study attempts to analyze the course of the struggle of local people and what actually happened to local environmental movements.

**Theoretical Framework:**

Given the paucity of the Environmental studies the proposed study will contribute to the development of Environmental sociology. Lot of already existing empirical studies shows that environmental destruction in rural India is due to misuses and abuse of natural resources, Declining agricultural productivity, crop failures, in the face of erratic monsoon rains drought conditions have become the common feature of village life. The rich and powerful have embarked upon exploiting nature like mining, quarrying, removing sand and topsoil and transported to cities and towns converting the agricultural land to non agricultural purposes in order to make quick fortune. With least regard to the plight of other less fortunate people have gone on unchecked on the other the rural poor being deprived sources of the livelihood are pushed out of villages. Alternatively they flock around cities and take recourse to wide variety of unorganized activities which destroy the environment in and around cities.

The proposed study intends to make an assessment of the impact of the ruthless exploitation of environmental resources particularly focusing on mining industry in Tumkur District. Village population particularly farmers have been exposed to grave health-risks and loss of sources of livelihood. The field work of the study was conducted in the villages of Chikkanayakanahalli and Gubbi Taluks
where extensive mining and quarrying have been going on. Primary data had been collected from sample households which have suffered due to these activities.

**Profile of the sample villages.**

Profile of the five villages from Shivasandra, Musakondli Gollarahalli Bullenahalli and Honnebagi from Gubbi and Chikkanayakanahalli taluks has been attempted in the following pages.

1) **Shivasandra:**

The Shivasandra village is located in Nittur hobli and Kondli Grama Panchayat of Gubbi taluk Tumkur district. This village has 1877.01 acres of land. This lies at a distance of twenty-six kilometers from taluk headquarters, and it is forty-five kilometers away from district headquarters. This village is well connected by roads. According to 2001 census it has had a population of 365. In this population 178 are males and 187 are females. The total eligible voters are 276. Females are more than males in this village. There are thirty two males and twenty two females of scheduled castes. And there are thirty seven males and thirty five females of scheduled tribes.

There are no rivers or lakes in the village. There will be some water in the rainy season. This water will dry out in the summer. The weather is usually dry and balanced. The soil is red and black and a little bit of sand mix. To the East of the village is Badavanapalya, to the west it has got Mudalapalya, to the north Bommarasanahalli and to the south it has got Emmedoddi village.

There are 222 workers in the village, 121 male workers and 101 female workers. There are 243 literate people in the village. Among these literate people 134 are males and 109 are females. Mining activity is taking place around the village. Canara Mines Company is working in 45 acres of land in Survey
number 45. Channakeshava Reddy Mines is working in 150 acres in survey number 44 and 45. Allamveerabhadrappa Mines is working in survey number 45 and 46. This company is working in 100 acres of land. Many villagers eke out their livelihood in these mines as daily wage workers.

According to Karnataka Lokayuktha’s Report unauthorized mining is going on in 512 acres of land. The village has got 1287.28 guntas of pasture land. This land has been encroached upon by mining lobbies. One could see that the land beyond the mined area is full of greenery, but contains iron ore. If prevailing activity is allowed to continue, this greenery is not likely to last long. The survey number of the area that has been illegally mined is stated to be Sy.No.45of Shivasandra Village which measures about 512 acres. The manner in which the road is constructed and the equipment used for mining indicates even illegal mining in this area has been done in a systematic manner and the same is not sporadic.

Obviously large quantity of iron ore has been excavated and transported causing not only revenue loss to the State, but also damage to the ecology, life and property of the villagers.

The main crops that are growing in the area are coconut, areca nut, ragi and Jower. Some pulses are also grown in the area. There is kempamma temple and kalleshwara temple in the village. There is water shortage in the village. Because of mining ground water table has gone down. Mining activities seem to have adversely affected the population this issue. Forty eight persons mostly the head of the house hold have been selected for collecting data.
2) **Musakondli:**

This village comes Gubbi taluk in Tumkur district. This will come under Kondli Grama Panchayath. This village has 363 square kilometers of land. That means it has got nearly 1000 acres of land. The village is 50 kilometers away from district headquarter, and twenty eight kilometers from taluk headquarter. According to 2001 census it has got 1001 population. There are 494 males and 507 females in that population. 272 males and 273 females belong to scheduled castes, and four males and six females belong to Scheduled Tribes. Female population is more is this village than male population. There are too many small and marginal farmers. There are wage laborers who belong to scheduled castes and scheduled tribes.

