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INTRODUCTION

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Technology Routes of Indian Steel Industry

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The Indian Steel Industry has grown over the last four decades using the following technological routes in two different sectors.

Primary Sector

Coke Ovens – Blast Furnaces – Basic Oxygen Furnace

Secondary Sector

- Scrap based EAF steel making
- DRI based EAF steel making
- Mini Blast Furnace based plants
- Induction furnace based plants

The technological performance of Indian steel plants in terms of specific energy consumption, specific consumption of raw materials and consumables, environmental and pollution norms and cleanliness is significantly lower than that of the advanced countries. On the other hand however, the newly commissioned steel plants compare favourably with the steel plants of developed nations.

Only 30 per cent of Indian steel is secondary refined. It is much higher in the advanced countries. Only 70 per cent of India's steel is continuously cast. Indian steel plants generate two times more slag and dust, 20 times more waste water and 5 times more waste gases compared to the developed countries. Energy consumption is 6-9 Gcal/tcs in India whereas it is only 4-6 Gcal/tcs abroad. Indian steel producers incur almost 40 per cent of total costs on energy whereas it is much lower elsewhere.

However in spite of all the inferior state of technology used, cost of production is low due to the low cost of primary raw material and labour. The indications are that these two advantages would get diminished in future making Indian steel less competitive unless our technology improves significantly and at a faster pace.

The inferior performance of the Indian steel plants is often due to the inefficient use of technology, mismatch between the imported technology with indigenous situation, obsolete technology and technological indiscipline. Future, the Indian steel industry until recently has been engaged in production – driven marketing instead of market-driven production as it should be. As a result, bulk of steel tonnage in India still belongs to the garden variety. There is still very little appreciation of what specific steel one should use for a given application.

The general performance status of CO-BF-BOF, EAF, IF and the DR based plants in India is given in Table below:

Technological Performance Indices of Steel Industry in India

1	Integrated Plants (CO-BF-BOF)		Utilization, %	64-66
			Hot strip mill	
	Sinter Plant, t/m^2/hr.	1-1.2		
	Blast Furnace, t/m^3/day	1.2-1.8	Cold Rolling Mill	48-50
	BOF, Blows/Converter/Yr.	7000-10000	Energy Consumption Gcal/tcs	7-11
	Casting Sped, m/min	0.8-1.0	Cleanliness (S,P,O & N) ppm	700-1000

2	Electric Arc Furnaces Furnace Size, t Oxygen consumption, Nm^3/t Specific Productivity t/h/MVA	20-150 5-15 0.5-0.9	Tap to Tap time, min Power Consumption, KWh/t Refractory Consumption, Kg/t	100-200 550-650 10-26
3	DR Plants Coal based Module Size, Mt Type of Ore Coal Consumption Per tonne of DRI Gas Based Module Size, Mt Type of Ore	 0.03-0.15 Lump 1.2-1.3 0.44-1.0	 C fix/Fe Ratio S in DRI, % P in DRI, % Metallisation, % Energy Consumption Gcal/t Lump + Pellets Metallisation, %	 -0.5 <0.05 0.06-0.08 88-92 2.7-3.0 92-93

Induction Furnaces

Parameters	USA based IF Unit	Indian IF Sector
Yield %	95	89.5-93
Tap to Tap time, Mts. Power consumption, KWH/tonne of ingot/billet	48 (10 tonne furnace) 525 (billet)	50-180 (2.5 T and 12 T Free resp.) 650-1180 (ingot)

Source: Options for making liquid steel in India, Paper by Dr S. Banerjee

The technological performance norms of the BF-BOF and the EAF based routes in India are around 70 per cent of the corresponding norms in the technologically advanced plants abroad. However the performance norms of DR plants compare favourably with those of technologically superior plants elsewhere in the world.

Areas of Technological Concern

While assessing and adopting any technology in India, the following considerations need special attention.

Firstly, except for the quality of our coal, the quality of the other raw materials is by and large satisfactory. Indian coals (both coking and non-coking) are of inferior variety due to high ash content. These adverse parameters have significant bearing on the iron making operations. These can be improved substantially by washing, but this will require large investments.

Secondly, our poor infrastructure and high cost of power, transportation etc. aggravate the whole process, not just of selection of technology, but also its adoption and scope of utilisation.

Thirdly, the recent introduction of global competition in steel industry has forced the industry to improve the product quality, become cost competitive and enhance customer satisfaction, amongst which the prime concern is the product quality today. We, however, still have a large ground to cover in this area.

Technological Improvements in Indian Steel Sector

Improvement in the technological performance of an industry is a continuous process. While adopting a given technology, we have to consider one or more of the 4 broadly available options.

1. Incremental improvement schemes: Incremental improvement of technological operations to reduce cost, improve quality and to produce new value added products.
2. Addition, Modification and Replacement (AMR) schemes: Improvement of the performance of the existing units with comparatively less investment through addition, modifications and replacement of minor supporting equipment.
3. Modernisation schemes: Introduction of improved technologies that call for large scale modifications of major plants, equipment's and the facilities, requiring substantial investment.
4. Emerging technology adoption scheme: Selection of new emerging technology in green field size. This calls for large investment.

The choice of a suitable strategic scheme is a complex decision. Informed decision making requires comprehensive expertise in technology management.

