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INTRODUCTION

This News Letter contains the write-ups on the following:

- 1 Indian Metals Industry – Growth Trends & Emerging Career Opportunities by Shri L. Pugazhenthly, Past President, IIM
- 2 A Report on Iron Making by Shri Raj Tiwari, Past Chairman, IIM DC
- 3 Iron Making Technology & our Economic Future by Shri Manoranjan Ram, Hon. Secretary, IIM DC
- 4 The Robotic Automation for Grinding & Finishing of Aluminium Parts of Industrial Vehicle by Shri G L Mukhopadhyay, Member, IIM DC
- 5 Commissioning of India's largest Blast Furnace at Rourkela Steel Plant
- 6 12th Plan GDP Projection likely to revised
- 7 Various news items relating to Ferrous and Non-Ferrous Sector.

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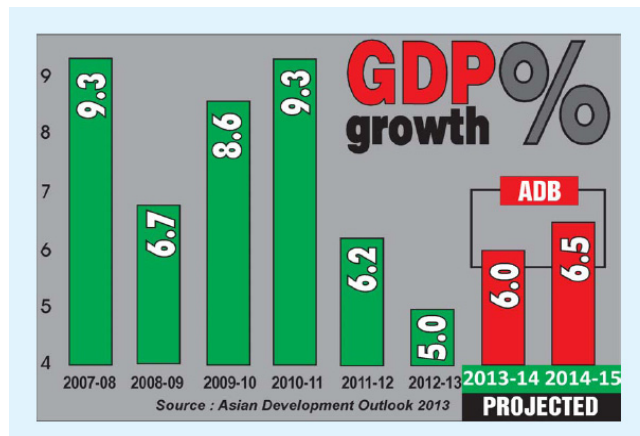
Indian Metals Industry–Growth Trends & Emerging Career Opportunities

L. Pugazhenthly, Past President
The Indian Institute of Metals

Introduction

During the closing years of the last century, the Centre of Gravity of the world's economic growth gradually shifted from the US & Europe to Asia. And therefore this century is rightly called "Asia's Century". China & India, home to the world's 40% population, have become the power engines of global growth. These two countries not only became the world's manufacturing centres, but also turned out to be the back offices to global companies. Many overseas automotive manufacturers, appliance makers, computer companies etc., have set up either assembly shops or manufacturing centres in India and China for domestic as well as export markets.

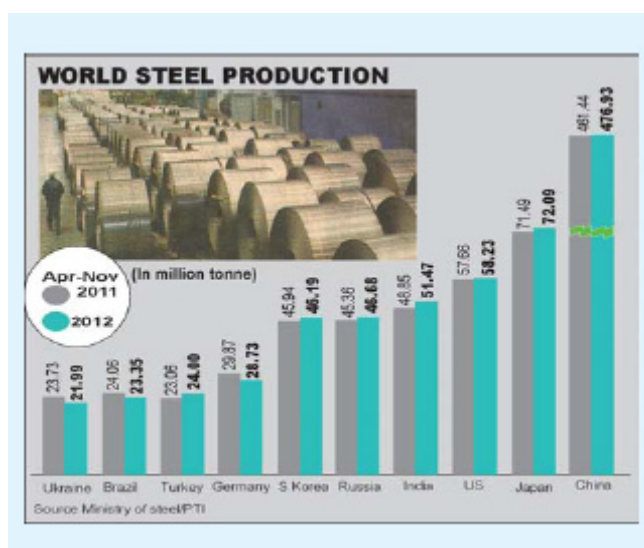
India's GDP Growth Trends



The past few years have witnessed a stagnation in India's economic growth due to fiscal deficit, reduced investments in infrastructure & manufacturing sectors. Currently, while the over-heated Chinese economy is slowing down, the Indian government is now taking a series of economic reforms, initiating necessary steps to accelerate foreign investments and also clearing many stalled projects with massive investments and speedy clearances. These steps are bound to result in India overtaking China in the race for economic growth in a few years from now. This is also the right opportunity when Indian steel and nonferrous sectors will make quantum jumps in mining, production & consumption; also due to the depreciation of the rupee against the US Dollar, India's exports to many overseas countries have also become cheaper. An ideal opportunity to increase India's share in the world trade.

Indian Metals Industry–Road Ahead

Currently, as per the World Steel Association (WSA), India is the 4th largest steel producer and in a few years from now, may become the 2nd largest steel producer too.



India has remained for long as the world's no.1 producer of DRI (Direct Reduced Iron, well known as Sponge Iron). The New Steel Policy of Govt of India aims at a steel production capacity of 200 million tonnes by 2020.

As far as non-ferrous metals are concerned, each company in Aluminium, Copper & Zinc such as National Aluminium Company Ltd (NALCO), Hindustan Aluminium Co.Ltd (HINDALCO), Sterlite Industries Ltd, Birla Copper Ltd, Hindustan Zinc Ltd (HZL) have been aiming for an individual smelting production capacity of 1.0 million tonne, truly world class tonnage plants. This is a big shift in the non ferrous metals sector, considering the fact that long time ago India used to think of a capacity of 60000, 100000tpy etc., as economically viable capacities.

India's Production of Nonferrous Metals (tonnes)

Metals	2010-11	2011-12	2012-13
Aluminium	1619513	1667681	1720189
Copper	655450	674165	685096
Zinc	743555	784085	704228
*Lead (Primary)	57294	92098	118316

* Estimated Secondary Lead production 1.0 million tonnes approx
(Source: MMR)

The huge growth in India's automobile sector, perennial power shortage, computers, renewable energy sector etc., have resulted in a significant demand for lead acid batteries; all the returned/

used lead batteries are totally recycled. The recycled lead is again used in the manufacture of new lead acid batteries and thus the recycling cycle continues again and again. India should be recycling and reusing about 1.0 million tonnes of lead every year. Hindustan Zinc Ltd (HZL) has a capacity for 185,000 tonnes of primary lead (produced from naturally occurring lead ores).

Growths in Infrastructure & Auto Sectors

India will be doubling its investments in infrastructural sectors during the 12th Five Year Plan.

INDIA INFRASTRUCTURE INVESTMENTS – 12 FIVE YEAR PLAN (2012-17)

- | | | |
|--|---|--------------------|
| <ul style="list-style-type: none"> • Power • Telecom • Roads • Ports • Aviation | } | US \$ 1000 Billion |
|--|---|--------------------|

11th Five Year Plan (2007 - 12)

- Investment was half

(Source: Planning Commission)

The automobile sector, slightly down now, is poised for an ambitious growth in the near future.

India's Automobile Production (April-May 2013)

Passenger Vehicles	582,703
Commercial Vehicles	134,595
Three Wheelers	110,228
Two Wheelers	2705,444
Total	3532,970

The growths in infrastructural sectors, automotive industry, manufacturing etc., will require large quantities of steel, nonferrous metals etc.,

Human Resource Requirements

Considering the future growths in the steel industry, non-ferrous metals, construction, infrastructure and automobile sectors, India needs a very large no. of metallurgical engineers for jobs in production, marketing, quality assurance, inspection & testing, R&D etc.,

Research, teaching as well as defence, aerospace, shipping etc., will also require a large number of metallurgical engineers at different levels in the coming years.

The Indian Institute of Metals (IIM) did a Study on behalf of the steel ministry, to assess the human resource needs in the steel sector; the study revealed a significant gap between demand and supply of manpower. To fill these demand supply gaps, IIM had also made a number of recommendations & suggestions to the Ministry of Steel, Govt.

Indian Institute of Metals & Students Community

The Indian Institute of Metals, 67 years old now, is a non-profit, non-commercial society promoting and disseminating knowledge in the area of metals & metallurgy through periodic publications, meetings, plant visits, website etc., IIM has under one umbrella, members from industry, research & teaching, the current membership exceeds 10000 at present. One of the flagship programmes of IIM is focused towards the students community, on whom a great deal of emphasis is laid during our

national council meetings, chapters workshops etc., This is because today's students are tomorrow's torchbearers. At present IIM has 15 Students Affiliate Chapters in IITs, NITs & other engg colleges teaching courses in Metallurgical & Materials Engg, with a total students membership of 850.

Conclusion

It is matter of pride that NIT, Srinagar will be having the 16th Students Affiliate Chapter, under the guidance of the IIM Delhi Chapter. The National Council of IIM felt that the state of J&K needs all guidance & support for revival of its industry & economy and hence the above proposed was readily welcomed and approved. It is hoped that the Students Affiliate Chapter at NIT, Srinagar will be proactive like other students chapters and carve out a special name in the coming decades.

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A REPORT ON IRON MAKING

RAJ TIWARI

Life Member, IIM DC

Our country is known for UNITY IN DIVERSITY. This is not only applicable to Indian languages but also to the mode of transports on the road to Iron making too. We produce Steel with various routes such as Blast Furnace (BF) route to Electric Induction Furnaces(EIF) route. Following table gives the idea on status of Iron and steel making plants at a glance.

PLANT TYPE	UNITS	CAPACITY Mt/y
BF- BOF integrated	8	30
EAF Integrated	3	10.6
EIF plant	1170	28.8
EAF / EOF mini plant	37+2	9.5
Gas based DRI	3	8
Coal based DRI	418	26.6
Mini BF PIG IRON	42	
Ferro – alloy units	173	4
TOTAL (Excl. Ferroalloy)		113.5

The productivity of Indian blast furnace is around 1.5 – 2.5 t/m³/day as against global benchmark of (2.5 – 3.5 t/m³/day) . The coke rate is (400 – 520 kg/t) as compared to global bench mark of (350 – 400 kg/t). The PCI rates > 150 kg/ tHM.

India's lower productivity is attributable mainly to very high alumina (2 -4%) in lump ore and (4 -6%) in fines on an average. The high silica presence in domestic ore gives higher alumina / silica ratios in the furnace charge. There is also high ash (15 – 20%) in the BF coke which results in high energy consumption in the coke oven and BF. The high Alumina and Silica content in the Iron ore also results in the formation of a very viscous slag that severely affects BF performance.

ALTERNATIVE IRON MAKING TECHNOLOGIES UNDER STUDY

In recent decade 72 Direct Reduction Processes and 59 Smelting Reduction Processes were studied as alternative to Blast Furnace. However less than 10 came to pilot plant stage or beyond in some form. Only two processes COREX and Finex smelting reduction capacities are growing in the world. Beside this DRI route is well established. It has been repeatedly proved that BF route is most economical, still world needs an alternative and so constantly developments have been continued. The correct process selection and adoption depends on many factors such as Price and availability of Iron ore, ore quality, coking coal availability, cost of import or export of energy from Natural Gas,

Coke Oven Gas, Blast Furnace Gas, electric power and the cost of pollution control. Some of the alternative technologies studied are ITmk3, Inmetco, IDI, Fastmet, SL/RN, Corex, Finmet, Finex, Midrex, HYL I & III, Primus, Hismelt.

Hlsarana

Tata Research and HI smelt jointly outlined this process. This process can use coal and fine ores directly. It does not require coking and ore agglomeration. The Hlsarana concept combines the cyclone converter furnace technology of TATA steel with the bath smelting technology of Hismelt of Rio Tinto. The Cyclone Converter Furnace (CCF) technology was developed at TATA Steel Ijmuiden (by Hoogovens) with pre-reduction and melting of fines in smelt cyclone by injecting ore. Hismelt was developed at Kwinana Western Australia.