To the east of the village Kondli village is there to the west comes the border of Chikkanayakanahalli taluk, to the north it has got Mavinahally village to the south it has got Honnenahally village. There are more people who live below the poverty line (BPL) in the village. Mining activity is going on two kilometers away from the village. Economically backward people have got jobs in these mines. Some families have obtained loans from Nationalised Banks and Co-operative Banks and have purchased lorries and Tippers. They are engaged in transporting mineral ore. There is a main road in the village. There is a drinking water tank, primary school, shops, some dwelling houses are there by the side of the road. Ore loaded Lorries have to move in this road only. Hence, people are facing many problems.

There are many people in the village who protest against mining. One Nanjundaiah has dug ditches in the road to avoid lorries entering the village road. He has given application to Thahsildar, police station, environment department, pollution control Board (PCB) and others to check the mining activity in the village. The village does not have any lakes or rivers as water
source. Transport facility is also not there for the village. The village has got 56 acres 17 guntas of pasture land. The rich people have encroached upon this land. People have to walk to kondli cross or Doddaguni for Banking, hospital, Co-operative and other services. The patel of the village Jayanna is running Rudreshwara Mines. Apart from this many mining companies are working here.

People in this village have been facing poverty, unemployment, shortage of infrastructure, drinking water problem, and a host of other scarcities. The ground water table has gone down in the village. People are exposed to a wide-range of health risks. Since mining activity is intense this village has been selected for the study.

3) Gollarahalli:

This village is in Chikkanayakanahalli taluk, Jogihalli gramapanchayat circle. This village has got 1445.03 acres of land, this village is eight kilometers away from taluk headquarters and it is 78 kilometers away from district headquarters. According to 2001 census it has got a population of 250. In this population 132 are males and 118 are females, there are 6 SCs people and 26 STs People in the village.

There are no rivers, lakes in the village; there will be some water in the rainy season. This water will dry out in the summer; the weather is usually dry and balanced. The village soil is red and black, to the East of the village or place is mining hills, to the west it has got Durga tank, to the North Hosahalli and to the South it has got Honnebagi village. The village has got a drinking water tank and a small lake (katta). The people’s main occupation is agriculture; they usually grow coconut arecanut, ragi jowar and other pulses. All the famers are dependent upon rain water only for their farming activity.
There is one lower primary school, a water tank and two temples are there in village. The village has also got 651.33 acres of pasture land. Permission has been granted for mining in 200 acres of land in Sy.No.12. The nearby lands have been encroached by mining companies. People are very much affected by mining dust, the iron ore loaded Lorries pass in the village. Hence, people are suffering with many ills. Animals are also not getting good fodder. Hence, they are also suffering with many diseases. In this background people have protested mining activity severely. Even they have checked the Lorries in the village road. Since mining activity is more in the village surroundings it has been selected for the study.

4) Bullenahally:

This village located in Chikkanayakanahally Taluk of Tumkur district. This village is 82 kilometers away from district headquarters and its is 7 kilometers away from taluk head quarters. Bullenahally has got 772 acres and 28 guntas of land (that is 292 square kilometers). According to 2001 census there were 505 people in the village. Among them 273 are males and 232 are females. There are four scheduled caste people and ninety five scheduled tribe people in the village. Totally there are 250 literate people in the village, among them 137 are males and 113 are females. There is one primary school, a water tank, and two temples are there in the village. The village has also got 366 acres and 22 guntas of pasture land.

To the East of Bullenahally a mining hill is there. To the west of it Honnebagi village is there. To its North Gollarahalli and to the South Manchekatte villages are there. The village does not have any river or lake or any canal. All the farmers are dependent upon rain water only for their farming activity. The people below poverty line (BPL) are working as daily wage labourers in the mining companies.
Permission has been granted for mining in 58 acres of land in survey number 8. The nearby lands have been encroached by mining companies. People are very much affected by mining dust. The ore loaded lorries pass in the village. Hence, people are suffering with many ills. Animals are also not getting good fodder. Hence, they are also suffering with many diseases. In this back ground people have protested mining activity severely. Even they have checked the lorries in the village road. Some farmers have gone to jail also Police have booked many cases on farmers. Hence, they are wandering to courts. The mining activity is taking.

