

RESPONSIBLE MINING – FIMI

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Introduction

Mining, world over, has now become an important input in the economic development a mineral rich country. In addition to the general value-adding benefits of mining, a quality which it shares with many other businesses, mining has some special qualities which enable it to serve as a springboard for countries seeking to industrialise. Mining is at the beginning of the value chain and has a capacity to kick start economic development that few other businesses offer. It does not require a sophisticated supply chain in the country in which it takes place, as manufacturing so often does, and it does not require developed local markets.

Modern mining operations are on a scale where the injection of capital needed to undertake them can make a material impact on the economy of host developing countries. They create opportunities for local suppliers of goods and services. They bring with them technology and skills which can be transferred to other sectors of the economy. They open a window onto the operation of world markets. And they have a demonstration effect in relation to how modern businesses can be run, both with regard to operating practice and best practice for health and safety. Mining has some special qualities which enable it to serve as a springboard for countries seeking to industrialise. Mining is at the beginning of the value chain and has a capacity to kick start economic development that few other businesses offer.

Also, minerals are indispensable when producing manufactured goods of all kinds and in providing most services, even at a basic level. Furthermore, all 'renewable' forms of energy generation, including solar, wind, bio-energy, and forestry and agricultural production, are ultimately dependent on utilising minerals and metals in some form.

Thus mining has now become an integral part of the sustained economic development of a mineral rich country like India. What is "Sustainable Economic Development"? In 1987, the World Commission on Environment and Development, coined the phrase "sustainable development." The Commission defined sustainable development as "improving people's life-enabling habits to meet our needs in the present without compromising the ability of future generations to meet their needs".

This concept of 'sustainable development' is basically evolved for maintaining the environment and ecology balance in the development of a country. Since mining has to do with both the developmental part as well as taking care of the environment and ecology, this sustainable development has almost become synonymous with the mineral development.

Indian Mining Sector

India is endowed with significant mineral resources. India has rich resources in coal, iron ore, bauxite and limestone, chromite, manganese, only to mention the major ones.

Mineral production in India is dominated by bauxite, chromite, copper, iron ore, lead, manganese, limestone and zinc. India is the world's leading producer of mica; it ranked 3rd in the production of barite, chromite, and coal and lignite; 4th in iron ore; 6th in bauxite; and 7th in manganese ore. Other than the fuel minerals, iron ore and limestone are the major contributors in the value of mineral production in India. During 2004-05 out of a total value of Rs. 67884 crore, while fuel minerals had the major share with 85%, of the remaining 15%, iron ore had a share of 9% and limestone 2%.

Indian Mining Industry and Environment

Mining industry by its very inherent nature is an extractive industry. During the process of extraction, processing and preparation of minerals, prevailing natural environments are prone to be disturbed. However, as mentioned earlier, since minerals form the basic building blocks of industrial as well as economic development, there is no escape from the mining activity. Furthermore, mining industry being 'location specific', the site can not be shifted away from the mineral deposits. Hence, mining companies have to take enough precautions and responsibility to minimize the environmental damage during mining operations and restoring those areas after mining activity is over. With the tremendous technological developments, effective tools have been evolved to for the management environment in a reasonably effective way so that the environment is restored to pre-mining stage within economic limits.

Indian mining industry has always been conscious of its responsibility towards maintaining environment and ecology in mining areas.

However, despite all the efforts and precautions taken by the mining industry, there remains a lurking apprehension in the minds of general public about environmental damage caused by mining units. Most of these doubts are the result of the unorganized mining that is being done in small quarries for minor minerals in and around the Aravalli ranges and other areas. While well managed

and organized mines are operating after obtaining clearances under various provisions of (Forest (Conservation) Act, 1980 and Environment (Protection) Act 1986, several small mines are operating illegally under protection from vested interests. State Governments are also equally responsible for this because in the case of minor minerals, they are granting leases for smaller areas, some times even 25X25 meters.