COREX AND DIRECT REDUCTION

It was developed by VAI Company of Austria. In India the first Corex module was installed at JSW Toranagallu. However, latest installation has come to ESSAR at Hazira. The Corex at Hazira was commissioned in 2011. It is having two C-2000 modules. The high CV gas generated in the Corex plants is used in MIDREX modules at Hazira for DRI production and also for various heating purpose within the steel plant.

MODIFIED BF CONCEPT

Many ideas and modifications have been suggested in BF operation such as

- Recycling BF top gas
- Stack gas injection
- Blast by Oxygen only
- Synthetic lump or
- Composite of iron ore and coal (At Nippon steel this process is called RCA – reactive coal agglomerate).

FLASH IRON MAKING TECHNOLOGY

At University of Utah this research is going on. This technology is based on the direct gaseous reduction of Iron oxide concentrate in a flash reduction process. This has the potential to reduce energy consumption by 32 – 57% and lower Carbon – di- oxide emission by 61 – 96% Compared with BF.

BIOMASS REDUCTION WITH SAWDUST

Researchers at University of Sao Paulo in Brazil studied the use of biomass (sawdust of different type of wood from sawmills) as substitution of mineral coke. The low grade iron ore was processed with saw dust in rotary kiln where 92% reduction was achieved.

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Iron Making Technology and our Economic Future

Manoranjan Ram

Honorary Secretary

The Indian Institute of Metals, Delhi Chapter



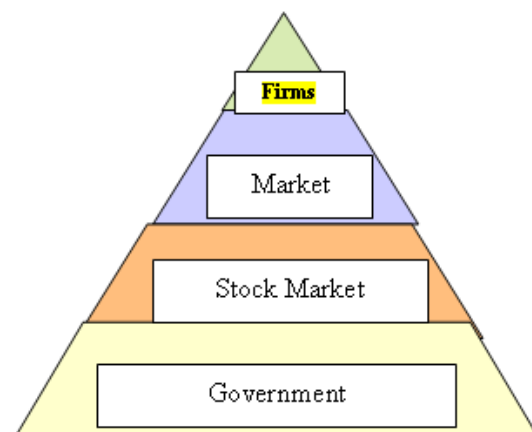
Introduction

The market economy is one in which price and production is controlled by buyers and sellers freely conducting business. An example of a market economy is the United States economy where the investment and production decisions are based on supply and demand. In the era of globalization, the market economy has found place in most countries in the world including India.

Market economy is a pyramid structure comprises the Firm, Market, Stock Market and Government. "Firms" are the core of the market economy because all the goods and services generate from firms and therefore it is the vertex of all economic activities. Next layer in the pyramid is the "Market". It is a folder of firms. It provides additional layer to the firm for governance of goods. Hence market is that where firm produce and it sets a benchmark of product and services. For e.g. Maruti Suzuki market is different than BMW market.

"Stock Market" is not confined to one industry, in fact, it is across sectors. All the markets intersect in the stock market. Finally, the "Government" in the market economy monitors currency because any transaction from firm to Government or across firms is through currency. Also, Government does the dispute resolution within the conglomerate and acts as a last resort player. Government can intervene in any of the levels in the pyramid.

This pyramid structure can be compared with a transportation system. In the transportation system principal entity is the vehicle. Similarly in today's market economy the Firm is the vehicle and Market is the traffic signal i.e. licensing system. In today's era of globalization the vertex of economic activity i.e. firm moves beyond the nation and when firm moves out, the market automatically moves out. Therefore, the firm's coordinate and configuration is changing across time and it has become a dynamic structure. The motive of firm is to make profit and grow continuously and therefore sometime it is called as a psychopathic behaviour of firm.



However, growth and profit can't continue for long if firm does not reinvent itself. Those who couldn't reinvent they die, however, a critical mass of firm will always be there in the economic system. Economy is like a chariot and even if some horses (firms) die but the chariot moves on.

These critical mass of firms put continuous effort to innovate products and improve manufacturing processes through Research and Development. In any field, be it manufacturing or agriculture, firms are trying to mix the technologies in ways that create value.

Hence, it is the technology that decides the sustainability of firm in long run. There is a higher degree of correlation between the cost of production of goods and services and the technology employed.

The real economic benefits of an innovation will not come from mind blowing ideas but from intelligent combination of various technologies. However, it is the commercial application of a technology that decides its sustainability and unlocks the hidden potential.

For a nation to manufacture and succeed economically in the production of its own consumer items it needs the vital muscular power of material progression and steel is at the heart of many of these other industry. Looking into the metallurgical industry, steel firms in particular, have witnessed a number of technological innovations in last century. The industrial configurations of integrated steel plants have evolved considerably with time. A well suited mix of technology tend to survive and poorly suited tend to perish – that's what Darwin meant by "survival of the fittest".

Let us analyse innovations in iron making technology which will change the configuration of steel industry in future; though, some of them are waiting for commercial application on a larger scale.

[New technological Innovations in "Iron making engine"](#)

World crude steel production reached 1,548 million tons (Mt) for the year 2012, up by 1.2% compared to 2011. This is a record for global crude steel production. Iron ore-based steelmaking accounts for about 70% of world steel production. Iron ore is reduced to iron and then converted to steel. The main inputs are iron ore, coal, limestone and recycled (scrap) steel. The main ore-based production routes are: iron making via the blast furnace (BF) followed by steelmaking in the basic oxygen

furnace (BOF), and iron making via direct reduction (DRI) followed by steelmaking in the electric arc furnace (EAF). The BF process continues to be the most dominant method of iron making in the world. Since last more than 100 years, this iron making engine stood the test of time because it is continuously evolving both in its size and in its operating philosophy.

The overall economics of producing steel in integrated steel plant largely based on cost of hot metal. Blast Furnaces with sizes 250 m³ to 450 m³ are widely spread, particularly in India and China. These relatively small blast furnaces were set up mainly on account of small CAPEX requirement and to satisfy local steel demand. Economic and environment performance of these furnaces are below the industry standard.

As the steel demand is growing substantially, this iron making engine has changed its configuration and now evolved into giant Blast Furnaces of over 4000 m³. In the competitive market scenario, progressive increase in scale of hot metal production from a blast furnace has been one of the major technical weapons for steel firms. A trend to build blast furnaces of size more than 4000 m³ is developing in India as well. However, to operate these giant furnaces at optimum capacity, a disciplined operational practice is essential. The majority of big blast furnaces over 5000 m³ are located in Japan, Russia, Germany, South Korea and China. These furnaces operate on imported raw materials with a disciplined and technological advanced workforce. With the fluctuating quality of domestic raw material in India, maintaining process stability of a large furnace is a challenge for today's Blast Furnace operator. Nevertheless, this configuration change of Blast Furnace has changed the cost dynamics of steel industry due to economies of scale and thus results in substantial reduction in cost per ton of hot metal produced.

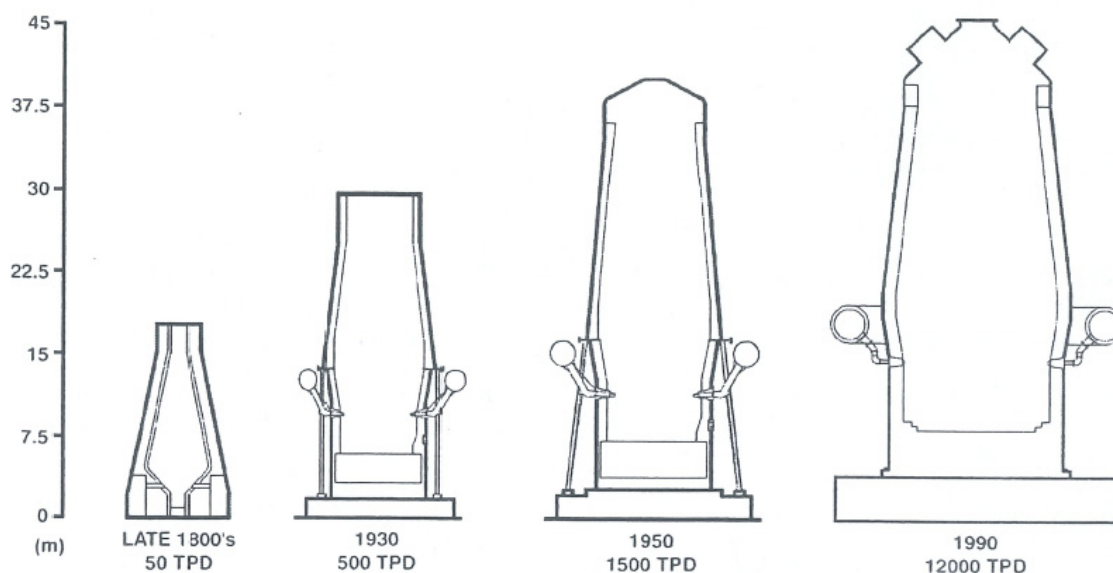


Figure: Changing Configuration of Blast Furnace

The increase in output per blast furnace can be divided into two components, first, increase in its physical size and secondly increase in the productivity i.e. tons of hot metal produced per unit of working volume. Because of extensive use of agglomerates (sinter and pellets), which enhance the permeability of the blast furnace charge and thus improves the productivity of the blast furnace simultaneously reducing coke consumption per ton of hot metal.

Cost of Iron ore and Coke comprise 75 % of cost of production of hot metal in Blast Furnace route. Depletion of good quality iron ore lump and sharp increase in international price of raw materials have put tremendous thrust on agglomeration technology i.e. sinter and pellet and use of iron ore fines. Also, improved process technology combined with auxiliary fuel injection has resulted in reduction of coke consumption in Blast Furnace. Coke substitution by pulverized coal injection /

natural gas injection has been adopted as the most common global strategy to reduce reliance on coke. Today's Blast Furnaces are running at higher productivity ($> 2 \text{ t/m}^3/\text{day}$) with efficient fuel consumption, thanks to invention of Bell Less Top® charging systems by Paul Wurth. BLT® has provided a fine control on charge distribution and gas distribution, and this is a technological marvel which has revolutionized BF operation.

Breakthrough technology in iron making => better economic future

The key challenge for steel industry is to reduce energy consumption and reduce greenhouse gas emissions. Recently, one Indian Integrated Steel Producer i.e. Jindal Steel and Power Limited (JSPL) has taken an initiative to produce steel using an industrial configuration which will be demonstrated first time in the world on a large commercial scale.

JSPL got the technological know-how and key process equipments from Lurgi (South Africa) for producing Synthesis Gas from Coal, through a technology known as 'Fixed Bed Dry Bottom Coal Gasification process'. The plant will produce 225,000Nm³/h of pure Synthesis gas from 7 numbers of Gasifiers.

This Coal gas is a substitute for Natural Gas and the quantity produced will suffice for DRI (Direct Reduced Iron) as a reducing agent as well as other plants (as fuel). Locally available high ash coal in Odisha, after washing will be used in the Gasifiers to produce Synthesis Gas.

JSPL has taken the technological knowhow and key process equipments from Midrex, USA for producing DRI by using Synthesis Gas generated from Coal Gasification. This DRI (hot or cold) will be fed to EAF for producing liquid steel. The capacity of the plant will be 1.8 Million tons per annum, one of the largest DRI Plant in the world. This will be the first DRI plant in the world to produce cold / hot DRI using Synthesis Gas generated from Coal Gasification process. This is also environment friendly unlike the coal based DRI plants.

