

Mining Sector in Doldrums

- Steelworld Research Team

Mining of iron ore and coal is facing tough time due to suspension and a pert re-opening thereafter of activities in Karnataka followed by complete ban in Goa. Although, mining and exports currently happening from Orissa, yet apprehensions are that the ban on mining and exporters would be spread in the port-based north Indian states as well.

Iron Ore Resources

Iron resources are not just raw materials for obtaining metals and alloys like iron and steel but in fact critical and valuable resources for catalyzing the industrial growth and development of any economy. The Indian steel industry is among the upcoming industries of the world. India has been one of the major producers of steel in the world. Availability of iron ore and coal, low labour wage rates, abundance of quality manpower and mature production base are the major strengths of Indian iron and steel industry. Prior to the economic reforms of the early 1990s, the Steel Industry of India was regulated and controlled by the Government Policies. After liberalization the Indian Steel Industry evolved significantly to conform to international standards. The steel industry is expected to play a significant role in India's economic development in the years to come. Availability of iron ore in the country and well furnished facilities for steel productions are the major aspects which will play a major role in the growth of the steel industry in India. Growing domestic demand, exports and unexplored rural market are among the few opportunities, the domestic steel industry have but at the same time unscientific mining, low productivity, coking coal import dependence, low

Research and Development investments, inadequate infrastructure are some of our major weaknesses which the domestic steel Industry need to work upon. The availability of critical inputs such as iron ore and coke is equally important for sustainable growth of the industry. India has a number of iron ores. Thus, the industry has plenty of resources to draw its raw material from. By all projections, the iron ore resources in our country will get exhausted by year 2050 keeping on freely exporting our iron ores to other countries without any planning for future sustainability and availability of iron resources for domestic use.

India is an important producer of iron ore in the world contributing more than 7% of the production and ranked fourth in terms of quantity produced

Resources as on April 1, 2012 (Million Tonnes)

Source : Indian Bureau of Mines

Grade	Reserves	Remaining Resources	Total Resources (as on April 1, 2010)
Hematite	8093.5	9788.6	17882.1
Magnetite	21.8	10622.3	10644.1
Total	8115.3	20410.9	28526.2

followed by China, Brazil and Australia. The total availability of iron ore resources (estimated by Indian Bureau of Mines) is 28.526 billion tonnes of which only 8.115 billion tonnes of reserve is capable of economic exploitation. The rest is not yet proved to be economically mineable. Indian steel industry is primarily based on hematite resources. Of the total of 28.526 billion tonnes, the hematite resources are 17.88 billion tonnes and the Magnetite resources are 10.64 billion tonnes (about 37% of the total). Most of the magnetite resources are not available for mining due to orders of the Supreme Court prohibiting mining in Western Ghats and similar sensitive environmental zones. Effective resources of iron ore in the country, therefore, are only about 18 billion tonnes, less than half of which has been proved to be economically exploitable. It is also added that increasingly stringent environment & forest laws compliance may further restrict mining possibilities in inhabited and forest areas and the actual availability of iron ore resources for mining may be much less.

In a note furnished to the Committee, Ministry of steel has informed that Steel sector is a part of infrastructure sector and it has planned huge capacity expansions, both through Greenfield as well as Brownfield route. Iron ore is one of the main raw materials for the steel sector and the successful implementation of these expansion plans depends a lot upon long term availability of iron ore for domestic steel industry. Iron ore is a non-renewable natural resource and is strategic in nature for the steel industry. Indian steel industry has the factor advantage of the domestic availability of quality iron ore, but there are constraints regarding the availability of other important input, namely, coking coal. The competitiveness of Indian steel industry lies in leveraging the strengths provided by natural reserves of quality iron ore. It is, therefore, desirable that the iron ore reserves of the country are conserved for fulfilling long term requirement of domestic steel industry.

Demand of Iron Ore for Steel Sector

Based on the compounded annual growth rate (CAGR) of about 7.3% per annum of steel production in the country projected by National Steel Policy (NSP) 2005, the cumulative iron ore requirement for domestic steel industry would rise to 23.3 billion tonnes by 2050 based on the estimate of 374 kgs of per capita consumption.

