THE INDIAN INSTITUTE OF METALS - DELHI CHAPTER

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## In The Issue



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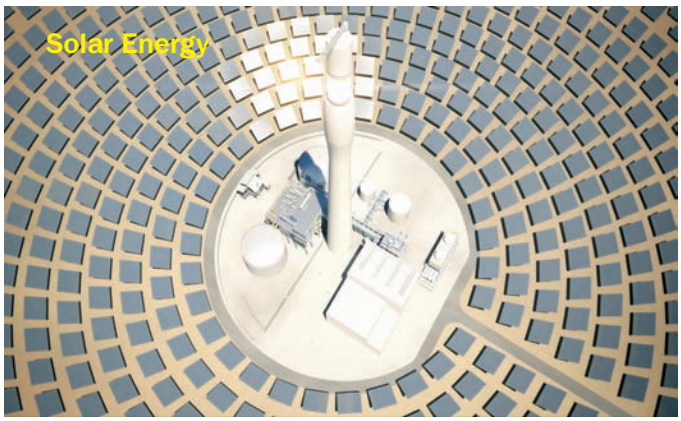


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# Demonetization: Gain & Loss

In an emboldened move, PM Narendra Modi waged a full-blown war, not just a surgical strike, against black money. Withdrawal of high denomination currency notes of INR 500 and INR 1000 from midnight 8th November 2016 is a very powerful measure to sweep off the unaccounted wealth and corruption that has crippled the Indian democracy for four decade. The government took this step as an attempt to address the resolve against corruption, black money, counterfeiting of currency, terror funding and tax evasion. While the move is laudable and stands to deliver benefits, it has also caused disruptions in various business activities. Therein, steel consuming sectors such as construction, automobiles and white goods are the immediate casualties of the government's historic step. Demonetization could provide a huge blow to the sector now trying to limp back to normalcy after a lull of more than two years. A K Bhargava, CEO of All Indian Steel Re-rollers Association told Steel 360, "Post demonetization, there is a severe shortage of funds in the market that has hit the trade for al industry. It may take two-three months for the situation to normalize."

## Impact of Demonetization

**Real Estate:**

Real estate sector has strong linkages with steel. With demonetization, money supply is reduced in the short run. There will be an adverse impact on real estate as cash transactions play a vital role in this sector.

**Consumer Durables:**

Consumer durables will not be as badly hit as use of credit cards and cheques would compensate for some purchases. Price level is expected to be lowered due to moderation from demand side.

**Automobiles:**

Cash deals are not so rampant in this sector. So the move may not have an adverse impact on sales, though people's purchasing power will be affected.

**Infrastructure:**

This move will be positive for infrastructure in the medium to long term. It will make larger revenues available to government in the form of income tax collections to fund infrastructure growth and development. Government spending on large infrastructure projects such as railways, dams, power plants etc. would get a fillip.

**Who Stands to Benefit?**

The large steelmaking companies will benefit in the medium to long term. Since transactions in these companies are accounted for, demonetization will not have a substantial negative impact on these steelmakers. Also, most of the flat steel is produced by these biggies. With more money accounted for and more taxes gained as a result of the move, previously unaccounted money will become part of the formal economy and will become available for spending on development projects, thus benefiting the big steelmakers in the long run. T V Narendra, Tata Steel India and South-east Asia MD said in an investor call "We are watching secondary sector very closely sector very closely because a lot of business used to happen on cash. And may be 60-70% of the long products business is actually driven by the secondary sector. So it could have a significant positive impact on the long products business for the integrated or bigger players."

**Who Stands to Lose?**

Rural demand, which is largely cash-based, will be affected temporarily. Demonetization would have a deflationary impact on cash based steel sales, especially long products used in real estate, construction and infrastructure projects. This apart, the steel scrap industry which feeds the key raw material for secondary steel producers relies on cash for most of its transactions. "It seems that the small scale industries will be majorly hit and few may be forced to shut down after the government's decision on demonetization and the larger impact will be seen after 1st January 2017", says Kamal Aggarwal, Secretary General, AIIFA.

Post announcement of demonetization by the government, the unaccounted money would have to be either accounted for by paying the relevant tax and penalties or would get eliminated. It is true that the demonetization has created hardship for people across the country. In the medium and long run, however, if the government's plan pays off, the nation

will reap rich dividends. This landmark move by the government is likely to have long term benefits for the economy. The major proportion of unaccounted currency would add to the government's furnaces. This can have very strong implication as the government would get money to spend without borrowing form the market. Along with the implementation of the GST, demonetization will eventually make the system more accountable and efficient.

Source: Steel 360

## Banks are shying away from funding new steel ventures: Tata Steel MD

Tata Steel Managing Director T V Narendran believes India could become a net importer of steel in the next few years. In an interview with Kunal Bose, he says the country will experience steel demand growth running ahead of capacity growth. Edited excerpts:

- **Is there a possibility of Indian steel capacity growth not matching demand growth?**

  In medium- to long-term, India's steel demand growth will run ahead of capacity growth. I shall not be surprised as capacity growth comes under some serious pressure because of the industry's poor working in the past few years, the country like it happened in 2015-16 once again becomes a net importer of steel in a few years.

  Last year, our steel exports fell 32 per cent to 3.80 million tonnes (mt) while imports, largely predatory priced, were up 20.2 per cent to 11.20 mt. Mercifully, because of minimum import price and anti-dumping action steel trade balance is changing in our favour this year.

- **You then don't think India will achieve the steel capacity target of 300 mt by 2030?**

  Except for a few, steel companies are heavily debt-ridden with major cash flow problem queering their pitch further, thanks to a difficult market. Around 30 per cent of over ~3 lakh crore bank credit to the steel industry has become non-performing asset. Naturally, the banks are shying away from funding new steel ventures or brownfield expansion by operating mills.

  Public sector steel companies have ambitious expansion programmes. But, they are not generating surpluses to fund growth. Will the government committed to funding very ambitious infrastructure development be able to find money to support public sector unit steel capacity growth? A question hangs over the achievability of 300-mt target.

- **What led to disenchantment of foreign steel majors about India from their initial euphoria?**

  For the likes of ArcelorMittal and Posco, India is one of the many options available. I give a couple of examples. As the fate of Posco's 12-mt Odisha plant remains uncertain even after 11 years, it is expanding capacity in a big way in Indonesia and Vietnam. In the past few years, ArcelorMittal has put big money in China and the US. Foreign or Indian, the ease and also cost of doing business will have a major bearing on new investments.

- **Are you hinting at difficulties in land buyout and securing iron ore mines for captive use for investment shyness in steel?**

  Whether it is land or mines acquisition, the process is the same for all groups, Indian or foreign. You have a level playing field. Local companies such as JSW Steel, SAIL and Tata Steel will rough it out here to grow capacity. See, it took us 11 years to commission a three-mt plant at Kalinganagar in Odisha, braving many odds relating to land acquisition and resettlement of displaced people. Now that we have the support of local community for our endeavours, we are confident of making Kalinganagar an 18-mt steel production centre in a course of time.

  At the recent World Steel Association meeting in Dubai, you were very vocal about imports hurting Indian industry.

  **Over the years at huge investment, India has built steel capacity of over 120 mt.**

**Why s**hould it be made to suffer at the altar of unfair trade? Yes, exporting countries, including China, have reacted strongly to New Delhi's trade actions to stop dumping of predatory priced steel here. We are ready to deal with any such reactions.

- **Have recent revisions in steel prices fully mitigated the impact of more than fourfold increase in coking coal prices?**

  The answer is no. We need another $50 to $100 a tonne rise in steel prices, depending on products. Mind you, iron ore prices have also advanced quite a bit.

  Tata Steel in India continues to grow organically. Steel assets should now be available at attractive prices. Are you looking at buying opportunities?

  Yes, that's an option for us. We did look at Electrosteel Steels unit at Jharkhand at some point. Nothing happened. In future, if anything interesting comes our way, we will definitely consider buying that.

Source: Metaljunction

## THE GLOBAL STEEL INDUSTRY: WHAT'S BEHIND THE CRISIS?

Steel market sentiment has weakened significantly in the past several months, in line with the general downturn in the global market. Purchasers of steel are wary of increasing their inventories, amidst rapidly falling prices of steel, and many indicators that are linked to steel demand, such as manufacturing activity and fixed investment, have either fallen or their growth has slowed in many steel-producing economies.

The global steel industry is going through the worst downturn in 50 years. An unbalanced supply and demand equation has left even China, the world's largest producer and consumer of steel, calling for global cooperation to try and tackle the industry's problems. But while China is calling for cooperation, many blame China's steel mills for flooding the market with cheap supply.

**Indian steel industry**

In India the steel industry is reeling under the weight of cheap imports of the metal from China. To protect the domestic iron and steel industry from such imports, the government has imposed an anti-dumping duty for six months on seamless tubes, steel pipes, among other imports from the country. The government has also imposed Minimum Import Price on certain steel products from China.

Nearly half of banks' gross advances of over Rs 3.1 lakh crore to the steel industry are under stress and three-fourths of these already classified as non-performing assets (NPAs). The beleaguered domestic steelmakers have approached the government seeking a relief package and other steps to bail them out of the crisis.

India's Tata Steel put its entire UK business up for sale, blaming cheap Chinese imports for its decision. The UK boasts the world's oldest steel industry and Port Talbot in south Wales is home to Britain's largest steel plant. With the UK steel industry on the verge of collapse, we see how tens of thousands of jobs are at risk with the imminent closure, or at least significant downsizing of the Port Talbot steelworks, which has already been on the decline for decades. Although many blame the cheap steel making its way from China, others say the UK government has not offered the steel industry enough protection to help it stay competitive.

Steelmakers in China are also suffering. When China outlined its latest five-year plan it said that job cuts in the steel sector were likely.

In China, we see how job losses in the steel industry have become more commonplace. With the economy growing at its slowest pace in 25 years and steel mills producing at overcapacity with the lack of demand for raw materials, China has been exporting steel at low prices. Economists say, however, this is only a short-term solution and companies will need to restructure to be efficient.

There's entirely too much steelmaking going on out there in the world – much more than market demand is calling for, and this flood of steel products is depressing steel prices everywhere.

Where's all the steel coming from China, of course. The steel industry there has grown exponentially in the last 15 years, so that China

alone now produces approximately half of all steel made in the world each year.

With the help of massive government support. China has plenty of reasons to keep its state-backed steel sector humming, but the world's insatiable demand for Chinese steel isn't among them. A new report from researchers at Duke University delves into the issue, noting that China increased its capacity for crude steel production by 662 percent between 2000 and 2014.

Well, again, China's economy is governed by a model of state capitalism – the "widespread influence of the government in the economy, either by owning majority or minority equity positions in companies and through the provision of subsidized credit and other privileges to private companies." As such, Chinese steel mills regularly receive preferential loans or directed credit, low- or no-cost land use, direct cash grants for construction projects, and straight-up government involvement in managerial decisions.

And despite repeated promises, China hasn't slowed steel production. China's government keeps feeding its bloated steel sector, wrecking the international steel market, and exporting its own employment problems around the world.

**The crisis facing the US steel industry**

As the backbone of American manufacturing, the steel industry is essential to the world's water and food supply, energy generation and national security. The US military uses steel extensively, ranging from aircraft carriers and nuclear submarines to missiles, armor plate for tanks and every major military aircraft in production. There are a lot of reasons to take pride in American steel.

But today, its steel industry is being hurt by an unprecedented surge in unfairly traded imports, with record amounts of foreign-produced steel flooding into the United States. Cheap, subsidized foreign imports are taking steel jobs away.

In 2015, almost one in three tons of steel sold in the United States was produced outside the country. The import crisis is now beginning to get the national attention it deserves. The crisis has become the topic of presidential debates, candidate interviews and stump speeches. And it's about time.

Steel supports hundreds of thousands of American jobs. But because of these unfairly traded imports, many American steel producers have had to make difficult decisions affecting steelmaking communities. Steel companies have closed down major facilities, or reduced production at those plants, resulting in devastating layoffs and job losses for many families who have made steel for generations. More than 12,000 steel jobs have been lost in the past year, as imports took a record 29% of the US market.

