

Indian Steel Scenario : Vision 2011-12

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Global Steel Production and Consumption

Global crude steel production shot up to 1035 Mt in 2004. It reached 902 Mt in 2002, 965 Mt in 2003 and crossed the billion ton mark at 1035 Mt in 2004. The high growth in production between 2002 and 2004 was the result of the explosive growth in China's output from 182.2 Mt in 2002 to 272.4 Mt in 2004.

Global consumption of finished steel between 1994 and 2003 is shown in table 1.

After a low growth period in 1995 and 1996, the global consumption of finished steel recorded a healthy growth of 7.12 per cent in 1997. Consumption fell in 1998 and 1999 due to South East Asian crisis. The

growth in 2002 was over 7 per cent followed by a low of 0.94 per cent in 2001 when the consumption dropped over the previous year in Europe, the CIS and NAFTA which together contributed to a decline of 2.2 Mt.

China's consumption of finished steel went up by over 125 per cent between 1997 and 2003 from 103.2 Mt to 232.4 with an average yearly growth of about 20.8 per cent.

Finished steel production and consumption in 2011-12 and 2020

India's National steel policy has visualized a market demand in the country at 60 Mt in 2011-12 and 100 Mt by 2020. India's apparent consumption of finished steel was about 30.33 Mt in 2003-04. To reach a consumption of 60 Mt in 2011-12 the country's consumption would need to grow at 12.23 per cent annually. Some experts argue that if China can achieve a growth of over 20 per cent in 6 years between 1997 and 2003, India can also record a growth of over 12 per cent in eight years up to 2011-12.

The detailed picture of the proposed growth of market demand finished steel to 60 Mt by 2011-12 is shown in Table - 2.

India's consumption of finished steel in 2003-04 was about 30.33 Mt which was about 5 per cent higher than that of previous year. In the first seven months of 2004-05, the apparent consumption of finished steel has grown by about 6 per cent.

To reach a consumption of 60 Mt in eight years from 2003-04 level, the average yearly growth would need to be at the rate of about 12.2 per cent. At present, more steel is being supplied to domestic users, cutting exports. Some steel experts and economists maintain that with a GDP growth of over 8 per cent, the consumption level of 60 Mt of finished steel in 2011-12 can be achieved. In 2004-05, India's GDP growth is likely to be around 6.5 per cent and between 7 to 8 per cent in 2005-06.

Expansion and modernization programmes of major producers

In order to help consumption of 60 Mt of finished steel by 2011-12, major Indian steel producers are gearing up to expand the capacities of their plants and supplement it with modernization of the existing units with a view to producing higher volumes of value added products to increase their profitability. Some of such plans are mentioned below :

SAIL : SAIL corporate plan envisages production of hot metal from its four integrated steel plants reaching

Table - 1 : Global Consumption of Finished steel : 1994 - 2003 (MT)

Year	Apparent Consumption	% Growth
1994	635.2	-
1995	651.3	2.53
1996	651.6	0.46
1997	698.0	7.12
1998	681.4	(-) 2.38
1999	698.6	2.52
2000	747.6	7.01
2001	754.6	0.94
2002	804.8	6.66
2003 (P)	863.7	7.32

(P) = Provisional, Data Source : IISI, Brussels (World Steel in figures - various issues)

Table-2 : Market Demand of 60 Mt finished steel in 2011-12

Long Product	(Mt)	Flat Products	(Mt)
Bras & Rods	16.4	Plater	3.6
Structurals	5.1	HR Coils / Sheets / Skelp	19.7
Rly, Materials	0.9	CR Coils / Sheets	5.7
Total Long Product	23.8*	GP / GC / Coated Sheets	2.6
Includes Other		CR No	0.4
Products Like flat / square		Tin Plates	0.5
		Pipes	3.6
		Total Flat Products	36.2**
		** Total dose not agree due to rounding off.	

Source : SAIL NEWS - Vol. 32, No.1

about 20 Mt by 2011 – 12. The target will be achieved by expanding capacities at Bhailai to 7 Mtpy, Durgapur – 3.2 Mtpy, Rourkela – 3 Mtpy and Bokaro to 6.5 Mtpy by 2011-12.

The envisaged growth in the volume of hot metal production by 2011-12 is to be achieve by :

- Realization of the full potential of the existing assets.
- De-bottlenecking of production processes.
- Linked facilities for value addition
- Capacity enhancements in growth segments.

Crude steel production by the four major ISPs of SAIL has been planned to reach 18.7 Mtpy by 2011-12 leading to a saleable steel production of 17.38 Mtpy and of finished at 16.6 Mtpy. The generation of semi-finished steel will be reduced from 20 per cent of saleable steel at present to 5 percent by 2011-12. SAIL hopes to achieve 30 percent markets share in flat products and 23 percent in long products by 2011-12.