Strategy for Selection of Technology Routes to Make Liquid Steel

India would need to produce increasing quantities of steel in the coming years. It has the following three options to produce the additional in steel it needs:

1. Increase the production from the existing plants
2. Manage more efficiently the on-going steel projects at green field sites and bring them to a commissioning.
3. Set up new greenfield site plants

Additional liquid steel from the existing plants

Due to scarce capital, the first option is the most preferred the fastest and also the most cost effective way to produce additional quantity of liquid steel.

Additional liquid steel can be produced using any technological route since:

1. Each technological route has idle capacity. In addition the capacity of some of the existing plants can be enhanced through the introduction of complementary balancing facilities.
2. All the technological routes except DRI route presently operate at low efficiency levels when compared to plants abroad. The factors which,
3. However, constrain the increase of liquid steel production from the 5 technological routes.

It is observed that even though the current production shares of the EAF (DRI + Scrap) and the IF routes are rather small; growth rates of these two technological routes are impressive. If the availability of metallic and power improves, the steel produced through these routes will continue to grow.

It is, therefore, hard to envisage that any of these 5 technological routes would disappear in India. On the other hand, unless the market forces or the technological factors radically alter, each one of them has the potential to produce the additional quantity of liquid steel at a competitive cost.

Thrust of Future Technologies

While selecting future technologies, the following aspects are to be kept in view: They should be:

- Environment friendly
- Energy efficient
- Continuous processing
- Compatibility with Indian raw material and operating conditions.

India is one of the few countries which are rich in most of the raw materials for iron and steel production, but not without their own peculiarities. It is of primary importance that any technology considered in future should be compatible with Indian raw materials.

In order to reduce the consumption of prime coking coal, the new technologies in coke making such

as partial briquetting of coal charge, stamp charging, coke dry cooling, selective crushing of coal should be considered.

Blast furnace will continue to dominate the Indian iron making scene well into the 21st century. But it has to reduce its consumption of metallurgical coal and improve other operating parameters.

Alternative technologies for iron production are to be vigorously pursued. The technology should be such that the iron is produced at the lowest cost using Indian iron ore and coking and non-coking coal.

Closely following the CO-BF-BOF route will be the Corex-BOF-CC-RM route in terms of cost competitiveness. New smelting processes like Romelt are also expected to be employed as an alternative to BF/MBF primarily to use metallurgical and mining wastes.

Production of DRI/HBI will continue to increase in the coming years. In the sponge iron technology, gas based processes will get preference in the future, of course, subject to gas availability in the country.

DRI/HBI and/or Hot Metal will undoubtedly be in larger demand for the EAF so as to keep tramp elements in control.

In the area of steel making, the basic oxygen furnace will reign the Indian scenario till a commercial continuous steel making process is developed. Electric steel making process will supplement, but its share is likely to stabilise at about 30 per cent of the country's total production. Energy inefficient open hearth furnaces will be phased out gradually.

Ingot casting will give way to continuous casting. In addition, more attention would be paid to the near net shape production, which has already been developed abroad. Some of the new plants will adopt thin slab casting technology for production of HR coils. Near net shape casting of strips and wire rods may also become a reality by 2011-12.

Integrated compact mill comprising Corex-gas based DR plant-twin shell DC-EAF-LF-thin slab casting and rolling is expected to become a preferred choice in some locations.

For economic production of long products endless and direct rolling technologies will be used.

Finishing processes will be of continuous type. Casters will be linked to the mills either through hot charging or direct rolling. In the cold processing of strips, established processes like CAPL will be followed. Complete automation of major operation shall be carried out in cold rolling shop in one single line, starting form pickling lime to continuous cold rolling to continuous annealing and finishing lines including inspection and packaging. This will be promoted to reduce cost. Such a profound evolution is likely to be a major component of plant design in future.

On an overall basis, manufacture of finished products starting with raw materials will be accompanied in fewer steps which will be highly energy efficient as well as environment friendly. These two aspects will get more importance during the planning stage itself in any future steel plants.

The steel industry in India has advantages for cost effective production of metallic. If these advantages could be synergised with innovation and flexibility, India would emerge a leading nation both in conventional and non-conventional routes of iron making.

Indian Mining industry poised for redundancy on state apathy

Indian mining industry has undergone grueling experience over the past 1 year. Apart from its pivotal role in propping the country's GDP it provides employment to nearly 1.5 million people. India is abundant in natural resources, but its value and potential can be unleashed by extraction not by conservation. Speaking to the press on the sidelines of AGM of Federation of Indian Mineral Industries, Mr. HC Daga, senior VP of FIMI and Mr. RK Sharma secretary general of FIMI provided an insight into the malaise afflicting this sector. Indian economic growth has slumped to 6.5% in the last fiscal

against 8.4% in 2010-11. Mining sector has replicated the abysmal economic condition with decline of 0.9% versus growth of 5% in the previous year. Numbers are merely of historical value but more importantly it is the deepening policy and economic hiatus which has paralyzed execution as parochial passions take precedence over nationalistic objectives. The appalling state of affairs is exemplified by 45000 to 50000 mineral concessions applications pending with central government followed by thousands with states. MMDR bill 2011 has been pompously touted by the government as panacea for the mining industry. Presently the bill is with the standing committee undergoing deliberations. Glaring ambiguities and disregard to the nationalistic principles in mining takes the sheen away even before it is enacted by the parliament.