Various steel producers worldwide have been diligently developing competing technologies to replace their aging blast furnaces--Japan's DIOS, HISMELT in Australia, Brazil's TECNORED, ITmk3 plant in USA, Finex in South Korea, Corex in South Africa, India and China among them. However, with the exception of Corex and Finex technology, no company has successfully commercialized their next generation technology yet enough to scrap the blast furnaces completely.

The main thrust of these competing technologies is to use abundant low quality iron ore fines and coal to produce pig iron. These alternative iron making technologies are less capex intensive as the agglomeration (i.e. sinter making) units and the Coke making units are not required in the new industrial configuration. The cost of steel produced through these new generation technology may be less in comparison to existing BF route. In addition to the lower cost of production, the emission load on the environment may also reduce substantially. However, the challenge is to put these new generation iron making technology into practice and scalable.

Conclusion

Today, many people contend that steel is a sunset industry, which is forgotten by the trend towards service sector growth. On the contrary, the coordinates and configuration of this industry has changed considerably and it is far from extinct. For steel industry, the multiplier factor for employment is around 6.5. The output and employment multipliers of the steel industry are far greater than in most other industries. This is explained by the fact that a large number of industries are tied to steel production. Two in every three jobs in German industry rely on steel as the basic raw material of production.

Both the cultural advancement and economic future of the emerging economies like India rests on the shoulders of steel industry. In the free market economy, Government will not be able to bail out the loss making steel units by imposing import restrictions on finished products. The advantage of factor cost (land, labour and capital) is slowly eroding in India. With the advent of technology to

reduce cost of hot metal through Blast Furnace route coupled with economies of scale, the landed cost of imported finished steel products will be less than our indigenously produced steel products, even though we are sitting on a huge reserve of iron ore (India is fourth largest producer of iron ore in the world).

Therefore, those steel producing companies in India who would be able to upgrade their existing blast furnaces and harness the power of the new generation iron making technologies will stay competitive in long run. Thus, the steel industry provides a challenging platform and opportunity for young metallurgists to demonstrate their technical skills coupled with managerial ability.

The above paper was presented by Shri Manoranjan Ram, Hon. Secretary, IIM Delhi Chapter at NIT Srinagar during their Annual Technical Festival "Techvaganza-2013" and inauguration of IIM Student Affiliate Chapter.

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Steel Industry in India

Last Updated: July 2013

Introduction

The Indian steel sector, one of the core industries in the country, is about a century old, with Tata Iron & Steel Co (Tata Steel) being the first integrated steel plant to be established in 1907. India is currently the world's fourth largest producer of crude steel and is expected to move ahead of its competitors (the US and Japan) in a couple of years. Steel industry mainly derives its demand from other sectors like infrastructure, aviation, engineering, construction, automobile, pipes and tubes etc. Thus its intense integration with other important segments makes it a strategic focus area for the Government as well. India Ratings & Research (Ind-Ra) anticipates that growth in Indian steel sector will gain momentum in 2014 on the back of growth in other economic segments. The World Steel Association (WSA) projects that local steel demand in India would increase by 5.9 per cent and 7 per cent in 2013 and 2014 respectively.

Market Size

Latest figures by WSA has revealed that India's steel production increased by 0.9 per cent to 6.45 million tonne (MT) in June 2013, as against 6.39 MT in June 2012. Moreover, the data showed that India fared better than rest of the world in terms of average output for the first six months of 2013. India's steel production grew by 2.5 per cent to 39.63 MT in the six month period January-June 2013 as against 38.68 MT in the same period in 2012. During the same period, world crude steel production was 789.8 MT, recording an increase of 2 per cent.

Investments

- Ahmadabad-based equipment-maker for steel industry Electrotherm (India) has launched an advanced induction furnace unit that facilitates simultaneous dephosphorisation and desulphurisation. Dephosphorisation and desulphurisation are crucial steps in steel-making as high content of phosphorus and sulphur makes steel very brittle.

The new product, EldFOS, will enable secondary steel manufacturers comply with the new rules and international standards. The company has also filed for a patent right on the product.

- Meanwhile, Tata Steel has set up a new subsidiary, Tata Steel Odisha, to handle its Greenfield-6 MT-steel plant in Odisha. The project will be executed in two phases of 3 MT each. Tata Steel arranged for about Rs 22,800 crore (US\$ 3.84 billion) of the projects' financing through a consortium of 21 banks and financial institutions.

- The Afghanistan Iron & Steel company (Afisco), a consortium of Indian steel companies led by Steel Authority of India (SAIL), that won the bid to mine three iron ore blocks in Afghanistan's remote Hajigak region, intends to complete the prospecting job within 18 months of starting work in the area. The consortium includes JSW Steel, Monnet Ispat, JSPL, NMDC and RINL and is determined to invest initially decided-upon US\$ 75 million for taking up the prospecting activity in the area. The initial investment by each member will be proportionate to their shareholding in the project.
- Tata Steel has, via its UK subsidiary, secured a long-term contract to supply aerospace steels to Safran Group, the maker of aircraft, rocket engines, aircraft equipment and propulsion systems.

The five-year agreement has an initial value of Rs 82 crore (US\$ 13.8 million) and outlines Tata Steel's responsibility for supplying all aspects of Safran's aircraft-quality steel requirements worldwide, including re-melted steels, directly to Safran Group companies and to its subcontractors as well.

- Gulf Ispat Limited has decided to set up a Rs 3,500 crore (US\$ 589.47 million)-integrated-steel plant in Madhya Pradesh, while Rashtriya Ispat Nigam Ltd (RINL) will set up a Rs 1,000 crore (US\$ 168.44 million)-beneficiation plant in Andhra Pradesh.

Government Initiatives

The Steel Industry is of high importance owing to its immense integration with other segments of the economy. Recently, a high-profile delegation led by the Union Minister of Steel Mr Beni Prasad Verma, had visited Canada in order to strike cooperation between organisations of both the countries for sourcing/acquisition of minerals (viz. coking coal and iron ore) embarking a long term perspective for sustained growth of Indian Steel industry. The scope of the agreement also envisaged clauses over acquisition of intellectual property and cooperation in research and development (R&D) activities. In the similar light, the delegation signed an MoU between RINL and McMaster University, Hamilton, Canada, to jointly work upon and strengthen Research cooperation, in the areas of Steel making. Mr Verma indicated that such collaborative efforts with leading University will enhance R&D activities in steel sector which is a necessity to achieve Government's aimed level of attaining over 200 MT million tonnes of capacity during next few years. In order to mark a sharp jump from current production capacity of 120 MT to 300 MT, the Indian Government will be taking steps to achieve the same through special purpose vehicles of Central Public Sector Enterprises with states.

Road Ahead

The market of Steel Service Centres (SSC) is at a very nascent stage in India. It is expected to grow at a compound annual growth rate (CAGR) of 18 per cent during FY 2017-18 as steel makers expand capacities and more and more customers look for customised products.

Domestic steel market is into an evolutionary stage wherein it is shifting from simply selling steel to selling steel solutions; thanks to growth in the automobile and white goods segments, and entry of multinational companies (MNCs). Owing to immense competition in the automotive industry, white goods, fabricators and other end-use segments (infrastructure, construction, electrical, pipes and tubes, and engineering equipment-related industries), and the need of curbing inventory cost, executing strategies like 'just-in-time (JIT)' is likely to boost this service center concept to grow rapidly in the next 5-10 years.

Source: India Brand Equity Foundation

SAIL provides high grade steel for Aircraft Carrier

Times Of India reported that when the first Mig-29K takes off from the flight deck of India's Indigenous Aircraft Carrier in 3 to 4 years from now, Durgapur will have cause for cheer. The high grade steel that went into making the IAC's flight deck and some other portions was manufactured at the Alloy Steel

Plant at this industrial township in West Bengal. Had the Steel Authority of India Ltd not taken up the challenge to build the high-grade steel, the IAC project may have had to be scrapped altogether. When the IAC the hull of which will hit the waters for the first time on August 12 was designed in 2002, India had never produced the kind of steel required for the floating airbase. No country was keen to supply the quality of steel required. This was when the Defence Metallurgical Research Laboratory came up with the specifications. The Heavy Engineering Corporation Ltd in Ranchi succeeded in manufacturing some ingots but mass production would be required to supply the Navy nearly 28,000 tonnes that would be required for the IAC.

A senior SAIL official said that "Primarily, three kinds of steel were required. One was the DMR 249 Grade A that would go to build the hulls and other portions of the infrastructure. This came from the Bhilai and Bokaro Steel Plants. The second grade of steel (DMR 249 Grade B) had to have unique qualities. This would form the flight deck of the aircraft carrier and have to withstand immense stress as the aircraft take off and land. Moreover, this steel is required to have spring back quality. When aircraft take off, the ramp would bend downward due to the pressure. Immediately afterward, it would have to spring back and assume its normal shape for the next round of take-offs (much like the springboard of a swimming pool). As special alloys were required for this steel, the job was entrusted to ASP. "This steel was routed through the Rourkela Steel Plant though where it underwent special treatment to make it hard as well as tough. The steel underwent a process known as water quenching to make it hard. This was followed by a round of tempering to make it tough. Another round of water quenching followed at the Special Plate Plant of RSP, before it matched the specifications. However, it was touch and go at one point of time. In spite of all the treatment, some DMR 249 Grade B plates developed internal stress after six months of delivery. RSP came under severe pressure. Mr G S Prasad Chief Executive Officer of RSP said that "Within three days, we had to come up with something. Finally, we came up with two alternative processes to correct the internal stress, though there was nothing on this from DMRL. One of these processes worked and the day was saved."

Source: Steel Guru

PM wants blueprint to speed up stalled steel projects

Indian Express reported that Prime Minister Dr Manmohan Singh has asked Cabinet Secretary Mr Ajit Seth to finalize a blueprint to fast track implementation of stranded projects in the steel sector. Chairing a meeting of a high level committee on manufacturing on July 9th Mr Singh had said that the domestic industry should gear up to produce about 300 MT of steel by the next decade and 500 MT by 2050. To achieve this level of production, Mr Seth's office should find a way to fructify implementation of stranded mega steel projects, entailing an investment of nearly INR 1.75 lakh crore. At stake are projects like Posco's proposed 12 MT project in Orissa and ArcelorMittal's 2 mega projects in Jharkhand and Karnataka, entailing an investment of close to INR 1,00,000 crore. Accordingly, the Cabinet secretariat is preparing to soon tell Singh's office that a dedicated investment facilitation mechanism, which has been recently set up by the government, should be employed to fast track the delayed steel projects. In a first, Seth is also set to propose that if ultra-mega steel projects were to be set up, the government should consider project-specific SPVs, which should be entrusted to assemble land, secure required clearances and tie up raw materials.

Source: Steel Guru

Overcapacity impacting global steel sector - Mr Mistry

The Hindu reported that year 2013 has been a challenging one for the steel industry which is facing the repercussions of a slowdown in the global economy but TATA Steel expects the measures it has in place to see through the tough times. Addressing shareholders at the company's 106 annual meeting, Mr Cyrus Mistry chairman of TATA Steel said that the global steel sector was impacted by overcapacity due to volatile raw material prices and demand weakness in key markets. He added that "The next 18 to 24 months will be challenging for TATA Steel. Overcapacity in China and low demand in Europe are key concerns." Mr Mistry said that in spite of the challenging environment, the company has implemented a three million tonne capacity expansion at the Jamshedpur facility

taking the capacity to 9.7 million tonnes per annum. He said the Kalinganagar project would significantly strengthen its product portfolio.