At the same time, US steel production has continued to decline. Domestic shipments for 2015 stood at nearly 87 million tons, a nearly 12% decrease over what American steel mills shipped in 2014.

Many presidential candidates are realizing that global overcapacity of steel – in part due to massive subsidization by foreign governments – is a huge problem and a chief contributor to the crisis the American steel industry faces.

China's government-owned and –supported steel industry represents almost half of the world's steelmaking and more than half the world's overcapacity. Between 2000 and 2014, Chinese steel production increased a whopping 540%, while US production declined 13%. As has been said by one steel company CEO in testimony before the US - China Economic and Security Review Commission, the Chinese government is a company disguised as a country.

The Chinese government recently set a goal to cut steel excess capacity by between about 100 million metric tonne and 150 million metric tons over a five-year period, but it failed to specify how it proposes to achieve these reductions.

Meanwhile, a representative of the Chinese steel industry recently conceded that China must reduce its government owned steel overcapacity by around 400 million metric tonne if it is to address the problems caused by past Chinese government industrial policies, according to Reuters. And it must make these reforms now, before further damage is caused, both in China and around the world.

**What is China's role in the crisis?**

China is both the largest producer and consumer of the metal. Of its crude steel output of 803m tonnes – half the world total last year, according to the World Steel Association – 112m tonne was exported, according to figures from the China Iron and Steel Association.

China's construction boom during its years of breakneck economic growth drove the global steel industry. Its 2014 consumption was more than six times higher than that of the US the next biggest consumer.

Now China's economy is slowing and turning away from infrastructure, its demand for steel has weakened, contributing to steel prices worldwide slumping to a 10-year low.

Steel workers around the world are suffering under the global steel downturn. The Chinese government has announced about half a million steel workers will be made redundant as a result of reforms to "overcapacity" sectors over the next five years.

China has been accused of granting unfair subsidies to its steel sector, making its output cheaper than that of competitors, and of "dumping" its steel on world markets.

China subsidises its energy sector, which passes on lower prices to power-hungry steel producers.

Source: MMR

## Indian steel industry needs to adopt advanced technology to stay competitive

Today's scenario in steelmaking is mainly focused on adaptation of advanced technologies and best practices. Globally, steel makers are constantly working towards innovative and cost-effective R&D solutions, developing and commercializing improved processes and products and continually enhancing capability.

While India's domestic steel industry is in a crisis at present, the industry players should make an all-out efforts to cut costs to remain competitive in the market. It is all the more important now as the industry is facing the challenge of cheap steel imports from China and other countries. India is the 3rd largest manufacturer of steel in the world and we are constantly working towards becoming a global centre of excellence.

The managing director of RINL said that good operating practices, improvement in techno-economic parameters, low energy consumption, optimization of raw materials and technological discipline would largely contribute in reduction of cost of production. He said that RINL had introduced pulverized coal injection (PCI) technology in its blast furnaces to reduce coke consumption and achieve higher productivity which enabled it to compete with other major steel makers.

In addition to above, the government of India's is focused on the manufacturing sector and is implementing aggressive Research and Development projects in diverse realms of Iron & Steel Technology under various categories such as Plant Performance Improvement (PPI), Product Development (PD), Scientific Investigation and Development (SID), Basic Research (BR) and Technical Services (TS).

With fierce global competition, steel plants that can learn, innovate, and have a Continuous Improvement (CI) strategy based on research and knowledge generation can gain a competitive edge. It is providing a reliable process that ensures customer satisfaction. Focusing on improvement efforts will have the greatest immediate impact on the bottom-line.

The continuous improvement involves constant application of an integrated strategy to increase overall efficiency, reduce consumption of resources, and reduce risks to human and the environment by meeting and exceeding the specified properties and performance of the steel products, conserving energy and reducing materials, and workforce's effort by increasing efficiencies and reducing wastage of resources.

The energy usage in the steel industry report highlights that there is no single solution for steel plants to decrease their energy intensity and identifies the main factors that affect energy intensity. It also points out that the main opportunities for energy savings in the future will come from the optimal selection of production

processes and raw materials, increased use of economically available scrap, transfer of best practices, waste heat recovery and by reducing yield losses.

Hence, domestic steel industry should make all out efforts to cut costs and then only it can stay in the market, according to P. Madhusudan, Chairman and Managing Director of the Visakhapatnam Steel Plant.

In order to develop and deliver high quality steel products and add value to the customers business across the value chain, Mr. Birender Singh, Union Minister of Steel said that major efforts are directed towards cost reduction and improvement in quality.

The secretary, Steel, Dr. Aruna Sharma said that in-line with Prime Minister, Mr. Narendra Modi's vision and Government of India's flagship programme – Digital India, the Indian steel industry has taken a very proactive approach and enabled seamless integration of digital technologies across processes, such as operations research, product development, robotics & mechanical engineering, mining, pelletization, raw material handling, coke oven, sinter plant, blast furnace, long product mill, continuous casting, SMS/BOF, flat product mill, supply chain management, procurement, retail and online sale of steel.

The Digital Revolution holds many promises for the steel sector in India. It has already brought in transparency, efficiency, enhanced quality of Indian steel and most importantly improved safety standards, leading to a digitally empowered society and knowledge economy, she added.

India's biggest steel PSU Steel Authority of India Ltd (SAIL) aims to more than double production at its Durgapur and Burnpur plants, taking the total output in Bengal to 15 million tonne (mt). Following the latest round of modernisation, Durgapur is expected to produce 2.2 mt saleable steel once its newly installed bloom caster and structural mill start functioning. IISCO, which saw its old steel mill replaced by a brand new one with Asia's largest blast furnace, produces about 2.8 mt of steel.

The capacity expansion plan is likely to involve investments of over Rs 35,000 crore. Besides, investment in ancillary downstream and upstream units can be over Rs 50,000 crore. However, top officials said the plan would be contingent on the development of a deep water port and the improvement of infrastructure by the state government, either by fast-tracking the Sagar port or by increasing the draft at Haldia to allow larger ships.

Global steel giants are also giving due importance to developing newer technologies and the critical role that steel plays in society. Disseminating this updated information was the mission of a recent unique event – Innovators Café at ArcelorMittal Global R&D Center in East Chicago.

Recently, the world's largest steelmaker, ArcelorMittal, along with Evonik, Lafarge Holcim and Solvay have announced the formation of a new Low Carbon Technology Partnerships Initiative (LCTPI). The first task of the newly formed LCTPI, following preliminary research already undertaken, will be to undertake a study to identify ways to valorise industrial off-gases and other by-products from their manufacturing processes to produce goods with a lower carbon footprint than through 'the fossil path'.

According to ArcelorMittal, "The study is aimed at bringing a fact-based overview of carbon and energy sources from industrial off-gases (first at a European level), and evaluating the technical, environmental and economic feasibility of different carbon capture usage (CCU) pathways and their potential."

Initial research has found that deploying cross-sector carbon capture and re-use opportunities on an industrial scale could reduce global anthropogenic CO2 emissions by 7%. Furthermore, existing conversion technologies applied across steel, cement and chemicals could utilise by-products in the off-gases to create building materials, organic chemicals and fuel. It is also thought that increased availability and greater access to renewable energy sources would boost net carbon reduction efforts by the steel, cement and chemical sectors and that jobs would be created by cross-sector carbon capture and re-use.

Indian Steel Industry technologies profile has undergone substantial change after the liberalization. With setting up of new large modern steel plants based on state-of-the-art technologies and modernisation/ expansion of existing steel plants, there is an upward trend in efficiency parameters of operation viz. productivity, energy efficiency, environment friendliness etc. Further, with setting up of Electric Induction Furnaces in the unregulated regime, technology-mix of the Indian Steel Industry has changed to a unique position. About 59% steel is produced through the Electric Furnace route of which about 31% steel is produced through the Electric Induction Furnace (EIF) route and 28% from Electric Arc Furnace (EAF) route. About 41% steel is produced through the conventional integrated route of BF-BOF route as against the world average of around 74%. India is the world's largest producer of Direct Reduced Iron (DRI) or Sponge Iron. During 2015-16, total production of sponge iron is reported at around 22.40 million tonnes of which 85% are coal based plants and 15% are gas based plants.

The R&D efforts by the Indian steel companies out of their own corpus have mainly concentrated on improving internal processes related to saving costs and improving efficiency. Process improvements such as beneficiation and pelletization of iron ore have received good response in the industry. Adoption of continuous casting together with thin slab casting as well as dedicated technologies for harnessing waste heat are drawing the attention of the steel companies. These have led to improved productivity and energy efficiency in the Indian steel industries. However, there are certain constraints in raw material quality, particularly high Alumina in Indian iron ore and high ash in Indian coal, which adversely affect the techno economic performance of the whole industry. To address these constraints and also to sustain the projected high growth rate, there is an urgent need for concerted R&D and technology intervention in the iron and steel sector.

Source: MMR

## Silver could be New Gold; Prices may Rise 20% in 2017

*Experts feel that silver can outperform gold in coming months as demand for the metal is rising for solar panels.*

Commodity experts and bullion traders feel that silver can trump gold in coming months as demand for the metal is increasing for solar panels and electronics sector. Demand for silver is increasing in the home décor and fashionable jewellery categories in the country which may push the price of the metal by almost 15-20% in 2017, feel the traders and analysts. India had consumed around 7,000 tonnes of silver in 2015. Of this, 1,900 -2,000 tonnes were consumed by the industrial sector. In 2016, from January to July, imports of silver fell over half to 2,111 tonnes from 4,362 tonnes in the same period last year. Bullion traders feel that this year the total import may not cross 5,000 tonnes as demand was low and traders, who had imported huge volumes of silver in past years, were offloading the metal in the market and booking profit. "In 2015, rural India went through a drought and their purchasing power decreased sharply which has been reflected in this year's rural off-take of demand. But this year, rains have been good, and once the cash flow increases in the market, we see good demand to emerge for silver in rural India, "said Surendra Mehta, general secretary, India Bullion & Jewellers Association (IBJA).

"We are expecting silver price to appreciate by 15 -20% next year, "Mehta said. Silver has gained 16% in 2016 in comparison to gold, which has appreciated 9% in the whole year.

Gnanasekar Thiagarajan, director, Comtrendz Risk Management Services, said: "Gold price has fallen since November 8. The price of silver, which also falls in the precious metal category , has dropped in tandem with gold but the decline in silver price is lesser than gold. But we have seen that when gold prices rally, silver prices outperform gold. 2017 is expected to be a good year for silver. Investors, who want to take a position in silver, can get good returns if they stay invested for a longer horizon. "He pointed out that there is a fear in the mind of

Indian consumers that government will put a cap on gold holdings.

Source: The Economic Times

## Slurry Pipeline – A cost Effective Mode to Move Iron Ore

Slurry transportation of iron ore concentrate through pipelines is an environment friendly method for ore transportation. In recent years, iron ore transportation through slurry pipeline has captured attention of not only Indian steelmakers but also of the Indian government. Considering the bright prospects of steel output of ASEAN, MENA regions and India, steel demand in these parts of the world is expected to gain momentum given the increased stress on infrastructure development and manufacturing capacities. With that in mind, alternative modes of transporting raw materials, such as through slurry pipelines will go a long way in reducing the problems of congested transportation network in mining areas.

## Cost-Benefit Analysis of Slurry Pipelines

**Significance of Slurry Pipelines in India's 300 mnt Crude Steel Target**

The Indian government has set a target to increase India's steel output to 300 million tonnes by 2025. According to the Infrastructure Study Report for 300 mnt Steel by 2025, to achieve such capacity by 2025-26, the processed iron ore requirement would be of the order of 450-490 mnt pa. The proposed projected growth of steel industry would impart tremendous pressure on railways with respect to inward and outward traffic, loading and evacuation of raw materials & finished products. Major identified iron ore resources in India are located in environmentally fragile zones, far away from the steel plants and ports. Many potential sources such as Rowghat in Chhattisgarh, Chiria in Jharkhand, Gandhmardan-Daitari-Malangtoli region of Odisha, Bababudhan of Karnataka and Ongole region of Andhra Pradesh are still not adequately supported by railway infrastructure. Development of slurry transportation facilities is a more feasible option in these regions.