5) Honnebagi:

This village comes in Chikkanayakanahally taluk of Tumkur District. The village is 80 Kilometers away from district headquarters and 5 kilometers away from taluk headquarters. The village has got 2099 acres and 8 guntas of land. (Which means 850 square kilometers). According to 2001 census the village population is 1099, among them 573 are males and 529 are females are there in the village.

The scheduled caste population is 322, among them 208 are males and 114 are females. Scheduled Tribe population is 203, among them 104 are males and 99 are females. There are 737 literate people in the village, among them 423 are males and 314 are females. The village has got a middle school, village Panchayath, a milk dairy, three temples etc. There is a main road in the village. The village has got a drinking water tank and a small lake (katta). The people’s main occupation is agriculture. They usually grow coconut, arecanut, ragi, Jowar and other pulses. Yet there is no proper water facility in the village.

To the East of the village Bullenahally is there. To the West Jogihally border is there. To the North Bhavanally and to the South siddapura is there. The village has got 452 acres and 22 guntas of pasture land. This land has also been
encroached by the rich people of the village. In the survey number 130 of the village Latha mining company, Karanataka Mining company, and Balaji productions company are carrying Mining activities. (Source – Village Accountant information’s )

There had been many protests against the mining activity in the village. There is a hill called Abbige - gudda in the village. There is a temple called Malleshwara Swamy in the Abbigegudda. Mining activity is going on here also. Farmers of the village and the people of nearly villages joined together and protested against this mining activity. Some anti-social elements burned the machinery of the mining companies. Hence, There was a fearful atmosphere in the village. There is a court case against the farmers regarding this matter. Since mining activity is more in the village it has been selected for research study.

An attempt has been made in this chapter to describe the socio-economic background of the sample population. Two types of question have been asked 1) questions which elicited opinions on observations and comments made by the respondents. These are necessarily qualitative and contained lot of information regarding the nature of impact, magnitude, causes and consequences of mining and people but also the manner in which people tried to respond and the strategies by means of which cope with the negative effects. These things have to do with the social economic and cultural aspects of the sample population.

Theoretical interests of the relationship between growth of population and environmental pollution is by no means new in sociology. Karl Marx recognized the dynamic relation between human being and the surrounding natural resource. Humans used various instruments to harness natural resources in order to produce economic goods. Machine technologies damaged nature and thus what Malthus called ‘Positive Checks’ operated in terms of natural calamities, industrial disasters causing lot of suffering. Population growth, if unchecked, has become heavy
burden on the earth. Classical sociologists though did not explicitly recognize environmental hazards due to rapid growth of population, yet the impending doom was implicit in their theories. Attempts will be made in the study to examine the entire ongoing environmental debate interims of mainstream theoretical discourses in sociology.

Population and changing in different aspects like the size, composition and distribution have been extensively examined not only in the context of economic development and social change but also in terms of changes in the character, structure of human society. Besides population, depletion of natural resources has driven farmers in to lot of distress. So much so, farmers taking recourse to voluntarily taking away their has raised serious moral and social challenges.


Taking a clue from these studies, attempt was made in the study to examine population growth, and environmental destruction. It is proposed to explore whether increase in the size of population has led to lot of pressure on natural resources and whether decline in the moral values and concern for the nature can also be attributed to population pressure. Whether increase in the greed of on the part of people who are responsible for recklessly exploiting natural resources is due to the lack of opportunities for them in non-agricultural sector-like industry, business, and cultural spheres. On the whole the proposed study would address the question: why environmental destruction?
Environmental impact Assessment studies have sufficiently recorded the possible adverse effects of development projects including mining and this has been well known and has often made the basis for disfiguring a wide-array of interventionist strategies to check the adverse effects. What has, however been not taken seriously is how people living in and around mining activities are affected, particularly that population which has been dependent almost wholly on nature and natural resources.
References

- Sinha .A.K. Pankaj Srivastava - 2000, “*Earth resources and Environmental issues*” ABD Publishers b.46, Nataraj nagar Jaipur, India 302015
- Registrar General and Census Commissioner Govt. of India New Delhi
- Centre for child rights report – 2005
- 28/06/2005 -NDTV.com.news
- 17/12/2006 -The Times of India
- 8/02/2007 -The New India Express