

A POINT OF VIEW ON MINING IN INDIA

* A.K. Rai

Introduction :

Metals and minerals have been always strongly associated with power throughout the history of mankind from prehistoric times to present day. Societies have flourished economically and culturally when ever metal and minerals have been found and exploited. The natural resources or global ecosystem services used by society is worth at least 40 trillion USD a year. Most of ecosystem services value belong to air, water, fertile soil and biodiversity. The annual monetary value of all extracted minerals (except oil and gas) is by comparison 0.35 trillion USD. What is the monetary value of extracted minerals in India? It would be good statistics for planning.

Minerals are indispensable when producing manufactured goods of all kinds and to provide most services. All "renewable" form of energy generation including solar, wind or bio energy, and forestry and agriculture production are ultimately dependent on utilizing minerals and metal in some form.

Some metals and minerals have become integrated into human tradition, values, belief system, which influence individual consumer preferences. Gold and precious stones have signified wealth and status throughout history. But the mineral industry in India has not been given importance it deserve, through it contributes immensely to economic development of the nation in different forms.

Poverty reduction & resources development :

History abounds with examples where nations have based economic development on locally available natural resources, be it fertile agricultural land, high grade metal deposits or vast forest and power full streams & rivers. Often financial resources and technological expertise had to be imported but nevertheless some of the benefit of mineral production stayed in the host regions, which in some cases was pivotal to subsequent economic development. Example could include many countries like Sweden, Finland, U.S.A., U.S.S.R, Australia, South Africa and including India. India could lever mineral resources to hasten its industrial and economical development at much faster rates, particularly of backward and tribal areas of the Country.

No shortage of resources :

India is fortunate to have very good reserve of coal, iron, aluminum, manganese, chromite and some of them are best in the world. It is true that mineral/ore do not renew in that very same mode as they were originally formed, but nevertheless there is no danger of depletion in a socio-economic sense, all elements, particularly metals are in a

physical sense imperishable so that efficient management of spent materials may enable recycling even after centuries.

Also, with increasing scarcity prices will rise, new deposits poorer or of new type will become economic ore. The search for substitute will also be encouraged.

Many elements occur in common rock in such a enormous quantity that from a human time perspective there is more than enough for every body even at the highest per capita consumption rate e.g. Iron, aluminum, magnesium, titanium, chromium, not to mention valuable minor elements needed in modern alloy or uranium for energy fuel.

Further, improvement in production technologies will enable both transfer of voluminous (non economic) deposits to ore and substitute materials.

There will also be continuous miniaturization of machinery and equipments and go without or do with less than in the past e.g. minimum use of toxic metal such as lead and mercury.

Therefore fixed depletion time on projected life time for minerals as assumption of resources divided by forecast consumption is too simplistic and of little practical value.

The threat of economic and social development is not depletion of minerals and metals but disruption in supply due to political unrest or other external factor in the areas of production.

Objectives:

Indian mining companies should comply with four objectives to address problem created by mining of minerals.

- a) To be socially acceptable
- b) To be environmentally sustainable
- c) To be economically affordable
- d) To apply technologies, which serve to achieve the first three objectives.

The real challenge is to work the above objectives simultaneously as they are interdependable to each other to a very large scale. No sustainable mining will be possible without these objectives.

Sustainable development. Mineral based sustainable development is not just a possibility but the only viable alternative for a better standard of living. On a global scale many negative effect of mining stem from ignorance and misleading policies and a lack of transparency and poor implementation of rules and regulation.

* Director - Production & Logistics, Sesa Goa Ltd., Sesa Ghar, 20 EDC Complex, Patto, Panjim, Goa - 403 001.

Resource based sustainable development should be evaluated without prejudice as a case by case basis. India is lagging behind on this aspect and it is hampering the growth of mineral industry. This has led to, it getting tagged to other industries where the focus differs widely. A clear example of this situation is the iron ore industry. Billion of tons of ore is blocked with captive lease holder, thereby creating a artificial shortage of quality and quantity.

Mineral resources have given and will give a competitive edge to many regions. For mining to become something more than just dig and deliver, forward looking economic policies should be based on investment in useful mineral expertise, technology, social needs, and environmental considerations. Producers should be committed to self regulation with, above all, a proactive rather than reactive approach.

Environment :

As compared to minerals and metals the environment can be regarded as a non renewable resource. By increasing production and changing attitude and consensus, required investment could be directed to the care of environment without forsaking development. At least in theory, transfer of some of the down stream revenue generated from the later life cycle of materials back to miners, would serve their environmental performance.

Sesa Goa recommendation :

Sesa Goa is the only private mining company listed in BSE & NSE with market capitalization of over Rs.4000 crores. Sesa operates iron ore mines and are also involved in production of pig iron, metallurgical coke, shipping and logistics. Recently we have celebrated our Golden jubilee of operation. Sesa's mining philosophy is based on maximizing recoverable ore from the various leases we operate at the lowest possible cost. Hence Sesa is able to provide competitively priced iron ore to our customers whilst achieving the maximum possible utilization of India's valuable iron ore resources that we operate. Sesa achieves these objectives by utilizing the skills of a highly professional team to identify and implement advanced mine planning, mine development, ore extraction, ore processing and mine rehabilitation. It develops the maximum possible domestic and overseas markets which underpin large scale mining and hence economies of scale.