## Slurry Pipeline Vs other Modes of Transportation

**Railways**

According to National Council of Applied Economic Research, iron ore freight movement by Indian Railways is anticipated to grow from 117.8 mnt in FY16 to 120.1 mnt in FY17. Thus a y-o-y growth of 1.95% is expected. Hence with growing steel output, rail infrastructure needs augmentation with additional railway lines to be set up from mines to steel plants. In present times, low grade iron ore exports have gained momentum in this fiscal after the government removed 10% export duty. In addition to it, pellet exports from India is also witnessing an upward movement in this fiscal. Increased railway movement for exports has slowed down the domestic movement and rake availability for domestic consumption has become a matter of concern.

**Roadways**

Inadequacies in railways transportation system in handling bulk transportation needs of the expanding Indian steel industry has led to increased importance to road transportation. However poor quality of roads, inadequate network and low road density remains a concern area.

**Freight Distribution of Various Modes of Transportation in Steel Sector**

| Steel Freight Distribution (%) | Rail | Road | Slurry Pipeline |
|---|---|---|---|
| 2013: 400 mnt freight turnover | 66 | 28 | 6 |
| 2025: 1200 mnt freight turnover | 66 | 25 | 9 |

Source: Infrastructure Study Report for 300 mnt Steel by 2025

**Ports**

With 12 major ports, India handles iron ore for both exports and domestic consumers. As per a recent data released by the Indian government, the major ports in India handled 315.4 mnt cargoes in H1 FY17 compared to 299.5 mnt in the same period last fiscal. Iron ore cargo handling has exhibited an astounding increase with a growth of 142% y-o-y. Major problems associated with port transport are – inadequate depth at ports, slow evacuation at ports and higher congestion on berths. Thus, owing to the drawbacks associated with other modes of transportation, the industry is looking forward to cost reduction techniques and slurry pipeline is one of them.

*Present Scenario of Slurry Pipelines in India:* Presently there are only three operational iron ore slurry pipelines in India. The two slurry pipelines of Essar Steel has provided cost effective measure of ore transportation to the steel maker to its two pellet plants. The 267 km slurry pipeline helps iron ore fines movement from Kirandul mines located in Chhattisgarh to its Vizag pellet plant of 8 MnT pa capacity. While the 2nd pipeline which is 253 kms long connects its beneficiation facility at Dabuna (Keonjhar) to its Paradeep based pellet plant with 12 MnT pa capacity. Apart from these two, BRPL's slurry pipeline carries high grade iron ore concentrates in form of slurry which is transported to its pellet plant.

In addition to this, many steel makers and pellet makers have their plan in place for setting up slurry pipelines. There are two ongoing slurry pipelines projects of NMDC and JSPL.

Source: Steel 360

## Steel consumption in India up 9% during 2011-16

The per capita consumption of total finished steel in India has risen from 58 kg in 2011-12 to 63 kg in 2015-16.According to Joint Plant Committee, crude steel capacity in the country stood at 121.97 million ones in 2015-16 while production of crude steel stood at 89.79 mt during the same year. India is the third largest steel producer globally and is likely to be the second largest steel producer in a few years. The sector contributes about 2 percent to the country's GDP and employs over 6 lakh people. Over the last few years, the steel sector has been adversely impacted by the global steel glut which resulted in predatory pricing and a surge in steel imports into the country. To provide level playing field to the domestic steel producers, Government has extended Minimum Import Price on 19 steel products till February 4, 2017. Government has also imposed provisional Anti-Dumping duty on import of flat products (Hot Rolled & Cold Rolled) and on Wire Rods from China, Japan, Korea, Russia, Brazil, Indonesia & Ukraine.

Such measures has aided in decline in steel imports by 38.28 percent between April-November, 2016 while exports have increased by 59.96 percent during the same period. Overall steel production also grew by 8.8 percent between April-November, 2016 compared to the same period last year. With the aim to develop large capacity mega steel projects in the country, which would help India in achieving the capacity growth of 300 million ones of crude steel by 2025-26, Ministry of Steel has evolved a concept of developing Ultra Mega Steel Plants. Steel Authority of India Limited is participating for setting up of an Ultra Mega Steel Plant of capacity (3+3) or (4+2) million tonnes per annum in Bastar, Chhattisgarh.

Source: Metaljunction

## Steel: Commission welcomes new Global Forum to tackle root causes of overcapacity

The European Commission welcomed the establishment of a new Global Forum on Steel Excess Capacity. Designed to address overcapacity in the global steel industry, the Forum will support the creation of growth and jobs. It comprises the Group of 20 (G20) economies, as well as other members of the Organisation for Economic Cooperation and Development (OECD). It will report annually to the G20 ministers within its three-year, renewable mandate. Vice-President for Jobs, Growth, Investment and Competitiveness

Jyrki Katainen said: "With this Forum we have created a global space to respond jointly to the worldwide problem of steel overcapacity. The Forum's work will mean we can work with our international partners to define timely, robust steps to address overcapacity. This will protect growth and jobs in an efficient, sustainable EU steel industry."

Commissioner for trade Cecilia Malmström said: "As long as governments outside the EU support their steel industries in ways that distort the market, we will use all the available tools to ensure a level playing field for the EU's steel producers. But we must also address the root causes of overcapacity in the global steel industry. This is the best way to reduce its extensive damaging effects on the global steel market. The new Global Forum on Steel Excess Capacity can serve as an example of a new kind of governance, based on cooperation, to overcome challenges in other industries affected by overcapacity." In March 2016 the Commission issued a communication on maintaining a competitive EU steel industry. Since then it has helped the industry overcome serious challenges, largely due to global overcapacity, much of it in China. The Commission has acted through trade defence, imposing anti-dumping and anti-subsidy duties, to shield the EU's steel industry from the effects of unfair trade. And it is committed to using trade defence fully in the future.

However, trade defence can only address the effects of global overcapacity on trade — not its root causes. That's why the European Commission has also been addressing the underlying causes of the problem with the EU's main partners and the overcapacity issue was raised on several occasions by President Juncker at both bilateral and multilateral level, notably during the last G20 Summit. The Global Forum on Steel Excess Capacity seeks to tackle those root causes. Its creation in Berlin responds to a call by the G20 leaders at the Hangzhou Summit in September 2016 to create such a body. Bringing together more than 30 economies in all - all G20 members plus interested OECD members - it is the first global platform on steel issues, and includes all the world's major producers. Its goals are ambitious. It recognises that subsidies and state support contribute to overcapacity and require attention. Members will exchange information and policies, and address overcapacity, by enhancing the role of the market and changing the structure of the industry. The forum will be facilitated by the OECD and report to G20 ministers every year. In the meantime, the EU will continue its dialogue with its main trade partners and defend fair trading conditions for EU companies. The Commission calls on EU Member States and the European Parliament to urgently agree on the proposals to modernise EU trade defence instruments and make fairer trade a reality.

Source: Metaljunction

## India may turn net steel exporter

India is likely to turn a net exporter of steel this year, on the back of an improvement in international prices, led by cost-push and a slump in retail sales, courtesy demonetisation. During April-November, exports increased 53 per cent over the same period last year to 4.24 million tonnes (mt). Imports, on the other hand, dropped 39 per cent to 4.73 mt. Given that there is still a quarter to go, the sector is expecting exports to surpass imports. The previous year saw a record level of imports at 12.7 mt while exports were at 4.6-4.7 mt. Cost-push has elevated prices in the international market. Last year was a bad cycle, said Jayant Acharya, director (commercial & marketing) at JSW Steel. Coking coal prices have been surging for a while now. International contract prices of premium hard coking coal for the third quarter of FY17 have been settled at $200 a tonne, an increase of 116 per cent quarter-on-quarter. Moreover, spot prices have increased from $90 a tonne in July to $315 a tonne. The increase in input cost is reflecting in steel prices. In the past three months, international steel prices have increased by more than $100 a tonne. "Last year, the situation was volatile and exports had become unviable," Acharya said.

Sushim Banerjee, director-general of Institute for Steel Development & Growth, said major international markets had imposed anti-dumping duty against China, which in turn,

was helping India. According to Vikram Amin, executive director (strategy and business development) at Essar Steel, prices across the world were showing some buoyancy because domestic requirements had risen. "China's consumption has improved, Europe is picking up, and North America had been doing well. So, overall, prices are steady," said Amin. Cheap imports from China, South Korea and Japan had put the industry in dire straits, not only in India but globally. The situation prompted the Indian government to come out with a slew of trade measures – safeguard duty, minimum import price and anti-dumping duty – to support the industry, towards the end of 2015.

The pick-up in international prices is also helping companies to beat demonetisation. Since November 8, retail sales – that are mostly on account of small house builders, rural and suburban – have taken a massive hit. "We did not want to sit and wait for things to improve. We thought we should export more to take the pressure off the domestic market," said Amin. Products closer to the end-user and the construction sectors were affected. "Demand for white goods and consumer durables were affected and 60-70 per cent of the project demand was down. Steel spends can be discretionary," a producer pointed out. However, Amin pointed out that some parts of retail sale were beginning to come back over the past week.

Source: Metaljunction

## Demonetization Impact on Iron & Steel Industry

The steel industry is bracing for uncertainty. Demonetization by the government is likely to hit smaller steelmaking companies, where transactions are mostly carried out in cash. The decision is also expected to hurt rural demand, which picks up after monsoon season, especially for construction grade steel. The major players are expected to benefit in the medium to long term, which may shift retail steel demand to the organized trade. Demonetization may slow down retail trade in the steel sector. Mainly TMT bars and rods used in construction as well as roofing products, which comprise of galvanized corrugated (GC) sheets, could be affected.

Steel sales usually pick up towards the second half of the month in the rural areas. The key factor here is how much material dealers will be able to absorb in the aftermath of demonetization. While ongoing building and construction work will go ahead, new projects could get delayed. Indian steelmakers expect a temporary hit on retail sales due to the government's demonetization drive but expect demand to normalize by fourth quarter. The steel industry was just emerging from a tough year after China and Russia flooded the country with cheap imports. The cash crunch is getting reflected in the retail steel segment. Slowdown will be noted in the overall demand scenario. Indian steelmakers are banking on exports to help ride the cash crunch in the retail sector, which mainly sells to the home builders in smaller towns and villages in India. It is expected that the demonetization drive will help them compete on prices with smaller traders in the secondary steel sector, who until now functioned outside the tax net, which enabled them to push prices down. At present, sales by small traders have come to a standstill.

The impact is seen in the construction and retail segment. At this stage, it is more of placing your volumes in segments which can absorb it. Until some kind of resilience is demonstrated, there is no point in pushing more volume in a situation where distributors are still dealing with the current inventory, I believe that it should start getting normalized post November.

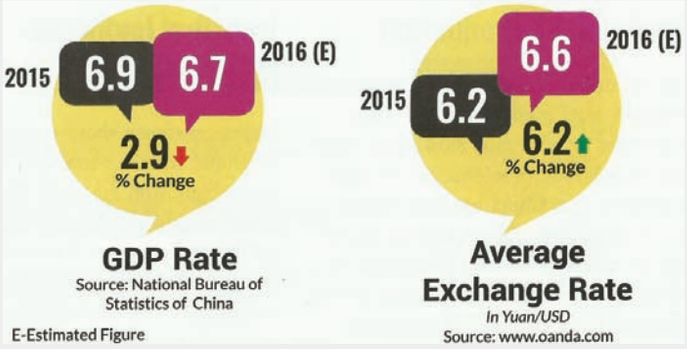
The prices of manganese ore in the international and domestic market have increased. Accordingly, ferro alloys prices in the domestic market have gone up. The ferro alloys industry is dependent on the steel industry, which is experiencing low demand post demonetization. The manganese alloy market has been witnessing sporadic deals with stable prices. Most of the small induction furnaces have curtailed their production and shut down due to huge saleable stock levels at their plants. Also, production has been reduced temporarily until the situation is normalized. Hence, now due to further dampening of the steel market, alloys market has become volatile with no demand. The current market prices for 60-14% grade silico

manganese are at INR 61,000/mt ex-plant. For the export market, prices are being quoted at USD 940-950/mt FoB for 60-14% grade material. 65-15% grade silico manganese is being quoted at USD 1100-1110/mt FoB. Although, producers are trying to push prices further up, prices are within a fairly wide range at the moment as some producers bought ore when prices were stronger a few weeks ago, and are able to offer alloys at the lower end of the range. There does seem to be some scope for price to soften due to demonetization.