SAIL has estimated that measure to be taken to achieve the targeted levels of growth and sustain higher levels of cost and quality competitiveness. This will require an investment of about Rs. 25,000 crore by 2011-12. The immediate priority

schemes to be undertaken or completed by 2006 – 07 have been estimated to cost about 4,300 crore.

(i) Bhailai Steel Plant : Thin Slabcasting / inline hot strips mill (1.1 Mtpy), Bar and Rod Mill (1 Mtpy), Pipe Plant (0.2 Mtpy)

Corporate Plan 2011-12 envisages phasing out of the existing SMS-1 and the Blooming & Billet Mill and commissioning a new state – of – the – art SMS III with 150 tonne converters, L. D furnace, three billet casters and one slab caster with a continuous strip plant to produce HR coils / strips sown to 0.8 mm thickness.

(ii) Durgapur Steel Plant : Bar & Rod Mill (1.4 Mtpy) and structural Mill (0.4 Mtpy). The bloom caster project, which includes ladle furnace and reheating furnace, will reduce costs be means of savings on operating costs and improvement in yield and energy. The strategy to improve revenue is to increase volume of valuable products and net sales realization. DSP has targeted to reduce the percentage of semis in its saleable steel production from 55 per cent at present to 10 percent by 2011-12.

(iii) Rourkela steel plant : Plate Mill (0.7 Mtpy) and CRNO mill (0.075 Mtpy).

Investments will be made for :

- a) Installation of new 2000m3 blast furnace (two smaller blast furnaces will be phased out gradually)
- b) Rebuilding of two coal for / coal dust injection systems in all blast furnaces in phased manner.
- c) Rebuilding of two coke oven batteries. In addition, the hot metal

area will be through by de-bottlenecked. Support facilities like oxygen plant etc. will be augmented to take care of higher production. The plan also envisages installation of one caster and a BOF vessel at SMS II and the old SMSI will be phased out.

(iv) Bokaro steel plant : Hot Strip Mill (2.5 Mtpy), CRM line (0.6 Mtpy)

Increase in hot metal production from the current level of 4.1 Mtpy to 6.5 Mtpy by 2011-12 will entail investment for :

- Rebuilding of three coke oven batteries
- Revamping of sinter plant
- Installation of coal tar / coal dust injection systems in all blast furnaces in a phased manner ; and
- Upgradation of blast furnaces.

Further, SMSI of Bokaro will be modernized with new BOF vessel and revamping of the existing. Hot Strip Mill and installation of a new Hot Strip Mill and new CRM line will take care of increased steel output. Support facilities like power, oxygen etc. will be augmented.

The implementation of SAIL Corporate will depend on the results of detailed feasibility studies, rigorous techno-economic evaluation and merit of each case in the context of the business environment prevailing at the time.

Tata Steel : (a) The company under its campaign, "Paanch Ki Aanch" will expanding its capacity be 1 Mtpy to 5 Mtpy by mid 2005. Mr. B Muthuraman, M. D. Tata Steel said " By reaching 5 million tonnes Tata Steel intends to move a step closer to its vision 'The opportunities of tomorrow and creating future' that will make us an EVA positive company

Tata steel will be investing Rs. 7800 crore to raise its capacity to 7.4 Mtpy at Jamshedpur. The company

Feature

envisages de-integrated steel production process according to which Tata Steel will produce only semi-finished products such as billets, slabs and hot-rolled coils at Jamshedpur, while the products will be finished near the market where it would be sold. A split production system would enable savings of US\$50 per tonne for Tata steel, as there would be savings in freight costs. This will help the company to expand its capacity to 15 Mtpy by 2010.

(b) Tata Steel will be setting up a six million tonne steel plant at Kalinganagar in Jajpur district of Orissa an investment of Rs. 15,400 crore which will be completed in two phases of three million tonnes each. The first module will comprise a blast furnace, coke ovens, sinter plants, caster and Rolling mill and will be completed in four years. This is to be followed by a second module within the next two years. The project also includes development of captive iron ore mines to meet the requirements of iron ore for this plant.

Tata steel will also be setting up a cold rolled steel processing plant in gopalpur in orissa at a cost of Rs. 500 crore as part of forward integration for the kalinganagar plant.