Source: Steel Guru

Steel companies focus on exports to benefit from weak rupee

Economic Times reported that with the rupee continuing with its free fall against the dollar, steel companies are redrawing their export strategies to make the most of windfall gains coming their way. In this new found thrust on exports, Indian steel makers are increasingly looking at markets in the Middle East & North Africa, South Asia and even Europe to beat low demand at home. The fall in rupee will make imports costlier, thereby curbing the volume in next few months. This has brought some cheer to steel companies which are going through one of their most depressing phases.

Mr C S Verma chairman of SAIL said that "Rupee depreciation has helped steel exports which have gone up in last few months." SAIL hopes to double exports to 7 lakh tonnes this year, up from 3.7 lakh tonne in 2012-13. Essar Steel, one of the largest steel exporters, hopes to raise exports by over 25% to 1.4 million tonne this year, up from 1.1 million tonne it did last year. A company official said that "We are exporting to Middle East, Africa, South East Asia, and even Europe." Mr Giriraj Daga analyst at Nirmal Bang Securities said that "Rupee depreciation, along with a weak domestic steel market and capacity expansions, is forcing steel producers to sell more abroad." This year, steel exports crossed one million mark to touch 1.13 million tonne in what is a seasonally weak first quarter. A JSPL spokesperson said that "We want to increase exports to 15% of our increased production base in 2013-14. We see huge opportunities for export, particularly in Middle East & North Africa."

Source: Steel Guru

Steel prices likely to go up further due to weakening of rupee: Essar Steel

Steel prices are likely to go up recently due to weakening of rupee, a top official of Essar Steel said here today. "With dollar appreciating, there will be cost push. The price of steel has gone up and it could go up further depending on the dollar", Mr. Dilip Oommen, Managing Director and CEO, Essar Steel told reporters here. He said the slowdown had affected sales in the industry. The growth rate, which was seven % 3-4 years ago is now about 3.5%, he said. Things are looking better in US and Europe and prices in China and Japan have started moving up. The growth of steel industry and economy go hand in hand', he added. The company was eyeing an export target of 1.4 million tonnes of steel this year. Last year, it had exported 1.2 million tonnes, mainly to Europe and Africa. Stressing the need to increase consumption, he said per capita consumption of steel in India was only 55 kg against the world average of 200 kg, adding, "if India has to progress, our focus should be on infrastructure and industrial development." Referring to the Food Security Bill, he said it would be a 'bonanza' for the steel industry as more storage facilities would be needed. The company today launched high quality colour coated products, especially developed for the Kerala, which can withstand extreme weather. These products will largely be used in the housing and industrial resorts segment in the region and includes roofing and wood finished steel products. Mr. Oommen said the company, aiming Rs 140 crore annual revenue from Kerala, is keen to partner the state government in various infrastructure projects, including Kochi Metro. "Government policies should be conducive to investment. Consistencies in policies are very important", he said. Kerala is emerging as a major steel consumer with a lot of infrastructure development, real estate development, medical tourism, among others, he added.

Business Standard

India's RINL eyes jv with NMDC for seamless tube project

State-owned Indian Steelmaker Rashtriya Ispat Nigam Ltd (RINL) is seeking state-owned iron ore miner NMDC as its partner for a new 400,000 metric tons/year seamless tube mill it plans to build at its Vizag Steel Plant at Visakhapatnam in the southern state of Andhra Pradesh. RINL's board approved the project in January 2012. The mill would produce seamless tubes with diameters from 5.5 inches up to 18 inches, with subsequent enhancements to permit the production of larger tubes. At that time, the steelmaker had expected to action the project through a joint venture, possibly with state-owned power plant equipment manufacturer Bharat Heavy Electricals Ltd. But a lack of interest on the part

of BHEL has prompted RINL to reach out to the miner for a partnership instead, local media reports said. An NMDC spokesman however said Wednesday that no plans were finalized yet. RINL officials were unavailable for comment. Meanwhile, NMDC has seen little progress in forging partnerships for its own steelmaking ventures. As reported, plans for a steelworks project in Karnataka state in a joint venture with Severstal have been “languishing” since the miner refused to accede to the Russian company's demands for a majority shareholding in the venture. NMDC also received a limited response to calls for a minority jv partner for the 3 million mt/year integrated steelworks it is building in Chhattisgarh state, with state-owned Indian steelmakers – RINL and Steel Authority of India Ltd – being the only respondents. “And both of them have no money themselves,” the NMDC spokesman said.

Source: Steel Business Briefing

Falling margins of producers in the steel industry

China with 3 times the GDP of India, achieved a growth of 7.5% in the fiscal (on a very base figure) largely on the back of the manufacturing sector of the country. Manufacturing sector for China is what agriculture sector is for India. India's manufacturing sector with enormous potential is surely advancing, however, unwarranted government intervention, frequent policy makeovers, delayed decisions, high dependence on imports and an unstable political situation to some extent, is keeping check on the rate of growth. Achievement of government's ambitious 6 plus per cent growth rate is possible with implementation of serious growth-oriented and medium term policies. Iron ore as the prime raw material for manufacturing steel has a very vital role in the industry as well as the Indian economy to some extent. This industry since the mining ban across the country is in shambles.

Coal as the prime source of energy in India plays a key role in development of the core sectors. Coal India has been unable to fulfil domestic coal demand resulting in increasing expensive coal imports Y-o-Y. A large chunk of power producers in the country have very low availability of the raw material resulting in industrial breakdowns. The role of Scrap in the Indian industry (Steel manufacturers in North and West are highly dependent on Scrap as a raw material) has been exponentially growing with poor supply of sponge iron (key raw material for the semi finish industry in Eastern, Central & South India). Recently, the Ministry of Finance imposed duties on import of Scrap adding to existing high cost of production. We draw your attention towards the fast falling margins of producers in the steel industry which to an extent is the showcase of ineffective government policies and delayed solutions on highly sensitive issues.

IRON ORE	Iron ore production has dropped by about 15% in 2012-13 Iron ore exports have dropped by about 70%
COAL	Coal India's production has marginally grown in the past year Coal imports have jumped by over 20%
SCRAP	Scrap imports have expanded by over 25% in 2012-13
SPONGE IRON	Sponge Iron production lower by 9%
CRUDE STEEL	Crude Steel production growth significantly below estimates India's per capita consumption is below 60 kg
INGOT/BILLET	Indian secondary manufacturers operating at below 60% capacity utilization
RUPEE	Rupee trading at all-time low against the USD
INFLATION CURRENT	India's current Inflation is around 5%
ACCOUNT DEFICIT	CAD in Jan-Mar quarter was USD 18.1 billion; ~3.6% of GDP

Source: Steel 360

Information Extracted By Shri S C Suri, Chairman, IIM-DC

Danieli Corus commissions India's largest Blast Furnace



Danieli Corus BV from IJmuiden, The Netherlands, has commissioned the greenfield Blast Furnace No. 5, 4060 m³ built for SAIL (Steel Authority of India Limited) at their Rourkela (Odisha, India) steel plant. This blast furnace was built by a consortium consisting of Danieli Corus and Tata Projects Limited and is currently India's largest Blast Furnace. The first hot metal was tapped after 27 hours.

It is a major milestone for Danieli Corus to have built the largest operating Blast Furnace, according to the "Hoogovens" philosophy, in India. The Furnace is named after the Hindu goddess Durga and is designed to European standards and based on European technology. It is built to produce around 8,000 tonnes of hot metal per day for a twenty year campaign. A "pooja" was performed as part of the commissioning of Blast Furnace No. 5 ("Durga") — according to Hindu tradition, coconuts were broken and the contents sprinkled over the Furnace's shell to honour the Goddess Durga. The Blast Furnace is already ramped up to 4050 t/day of hot metal as per the requirement of the plant with a week of its start up.

This is the sixth Blast Furnace project completed by Danieli Corus in India which is based on the "Hoogovens" philosophy. Previously, three medium-sized greenfield Blast Furnaces were built for private companies, of which the one operated by Jindal Steel & Power Ltd. has been the country's best performing Blast Furnace over the past years. Danieli Corus has executed substantial revamp and repair projects on the Blast Furnaces operated by Tata Steel at their Jamshedpur plant. An order for a seventh Blast Furnace project in India was received from the mining company NMDC. This company is diversifying into the steel industry and is developing a new integrated plant at Nagarnar. Danieli Corus is currently building the Blast Furnace, which will be larger than the "Durga" Furnace operating at Rourkela.

Steel demand in India is vast, given the country's economic growth of 5.3% p.a. Steel consumption per capita remains substantially lower than that in, for example, China. Infrastructural and urban development projects feed India's hunger for steel and the country remains an important market for Danieli Corus. The Indian subsidiary of Danieli Corus continues to grow based on the continued demand for Danieli Corus Technologies.

Source: Gajendra Panwar
Managing Director, Danieli-Corus India Operation

Stainless steel industry in dire straits

Squeezed between high costs of raw materials and low prices for finished products, Indian stainless steel producers have cut operating capacity by 20 percentage points so far this year. From 55-60 per cent until last year, they are currently operating with 45-50 per cent of installed capacity. The industry, with large players such as Salem Steel Plant, Jindal Stainless and DRG has created around five million tonnes (mt) of production capacity. But due to poor demand from domestic infrastructure and the kitchenware segment, total output of both the 400 series (for industrial applications) and 200-300 series (utensil making) is set to be at 2.5 mt. Last year, total production in India was around two mt. "This means 45 per cent of installed capacity remained idle. In contrast, cheap dumping of various stainless steel products from China, Taiwan and Korea continued, which has made production from domestic sources economically unviable," said Mr. N C Mathur, President, the Indian Stainless Steel Development Association (ISSDA). The price of ferro chrome, the only raw material for producing stainless steel, has risen at an average by 15 per cent so far this year. Another ingredient, electricity, has become equally costlier. Rising imports at cheaper rates than the cost of domestic production have made business tough for producers. According to a leading player, Indian producers have been incurring a loss of around 10 per cent of the stainless steel price. "The whole industry is under severe stress. The industry has borrowed around Rs 20,000 crore from banks and financial institutions. Servicing of this debt has become difficult now," said Mr. Mathur. The scenario is equally critical for ferro chrome producers, said Mr. Subhrakant Panda, managing director, Indian Metals and Ferro Alloys Ltd, and president of the International Chromium Development Association (ICDA).

Source: business Standard

India's largest blast furnace becomes operational at Rourkela Steel Plant

India's largest blast furnace 'Durga' became operational a few days back at the Rourkela Steel Plant (RSP) of Steel Authority of India Ltd (SAIL). Built at an expenditure of nearly Rs 1,600 crore, the furnace has a useful volume of 4,060 cubic metres. It will increase SAIL's hot metal production capacity by 2.5 million tonnes per annum, Chairman Mr. C S Verma said during his visit to RSP. "The Chairman also inaugurated the new slab caster at the Steel Melting Shop - II of RSP. This facility can cast slabs of up to 2,500 mm width. Among the others present were Mr. S S Mohanty, Director (Technical), Mr. T S Suresh, Director (Projects & Business Planning), Mr. G S Prasad, Chief Executive Officer, RSP and other senior officers. With the start of this state-of-the-art furnace, hot metal capacity at RSP will increase to 4.5 million tonnes per annum from the existing 2 million tonnes per annum," a senior SAIL official said. The furnace has a capacity of hot metal production of 8,000 tonnes per day and an enhanced campaign life of 20 years. It is equipped with systems such as pulverized coal injection, cast house fume extraction, cast house slag granulation, high top pressure operation coupled with top gas recovery turbine, twin material bin bell-less top, waste heat recovery and conveyor belt charging. It also incorporates Level-II automation and has twin flat-cast house with four tap holes. "The environment-friendly furnace ensures minimum emissions and recovers waste energy to the fullest. It also has a closed-loop cooling system resulting in almost zero water discharge. The new slab caster set up at a cost of nearly Rs 500 crore incorporates the latest technologies and can cast slabs of up to 2,500 mm width with thickness of 220 mm, 250 mm and 300 mm. The slab caster will supply slabs to the new 4.3 metre wide plate mill being installed as part of RSP's modernization and expansion," the official added.