Source: Steel 360

## China's 2016

None other than China can better exemplify the harm in overdoing things. Having built a massive capacity of 1.2 billion tonnes of steel production, China is today at a loss for containing it for its own good. At 800 million tonnes of steel production in 2015, about 400 MT of capacity remained idle, this, if prices improve could make a comeback. China's overcapacity is the answer to much of the chaos in today's global steel market. While most steel & ancillary businesses globally are driven by China's intake of raw materials and output of steel, the fact that the country is currently facing an economic meltdown due to its estranged steel production is upsetting the global steel market. Moreover, the methods China is opting, such as dumping its cheap steel, encouraging exports through incentives, to name a few; to tackle its problems is what's more upsetting. There are also reports about investigation on China possibly trying to circumvent the anti-dumping duties imposed on it by re-routing its steel via Vietnam to the US.




2016 has been a whirlwind year when China's actions are concerned. China's GDP growth rate declined from 6.9% in 2015 to 6.7% in 2016, reaffirming the economic slowdown. Yuan averaged at 6.6/USD, up 6% y-o-y during Jan-Nov'16. From committing to production cuts to exporting the cheapest steel worldwide; from environment concerns and announcing coal production cuts to importing coal to fulfil requirement and tossing out all records, importing 1 billion tonne of iron ore; China's 2016 paints a rather unoptimistic picture.

**Crude Steel Production**

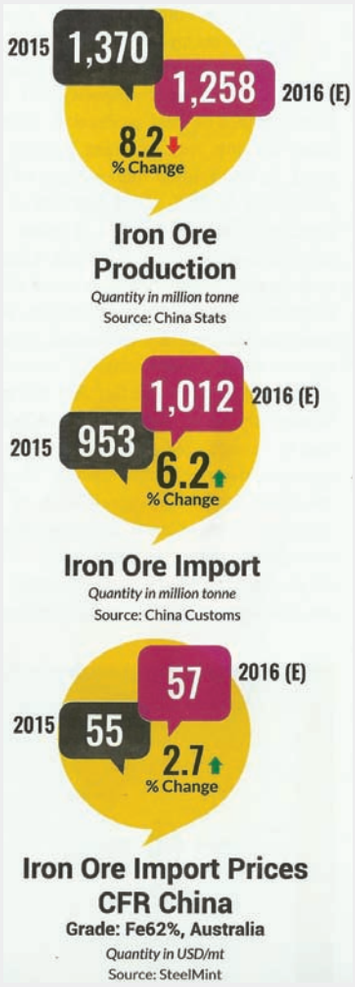
The enormous quantity in which China produces steel is judged as the main reason for its economic slowdown; that and its pollution problems. So it's only reasonable that China has been trying to cut production. China announced 45 mnt of reduction in steel production in 2016; although, things don't seem to be going its way. In fact, it is estimated that China's steel production in 2016 will be 807 mnt, up 0.46% from 803 mnt produced in 2015.


Interestingly, according to the National Development and Reform Commission, China's target to disengage 45 mnt in steel capacity this year was achieved by the end of October. So why is it that the production isn't going down? An obvious answer presents itself in the already idle production capacities in the country. "About 74% of the 45 mnt of targeted capacity were no longer in production to begin with", Economic Information Daily quoted China Iron & Steel Association party secretary Liu Zhenjiang.

China's 13th Five-Year Plan (2016-2020) postulates removal of 150 million tonnes of steel production capacity. How much of it will constitute of the idle capacities remains to be seen.

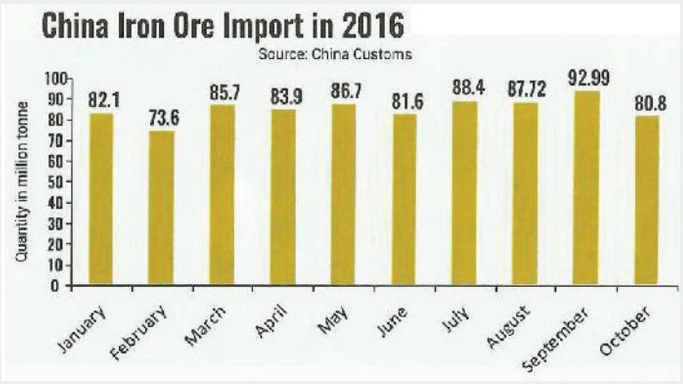
## Iron Ore Import & Production

China consumes about two-third of global seaborne iron ore. Over a year ago, iron ore giant Rio Tinto ramped up capacity banking on its forecast that China's steel production will reach 1 billion tonnes by 2030, thus augmenting iron ore's consumption. China is close to importing 1 billion tonnes of iron ore in 2016, over 6% higher than 953 million tonnes in 2015. However, recent reports suggest that Rio Tinto has disposed off its much optimistic forecast. Other major miners like Vale and BHP Billiton were of the same view and based their production increments in alignment with it. China's steel production in 2016 will surpass that in 2015. Although, production peaked in 2014 at 823 mnt and has come down to 800 mnt since then amid the economic slowdown and is expected to hold at similar levels.




China steadily imported iron ore in 2016, the quantity dipping 12% m-o-m in October. In the first 10 months of 2016, the country imported 843.51 mnt iron ore, up 8.8% y-o-y. India exported 1.02 mnt iron ore in Oct'16, significantly up by 16% against 0.88 mnt in Sept'16.

The 1 billion tonne import story comes together when we look at the domestic iron ore production in China. Domestic mining was cut out and compensated with imports since steel production did not take a step back. The domestic iron ore mining in the country




has come down 8% y-o-y in 2016 to 1,260 mnt from 1, 370 mnt in 2015. The lessened domestic mining has been a driving force for increased imports of the commodity.

**China Crude Iron Ore Production**

| Month | Quantity |
|---|---|
| Jan'16 | 161 |
| Feb'16 | |
| Mar'16 | 98.2 |
| Apr'16 | 102.6 |
| May'16 | 111.1 |
| Jun'16 | 121.1 |
| Jul'16 | 115.7 |
| Aug'16 | 115.1 |
| Sep'16 | 118.9 |
| Oct'16 | 119.29 |
| Total | 1063.00 |

**China Coal Import**

| Month | Quantity |
|---|---|
| Jan'16 | 15.2 |
| Feb'16 | 13.54 |
| Mar'16 | 19.7 |
| Apr'16 | 18.8 |
| May'16 | 19 |
| Jun'16 | 21.8 |
| Jul'16 | 21.21 |
| Aug'16 | 26.59 |
| Sep'16 | 24.44 |
| Oct'16 | 21.58 |
| Total | 201.86 |

## Coal Import & Production

Australia driven seaborne coking coal market predominantly caters to China. Therefore, when China announced coal production cuts and reduced coal mining to only 276 days a

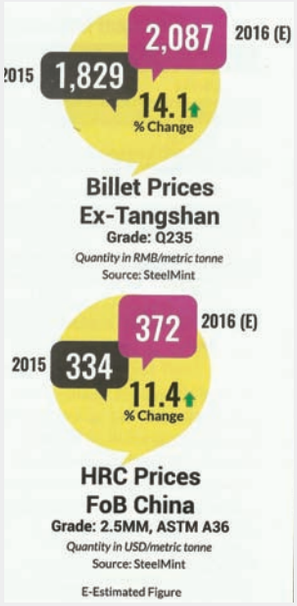
year, Australian coking coal rushed to fill in the vacuum. However, as coking coal prices had crashed earlier in the year, Australia had reduced its yearly targets. The two incidences together led to shortage of seaborne coking coal, which eventually led up to the rally in coking coal price up to 245%. China, being the largest producer, consumer and exporter of coking coal is willing to buy at these high prices to fulfil its requirement.

China's total coal output dropped 10.5% to 2.46 billion tonnes in the first nine months of the year compared to the same period in 2015, while imports have gained 15.2% to 180.18 mnt. In volume terms, China's production is down by about 300 mnt in the first nine months of 2016, while imports are up by about 23 mnt. This shows that higher imports have only compensated for about 7.6% of the drop in domestic output.

Only recently the reports suggest that a few coal mines will be sanctioned to be operational a few extra days and produce more coal. It seems that production in China's coal mines will be the most crucial in driving the seaborne coking coal prices, rather than the big exporters. How quickly the exporters can match China's demand will seal the future of coking coal prices.

## Finish Steel Export

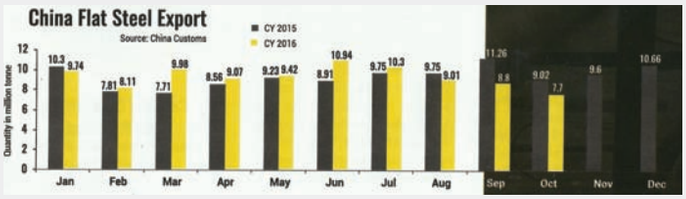
China exporting its steel is a sore subject in the global steel industry. Repeated urging, discussions and resulting friction have had no impact on its export of cheap steel. Resorting to protection measures such as imposing numerous anti-dumping duties by US, Europe, India, MIP, Safeguard duties and more, has not deterred the country from sending its cheap steel all around the world. In fact, finish steel export from China is expected to reach 111 mnt by the end of 2016, just a tad lower than 112 mnt exported in 2015.

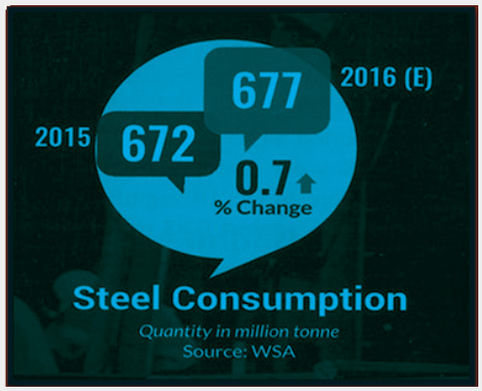

Prices of HRC FoB China have gained 11% in the year to USD 372 from USD 334 in 2015, although that is largely attributed to the increase in prices of raw materials and, also partly because of a small increase in consumption from the housing sector.

## Steel Consumption

The crux of the problem lies in China's steel consumption. Back in the day, when China's economy was caught up in a frenzied boom, consumption of steel was at its peak and China couldn't get enough of steel production to satisfy the appetite of the construction and infrastructure sectors. The huge steel capacities built then are the problem now that the economy has slowed down. In 2016, steel consumption in China moved up to 677 mnt from 672 mnt in 2015, briefly supported by the housing and power sector.




As 2016 comes to an end, not much has changed in the Chinese steel industry. Steel exports are frivolous, consumption is unsupportive, coal production could catch up soon and iron ore import is attaining new levels. The rally in iron ore prices and the quickened pace of coking coal prices are temporary



# SUPPORT SERVICE FACILITIES AT IIM DELHI CHAPTER


MAIN SERVER ROOM

distractions from the larger problem of the steel slowdown courtesy China, that has got the global steel market in its grip.

Source: Steel 360

## Skill India for Make in India

India's ambitious target of 300 million tonnes of steel production by 2025 gives us an optimistic insight into the economy's development curve and makes us proud that such an achievement will take the country's industrial sector to new heights. Indeed, increasing crude steel production is one of the essential parameters for our economic growth.

India has achieved well in the steel sector. From a meagre 2 million tonnes production post-independence to 91 million tonnes in 2016 is a growth well lauded. But with aspirations come several challenges, one of which is getting required skilled manpower for the steel sector.