The proposed mandatory contribution of 26% of the profit for coal and 100% of the royalty on other minerals to District Mineral Development Fund would raise the incidence of taxation on mining industry to astronomical levels thereby making it unattractive for investors. The tax incidence would rise from current 47.7% in case of Coal to over 61%; in case of iron ore it would rise from current 43% to 55%. This will be the highest in the world making investment unviable. Commitment for Corporate Social Responsibility is over stretched with states clamoring for hefty increase in royalty rates apart from stamp duties and compensatory afforestation charges ranging from INR 26000 to INR 122680 per hectare in various states. The net present value ranges from INR 4.8 lakhs to INR 11.2 lakhs per hectare depending on the density of the forest etc. MMDR bill enhances discretion and ambiguity by proposing competitive bidding in grant of prospecting license rather than transparent tender process. In area were only reconnaissance prospecting is done any such speculative auction will entail uncertainties about actual mineral content and over payment thereby discouraging FDI. Simplification of the regulatory regime is hogwash with more than half of the bill (72 out of 139) delineates on regulatory regime. The multiplicity of regulatory body at the state and central level will not vitiate the spirit of transparency rather it will promote corruption. Punitive measures have been made draconian with addition of sections giving exemplary powers to impose penalties and setting up of special courts to prosecute the mine owner. Such draconian provision provides scope for black mailing and corruption.

Indian iron ore industry is a recent example of victimization of miners. Unending tale of woes of this sector has impacted downstream steel industry as mills have been coerced into importing amidst abundant reserves in the country. If it was the death throttling production regulation in Karnataka under SC and CEC regime, mere pursuance of regional agenda by Orissa creating slew of logistical bottlenecks has been the climax. Central government has gagged export by the imposition of 30% export duty and hiking the export freight 4 times. Ironically only 50% of the iron ore fines is consumed by domestic mills. Hence creation of ostentatious export barriers has not only led to loss of foreign exchange (USD 8 billion in 2 years) but added to the unusable stocks leading to congestion at mine heads and environmental hazards. Cumulatively slew of retrogressive measures have brought down the production of iron ore to 169 million tonnes in 2012 from a level of 208 million tonnes in 2011, ashamedly commencing imports in a nation sitting over one of the largest reserves in the world. Some of the steel majors have been importing recently to the tune of almost 100,000 tonnes per month unable to meet their demands from domestic sources. In the process India has lost it standing as the 3rd largest exporter of iron ore to the world after only Brazil and Australia with export dropping to 60 million tonnes in 2012 from 96 million tonnes in 2011 and expected to reach a meager 40 million tonnes by 2013.

Even though the next 2-3 months availability will be augmented with re-opening of category A & B mines up to 50 hectares under SC guidelines it would barely suffice to meet the domestic needs. Karnataka is the hub of mining accounting for a quarter of iron ore production. It is feeder for major steel plants in South and Western India. Scarcity of vital resource has not only led to low capacity utilization but cost escalation by imports and inland transportation from central and eastern India. It has not only squeezed the margins of mills but also enhanced the inflationary pressure. Plethora of issues needs to considered and incorporated in the MMDR 2011 before it is enacted. Realistically no

law can be full proof which can address concerns of all segments. However mining industry having wide and multifaceted ramification on the economy, society and polity of nation needs to be more-broad based and evenly balanced with a nationalistic view rather than confined to singular regional agenda. At the same time environmental and CSR concerns not withstanding policy framework should be evenly poised to promote investment and FDI in a vital segment which hold to key to economic prosperity.

Source: Steel Guru

India's vision for 2020: Achieving international standards in terms of Minerals and Metals consumption

Indian Chamber of Commerce in association with the Ministry of Steel, Coal and Mines, Government of India and Deloitte Touché Tohmatsu India Pvt. Ltd organized the 'India Minerals and Metals Forum 2012' at the Hotel Le Meridian. Mr. Rajiv Mundhra, President Elect, Indian Chamber of Commerce inaugurated the session followed by a theme address by Mr. SK Roongta, Chairman Summit & MD of Vedanta Aluminum Ltd. Mr. Sriprakash Jaiswal, Hon'ble Minister of Coal, Government of India who was the chief guest at the event addressed more than 140 delegates from ferrous and non-ferrous metals & minerals industry and association. On the sidelines, the knowledge partner Deloitte released a report highlighting challenges facing the Indian Mining Industry and Global Insights. The report also throws light on the organic growth in Mining Industry and challenges of overseas investment in the Mining sector. Minerals and Metals sector have always been in the forefront of a nation's economy and India is no exception. Both ferrous and non-ferrous metals are equally important towards building up the country's future. Non-ferrous metals are gradually taking the Centre stage and the time is not far when it will be regarded as the future. India's non-ferrous metal industry, mainly consisting of aluminium, copper, lead and zinc has travelled a long way from where it was a decade ago. In the next decade, the industry is expected to see a dramatic turnaround with lots of expansion plans running at full capacity.

> "The chief of corporations should endear himself to all the people by leading a virtuous life, by controlling his passions, and by pursuing that course of action which is liked by all those who are his followers."
>
> - Chanakya

Mr. Rajiv Mundhra, President Elect, Indian Chamber of Commerce said, "The country is heading towards becoming a global player in non-ferrous metal industry with most of production plants tapping potentials in the foreign markets. However, the Indian iron ore mining industry, in 2011-12, has been severely affected by events related to regulation, policy and other environmental concern."

Mr. Sriprakash Jaiswal, Hon'ble Minister of Coal, Government of India Stated, "The environmental challenges are going to be more stringent in the years to come and the coal producers and consumers would need to address the issues for sustaining the projected growth in our energy planning through adoption of state-of-the-art technologies and human resource." He further added, "By 2031 the coal requirement in India would be 2 billion tonnes and import dependence would stand in the range of 36-55 per cent. Due to the international coal price volatility the economics of power generation in India is getting hampered and it is creating a cost pressure on the consumers, therefore the government is trying to boost coal production and is also looking at PPP in coal sector to meet the rising demand."