Thus a minimum of 23.3 billion tonnes of iron ore will be required by domestic iron and steel industry to reach a per capita steel output of 374 Kg per annum by Year 2050 (from the present about 59 Kg per annum), which is even less than the present per capita consumption of steel of China (460 Kg), Japan (507 Kg) and South Korea (1157 Kg). It is added here that steel production has been growing at a much higher rate of about 7.8% per annum during 2005-06 to 2011-12 than projected by National Steel Policy 2005 and already a steel capacity of more than 89 million tonne per annum has been achieved by end of 2011-12, as against the projected production of 110 million tonne by Year 2020 as per NSP 2005. It is expected that the steel production in the country will grow at a much faster pace in the country and therefore, the actual requirement of iron ore by the domestic iron and steel industry may be much higher. Crude steel capacity in the country is expected to increase to about 150 million tonnes per

Year	Cumulative Iron Ore Requirement (in Billion Tonnes)	Per Capita Steel Output (kg)
2020	2	79
2030	3.9	133
2040	11.0	223
2050	23.3	374

annum by the end of Year 2016-17 and is further expected to increase to about 200 MTPA by Year 2020. Successful capacity expansion in this sector is critically dependent on availability of iron ore at reasonable price."

Assocham Views

The Associated Chambers of Commerce and Industry of India (Assocham) has urged the Central government to increase iron ore supply for domestic steel industry which is currently running at very low capacity due to raw material problem. Such a move, the apex industry body argued, would bring down steel imports worth a whopping six billion dollars, promote steel exports and curb the current account deficit (CAD). Iron ore exports of 100 million tonne (mt) would earn India \$10 billion while the country would earn \$8-9 billion through exports of just 10 mt steel. Besides, value addition to the raw material would lead to employment generation, capacity building and various other benefits. Rupee depreciation has made domestic steel sector 22 per cent more competitive thereby giving a huge impetus to exports of finished steel. On the other hand, relaxing the exports restrictions on iron ore would further worsen India's CAD. Stating that both demand and production of steel is growing steadily, the study projected that India's steel production might reach 81 mt in the current year as against 78 mt in 2012-13. This necessitates supply of about 140 mt of iron ore. In contrast, the iron ore output in the country, which is on a decline, is expected to remain in the range of 100-110 mt, bringing in a shortfall of 30 mt. Thus any relaxation of iron ore export duty will further worsen the situation thereby making it difficult for domestic steel producers to survive. Owing to the unavailability of iron ore, capacity

Steel Scene (Million Tonnes)

Particulars	2011-12	2012-13	2013-14	2014-15	2015-16
Crude Steel Production	73.7	85.9	94.5	104.0	114.5
Pig Iron Production	6.1	6.9	7.7	8.5	9.4
Total Iron Ore Requirement	115.0	135.7	149.4	166.7	185.2

utilization of crude steel in India has come down to about 82 per cent from about 88 per cent a year ago. Rampant shortage of iron ore has also lead to huge imports of iron and other steel making raw materials. India imported various metallic's worth over \$9 billion for iron ore and steel industries, thereby increasing the CAD significantly. There has a sudden jump of 66 per cent in import of scrap from about five mt in 2011-12 to over eight mt in 2012-13. Likewise, there has been huge jump of 1,475 per cent in import of direct reduced iron (DRI) and hot-briquetted iron (HBI) i.e. from less than half lakh tonne a year ago to over 7.5 lakh tonne in the current year. As per the data, India has ample of agglomeration capacity as pellet plants capacity is likely to reach 85 mt by 2014-15 from about 64 mt in 2012-13. Similarly, sinter capacity is also scheduled to grow to 86 mt by 2014-15 from current level of 75 mt.

Hence, the justification of the exporters that iron fines are being exported as India does not have the capacity to use them is a myth, the report stated. Considering that iron ore production in the country is likely to drop, the production of fines will remain at 60 mt in the current year as against 88 mt in 2012-13 and thus pellet and sinter plant will continue to operate below rated capacity, the study projected. In view of the massive steel requirement for infrastructure development there is a need to significantly ramp up steel production capacity in India which calls for urgent action on the aforesaid issues.