(c) Definitive agreements for participation in a joint venture for a deep water sea port in damra in Orissa has been signed between Tata steel and L & T. A 50:50 equity agreement, it involves development of state-of-the-art deep water port capable of handling bulk cargo and capsized vessels. During the first phase, which will be completed by 2007, a port capacity of 12.5 Mtpy will be created. Within the next three years, during the second

Another expansion plans in steel projects are enumerated in the following table:

Company	Type of projects	Investments	Year of completion
Vishakapatnam Steel Plant (RINL)	Capacity expansion to 10.2 million tones (3 Mtpy). Initially the capacity would be enhanced to 7 Mtpy of hot metal by 2007. In phase II of the plan, the capacity would be increased to Mtpy by 2011-12. About 25% of the product mix of finished steel would be flat products	Rs.20,000 crore	2020
Ispat Industries Ltd.	Expansion at Dolvi from 2.5 Mtpy to 3.2 Mtpy, With balancing and de bottlenecking, the capacity for production of hot rolled steel will reach 3.6 Mtpy by 2005-06 + Smelting up a 110 MW captive power plant at Dolvi	Rs.1000 crore + Rs. 350 crore	Mid 2005
Jindal Vijayanagar Steel Ltd.	A new 1.3 Mtpy Blast Furnace to expand hot metal capacity from 1.6 Mtpy to 2.5 Mtpy To 4 Mtpy + A 100 MW power plant	Rs.1275 crore	Mid 2005
Essar Steel Ltd.	A 1 Mtpy capacity Blast Furnace to expand its existing capacity to 3.4 Mtpy	Rs.300 crore	
Jindal Steel & Power Ltd.	Expansion from 1.15 Mtpy to 2.15 Mtpy, DRI production capacity for the existing 6.5 lakh tonnes per year to 1.31 Mtpy and will increase its power generation capacity from 205 MW to 253 MW + steel melting shop from 4 lakh tonnes per year to 11.5 lakh tonnes per year + capacity expansion from 3.5 mtpy to 6 Mtpy.	Rs.1200 crore	
Bhushan Steel and Strips	Expansion at Khopoli by 0.5 Mtpy for producing CRCA steel, GP/GC sheets and Coild, precisin tubes and CDW tubes		
Jindal Stainless Ltd.	0.5 Mtpy expansion	Rs.350 crore	
Tinplate Company of India	Expansion from 90,000 tpy to 125,000 tpy + new tinning line	Rs.46 crore + Rs.110 crore	
Jindal Iron & Steel Co.	Capacity expansion to 10 Mtpy + a 5 Mtpy capacity integrated steel plant in the Midnapare	Rs.1275 crore + Rs.12,000 crore	2010

Feature

Company	Type of projects	Investments	Schedule for completion
POSCO + BHP Billiton	10 Mtpy capacity steel plant, initially a 3 Mtpy capacity steel plant would be set up which would be expanded to 10 Mtpy capacity in about nine years time.	Rs.39,000 crore	
Jindal Steel & Power (JSPL)	2 Mtpy capacity integrated steel plant and a 80,000 tpy ferro alloys plant in Angul and Keonjhar + a 200 MW capacity captive power plant	Rs. 4000 crore	
Bhushan steel And strips Ltd.	a 1.2 Mtpy capacity with a 300 MW capative power plant scheduled to be completed by 2007 at Lapanga in the Jharasguda district	First phase - Rs. 1650 crore Second phase - Rs. 180 crore	2007
Vedanta Resources	a 5 Mtpy steel plant in two stages	Rs.12,000 crore	
Jindal Stainless Ltd. (JSL)	a 0.8 Mtpy plant 0.8 Mtpy	2006-07 2009	
Sunflag Iron & Steel Co.	1 mtpy steel plant at Sambalpur district	Rs. 937 crore	2007
Orissa Sponge Ltd.	Modernization in two phase for its plants at Guria and Govindpur in the Samblapur district	Rs. 1037 crore	2007
SPS Sponge Iron Ltd.	To install a sponge iron / steelmaking plant in the Jharsguda region. First phase to see an investment of Rs.62 crore. Second phase a 2 lakh tonne per year capacity sponge iron plant and then add a 2.6 lakh tpy billet caster, in the third phase a blast furnace will be installed to produce 2 lakh tpy of cold pig and rolling mill to produce 1.lakh tpy of finished steel and a 20 MW capacity power plant	Rs. 400 crore	First phase at an investment of Rs. 62 crore - by mid 2005
VISA Industries	A 1.5 Mtpy capacity special steel plant	Rs. 1600 crore	In phases by 2007-08

phase, the capacity of the port will be doubled. The port which will have a berth length of 550 meters after the first phase will be able to handle two vessels alongside, with two ship loaders and unloaders. A board gauge railway line will link Bhadrak to Dharma. The total project cost would be about Rs. 2000 crore.

Under its corporate plan Tata Steel

has envisaged a number of overseas acquisitions and stand alone brownfield and greenfield projects.

Problems of iron ore and coking coal

Iron ore – A study by FICCI reveals that the demand for iron ore in India would increase by 28 per cent in 2004-05, by 11 per cent in 2005 –

06 and by 10 percent by 2006-07 and would continue to increase in future. Ore production in India is growing by 4 to 5 per cent. The study has recommended increasing supply of iron ore, reviewing the policy of iron ore exports, a faster pick up in domestic production improving facilities of railway infrastructure for movement of iron ore from mines to domestic steel production centers.