Others present during the summit were Ms. Natasha Singh Sinha, Finance Director of MESCO Steels Ltd, Mr. NK Nanda, Technical Director of NMDC and Dr. Thibedi Ramontja, General Director of Department of Mineral Resources, Republic of South Africa. The mines and minerals sector today constitutes a vast expanding canvas. On one hand, achievements in mineral technologies are constantly providing new opportunities, but on the other, globalization in all its socio economic dimensions is posing increasingly complex challenges. The strategies to meet the increasing demand of raw material and to mitigate the adverse impacts have therefore to be a part of the mineral

development strategy. As such, the role of mining legislation for any country needs to be formulated in terms of strategies best serving to national interest in the competitive world.

Source: Steel Guru

By 2013, SAIL's capacity will increase 70% to 23.4 mtpa: Mr C S Verma

Interview with Chairman, SAIL

In an interview with Mr *Sudheer Pal Singh*, Steel Authority of India Ltd (SAIL) Chairman, Mr C S Verma, who also holds additional charge of NMDC Ltd, talks on the steel giant's follow-own public offer (FPO) plans, the status of the company's Rs 75,000-crore modernisation and expansion plans and its demand outlook. Edited excerpts

- Do you think current market conditions are ripe for the launch of the FPO of SAIL?

  The timing of the FPO would be decided in consultation with the government of India/Book Running Lead Managers (BRLMs), keeping in view the market conditions.

- How much money would the government be able to rise? What would be the extent of divestment of the government?

  The money to be raised would depend on market conditions. The extent of divestment by the government may be around 10 per cent of its equity in SAIL. This would bring the government holding in SAIL to around 75 per cent, which will be in line with the recent thinking of SEBI (Securities and Exchange Board of India) for listed companies — of having 25 per cent non-promoters' shareholding.

- High coking coal prices have been one of the reasons for the delay in SAIL's FPO in the past. How has the situation improved on this front?

  There is no correlation between coking coal prices and issue of FPO. However, we would like to inform the imported coking coal prices have come down by about 20 to 30 per cent in the current year, compared to last year.

- What is the borrowing and cash reserve position of SAIL at present?

  The borrowing level of SAIL is Rs 16,320 crore and the cash reserve Rs 5,900 crore on March 31, 2012.

- What is the current status of the company's Rs 75,000 crore modernisation and expansion plan by 2014? How much is the capital expenditure plan for the current financial year?

  The current phase of modernisation and expansion plan of SAIL with an envisaged expenditure of Rs 72,000 crore is in an advanced stage of implementation, which would increase hot metal capacity from the current 13.8 million tonnes per annum (mtpa) to 23.4 mtpa. The plan includes modernisation and expansion of its five integrated steel plants at Bhilai (BSP), Bokaro (BSL), Rourkela (RSP), Durgapur (DSP), Burnpur (ISP) and Special Steel Plant (SSP) at Salem and iron ore mines, including new mines at Chiria and Rowghat. The modernisation and expansion plan for Salem Steel Plant has been completed in September 2010 and is under regular operation.

  For other plants, completion of facilities has already commenced in a phased manner. The sinter plant at RSP has also been put into operation. Sinter plant, coke oven battery and wire rod mill at ISP are in an advanced stage of completion and likely to become operational in a few months. Apart from this, two new blast furnaces of 4060 m3 capacity, one each at RSP and ISP, are expected to come into operation by fiscal-end, thereby enhancing the installed capacity to around 20MT. The overall completion of the current phase of modernisation and expansion is expected by 2013. The cumulative expenditure incurred so far on this programme

is Rs 36,300 crore, including Rs 11,000 crore in 2011-12. For 2012-13, the expenditure is expected to be around Rs 12,000 crore.

- What is the situation on the demand front?

The 'World steel Short Range Outlook April 2012' states that "India is expected to resume its high growth trend in the next two years. In 2012, India's steel use is forecast to grow by 6.9 per cent to reach 72.5 MT and in 2013, the growth rate is forecast to accelerate to 9.4 per cent on the back of urbanisation and surging infrastructure investment." Further, according to the projections of the 12th five -year plan,

Demand of steel in the country is likely to go up to be 120 MT by 2016-17. Crude steel production capacity by the terminal year of the 12th five-year plan is likely to be 150 MT in India. India certainly has enormous potential, necessary resources and capabilities to become a global supplier of quality steel.

Source: Business Standard

Performance of Indian Steel Industry in 2011-12

1 During 2011-12, production of steel for sale was at 73.41 Million Tonnes. This represents a growth of 7% compared to the same period last year

2 The contribution of non-alloy steel segment in 2011-12 was at 68.93 Million Tonnes. This represents a growth of 7.3% over the last year

3 In the total production for sale of finished non-alloy steel, the contribution of the non-flat segments was at 33.98 Million Tonnes. This represents a growth of 8.2% over the last year

4 The production of finished steel for sale of flat product was at 34.95 in 2011-12 Million Tonnes. This represents a growth of 6.4% over the last year

5 In the non-flat non-alloy segment for sale of bars and rods, structural and Railway materials there share was at 28.28 Million Tonnes. This represents a growth of 9.10% over the last year

6 For the flat segment except for plates, there was a growth for all other segments. The growth for HRC was 13%, and the growth of CRC was 6.9% over the last year.