**New Steel Policy**

The beleaguered USD 100 billion industry is struggling hard to reach a sustainable level. Steel industry, today is one of the largest contributors to Non Performing Assets (NPAs) in India. Hence, aiming for a growth of 14% pa to reach 300 million tonnes by 2025 needs a very sound policy. With fluctuation in coking coal prices and unavailability of indigenous coal for use in steelmaking, raw material security is another major point of focus. Financial aspect, i.e. funding for new projects expansion of existing units and flexible financial instruments should be incorporated in the policy. But, as a steel insider, I feel, one of the major areas that the new policy should focus is on building and retaining skilled workforce. In an era of digitization and automation, more and more graduates are opting for jobs in non-manufacturing sectors. If this outflow continues it can jeopardize our aim of producing 300 million tonnes of steel.

**The Skill Crisis**

With organization facing tough competition globally, labor productivity has become a critical factor in any business organization. Organizations want right skills in their entire value chain. Hence, it is the right time that we be aware of the growing requirement for a variety of skills. Questions like how fresh graduates can be inspired to choose steel industry jobs and how should steel producers attract young talent, should be answered.

Training modules, importance of R&D, compensation packages and career plans must be brought on to the table. Under the Ministry of Skill Development & Entrepreneurship, several initiatives have been taken to impart training but with 17 other ministries involved in various skill development programmes, the result is far below the national target of imparting training to 350 million by 2022. Recently, a lot of ground work was done by the ministry but sustaining such activities is essential.

As per reports published by Ms Mecon and Indian Institute of Technology, there are few points which are worth pondering upon for the steel sector. Few of them are reproduced below.

- An yearly attrition of 3% until 2020 is assumed to take place in the steel sector.
- The technical manpower requirement shall be around 0.15 million (average).
- The study predicted that by 2020, support sector organizations, sponge iron units and pig iron plants shall require technical manpower to the tune of 5164, 35467 and 4590 respectively; approximately 152,147 of ITI trained personnel shall be required to run & produce 300 million tonnes of steel.
- The requirement each of graduate and diploma engineers will be close to 8,000.
- 5-6% of entire workforce will be engaged in R&D activities.
- Mecon has estimated that to produce 300 million tonnes of crude steel, there will be requirement of 315,000 people for direct employment and 1,262,000 for indirect employment.

The above points are just a few areas which require consideration. Going by the present trend and linear extrapolation, the talent and skill gaps across the entire value chain will keep widening unless addressed. We must now start benchmarking ourselves with the global

best. Skilled employees should be regarded as capital investments.

**Financial Implications**

All the factors described above will need to be supported by a strong financial mechanism. I think both government & private players have a decisive role to play to attract and retain talent in the steel sector. The current ratio of technical manpower requirement per 1000 tonnes of steel should increase. Engineering students should be encouraged to take up internships in steel units. Steel Plants should also collaborate with engineering institutes. Institutes too should add internship with steel units in their curriculum. Eminent government bodies under the aegis of Ministry of Steel like NISST may be allowed to conduct classes on steelmaking in few identified institutes. Investment in research & development cell must be encouraged and the money spent on R&D activities must have some tax exemption. Government must audit the R&D activities done by steel players to enhance efficiency in steel manufacturing.

Institution building in this sector needs an exponential leap. These will definitely add cost but both private and government institutions should address the fact that lack of skilled workforce could become a barrier in business expansion, which will eventually downgrade the economic growth projection. Government too, though adequate policy and necessary tax relaxation should support the steps taken by private bodies.

The gap is in the number rather than knowledge. Considering the quantum of young workforce, the government along with steel industries can easily cap the skill gap. Growth should be accompanied by creation of adequate number of jobs, availability of skilled workforce, if not, it will fail to give adequate social protection and hence it cannot be inclusive because it is only social cohesion that enables economic growth. It is also quite admirable that our prime minister is giving high impetus to skill development. A good beginning for us would be to regain our vigour to institution building in the steel sector and bridge the skill gap sooner.

Source: Steel 360

## Steel

**The Metal continues to edge upwards on cost-push and China trimming excess capacity**

Global steel prices continued to surge further in November'16 led by cost push. Asian market has seen steel prices rise due to much of the same dynamic that has pushed steel prices higher domestically. These movements suggest the trend will remain up for the remainder of the year.

The positive sentiment from the surprise victory of Donald Trump and his pledge to rebuild US infrastructure has led iron ore prices to rally. However, in the near term we expect prices to correct considering USD appreciation and a not-so-strong recovery in China. Steel prices also rallied and increased by 13% MoM to US$ 482/tn.

Tighter mortgage rules and reinforcement of home purchase restrictions is likely to adversely impact steel demand. Increase in infrastructure spending has the potential to offset such impact to an extent but is unlikely to result in any significant increase in demand.

More importantly, China's steel capacity cut target also provided the boost for global steel prices. China has already met its target of cutting 45 million tonne of steel production capacity this year, according to the country's top economic planning body, the National Development and Reform Commission. It may even eliminate a bit more over the last couple of months of 2016.

In the domestic market, steel prices continue to move up on cost push and trade restrictions. The steel making raw material market, hard coking coal continued to move upward by 19.5% on a MoM basis to reach to US$309/tn. Iron ore (62% Fe) gained 10% MoM to US$ 72/tn. However, we see pressure on margins due to sharper rise in raw material prices and demonetization.

Among the raw material side, one of Australia's miners has requested Chinese steel mills pay a premium for its highest grade iron ore, a move that experts say will revive the once dormant pricing war. According to a report from Reuters, Rio Tinto is the world's No. 2 iron ore miner and

demand from Chinese steel producers was at a six-year high when the annual pricing system collapsed.

Iron ore supply issues are expected to reignite tensions between miners and mills over pricing. It is reported that Rio is looking for up to $1 per tonne more than the index price for its Pilbara iron ore product on long term contracts from Chinese mills for the year ahead. Rio was previously selling iron ore at a premium exclusively to traders.

Similarly, coking coal prices continued to rise in November'16, not aligning with the broader expectation of some amount of cooling off. The Chinese government is trying to contain prices by increasing supply through policy initiatives; it has increased the number of working days for the current month for private miners to 330.

In addition to above, Turkish scrap prices have shot up in recent weeks due to a combination of factors that have shifted the purchasing behaviours of mills around the world. Availability from supply markets, Europe, the CIS and the USA, was restricted due to low inflows of material in these markets in recent months, coupled with a more recent rise in local demand. Furthermore, billet export prices from both China and the CIS have risen sharply, limiting alternative forms of supply.

In key supply markets, scrap prices have been low for a period of around six consecutive months. Not so low as to restrict supply entirely, such as at the end of 2015, but enough that the rate of inflows had dropped. This had resulted in low inventory levels at scrap yards. Additionally, the sharp rise in coal and coke prices over recent months had prompted BOF-based producers, particularly in Europe and Asia, to plan an increase scrap rates, and buying activity picked up. Because there is a limit on prompt scrap supply, which most of these mills use in addition to home scrap, this restricted obsolete scrap availability for export and pushed up local scrap prices in these markets.

Despite scrap prices rising and limited supply, Turkish mills were not able to secure alternatives such as billet because these prices had risen even to a greater extent as reported by CRU Analyst. Chinese steel export prices have been on the rise since the beginning of October, but much more so in the last week and throughout early November.

This has been driven primarily by coking coal costs, as well as by speculation on the Shanghai Futures Exchange and a modest increase in steel demand in China. CIS billet exporters also took the opportunity to lift export prices, despite coal costs remaining much lower due to captive supply as reported by CRU.

Among steel product demand, HRC prices rose 13.5% MoM to US$482.5/tn. Chinese HRC prices rose by 16.5% MoM to US$576/tn. Domestic steel prices had an adverse impact largely due to demonetization of Rs 500/1000 currency notes by the Government of India, mainly in the B to C segments. It will have major impact on long product segment while flat products also should see pressure due to lower demand in automotive/white goods segments.

Source: MMR

## Govt. to minimize cheap steel imports; ADD may replace MIP

The recent government action to extend the minimum import price (MIP) on 66 steel products by two months till 4 December 2016 shows the government's desire to extend protection for a longer time, says India Ratings and Research (Ind-Ra). Many of the 66 products are mostly subject to an anti-dumping investigation, which is likely to be completed over the next two months. Ind-Ra believes that once this is completed anti-dumping duty (ADD) is likely to be imposed on most of these products for an extended period.

As per the report the need for safeguards in June 2016 in the report 'Steel Production May Note Rise in FY17, In the Absence of MIP'. Ind-Ra notes that in August 2016, GoI reduced the items under MIP to 66 from 173 and imposed an ADD on most of the excluded items, namely on hot rolled flat products and cold rolled flat products. The ADD is slightly less restrictive since they apply only to a specified country of origin; in this case the six named countries included, People's Republic of China, Japan, Korea RP,

Russia, Brazil and Indonesia which account for around 90%-95% of hot rolled products imported into India. While a notification for cold rolled flat products originating or exported from People's Republic of China, Japan, Korea RP and Ukraine accounted for around 90% of imports.

During April-August 2016, India's steel imports declined by 34.5% yoy to 3.01m tonne. Ind-Ra expects GoI to continue to protect domestic steel players from cheap imports. Over FY15-FY16, GoI took various quantitative and qualitative steps to curb the increase in imports into India, however it is only post the imposition of MIP on 5 February 2016, the domestic steel industry heaved a sigh of relief.

The scope of ADD is restricted to the originating countries named and is therefore narrower in scope than MIP, its impact however when applicable is the same as MIP. The ADD imposed on steel products are not fixed and will be calculated at a rate which is equivalent to the difference between the amount identified in the notification and the landed value of the goods covered under ADD, provided the landed value is less than the amount specified. This will protect the domestic steel industry from cheap imports, in the event the landed price of steel further declines and will have a similar impact as MIP. The key difference between MIP and ADD is that MIP is applicable on the import of goods from any country, whereas ADD is specific to goods imported from certain countries/producers as is notified.

Under General Agreement on Tariffs and Trade (GATT) ADD is a more acceptable protection measure provided against dumping of products. GATT provides member countries with the liberty to protect the domestic industry from external injuries; however it is against the restriction of fair trade. Thereby any member country can use ADD for the protection of their domestic industry, in the event that an investigation proves that dumping by other countries is injuring the domestic industry.

The absence of safeguard measures either in the form of MIP or ADD on value added flat rolled products of alloy or non-alloy steel, clad, plated or coated will lead to a surge in imports. As raw material for these value added products, mainly flat products, are already under ADD and therefore domestic producers will be compromised if the end product is allowed to be imported freely at cheaper prices internationally. Ind-Ra expects the protection for the steel industry in the form of ADD or MIP to continue even beyond December 2016.

Source: MMR

## China's Steel industry enjoying upper hand – but will it last?

The steel industry in China has developed over several decades into the world biggest. China accounted for over 50% of world steel production in 2013. It has been driven by rapid modernisation of its economy, construction, infrastructure and manufacturing industries.

Its steel industry was small and sparsely populated at the start of the twentieth century and during both the world wars. Most of the steel infrastructure was destroyed during the wars, and were using Soviet technologies. China lagged behind the western countries in its steel industry development even though they were using central planning techniques during the early days of communist rule.

China underwent rapid economic industrialisation since Deng Xiaoping's capitalist reforms which took place three decades ago in 1978.

After its ascension to the WTO it aggressively expanded its production for its growing appetite of manufacturing industries such as automotive vehicles, consumer electronics and building materials.

The Chinese steel industry is dominated by a number of large state-owned groups which are owned via shareholdings by local authorities, provincial governments and even the central authorities. According to China Iron and Steel Association, The top 5 steel groups by production volume in 2015 are Baosteel Group-Wuhan Iron and Steel Corporation, Hesteel Group, Shagang Group, Ansteel Group and Shougang Group.

Steel production was a major pillar of China's

Marxist theorist and statesman Mao Zedong's Great Leap Froward in 1958, when China took measures to modernize and industrialize the economy. The experiment didn't end well, as they quickly learned that a bunch of small mills in people's backyards was not the best way to produce steel.

Once they abandoned that idea, China's economy, and steel production, grew sizeably. To fuel this growth, China poured massive amounts of money into construction, and it urged the country to expand steel production rapidly to match the growing economy.

