

Development
infrastructure mining
sector problems and
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essay



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The mining industry plays a crucial and indispensable role in accelerating growth and economic development of a nation. Mining constitutes the backbone as far as industrial expansion in India is concerned. The mining sector contributes substantially in the socio-economic prosperity of our country by supplying essential raw materials to the industries and the power sector. Most of the basic manufacturing industries depend on the availability and exploration of mineral resources. For example, coal and iron are the basic minerals needed for the growth of iron and steel industry. Similarly, minerals like mica, manganese, copper, lead and zinc are of economic importance in varying degrees. India is endowed with rich mineral resources and thus should consider herself immensely fortunate to be gifted with such wide range of rich minerals. However, due to lack of proper infrastructure, India is lacking behind in exploitation, extraction and proper utilization of the same.[1]It is about time that this ' lack of optimum utilization' issue which is plaguing the mining sector is addressed. India's journey from an economy which is primarily dependent on agriculture to one that can truly be called ' industry oriented' will invariably hinge a lot on how competent India is in optimum utilization of its rich mineral resources.

There is no gainsaying the importance of the mining sector as far as industrial growth and creation of employment opportunities are concerned. The mining sector has huge potential for creating employment opportunities and further infrastructure development in the mining sector will lead to further employment opportunities since the scope of mining is going to increase manifold. Employment opportunities in the mining sector are pari passu with the range of mining activities taking place across the country.

Mining sector accounts for about four per cent of the total employment in the industrial sector.[2] Indian mining industry provides employment to over 1.1 million people with 16 percent share in India's export.[3] These statistics will further increase only if proper initiatives are taken to come up with more modern infrastructure in the mining sector. In other words, creation of proper infrastructure in the mining sector will work in dual ways - firstly, it would lead to optimum utilization of India's minerals which in turn would lead to higher revenue to the exchequer and secondly, it would create more employment opportunities for people and thus have an impact on the socio-economic aspect as well.

The mineral base of India which was 20 at the time of Independence has increased to 64, comprising 4 fuel, 11 metallic and 49 non-metallic minerals. In addition to all these, the country produces a motley of minor and atomic minerals. There is a quantum leap in the production of core sector input minerals like iron ore, coal, limestone, chromite, manganese ore and dolomite. Mining operations were by and large labour intensive at the time of Independence. However, as a result of the emergence of many public sector mining companies such as Steel Authority of India Ltd., Coal India Ltd., Bharat Aluminium Company Ltd., National Aluminium Company Ltd., Hindustan Zinc Ltd., Hindustan Copper Ltd. and Kudremukh Iron Ore Company Ltd., large scale mechanization and state-of-the-art technology have been adopted.[4] Large scale mechanization and state-of-the-art technology are extremely crucial aspects of infrastructure development in mining. In order to encourage private investment and attract state-of-the-art technology in the mineral sector, the Ministry of Mines had formulated the

National Mineral Policy in 1993 and offered several incentives and concessions to the investors.[5] This is a very important development on the part of the Ministry of Mines as such a move would go a long way in building up investor confidence which is extremely important if India are to dream to setting up modern infrastructural facilities to unearth its huge mineral resources.

One of key aspects of infrastructure development in mining is to attract investments in the field of mining. It is all the more better if the country can go ahead to attract foreign investments in the field of mining. In fact, the Mineral Council of Australia (MCA) is of the opinion that India should implement investor friendly National Mineral Policy (NMP) to attract investments from Australia in the mining sector. Moreover, the Mineral Council of Australia is further of the opinion that India should implement the Anwarul Hoda Committee report that has been approved by the Cabinet and which the Mineral Council of Australia feels will go a long way towards addressing the concerns of the mining sector. India had formed a high level committee in September, 2005 chaired by Mr. Anwarul Hoda to review the country's National Mineral Policy of 1993 and the Mines and Minerals Act of 1957 to suggest changes needed for encouraging investment in exploration and exploitation of minerals and to prioritize the infrastructure needs of the mining sector. Moreover, the Mineral Council of Australia has also made it amply clear in no unequivocal terms that India's mining industry is unlikely to reach its potential as long as foreign investors have reservations about investing in the country's mining sector. Further, the Mineral Council of Australia has also hinted that issues such as inadequate infrastructure and

market rigidity in the mining sector also need to be addressed.[6] Thus, it is clear from the recommendations of the Anwarul Hoda Committee report that India's mining potential will remain unfulfilled in the absence of foreign investment in the mining sector.