7 During 2011-12 export of total finished steel was 4.04 Million Tonnes. This represents a growth of 11.1% compared to the last year

8 The import of total finished steel during 2011-12 was at 6.826 Million Tonnes. This represents a growth of 2.4% over the last year.

9 In 2011-12, India was the net importer of steel.

Source: Joint Plant Committee

Indian Steel Industry in 11th Plan

1 During 2011-12, the terminal year of 11th Plan, the crude steel capacity stood at 89 Million Tonnes which represents a growth of 9.5% during the 11th Plan.

2 The production of crude steel in 2011-12 was 74 Million Tonnes. This represents a growth of 7.7% compared to the 10th Plan period

3 Production for sale for total finished steel was at 73.42 Million Tonnes during the terminal year of 11th Plan period. This represents a growth of 6.9% during the 11th Plan

4 India remained a net importer of total finished steel during the entire 11th Plan. The exports and imports were having a growth rate of -5.1% and 6.7% respectively.

5 India's real consumption of total finished steel in 2011-12 was 70.92 Million Tonnes. This represents a growth of 8.7% during 11th Plan

6 India remains the largest sponge iron producer in the world and emerged as the 4th largest crude steel producer and the 3rd largest finished steel consumer in the world during 11th Plan period.

Source: Joint Plant Committee

Steel Minister directs SAIL to fast track expansion

BS reported that Mr. Beni Prasad Verma Indian steel minister has asked Steel Authority of India Limited to fast track expansion saying the government could not compromise with capacity addition in the sector which is crucial to the country. Mr. Verma said to review the capacity addition plan "There have been delays in SAIL's expansion, which is a cause of concern. This time there is a delay of 3 to 12 months in various expansion works. I have told them this is the last timeline, as we need to augment country's steel capacity and cannot compromise with this. "Mr. Verma said" I am not happy with their pace and have asked them to take action against contractors, some of whom are government companies to expedite the work. Besides, SAIL has been asked to initiate steps to fill up vacant post which is impacting expansion." He said that the process of award of works by the company has been time consuming and instructions have been given to fast track the same. Running behind schedule, the company has now fixed deadlines for completion of expansion projects at its Rourkela, Durgapur and Burnpur steel plants to March 2013 while for Bokaro projects it has been fixed for September next year as per a document. The INR 70,000 crore modernization projects at Steel Authority of India Ltd was taken up in 2007-08 to ramp up its capacity to about 24 million tonnes from 13.8 million tonnes and is likely to be completed by 2012-13.

> Wisdom is the assimilated knowledge in us, gained from an intelligent estimation and close study of our own direct and indirect experience in the world.
>
> — Swami Chinmayananda

Source: Steel Guru

Ministerial panel to review steel projects on July 9

Against the backdrop of major steel projects facing hurdles an inter-ministerial panel is scheduled to meet early next month to sort out issues impeding investments in the sector. A Steel Ministry official said "An inter-ministerial group (IMG) on July 9 would review the current status of major steel investment projects and find out solutions to problems impacting them." The group will have participation from ministries of steel, coal, mines, environment, railways and shipping among others. It would discuss issues including delays in environment and forest clearances and mining leases, iron ore and coal linkages and problems in land acquisition, besides other regulatory hurdles. Officials from key infrastructure ministries and representatives from major steel players like SAIL, RINL, Monnet Ispat, Jindal Steel, Bhushan Steel and POSCO are also likely to participate in the meeting. The steel ministry is concerned that delays in projects would result in India failing to meet the projected demand of 145 million tonnes by 2015-16. Some of the mega projects, including those proposed by ArcelorMittal and POSCO have remained nonstarters since last six to seven years as they could not acquire land and get regulatory clearances amid opposition from local people. More than 200

> The Directors (Managers) of such companies, however, being managers of other people's money than their own, it cannot well be expected that they should watch over it with the same anxious vigilance with which the partners in a private co-partner frequently watch over their own… Negligence and profusion therefore must always prevail more or less in the management of the affairs of such a company.
>
> -- Adam Smith
> – An Inquiry into "The Nature and Causes of the Wealth of Nation", P 31

Memorandum of Understandings in the sector are pending implementation. The demand for steel in India as per estimates has crossed 110 MT and would further grow to 200 MT by 2020 and 500 MT by 2050. The official said the steel ministry is concerned that if capacity addition is delayed, India the cheapest producer of steel in the world will have to import 50 MT of steel in the next few years.

Source: Steel Guru

Steel minister asks SAIL to adopt three pronged strategy for coking coal

To reduce SAIL's dependency on imported coal, Indian steel minister Mr. Beni Prasad Verma asked the PSU to adopt a three pronged strategy.

1. Increasing consumption of indigenous fuel.
2. Developing blocks allotted to it.
3. Fast tracking steps to acquire mines abroad.

Mr. Verma, after chairing a review meeting to look into coal requirements of the sector, told PTI that "I have asked SAIL to increase consumption of domestic coking coal and take it to about 60% of the total consumption and also develop two blocks Sitanala and Tasra alloted to it in Jharkhand".

Mr. Verma said he had also asked the steel major to step up efforts to secure coking coal blocks overseas to ensure the raw material security in the wake of higher demands for its expansion and modernization plans. Besides, he added that the PSU has been asked to introduce technologies which ensure consumption of low grade coal. Sitanala coal block is said to be housing 108 million tonnes of coal while Tasra, as per estimates, has about 285 million tonne of reserves of the dry fuel. Out of the total requirement of about 14 million tonnes of coking coal in a year, the Steel Authority of India imports about 10 million tonnes and sources about 3 million tonnes from Coal India subsidiary and Bharat Coking Coal. The remaining requirement is met through other sources.