This time the plan worked. China has relatively quickly become the second largest economy and the biggest steelmaker in the world. With a GDP of US$10 trillion, they account for roughly 13% of the global economy. Chinese steel production was 823 million tonne in 2014 – accounting for half of the world's total.

But now China's economy is slowing down. The latest five-year plan focused on moving the economy from a focus on industrial production to consumption. They want more focus on improving living standards and dealing with their environmental problems. And importantly, the growth target dropped from 7.5% to 6.5%. (In a US$10 trillion economy, that 1% difference equals US$100 billion – that's a lot of money for anyone.)

With less focus on rapid growth (even though 6.5% is still pretty high) there is less incentive to invest in construction. This has driven down the demand for steel, with the result being global steel prices slumping to a 10-year low.

The World Steel Association said China' demand for steel dropped 3.5% in 2015, and will fall again in 2016. This has forced Chinese steelmakers to look outside the country for customers to buy all their extra steel. As a result, in 2015 China steel exports increased 25% to 112 million tonne. That's more than any other country's (except Japan's) total production. Their production costs are also subsidized by the Chinese government, so they are covered even if they produce steel at a loss.

**Chinese completes merger**

Consolidation may address oversupply but past experience points to caution. Baosteel Group and Wuhan Iron & Steel Group had announced the start of merger talks at the end of June 2016. Globally, the former ranked fifth in terms of crude steel production in 2015, while the latter placed 11th. If the state-controlled companies integrate their operations, they would become the world's No 2 steelmaker after ArcelorMittal. It's finally happened.

The merger between the Baoshan Iron and Steel Group (Baosteel) and its smaller rival Wuhan Iron and Steel was formally completed in Shanghai recently, creating China's biggest steelmaker. The new Baowu Steel Group will have an annual production capacity of around 60 million tonne, also making it the world's second-biggest steelmaker, behind ArcelorMittal.

Baowu Steel has total assets worth 730 billion yuan ($106 billion) and workforce of 228,000 people. The merger between the two steel companies was formally approved by China's cabinet, the State Council, in September, as part of the country's ongoing efforts to rationalise its sprawling state sector.

Earlier, the companies' listed entities, Baoshan Iron and Steel Co Ltd and Wuhan Iron and Steel Corp, announced they would halt trading in their shares amid a review of the merger by regulators.

China aims to put 60 percent of the nation's steel capacity in the hands of its 10 biggest firms by 2025, and has been encouraging acquisitions and mergers in the industry for years. China is also seeking to cut the number of companies run directly by the central government as part of far-reaching reforms of state-owned enterprises. The number now stands at 102, down from 111 at the beginning of the year. Chinese state media have reported it could eventually fall to 40. China's excess production capacity has long been a thorn in the side of the global steel industry. So, the prospect of the merger is fuelling optimism about an end to the glut, though people in the industry warn that realignment will mean nothing unless it is followed by the elimination and consolidation of manufacturing facilities.

Li Keqiang, the Chinese premier, vowed on June 27 this year to push ahead with reforms aimed at

addressing overcapacity in the steel and other sectors. He was delivering the opening address at the World Economic Forum's Summer Davos meeting in Tianjin recently. For steel industry officials, however, the talk of reform seemed to carry extra weight after Baosteel and Wuhan Iron and Steel announced their talks the previous day.

Steelmakers exemplify China's "zombie company" problem, which also afflicts other sector such as cement, coal and sheet glass. These sectors ballooned as the economy boomed and the government poured money into infrastructure. Now, with economic growth slowing, there is not enough demand for what the companies produce. Unable to address their surplus capacity and labour, the walking dead continue to amble along in the red, supported by local governments looking to protect jobs and tax revenues.

Chinese steelmakers have about 1.2bn tonne of production capacity, of which more than 400m tonne are considered surplus. Steelmakers in the US, Europe and other Asian countries accuse China of dumping much of the excess, distorting global markets. China's steel exports surpassed 100m tonne in 2015, up fivefold from a decade earlier and exceeding Japan's annual crude steel output. Export prices have been falling at an annual rate of 20 percent.

The flood of Chinese steel has made life difficult for competitors. Posco, the biggest South Korean steelmaker, booked a 70 percent decline in net profit in 2015, while United States Steel was forced to close a blast furnace.

2015 was a tough year for China's steel industry. Crippling overcapacity as a result of past building binges, along with a decline in Chinese domestic demand, wreaked havoc on the sector, causing many steel mills to suffer substantial operating losses.

According to the China Iron and Steel Association (CISA), large and medium-sized steel mills suffered losses of 53.1 billion yuan ($8.18 billion) in the first eleven months of 2015.

Of the 101 steel mills tracked by the group, total sales revenue fell to 2.66 trillion yuan, a decline of 19.3% from the same period a year earlier.

Up until recently, exporting cheap, excess steel product to offshore markets provided a lifeline to many Chinese mills, helping to partially alleviate dire demand conditions at home.

Over 2015, Chinese crude steel exports rose to 99.6 million tonne, equating to a substantial 25.5% increase on the levels of a year earlier.

Given falling demand at home, largely as a result of a massive supply overhang in unsold residential units in smaller tier three and four Chinese cities, it all but kept steel prices, and the raw material prices required to produce it, form collapsing even further.

However, based on recent data released by China's customs bureau, that sole lifeline to China's steel industry may now coming to an end, creating renewed doubt over whether the 20% plus surge in the iron ore price since mid-December can be sustained in the period ahead.

Source: MMR

## Steel Secretary inaugurates solar power plant at VSP

Union Steel Secretary Aruna Sharma inaugurated the five MW solar power plant installed by Rashtriya Ispat Nigam Limited, corporate entity of Visakhapatnam Steel Plant, at a cost of Rs.33 crore. Union Steel Joint Secretary Urvilla Khati, RINL Chairman-cum-Managing Director P. Madhusudan, senior officials and union leaders attended the function. With the inauguration of the solar plant, RINL joined other major corporates in harnessing solar power on its premises. Dr. Sharma commended RINL management for foraying into solar energy in tune with the government thrust to tap renewable energy sources.

She said the role of renewable energy had been assuming increasing significance in recent times with the growing concern for the country's energy security. Director (Projects) P.C. Mohapatra, Director (Operations) D.N. Rao, Director (Commercial) P. Raychaudhury, and Chief Vigilance Officer B. Siddhartha Kumar were present. Later Ms. Sharma and Ms. Khati visited new production units, including blast furnace-3, steel melt shop-2, rolling mills and captive power plant-2. She also visited

Steel Museum located at the Technical Training Institute. Ms. Sharma reviewed the performance of the company and later interacted with representatives of Steel Executives Association, trade unions, SC & ST Association and Women in Public Sector.

Source: Metaljunction

## Steel, Iron-Ore Prices Take a Slide in China

China's iron-ore and steel prices tumbled a few days back, as increasing stockpiles, weakening demand and Beijing's call to rein in asset bubbles weighed on the market. Rising stockpiles of iron ore, coupled with a bleaker outlook for demand as the real-estate sector losses steam, have prompted more risk-averse investors to reduce positions, analysts said. Inventories of iron ore at major Chinese ports surged to 111.5 million tons as of Dec. 16, the highest level since September 2014, according to SteelHome, an industry data provider. Meanwhile, recovering profitability at steel mills, thanks to China's aggressive supply-side overhauls this year, has revived appetite for producers to keep churning out products. The monthly output of China's steel mills soared at the fastest pace in over two years last month, according to the National Bureau of Statistics. China's total steel output rose 1.1% to near 740 million tons in the first 11 months of the year.

For next year, investors are less sanguine as most expect Beijing's stance on clamping down on a housing bubble will erode demand. China's real-estate sector has cooled since October, when authorities tightened housing purchase rules, raised minimum down-payment requirements and restricted using leverage funds to buy properties. Recently, Chinese leaders vowed to contain housing prices, rein in asset bubbles and prevent financial risks, further dialing back expectations on demand for metals such as steel rebar that are used for infrastructure and housing construction. In addition, China's central government reiterated its resolution to tackle asset bubbles. That may also send a warning to some speculative investors, who fled the market for fear of tighter rules, according to traders.

Source: Metaljunction

## Nalco to invest Rs 12,000 crore in new smelter

National Aluminium Company (Nalco) plans to set up a new greenfield smelter in Odisha at Kamakhyanagar.

The site chosen for the new smelter is close to Gajamara in Dhenkanal district where Nalco is teaming up with power utility NTPC for setting up a 2,400 Mw coal-fired power station. The power project, estimated to cost Rs 14,000 crore, will be implemented by a joint venture company NTPC-Nalco Power Company.

The proposed smelter's capacity is pegged at 0.6 million tonnes per annum. Power generated by the super thermal power station will feed this greenfield smelter.

Confirming the development, Nalco Chairman and Managing Director T K Chand said, "We need around 1,400 acres of land for the new smelter. Idco (Odisha Industrial Infrastructure Development Corporation) already has 1,500 acres of land ready at Kamakhyanagar, so we hope to receive possession of this patch of land. Also, the smelter's location will be around 45 km from Gajamara the proposed site of the 2,400 Mw power plant.

That way, it will be easier for us to evacuate power and feed the smelter."

The smelter's location was also advantageous as water would be easily available at Gajamara, he said. The smelter is expected to go on stream in four years. This state-of-the-art facility will use the latest aluminium smelting technology.

Nalco is also going in for brownfield expansion of its existing 0.46 mtpa smelter project at Angul. The navratna company has planned capital expenditure of Rs 10,000 crore to add 0.5 mtpa capacity to this smelter. Land and associated infrastructure needed for this smelter's expansion is in place. With the expansion, Nalco hopes to prune cost of production and achieve economies of scale. The company will also deploy the latest technology to ensure reduced energy consumption and high productivity.

Source: Business Standard

## After steel,minimum import price for Aluminum on cards?

The mines ministry will shortly decide on the merits of levying a minimum import price (MIP) on aluminum products to safeguard the local industry from a surge in cheap inbound shipments. The ministry is awaiting a fresh set of recommendations from state-owned consulting and engineering firm Mecon on an MIP range on a raft of imported aluminum products. The recommendations, if accepted, would be forwarded to the commerce ministry for final approval, a senior government official told Moneycontrol. MIP serves as the floor rate below which overseas shipments of specified items are not allowed to enter Indian shores. The mines ministry has asked Mecon to suggest a new MIP range on the non-ferrous metal, updated on current global price trends, the official said. "Mecon had proposed MIP rate of USD 2,066 per tonne for primary aluminium products (which includes ingots, billets and wire rods) last month. We have further asked them to look at rates," said the official, who did not wish to be identified. The revised report would be ready in the next seven days, the official said. The consulting firm had also recommended MIP price for secondary aluminium products such as tubes, wires and cables. While an MIP of USD 3,108 per tonne was proposed for aluminium tubes and pipes, USD 2,349 per tonne was recommended for wires, the official said. A floor price of USD 2,403 per tonne was projected for aluminium cable and conductors. The mines ministry has now asked Mecon to examine whether the proposed MIP should be revised given changing global benchmark prices as seen in the London Metal Exchange (LME) indices. Average monthly LME prices of aluminium have risen 11 percent since April, to USD 1,735 per tonne in November. It was, however, not clear whether Mecon would revise the floor rate upwards or slide it to a lower level. Top Indian aluminum makers have complained that Chinese dumping the metal in India has depressed prices and hit companies' profitability. Aluminum imports have risen 78 percent in the last five years -- to 432,370 tonnes in 2015-16 from 242,533 tonnes in 2011-12. Aluminum makers include Hindalco, Vedanta and National Aluminum. Company have been pressing the government for immediate measures to arrest the import surge and help local producers realise better prices and margins. The industry had appointed Mecon to study the case for imposing MIP on aluminium. Earlier this year, these companies had also approached the Directorate General of Safeguards for imposition of the duty on unwrought aluminium. The Directorate, however, in its final findings ruled out the imposition of the trade barrier on the product. In February, the government had imposed an MIP, ranging between USD 341-752 per tonne, on 173 steel products for a period of six months to guard local industry against cheap Chinese imports. This list was later cut to 66 items in August and subsequently to 19 products in December. MIP has now been extended till February. The increase in steel had hurt the automobile industry as it did not allow the full benefits of lower global commodity prices to be passed on automobile companies.