Some of the efforts of the Indian steel producers to augment supply of iron ore are mentioned below.

(a) SAIL has signed a MoU with Kudremukh Iron Ore Co. Ltd. (KIOCL) to form a 50:50 joint venture company to develop iron ore mines at Barsua, Taldi and Kalta in Orissa.

SAIL's decision to merge its fully-owned subsidiary, IISCO, Burnpur, within itself will give an access to the Chiria mines which has the second highest

iron ore deposit in the world.

SAIL is planning to enter into contracts with the Australian mining majors like BHP Billiton for importing iron ore.

(b) Jindal Vijaynagar Steel Plant (JVSL) is negotiating with the Karnataka government for all coating iron ore mines in the Bellary region at Ramandurg having a reserve of 120Mt.

(c) Ispat Industries Ltd. has already acquired iron mining leases in Sindhudurg district of Maharashtra. Its dolvi plants is also situated in the same district. The company has also applied for iron ore mining leases in the keonjhar district of Orissa and looking for similar facilities in Jharkhand.

(d) Essar Steel Ltd. is planning to set up a 4 Mtpy capacity pellet plant in Orissa. Clearance from the Orissa government is awaited.

(e) Vizag Steel Plant is negotiating with the Australian majors for importing iron ore on long-term contract basis or having a joint venture project with them.

Coke and met-coke

Coking coal can be used to produce metallurgical coke (met-coke) which has a high comprehensive strength at elevated temperatures. Coke used for metallurgical purposes must be carbonized in the high temperature range between 900°C to 1095°C.

Indian coal has a very high ash content between 25 to 40 percent and is not suitable for use in blast furnaces (BF). In the BF charge mix about 0.55 metric ton of coke is required per tonne of hotmetal.

India imported 22.66 Mt of coal (Bituminous and Anthracite) 13.20 Mt of met-coke and 1.84 Mt of coke in 2003.

To facilitate their expansion programme, Indian steel producers are gearing up to import their requirement of coke / met-coke from the overseas suppliers.

Infrastructural problems

Indian infrastructure development is not adequate to handle the requirement for expansion of the Indian steel industry.

(i) Railways : (a) Railways may not be able to provide the required wagons for movement of raw material and finished steel.

(b) Railways may not be able to attract additional investments in the area of track renewals and its expansion. This will exacerbate the problem of insufficient linkage between the sources of raw materials and production on the one hand and centers of consumption on the other.

(ii) Roadways : (a) The much publicized golden quadrilateral which was to be completed by December, 2004 may take another year to be fully completed. The North-South / East-West corridor has just started preliminary work in small areas.

(b) The road density index in India is about 25 percent of those prevailing in developed countries. There has not been any major expansion in road network in the states where steel plants are located.

(iii) Ports : Due to lower turnaround time at Indian ports, the plants have maintained large inventories of raw materials and also bear additional cost on account of demurrages etc. The international benchmark for container vessel turnaround time is 24 hours, while in best Indian ports like INPT and Cochin it is about 40 – 50 hours and 145 hours in Chennai.

(iv) Power : India's power sector is in a bad shape. Generation is low and frequency is fluctuating. The Plant Load Factor (PLF) has not maintained a high level in the country as a whole. Many steel producers have been compelled to install captive power plant to which are generating power at a much lower cost than the SEB rates.

India's steel production by 2011-12

If all the greenfield projects and

expansion of the existing capacities announced are implemented as per schedule, India's hot metal production capacity may reach 80 Mt by 2011-12. This will mainly consist of SAIL 20 Mt, Tata Steel (including the Orissa project) – 13.7 Mt, POSCO-Billiton – 10Mt, JISCO – 10 Mt, RINL's VSP – 7 Mt, Vedanta Resources – 5 Mt, Ispat – 3.6 Mt, Essar – 4 Mt, JVSL – 3.3 Mt, VISA – 1.5 Mt, Bhushan – 2.8 Mt etc.

Conclusion

All major steel producers are expanding their capacities and many new greenfield projects are coming up mostly in Orissa. The total investment may reach over Rs. 70000 crore in Orissa alone. How such a huge investment will be mobilized is a big question. Most of the producers have initially planned to invest up to 2006-07 and will then survey the market condition to make their further investment move. Industrial growth at 8 to 9 per cent per year up to 2011-12 is required to help consumption 60 Mt. As for increasing rural consumption, bold and pragmatic measures are required to be taken as all previous attempts have practically failed to succeed. It all empts to increase steel consumption succeed to reasonable extent, doubling steel consumption in the country seems to be an insurmountable task.

The product mix of the finished steel consumption of 60 Mt by 2011-12 is heavily tilted in favour of flat products at 60 per cent. With the thrust given by the government on construction sector and infrastructure, the product-mix may show a different picture by 2011-12.