Source: The Times of India

India mines ministry seeks cut in iron ore export duty

Reuters reported that India's mines ministry is seeking a cut in the iron ore export duty after a sharp fall in overseas shipments days after the prime minister spoke about increasing exports to tame the country's current account deficit. India was once the third largest exporter of the steelmaking raw material, but shipments plunged more than 80% in 3 years to hit 18 million tonnes last fiscal year. The lower exports have helped cushion global iron ore prices. Mr Dinsha Patel Mines Minister of India said that "I have written to the Finance and Commerce Ministries to consider a cut in the duty, at least on

low grade fines." Mr Patel said that his ministry would make all possible efforts to resolve problems related to the iron ore industry in Goa, India's top iron ore exporting state where mining has been banned since last year following allegations of irregularities. I am convinced that the problem of Goa will be resolved soon. Mr H C Daga President of the Federation of Indian Mineral Industries said that "Lower production due to a clamp down in illegal mining, an export tax of 30% and higher railway freight rates are the main reasons for the slump." Mr Daga said that "With the withdrawal of about 100 million tonnes (of Indian iron ore) from the world market, iron ore prices that were in a declining trend suddenly firmed up, benefiting (foreign) private companies at the cost of India and its exporters." Dr Manmohan Singh PM of India said earlier this month that the government was trying to remove constraints in the export of iron and other ores.

Source: Steel Guru

Reforms to control CAD- constraints in supply of iron ore

ASSOCHAM said that any relaxation provided for iron ore exports will further cripple the domestic steel industry, open further floodgates for import of finished products and strain the already worrying current account deficit.

In an SoS submitted to the government, the chamber said, "to contain the CAD, relaxing the exports restrictions on iron ore is not a step in the right direction and rather if government ensures the availability of the raw-materials for domestic production, which is running at all-time low utilization level, will contain the \$6 billion imports of steel by India." ASSOCHAM added that the production of finished steel had seen a growth meagre 2.5% in the year 2012-13 while consumption has grown up by 3.25%. The Indian steel demand is met by imports which have registered a rise of 15% in 2012-13. While the steel production has gone up from 61.10 million tonne in 2009-10 to 78 million tonne in 2012-13 and projected at 84 million tonne in 2013-14, the iron ore production has dipped from 218.55 million tonne in 2009-10 to 140 million tonne in 2012-13. The chamber says that there used to be a surplus of almost 100 to 110 million tonne in the year 2008-09 and 2009-10, however this has come down to a level of meagre 15 million tonne in the year 2012-13. The production of iron ore is expected to remain at the level of 140 million tonne due to the cap in production in Karnataka, ban in Goa and strict enforcement of environmental regulations in Odhisa, however domestic Steel industry requirement is more than million tonne in the current fiscal. Government has taken a decision in the budget 2007-08 that Iron ore exports will be discouraged through various fiscal measures when there used to be a 100 million ton surplus availability. If the exports restrictions are relaxed in the present scenario, the iron ore supply situation for the domestic steel industry will further aggravate and impact the production of steel in the country. In such a scenario, Country will have to increase its steel imports, which will further worsen the Current account deficit. Even in the current scenario if steel import in the country is approximately USD 6 billion, which will further increase if iron ore shortage increase due to exports.

Source: Steel Guru

Inter-Ministerial tussle kills iron ore export plan

An inter-ministerial tussle among commerce, mines and steel ministries has led to nixing of a plan to export iron ore, even as the country struggles to find ways to lower the trade deficit and boost dollar inflows to support the Indian currency. While the commerce ministry maintains that the country has a stock of 100 million tonne of iron ore that the local producers are not able to utilise because of the slowdown, the steel ministry questions the claim. A senior government official told ET that the commerce ministry has proposed that an impetus should be provided to boost iron ore export to increase forex earnings. The steel ministry, on its part, has even strongly opposed commerce ministry's drive to lower export duty on iron ore. India's iron ore exports have dropped from USD 4.6 billion in 2011-12 to USD 1.6 billion in 2012-13, a decline of 64%, because of the ban imposed by court on mining activities in some states, which has further compounded by an export tax of 30%. India's exports fell 1.8% in 2012-13 but imports rose 0.44%, yielding a record trade deficit of USD 191 billion. Steel ministry, on the other hand, has argued that exporting the raw material at this juncture can jeopardize the goal of 300 million tonne of steel production by 2025, set by a committee on

manufacturing. The commerce ministry says that there is no shortage of iron ore in the country and steps should be taken to boost exports," the above quoted official said. But the steel ministry does not agree with the view. The Steel Ministry's stand, outlined in a communication between Steel Secretary Mr. D R S Chaudhary and his counterpart in the Commerce Ministry Mr. S R Rao, follows representations by steel companies like JSW and Essar Steel against the proposed move.

Source: Steel Guru

Dire Straits: Tata Steel, JSW to Get Hands on Stemcor Iron Ore

Here's an indication of how serious India's iron ore problem is. Some biggies from India's steel business are reportedly in the running to scoop up the iron ore assets of one of Britain's largest independent steel trading companies – Stemcor, in India. They include Tata Steel, JSW, Adani Steel and even the employees of Stemcor India themselves. Like many others, the global economic slowdown has negatively impacted the British firm, and so it now is in talks with banks after defaulting on over US\$1 billion in loans. To get over the crisis, the company decided to offload some of its physical assets, which includes an iron ore mine in the Indian state of Odisha. There's an auction that will be held next month, and analysts say the mine could fetch around US \$850 million for Stemcor. Reports appearing in the Indian media talk of new suitors for this mine appearing every day. A Press Trust of India (PTI) report said Tata Steel wanted to grab the iron ore to feed its Indian steel mills. Tata, of course, is not alone. Its rivals Jindal Steel and Power, JSW, and the Adani Group, which is based in Gujarat and has businesses in power, steel and ports, are all actively contemplating bidding for the mine. As the days go by, more and more steel suitors are expected to jump in the fray. Stemcor's Indian beneficiation plant takes low-grade iron ore fines from various local mines and refines them. A pellet plant located near local steelmakers converts low-grade iron fines into value-added pellets. Indian steel producers have been saddled with the problem of sporadic iron ore supply following a ban on its mining in some of the states. No wonder Tata Steel is bidding for the Indian iron-ore assets of Stemcor. Jindal Steel and JSW Steel are also reported to be bidding jointly. So let's get to the nitty-gritty by the numbers.

Source: Metal Miner

SAIL led Afghanistan consortium plans to take off soon

PTI reported stating that negotiations between Afghanistan and SAIL led consortium involving USD 10.8 billion project are over, the Islamic Republic said it does not have any objection to AIFSCO planning to develop it in phases. AIFSCO has public sector firms SAIL, RINL and NMDC holding a combined 56 per cent stake. The rest is held by private players such as JSW, JSPL and Monnet Ispat & Energy among others. Mr Wahidullah Shahrani Afghanistan's mines minister told reporters that "We have concluded negotiations. This is a huge project. During negotiation, SAIL has assured us that it will deliver their commitment, but that could be done in phases. That is natural with this type of mega projects." When asked on the issue, Mr Shahrani evaded any direct answer, saying eventually, the steel plant would be of the 7 million tonne per annum size and the consortium would invest the committed amount of USD 10 to USD 11 billion. He said that "Eventually, investment will be between USD 10 billion to USD 11 billion. It will be done in phases. However, it will depend on the cost of exploration and fluctuation of the prices of raw material. The investment could go up. What is important is the commitment." He added that "Steel plant will be developed, based on our negotiation, in different phases, but eventually it will be of seven mtpa size. But, for that they need to conduct the feasibility study. In first 2-3 years, they need to conduct detailed exploration. Then they will do the bankable feasibility study which will determine what will be the capacity in first phase. It could be any number." After winning bid to mine three iron ore mines at Hajigak in war-torn Afghanistan in November, 2011, Afghan Iron and Steel Consortium had said it would invest USD 10.8 billion to set up a 6.1 million tonne per annum steel plant in two equal phases along with a 800 MW power plant, besides creating necessary infrastructure. However, later it decided to scale down the original plan by around 75%, with consortium members deciding to set up a steel plant of 1.25 million tonne per annum and a 120 MW captive power plant with USD 2.9 billion investment.

Source: Steel Guru

Coal India asked to supply for an additional 18000 MW coming up by March 2015

The government has asked Coal India to supply fuel to an additional 18,000 megawatts of new thermal power capacity that will come up by March 2015, but the state firm feels it will not need to supply any additional coal. "Extra coal supplies may not be really required. CIL has been given to understand that the extra 18,000 mw that has been added to the list of supplies are not likely to come up before the deadline of March 2015. Beyond the deadline we do not know yet," CIL chairman S Narsing Rao told ET. "Given the pace of construction of these projects, most of these are not likely to come up by March 2015. Even if they come up, they may not have the required power purchase pacts with discoms. Also, most discoms are not inviting bids for securing power supplies from new capacities. Power transmission lines to evacuate proposed generation are also not ready in most cases. We have been given to understand by Power Ministry that all these three factors summed up increase unlikelihood of any such capacities coming up by March 2015," he said.

Source: The Economic Times

THE ROBOTIC AUTOMATION FOR GRINDING & FINISHING OF ALUMINIUM PARTS OF INDUSTRIAL VEHICLE

Robotic automation had come a long way in Foundry and Forging Industries. Many manufacturing Industries through-out the globe are using industrial Robots for grinding & polishing activities, which are labour and skill oriented & requires high level repeatability with consistency in quality.

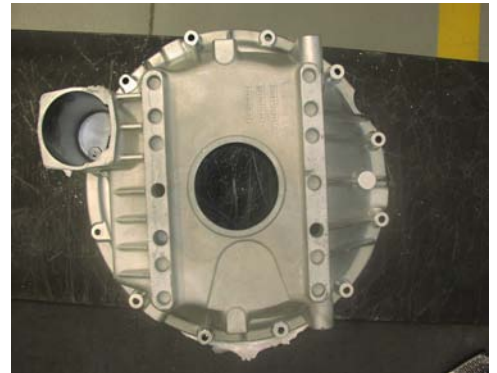
With the recent trend in using more and more Aluminium parts in Automobile Industries including Industrial Vehicle manufacturing Industries, more and more new challenges are being experienced by the system integrators for Industrial Robotic Grinding and polishing of Aluminium parts.

Tiesse Robot spa have the know-how acquired in more than twenty years of robot applications in aluminium foundries, especially in the field of casting handling. The evolution of the sector has resulted in becoming increasingly more & more involved in specific process problems, and in being transformed from a simple executor to an active protagonist in the attained solutions, able to supply standardized packages with 'turnkey' islands, which enter the facility ready to cater to all production requirements.

