

EXIM BANK: RESEARCH BRIEF

Export Potential of Indian Steel



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Steel is an alloy of iron and carbon containing less than 2 percent of carbon with smaller amounts of other elements such as manganese, silicon, phosphorus, sulphur and oxygen. There are more than 3,500 different grades of steel with many different properties - physical, chemical, environmental, 75 percent of which have been developed in the last 20 years.

Steel is the world's most recycled material. 65 percent of new steel comes from recycled steel. Steel products can be classified according to processes by which they are produced. The basic processes in production of steel are classified in to rolled products, forged products and cast products. The rolled products, based on its shape could be classified as flat products and long products. Though these are made from both carbon and speciality steels, they are differentiated by size as well as by the end products.

Global Steel Scenario

International Iron and Steel Institute's (IISI) latest release for the year 2002 showed that, global production of crude steel grew from 850 million tonnes in 2001 to 902.2 million tonnes in 2002, registering a rise of 6.1%. In 2002, China emerged as the leading producer with a share of 20.1% in global production, followed by Japan and USA. India occupied the ninth position. In the year 2002,

Arcelor occupied the top spot in crude steel production, producing 44 million metric tonnes of crude steel. It was followed by, LNM group and Nippon Steel. In terms of *apparent consumption*, the top three slots were again occupied by top three producing nations mentioned above, with India at the seventh spot. On the trade front, Japan, Russia, Ukraine constituted the major global exporters, while USA, China, Germany formed the prominent importing countries. However, CIS countries emerged as the largest net exporters, whereas Africa and the Middle East together formed the largest net importers of steel. A detailed analysis of the steel trade figures for the year 2001 led to the following noteworthy observations:

- North America and China met approximately 12% and 40%, respectively, of their steel import requirements from Asia (Asia excluding China and Japan). CIS countries and Japan also formed the prominent steel exporters to China.
- Africa and Middle East met nearly 40% of their import requirements from CIS countries and only 3.9% from Asia (other than Japan and China).
- Intra-EU trade in steel accounted for over four-fifth of EU's total steel trade. Only 1.4% of EU's steel imports originated from Asia other than Japan and China.

- Majority of Japanese exports were restricted to Asia. Similarly, around 92% of Japan's steel imports originated from rest of Asia.
- CIS countries had the most diversified export basket.

Indian Steel Scenario

An analysis of Steel Scenario Yearbook 2002-03, illustrated that, total finished steel production stood at 32.99 million tonnes, where production of flat items dominated that of long items. The total *apparent consumption* of finished steel stood at 29.65 million tonnes during the same period. Indian finished steel exports reached a record level of 4.68 million tonnes. Flat products were the main export items, within which GP sheets, HR coils and plates formed the major constituents. Long items exports constituted mainly of bars and rods. According to the DGCIS data (value-wise), iron & steel exports in the year 2002-03 were 106% higher than that of 2001-02, primarily due to increases in exports to Asia and America. Exports to China increased by almost 31 times while exports to other Asian countries like Nepal, Taiwan, Bangladesh and Indonesia also shot up by more than 100% in the year 2002-03 as compared to the year 2001-02. China was thus the single largest importer of Indian iron and steel, while exports to USA increased by 2.4 times during the same period. Other prominent markets

comprised of UAE, Hong Kong and Italy. Indian Iron & steel imports declined by 2.3% during 2002-03, where flat items imports formed nearly 90% of total imports. The import penetration also witnessed a declining trend.

As far as investments were concerned, during the period 1995-1996 to 2001-02, the absolute amount of credit advanced to steel industry showed an upward trend except for the year 1999-00, whereby long term credit dominated medium term credit. A closer look at the cost of funds of the iron & steel revealed that, more than 60% of the loans outstanding during 2001-02 fell in the interest rate ranging between 12-16%. Despite improving its reputation in terms of associated costs, steel industry did not fare well vis-à-vis other industries during 2002-03. Analysis also revealed improvements in handling excess capacity by the domestic steel industry since 1999-00 onwards. Also, during 2002-03, majority of prominent steel players registered a rise in sales and exports, which helped some of them to post net profits as compared to the previous years.

The relationship between steel consumption and economic growth was analysed over a specified time period. The results of the regression analysis revealed that, for every 1 unit annual growth in GFCF by way of construction, the demand for long steel products grew by 0.68 units annually and on the other hand, for every 1 unit annual growth in GFCF by way of machinery, the demand for flat steel products grew by 1.41 units annually.

Competitiveness of Indian Steel Industry

In terms of availability of inputs, Indian steel industry was in a comfortable position as far as iron ore was concerned; yet steel industry faced a shortage of coke, scrap and other energy inputs. Virtually all the inputs

saw a rise in prices in 2002-03 in both domestic and international markets, thereby rendering the cost competitiveness to remain by and large stable. However, interestingly, most of the key expenses, such as salaries, energy, raw materials, saw a decline of more than 75% during 2002-03 as compared to 2001-02, reflecting improvement in consumption ratios. While the total expenditure declined by 81% in 2002-03 over 2001-02, expenditure on salaries and wages declined by 97%, followed by power and fuel expenses (82%) and interest payments (79%). A percentage break-up of costs of the steel industry revealed that in the year 2002-03 raw materials formed the largest chunk of costs (51.2%) followed by interest payments (9.2%) and power and fuel expenses (9%). A cross-country comparison of costs revealed that whereas India's raw material costs were lower vis-à-vis that of CIS countries, China and USA, and India's labour costs were lower than that of Japan, South Korea and USA, India's financial expenses were higher vis-à-vis that of all these countries.

