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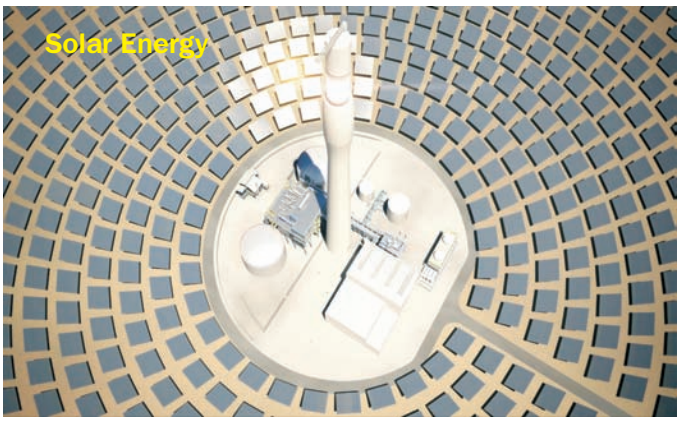

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India's First Auto Recycling Unit by June 2017

Mid-2016, the news about JV between MSTC Limited and Mahindra Intertrade to set up Auto Recycling Units in India made the headlines. Almost simultaneously, talks on the government deliberating on an End-of-Life Vehicle Policy grabbed media attention. Much was said and heard about the location and investment required for such units. Business potential of the auto recycling industry in India gripped analysts for months and officials of both companies were sought after to fill in the gaps in the information.

Following are the excerpts of the interview Steel 360 has with Mr. Vijay Arora, VP, Mahindra Intertrade.

Q. What has been the progress so far with regards to the Auto Recycling Unit?

A. As you would be aware, the JV agreement was signed with MSTC Limited and the JV Company, called Mahindra MSTC Recycling Pvt Ltd, was incorporated in October 2016. We have moved from the conceptual stage to the execution stage and a lot of research has undergone for that – be it studying the market dynamics, benchmarking, process design, best practices etc. We have visited similar facilities abroad and tried to understand their business processes. We are coming up with our first recycling unit in Delhi, which will be operational by June 2017. This will be a state-of-the-art recycling facility in line with world standards. Depollution and dismantling of vehicles will be done in this unit. A fully-fledged automobile shredding plant will come up in the next year.

Q. When is the Vehicle Recycling Policy expected to be finalized? What could be the key points in favour of the recycling unit?

A. The Ministry of Road Transport and Highways (MoRTH) has come up with the concept note on Voluntary Vehicle fleet Modernization Program (VVMP) and policy is likely to come soon this year. We expect this policy to be finalized by April 2017. The key points that would favour us will be the strict adherence to pollution norms while dismantling the vehicle. There are a lot of dismantlers in the unorganized sector following practices that pollute the environment. Our unit will be the first in the country to dismantle vehicles without polluting the environment. We are looking if the government will be incentivizing vehicle owners to scrap their end-of-life vehicles. Unless the government comes down with firm policies that will ensure strict adherence to the CPCB guidelines, the initiative is bound to fail.

Q. How do you plan to scale up the business? What potential does the Indian market offer?

A. After setting up our first unit in Delhi, we will be setting up 4 more recycling units across the country in the next year. Indian market has a huge potential. According to a government report, there are about 0.7 million cars and 0.45 million trucks and buses that reached their end-of-life in 2015. The number of end-of-life vehicles will keep increasing as the Indian automobile market grew at a rapid pace post 2000. By 2025, 2.8 million cars and 1.2 million trucks and buses are expected to reach their end-of-life – a potential USD 4-5 billion market. This, however, is totally dependent on the government's will to implement the policies. Unless the guidelines are strictly implemented, the initiative will not be a success. We will wait and watch before we proceed further.

Q. India imports around 6 mnt of scrap, do you think it can be replaced by domestic generation of scrap through vehicle recycling?

A. India is the world's second-largest importer of scrap steel, behind Turkey, importing around 6 million tonnes a year. By 2020, these imports are expected to double. We want to change India from being a scrap importer to a scrap generating nation. Recycling the end-of-life cars, trucks and buses (based on 2015 numbers) will contribute about 2.5 mnt of scrap. Add to it the 2-wheelers and 3-wheelers, which are huge in numbers, we can substitute the scrap imports by domestic production. By 2025, we will be able to generate 7.5 mnt of scrap just by recycling end-of-life cars, trucks and buses. It will help us reduce our dependency on imported scrap.

Q. How can the unorganized recycling sectors such as Mayapuri be brought into play?

A. There are many recycling sectors in India other than Mayapuri, like Kurla in Mumbai, Pudupet in Chennai and so on. There are a lot of traders & dealers involved in this unorganized recycling sector. A policy can be a success only if it is implemented and monitored effectively by government agencies.

The government has to make sure that while the unorganized sector recycles vehicles, they adhere to the rules like de-registering the vehicles at the RTO, following practices that do not pollute the environment. For example, the current practice in this sector to dispose tyres is to burn them and obtain oil, which has other uses. This process is extremely harmful to the environment. The government has to monitor the unorganized sector to make sure the policy is a success. But on the other hand, a big infrastructure exists for distribution of spare parts which can be leveraged by the new recyclers to ensure that it is a win-win situation for both the markets and benefits the country as well.

Q. Will there be collaborations with private auto collectors for procurement of feed?

A. We are looking at various channels for procuring our feedstock like insurance agencies, transport companies, fleet owners, OEMs, etc. There can be collaborations with private auto collectors and agents.

Q. What is the point of reference of the technology? Where will the shredding equipment be sourced from?

A. We are benchmarking ourselves against recycling plants abroad be it US, Europe or Japan. Unfortunately, there are no shredding equipment manufacturers in India. We are in contact with manufacturers across the globe and discussions are going on in selecting the best equipment for our requirement. As the investment is substantial, we are ensuring that we get the best technology for shredding. A little compromise could be detrimental to the success of the project as the margins are very less.