Source: Steel Guru

SAIL to invest INR 3000 crore to hike Gua mine capacity

PTI reported that Steel Authority of India Limited will invest around INR 3,000 crore to quadruple capacity of its Gua iron ore mine in Jharkhand to 10 million tonnes per annum and put up a 4 million tonne per annum pelletization plant. A steel ministry source said that "SAIL has decided to increase the production capacity to 10 million tonne per annum in Gua. This will cost the company INR 2,087 crore. At the same time, a 4 million tonne per annum pellet plant will also be put up with an investment of INR 865 crore." The official said techno commercial discussions are in progress now for increasing the capacity at the mine and the contracts for developing the mine are likely to be finalized by October this year. The Gua mine was commissioned in 1958 and has 142 million tonne reserves. Though the mine has a production capacity of 2.4 million tonne a year, it could produce only half a million tonne in the last fiscal for the need of forest and environment clearances for most part of the year. The mine has remained closed since June last year in the absence of environment and forest clearance.

Source: Steel Guru

SAIL to become top iron ore producer in India – Mr. CS Verma

India's largest steel producer Steel Authority of India is hoping to emerge, over the next 18 months.

Mr. CS Verma CMD of SAIL in an interview with ET said that "If it can get clearances and approvals for all its captive mines, SAIL could surpass the iron ore production capacities of National Mineral Development Corporation."

Mr. Verma has recently taken over temporary charge of NMDC. The ramping up of iron ore mines is critical to SAIL's expansion to 24 million tonne of steel that has suffered a considerable delay.

Q. What made you accept the post of CMD at NMDC? Aren't your hands already full with many responsibilities?

A. NMDC offer was assigned to me and I could not deny any responsibility at a senior level. There is a lot of synergy between the operations of NMDC and SAIL. We at SAIL are operating mines similar to iron ore mines being operated by NMDC.

So, I don't see any difficulty in overseeing both the operations. I just need to devote more time because of additional responsibilities. NMDC is producing around 28 million tonne of iron ore. In SAIL, we are also producing iron ore, which is roughly around 25 million tonne.

And in the next one and a half years, our iron ore production is going to be around 42 million tonne when our steelmaking capacity will go up to a level of 24 million tonne. The iron ore production of NMDC will reach to around 40 million tonne over the next three years.

Today, we at SAIL have iron ore reserves of 4 billion tonne. Of the country's proved iron ore deposits, nearly 20% is with our company.

Q. What is the status of ICVL after some of its partners announced to pull out of the venture?

A. One of the partners of NTPC said that they want to withdraw from ICVL since it is meant for acquiring coking coal assets and NTPC doesn't have any interest in coking coal as its interest lies in thermal coal. Initial hiccups happen in any new company.

Source: Steel Guru

All expansion programs of SAIL on schedule except for Burnpur – Mr. C S Verma

State run Steel Authority of India said its INR 72,000 crore capacity expansion programs is more or less on schedule except for the Burnpur project which is facing delay of more than one year. Mr. C S Verma said that "But for Burnpur, in all other places, expansion by and large is in time. As Burnpur is concerned, there could not be any second opinion. Burnpur is delayed more than a year." He said that "The delay is due to unexpected molten debris at the plant site, which expanded the scope of work of the project. The debris could not be found when soil testing was done at the 100 year old site. The delay has also led to INR 2,000 crore cost overruns for the company which would now have to fork out INR 16,408 crore for increasing the plant capacity by 3 million tonnes per annum. Mr. Verma said that "The original plan was to complete all the expansions by March, 2013. However, this may not happen. There could a few months here and there. If you compare our expansion with RINL and other private sector companies, we are far ahead of. In all our plants, people are working in three shifts to complete the expansions." SAIL had embarked on INR 72,000 crore expansion plans in 2009 to increase capacity to 23.46 million tonnes per annum from 13.82 million tonnes per annum now by March, 2013. Expansions are being carried in all its five integrated facilities and three alloy steel making facility. SAIL has already placed orders worth INR 59,000 crore and has spent over INR 38,500 crore for expansion.

Source: Steel Guru

Turnaround in Indian steel consumption surprises industry sustainability eludes

Silent turnaround in steel consumption in India has surprised many in the industry. Steel market essentially becoming a function of throes of speculation has culminated in disbelief about the upswing in consumption by 8.8 % in Q1. Silvery streak in gloomy canvass stands in contrast amidst plummeting economic indicators. An abysmal 5.3 % GDP in March and Industrial production which shrank by an unexpected 3.5% in

An adoration reigned in the yearning heart, A spirit of purity, an elusive presence of faery beauty and ungrasped delight Whose momentary and escaping thrill, However unsubstantial to our flesh, And brief even in imperishableness, Much sweeter seemed than any rapture known Earth or all-conquering heaven can ever give.

--Savitri

March had rarefied atmosphere. In an economy desperately desirous of limping back to normalcy key demand driving sectors viz., construction, automobile and infrastructure have played a stellar role in this revival path. Infrastructure growth in May of 3.8 % higher than April 3.1% is encouraging but far from the 5% achieved during the same period in 2011. Infrastructure has weightage of 37.9% in Industrial output. However the construction segment and automobile segment have lagged.