The National Mineral Policy of 1993 is aimed at liberalising the induction of private capital and inflow of state-of-the-art technology in the mining sector. The Mining Policy of 2008 seeks to promote growth of infrastructure in mining areas and the welfare of local community.[7] The Mining Policy of 2008 further encourages PPP models and creation of funds for local area development.[8] The Government, in the Eleventh Five-Year Plan (2007-2012), is looking at an investment of around \$494 billion for developing the infrastructure in the country. Out of this \$494 billion, a huge chunk is aimed at infrastructure development in mining. The National Mineral Policy envisages local area development and special attention will be given to development of infrastructure in mine areas. Development agendas in the mining sector are likely to focus on improving transportation and inland access to facilitate trade and other economic activities. Mining requires significant infrastructure to transport products from production sites to shipping centers and then to the final destination.[9]

Infrastructure Development in Mining

A mining project, unlike other industrial projects, cannot be set up at a place of the entrepreneur's choice. The mining industry is unique in the sense that the mine does not go to the infrastructure. Rather, the infrastructure has to come to the mine. This unique problem of the mining industry accentuates

the problem of infrastructure faced by the mining sector. This is because the general trend of all industries is to move towards infrastructural facilities. However, the mining industry does not have the privilege of moving towards infrastructure. To the contrary, the mining company has to build its own infrastructure. The mine has to be located at the place where the ore body lies. Generally, industrial development is promoted by first setting up infrastructure in a specific zone and then inviting industrial units to establish therein. However, in the case of mining, it is the reverse. The mine operator first identifies the ore body, then locates the site where the mine is to be developed and then builds the infrastructure needed to set up and operate the mine and evacuate the ore.[10] Thus, it is the mining company which alone has to make all the investment to create the infrastructure. It is in no position to free ride on the infrastructure created by some other body. Creation of infrastructure is no child's play and only mining companies with huge financial means can take the plunge. Moreover, those mining companies should ensure before taking the plunge that they would be able to recoup the investments that they have made in infrastructure. In the Indian scenario, there are no mining companies which are willing to investment in such huge scale in infrastructural development. The result is lack of proper and adequate infrastructure in the mining sector. The Government of India should do something on its part, may be, opening up the domestic sector for foreign multinational mining companies to invest therein, to help the infrastructural needs of the mining sector. India's huge mining potential is relatively untapped because of the lack of proper and adequate infrastructure. The Government of India should lead through policy

changes when it comes to promoting development of infrastructure in the mining sector.

Mineral deposits generally occur in remote and backward areas with poor infrastructural facilities which invariably inhibit their optimum development. Lack of infrastructure increases the cost of mining. Therefore, a major thrust is required to be given to ensure adequate development of infrastructural facilities in mineral bearing areas with special emphasis on linking infrastructure. Linking infrastructure is crucial to the mining industry.

Countries which boast of strong infrastructure in the mining sector invariably have very good linking infrastructure. Therefore, the need of the hour is that financial resources available with government is used to the maximum extent possible in the development of linking infrastructure. To achieve that objective, recourse could be had to public-private-partnership arrangements. Moreover, there is the need of an enabling environment to motivate large capacity mining companies to undertake construction of roads and railways on their own.[11]The enabling environment will be created only if we have the proper FDI policy as far as mining is concerned. The onus in that respect is with the Government.

The infrastructure needs of the mining sector are classifiable into two categories -infrastructure needed to develop and operate the mine and infrastructure needed to evacuate the mineral bearing ore to the processing site or port either as raw ore or as a value added product after the raw ore has been processed at or near the pit mouth. Infrastructure needed to set up the mine requires access to the mine site by men and mining equipment.

Infrastructure required to operate the mine includes colonies for housing
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people and meeting their needs (social infrastructure) and power and telecommunications to run the equipment and meet the needs of the habitations. The human resource related infrastructure required is not much if the mines are comparatively smaller, such as those in the SME sector, or if the equipment is high-tech and labour saving.[12] However, there is no gainsaying the importance of social infrastructure. Irrespective of whether the mines are large or small, equipment in use is high-tech or not, social infrastructure in the mode of housing facilities for the workers, schools in the nearby locality for the children of the workers and other types of social infrastructure which will play a crucial role in meaningfully contributing to the socio-economic lifestyle of the working section in the mines is very important. This is because proper amount of social infrastructure will ensure that the workers are able to give their best in their work. In the event of workers performing below par, maximum optimization of the mining sector will remain a distant dream.