Source: Steel 360

Is CIL's 1 Billion Tonne Target Attainable?

Coal India Limited (CIL), a Maharatna undertaking of the Government of India, has raised its FY18 production target to 660 mnt and expects to achieve its FY17 target of 575 mnt. The coal ministry is keen to achieve 1.5 billion tonne (bnt) coal production by 2020, despite the Central Electricity Authority (CEA) report suggesting that new plants based on non-renewable fuel source are not required in the country. The government is aiming to achieve the set target through 1 bnt coal production by CIL and the remaining 500 mnt by private sectors.

Amid this, off-take has not been able to pick up, casting doubts on the said target. To know more on this, Steel 360 spoke with Mr Partha S Bhattacharya, Ex-CMD, CIL. Following are the excerpts.

Q. India has embarked upon an ambitious coal production target of 1 bnt by FY20. What is your view on this production target?

A. The ambitious target of 1 bnt in 2020 was set for CIL in 2014-15. For the country as a whole the target set was 1.5 bnt. CIL produced 494 mnt in 2015. To achieve 1 bnt in 2020, CIL needed to grow at a CAGR of 15%. It achieved a growth of 9% in 2016, which, although better than all its previous records, pushed the asking rate further to 17% during the residual period. In 2017, CIL has been lagging behind the target due to lower off-take. Even if CIL manages to push up production in line with target for the residual period till March 2017, it can expect to produce around 570 mnt. This will push the asking rate further beyond CAGR of 20% during the residual 3 years till 2020, which is clearly unachievable.

In my opinion, 1 billion tonne coal production target by 2020 was neither feasible nor necessary. Such unduly lofty targets can only cause otherwise avoidable frustration and de-motivation for the team. The growth in the remaining segment of production, mainly from

captive mines, is even more dismal. The thrust of the auction process focusing only on the monetary gains led to submission of unrealistic bids in many cases that became even more unrealistic with drop in imported coal prices. As a result, production from these mines suffered badly.

Q. The supply of coking coal is inadequate in the country, whereas demand is rising form the country's steelmakers. Is there any way for India to lower coking coal imports?

A. Coking coal import is likely to rise if steel production through BF route grows. Prime coking coal deposits available only in Jharia Coalfields is mostly on fire. It is only a time bound implementation of Jharia Action Plan (JAP) that can unlock deposits of 1.5 bnt prime coking coal in a period of 10 years or so with consequential reduction in import. At USD 300/mt, the value at stake is of the order of USD 450 billion. The implementation of JAP is estimated to cost only 0.5% of this value. Hence it deserves urgent attention of all stakeholders.

Q. Volatility in coal prices in overseas markets often tends to render imported coal cheaper than the domestic coal. With that in view, do you see a market linked price mechanism will help demand for domestic coal to grow?

A. Domestic coal price compared in terms of energy units (INR/Kcal/kg) has been consistently cheaper than imported coal. All exceptions to this are essentially aberrations that must be corrected as and when detected.

In Feb 2011, CIL increased the price of higher grade coal to align with imported coal prices (IPP). For coal prices linked to IPP, there was a need to review the parity periodically and adjust the price of such coal at frequent intervals. This was perhaps not done. As a result, with softening of imported coal price, the domestic price of higher grades fell out of step with IPP. The lesson learnt is simple.

CIL must create an index of IPP for higher grade coal and reset the price of higher grades on a quarterly or half yearly basis linked to movements in the average value of this index during the reset period.

Q. India is seeing gradual prominence of renewable energy, like solar. Will it lower demand for coal in the country in the long term?

A. The thrust on solar power in particular and renewable in general will eventually have its toll on coal consumption. Based on pure economics, it is unlikely to happen soon as the variable cost of coal based power is likely to remain most affordable for quite some time and the capacity utilization of coal based power generation (PLF) have plunged to below 60% from around 80% a decade ago. Pushing the PLF up to 80% will provide additional power of 300 BU (billion units) at a low cost of below INR 2/unit. Besides, this will push up the coal demand by 200 mnt with a corresponding contribution of INR 80 billion to the clean environment fund. It is also well within the Indian commitment at COP21 of reducing CO2 emission intensity of GDP by 33% between 2005 and 2030.

Q. Low quality has always been a cause of concern for Indian coal. There have been initiatives for setting up more coal washeries in the country, aimed at improving the coal quality. Do you see any possibility of India gaining export markets like Nepal and Sri Lanka after the coal washeries improve coal quality?

A. The low quality of Indian coal has been a subject of intense deliberation between coal producers, consumers and other stakeholders. The average quality of Indian coal is intrinsically low with ash being as high as 40%. Further, except for coal produced in underground mines and by Surface Miners in opencast mines, the production process is unlikely to yield coal as per declared grade. It is only by washing that quality can be assured within a limit of tolerance.

However, washing will entail additional cost, which the consumer must be ready to bear. This is where the problem begins. The consumer comparing price of coal in INR/Kcal/kg between washed and unwashed varieties ends

up finding the unwashed variety cheaper. Also, the boilers are designed to burn low grade high ash coal. This leads to reluctance in accepting washed coal. Unless, the rather intangible benefits of using washed coal in terms of reducing downtime besides the lower cost of ash handling/disposal etc are worked out in depth, it may be difficult to create a buy in for washed coal. The other option of CIL deciding to sell coal only in washed form within a time bound framework may succeed provided the price of washed coal remains at or below the IPP consistently.