It wont be out of place to mention that despite lot of apprehensions about mining, it is responsible for diverting only about 1-1.5% of the forest land for non-coal mining. It should be noted that for every loss of a hectare of forest land in India –

- 71% by agricultural projects
- 12% by river valley projects
- 4% by new industries
- 2% by roads and communications, and
- 11% by other miscellaneous purposes of which non-coal mining is only 1-1.5%

Federation of Indian Mineral Industries's Role

The apex body of the non-fuel mineral industry in India, Federation of Indian Mineral Industries (FIMI) recognizes that the national goal of sustainable development involves scientific mining encompassing planning, protection, and regeneration of environment and conservation of and optimal utilization of natural resources. To encourage the mining units to preserve environment and to develop a healthy competition among the mining units, FIMI has instituted four environment awards in 1991, its silver jubilee year. The awards are being given each year to: (a) mechanized mines, (b) semi-mechanized mine and (c) manual mine for their efforts to promote integration of environmental concerns in their mining plans.

Good Practices

In its pursuit to building an environment friendly mining operations and to evaluate the work done by the mining units, FIMI has undertaken a review of environment status in the non-coal mining industry. The results are really heart warming that almost all of the organised mining units in India – mechanized , semi-mechanized or manual - are adhering to sound environment practices. Some of the case are briefly mentioned hereunder.

- Kudremukh Iron Ore Mine (KIOCL), Mechanized mine – Karnataka – KIOCL has invested over Rs 5 crore in eco-forestation activities in association with the forest department and has planted over 7.5 million trees The 1998 study of National Remote Sensing Agency (NRSA)of KIOCL mine area through satellite data has revealed that during KIOCL's

operation of about 20 years, the mine area has in fact improved in terms of conservation of natural forests and degraded lands. KIOCL has also got the ISO 14001 certification for its environment manage systems.

- Gujarat Ambuja limestone Mine – This unit is producing 5.5 million tonnes of limestone annually with surface miners, a totally blast free and environment friendly method. To develop water reservoirs, trenches are excavated to divert surface run of water. The lake recharges the ground water regime and increases the well yield in the surrounding areas. Over one lakh plants of different species are grown for improving bio-diversity in the area. In the agriculture farm, groundnut, bazra, methi wheat and vegetables are cultivated. In the orchard area, many fruits are grown.
- Codli iron ore mine, Goa- Sessa Goa - Most of the ore is wet beneficiated, tailings are disposed into worked out pits and are treated with lime and flocculants to recover 70% of water. Recovered water along with rain water accumulated in working pit is used for ore beneficiation. This ensures 100% reuse of water and no discharge of tailing/effluents outside mine. Dry screening plants are fed with moist ore (8%-10%), so there is no dust let out in the atmosphere. Water tankers continuously spray water for dust suppression.
- Vyasankere Iron ore mine- MSPL (Mechanized mine)-Karnataka – MSPL's committed environmental conservation efforts were initiated much before the awareness grew in India. The company started environmental protection measures from 1976 by undertaking afforestation on substantial scale. As on date over 1.2 million plants have been planted. One can now find total transformation of land to a totally rehabilitated lush green land with rich flora and fauna in 190 hectares. MSPL is the first mining company in India to be awarded the ISO-9001:2000 certificate by BVQI for "mining and marketing of iron ore of different grades and sizes". MSPL has also been awarded the the ISO:14001 certificate by BVQI for "mining, beneficiation and handling of iron ore". These are global endorsements of the superior standards and concern for environment protection and ecological balance.
- Kathpal Chromite Mine (Manual) – FACOR, Orissa – FACOR is always paying special attention to ensure that the environment is well protected both in the mines and in the surrounding areas. Massive afforestation schemes have been implemented by the environment cell of the company, and as a result, the density of the tree growth in this lease hold area came upto 6542 trees per hectare. Afforestation over the dumps covered over 90% of the dump areas. The selection of plants species for afforestation is carefully maintained by linking with the soil conditions and local environmental aspects.

Conclusion

These are only few examples of the environment protection practices that are being undertaken by the Indian mining companies. Besides these environmental aspects, all the mining units are aware of the need to build up socio-economic programmes for uplifting the living standards of the people living in their operative areas. They are operating schools for children, hospitals which caters not only the employees of their mines but people in that surroundings, organise sports events to make people more active and organise many social events for their benefit.

Thus the Indian mining industry to a large extent is aware of its responsibilities towards the maintenance of the environment and ecological balance as well as in developing the socio-economic factors for the benefit of people living in the respective mining areas.