Having done appreciable amount of developmental activities in the **aluminium foundry** automation field, the customer decided to repose their faith in Tiesse Robot spa to design & develop an **aluminium chill & green sand cast finishing plant by a French company, who supplies parts to few Major European industrial vehicle manufacturers**, for example trucks etc.

After a detailed study of the actual jobs as shown in Figures above, it was also of paramount importance to know the customer's exact requirement in order to design the complete Automation Cell. In short, the customer's requirement consists of a robotized & flexible island for flogging, sprue cutting and finishing a series of castings and are be sufficiently flexible to manage the production mix, as well.

In order to meet the above requirements, the engineers started designing an automated island with two **Kawasaki ZX300S Robots**, able to work at the same time on two different codes or, in the



case of high volumes, work with a single code and be able to switch over the same piece at the same time to perform the various operations, as shown in the photograph.

In addition to the above, the automation system was also required to meet the different product mix as per the requirement of the customer. Hence to satisfy the need for managing high production mixes, a Piece feed system was developed for the customer, comprising of a motorized belt conveyor and a viewing system. The Viewing system allows the robots to recognize the incoming code on the job and its orientation, thereby avoid the use of costly tooling and reducing the setup times of the island to the minimum **as shown in the figure.**

The operating range of each individual robot extends from the flogging unit slaving phase to handling the piece for sprue cutting, to be done underneath a strip unit, with the possibility of performing the piece finishing operations using milling tools and a tape application operating unit.

Each robot features a casting placement and recovery station to enable the robot to change piece grip area, so as to be able to perform the finishing operations along its entire perimeter.

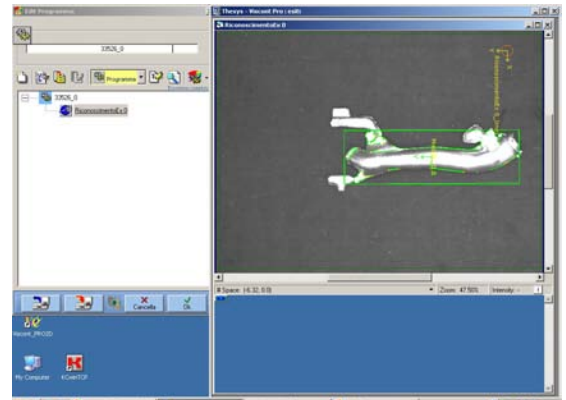
An intermediate station for the switching over of the piece between the two robots permits – if the cycle so requires – passing the piece from the first to the second robot to be completed. Piece unloading is done with the aid of two motorized belts.

The cutting strip and milling and deburring tools housed in specific areas protected by guards are arranged so the machining scraps are conveyed onto a motorized metal slat conveyor which removes them to an outer container, separating the aluminium cutting powder from the larger scraps.

Once the sprues have been cut, the piece is finished with the aid of a milling unit consisting of electric spindles driven by a special inverter for speed adjustment, and of deburring tools fitted on pneumatic turbines equipped with compensator, as well as by means of taping operations on pairs of taping units, these too inverter controlled.

The entire island was placed inside a soundproofed booth so as to reduce noise levels, and fitted with its own connections to the dust extraction system installed by the customer. Special care was given to the pickup parts; only the end pieces need replacing in order to process one code rather than another.

The operator has the advantage, with the aid of a supervision system featuring mimic and touch screen, and performing actions which do not involve the use of the robot programming keyboard, to be able to disconnect from the



cycle any machining operation, whether required or not, including according to the extent of tool wear.

Using the latest technology development in this Industrial segment, that is, the adaptation and development of viewing system, which can make it possible to determine the positions of machining areas in space, whatever the shape tolerances. In addition to the above, with the advent of Software technology, Off-line programming software were also developed which starting from the files sent by CAD or CAM systems, can automatically produce the operating trajectories of the robot tool together with the relative orientation vectors in conjunction with Viewing technology. By using these extremely advanced technologies, the traditional programming times are totally eliminated. This can also be extended by programming the robots without stopping production and thereby reducing commissioning times and at the same time ensuring the utmost compactness, modularity and flexibility of the system. The outlined Robotic Automation Island was installed and commissioned upto the total satisfaction of the customer.

With the execution of above designed system, Tiesse Robot spa once again proved its strong presence in designing & developing Robotic Automation systems, which are the careful combination of designing skills & innovative technology, suitable for a range of different industrial requirements. Tiesse Robot spa, though its Indian partner, Automation India Welding Technology Pvt Ltd is looking forward to Indian Foundry and Forging Industries for offering the-state-of-the-art solutions based on their proven experiences for, not only, to uplift the ultimate production quantity but also with assured quality with repeatability.

C/o G L Mukhopadhyay
Member, IIM DC

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Vedanta rejection at Niyamgiri won't be the last; jinx of bauxite mining may continue

When the voting stops on August 19, the scorecard, which is currently 9-0, may well read 12-0. An emphatic and embarrassing rejection of state and corporate plans to mine bauxite atop the Niyam Dongar hilltop in the Kalahandi district of Odisha. Twelve tribal villages that call this mountain range home have, in all likelihood, secured their religious rights over the hill and its natural resources, including 72 million tonnes of bauxite that the \$15 billion mining giant Vedanta Resources has been trying to get its hands on to convert to alumina at its neighbouring refinery.

India's highest court had ordered this referendum in April, after noting that project considerations had not taken into account whether scheduled tribes and other traditional forest dwellers had any rights of worship over the Niyamgiri hills. There may never have been as much at stake, or such media scrutiny, or judicial intervention, but the unanimous message coming from the gram sabhas being held since July 18 is not new: Odisha's troubled bauxite journey must reassess its challenges. And it could start by revisiting its history. This is not the first time a plan to mine bauxite in eastern India—home to about 70% of the country's reserves of the mineral used to make aluminium—has collided with a conflation of interests, and stalled or crumbled. Chances are it won't be the last, and will continue to ring-fence the industry's expansion.

"It is a matter of great irony that Odisha has some of the best minerals of all kinds, particularly the finest bauxite, but there's not a single new mine in the last 30 years," says Mr. S K Roongta, Managing Director of Vedanta Aluminium. In the period that Mr. Roongta refers to, six major bauxite projects have found themselves tangled in conflict. These six, which are the gateway to about 30% of India's bauxite reserves of 3.5 billion tonnes, all lie in the eastern belt of Odisha and Andhra Pradesh, passing through some of the poorest parts of the country. The story of each reveals the details and nuances

of the jinx that bauxite mining has come to be. It's not just a Vedanta that is opposed; every aluminium company wanting to secure raw material, be it from the private sector (Hindalco, JSW, etc) or the public sector (Nalco), has felt the backlash. The actors on the other side vary: locals, a Norwegian NGO, a minister, the state itself. The reasons have differed: from religious significance to rehabilitation, from perceived intrusion to policy revision. And all this goes back to the beginning of the short history of this mineral in India.

Shorter History

Unlike iron ore or coal, which date back to pre-independence days, the rush for bauxite is recent, dating back to the 1970s. So, in iron ore, for instance, the clout of miners, and their relationship with the state, is set. Also, pure mining of bauxite has not been encouraged by the government; it is most compelling to mine when it is linked to an aluminium refinery, especially in the vicinity. Massive bauxite reserves were discovered scattered along the mountain reaches of the Eastern Ghats in the 1970s. This area that straddles southern Odisha and northern Andhra is referred to as the 'east coast bauxite belt'. According to data from the Ministry of Mines, Odisha holds 52% of India's bauxite reserves, followed by Andhra Pradesh with 18%.

Source: The Economic Times

Aluminium Foil Market – Global Industry Analysis, Size, Share, Growth, Trends and Forecast, 2013 - 2019

Aluminum foils offer many advantages to the packaging and food industries and the consumer including consumer friendliness & recyclability. Consumers can freeze or heat food products in the foil container directly. Other applications of aluminum include beverage, confectionary, personal care, health care and other industrial uses. The global aluminum foil packaging market is expected to show high growth over coming years. The major growth is expected in the developing markets owing to strong economic growth and increasing middle class with growing disposable income. The change in life style which includes changed food habits has led to increased demand for packaging. Increased demand in chocolates and snacks industry as well as pharmaceutical industry is the major drivers for aluminum foils industry. The future opportunities in this industry lie in deploying technological advancements to produce improvement in product quality and its consistency, increase in productivity of mills, reduction in plants losses to reduce cost, increase in the availability of foils in various forms for critical mass consumption usages and improvement in the exportability of foils.

Some of the major players in this industry are ACM Carcano, Aditya Birla Group, Alcoa, Aluflexpack, Alufoil Products Pvt. Ltd., Alupac, Amcor, Ardagh Group, Bachmann Aluminium GmbH, Comital Group, Dalia Packaging, Danpak International B.V, DeLaval, Ekco, Eurofoil, Flexifoil Packaging, Hindalco Industries Limited, Plus Pack, Rajasthan Foils Pvt. Ltd, Southern Aluminium Industry Co. Ltd., TetraPak and Velcro Group.

Source: <http://www.transparencymarketresearch.com/aluminum-foil-market.html#sthash.htMIYLZD.dpuf>

Recession led business concerns behind ArcelorMittal and POSCO exit - Steel Minister

Indian Steel Minister Mr Beni Prasad Verma said that recession in the global steel market coupled with business concerns may have driven steel giants ArcelorMittal and POSCO to resort to scrapping their Indian projects worth USD 18 billion. Mr Verma told PTI that "There is recession in the international steel market at present. They (ArcelorMittal and Posco) have their own business concerns. They must have taken the decision in view of their profit or loss." Mr Verma also said that the world's largest steelmaker ArcelorMittal had yet to come to India. He said that "ArcelorMittal didn't come here, so there is no

question of their withdrawal." When asked whether the pullouts were going to impact the Indian steel sector, Mr Verma said it would not affect the steelmaking capacity as domestic players like SAIL, RINL and NMDC had already initiated modernization and expansion drives while many private players were augmenting their capacity. He said that "We are increasing our domestic capacity and consumption. We will be producing quality steel. We have set a target of 200 million tonne capacity by 2020, which will be further enhanced to 300 million tonne by 2025. Modernisation by domestic players will be completed soon and the production will enhance. Private sector is also increasing its capacity." His remarks follow scrapping of USD 12 billion steel mill project in Odisha in the biggest foreign investment pullout by ArcelorMittal in July. It was a day after South Korean major Posco pulled out of USD 6 billion project from Karnataka over delays in land acquisition, securing raw material linkages and other problems. While POSCO attributed "given market conditions and significant delay in acquiring the required land" as the reason to scrap 6 MT Karnataka project, ArcelorMittal cited inordinate delays in land acquisition and problems in securing iron ore linkages for exiting from 12 MT Odisha project.