Source: Steel 360

Indian Steel Industry – A Panoramic Outlook

In 2017-18, India's steel production is poised to grow further. This will be backed by an expected revival in consumption triggered by a huge infrastructure allocation in the union budget of the government. The draft National Steel Policy 2017, released by the government, also aims to increase steel production. Thus, both production and consumption of steel is expected to remain buoyant in the coming years. In a broad based conversation with Steel 360, Mr. Sushim Banerjee, Director General of Institute for Steel Development and Growth (INSDAG), spoke about India's steel consumption, product quality, technology, special steel and much more. Excerpts follow.

Q. India's steel use per capita at present is a little over 60 kg. In what ways can we increase steel consumption?

A. India's per capita consumption at 61 kg in 2015 is much lower compared to the world average of 208 kg and Chinese average per capita consumption of 489 kg. There are a number of ways in which the country can increase its per capita steel consumption. The investment that will be taking place in the infrastructure and construction sector needs to be steel intensive as this sector accounts for nearly 60-62% of the total steel consumption in the country. We need to promote more steel use in the real estate, affordable housing, smart cities, roads & bridges, ROBs, urban infrastructure like flyovers, commercial complexes, pipeline construction, etc.

The auto sector which consumes around 10% of the total steel consumption is experiencing a higher growth rate than other sectors. It is likely to consume more steel (primarily high value items) as many global players are setting up manufacturing facilities in India to meet the domestic demand as well as exports. The substantial expansion undertaken by railways including metro railway would lead to higher steel consumption in terms of head hardened rails, steel wagons & coaches and steel based platforms.

Q. Construction and infrastructure sectors are the biggest users of steel. What technological advancements have been seen in these sectors in the past few years that have enhanced steel use?

A. In the construction and infrastructure sector, the use of light gauge high strength steel is much preferred. It reduced the weight of the structure and enhances the load bearing capabilities of the structures. The use of stainless steel in building and construction sector is rising. All the major airports including the emerging construction of minor airports would use higher grades and profiles, tubular structures, hollow sections and stainless steel.

Q. India is targeting production of 300 million tonne of steel by 2030-31. Is demand expected to grow to that level by this time?

A. The Government is now targeting 300 million tonnes of crude steel capacity in the country by 2030-31 as mentioned in the draft National Policy 2017. From the current capacity of 122 mnt, this envisages an annual average growth rate of 6.6%. The finished steel corresponding to 300 mnt of crude steel comes to 243 mnt assuming 90% yield and 90% capacity utilization. From the current level of 85 mnt of finished steel consumption, this implies an annual average growth of 7.8% between now and 2030.

Q. BIS in steel is being debated by the medium scale manufacturers due to use of sponge iron. Can technology enhancements be made available to improve quality?

A. BIS specified Quality Order issued by Ministry of Steel is a regulatory requirement. More than this, the quality norms specify the preparedness of Indian Steel industry to cater to the quality needs of the end user segment. It is a fact that small and medium enterprises (SMEs) in steel sector that are based on sponge iron route of steel making are facing problem of more phosphorous content in the finished product. The quality of sponge iron available in the country also falls short of the requirements. Unless the SMEs in iron and steel sector set up secondary refining facilities and upgrade the furnace operation in their premises, it would be difficult for them to meet the quality needs as per BIS norms. UNDP has been conducting furnace up gradation program and a number of units have also come forward to take this help. There is a need to broad base UNDP program, make it more cost effective so that SMEs in the secondary steel sector can get benefit out of this program to improve the quality of finished products.

Q. Will there is a shift in raw materials use in steel making in coming years? How will scrap use in steel making play out?

A. BF/BOF steel making in India uses coking coal, iron ore and a little amount of scrap. However, EAF/IF based routes of steel making use more of sponge iron and less of scrap. This is due to the local availability of sponge iron and comparatively high price of scrap due to limited availability. More use of scrap in the charge-mix would necessarily improve the quality of the end product. It is, however, envisaged that a higher generation of scrap from automobile and railways may be a possibility after the new guidelines of vehicle life and conformation to energy efficient processes are implemented in the country.

Q. Moving on from manual operations, the Indian scrap recycling industry is looking forward to setting up mechanized automobile shredding units. Could you please elaborate on the auto recyclers and their mechanics?

A. Mechanized automobile shredding units have already emerged in India and with the auto production going up to meet the growing domestic demand and also export demand, it is expected that more and more auto recyclers would emerge on the scene. The auto recycling units are employing mechanized operations in the country abroad to salvage maximum out of the scrapped vehicle. This automation is welcome in the Indian auto recycling operation. This will also facilitate seamless availability of scrap for steel making.

Q. How can India equip itself to utilize its low grade iron ore?

A. The availability of low grade iron ore (less than 58% Fe) may solve the iron ore availability issue provided the beneficiation plant for the purpose is utilized fully to upgrade this quality of the ore. It is a regular sight that major steel plants in the country are having huge reserve of low grade iron ore fines at their plants which they find difficult to utilize in the blast furnace for want of beneficiation facilities. In China, the <40% grade material (Fe content) is also getting utilized by steel plants after beneficiation. More and more beneficiation facilities in the mining states of Odisha, Karnataka and Goa must be set up in order to utilize the low grade iron ore which is otherwise getting wasted.

Q. What is India's advancement towards special steel?

A. A number of steel producer who have undertaken expansion are setting up facilities for special grade steel. Indian consumers are now exposed to special steel use due to import liberalization. This has come up as a fresh challenge for the Indian steel producers to cater to the specific needs of automobile sector, construction and infrastructure, defence procurement, civil aviation and nuclear & power requirements. Indian dependence on imported CRGO and special grade CRNO must be diminished by setting up equivalent facilities in the domestic market.