Source: Metaljunction

## Iron ore transport costs may reduce by 14% if steel ministry has its way

The cost for transportation of iron ore by the railways may come down by up to 14% if the rail ministry pays heed to its steel counterpart's persistent demand. The freight reduction would be a welcome move for the steel and iron ore industry, but might cause a strain to the revenues of the railways, often called the lifeline of the nation. Acting upon the repeated plea of the steel industry, the steel ministry has been urging the Suresh Prabhu-led ministry to change the freight class of iron ore and bracket it within the same class (145) as that of other raw material like coal, limestone, dolomite and manganese ore. Iron ore is presently classified as freight class 165, same as that of steel. The steel industry argued that since iron ore is a raw material, it should be brought under freight class 145 and not put in the same class as that of steel which is essentially a finished product.

"If this demand of steel ministry is accepted by the railways, the benefit that would accrue is to the tune of 13.8% less freight charge for transportation of iron ore by the railways," said a steel ministry source. The steel ministry had discussed the issue at least thrice since August last year at the Railway Board level, but nothing concrete has come out so far. In 2015-16, India's iron ore production stood at 135 MT. The difference in the cost of transportation between freight class 245 and freight class 265 hovers between R28 per tonne and R490 a tonne. Freight rates go up with an increase in kilometre. The gap also widens as the distance goes up.

If approved, this would be the second relief extended to the iron ore industry in the last seven months. In May, the railway ministry abolished the dual freight policy rates for iron ore. Earlier, it used to charge separately for transportation of iron ore meant for exports and domestic consumption. Railways play a major role in the country's transport market. In order to attract more customers to use railways for transportation, the ministry has initiated a major rationalisation of freight policies and also introduced computerised system to register demands for wagons and other steps to enhance efficiency and transparency in freight operations.

Source: Metaljunction

## Iron Ore exports hurt Indian Steel

The Indian government's move to reduce export duty will run domestic steel mills dry of raw materials. As Dilip Kumar Jha* reports, the industry believes imports of finished product would go up in future.

Suspension of iron ore mining, and part restoration thereafter, have pushed India's steel industry in to the doldrums. To make iron ore adequately available for domestic steel mills, the government initially levied 30% export duty on both lumps and fines. But, export duty was later rationalised on fines to 10% leaving the same unchanged for lumps. Now, India's steel ministry has indicated that iron ore would be exempted from export duty. This means, Indian miners would be encouraged to supply iron ore to overseas steel mills, deserting Indian primary steel producers from raw material supply. "We have protested the government's proposed move which would contradict the government's own mineral preservation policy. Apart from that, India would end up importing more finished products - steel - and that would hurt domestic steel mills that have expanded capacity adequately in tune with the government's vision to achieve 300 Mt by 2025," said Dr. Sanak Mishra, Secretary General, Indian Steel Association.

**Supply neck-to-neck**

Iron ore demand and supply is fairly balanced in India presently. Some steel mills reduced their operating capacity to the alarmingly low level of up to 35% due to the lack of raw material two years ago, which was later restored gradually on increasing availability of iron ore. Currently, the average capacity utilisation rate of steel mills in India works out to 76-78%. A further increase in capacity utilisation, however, would increase India's iron ore requirement proportionately. Thus, the intricate balance between supply and demand of iron ore in the domestic market will be distorted if export duty is reduced. Apart from that, the standalone pellet makers have a total production capacity of around 30Mt. Assuming average capacity utilisation of 45% with an iron ore requirement of 1.10 ton per ton of pellet production, the iron ore demand by this sector would be an additional 15Mt.

Over the last five years, iron ore production declined by 33% to 139 Mt in 2015-16 from 208.15Mt in 2010-11. Iron ore stocks remained almost unchanged in spite of sharp swings in production and exports due to inadequate logistics. Non-availability of iron ore forced many mini and medium sized mills to shut down. Iron ore production, however, is yet to achieve the pre-2010 levels to accommodate exports. The current level of exports with 30% duty will maintain domestic demand and supply. "There will be a significant shortage of iron ore if steel mills decide to ramp up their capacity utilisation from the current level of 76-78%. Hence, the government needs to encourage exports of finished products for better realisation rather

than raw material for a penny," said H Shivram Krishnan, director (commercial), Essar Steel India.

**Captive stocks – not for export**

Of the 129 Mt of iron ore inventory that lies with various ports and iron ore miners in India, captive users like the government-owned Steel Authority of India Ltd (SAIL) and Tata Steel contribute 32% (41Mt) and 2% (2.71Mt) respectively. The quantity held by captive users is, therefore, not available for export.

This means, merchant miners hold 66% (85.29Mt) and exports, if any, could come from this stock. Since merchant miners in mineral rich states like Goa face quantity restrictions on ramping up mineral excavation, a sudden increase in iron ore production looks impossible.

A subdued price trend in the international market has made mining unviable for local miners, especially in Goa. The Supreme Court has allowed miners to mine 20Mt of iron ore per annum. In Goa, total iron ore output has been capped at 20Mt. For the financial year 2015-16, Vedanta and others have produced just 5Mt (up to March 2016). Smaller miners have been excluded due to the low price of iron ore, claiming that mining at this price is simply not viable. Data compiled by the Joint Plant Committee (JPC) of India's Ministry of Steel showed a sharp decline in iron ore output over the last five to six years. From the 2010-11 level of 208.15Mt, iron ore production declined by a compounded annual rate (CAGR) of 6.51%, to 139Mt in 2015-16. By contrast, however, steel production steadily rose by CAGR 4.58% TO 89.78Mt in 2015-16 from 68.62Mt in 2010-11.

This simply indicates that iron ore output lags far behind the growth of steel output. Iron ore production, therefore, has to attain double digit growth in the coming years to match upcoming domestic steel demand. The Indian government has drawn a roadmap in its latest steel policy to achieve output of 300Mt by 2025. The industry needs additional capacity of 180Mt in eight to 10 years for which an additional 290Mt of iron ore would be required.

**Conclusion**

Any exports of iron ore at this stage would put more pressure on increasing production of the commodity to match domestic demand. Steel mills believe that the government of India would encourage finished steel imports by promoting exports of iron ore which will prove an impediment to the growth of Indian steel industry.

**Table 1**

| India's 2015-16 iron ore demand and supply scenario (million tons) | | |
|---|---|---|
| **Demand** | | |
| | For production of | Iron ore requirement |
| Hot metal | 57.13 | 91.4 |
| Pig iron | 10.22 | 16.3 |
| Sponge iron | 22.40 | 35.8 |
| Total | | 143.5 |
| Supply | | |
| Iron ore production | | 139 |
| Export | | 6.0 |
| Import | | 11.3 |
| Total | | 144.3 |
| Source: Joint Plant Committee | | |

**Table 2**

| **Iron ore production and stocks (million tons)** | | | | | |
|---|---|---|---|---|---|
| Financial Year | Closing Stocks | Production | Exports | Import | Price ($/ ton)# |
| 2010-11 | 120.63 | 208.15 | 97.66 | 0.63 | 151.6 |
| 2011-12 | 125.65 | 167.29 | 61.74 | 0.97 | 173.6 |
| 2012-13 | 119.87 | 135.85 | 18.66 | 3.05 | 132.9 |
| 2013-14 | 124.22 | 152.18 | 14.41 | 0.37 | 110 |
| 2014-15 | 128.66 | 128.91 | 6.12 | 15.07 | 89 |
| 2015-16* | 129.00 | 139.00 | 5.32 | 11.26 | 45 |
| Source: Joint Plant Committee, Steel Mint, Platts, *Provisional, #Prices as of March 31 | | | | | |

**Table 3**

| **Production status** | | | | |
|---|---|---|---|---|
| Financial Year | Iron ore Output | % Growth | Steel Output | % Growth |
| 2010-11 | 208.15 | | 68.62 | |
| 2011-12 | 167.29 | (-)20 | 75.70 | 10 |
| 2012-13 | 135.85 | (-)19 | 77.62 | 3 |
| 2013-14 | 152.18 | 12 | 81.69 | 5 |
| 2014-15 | 128.91 | (-)15 | 88.98 | 9 |
| 2015-16* | 139.00 | 8 | 89.78 | 1 |
| CAGR | | (-)6.51% | | 4.58% |
| Source: Joint Plant Committee, *Provisional | | | | |

Source: Steel Times International

# Ironmaking's key –the quality of coke

*Commissioned in 2011, the largest blast furnace in the NLMK Group failed to meet expectations after a year of operations. International experts were called in to assist and helped NLMK to increase coke strength after reduction (CSR) to 60-64%, essential for the high gas, coal and oxygen injection rates aimed at, as well as increasing tuyere diameter and improving burden distribution. By S V Filatov* & I F Kurunov***

The key factor for greater efficiency of iron production at NLMK between 2013 and 2015 was improved coke quality. An increase in the coke strength after reaction (CSR) value from 45-50% to 60-64% enabled an increase in the output of the blast furnaces by 15-25%, by enabling an increase in injected fuel and a lowering of coke consumption by 5-10%. There was also a decrease in silicon content of the iron.

Under the strongly competitive conditions of the present steel market, the efficiency of a company in converting liquid iron into steel is determined, first of all, by the cost per tonne of hot metal. However, this does not directly depend on the production cost of the coke used in the blast furnace. Modern blast furnace injecting a high proportion of natural gas and pulverised coal (PCI), make it impossible to achieve efficient furnace operation if using low quality coke. A radical increase in the coke CSR

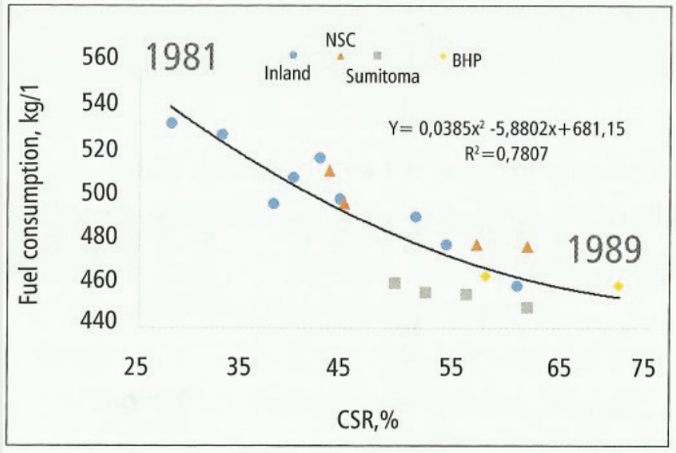



Fig 1. Dependence of total fuel consumption on coke strength after reduction (CSR)

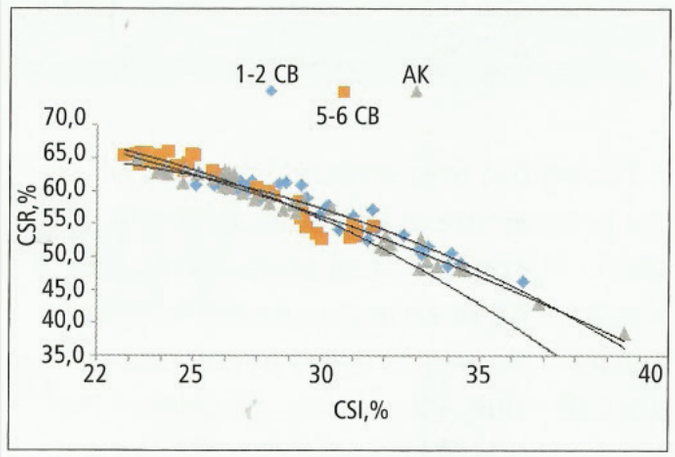



Fig 2. Relationship between coke strength after reduction (CSR) and weight loss on reaction (CRI)

is needed which means more expensive coke to many companies when implementing high PCI, a technology which started in the 1980s. Such injection is accompanied by a significant decrease in the total consumption of fuel for making hot metal.

