IIM Metallurgy Materials Engineering

NEWSLETTER
THE INDIAN INSTITUTE OF METALS
(DELHI CHAPTER)

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Issue No. 55/2012 **Vol. LV "Monthly"** **Date: 30.06.2012**

INTRODUCTION

The 60th Annual General Meeting of IIM DC was held on 23rd June 2012. The office bearers of the IIM DC 2012-13 are indicated in the News Letter.

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1. Iron and Steel Technology-Some Key Issues by Mr. S C Suri, Life Fellow IIM & Chairman, Technical & Publication Committee of IIM DC
2. Europe crisis to dent Steel Demand: An interview with Mr. H M Nerurkar, Managing Director, Tata Steel
3. National and International News

Published By

"The Indian Institute of Metals – Delhi Chapter"

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Annual General Meeting

The 60th Annual General Meeting of IIM DC was held at its premises on 23rd June 2012. The following are the office bears of the Chapter for the year 2012-13.

1	Shri Anil Gupta	Chairman
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Iron and Steel Technology – Some Key Issues

S C Suri
Life Fellow, IIM & Chairman
Technical & Publication Committee

Introduction

During the last 50 years, there have been a number of technological advances affecting virtually every operation of steel industry. These developments have been applied worldwide in steel plants in the industrialised countries as well as in many of those that have come up in the third world countries. Most steel producing companies have taken advantage of the new technologies, many of which have brought radical changes in Steel Making, Technology up-gradation. These technologies emphasise on improvements that increase productivity, reduce cost and improve product yield and quality. These improvements in technology can be classified under two broad headings.

1. Those involving some basic fundamental change in some phase of iron and steel making.
2. Changes that are more numerous but less significant, each of which makes contribution to advancing the state of the steel making art.

Some of the basic fundamental advances in technology at different stages of iron and steel production are mentioned below.

Coke Ovens

Coke ovens which convert coking coal to coke for blast furnace operation are essential for the production of hot metal and pig iron. Coke ovens however, in a number of steel producing countries, are being phased out due to environment and pollution problem. This has led to the development of several new iron making processes.

Coke making capacity has declined on a global basis for a number of reasons. Among them, mention may be made of the improvement in blast furnace practices resulting in less coke per tonne of pig iron and improvements in Blast furnace burden through beneficiation of ore.

The following new technologies have been successfully incorporated in coke ovens.

- Selective crushing of coal charge
- Stamp charging of coal
- Partial briquetting of coal charge
- Dry quenching of coke

Blast Furnace

The construction of new blast furnaces is now mostly confined to the developing countries. New furnaces are still being built in South Korea, Brazil, India and China. In the developed countries, emphasis is on the increase in blast furnace capacities while rebuilding, and on improving operational practices for better quality of iron.

A basic change in the blast furnace in the post-World War II period has been the increase in its size. The output of iron per day has increased from 2500 to 3000 tonnes to 10000 tonnes per day and even beyond.

The blast furnaces in the world have achieved up to 50 per cent increase in productivity in terms of tonnes per day by following certain technological measures. The injection of natural gas has resulted in a reduction in the coke rate, the blast temperature has been increased to 2000 degree F and beyond, more oxygen has been added and pulverised coal has been injected. In addition, where possible, sinter has been replaced by iron ore pellets, using higher grade ores, and HBI or scraps have been charged into the blast furnace. The blast furnaces have achieved increases in output to the extent of 50 per cent but coke usage has gone up by 20 per cent per annum, although coke rate has been reduced by one third.

In some European countries the average consumption of coke has declined to 350 kg/THM with some specific European blast furnaces attaining coke rates as low as 260kg. – 300kg. /THM.

Other Iron Making Processes

Other iron producing methods outside blast furnaces and coke ovens, have been in operation for a number of years. Several of these are referred to as Direct Reduction of Iron. MIDREX process, HYL process and LURGI process of producing Directly Reduced Iron (DRI) are amongst the more popular DRI processes for production of Sponge Iron/Hot Briquetted Iron (HBI).

There is considerable interest throughout the world in other iron producing processes that have been developed or are in the developmental stage. These processes use coal or gas, thus by-passing the blast furnace and coke ovens. Corex process has been commercially operating for last several years.

Steel Making

In 1990, 60 per cent of the world steel production was through basic oxygen converter and nearly 30 per cent was through Electric Arc Furnace. Open Hearth furnaces contributed to less

than 10 per cent production of total steel. Open Hearth Furnaces are now getting phased out.

The Electric Arc Furnaces (EAF) account for more than 30 per cent of the world output.[6] Much has been done to improve the output of EAF including higher transformer ratings, the application of oxygen, installation of water cooled panels and cooling of roof. Furnaces have increased in size and many produce more than 100 tonnes per heat and some are in the 300 tonnes per heat category. Number of DC furnaces are being installed which operate with one electrode as against 3 in AC furnaces.

Ladle Metallurgy

Ladle metallurgy is employed to improve steel quality as it leaves the Oxygen Converter or Electric Arc Furnace. Ladle used in the process has a cover and an electrode. It serves several functions including maintaining the temperature of steel, or, if necessary, increasing it as and when required. The ladle is also used to refine the steel and thus increase the productivity of the BOF/EAF. Since the furnace is used to melt the scrap, the refining can be done in the ladle. The improvements in quality and the reduction in cost of operation provided by this facility has resulted in installation of this standard equipment in virtually every steel making shop. Bulk of the steel is being processed through Ladle Metallurgy in developed steel producing countries.