Indian steel firms performed dismally in terms of average product of labour (APL) which is defined as the crude steel production per employee. In 2002, TISCO's APL was found out to be 84 metric tonnes which was much below the APL of steel industry in Japan (610 metric tonnes) USA and Canada (585 metric tonnes each).

In 2002, 60% of steel produced in the world was by Basic Oxygen Process. Out of the major steel producing nations, except for USA and Italy, Basic Oxygen Process dominated all other processes of steel production. India adopted the Basic Oxygen Process as early as 1956 to 1960. India made fine progress in reducing the usage of obsolete Open Hearth Process from 14.3% in 1998 to only 6.9% in 2002. The usage of Electric Arc Process also improved to 42.7% of the total. The Basic Oxygen Process, however,

still formed a dominant 50.4% of production in the year 2002.

As usage of old technology results in high-energy intake and low yields, most steel plants embarked on modernization programmes, in order to be competitive in the global markets. The oldest plant in the private sector, TISCO, completed three phases of a four-phase modernization programme.

Despite improvements in adoption of new production processes, Indian steel firms' level of expenditure on R&D was much below than their foreign counterparts in 2002-03. The Indian government also provided monetary aid to some R&D projects either in public or private sector from the Steel Development Fund. In the year 2002-03 an outlay of Rs. 95 crore was available for financing R&D activities.

Out of the selected steel producers analyzed, SAIL spent the maximum funds on R&D activities to the tune of Rs. 49.85 crores during the year 2001-02. It undertook 114 R&D projects out of which 95 projects were to be completed during the year 2002-03. Within the private sector TISCO aced the list in R&D expenditure, which stood at Rs. 7.52, which was much below its counterpart in the public sector.

It was also observed that, usually firms belonging to the metal industry spend roughly 1% revenues on R&D. Indian steel firms' expenditure on R&D was observed to be low as is reflected by the R&D intensity (R&D to turnover ratio). R&D intensity for Arcelor and Corus was 0.71% and 0.90% respectively in the year 2002. Indian firms fared poorly in terms of R&D intensity for the year 2001-02 with SAIL at 0.32% and RINL at 0.06%. TISCO's statistics available for 2002-03 revealed an R&D intensity of 0.17%.

On the technology front, the following strategies were also identified

- Technology policy to be so designed to generate the thrust to

update the technology by the steel producers.

- Further liberalization towards tariff structure, more equity participation by foreign partners.
- Steel companies must assess their core competency and realign their strategy to cope with the internal and global competition.
- R&D focus is to be increased substantially.
- Organizational adjustments, effective human resource policy should be dovetailed while selecting a technology.
- Training and re-training designed for people from different hierarchy including top-level management.
- Technology transfer plans are to be worked out more carefully. Indian firms must select appropriate technology with proper scope of adoption.
- Firms must do technological forecasting, to take better decisions on product mix and investment proposals.

In terms of *price competitiveness*, in the year 2001, Indian iron and steel exports including many flat products, bars and rods and wires of stainless steel were found to be competitive in many markets. As far as articles of iron & steel were concerned, pipelines, standard wires or ropes, kitchen and other household items of iron or steel were found to be competitive in certain markets in 2001.

Related Issues

On the *antidumping* front there were mixed signals with some nations raising barriers to trade while some withdrew it. USA, after imposing section 201 on steel imports in March 2002, withdrew it in the year 2003, following an adverse WTO ruling. China on the other hand, announced

fresh import quotas in May 2003, which brought cheer to Indian steel exporters. China however, also levied duties on imports from Russia, Kazakhstan, Ukraine, Korea and Taiwan and warned India against breach of the 3% rule. DGCIS data revealed that so far Canada, EU, USA, Indonesia and South Africa had levied antidumping and/or antisubsidy cases against Indian exports. On the other hand, India had also imposed duties on steel imports from many countries including Russia, Kazakhstan, Ukraine, EU, Japan, Canada and USA.

Impact of *Free Trade Agreement* signed between India and Thailand, during 2003, on the steel industry was also analysed. It was observed that the quantum of gains to each country's steel industry individually, given the current structure, shall be more or less the same assuming no drastic changes in the composition of iron and steel trade between India and Thailand.

The *prices* of all major finished steel items like, galvanised sheets, rebars, rods, plates, hot and cold rolled coils saw a rise in prices in the international markets during 2002-03.

During the year 2003-04, the government also undertook several initiatives to arrest the rising steel prices. These included import duty cuts of metal products announced in January 2004, followed by successive cuts in import and excise duties during February 2004. Major Steel producers lowered the prices of HR coils successively.

