

Indian iron ore mining

The global picture

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India ranks fourth in the world of iron ore production and ninth in steel production and exports around 52% of the total production. As per United Nations Framework Classification (UNFC), the present iron ore deposits in India are estimated at 6.312 billion tonnes, while the total resources are placed at 22.108 billion tonnes.

While the deposits of magnetite ore are limited to the states of Karnataka (Bababudan, Kudremukh, Bellary), Andhra Pradesh (Ongole and Guntur) and Tamil Nadu (Salem, Tiruchirapally), haematite ore is available in abundance in Jharkhand, Orissa, Chhattisgarh, Karnataka and Goa. Jharkhand and Orissa together, have the largest haematite bearing zone with iron content (Fe) upto 65%. Chhattisgarh has the distinction of holding the largest quantity of high-grade iron ore reserves estimated at 570 million tonnes with more than 65% Fe. Karnataka has the highest reserves of magnetite ore at 2784 million tonnes, followed by Andhra Pradesh and Goa.

Since 1992, India's iron ore production has grown consistently. In 1992, the total output was 55MT and

2003, it reached over 99.1MT while in 2004 it has registered a growth of 22% with 120.6MT and an all time high of 141.247MT in 2005.

Statewise proportion of India's production of iron ore is distributed as follows:

Orissa	28.31%
Karnataka	26.18%
Chhattisgarh	16.36%
Goa	15.27%
Jharkhand	11.38%
Others	02.50%

Gradewise output of iron ore in India is in the following order:

Lumps	41.0%
Fines	51.0%
Concentrate	08.0%

The annual production of iron ore in India is shared between PSUs and private sector in the ratio of 55% and 45% respectively. The production comes from as many as 247 mines of which, 41 are owned by PSUs while 206 are with the private sector. Majority of the mines in the PSUs are large and mechanized while in the

private sector the mines are small and semi-mechanised or non-mechanised. India's production and export of iron ore has re-ordered phenomenal growth in the last 10 years, where the production has taken a long leaps from 66.8 MT in 1995 to 74.9 MT and 120.6MT in the year 2004, an increase of 12.1% from 1995 to 2000 and 61.0% from 2000 to 2004. Indian exports are directed mostly towards the Far East. Japan is traditionally the most important customer but has in recent years been replaced by China.

Production trends

Iron ore

World production of iron ore has grown by about 10% to reach 1198.2MT in the year 2004. The boom extends to practically all major producing countries. China's production has shot up from 122.7MT to 145.7MT in 2004 (an increase of 18.7%), while Brazil accounts for 10% increase from 245.6MT to 270.5MT, and Australia registers 13.7% growth from 212.0MT to 241.0MT.

Indian iron ore industry also has flourished with its relative proximity to

the Chinese hot bed and has grown by 21.7%, from 99.1MT in 2003 to 120.6MT in the year 2004, securing itself the fourth place in iron ore production in the world.

Pig iron

World pig iron production in 2003 was 657MT, indicating an increase of 7-8% compared to the previous year, 2002 (202MT), or 19.7%. India's production of pig iron increased by 9.2% to 26.6MT while Brazil registered a rise of 8.1%, to 32MT.

Iron ore prices

The growing demand for iron ore, triggered mainly by the extremely rapid growth rate of China, has pushed the iron ore prices to higher levels than ever expected. On one hand, it is the booming Chinese demand: on the other hand it is the increase in the raw material price, mainly the coking coal, which increased dramatically.

The combination of price rise in both – iron ore as well as coal has resulted in higher steel prices. India's iron ore exports to China are mainly on spot basis.

Spot iron ore freight rates are having an upward trend since the year 2002; so much so that in some cases, the freight cost more than the iron ore itself; particularly on Brazil – China route. The distance from India to China is much shorter than the distance from Brazil to China; and the freight rates are 20% - 40% lower than the Brazil – China route.

This adds to the competitiveness of the Indian exporters.

The cost of Indian iron ore to Japan, in the year 2005, has been

fluctuating between 60.20 to 70.60 US cents per 1% Fe/t.

The iron ore prices (in 2005) from Australia to Japan are between 58.02 and 78.77 US cents per 1% Fe/t whereas the price from Brazil to Japan shows fluctuations from 55.34 to 57.32 US cents per 1% Fe/t for the same period.

The cost of pellets has been in the order of 115.51 US cents per 1% Fe/t (Brazil to Europe); 120.66 US cents (Canada to Europe) while pellets from Sweden to Europe are available at a cost of 128.00 US cents per 1% Fe/t.

Sea borne trade

Sea borne iron ore trade has been on the rise since the year 2002, when it was 481 MT with 7.8% increase it touched 518 MT in 2003 and 634 MT in 2004. These figures do not include trade lakes between Canada and USA.

The world crude steel production levels the world sea borne iron ore trade has reached a new record level of 634 MT in 2004. A marine route to East Asia, particularly to China is having a key role in sea borne iron ore trade.

Australia is the leading exporter with 218MT, followed by Brazil with 201MT. Third place is occupied by India at 63MT, way ahead of South Africa and Canada which are both around 25MT. Shipments from Brazil and Australia combined make up roughly 65% of total iron ore exports. If shipments from India, Canada, South Africa and Sweden, which are the next four most important exporters, are added, the share increases to 85%. If all exporters shipping by ocean vessels

are included the figure grows to around 90%. Export by train, mainly in Eastern Europe and erstwhile USSR are of marginal global importance.

Amongst iron ore importers, China has surpassed Japan and taken the top spot as the leading importer. At 208MT it accounts for 32% of the total imports of the world! Japan's imports in 2004 amounted to 134.9MT. China, Japan and the Republic of Korea put together accounts for 60% of the total imports of the world.

Conclusion

While the world iron ore market is booming, it is regrettable to note that the environmental activism has taken a negative course and practically blocked the production from the largest producer of iron ore in the country, the Kudremukh iron ore mine which is now on crossroads with hanging uncertainties about future.

While the country's mineral policy has a provision in its objectives, "to minimize adverse effect of mineral development on the forest, environment, and ecology through appropriate protective measures," the NGOs in the larger interest of the nation should be concerned about maintaining the ecological balance and not in the closure of the project that has done exemplary work in the field of environmental protection / ecological balance and earned rich dividends for the nation through dedicated and relentless efforts raising more than 2000 million US dollars worth of foreign exchange of the country.

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