Continuous Castings

Continuous casting of semi-finished steel has expanded rapidly since its inception in late 50's and early 60's. The widespread use of continuous casting has lowered the investment cost and this technology is within reach of most steel producers. Adoption of this technology has helped to increase steel yield and reduce energy consumption.

New developments in continuous casting have progressed rapidly to a point where the steel makers have been offered alternatives to conventional casters in the form of Thin Slab Casters (TSC). The first of these has been developed by SMS concast. The second version has been developed in Germany by Thyssen Steel, Usinor and SMS. The third version of Thin Slab Caster has been developed by Mannesmann Demag of Germany.

The thin slab casters have definite advantages as the amount of capital requirement is 50 per cent less than that required in the conventional slab casters and rolling mills. Thin slab casters operate better in conjunction with electric arc furnaces.

Rolling Mills

In the rolling mill category, the continuous hot strip mill is the most important finishing facility for flat products in the steel industry. Another development which is being increasingly adopted is the addition of a coil box where by the bar before it passes into the finishing stand is coiled to retain its heat.

Steel Technological Revolution

Technological revolution is impacting the steel industry in several ways: viz,

- Reduction in economies of scale
- Reduced capital requirements per tonne of capacity
- Reduced operating cost and in some cases improved product quality.

Shifting of Process Route in Steel Making

In the last 35 years the proportion of EAF steel has increased from 15 per cent in 1975 to over 35 per cent in 2010. The forecast for the next ten years is that EAF steel share could be about 40 to 45 per cent of worldwide steel production. Two issues arise.

1. Whether the cost of EAF steel can be further reduced by a continuous improvement technology, and
2. Whether sufficient raw material – scrap, DRI and electric power – will be available for EAF steel making.

Current Technology Trends

The BF-BOF-CC route will continue to provide the major share of steel in the coming years. In the on-going search for alternative iron making, economical new technologies including some commercial scale operation like Corex.

Coke making technology will undergo the greatest change in the coming decades with improved environment standards.

The iron making area blast furnace will move from its present coke plus auxiliary fuel operations to a coal plus auxiliary coke regime with increasing use of coal injected into the blast furnace.

Over the past decades blast furnace productivity has been improving consistently and the coke rates are decreasing. Already, production levels of 3 tonnes per cubic meter per day have been achieved in some smaller furnace and it is expected that such production levels will also be realised for the large blast furnaces.

The BOF and EAF steel making routes will continue their predominant status over other routes of steel making in the foreseeable future. Obsolete steel making process like the Open Hearth will be completely retired leaving the field primarily to BOF and EAF steel making. The BOF may comprise around 65 per cent of the entire steel production of the world.

In the electric steel making use of DC single electrode EAF operations is gradually replacing the conventional 3 electrode AC furnace operations. It is expected that DC operations of EAF along with full computerisation will increase the productivity of the EAF unit.

Net Shape Casting

In the steel-making sector rapid adoption of near net shaping casting is expected to take place to save energy and improve productivity and reduce cost of production.

Near-net-shape casting will develop in a big way in producing hot rolled carbon steel strip from online rolling of thin slab. Many such installation for hot strip production in the EAF sector will come up with their version of thin slab casters and on-line hot strip mill for the production of hot strip. Concurrently plans are underway to retrofit thin slab casting technology into the major mills of the integrated steel plants based on BOF. Steel making developments are also taking place in improving the thin slab casting techniques to improve the quality of the flat products to meet the customer requirements. Near-net-shape thin slabs will be finished as structural as well.

With increase in computer and process automation, it is very likely that future steel plants will be run more on continuous operation basis to achieve higher productivity of both men and machine.

Future Production Technology Routes

Integration of steel making, casting and rolling process is expected to provide major benefits to the steel industry. It began with the integration of steel casting and rolling which has been achieved by thin slab casting and direct rolling technology. Direct strip casting is being commercialised in a big way. Direct endless casting and rolling of long and flat product are under development.

Direct continuous steel making from iron ore without intermediate production steps is a major

target. The combination of direct continuous steel making process with strip casting process is expected to result in substantial savings. Steel making and finishing mills will get integrated further with increased automation.

Technology Developments in EAF Steel Making

The following current technology developments are expected to be adopted in EAF steel making in an accelerated manner:

Use of Iron Carbide and Hot Metal in EAF Steel Making

Iron carbide is hard, brittle and the particles of reduced fine ore, which are <0.1 mm size, resemble black sand. It can be charged into the EAF either by injection or in bulk. A major advantage of this material over others forms of DRI is that, when injected below the slag/metal interface, it rapidly dissolves to form a fine dispersion of very fine CO bubbles as the high carbon content goes into solution and reacts with FeO or dissolved oxygen. Very high rates of CO evolution are generated which is particularly advantageous for flushing nitrogen from the bath. However, the rate of oxygen injection is limited by the capacity of the furnace of gas handling system and, therefore, to avoid large CO concentration, the iron carbide is required to be injected only during flat bath operation. Consequently, injection of iron carbide has been limited to a maximum of only 20-30 per cent of the EAF processing time, which means that its benefits have not yet been fully utilised. The Nucor Trinidad iron carbide plant has been shut down after experiencing major problems with plant availability and product quality. It stabilised at only 50-60 per cent of target capacity after problems with heat exchanger and other ancillary equipment had been resolved.