Against this background, Sesa wishes to make the following specific comments:

a) Stand alone industry : From the overall perspective of the mining industry, there needs to be an acceptance that the mining industry should be separated from the manufacturing industry as in other countries around the world. This will better enable Government policies to be developed and implemented that focus on the specific issues that relate to developing a world class Indian mining industry.

b) Captive resource: The allocation of mineral resources on the basis of captive use should be discouraged. Captive mines tend to be developed to produce the highest quality ore at the lowest cost. The focus is always on manufacturing than mining as it is considered secondary job. Selective mining is often resorted to minimize costs. The average grade of ore mined is often above the average mineable grade leading to reducing life of mine. These actions inevitably lead to poor resource utilization. There are numerous examples of mineral deposits that have been mined in this manner with substantial resources left unmineable because of high stripping ratios and/or low grades. Any mining company (public or private) should have no fundamental preference as to whether it supplies iron ore to domestic or export customers. What is important is that either customer pays a price that justifies ongoing capital expenditure to ensure competitive priced iron ore whilst still giving an acceptable return to the shareholders.

In general, a single ore body is unlikely to produce the optimum grade of ore for the most effective blast furnace operations. Most modern efficient blast furnaces need to blend ores from various sources to achieve the required burden specification both physical & chemical.

Note that even Australia's BlueScope Steel has no captive sources of iron ore. It mainly uses Australian ores but also uses non Australian ores to meet its blast furnace burden requirements. Notwithstanding the proximity of a wide range of ore from the Pilbara, South Australia and Tasmania, BlueScope imports 15% of its total 8 Mtpa iron ore requirement from Brazil and Canada.

Steel plants with a captive mine, particularly if the plant is allocated a small resource, could still be required to source some iron ore elsewhere to achieve its most efficient blast furnace operations.

The production of low cost ores has to be an objective on any mining operation. However the most appropriate way to achieve this and whilst still maximizing resource recovery is economy of scale. Large mines support the use of large scale, modern mining and processing equipment.

Generally captive mines are too small to benefit from economy of scale.

There is also an issue with security of supply. In the case where a steel plant is dependent for all or most of its ore from a captive mine, it is very vulnerable to supply disruption. Even the best run mines are subject to pit wall stability problems that could result in a supply outage. Or major floods political unrest and other factors in the

Contd. on Page 23

Contd. from page 18

area could cut logistic chains. Hence a captive mine is not a guarantee for long term secure supply to a steel plant.

India's mineral resources should be allocated on a large scale to well established Indian mining companies. The objective should be for these miners to establish large scale, world class, multi pit mines. These mines would be able to supply competitively priced minerals to a number of Indian customers. Some mineral exports should be allowed to enhance economy of scale and maximum recovery of the iron ore resource.

Sesa has supplied many customers on a long term basis; some have been supplied for over 30 years. There is a strong relationship with such customers with regular technical interchanges to ensure there is a good mutual understanding of each others needs. It is not necessary for plants to have a captive mine to ensure consistent supply of competitively priced, quality ores.

c. Allocation Process: There is a further major issue that impacts on mineral availability and that is the time taken for a resource to be allocated. With both increasing domestic and international demand for minerals, India needs to be developing many new mines. For example, current iron ore resource allocation is not happening at a pace which will see both domestic and export demand being met.

There are too many parties and steps involved to allow a fast processing of lease applications and mining approvals. There needs to be a drastic streamlining of these processes.

d. Value addition: Mining and processing is nothing but value addition a mineral becomes ore when it is economically mined, processed and marketed at competitive price. Some mining companies have created more value than manufacturing, CVRD of Brazil in recent years created value for it shareholders to the tune of 40 billion USD with a revenue of 4 billion USD compared to 25 billion USD revenue by steel Mills, with created value of about half.

e. Infrastructure: It is important to understand that having allocated a resource, effective delivery to either domestic or export markets is very dependent upon a vast, low cost system ore road, rail and port infrastructure.

The current road and rail systems are overtaxed and struggle to cope with the increasing tonnages being transported. This results in freight increases and supply disruptions that result in a higher delivered cost.

Notwithstanding the Govt. efforts to alleviate the infrastructure bottlenecks, private investment should be encouraged to accelerate infrastructure development.

8. Conclusion.

India is blessed with a wide range of mineral resources. To ensure that the broad community shares in the value of these resources, the following objectives should be pursued

- a) That the mining industry is a stand alone industry
- b) That professional mine and mining is encouraged,
- c) That mines fulfill social and environmental commitments,
- d) Resources development be streamlined and
- e) Infrastructure be developed as a national priority to support the mining industry.

OBITUARY

With deep regret and sorrow it is informed that Shri B.S. Nathamuni, MEAI Life Member (LM-2055) expired on 08-02-2006 due to cardiac arrest in a train at Bhusawal while travelling from Gujarat to Chennai.

Born on 25-07-1932 he worked in various capacities in Dept. of Geology & Mining Govt. of Tamilnadu, National Lignite Corporation Ltd., and Gujarat Development Corporation Ltd. He was a mining and geological consultant, philanthropist and a social worker. These days he was associated with a team which had taken up renovation of old temples in Tamil Nadu.

After retirement he was residing at E-26, 16th Cross Street, Near (Foodworld), Besant Nagar, Chennai - 600 090. Tel. : 040 - 24910357. He is survived by his wife, son and daughter. MEJ expresses heart felt condolences to the bereaved family.

PLEASE NOTE THE CHANGE IN MEAI
E-MAIL. NOW IT IS

miningengg_hyd@dataone.in