Indian major steel producers are thrusting special steel production by increasing its share to more than 40% in their total steel production. The auto sector requirements of IF steel, Bake hardening and Dual Phase steel are being gradually catered to by the domestic players.

Source: Steel 360

Brownfield growth key to Indian steel target of 300 mt

India's top steelmakers – SAIL, JSW Steel and Tata Steel – have added capacities totalling 16.7 million tonnes (mt) in the last decade, 21 percent of the country's capacity addition during the period, by sweating existing land assets.

If 91,000 acres is required for India to achieve the steel capacity of 300 mt, factoring in the greenfield route, it might be prudent for the industry to consider brownfield. Much of the growth for these companies, going forward also, would come from brownfield expansion. Greenfield investments occur when a company begins a new venture by constructing new facilities, while in the case of brownfield investments, a company or government purchases an existing facility to begin new production.

JSW Steel has added eight million tonnes in seven years, Tata Steel about 3.2 mt and public sector major steel Authority of India limited (SAIL), 5.5 mt. Tata Steel, however, has already secured environment clearance for another one-million-tonne expansion at Jamshedpur, which would take the total capacity to 11 mt. Jayant Acharya, director-commerce and marketing, JSW Steel, said the capacity at the company's Vijaynagar plant, in Karnataka, was now 12 mt and it can be scaled up to 16 or 20 mt. JSW has set a target of achieving the capacity of 40 mt by 2025. "The next 10 mt will come from Vijaynagar and Dolvi plants. Another 20-30 mt will be either greenfield or could be mostly acquisitions," elaborated Acharya.

Tata Steel has just set up a Greenfield plant at Kalinganagar, Odisha. The first phase capacity would be three million tonnes. Peeyush Gupta, vice-president – steel market and sales, Tata Steel, said the Kalinganagar ramp-up has been better than envisaged. "Increased volumes from Kalinganagar has helped Tata Steel," he said.

In the second phase, Tata Steel could take the capacity at Kalinganagar to five million tonnes and in future, it is possible to scale it up to 16 mt. Tata Steel's capacity across Jamshedpur and Kalinganagar is 13 mt.

SAIL has increased capacity over the past decade by about 5.5 mt. It is in the middle of another growth phase and by 2018-19 the capacity would go up to 22 mt, from the current level of 19 mt. All through the brownfield route. A longer term goal is to ramp up capacity to 50 mt.

Brownfield expansion has its advantages. According to Indian Steel Association Secretary General, Sanak Mishra, 60 percent of the capacity addition in the last decade has been through the brownfield route.

Apart from easing the land issue, the cost structure in brownfield is typically lower and approvals are faster. Yet, brownfield is unlikely to take India to its 300 mt goal by 2030.

"Brownfield will have its limitations. So, while greenfield may have a lower ratio, larger companies will ultimately have to fall back on greenfield. Also, land for brownfield may have to be acquired additionally by many. So, land at competitive cost will remain a key criterion. 300 mt is a difficult task with environmental, investment cost and other issues," an industry representative said.

On average, the rate of creation since 1991 has been four million tonnes per year. To create 180 mt in 13 years may be trying. The current installed capacity is 122 mt.

Source: Business Standard

Duty Cushion to Help Indian Aluminium Makers Take on Global Competition

Resilient LME aluminium prices have brought about of relief to the stressed aluminium makers in India who have been constantly battling unhindered cheaper supplies from China and the Middle East. Aluminium hovering around USD 1,800 per tonne has buoyed spirits for the domestic producers who can now bet on ramping up their primary smelting capacities. Vedanta has already gone for a disciplined expansion of capacity of its smelters at Jharsuguda (Odisha) and the Balco unit located at Korba (Chhattisgarh), and the result has shown up in the company posting 23% growth in aluminium production in this fiscal at the end of December.

National Aluminium Company (Nalco) too is going for brown field capacity expansion of its old smelter at Angul. It is planning a new smelter at Odisha's Kamakhyanagar, committing an investment of INR 120 billion. The other key player in aluminium space - Aditya Birla owned Hindalco Industries has reported robust numbers from its aluminium operations in the July-September quarter - revenue of INR 49.3 billion with a 192% spike in EBITDA y-o-y.

But, the growing concern for the aluminium producers is Chinese capacity restarting to gather steam with the sharp recovery in LME prices. The aluminium demand growth in China is upwards of 7%, driven by the stimulus in construction sector and tax incentives in automobile sector. Together with the stimulus, power subsidies enjoyed by the Chinese smelters have put them on a strong footing with respect to production cost. On the cost curve, most smelters in the Middle East are also on the lowest quartile powered by ample natural gas availability and lesser logistics costs. Price of aluminium manufacturing in these regions is in the band of USD 1,050-1,200 a tonne compared to Indian makers struggling to contain costs in the range of USD 1,450-1,550/mt.

The inherent cost advantage of aluminium making in China and the Middle East has led to rampant exports of unwrought aluminium and semis to India where demand is on a strong wicket. Indian producers frustrated with the deluge of imports have called it dumping and raised the chorus for a duty cushion on the lines of what is meted out to their cousins in the steel industry. The argument is substantiated by statistics - imported steel products meet up to 15% of domestic consumption; in case of aluminium, the share is adequately higher at about 50% forcing domestic companies to down the shutters on half of their design capacities.

The Past & Present of Aluminium

In 2014, India imported 0.84 mnt of aluminium scrap valued at USD 1.5 billion. In 2015, the figure moved up to 0.88 mnt and at the end of 2016, scrap imports are viewed at 0.92 mnt. Saudi Arabia and UAE are the top aluminium scrap exporters to India with a share of 25%. The Gulf nations are followed by Netherlands and Australia.