Source: Steel Guru

India to become world's 3rd largest construction market by 2025: Survey

IndiaMART Knowledge Services (IKS) survey captures SMEs' views on present business scenario, barriers to growth, future sales & employment etc. India is pegged to become the world's third largest construction market by 2025, adding 11.5 million homes a year to become a \$1 trillion a year market as per a recent study by Global Construction Perspectives and Oxford Economics. The future looks optimistic while the current economic conditions are yet to instill confidence in the players. Consisting of a fair share of SMEs, the sector dynamics are also defined by their performance. IndiaMART Knowledge Services (IKS) conducted a survey among SMEs in the building and construction sector to understand the current business scenario and outlook. It reveals that more than 60% of the SMEs in the sector witnessed improved business conditions last year, despite a grim economic scenario. Also, over 46.9% of SMEs are optimistic for future too and expect improved sales between 0-20% led by regular inflow of demand. Sharing his perspective, Mr. Dinesh Agarwal, Founder & CEO, IndiaMART.com, said, "Being a contributor of almost 8.6% to country's GDP, growth of building and construction sector is important from the viewpoint of economic development. Several factors have given fillip to the construction sector in recent times of which the most significant is the one by SMEs. The survey is a reflection of their opinion. It is interesting to note that the SMEs have high business confidence despite experiencing the grim economic conditions."

Source: Indiamart News

12th Plan GDP Target Likely to be lowered

The Planning Commission is likely to scale down India's economic growth target to 6.5-7% for the 12th plan period from 8% projected earlier, a revision necessitated by the persistent downturn in key sectors such as infrastructure and manufacturing despite the government's efforts to spur investment. While the commission had projected a GDP growth of 5.8% for 2012-13, the first fiscal of the 12th five-year plan (2012-17), Indian economy grew by just 5% and it is likely to fall way short of the 7.3% pegged for the current fiscal, a senior official told ET. In such a situation, there is little likelihood of achieving the earlier target for the five-year period, the plan panel has concluded, the official added. "The plan panel had listed different scenarios which would help the economy return to 8% growth. While the government has managed to take some big policy decisions, including liberalisation of foreign direct investment norms, there is insufficient action at the level of bureaucrats to implement these decisions. As a result, we may scale down economic growth to 6.5%," said the official, who did not wish to be named. The plan panel, which has kick-started the exercise of mid-

term appraisal due next year, has reached a consensus that the initial target for the 12th plan period is far too ambitious in the current scenario, the official added. The economy grew by 7.9% in the 11th plan period, 7.6% in the 10th plan period and just 5.7% in the ninth plan period.

"The country's economic growth is significantly short of the target so far. Planning Commission does not revise targets every week and we do it only during the mid-term appraisal of the plan," Dr. Montek Singh Ahluwalia, Deputy Chairman of Planning Commission told ET. While Dr. Ahluwalia was optimistic that there might be a strong rebound in growth towards the end of the plan period, at least half a dozen senior officials told ET that achieving average 8% growth in five years would require double-digit growth in the last two years of the plan. This is impossible to achieve given the slide in the economy in the initial years, officials said on the condition of anonymity. The plan panel had initially projected annual GDP growth of 8.5%, 9% and 9.2% during the last three years of the 12th plan period. The plan panel has been reiterating that the economic growth depends on the capacity of the economy to draw investments and ensure productive use of this capital, an official said, adding that genuine investors in the country as well as abroad have been shying away from investing in India for umpteen reasons. "Unless the recent policy decisions of the government translate into real investment, growth will be restricted to 6.5-7%," the official said. Economists have pegged growth during the first quarter of the current fiscal at 4.5-5%.

Source: The Economic Times

The Present & Future Strategies in the Ferro Alloys Industry

The fortune of Ferro Alloys industry is linked with the Steel Industry. Indian economy is expected to grow with increase in steel production which is likely to witness a growth with increase in per capita consumption of steel in the country. The present per capita steel consumption is quite below the world average. Also, the future of Indian Ferro Alloys industry depends upon the steps taken by the Government of India to boost sentiments of the manufacturing industry in general and Iron & Steel industry in particular. Presuming future potential in the steel sector, the government will make all endeavours to see that the 89 MT Steel capacity projected for the year 2013-14, is realized by way of policy facilitation and vigorous co-ordination efforts of the government. The present estimated production capacity and domestic demand for Ferro Alloys in India is about 4.8 MT against domestic demand of 3.3 MT during last fiscal. Expecting an increase in the domestic demand for Ferro Alloys, more new Ferro Alloys units have come up specially in Manganese alloys in the country which has added 0.7 MTPA capacity in various states such as West Bengal, Andhra Pradesh etc.

Ferro Alloys is a power intensive industry. About 35-40% of total production cost is spent on power. The balance is attributable to the cost of ore and other ingredients required to produce Ferro Alloys. Power tariff in India is 3-5 per cent higher compared to competing nations and above this the Indian power sector is in a state of flux. In view of the fact that the current power tariff in various states is quite high, most of the Ferro Alloys producers are putting up their own captive power plants to have a cost advantage over competitors. India is presently positioned as the eleventh largest producer of energy, representing roughly 2.4% of the overall energy output per annum. Coal based power generation remains major contributors for meeting the energy demand in the country and in view of huge thermal coal demand in India, coal based power generation shall continue to play a dominant role in Indian Power Sector. Presently, most of the Ferro Alloys manufacturers are also engaged in generation of power for captive use and sell additional power in short term market through merchant sale with a view to optimize revenue and profitability. In the light of continued year-on-year increase in peak power deficit, the government is aggressively targeting capacity commissioning with focus on large-scale thermal plants. There still remain regulatory complexities resource sharing, environmental clearances and land holdings at the state level that is delaying generation of

additional power plants. Progress in terms of sector reforms remain slow. The availability of major raw material for Ferro Alloys industry such as manganese ore for manganese alloys, chrome ore for Ferro chrome, along with coke, quartz and fluxes etc, is not satisfactory in the country. Due to the huge demand of ore and scarcity of good quality raw material in the country, ore prices have been increasing every day since industry has a huge demand for ore. In India, manganese ore is available with MOIL, a government owned enterprise, which is the largest ore producer and other manganese ore producer such as Orissa Mining Development Corporation (OMDC), Tata Steel, Sandur Manganese, Rungta Mines etc. Also, some small private mine owners in Madhya Pradesh, Odisha and Karnataka are producing very little quantity of ore. The industry requirement for ore is not being fully met by the domestic supply; only 45% of the total demand is being fulfilled by the domestic mining industry and rest of the ore imported. Hence, the industry is quite dependent on the imports.

Marketing & Pricing:

Ferro Alloys price increase in the market has immediate impact on ore prices. The variable cost and market price of the product always plays a vital role in the industry viability. Prices of Ferro alloys decided by the international market vary widely and also impacts prices of ore in the domestic and international markets. The industry is first catering to the domestic market and then looking upto the export market with its surplus. The opportunities and threats to the industry depend on the costing of the product. The units that are getting power at a moderate rate and the plant location is within the proximity of port have cost advantage over the competitors. In a highly volatile market condition, a number of factors are affecting Ferro alloys prices in domestic as well as in the international market. In view of Globalization of Ferro alloys, there is a cut throat competition in Ferro alloys in both domestic and international market. Supply in the industry has gone up with new entrants especially in Manganese alloys. Also, a number of clusters have been developed in various states around the country which has created a misbalance in demand and supply. The most critical thing still remains selling the finished material in the domestic as well as the export market. As per estimations, the domestic demand for Ferro Alloys increases about 17-18% every year against the production capacity that expands by about 33-35% every year in spite of high power tariff, huge shortage of raw material, viz. Manganese ore, Chrome ore, power Coke and other fluxes etc. in the country.

This industry is also exposed to external risks such as fluctuation in demand & supply, stiff competition from other market players, risk arising from supply chain glitches, internal risk like variation in production cost, quality financial risk of adverse variation in interest rate and fluctuation in foreign exchange rates. The future of Ferro Alloys industry will largely depend upon the demand and supply in the market which in turn depends upon improvement in various economies around the world. However, steel sector in the next year is expected to be better.

Source: Steel 360

Information Extracted by Shri S C Suri Chairman IIM-DC

DFCCIL awards contract worth Rs 67 bn for 625 Kms of double track corridor

Dedicated Freight Corridor Corporation of India (DFCCIL) has awarded a major contract for construction of 625 Kms of double track corridor from Rewari (Haryana) to Iqbalgarh (Gujrat) via Rajasthan at a cost of about Rs 67 billion. The contract has been bagged by SOJITZ - L&T Consortium, the two construction giants from Japan and India respectively, reflecting the true spirit of bilateral cooperation between both the countries, the government said. This is the second mega contract of Dedicated Freight Corridor, the first one having awarded in January, 2013 for construction of 343 Kms double line track between Kanpur and Khurja on EDFC. With the finalization of this contract, DFCCIL has successfully achieved awarding of contracts for about 1000 Kms of double line track on the DFC

Project. Work under this contract, this portion of corridor will be completed within a period 208 weeks (4 years) from the date of commencement i.e. August 30, 2013. This contract provides for construction of double line railway track with 25 ton axle load capable of upgrading to 32.5 ton axle load with double stack container operation. For the first time in India, technically superior Head Hardened Rails to be imported from Japan are being used for this work, which has a much better service life than the rails being presently used on Indian Railways. R K Gupta, managing director, DFCCIL and Toshihiko Kita / S N Subrahmanyam of SOJITZ - L&T Consortium exchanged the contract document with the clearance from JICA (Japan International Corporation Agency), at a simple ceremony held at New Delhi on Aug. 19, 2013. Speaking on the occasion, Yagi assured full support for the project from Government of Japan. Arunendra Kumar, Chairman, Railway Board and Chairman, DFCCIL expressed confidence in completion of the project on time, so vital to the growth of Indian Railways and Indian economy. -

Source: IRIS

World's Fastest Train Resumes Trials as Japan Plans Maglev Line

Japan resumed trial runs for the world's fastest magnetic-levitation train that will complement the Shinkansen bullet-train network when ready in 2027. Central Japan Railway Co. plans to begin work on the 5.1 trillion yen (\$52 billion) maglev line between Tokyo and Nagoya as early as April. Trials resumed recently after the company spent five years building a 24-kilometer extension of a test track. The trains can run at speed of up to 500 kilometers (310 miles) per hour. The maglevs will whisk passengers to Nagoya, a city of 2.3 million people, from Tokyo in as little as 40 minutes for the 286-kilometer journey, from as short as 95 minutes now, according to JR Central. Faced with the challenge of tunneling under Tokyo's skyscrapers and the Japanese Alps, the project is unlikely to be completed on time even as Japan's population is projected to shrink, eroding travel demand. "I think it's going to be finished very, very late," said Edwin Merner, president of Atlantis Investment Research Corp. in Tokyo, which manages about \$3 billion in assets. "If the population projections are correct, then the use of the bullet train will go down." Japan's population may fall to as little as 117 million by 2027 from 127 million now, according to projections by the National Institute of Population and Social Security Research. By 2060, the overall population may drop to 80 million.

Digging Tunnels

Maglevs use magnetic power to propel trains that float above the ground, traveling at almost double the 270 kmh of current bullet trains between the two cities. To make the line straight enough for that speed, the company has to dig 248 kilometers of tunnels, or almost five times the length of Europe's 50-kilometer Channel Tunnel. "We're not using radically new technology for the tunnels," said Teruyoshi Nagashima, a Tokyo-based spokesman for JR Central. "We'll start work on it when we get permission," he said, declining to say exactly when the building work would start. Concerns about high construction costs and uncertain demand have fueled resistance to plans for high-speed rail in countries including the U.S. and the U.K. California is struggling to lay tracks for an \$86 billion high-speed line after Congress cut off 2012 funds for such projects. The California High-Speed Rail Authority has also been working to settle lawsuits challenging the project.