While Nucor has demonstrated that the iron carbide product is non-pyrophoric and can be injected into molten steel below the slag line at levels of up to 30 per cent (normally 10-20 per cent) the nitrogen removal rates are not as high as expected at 0.5 to 0.7 ppm for every 1 per cent Fe_3C injection. In addition, there is an energy penalty of 1.9 Kwh/t/1 per cent Fe_3C in the charge mix resulting from the high magnetite content. The iron carbide component is claimed not to re-oxidise in storage, but any Fe in the product that does not react to Fe_3C will be subject to re-oxidation and due to the small size of the Fe particles, reaction rates will be higher than for HBI or DRI. Iron carbide must be kept dry to facilitate handling.

Hot Metal Charging (HM)

HM charging in EAF has been successfully demonstrated at several melting shops around the world. The attractiveness of using HM in the EAF is that it contains considerable potential thermal energy in addition to the inherent chemical energy resulting from carbon combustion. Thus, HM reduces the requirement for electrical energy, contributes virgin iron units to the charge to improve or maintain specific quality requirements, extends foamy slag condition for improved heat transfer, reduced refractory loss and better nitrogen control and helps to reduce electrode consumption.

In Western Europe, HM use is largely the result of some steel mills changing from a BOF to a mini mill configuration within and existing integrated mill structure and utilising existing blast furnace output capacity. For example, the 150 t twin shell DC EAF at Unimetal Gandrange, France, where HM is charged through the furnace top (i.e. 23 per cent of mix) and the 160 t single shell, DC shaft finger EAF at Cockerill Sambre, Belgium, where HM is charged through a special launder during EAF steel making operation (i.e., 25 per cent of mix).

At ISCOR in South Africa, HM charging development trials at various works have involved continuous HM feed through a launder system in the furnace sidewall during EAF operation, as

well as direct charging over the lip through the furnace top. Initially, for the latter practice, the scrap charge is melted down for 10-15 mins and then the roof is opened and the HM safely charged into the openings in the scrap.

Development of Mini Mills

The mini mills emerged on the horizon about 2-3 decades ago as a means of exploiting continuous casting. The early mini mills used simple continuous casting machines for billets to link the electric steel making furnaces and flexible rolling mills common to their small scale forerunners and were able to enter the steel business on highly competitive basis.

Initially they produced long merchant products not requiring high-grade steel including bars, channels and angles for sale within a geographic radius of a few hundred miles. But as continuous casting technology advanced, so did the role of mini mills. Increasing in number and size their capability eventually extended to the entire long product steel segment, which they now dominate in many countries around the world.

Once again new continuous steel casting technology is helping mini mills acquire a commercial foothold in the steel business this time in the flat rolled market. New techniques to continuously cast thin slab are reducing the large plant scale and the capital cost requirements associated with conventional thick slab casters and downstream rolling and processing facilities.

Today's mini mills owe their beginnings to dramatic changes in the electric furnace steel making. Long used to produce small quantities of special alloy and stainless steel, the electric furnace underwent a number of technological improvements that transformed it into a steel scrap-melting producer of carbon steel. Furnace size was gradually increased, ultra high power was applied and advances were made in furnace electrodes, electrode holders, refractories and top charging techniques. As continuous casting began to be commercialised in the early 60's, its initial success was in shaping billets. It was soon recognised that continuous steel casting allowed small plants to produce efficiently certain kinds of steel without the scale of economy that was associated with high volume production.

Within a few years of their initial introduction, mini mills were able to take advantage of high productivity and low costs to undersell integrated plants in most of the long product markets. By the mid 1980's mini mills moved towards domination in long products market.

Faced with limited opportunities for growth in the long product markets, mini mills started considering the opportunities in the flat rolled products. Although electric steel making had already been producing plates and limited variety of sheets and strip, most flat rolled steels were widely regarded as beyond the technical capabilities of mini mills in significant part because of the scale requirements attached to the conventional slab casting and hot strip mill operations. However, this situation started to change once the near net shape casting of slabs moved towards commercialisation promising opportunities for smaller scale plants. Thin slab casting in mini mills permits flat rolled production to be initiated in smaller than traditional increments. The adoption of small mills can be expected to increase mini mills participation in the flat rolled business.

Thin Slab Casting – Issues and Prospects

Thin slab casting has played the role in the development of mini mills in the 1990s that billet casting played in the 1960s. These new machines are better suited to mini mills than to large integrated plants. Energy savings and lower labour costs are the main advantages, resulting in a saving of at least $ 15/T. Beam-blank casting machines have also been installed in more than 20 mini mills, although they were first developed by integrated producers.

In the US, new capacity building will make the strip market increasingly competitive particularly at the beginning of the 21st century. The major issue for mid-size, continental producers in USA is the sheer impossibility of reducing their hot metal production cost, leaving them with only a few options: I.e., either switch to the electric route or become a niche producer or quit steel making and become a re-roller. Direct entry into thin slab technology is certainly a major issue that large integrated groups will have to address in the next ten years.