In the run up to the budget, Indian aluminium producers have upped the ante for imposition of a Minimum Import Price (MIP) to checkmate imports. Another key concern of domestic aluminium makers is that the import duty on some key ingredients used for its manufacturing is higher than the primary metal itself. While primary aluminium is taxed at 5%, caustic soda and aluminium fluoride attract a duty of 7.5%.

Coal-tar pitch comes with an import duty of 5%. Together, alumina, coal-tar pitch and aluminium fluoride have a 44% share in aluminium production cost. Doing away with the inverted duty structure can help save costs up to USD 40 million a year, say aluminium makers. They point out that some of the top aluminium producing countries and regions such as China, Brazil, the US and European Union does not have the concept of an inverted duty. The logistics cost for aluminium making in the country is 20% of the metal production cost compared with 9% in West Asia.

What has seemingly held back the government from announcing duty cushions for the aluminium industry is the opposition from scrap makers. Since 56% for all aluminium imported is made up by scrap, finalizing import d y structure

would be a tough nut to crack. A prudent step here could be to go for segregation of imported products and then decide on the duty levies.

Alongside these duty protectionist measures, the Indian government can think of changing the railway freight classification for alumina. Despite being an intermediate product, alumina is placed under the category of metals and attracts a higher freight. A change in classification is expected to prune the steep logistics costs in the aluminium value chain in the country. Logistics costs account for 20% of aluminium making cost compared with only 9% in the Middle East.

The Future of Aluminium

Armed with the government props and cost optimization measures, Indian producers can take on their global counterparts. Whilst scaling down cost of primary aluminium can ensure raw material availability for secondary producers at low prices and hence, scuttle imports, focus on building a value chain of downstream products for export markets can strengthen the global footprint for the domestic players.

Aluminium demand in the country is poised to log CAGR (compounded annual growth rate) of 10% in the next five years, bettering the global run rate of 6% y-o-y growth. Also, aluminium is making its way into barely 300 applications in India compared with over 3,000 plus applications in developed countries are expected to boost its usage. Building & construction, automotive, packaging, railways and defence remain the key sectors to drive aluminium consumption.

Source: Steel 360

New technologies could slash the cost of steel production

ALTHOUGH he is best known for developing a way to mass-produce steel, Henry Bessemer was a prolific British inventor. In the 1850s in Sheffield his converters blasted air through molten iron to burn away impurities, making steel the material of the industrial revolution. But Bessemer knew he could do better, and in 1865 he filed a patent to cast strips of steel directly, rather than as large ingots which then had to be expensively reheated and shaped by giant rolling machines. Bessemer's idea was to pour molten steel in between two counter-rotating water-cooled rollers which, like a mangle, would squeeze the metal into a sheet. It was an elegant idea that, by dint of having fewer steps, would save time and money. Yet it was tricky to pull off. Efforts to commercialise the process were abandoned.

Until now. Advances in production technology and materials science, particularly for new types of high-tech steel, mean that Bessemer's "twin-roll" idea is being taken up successfully. An alternative system that casts liquid steel directly onto a single horizontally moving belt is also being tried. Both techniques could cut energy consumption—one of the biggest costs in steelmaking—by around 80%. Other savings in operating and capital costs are also possible. If these new processes prove themselves, steelmaking could once again be transformed.

On a roll

Steelmakers are cautious about new technologies. It was not until the 1960s that the industry ventured from casting ingots to building giant integrated plants for the continuous casting of steel. This involves pouring molten steel through a bottomless mould which, being cooled by water, partially solidifies it. The steel is then drawn down through a series of rolls to form sheet steel or other shapes required by factories and construction companies. Most of the 1.6bn tonnes of steel produced annually worldwide is now made this way.

Continuous casting, however, still takes a lot of rolling to reduce slabs cast 80-120mm thick to the 1-2mm required by many producers, such as carmakers. Casting any thinner causes quality problems and flaws in the steel's microstructure. One reason for that is the bottomless mould has to be oscillated to ensure molten steel does not stick to its sides. The new techniques of twin-roll and single belt-casting are, in effect, "moving moulds"—the rollers and the belt move with the steel as it cools and solidifies. This allows direct casting to a thickness of just a few millimetres, requiring only minimal rolling thereafter.

The new techniques are particularly good for making higher-value, specialist steels, says Claire Davis, a steel expert with the Warwick Manufacturing Group at the University of Warwick in Britain. Ms Davis and her team are developing new high-tech steels especially for belt casting, including advanced low-density steels that are stronger, lighter and more flexible than conventional steel.

A twin-roll process, much as Bessemer conceived, is already employed by Nucor, a giant American steelmaker. Called Castrip, it is producing steel in two of its plants. A big advantage of twin-roll and belt-casting is compactness. Nucor reckons a Castrip plant needs only 20 hectares (50 acres) and provides a good investment return from the production of only 500,000 tonnes of steel a year. A conventional steel plant, by comparison, may sprawl over 2,000 hectares and need to produce some 4m tonnes a year to turn a profit.

Other firms are licensing Castrip as well. Shagang, a large Chinese steelmaker, is replacing a less energy-efficient plant with the new technology. The numbers look compelling enough to encourage a startup, too: Albion Steel is talking to investors about building a £300m ($370m) Castrip plant in Britain. The plant would be "fed" by a low-cost mini-mill that melts scrap and produces steel for galvanising, mostly for the construction industry, says Tony Pedder, one of Albion's founders. Mr Pedder is the chairman of Sheffield Forgemasters, an engineering company, and a former boss of British Steel (which later became Corus). Britain has a surplus of scrap but imports galvanised steel. The plant would employ only about 250 people; traditional integrated operations need a thousand or so. "We believe in the technology," says Mr Pedder. "In our view it is past the point of being experimental."