The other aspect of infrastructure development is the need for power and transportation links linking the mining sector with other parts of the country. Power is required for carrying out mining operations. Power is also required for carrying out further processing activities that have to be necessarily carried out at or near the mine site. Infrastructure needed to evacuate the ore (raw or processed) is mainly the road and railhead from where the mineral is to be transported to the site of the processing unit, e. g. refinery or smelter. If the ore is to be exported, then the infrastructure must include road or rail connection to the port. Port is a very important requirement as far as transportation infrastructure for the mining sector is concerned.

Moreover, the port should have adequate handling and shipping facilities such as berthing, loading, draught and so on available. Other utilities, such as a water source, would be specific to the project. Therefore, it is essential that adequate and proper infrastructural facilities in the form of roads, railways, power, port facilities, water and other utilities are available to the miner. Without these basic infrastructural facilities, the mining resources cannot be accessed, extracted, processed and marketed. In most countries of the world, roads and other utilities within the mining areas are generally constructed and maintained by the mining companies themselves. However, in India it is different. Road and rail links for the transportation of minerals from the mined areas to the nearest railhead, national highway or state highway are the primary infrastructure requirement before a mine can be operated. National highways and state highways are very important contributories when it comes to linking up the mining sector with other parts of the country. In other words, it is they who ensure that the processed materials are marketed meaningfully. In the absence of such links, the growth potential of the mining sector in the country is seriously handicapped.[13]

The infrastructure requirements of the mining sector need to be seen in two different contexts. On one hand, is the need of the mining majors and on the other hand is the need of the SME sector mines. The infrastructure needs of these two sectors are different because the scales of their operations are very different. Mining majors or large-scale stand alone mines because of the huge scale of their operations tend to construct their own linking infrastructure. They do not care much for public funded infrastructure.

Publicly funded infrastructure is needed mainly for the SME sector mines.

This is partly because of their ability to build linking infrastructure which is limited by the scale of their operations and their poor financial resources. In most parts of the world, there is not much mining in the SME sector.

However, unfortunately, the mining operations in India are largely confined to the SME sector. This is reflective of the fact that the mining sector in India is relatively underdeveloped. Thus, it comes as no big surprise that the mining world tends to regard India as a country without a developed mining sector. This is mostly to do with the fact that Indian laws and procedures have so far been somewhat biased and prejudiced against large stand alone mines that require concessions over a large area. The infrastructure needs of the SME sector operations are different mainly because their scale of operation does not permit miners to put up their own infrastructure.

Therefore, SME sector mines usually tend to come up where some form of public infrastructure already exists. In India, in the absence of large mining companies creating their own infrastructure, the existing infrastructure is highly overburdened. Since, existing roads and railways are already overburdened; the transportation needs of the mining sector are difficult to satisfy and have to be met at the expense of other users. The existing infrastructure meant for public use is put under massive pressure with the coming up of the SME sector mines. Therefore, mineral extraction activity could in such circumstances damage the infrastructure, actually meant for public use, through excessive use, depriving other users for whom the infrastructure was created in the first place. The road and rail systems servicing the SME sector are already overburdened and thereby struggle to

cope with the increasing tonnages being transported. This results in <https://assignbuster.com/development-infrastructure-mining-sector-problems-and-solutions-economics-essay/>

increases in freight and disruptions of supply which in turn results in higher delivery costs.[14]

Logistics is the key to access and evacuation of minerals in the mining sector. Large mining majors the world over create their own infrastructure. Resource companies such as CVRD, Rio Tinto and BHP Billiton own and operate dedicated infrastructure including railways and ports. BHP Billiton, located in Australia, runs the highest axle load railway in the world with single lines capable of carrying more than 100 million tonnes. In fact, all mining majors establish and run dedicated heavy haul freight railways. CVRD's logistics division, located in Brazil, carries 37 per cent of Brazil's rail cargo. Port Hedland, which is run by BHP Billiton, is capable of shipping 110 million tonnes of iron ore. Port Lambert, which is operated by Rio Tinto, located in Brazil, ships 50 million tonnes of iron ore a year.[15] In comparison, India does not have one mining company which can boast of such infrastructural facilities. Moreover, stronger infrastructure is needed to withstand the load imposed on public utilities by the mines in the area. It is extremely pertinent to mention here that the unit cost of transportation decreases with higher volumes when mining majors build infrastructure in the form of rail tracks and roadways of much higher carrying capacity, specifically designed to suit the needs of carrying minerals. Transportation by railways in Brazil, where mining majors are active, costs US\$ 3-4 per tonne while the cost in India is Rs 800 per tonne (about US\$ 18 per tonne). In roadways too, while Indian roads can at best accommodate dumpers of 40-50 tonne capacities, the roads in Brazil and Australia are designed for dumpers of upto 200 tonnes. The deficiencies at the ports, the long linkage

from the mining area to the port through road and rail and lack of long-term planning by exporters are some of the factors responsible for the current situation where the per tonne landed cost at a Chinese port of India's high grade ore is US\$ 65 compared to US\$ 62. 90 for Brazilian ore and US\$ 50. 99 for Australian ore. There is plenty to ponder over that in spite of the fact that India is much closer to China than both Australia and Brazil, the freight cost is US\$ 10 per tonne from Australia while it is US\$ 13 per tonne from India.