FIMI Fumes

Following Chinese demand, the iron ore production started increasing leading to more intense exploration and deployment of latest mining technology and equipments. Naturally the domestic steel companies had to match the price with export price. This was and is not palatable to the domestic steel industry

despite the fact that exports of iron ore have virtually dried up and there is no corresponding increase in the demand from the domestic steel industry. During the first quarter (April-June) of current financial year, the total crude steel production was 19.57 million tonnes. Taking out 45% of production by induction furnace (IF) a unit, the crude steel production by integrated plants works out as 10.77 million which will require 17.23 million tonnes of iron ore, assuming one tonne of crude steel requires 1.6 tonnes of ore. As against this, the production of iron ore in first quarter was 26.13 million tonnes - 10.19 million tonnes lumps and 15.94 million tonnes as fines. Adding to this, the stocks at mines as on 31st March, 2013 (120.20 million tonnes), the total availability of iron ore works out to 146.33 million tonnes, leaving a surplus of 129.1 (146.33-17.23) million tonnes at mine heads. Any suggestion, therefore of shortage of iron ore for domestic industry is therefore not borne out by facts.

As the mines have limited space, the stock-piles at mine-head are coming in the way of more production and hampering growth and unemployment. Since domestic steel industry cannot consume the entire production of fines, the only way is to export. This will not only lead to more production but also bridge the present gap in current account deficit (CAD). The Eastern sector from where exports can take place can easily export 50-60 million tonnes each year without affecting availability of iron ore in domestic market.

The Federation would therefore reiterate that "there is enough iron ore production as well as resources to take care of the present and projected future demand of steel industry. Further exploration, following more demand and intense mining, will add more to the resources". The present production is basically from the present non-captive

iron ore mines. No new major mine has been opened in the last twenty years. Iron ore mines in Karnataka are limping back to normalcy. Goa will follow suit once Supreme Court takes a view.

“It is only from Eastern sector, where there is at present surplus production, that the iron ore exports can be restarted provided export duty is abolished or brought to 5% as was existing on fines before March, 2011. If the export duty is brought down to 5%, this sector can easily sustain exports of 50-60 million tonnes of fines without in any way affecting domestic supply of iron ore”, said that R K Sharma, Secretary General of FIMI.

Coal



India Coal Supply / Demand Outlook

Fiscal Year (Apr - Mar)	FY 11	FY 12	FY 13	FY 14 (f)	FY 15 (f)	FY 16 (f)	FY 17 (f)
Coal Fired Generation (GWH)	806574	870116	906486	931727	976315	1026444	1081050
Coal Fired Capacity (MW)	88272	106431	123865	132792	142875	150366	155863
Plant Factor Load	73%	69%	65%	66%	66%	67%	67%
Power Generation Coal Requirement (MT)	385	421	474	534	574	620	647
Other Sector Thermal Coal Req. (MT)	206	211	209	211	216	226	237
Guidance Domestic Thermal Supply (MT)	483	488	504	531	567	604	644
Base Case Thermal Supply (MT)	483	488	504	530	556	584	613

Coal accounts for 55% of India's energy need. The increasing demand of India for energy for sustaining the economic growth will have to be met by a combination of renewable, nuclear and conventional sources of energy. Coal along with clean technologies forms an important role in India's increasing energy demand. To provide energy security to the country, guaranteed supply of coal with Better quality is a primary requirement. Even under the least coal dependence scenario, coal is expected to contribute 41% of the total preliminary energy demand in 2032 and about 40% of the total installed capacity in power in the country. Coal is an input in the manufacturing process of steel, cement, fertilizer and other industries. Ministry of Coal has planned to increase the coal production by an average of 36 million tonnes per annum in the 12th five year plan. Industry estimates that coal production will grow at a CAGR of around 9% during 2011-12 to 2013-14. It is also

anticipated that the demand for thermal coal and coking coal by power and steel sectors, respectively, will gain momentum in near future. The size of Indian coal industry was estimated at INR 800 billion by the end of fiscal year 2012

A Draft made by Ministry of Coal on PPP in form of Mining, Operation and Development agreement for exploring coal by private players in association with Coal India Limited(CIL) for increase in Production and evolving new technologies through private sector in 12th Five year plan. Cement is essential for future infrastructural growth. The industry, which produces 358 million tonnes of cement annually, requires 50 million tonnes of coal as a raw material stock every year. However, in 2011, it received only 10.63 million tonnes - 23% of its actual requirement - from CIL and its subsidiaries.

In a relentless search for coal to bolster domestic supplies, Coal India Ltd. is investigating sites in Australia.

State owned CIL is also interested in possible coal assets in Indonesia and Colombia.