Salzgitter, a German steelmaker, opened the first commercial single belt-caster at Peine, near Hanover, in 2012. It began by making construction steel but has progressed to more specialist steels. The trick is to keep the water-cooled belt perfectly flat, says Roderick Guthrie of McGill University in Canada, one of the pioneers of the technology. Salzgitter uses a vacuum under the belt to do that, whereas Mr Guthrie employs powerful magnets to the same effect on a pilot plant at the university. His research group is working with a number of companies, including a big carmaker. Whereas twin-roll casting is constrained by practical limitations, such as the size of the rollers, horizontal single belt-casting is less so, argues Mr Guthrie.

The techniques may end up being complementary. Their spatial efficiency and low cost would also allow production to be located closer to customers. Mr Guthrie thinks it is not inconceivable for such a plant to be integrated within a car factory. "If we can make the quality as good as the big slab-casting plants, it would change the face of the steel industry," he says. New technologies might just blast a dose of fresh air through an old industry, much as Bessemer's converter did 150 years ago.

Source: Metaljunction

Steel Ministry asks its PSUs to share resources, interact more

The Steel Ministry has directed its PSUs like SAIL and NMDC to work as a team and share resources among them to cut costs after finding that the top management of these PSBs hardly interacted with one another. The message to steel PSUs has been delivered barely a fortnight after Steel Minister Birender Singh expressed displeasure over their poor show and minced no words by saying they should perform or perish as complacency would not be tolerated anymore. "I was surprised to see that the top management of these PSUs rarely interacted with the other PSUs. There are areas like storage space for material where under-utilisation can be overcome if they share resources," the Steel Minister told PTI. The minister has directed to constitute a high-level coordination committee comprising CMDs and top ministry officials for pooling and sharing of resources among PSUs. "If the PSUs combine their requirement of stores and spares and procure them collectively, they will definitely have better bargaining power. More interaction and coordination

would mean they will not have to reinvent the wheel every time they face a problem. They can learn from each other," the minister said. "After all, they are all part of a big team and that is how they must work," he said adding, "I am confident that this committee would result in cost savings and better productivity." In a recent meeting of top management of steel PSUs, Singh had asked the PSUs to iron out their differences. "To the outside world, you should be seen as a cohesive team, and not as a blame-game team. You cannot afford to work in separate compartments and point fingers at other departments. As a manager, it is your duty to get things done. You need to set high standards of professionalism and work culture," he had said. Singh said pooling of resources among PSUs will lead to aggregation of demand and economies of scale and formation a coordination committee would minimise areas of overlap, duplication and communication gaps and help in harnessing the potential for financial savings. In today's fast-paced business world, it is essential to work together to retain the competitive edge, he said. The objective of the committee is to derive benefits of economies of scale by pooling of resources, as also sharing of best practices. Terms of Reference of the committee included common procurement portal using MSTC Metal Mandi, common marketing and distribution/storage facilities, common research and development, employee welfare issues and payment settlement mechanism. Singh has issued instructions for immediate action to be taken on formalising a mechanism of coordination among PSUs, which include industry leaders like SAIL, NMDC, RINL, MOIL, MSTC and MECON.

Source: Metaljunction

Steel production likely to remain higher in 2017-18: Report

The country's steel production and consumption is likely to remain higher in 2017-18 from 89.79 MT of crude steel during 201516 backed by an increase in infrastructure allocation in the Budget, a report said. In 2017-18, steel production is expected to remain higher. This will be backed by an expected revival in consumption. An increase in infrastructure allocation by the government in the Union Budget 2017-18 is expected to drive the pace of construction and infrastructure in the country, Care Ratings said in its report here.

The National Steel Policy 2017, released by the government, also aims to increase steel production. Thus, both production and consumption of steel is expected to remain buoyant in 2017-18, the report said. The country has gained the position of third largest crude steel producer in the world and is largely focusing on increasing production. However, focus at the same time should be on increasing consumption of steel and reducing the dependence on cheap imports. The government had supported the industry in 2016 by providing protectionist measures. But the protection cannot be expected to last forever and the industry has to gear itself to face competition in the normal course, Care Ratings said.

In 2014-15, India surpassed the US to become the third largest steel producer in the world. India continued with this position in 2015-16 as well. The country produced 88.97 million tonnes and 89.79 million tonnes of crude steel during 2014-15 and 2015-16, respectively. Steel production in the world is dominated by China followed by Japan.

During 2015-16, crude steel output of China stood at 789.04 MT and for Japan it stood at 104.23 MT. In 2016-17, production of these steel producing countries (excluding India) remained subdued even during April-December 2016 on a y-o-y basis. While crude steel output in China, Japan and Russia grew by mere 0.53 per cent, output in US remained flat and that in South Korea declined by 1.3 per cent.

In contrast, crude steel production in India rose by 8.8 per cent to 72.35 MT during this period. This was on account of higher output by the major Indian steel companies. The imposition of Minimum Import Price (MIP) encouraged the producers to increase their output. Care Ratings said that the consumption of steel, on the other hand, grew by just 3.2 per cent to 73.75 MT during April-December 2016. Post

demonetization, steel consumption is expected to remain under pressure in the coming few months to a certain extent. This is because it is likely that the demand for steel from the user industries like construction, real estate will take some time to strengthen. However, government push towards infrastructure will compensate for this reduction in demand, it added.

Source: Metaljunction

NSP to Ensure Key Ingredients Availability

Contending that the steel sector is at a disadvantageous position due to limited availability of various essential raw materials like coking coal domestically, the steel ministry has proposed a series of steps in the draft National Steel Policy (NSP) to ensure that steelmakers have easier access of the key ingredients.