[16]

The build-operate-transfer (BOT) model is a perfect modus operandi as far as infrastructure development in the mining sector is concerned. The BOT model has proved to be very successful in most parts of the world when it comes to building up infrastructure in the mining sector. Apart from the BOT model, mining majors can also contribute to infrastructure development through the public-private partnership (PPP) mode. In the Indian scenario, the PPP model can reap very high rewards and looks to be the need of the hour. The PPP model is particularly suited in the Indian scenario because of the absence of mining majors who can contribute to infrastructure creation in the mining sector through the BOT model. Mining majors can also contribute to infrastructure creation in the mining sector through the modus operandi of infrastructure Special Purpose Vehicles (SPVs) jointly with State or Central PSUs run on professional lines. The issue is mainly of institutional support from the State and Central agencies to the miners as far as large-scale mining companies are concerned. Institutional support from the State and Central agencies to the miners would go a long way towards enabling them to put the necessary infrastructure in place.[17]

The infrastructure requirements of the mining sector in the country need to be seen in the short term as well as in the long term. In the short term, the needs are very specific such as those of power, roads, railways, ports and so on. The short term needs are basically highlighted by the problems currently being faced by the mining industry in India, which is driven by the SME sector. In the long term, looking at the huge mining potential of the country as one of the few untapped resources of the world and the low level of mining activity currently underway, the focus needs to be on the setting up institutional arrangements for facilitating infrastructural development.

Setting up of institutional arrangements for facilitating infrastructural development will act as an incentive to the growth of the sector by attracting giant mining companies that will mine efficiently, optimally and sustainably. These institutional arrangements need to be devised in such a way that the absence of infrastructure is seen not as a bottleneck to be overcome but as an opportunity for investment by the mining community.[18] In other words, there has to be a change in the policy of the Government to ensure that giant mining companies are attracted towards India. The Government of India has already taken the first step towards that in the National Mineral Policy, 2008 by addressing some of the concerns.

The contribution of the mining industry to regional and more specifically peripheral development needs to be substantial. In so far as public funding of infrastructure is concerned, a much greater thrust needs to be given to the development of health, education, drinking water, road and other related facilities so that an integrated approach emerges, encompassing mineral development, regional development and the social and economic well being

of the local and tribal population.[19]There have been occasions where mining majors have made huge profits but not even a minimal portion of those profits have transpired to the local and indigenous people. The mining sector should not be developed in such a manner that it results in exploitation of the poor and the marginalized. In recent years, companies such as POSCO and Mittal-Arcelor Group have shown keen interest in India's naturally rich mining sector. However, care needs to be taken to ensure that these huge Multinational Corporations (MNCs) do not trample upon the local people under the veneer of development. Government should ensure that the local people get to partake some of the benefits of the profits which these MNCs earn.

Conclusion

In order to improve the mining infrastructure in India, roads and railways (transportation linkages) need a drastic improvement. Therefore, all the projects relating to roads, railways and ports which are in the pipeline, should be implemented as expeditiously as possible as that would go a long way in addressing the immediate problems of exporters and lead to reduction of freight costs. This would help make Indian iron ore more competitive vis-à-vis Australian and Brazilian iron ore. The infrastructure projects that have been identified for future should be taken, wherever possible, in the PPP mode. The supply of water and electricity in the mining areas also needs to be improved as these are the basic infrastructure requirements of the mining sector and lack of water and electricity will adversely affect India's mining potential.[20]Social infrastructure also needs to be improved since the development of any sector depends significantly on <https://assignbuster.com/development-infrastructure-mining-sector-problems-and-solutions-economics-essay/>

the people who work in that sector. The health and other requirements of the workers are paramount if India is to get anywhere close to achieving its mining potential. Last and not the least, are the interests of the local and indigenous people that need to be protected. They should not just be exploited by the MNCs in their all-out campaign to earn more profits. On the contrary, the local and indigenous people have every right to partake of the fruits of development that come in the way of the MNCs.