London to Birmingham

The U.K. government is facing resistance to plans for a high-speed link between London and Birmingham, scheduled to open in 2026 before being extended to Manchester and Leeds. The U.K. Institute of Directors has called on the government to abandon the plans, arguing that its 50 billion-pound (\$78 billion) price tag is too steep. Unlike those projects, JR Central's maglev line won't depend on government financing. The company says it will use cash flow, the highest of any railway

operator in the world, along with loans and bonds to fund the project. JR Central had free cash flow, or money from operations minus capital spending, of \$2.95 billion in the fiscal year ended March. That compares with \$2.42 billion at Union Pacific Corp. (UNP), the largest U.S. railroad by sales, according to data compiled by Bloomberg. The Japanese company, whose bullet trains carried more passengers last year than any airline in the world, predicts net income will rise 11 percent to 222 billion yen this fiscal year. It has made a profit every year since it was listed on the Tokyo Stock Exchange in 1997.

Cash Cow

"JR Central's bullet train is a cash cow," said Shinichi Yamazaki, an analyst at Okasan Securities Group Inc. "They have access to enough money, including loans, to pay for the project. They could even build it faster, but looking at their finances, it's better to aim for 2027." JR Central will issue 5-year, 10-year and 20-year bonds in equal amounts to help finance the project, according to the company. The rail operator is rated Aa3 (9022) by Moody's Investors Service, the same as the Japanese government. The company had 2.9 trillion yen in interest-bearing debt at the end of March and has said it plans to ensure total debt doesn't exceed 5 trillion yen. Its debt peaked at 5.5 trillion yen in fiscal 1991. JR Central fell 0.7 percent to 11,470 yen as the close of trade in Tokyo. The shares have climbed 64 percent this year, compared with a 29 percent gain by Japan's benchmark Nikkei 225 Stock Average.

Shanghai Maglev

Worldwide, two maglev lines are already operating. In Shanghai, a train built with technology developed by Siemens AG and ThyssenKrupp AG (TKA) whisks passengers along at 431 kmh from Pudong International Airport to the outskirts of the city's financial district. A low-speed version called Linimo, with a top speed of 100 kmh, started operations on an 8.9 km track in Nagoya in 2005. The maglev that resumed trial runs today holds a world record for speed at 581 kmh. JR Central's chairman and president, Japan's transport minister and local mayors were among officials riding the train, which reached 505 kmh. "Compared with the bullet train, there was a slightly noticeable feeling of speed," Akihiro Ohta, the transport minister, told reporters after riding the maglev today. "At times, there was the same kind of feeling in my ears as there is when in a plane or elevator, when it goes up quickly." By fine-tuning the technology and accumulating experience, Japan can build trust in the train, Ohta said.

Tokyo's Growth

The new line may benefit from projections showing that even as Japan's total population declines, Tokyo's will continue to grow as more people move to the capital. The number of people living in Tokyo prefecture is predicted to increase to 13.4 million by 2020 from 13.2 million in 2010. The greater Tokyo region's population exceeds 35 million, making it the world's largest metropolis. With a planned extension from Nagoya to Osaka by 2045, the maglev line would put 64 million people within commuting distance of each other, according to the train operator. JR Central predicts a maglev service will help persuade people to fly less and reduce reliance on highways. Fares between Tokyo and Nagoya will be about 700 yen more than the current bullet train, the company has said. "There may not be a lot of new passengers to Nagoya, but when it's extended to Osaka there could be a significant business demand," said Ryota Himeno, an analyst at Barclays Securities Japan Ltd. "Tokyo is becoming more expensive and crowded, and so companies might move some operations to Osaka once it opens. It all depends on the frequency and capacity of the maglev trains."

Source: Bloomberg

Sliding rupee may hit infrastructure projects

With the fast fall in the value of rupee against the dollar, future infrastructure projects in the city, such as Metro rail II and III, may take a beating. These projects might see a 10% rise in their estimated costs, thus increasing the burden on commuters. The Versova-Andheri-Ghatkopar Metro line will not be affected as it is almost complete. According to experts, Metro II (Charkop-Bandra-Mankhurd), Metro III (Andheri Seepz-Bandra-Colaba), and the ongoing Navi Mumbai Metro project from Belapur to Pendhar via Kharghar would need a lot of imported material and foreign consultants, and thus, their original estimates might get impacted significantly by the fall in the value of rupee. A source in the state government said that while both the Metro lines in the city would see a rise of over Rs 2,000 crore each due to depreciating rupee, the Navi Mumbai line's rolling stock would also cost considerably more than the estimated value as the contract is yet to be awarded. Cidco sources said the cost of the Navi Mumbai Metro may rise by at least Rs 200 crore as the rolling stock, such as rakes, is a separate contract other than the via duct construction which is already underway.

Economic expert Mr. Satish Bagul said usually the cost of rolling stock and other equipment imported for Metro projects constituted 35%-40% of the total project cost. Hence, the fall in rupee against dollar would put a financial burden on these projects and the agencies building them, he added. He said time will tell as to at what level rupee's value against dollar settles. Bagul also did not deny possibilities of hike in costs for other projects, such as the Mumbai Trans Harbour Link, wherein foreign consultants, technology and partners from abroad may invest and bring in their expertise. Metropolitan commissioner U P S Madan said there would definitely be an impact on the infrastructure projects, such as the Metro rail routes, wherein the rolling stock or other equipment were to be imported. But, he added, projects using only cement and steel would not be affected much as India has enough stock. A Cidco source said that for the underground Metro, the per kilometer cost would rise from Rs 650 crore to Rs 750 crore, while for an elevated one, such as in Navi Mumbai, it would rise from Rs 190 crore to Rs 210 crore. Top Cidco officials were not available for comment.

Going North

Metro II:

Charkop-Bandra-Mankhurd is a 32 km elevated route with an estimated cost of Rs 11000 crore. It may not take off due to stiff opposition to elevated section and the deadlock between developers and government over various permissions and clearances. The route with 29 stations may become an underground route in future to double its cost up to around Rs 22000 crore. It may then cost over Rs 2000 crore extra over estimated value.

Metro III:

Colaba-Bandra-Andheri SEEPZ - 33 km is an entirely underground route with around 30 stations and is at planning stage. The process to loan the project through Japanese agency has been approved by the Centre. It will cost state, MMRDA and Centre over Rs 22000 crore. This will also cost over Rs 2000 crore more due to falling rupee.

Navi Mumbai Metro Ist Phase:

Belapur- Kharghar-Pendhar - is a 11 km route with 11 stations. The work on viaduct construction is already underway but the contract for rolling stock is yet to be awarded. In the estimated cost of about Rs 2200 crore, rolling stock component will cost around 35 per cent. With the revival of rupee against dollar, the cost is expected to go up by another Rs 200 crore.

Mumbai Trans Harbour Link:

22 km Nhava Sewri sea link is estimated to cost around Rs 10,000 crore. It may have small component such as foreign technology or consultants or partners which may lead to slight escalation.

Source – The Times of India

OPENING OF STUDENT AFFILIATE CHAPTER OF IIM AT NIT SRINAGAR

The students of National Institute of Technology (NIT), Srinagar, approached Indian Institute of Metals (IIM) to open a Student Affiliate Chapter at Srinagar. IIM has given its approval to set up the Student Affiliate Chapter at NIT Srinagar. The opening of this Chapter was inaugurated at Srinagar on 23rd August 2013. This Chapter will be working under the guidance of Delhi Chapter of IIM.

The creation of the Chapter at NIT Srinagar will provide the students a platform to come in contact and interact with the metallurgical professionals at the national level and provide an exposure to the information about the activities in metallurgy and material science in India.

This inaugural function was attended, among others, by Shri L. Pughazhenty, Past-President, IIM, Prof. UK Chatterjee, Former Professor, IIT Kharagpur and Managing Editor, IIM Metal and Shri Manoranjan Ram, Hony Secretary, IIM, Delhi Chapter.

This is the 16th Students Affiliate Chapter under the fold of IIM.



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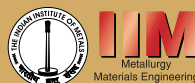
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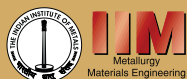


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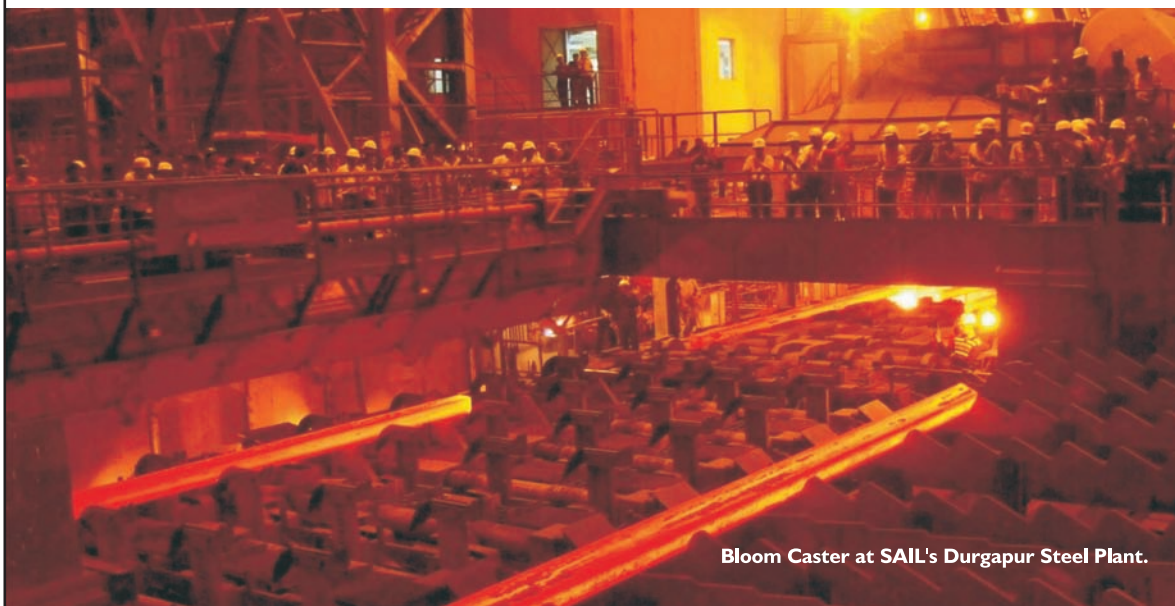
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SAIL - A Maharatna Company



Bloom Caster at SAIL's Durgapur Steel Plant.

Steel Authority of India Ltd. (SAIL), owns and operates five integrated steel plants at Bhilai, Durgapur, Bokaro, Rourkela and Burnpur; three special steel plants at Salem, Durgapur and Bhadravati; and a ferro alloy plant at Chandrapur. SAIL also produces iron-ore. It has its own captive mines that fulfil its iron ore requirements. SAIL has been awarded the prestigious status of a *Maharatna* by the Government of India.

- All its production units are ISO 9001:2000 certified.
- Current annual production of crude steel is around 14 Million Tonnes (MT). Produced over 350 million tonnes of crude steel since its inception.
- SAIL's product basket comprises Flat products, Long products and Pipes,
- including branded products such as SAIL TMT, SAIL JYOTI GP/GC Sheets.
- Supplier to strategic sectors like defense, atomic energy, power, infrastructure, heavy machinery, oil & gas, railways, etc.
- Supplier of rails to the Indian Railways.
- Major production units are ISO:14001 certified.

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