Compact Strip Production (CSP)

The first commercial thin slab caster, developed by Schloemann Siemag (SMS), was installed at Nucor plant in 1989. The process layout incorporates a caster, with a funnel shaped, stationary mould, to produce slabs with a thickness of 50 mm, followed by a roller hearth or soaking furnace, for temperature equalisation, and a finishing train of 5-7 stands, dependent on the range of final gauges desired.

Many grades of steel used for hot rolled coil have been produced on CSP plants including:

- Weldable unalloyed steel for structural use
- Medium carbon steel
- Mild carbon steel for cold forming/rolling (CF/R)
- High-strength micro-alloy steel for CF/R
- High-strength phosphorus alloyed steel
- HSLA steel with improved corrosion resistance
- Micro-alloyed HSLA steels
- Silicon alloyed steel for electrical application
- Alloyed steel for heat treatment
- Stainless Cr steel

The Steel Mills of the 21st Century

The last decade has seen several advances in steel technology leading to widespread changes in the physical characteristics, component facilities and operating practices of steel plants. The overall objective of these technology induced changes has been to increase the speed and efficiency and to lower the cost of producing steel that meet the ever more exacting quality standards with the additional provision that the production process be made compatible with environmental protection and worker safety requirements.

Existing steelmaking operations involve multiple batch making operations which involve heavy capital costs given the limits and the difficulties imposed by traditional batch type production. Many of the major advances in steel technology have been directed at rationalising process flows to permit an increasing degree of continuous operation. This technological emphasis is exemplified in continuous casting, continuous hot and cold rolling and continuous annealing, all of which have replaced less efficient batch type operations. The ideal steel plant ultimately would permit a continuous flow of production from start to finish. In projecting prospects for the steel mills of the 21st century one can safely conclude that many technologies it incorporates will have the capability to bring the "ideal" much closer to reality. The changes made in the years to come will involve both physical facility and operating methods in the following areas.

- Use of computer based systems to co-ordinate functions within and between the major stages of production and eliminate or minimise production bottlenecks and permit process flows that are more or less nearly continuous.
- Elimination of batch type operations through the adoption of new technologically advanced production practices and facilities.
- Modification of facilities and production techniques to speed up production, improve process yields and conserve energy.

- Adoption of methods for promising cleaner steels with more exacting chemical specifications.
- Automation of production processes and application of robotics particularly in areas of product inspection and quality control, to achieve improved labour productivity and lower production costs.
- Streamlining of individual plant product lines to eliminate low volume items and permit longer and more efficient production runs.

While the steel plant of future will become highly computerised and automated, it will also become more specialised in its product concentration. The benefits of specialisation have been demonstrated by the "mini mill" approach to steel production so much so that its success has started to impact investment planning and technology utilisation in larger plants. The tendency in recent years has been for mini mills to become larger and more sophisticated in their operation and for larger plants including that are fully integrated to become somewhat smaller and more selective in the finished steel they produced.

In scaling down fully integrated multi product plants, one approach has been to eliminate blast furnace operations with corresponding changes at the steel making and finishing stages, the end result being to narrow the product and reduce the overall volume of finished steel production. The attraction of circumventing the blast furnace derives from the avoidance of difficult batch type operations, including coke making and sintering both of which involve heavy capital expenditure requirements and produce difficult environmental problems.

To date electric arc furnace steel making has been primary means of avoiding or scaling down blast furnace dependence, although its use as a scrap based process with a 100 per cent scrap charge significantly limits the range of its product application. Even the highest quality scrap purchased contains residual alloy tramps in the amounts that exceed the upper limits specified for high quality carbon steels and even for many of the medium quality carbon grades.

Besides turning to electric furnaces steel making companies have tried to reduce blast furnace dependency on utilising iron making by DRI and various modification of BOF process to permit its increased scrap utilisation. The use of DRI has found significant acceptance at locations where abundant supplies of low cost natural gas are available to fuel the most technically advanced production method. In considering this steel mill of the 21st century one's focus of attention is naturally drawn to the impact of energy sourcing and availability, particularly since steel production is so energy intensive. Indeed, one of the major programmes in steel industry is towards achieving energy conservation.

Conclusion

These developments have been applied worldwide in steel plants in the industrialised countries as well as in many of those that have come up in the third world countries. Most steel producing companies have taken advantage of the new technologies, many of which have brought radical changes to steel making. Technology up-gradation emphasises on improvements that increase productivity, reduce cost and improve product yield and quality.

Europe crisis to dent Steel Demand - Mr H M Nerurkar, M.D. Tata Steel

CNBC-TV18 cited Mr HM Nerurkar MD of TATA Steel as saying that assuming 7% GDP growth for the whole year and that he expects steel consumption growth to be 8% to 9% and the capacities on the ground are not more than the expected growth. There should be an overall balance as long as the GDP grows by 7%.

Below is the edited transcript of his interview to CNBC-TV18.

Q - We have entered the new financial year which looks extremely dodgy. What is your outlook for the domestic steel sector look going forward?

A - You rightly mentioned that the situation was quite lively in the beginning of the year, but everything seems to be have tapered off towards the end of the year. Going forward, there are plenty of announcements, action and meeting which indicate that some expenditure will be made on ground for the infrastructure projects. Even if 70% of that happens it will be great news for the industry.

Q - What is your outlook for domestic growth as we saw GDP growth slowing down considerably? In the early part of the year forecast was made suggesting that the Indian steel sector domestically would still see a growth between 6 to 7% or just under 7%. What is the outlook now given the slowdown that we are seeing?