Sluggishness notwithstanding construction and automobile the core sector has notched impressive growth in May as follows:

Coal	Crude Oil	Petroleum	Steel	Cement
8%	0.5%	2.9%	4.9%	11.3%

However the malaise of high inflation leading to prohibitive lending rates has stalled major CAPEX project in construction segment. Turnaround from 1.5% in to 8.8% from last year in this year in Q1 seems miracle silhouetted against a dismal demand triggers. Some extent the Provisional estimates by the Joint Plant Committee under the Steel Ministry indicate that consumption for the June quarter grew to 18.195 million tonnes. In the same quarter last year, consumption was 16.72 million tonnes, registering a mere 1.5% growth. Total production of finished steel for the latest quarter grew 4.9% to 18.87 million tonnes against 18 million tonnes in corresponding last period. Imports rose sharply by 41.2 per cent to 1.99 million tonnes during the quarter (1.41 million tonnes). Exports were down 15.2 per cent to 1 million tonnes (1.18 million tonnes). The numbers certainly have certainly expectancy in beleaguered economy. The improved consumption is led by demand for long products from ongoing projects in the construction sector, though fresh investments are not happening and might be a tapering effect.

Halo of growth should not be oblivious to the stark reality that inflation continues to hover above 7.5 % and the fiscal deficit in is above 5% obliterating any signs of reduction in lending rates. It needs no emphasis that long product market has been extremely volatile during Q1 and bulk of inventory pile up and price flares where result of anticipated price hike and cost escalation rather than actual demand. Depreciating Indian Rupee coupled with power shortage, hike in power tariff and iron ore shortage have been main propellers of price and speculative buying. Flat product market has never seen light of the day in the last 18 months with mills playing second fiddle to the swings in import parity. Stocks remain high with mill and price maintains a stoic silence. Indian mills capacity expansion will do little to salvage the situation as the production will certainly surpass last year's figure of 72.5 million tonnes. World Steel Association short range outlook for 2012 pegging demand growth at 6.9% to 72.5 million tonnes is plausible only with unleashing of new infrastructural projects and radical policy measures to trigger demand. Else the euphoric numbers will vanish in no time.

Source: Steel Guru

SAIL and Kobe Steel seal pact for ITmK3 based steel plant at Durgapur

India's largest steel maker Steel Authority of India Limited and Kobe Steel of Japan signed a memorandum of agreement at Kobe's headquarters in Tokyo for setting up a 0.5 million tonne per annum iron nugget making plant using Kobe's patented ITmK3 technology at SAIL's Alloy Steels Plant in Durgapur, West Bengal, India with an investment of INR 1,500 crore. The agreement was signed by SAIL Chairman, Mr. CS Verma and Kobe Steel President & CEO, Mr. N Sato in august presence of Mr. Beni Prasad Verma, Union Minister for Steel. As per the agreement, SAIL and Kobe Steel will be entitled to equal share of

Ignited Thoughts

Few trends could so thoroughly undermine the very foundation of our free society as the acceptance by corporate officials of a social responsibility other than to make as much money for their stockholder as possible.

--Milton Friedman (1962)

production from the plant for captive use. A joint venture company 'SAIL-Kobe Iron India Pvt. Ltd.' in which SAIL and Kobe Steel hold equal equity, has already been incorporated. For production of 0.5 million tonne of iron nuggets, the plant to be set up at SAIL's Alloy Steels Plant in Durgapur will require around 0.8 million tonne of iron ore fines per annum. The Gua Iron Ore Mines of SAIL will supply 0.64 million tonne of fines from fresh arising's and 0.16 million tonne from dumped fines to meet this requirement. Output from the proposed plant will be shared between SAIL and Kobe Steel for captive use in their own plants/joint ventures.

Speaking on the occasion, Steel Minister Mr. Beni Prasad Verma expressed his happiness at the joint venture of SAIL and Kobe Steel and was optimistic about more projects for the Indian steel industry with the help of Japanese technology. He said that "The ITmK3 technology will also utilize dump iron ore fines, disposal of which has become an environmental issue."

Mr. C. S Verma remarked that "With this joint venture with Kobe, SAIL is going to achieve twin objectives of bringing in latest technology to the country, and also adopting environment friendly processes. This will be a milestone in the history of SAIL, setting new benchmarks of international collaboration in the field of iron-making. This is the first step of our collaboration with Kobe which could extend to other areas in future." Expressing his earnest wish that ITmk3 technology will contribute, through this joint venture project with SAIL, to further development of Indian Steel industry, Kobe Steel President Mr. Sato agreed with SAIL Chairman stating "This ITmk3 JV project will become a golden opportunity for the both companies to explore other fields where we can collaborate for mutual benefit". SAIL and Kobe Steel had earlier signed a MOU on 30th March 2010 for conducting a joint feasibility study for exploring and commercialization of ITmk3 technology developed by Kobe for production of iron nuggets used for steel production. The pre-feasibility study prima facie establishes that the project is economically viable. ITMk3 stands for 'iron making technology mark three'. This is a proprietary technology of Kobe for producing a premium quality pig iron (nuggets). One of the features of ITmk3 process is that it can produce iron nuggets by utilizing relatively low-grade iron ore fines and non-coking coal as major raw materials and does not require either iron ore lump or blast furnace coke/coking-coal. Also, ITmK3 does not require coke oven plant or sinter plant for producing iron nuggets. CO2 emission is also less as compared to production through the blast furnace route, making the technology very environment-friendly.

Source: Steel Guru

Indian Iron & Steel Sector - Its Competitiveness

The Indian steel sector is going through an important and critical phase of high capacity addition. It is estimated that 62MT of steel capacity will be added in the 12th Five Year Plan. There will be several challenges which would have to be faced while creating this proposed steel capacity addition.