A reduction in coke production costs by using a cheaper coal blend results, even in the best case, in a loss of hot metal production, excessive coke consumption due to a deterioration in coke quality and overall additional financial costs. In the worst case, a serious disruption in blast furnace operation results in huge financial losses.

Taking this into account, the core of the programme at NLMK to achieve a saving in iron and steel production costs was to achieve an improvement in coke quality. This was targeted at increasing the CSR value – this being considered the most important characteristic of coke as it determines the efficiency of blast furnace operation. Such a conceptual approach towards the economic stability of the company results from the following factors:

- Many years of the company's own working experience in operating blast furnaces on coke with relatively low CSR (45-55%).
- The experience of leading iron and steel companies, which justified the higher CRS level, which is necessary for efficient production (CSR≥ 65%).
- The efficiency of blast furnace operation on coke with CSR 65-75%, produced from

imported coals, enabling PCI rates of 200-280kg/t hot iron.

- The beginning of mastering PCI technology in NLMK and the commitment to fully use PCI design capabilities.

Implementation of measures to achieve a significant increase in coke CSR started at the close of 2012. The percentage weight loss (CRI), known as the reactivity, and strength after reaction (CSR) were measured in the four coke batteries of NLMK and in five batteries at Altai-Koks. This confirmed the relationship between the two properties.

The improvement in coke CSR and in the quality of sinter charged to the blast furnace enabled process engineers to use available technical and process resources better, that is to significantly increase the PCI rate, intensify furnace reactions by increasing the oxygen content of the blast, increase top gas pressure, optimise the distribution of the charged burden at the top of the furnace, increase the smoothness of furnace operation and the stability of hot metal composition, which showed a fall in silicon level. The advantages of operating with coke of satisfactory quality is illustrated by the performance of the 13.1m hearth diameter at Rossiyanka – the largest blast furnace in NLMK.

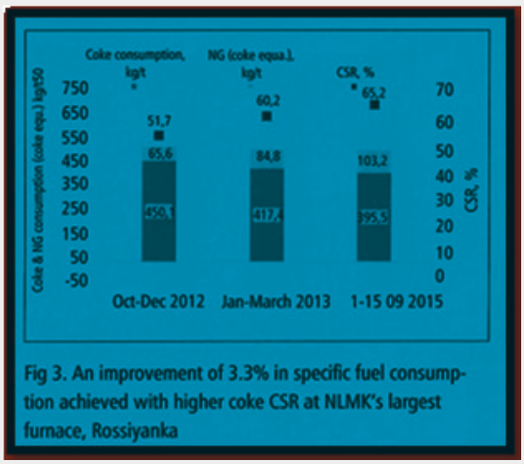



Fig 3. An improvement of 3.3% in specific fuel consumption achieved with higher coke CSR at NLMK's largest furnace, Rossiyanka

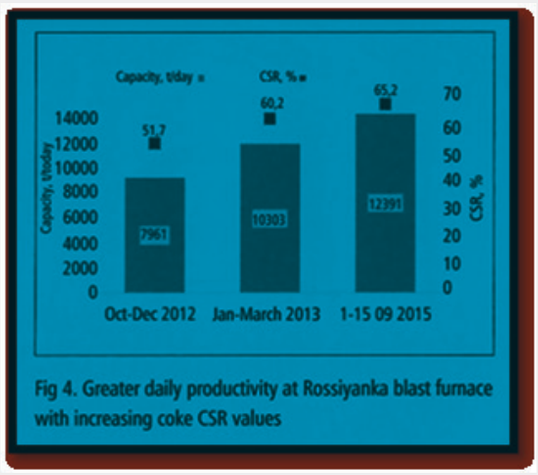



Fig 4. Greater daily productivity at Rossiyanka blast furnace with increasing coke CSR values

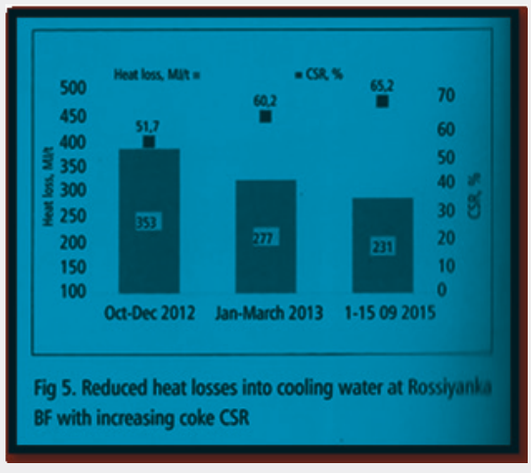



Fig 5. Reduced heat losses into cooling water at Rossiyanka BF with increasing coke CSR

**Rossiyanka furnace performance**

The productivity and fuel consumption achieved one year after start-up of the Rossiyanka furnace (end August 2011) had not reached the performance level of the best European blast furnaces, a result which neither satisfied the process engineers or the company's management. In addition to unsatisfactory coke quality, the situation could not improve as the process engineers had no experience in operating the blast furnace with copper plate cooling staves in the bosh and bottom part of the shaft and the new asymmetric profile of the bell-less-top (BLT) hoppers, which were totally different from the profile of those at BF 6, which are close to being symmetric. The new BLT hopper profile required detailed investigation of sinter and pellets segregation as they are discharged into the furnace from the hopper. Without this, it is impossible to achieve the optimum burden distribution at the furnace top. These problems motivated a search for technological solutions to improve the situation, including non-standard approaches. For this purpose, between 2012 and 2015, the company invited international experts in blast furnace production to come from a number of countries – Germany, the Netherlands, Argentina, Canada and Ukraine. Their participation in the analysis of the situation made it possible to eliminate some of the problems in the charging system and improve the charge distribution. In addition, these experts advised on the production of coke with greater CSR, approaching the required level and so providing a reduction of hot metal and steel production costs.

Significant improvement of the furnace operation came after an unorthodox solution was applied – the diameter of the tuyeres was increased, which, when operating with coke with CSR 63-65% (which is close to that required for such furnaces – CSR>65%), helped intensify the furnace reactions, enabling an increase in natural gas injection, a decrease in heat losses into the water cooling the staves and reduced coke consumption.

The furnace achieved a daily output record of 13,300t/day (98.7t/$m^2$ per day) and an average monthly production capacity of 12,500t/day (92.8t/m2 per day). Total fuel consumption in February 2016 fell to 464kg/t. It is also worth noting that the specified indicators were achieved in spite of a relatively low iron content in the charge of 57.2-58% Fe and consequential high slag output ~380kg/t of hot metal.

The use of coke with a CSR approaching the desired level (CSR>65%) enabled an increase in the efficiency at all the company's blast furnaces. As a result of all this work, total pig iron production in the company now reaches 38 to 39kt/day at an average specific fuel consumption of 480-485 kg/t.

Source: Steel Times International

## Strategic minerals remain unattractive for miners

Despite the presence of rare earth minerals in the country, the consumer durable sector, one of the primary users of these minerals, continues to meet a major chunk of its demand through imports as domestic mining firms find the extraction process risky and expensive.

Metals and minerals such as tin, cobalt, lithium, germanium gallium and tungsten are considered strategic because their substitutes are limited and their production is often concentrated in a few geographies.

As many of these can only be produced as a by-product of base metals extraction, the potential for accelerating production and supply on a standalone basis is limited. Inconsistent mining regulations, legislative regimes and environmental risks are also cited as reasons.

Tungsten and tin by-productions of gold, copper and nickel, respectively, are used in the defence sector. Germanium has use in the solar power industry while gallium is used in mobile communication technology. Interestingly, all these minerals are available aplenty in China. "China already has a practical global monopoly in several scarce minerals with export taxes, and can easily out compete any newcomers on price," said Kameswara Rao, partner, PwC.

According to the mines ministry, these minerals are expected to be extracted by the miners from the blocks that are being tendered now and would show results in the next five to six years.

Companies in the US are compensated for extracting by-product metals but in India, the government does not give any subsidy. Therefore, the companies feel that any investment in this endeavour would not give them the desired results in the form of profits.

Sunil Duggal, CEO and managing director of Hindustan Zinc Ltd, said there were some technological challenges in mastering the extraction process. While some companies have done it, some are yet to do so.

According to Duggal, there is demand for these minerals in the domestic market but the country requires research and development expertise for their extraction. His company is actively making technological advancements to be able to mine such rare minerals.

A technological study is currently underway to treat and convert the residue from its zinc smelter plant into lead. Under the current norms for atomic minerals, mining of such minerals cannot be done by the private sector of the mining area contains 0.75 percent thorium content. According to Rao, a better option is to partner with other countries where such minerals are available in more economic proportion.

India has 44.91 million tonnes of cobalt resources. Of this, 69 percent is in Odisha and the remaining 31 percent is in Nagaland (five million tonnes) and Jharkhand (nine million tonnes). At present, no production is done from the indigenous ores. The major producers of germanium are the US, China and Russia. Around 30 percent of the total germanium consumed is produced from recycling scrap.

China, Germany, Kazakhstan and Ukraine are leading producers of gallium.

Source: Business Standard

## Most heat-resistant materials identified

Scientists have identified materials that can withstand temperatures of nearly 4,000 degrees Celsius, an advance that may pave the way for improved heat resistant shielding for the faster-than-ever hypersonic space vehicles. Researchers from Imperial College London in the UK discovered that the melting point of hafnium carbide is the highest ever recorded for a material. Tantalum carbide (TaC) and hafnium carbide (HfC) are refractory ceramics, meaning they are extraordinarily resistant to heat. Their ability to with-stand extremely harsh environments means that refractory ceramics could be used in thermal protection systems on high-speed vehicles and as fuel cladding in the super-heated environments of nuclear reactors. However, there has not been the technology available to test the melting point of TaC and HfC in the lab to determine how truly extreme an environment they could function in. The researchers developed a new extreme heating technique using lasers to test the heat tolerance of TaC and HfC.

Source: The Hindu

## If You Are Only Looking Out For Yourself, Look Out!

Is your favorite letter "I"? Listen: The cause of most of our problems is "I", no matter how we spell it. Change your favorite word from "I" to "you". The truth is, no one makes it on their own. "Everyone who has ever done a kind deed for us, or spoken one word of encouragement to us, has entered into the make-up of our character and of our thoughts, as well as our success." "There is nothing quite so dead as a self-centered man-a man who holds himself up as a self-made success, and measures himself by himself and is pleased with the result," Don't become a legend in your own mind.

"The man who lives for himself is a failure. Even if he gains much wealth, power or position he is still a failure." Conceit makes us fools. The book of Proverbs remind us. "Do you see a man wise in his own eyes? There is more hope for a fool than for him."

The man who believes in nothing but himself lives in a very small world. The best way to be happy is to forget yourself and focus on other people. "The bigger a man's head gets, the easier it is to fill his shoes." The only reason pride lifts you up is to let you down. A swelled head always proves there is plenty of room for improvement. Even postage stamps become useless when they get stuck on themselves.

"The greatest magnifying glasses in the world are a man's own eyes when they look upon his own person". Egotism is the only disease where the patient feels well while making everyone else around him feel sick. It blossoms but bears no fruit.

Those who sing their own praises seldom receive an encore. "Don't think too much of yourself. Try to cultivate the habit of thinking of others; this will reward you. Selfishness always brings its own revenge."

When you find yourself on a high horse, the best thing to do is to dismount at once. You can't push yourself forward by patting yourself on the back. "It's fine to believe in ourselves, but we mustn't be too easily convinced." An egotist is his own best friend. I think that people who are deeply in love with themselves should get a divorce. The man who only works by himself and for himself is likely to be corrupted by the company he keeps. I've observed that those who boast of being self-made usually have a few parts missing. You can recognize a self –made man; his head is oversized and his arms are long enough to pat himself on the back. A conceited person never gets anywhere because he thinks he has already 'arrived." The higher you go in life, the more dependent you become on other people.

Work together with others. Remember the banana: every-time it leaves the bunch it gets peeled and eaten. Freckles would make a nice tan, if they would just get together. Few burdens are heavy when everyone lifts.

This is the twenty-eighth of series of "Nuggets of truth" which are our sound food for soul. Get ready to blow the lid off our limited Thinking & create your recipe for happiness & success.

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