A- Assuming 7% GDP growth for the whole year, we expect steel consumption growth to be 8-9% and the capacities on the ground are not more than the growth. There should be an overall balance as long as the GDP grows by 7%. If that doesn't happen, then we will have an issue, but those are the issues one has to tackle as we go along.

Q - With uncertainty in the European markets, do you plan to put USD 2.5 billion CAPEX plan on hold or are they on track?

A - CAPEX plan is on track as one can't start building a steel plant and leave it half-finished as it will increase cost further. The cost of delay is much higher than savings that one may do in terms of reduction in CAPEX. One's approach should be how to sell additional capacity in the country and abroad. Exchange rate should help at that time, but that should not be the goal. This year there are indications that we are still net importers. Some necessary products like some electrical steel or automotive grade steels are required to be imported as they are not available in India. But rest of the things, thanks to the exchange rate, should actually come down and we need not be net importers. That's one silver lining. If required, we may have to look for additional export. Currently, there are no opportunities in Europe. Some opportunities are available in South East Asia or the Middle East.

Q - In your Q4 numbers announcement you mentioned that continuing Euro zone crisis has kept European steel demand well below the pre-crisis levels. I am assuming things haven't gotten better; if anything they have actually gotten worse considering the uncertainty surrounding Greece and Spain?

A - That is correct, our forecast now is that by 2017, and Europe will go to the pre-crisis level. We expect slight contraction in demand this year in Europe because of ongoing crisis. The high end automotive sector is growing thanks to exports to North America and China. In Europe we have decided to improve our efficiencies in terms of operations, marketing efforts, improving the cost positions and procurement. We have also announced shutting down of some extra capacity. These actions will significantly improve our EBITDA next year.

Q - POSCO and Nippon forecast an improvement in the market in the latter half of 2012. Do you believe that H2 will bring some relief?

A - Yes. In the H1 there will certainly be a lag effect of second half of last year. So, things will not dramatically change overnight in a quarter. But whatever measures, counter measures we have taken we will start seeing the effect sometimes from August-September and that is the reason I believe that H2 will see significantly robust improvement than what we are seeing today both in India as well as in South East Asia or North America.

Source: Steel Guru

Govt draws plan to avoid costly coal imports

The government might have asked Coal India Ltd (CIL) to resort to imports to smoothen coal availability for fuel-starved power plants, but the state-owned miner has chalked out a detailed plan to avoid costly shipment of the commodity or to at least keep these to a minimum. Its latest strategy, formulated with coal ministry's brass, is to meet the mammoth supply obligation by ramping up domestic production. The multi-pronged strategy includes quickly ramping up production to 615 million tonnes annually by 2017. The target is to increase production up to 40 per cent in the next five years, to keep the shortfall to a minimum. This will be achieved by strict mine-level monitoring of performance and pushing for quicker ecological clearances and land acquisition, by seeking intervention of higher authorities, including the Planning Commission and the Prime Minister's Office. "Imports would not be needed to meet new coal supply obligations in the 12th Plan. We have drawn an elaborate plan with Coal India," a senior coal ministry official, who did not wish to be named, told Business Standard.

Confirming formulation of the plan, Coal India Chairman and Managing Director S Narsing Rao told Business Standard, as a part of this strategy, the company would gradually bring down e-auction volumes. "It would be brought down from around 10 per cent of production at present to less than seven per cent by 2015. This would not impact our profitability. In case earnings are hit, we could look at increasing the floor price," he added. The company also plans to supply 80 per cent of the coal required by companies to run power plants at a 85 per cent Plant Load Factor (PLF). "While most companies are running their plants at over 90 per cent PLF, Coal India would stick to the commitment for keeping the plants running at 85 per cent load according to Letters of Assurance (LoAs). This would further help us in meeting obligations," Rao said. Power companies would have to bridge the resultant gap through importing coal on their own. CIL has signed fuel supply agreements (FSAs) with 14 power units commissioned after March 2009. "The company would now have to sign pacts with an additional 81 units of 41,000 Mw capacity, including those commissioned between January 2012 and March 2015. The 81 units would take the entire requirement to around 170 Mt, another top company executive said. Around 60,000 Mw of fresh power capacity is likely to come on stream by 2016 requiring 252 Mt coal. This, added to the existing linkages of 305 Mt, takes CIL's supply obligation to 557 Mt.

CIL also plans to gradually increase the power sector's share in the company's overall production. While the company plans to raise output to 615 MT by then, production would at least reach 585 MT in a worst case scenario, leaving a gap of 89 Mt. "A major part of this gap, around 70 Mt, would be met through captive production by power companies," Rao said. The rest of the gap would be met as CIL will supply coal under new Fuel Supply Agreements at 80 per cent of the Annual Contracted Quantity, lower than the commitment of 90 per cent. As part of the strategy, from the current 70 per cent to over 80 per cent by 2016, leaving no room for any need to resort to imports. The production itself would be increased by over 35 Mt annually for the next five years to an overall incremental production of 175 Mt in 12th Plan, Rao said.