These challenges will be in the form arranging finances of mega size at affordable cost (approximately $50 billion), securing raw materials linkages and supply specifically cooking coal, upgrading logistics, infrastructures for incoming supplies and raw materials & outgoing manufactured products, finding markets for the upcoming capacity, addressing the sustainability & environmental issues, strategizing and arranging for talent pool.

The Top 10 Countries for Crude Steel Production (million tonne) For the Year 2010 is as given in the table below:

S.No	Country	Crude Steel Production (in MT)
1	china	626.7
2	Japan	109.6
3	USA	80.5

4	India	68.3
5	Russia	66.9
6	South Korea	58.4
7	Germany	43.8
8	Ukraine	33.4
9	Brazil	32.9
10	Turkey	29.1

The data regarding per-capita steel consumption for 2010 in kg is give in the table below:

S.No	COUNTRY	Per-Capita Steel Consumption (Kg)
1	South Korea	1077.2
2	Japan	502.9
3	Germany	440.8
4	China	427.4
5	USA	258.2
6	World Average	202.7
7	Russia	256.2
8	Ukraine	121
9	India	51.7

Presently the positive indications in the demand and consumption size are the heavy investment in the infrastructural segments which are estimated to be $1 trillion in the 12th Five Year Plan. The meagre per-capita steel consumption trends have been responsible for organisation in the country. The strength, weakness, opportunities & threats for the Indian steel sectors are listed below:

STRENGTHS	**WEAKNESS**
Sufficient Reserves of Iron Ore	Low Focus of Steel Companies on Technology R&D
Robust Demand for Steel for the Next Decade	Infrastructural Constraints for Logistics
Private Sector Players have Gained Maturity in Steel Production	Lesser Efficiency as Compared to Global Peers in Terms of BF Productivity
Comparatively, Cheap Labour Availability	Energy Consumption and Carbon dioxide Emission
OPPORTUNITIES	**THREATS**
Proximity to Fast Growing Asian Markets	Lack of Sufficient Cooking Coal Reserves
Lack of Capacity in Downstream Value Added Products as Compared to Demand	Financial Markets Unable to Arrange and Provide Investment Funds for Expansion
Unlocking the Demand Potential of Rural India	Dumping From China
	Quantity and Quality Shortage of Human Capital
	Delay in Project Commission

The techno-economic parameters of Indian steel plants are comparatively much lower than the global benchmark parameters.

The comparative data for the Indian Iron & steel sector and the global benchmark is given in the table below:

PARAMETERS OF COMPARISION	UNIT	INDIAN IRON & STEEL SECTOR	GLOBAL BENCHMARK
BF Productivity	t/d/m3	1.5-2.5	2.5-3.5
Energy Consumption	G-Cal/TCS	6-6.5	4.4-5.5
SMS Slag Rate	Kg/TCS	180-200	Less Than 100
Co2 Emission	t/TCS	2.8-3.0	1.7-1.9

To sustain the comparativeness of the Indian steel sector the steel companies will have to compete with china in scouting for raw materials especially cooking coal. The consumption of coke can also be reduced by injecting pulverized non-cooking coal in blast furnace. Policies would have to be resolved to streamline and manage demand for steel in the country especially the rural sector in the coming years.

The successful implementation of setting up of "National Manufacturing and Investment Zones" (NMIZ) under the New Manufacturing Policy will be shot in the arm for demand side management of steel. NMIZ are based on the linear cluster formation along Delhi Mumbai Highways. Improving our project management capabilities through adoption and innovation in standardized Capital Project Process like Time, Cost and Scope Management. Project communication, Change, Risk and Issue management should also be given special emphasis. Looking after the specific value added needs of Automobile, Power and Real estate will also help in demand side management. Unlocking, the rural demand through rising rural income and purchasing power, strengthening rural distribution channels, focus on creating rural infrastructure would go a long way in promoting rural steel demand.

Compiled by S.C. Suri, Life Fellow of IIM

Hydro considers aluminium as the 'metal of the future'

Hydro Aluminium will put aluminium in the spotlight at its Inter solar North America exhibition stand, booth 9129. The company says many of the technical qualities of the light metal are relevant for a range of applications linked to the solar industry, making aluminium highly competitive in comparison with other metals and other materials. Hydro is a provider of extruded aluminium solutions in North America, including supply sourcing, extrusion, finishing and fabrication of components, as well as contract manufacturing services, for a variety of industries, such as solar.

> All through history, there have always been movements where business was not just about the accumulation of proceeds but also for the public good.
>
> --Anita Roddick

Hydro's precision-extruded aluminium framing systems are being utilized at the largest concentrated photovoltaic (CPV) solar facility in Latin America, in Durango, Mexico. Extruded aluminium offers efficient material utilization, low capital costs and short development times. In addition, its corrosion resistance and high stiffness to resist wind are supporting the system's accuracy and robustness. Hydro delivered the systems to Skyline Solar. Hydro says the two companies' engineering teams removed 40 per cent of the structural material used in early frame prototypes, reducing Skyline's costs for raw materials, manufacturing and shipping. Four new US solar fields, part of the Tennessee Valley Authority's renewable energy program, are using extruded aluminium rails on a mounting system for a "maximum light detection" system. This dual-axis tracking system, designed by Degerenergie, aligns the solar modules to the brightest source in the sky to guarantee maximum yield. The system requires stiffness, yet flexibility, in the tracker.

Source: AlCircle