Also, acknowledging the fact that availability of raw materials at competitive rates is imperative for the growth of the steel industry, Birender Singh-led ministry wants steel units to come up along the coastline to import scarce raw materials and export finished steel products. The ministry is also facilitating the industry, through bilateral talks, to acquire raw material assets overseas either individually or in partnership.

Facing shortage of coking coal, both in terms of quality and quantity, Indian steelmakers need to import more than 70% of their requirement. In the NSP, which also proposes to raise India's steel-making capacity to 300 mnt from 122 mnt now, the steel ministry proposes that pig iron producers and blast furnace operators will get at least half of their requirement from domestic sources by 2030-31. Steelmakers bore substantially increased operating costs as coking coal became costlier in recent times.

The ministry also proposes to hold deliberations with its coal counterpart for persuading Coal India to create special coal linkage e-auction window for steel players, to ensure supply of coal to steel sector. It promises to facilitate periodic auction of coking coal blocks as it will encourage the steel industry to develop its own dedicated coking coal mines. Efforts will also be made to expeditiously implement Jharia Action Plan to improve the domestic availability of coking coal.

In order to ensure adequate availability of iron ore and other minerals, the steel ministry plans to initiate suitable efforts in conjunction with mines ministry to facilitate auction of mineral blocks in a regular manner. It also wants to promote utilization of low-grade fines lying at mine sites of captive iron ore miners and is also open to the idea of required regulatory changes. Beneficiation and agglomeration industries would also be strengthened through sufficient support.

In order to reduce the cost of transportation and decongest transport infrastructure, particularly in the mining areas, the ministry would promote transportation of iron ore fines to pelletization units through slurry pipelines & conveyors and proposes to pursue timely completion of on-going slurry pipeline projects and their further expansion in the coming years. In conjunction with the ministry of mines, it promises to facilitate creation of a uniform country-wide sales platform for bringing transparency and predictability in the process of iron ore sale.

Sensing that there is a pressing need to utilize low-grade iron ores including slimes and dump fines which are stockpiled at different mine heads, the ministry intends to encourage optimal use of existing low-grade iron ore resources with the aim of conserving high grade ores. Impetus will be given to pellet industry as it will help in mineral conservation by acting as direct feed-stock in blast furnace in place of high grade iron ore.

Given the future potential of gas based technology, in terms of upgradation of coal based DRI capacities in the MSME sector to gas-based route, the ministry admits that there is a need for captive gas-based power plants for the sector and the alternative of injecting natural gas in blast furnace to reduce dependence on imported metallurgical coal.

In case of gas-based steel plants which have been stranded due to lack of supply of natural gas from domestic sources, the ministry said it will evaluate restoration of domestic gas supply to steel sector in coordination with the ministry of petroleum and natural gas. Efforts will also

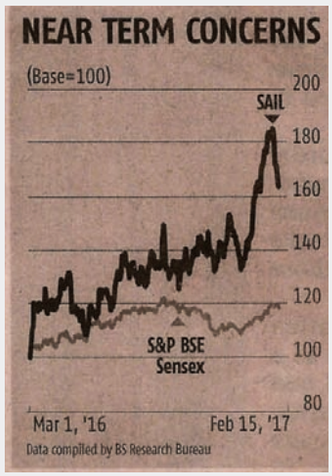
be made to remove the cascading effect of anomalies in the tax structure.

The steel ministry will also suitably facilitate increased explorations to raise resources of limestone, manganese and chromite ore in the country among others.

Source: Steel 360

SAIL REVIVAL HINGES ON COST TIGHTENING

Rising prices will help but significant savings needed to cover interest and depreciation, and to turn profitable.



Steel manufacturers have seen a sharp reversal in fortunes after the government implemented a minimum import price (MIP) for many products last February. This gave a respite from cheaper imports, boosting realisations and demand for companies.

Q3 SCORECARD

	Tata Steel	SAIL	JSW Steel	Jindal Steel
Net sales (₹ Crore)	**12,498**	**11,169**	**13,227**	**3,424**
Y-o-Y change (%)	39.6	26.8	83.5	22.5
PBIDT (₹ Crore)	**3,435**	**27**	**2,887**	**784**
Y-o-Y change (%)	109.9	LTP	LTP	84.9
Net profit (₹ crore)	**1,205**	**-795**	**819**	**-187**
Y-o-Y change (%)	303.8	Loss	LTP	loss

Financials for standalone/domestic operations of companies
PBIDT: profit before interest, depreciation and tax; LTP = Loss to profit
Loss = Loss in Q3FY2017 as well as the year ago quarter; Source: Capitaline
Compiled by BS Research Bureau

Steel Authority of India Ltd (SAIL), too, benefited and showed considerable improvement in profitability till the September quarter but could not sustain it in the December quarter. More dependent on domestic sales, it was impacted by the note ban as its volumes were hurt, while rising coals costs also took a toll. While analysts expect its operating performance to improve, they doubt whether it will be enough to enable the government-owned company to turn profitable.

Volume sales at 3.3 million tonnes were up 13.8 percent year-on-year but 8.3 percent lower than the 3.6 mt the previous quarter. Tata Steel saw volumes growing in the domestic business due to expansion at its Kalinganagar plant. JSW Steel compensated for decline in the India business with exports, and restricted the overall sales volume decline to five per sequentially. Even Jindal Steel & Power, much smaller than SAIL, saw volumes rise 3.7 percent sequentially, helped by exports; its profit got a boost from its focus on value-added products.

For SAIL, the decline in volumes was accompanied by increasing realisation, also true for peers. At Rs 34,237 a tonne, it increased nine percent sequentially and 11 percent year-on-year for SAIL. But, rising cost more than offset the pricing gains. Coal costs alone were up Rs 5,000 a tonne sequentially, leading to an Ebitda (earnings before interest, taxes, depreciation and amortisation) loss of Rs 43 crore, from a profit in the previous two quarters, despite net sales growing 26.4 percent from a year before in the December quarter. Sales were up marginally on a sequential basis.