Source: Business Standard

Steel Ministry for more investments in R & D

The Steel Ministry is finalising a policy that prescribes domestic steel manufacturers to step up their investment on research and development to 2 per cent of the turnover by 2020. According to the ministry's official statement the policy aims at increasing the R & D investments in India from the current levels of 0.15-0.3 per cent of the turnover to one per cent by the year 2015-16 and two per cent by the year 2020. The policy, the statement said, would also emphasise on development of alternative iron-making technologies and adoption of technologies such as Finex, Fastmelt and ITmK3. Besides, it will also focus on strengthening in-house R&D set up of steel companies and development of indigenous capabilities for manufacturing.

Source: JPC Bulletin

SAIL draws up Rs. 70,000-cr capex programme

Steel Authority of India Limited (SAIL) has decided to not only focus on expansion and capacity addition in its Rs. 70,000 crore programme but also shift its focus to increase the share of value-added products from 39 per cent to around 55 per cent in the next two years, to meet the emerging challenges.

The new cold rolling complex coming up at Bokaro Steel Plant would boost the share of value-added products which would target the auto and white goods sectors. It is the latest state-of-the-art mill capable of producing auto grade products. The capacity of the mill is around one million tonnes of CR and 3.5 million tonnes of galvanized products. SAIL has earmarked a capex of Rs. 12,630 crore for 2011-12. The ASP at Durgapur is especially designed for casting special steels such as austenitic/ferritic stainless steel and a variety of non-stainless steels, including "bullet proof" steel. VISL is able to produce over 700 grades of quality alloy and special steels. SAIL is manufacturing value-added steel in DMR (249A grade steel) for war ship, SAIL kavach, jackal grade for bullet proof vehicles and jackets and SAIL rath for Bofors guns. These special products and grades have helped SAIL establish itself as a world-class company for various high-end usages.

Source: Metal News

JSPL to develop new, existing mines in Africa

Jindal Steel and Power plans to spend $300 million in developing new and existing mines in Africa. The move is part of the company's strategy to source coal assets abroad to meet raw material demand of its steel and power plants at home. Jindal Africa, the company's Africa subsidiary, would invest $250 million in developing a coalmine in Mozambique's coal-rich Moatize region. The remaining funds would be used to expand the capacity of its mine in Piet Retief in South Africa's Mpumalanga province. The Mozambique mine is expected to start operations this year, producing 1 million tonne of coal. The company would raise its capacity to 10 Mt over the next few years. The capacity of the South Africa mine would be raised from 0.8 Mt to 1.3 Mt by fiscal 2013.

Source: Metal News

SAIL BSP crosses milestone in 7 million tonne expansion plan

Indian steel giant Steel Authority of India Limited's Bhilai Steel Plant crossed an important milestone in its 7 million tonne modernization and expansion program with the completion of the foundation work of Converter (F-15) in Steel Melting Shop III project. The Converter Foundation (F-15) is the most complex and the largest foundation in the ongoing civil work of Converter package in SMS III. The complex reinforcement work was completed in 45 days. The job was supervised by HSCL and BSBK in Bhilai Steel Plant's Project Steel Zone. Around 750 metric tonne of reinforcement steel was used in this foundation and with 5200 cubic meter of concreting done. The new SMS III of 4 million tonne per annum capacity comprises of two main packages a basic oxygen furnace shop complex with 3 converters of 160 tonne capacity each and a continuous casting plant with 4 casters of total annual capacity of 4 million tonne. A host of global and Indian companies are working on the expansion and modernization plan. State of the art technology and equipment is being supplied by Siemens VAI Metals for the Continuous Casting Shop package and Siemens VAI for BOF-Converter package of the SMS III Project. WISDRI Engg & Research, China would be installing the Secondary Refining Unit for SMS-III. The entire civil works for BOF & CCS Works Packages are being executed by HSCL. Era Infra Structure, Delhi would be executing the structural works for BOF & CCS Works Package.

Source: Steel Guru

JSW Steel, Ispat merger to form India's second largest steel co

JSW Steel and Ispat Industries have agreed to merge their steel companies to create India's second largest steel company with 14.3 million tonnes, second to government-owned Steel Authority of India with 14.6 million tonnes. JSW Steel had acquired a majority stake in Ispat Industries in December 2010 for Rs. 2,156 crore and renamed it JSW Ispat Steel after lenders put the company on the block as the Mittals were unable to repay debt according to repayment schedule. On an operational level, there will be very little changes. JSW Steel already has a lot of operational synergies with JSW Ispat. The company's downstream units in Tarapur and Vasind are being fed by steel from Ispat. Also, Ispat's retail outlets are being used to expand the reach of JSW Shoppe, the company's retail chain. JSW Steel has a steel mill in Tarapur and Vasind in Maharashtra producing galvanised steel. Since the two are not an integrated plant, they require hot-rolled steel coils which can be sourced from Ispat that makes thin steel.

Source: Metal News

JSW Steel to set up electrical steel units in Karnataka

JSW Steel is planning to set up an electrical steel manufacturing facility with an annual capacity of 0.6 million tonne at Vijayanager in Karnataka. This facility will produce 0.4-0.5 million tonne cold rolled non-grain oriented (CRNO) grade electrical steel. The company said the first phase is expected to get commissioned in 24 months from the date of getting approval. The company is targeting production of 0.2 million tonne in the first phase. The company also has plans to produce cold rolled grain oriented (CRNO) grade going forward. JSW envisages becoming the largest electrical steel producer in the country.