The Indian Edge & Suggested Strategies

The *Indian advantage* lies in the form of abundance of raw materials, highly skilled technical manpower and competitive labour. Most players have become competitive at operating level primarily due to improvement in

material and energy consumption ratios of inputs such as iron ore, coke, coal, power, fuel and diesel, despite increase in cost of these inputs. This coupled with workforce rationalization and financial restructuring has helped the Indian players to acquire the much-needed competitive edge. Tisco, Essar & JVSL are now globally cost competitive. Enrichment of product mix, greater customer orientation and capacity utilization has helped the Indian players to acquire the much-needed competitive edge.

Cost efficiency and *upgrading the productivity* in India are two main areas of concern. *Average product of labour* needs to be improved in order to reduce the cost of labour per tonne of output in this sector. Improvements in *operational efficiency* is required to counter the rising freight costs and raw material costs.

The productivity levels could be increased through influx of new technologies. *Low level of R&D expenditure* by steel manufacturers has kept them away from adapting hi-tech processing techniques. The R&D expenditure by steel players is dismal compared to its foreign counterparts and must be stepped up. International players could also be allowed with more participation in this sector thus enhancing competition.

Infrastructural problems like high cost and non-availability of energy inputs inadequate transport facilities, less-developed logistic network should be tackled efficiently. To augment exports, there is a need for creation of export infrastructure and *institutional support*. The exporters should pay more attention to *products, which are higher in the value chain and diversification*.

Effective *handling of steel trade related issues at the international forum* is a prerequisite at the Government level in order to strengthen the trading prospects of this sector.

Global Outlook for Steel Sector

The Chinese steel demand is considered as an important driver of the global steel industry. Chinese demand has been a direct consequence of the fantastic show by its manufacturing sector and ongoing construction. Although the Chinese government is sensitive about the 3% import norm, it may not truly restrict Indian exports considering the strong growth predicted for steel in China. The Chinese demand for long steel items associated with construction is nonetheless expected to remain strong; however, the demand growth is expected to slow down. Also, as Chinese economy moves along the path of development, it is expected that steel demand for flat products will gather momentum. Furthermore, the Chinese industry capacity is inclined towards long products.

Steel demand is also likely to emanate from USA and the Middle East. With USA likely to remain the second largest importer after China for a few years, IISI estimates USA's steel demand to move up in 2004 reaching 105 million metric tonnes. As the USA economy picks up, the steel demand may also pick up. Also, Middle East has been projected by MEPS International to witness a production growth of 10% in the current year. Recent forecasts by steel industry itself put Middle East demand rising at 7% p.a. Be it intra-train project of Dubai, new water system in Saudi Arabia or expansion of Bahrain aluminium smelter, the steel consumption is complementing the growth in output in every possible way.

Opportunities for India

The international steel scenario looks fairly positive atleast in the short run. On the *domestic side*, projections of a fine GDP growth in the upward region of 8% in 2003-04, bolstered by increased investments in infrastructure, housing, transportation shall all help to ensure growth in steel demand. Indian steel demand is projected to grow by 6.45% in 2004, which shall exceed the growth in global steel demand, which in turn is projected to grow at 5.88% during the same period. The ongoing / upcoming projects like Golden Quadrilateral Project, National Highway Development Programme, and Grameen Griha Yojana, are expected to boost the domestic demand for long steel products in the near future. The growth in automobiles and white goods sector, the major consumers of steel is likely to contribute to the growth in demand for the flat products.

On the *international front*, Indian steel industry is geared for increased exports at least in the short run due to growth in Chinese demand. In the long run, Indian steel industry may suitably supply flat items to China, which are higher up in the value chain. While the Chinese manufacturing facilities are being upgraded at present, only 7% of the production is geared to meet the coated and value added products, of which approximately 60% is estimated to be supplied by the Baoshan group alone. Also, as the capacity additions in China takes place, China's Iron ore imports may rise (due to low iron ore content of the ore in China).

Exports to USA, the next major importer for India, are also expected to do reasonably well, due to the recovery mood in the US economy. Middle East opportunity may also be taken seriously. For Asia, excluding China, the growth of steel demand is pegged only at 0.5% in 2004 as compared to 2003. But, since the demand differs from country to country, exports to some countries may do reasonably well as compared to others. Also, this region is of prime importance to India because out of the top 10 Indian export destinations during 2002-03, six (Bangladesh, Taiwan, Indonesia, Hong Kong, Thailand, and Sri Lanka) comprised of Asian (excluding China) countries. Diversification of export basket, concentration on value-added items and competitive exports may help to increase steel exports to this region in the near future.

The contents of the book are based on information available with Export-Import Bank of India and primary desk research through published information of various agencies covered in the book. Due care has been taken to ensure that the information provided in the book is correct. However, Export-Import Bank of India accepts no responsibility for the authenticity, accuracy or completeness of such information.

Note: Indian Rupees are referred in crore and lakhs:

1 crore : 10 million

1 lakh : 100 thousand

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