India has the world's fifth-largest coal reserves and coal remains the country's primary source of energy. Coal's importance to the economy is underlined by the fact that the state retains a near-monopoly on the coal sector, as the country's power sector makes up the majority of coal consumption. India has 211 gigawatts of installed electrical capacity, primarily in coal-powered plants but because of insufficient fuel supplies, India suffers from a growing shortage of electricity generation, leading to rolling blackouts.

The properties CIL is investigating mainly hold thermal coal but some also have coking coal reserves. A CIL Board subcommittee on foreign acquisition has already voted favorably on the proposals, the national daily newspaper reported recently.

Like China, India's domestic energy policy's primary objective is to secure



energy sources to meet the needs of its growing economy, as its energy consumption more than doubled between 1990 and 2011. The government, however, may not be able to deliver secure energy supplies to consistently meet demand because of fuel subsidies, increasing import dependency, and inconsistent reform of the country's bureaucratic ridden energy sector.

A CIL official speaking on condition of anonymity said that “the most promising sites were in Australia, as the deposits there under consideration have a potential production of about 30 million tonnes per annum with scope for expansion, and that CIL officials have already been given access to the data room of the Australian mines”. He further added that “the properties are privately owned mines in East Australia, with one valued at \$2.25 billion, and CIL is pursuing the possibility of establishing an equal joint venture”.

Besides Australia, CIL is also looking for possibilities in Indonesia and Colombia and is preparing to increase its funds available for developing the coal bloc it acquired in Mozambique in 2009.

The issue of coal shortages is increasing for India, as the estimated shortage between supply and demand for 2013 of coal, including coking coal, is now projected at 265.5 million tonnes. In 2012, India imported 137 million tonnes of coal, the majority of which came from Indonesia, followed

by Australia and South Africa.

A 2012 International Energy Agency report estimated that nearly 25 percent of India's population still access to electricity, while electrified areas suffer from rolling electricity blackouts, both issues which New Delhi is anxious to resolve. Last year, Indian coal producers failed to reach the government's latest production, while demand has grown by more than 7 percent per year over the last decade. Because of the shortfall, India's coal imports have grown by more than 13 percent per year since 2001. India's power sector is the country's largest consumer of coal, accounting for roughly 73 percent of the nation's coal consumption. Because Indian thermal power plants rely so heavily on coal, coal shortages are a major contributor to shortfalls in electricity generation and consequent blackouts throughout the country. India's steel and cement industries are also significant coal consumers, but the country has limited reserves of coking coal, an important raw material for steel production.

Coal Imports

India's estimated demand of coal in the country would reach to 769.69 mn tonnes by 2013 -14 against the domestic availability of 614.55 mn tonnes. Total import of coal in the country stood at 137.56 mn tonnes in 2013-14 higher when compared to 102.85 mn tonnes in 2011-12 and 68.92 mn tonnes recorded in 2010-11, according to the data released by the Ministry of Coal.

Also, the country exported 2.8 mn tonnes of coal in 2012-13 higher when compared to the 2.0 mn tonnes in 2011-12 and lower 4.4 mn tonnes recorded in 2010-11. Meanwhile, Coal India Limited (CIL) has envisaged investing Rs. 25,400 crore during XII- plan Period (2012-17). In addition, adhoc provision of Rs. 25,000 crore for acquisition of coal assets abroad and Rs. 10,000 crore for development of coal blocks in Mozambique is proposed in XII Plan period, minister said. In order to meet the coal demand of the country CIL has decided to implement some of its mine/projects through the Mine Developer and Operator (MDO) route. Two mines namely, Rajmahal Opencast Projects (OCP), Eastern Coalfields Limited (ECL) and Bhubaneswari OCP, Mahanadi Coalfields Limited (MCL) are already operating under MDO concept. At present, 5 Opencast Mines with an annual capacity of 14 MTY and 2 Underground Mines with an annual capacity of 2.52 MTY have been identified for implementation through MDO Route. Request for Quotation (RFQ) documents in respect of two OC mines, namely Itapara, ECL and Malachua, South Eastern Coalfields Limited (SECL) have been uploaded on websites of respective companies. Difficulties in acquisition of land, obtaining environment and forest related clearances, difficult geo mining conditions in some areas are the major hurdles for coal mining in the country, the minister added.