Source: Metal News

Declining Nickel Costs fail to Stimulate Stainless Steel Market

Stainless steel markets throughout the world are in a subdued mood, reflecting a general, global malaise. Transaction values are down in most countries. This has combined with seasonal buying patterns and caution arising from the economic situation to bring about severely depressed business activity in many markets. Most countries in Europe have reported very low purchase volumes in recent weeks. Basis values are close to breakeven levels and the LME nickel price has recently recorded its lowest figures since 2009. Buyers are understandably cautious, given the overall economic climate. The ongoing uncertainty over Greece's continued participation in the euro has led politicians and business leaders to consider the consequences of the country's hypothetical exit from the single currency and possible default. This could cause a knock-on effect on the other weakest members of the eurozone - Italy, Spain, Portugal and Ireland - and more wide reaching consequences for banks, businesses and governments throughout the region who trade with these nations.

The situation in Scandinavia is slightly more encouraging. Financial systems there are less exposed to the turmoil in the south of Europe. Furthermore, there is significant investment in Norway's North Sea oil interests, while Sweden's manufacturers of trucks and yellow goods, for example, maintain strong export volumes to developing nations, such as Brazil. The recovery in industrial activity in the United States, since the global financial crisis, has been quicker and stronger than in Europe. However, markets there, too, are subdued at present. The optimism usually associated with an impending presidential election is not apparent on this occasion. Moreover, given the global surfeit of production, domestic suppliers are subject to competition from imports from Asia, particularly on the west coast and, to some extent, from Europe, in the east. Whilst growth in consumption and output continues in China, the rate of that expansion has

certainly slowed in the past twelve months. The huge investment in new plant in recent years has brought about substantial overcapacity in the Far East, especially at current levels of demand. Now, all the major stainless steel producing nations in the region are trying to export their excess output to each other. There is now the prospect of Taiwanese producers attempting to bring antidumping actions against Chinese and South Korean suppliers. One ray of light is that the Chinese government is believed to be implementing a new stimulus package, worth around 2 trillion yuan ($US316 billion), aimed at counteracting the downturn in growth. Funding will be available for investment in infrastructure schemes, such as railways, environmental projects and social housing. The financial injection will be around half the size of the previous spending boost unveiled in 2008. On this occasion, the state hopes to encourage greater private-sector involvement.

Source: MEPS Steel News

Indian steelmakers ask for export sops to counter downturn

Indian Express reported that some of the Indian steel producers have urged the government to provide them export incentives to help overcome the current downturn within the industry. At a recent meeting convened by steel secretary Mr DRS Chaudhary, the country's leading steel manufacturers said the US and European nations have imposed CVD to insulate their respective steel industries from overseas competition, while imports have surged in India by 150% to 200% as has been stated by the ministry's Joint Plant Committee. Participating in the meeting, Essar Steel's director for marketing Mr Vikram Amin said the CVDs have limited India's ability to export to these nations resulting which the domestic demand supply situation will determine the trend in local steel prices. The representative of another major producer, JSW, contended that the volatility in the rupee against the US dollar has further squeezed the prospects of the Indian companies to export and major markets like the EU are now no longer a feasible option. The companies argued that "There is a need for giving export incentives to domestic steel makers on the lines of export incentives (up to 30%) being extended by the Chinese government to its steel industry."

Source: Steel Guru

Sesa Goa to merge with Sterlite

Vedanta Resources is giving final touches to a merger of Sesa Goa with Sterlite Industries, creating a Rs. 40,000-crore metals giant. As part of the grand restructuring initiated by Anil Agarwal, even Cairn India may get realigned with the new entity. Sesa Goa has a current market capitalisation of around Rs. 21,441 crore and Sterlite Rs. 43,158 crore. Once Sesa Goa and Sterlite merge, Sesa's investment will get transferred into Sterlite. And, with Vedanta transferring its stake, Sterlite will own 58.8 per cent in Cairn India.

Source: Metal News

China's $23 Billion Steel Push Seen Igniting Iron Ore

China is set to jolt iron ore off a six-month low after approving an estimated $23 billion of steel projects that will use the raw material produced by mining companies such as Rio Tinto Group (RIO) and BHP Billiton (BHP) Ltd. The commodity will climb to $152 a metric ton in the second half, according to the average of five analyst estimates compiled by Bloomberg. The price fell 0.3 percent to $130.6, near its year-low reached, according to The Steel Index Ltd. Coking coal, another key ingredient in making steel, may gain 7 percent to about $220 a ton, analysts forecast. "Commodity prices are already close to the bottom and are set to rebound," Henry Liu, an analyst at Mirae Assets Securities Co., said by telephone from Seoul. "Prices will get a boost in

the short term on speculation that China will stimulate the economy. Real demand for steel depends on what incentives the government gives to drive investments." China approved new steel mills in the past two weeks as it tries to sustain economic growth after April industrial output rose the least since 2009. New plants of Baosteel Group Corp. and Wuhan Iron & Steel Group were among the 228 billion yuan of projects approved by China's main planning agency, of which 65 percent are in the steel industry, worth the equivalent of $23 billion, Bank of America Merrill Lynch said in a May 30 report.

IIM DC requests for Cooperation of Members

The members of IIM DC enjoy rich experience in ferrous, non-ferrous and material science. By virtue of specialisation of IIM DC members in different areas, this Chapter can undoubtedly interface with industry and offer technical consultancy to them. This will help to improve the Chapter's linkage with the industry.

As a part of preparation to increase the involvement and interface with industry, it is imperative to have an IIM DC Members' Directory and inventory with their areas of specialisation.

Members are requested to communicate their personal profile to the Chapter with their areas of specialisation. This will be put on IIM DC's website. Cooperation of members in this regard will help the Chapter to improve the interaction with the industry in various technical areas.

The members are requested to send their details to Shri Bhim Sain, Executive Officer, IIM DC.

Top Revenue Generator

Iron ore generates the most revenue for both London-based Rio Tinto and BHP of Melbourne. China is the largest customer for both companies, providing 31 percent of sales to Rio and 28 percent to BHP in their most recent financial years, according to data compiled by Bloomberg. Steel production in China, the world's largest consumer of the alloy, may climb to more than 700 million tons this year, the China Iron and Steel Association said. The nation produced 683 million tons last year. Rio shares rose 2.2 percent to A$55.42 and BHP gained 1.5 percent to A$31.58 at the close in Sydney. Fortescue Metals Group Ltd. (FMG) rose 2.9 percent. The benchmark S&P/ASX 200 Index climbed 1.3 percent. Long-term drivers of iron ore demand remain intact, BHP Chief Executive Officer Marius Kloppers said May 15, saying the world's third-biggest shipper of the commodity expects China's steel output to climb to 1.1 billion tons by 2025. Rio Tinto, the second-biggest, is spending at least $15.6 billion to expand its iron ore operations to meet demand from China. BHP, Vale and Rio Tinto control about 67 percent of the total seaborne trade of iron ore, according to Bloomberg Industries.

Rio Tinto Profit

Rio Tinto's profit may more than double to $13.2 billion this year and climb to $15.1 billion in 2013 from $5.83 billion last year, a Bloomberg survey of 18 analysts showed. Iron ore accounted for 78 percent of Rio Tinto's profit in 2011. BHP profit may fall to $18.5 billion in the year ended June 30 from $23.6 billion a year ago, a Bloomberg survey of 20 analysts showed. Iron ore accounted for 41 percent of BHP's operating income in the year ended June 30, 2011. Not every industry participant forecasts price increases. Iron ore will fall 19 percent before finding a "long term, sustainable" level as China's economy slows, said the head of Fortescue Metals, Australia's third-biggest producer. The price will drop to about $110 a metric ton, Fortescue Chief Executive Officer Neville Power said on June 3. A manufacturing gauge on June 1 grew at the weakest pace since December, increasing the odds China will boost stimulus. China's non-manufacturing industries expanded at the slowest pace in more than a year, as export orders declined and weakness in real estate countered strength in retailing and leasing, an official survey indicated on June 4.

Baosteel, Wuhan Iron

Baosteel Group, China's third-biggest mill by output, and Wuhan Iron, the fourth-largest, won approval to build $21 billion of new plants five days after Premier Wen Jiabao said that he seeks to boost growth. "Building a new steel factory is something we have to do," the company said in an e-mailed response to Bloomberg queries. Baosteel would be unable to achieve growth only through domestic mergers and acquisitions, it said. China's top planning authority had delayed Baosteel and Wuhan's mills in 2009, citing industry overcapacity. Baosteel's project in Zhanjiang port, Guangdong province, will increase its production capacity by 2.3 percent to about 53 million tonnes. The Wuhan mill in Fangchenggang port, in China's southwestern region, will add 8.5 million tonnes of annual capacity, or 22 percent. The largest steel plants are in the northern, eastern and western parts of the country.

Steel Supply

"The Zhanjiang and Fangchenggang projects are the last pieces in the chessboard of China's steel industry," Luo Tiejun, head of raw materials at the Ministry of Industry and Information Technology, said at a conference in Shanghai on May 29. "The plants will not only supply steel to south China but also cover the markets of southeast Asia." China's southern province of Guangdong, home to the Chinese units of Japanese carmakers including Honda Motor Co. (7267) and Toyota Motor Corp. (7203), needs more than 50 million tons of steel products a year, according to Xu Xiangchun, Beijing-based chief analyst with Mysteel Research Institute. Flat steel products, used in cars and home appliances, make up almost half of the demand, he said. "Iron ore and coal need a bit of a shove, so it's certainly useful," Peter Arden, a Melbourne-based senior research analyst at Ord Minnett Ltd., said by phone, referring to the stimulus measures. "Whatever they can do is helpful, the problem does seem to be quite large. If they don't put some meaningful horsepower to it, it won't turn around."

Source: Bloomberg.com

Personal News

Shri M. P. Sharma, Life Member, IIM DC visited China from 6th to 9th June 2012.This visit was regarding participation in Exhibition on Aluminium and its Extrusion, Die Designing and smaller treatment of Master Alloys, Copper and Composites.

During this visit, Shri Sharma also visited an Industrial area in Shanghai, Kangwang Science and Technology Park of Yueyang City and Hunan Province. During this visit, Shri Sharma also gave publicity to MMMM 2012 by distributing Brochures of the International Conference (MMMM 2012) to be held in September 2012 in New Delhi. This visit was useful in fixing and optimisation of composition of relevant master alloy with resultant improvement in quality and reduction in rejections. There were fair and frank discussions with Chinese specialists.

Shri Sharma was impressed with the progress made by China.