This is in sharp contrast to peers. Tata Steel reported Ebitda per tonne of Rs 11,285 in the domestic/standalone business; for JSW Steel Rs 7,717, up nine percent sequentially. JSPL also saw steel segment earnings before interest and tax improve to Rs 870 a tonne.

Rising coal costs remain a concern, as full effects will be seen in the March quarter, say analysts. International coal prices, after rising from $80 a tonne a year before to a little more than $300 a tonne in November, have corrected to about $170 a tonne. If it stays at these levels, it will be a breather for all, particularly SAIL.

Rising realisations also bode well. SAIL also raised prices at the start of January. Analysts at Elara Capital say they expect SAIL to turn profitable at Ebitda level due to these, which will more than offset the rise in coking coal cost.

While operating profitability might rebound for SAIL, the challenge is whether it will be enough to take care of interest costs and

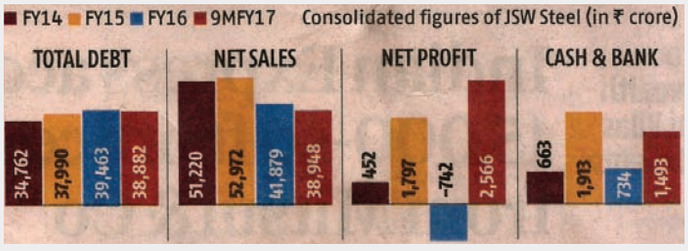
rising depreciation expense as the company commissions new capacities. Depreciation costs rose 26.3 percent over a year to Rs 670 crore in the December quarter and interest costs to Rs 611 crore. As a result, the company reported a net loss of Rs 795 crore in the quarter. Although lower than the loss of Rs 1,481crore in the year-ago period, this was Rs 568 crore in the September quarter. More, news reports suggest that the government will be slowly withdrawing MIP on the remaining products.

Analysts at Motilal Oswal Securities expect Ebitda per tonne to improve to Rs 40 and Rs 3,290 in FY18 and FY19, respectively, as against expectations of an Ebitda loss of Rs 177 in FY17, helped by improving volumes and higher steel prices. However, the burden of interest and depreciation would mean losses, they add. Thus, SAIL needs top do more to turn profitable at the net level, too.

Source: Business Standard

JSW consortium submits $1-billion bid for Italy's Ilva

Sajjan Jindal's JSW Steel, along with three consortium partners, including the owner of the Luxottica Group, has submitted a final bid for Italy's loss-making 10-million-tonne steel plant, Ilva. The JSW consortium will be pitted against the one led by ArcelorMittal and Italian steel-processing major Marcegaglia. The bid value is not known but is likely to be around$1 billion. The deadline, as of now, for submitting bids is March 4, which is when the Italian government is expected to take a decision.



According to the contours of the arrangement between the consortium partners, it is understood that JSW would hold around a 35 percent stake in the combined entity. The balance will be held by financial investor CDP, businessman Leonardo Del Vecchio and Italian steelmaker Arvedi. The net worth of Del Vecchio, founder and chairman of the Luxottica Group, owner of brands such as Ray-Ban and Oakley, is pegged at $17.9 billion. The operational management of the plant would, however, be with JSW, said sources close to the development. An email sent to JSW went unanswered. Ilva, which was rated one of the most polluting steel plants of Europe, was nationalised in 2015, temporarily, in the hope of finding a new owner.

The plant, in Taranto in southern Italy, employs more than 14,000 people, and had been under special administration since 2013, when its owners were accused of failing to prevent toxic emissions. According to reports, some of the environmental hazards caused by Ilva, allegedly, included the deaths of 386 local residents between 1998 and 2010 owing to exposure to toxic emissions.

Industry observers said the new owners of Ilva would, therefore, not only have to invest in turning around the plant but will also have to implement the environmental standards and regulations prevalent in the European Union.

Source: Business Standard

Steel demand likely to improve in coming months: Minister

Steel demand is expected to improve in coming months on the back of increased spending on infrastructure and long-term government policies, Steel Minister Chaudhary Birender Singh has said. "The steel demand has grown 3.3 percent during April -December 2016. This is expected to improve in the coming months, due to long-term government policies and increase in infrastructure spend," the minister told PTI. India has been a bright spot in global economy, he said, adding that World Steel Association has predicted the steel demand in India will grow at the rate of 5.7 percent in 2017. The government of India, he said, has provided extensive support to the domestic steel industry by way of various trade remedial measures in recent times, such as minimum import prices (MIP), anti-dumping and safeguard measures and quality control. "The current scenario in the steel sector is well known, and hence the

government will take all necessary measures as and when required to support the industry," the minister said. MIP, he said, was notified as an emergency measure as other trade remedial measures such as anti-dumping rules and safeguard rules are process oriented and are time consuming in terms of implementation and impact. "However, MIP was gradually phased out as and when suitable trade remedial measures were put in place," he added. As on date, 124 out of 173 tariff lines, initially notified as MIP, are covered under anti-dumping duties in addition to the safeguard duties on Hot Rolled Coils and Plates. MIP has also been withdrawn on February 4, he added.

Source: Metaljunction

MSMEs demand national steel policy facilitate steel at competitive prices to downstream producers

The Ministry of Steel, Government of India has recently issued the draft national steel Policy for public discussions. The policy talk about a vision to create a globally competitive steel industry and to create a self-sufficient steel industry that is technologically advanced, globally competitive and promotes inclusive growth. The policy also talks about development of globally competitive steel manufacturing capabilities. However, the realities are far way. Indian steel industry, particularly the large steel plants operate with nearly double costs than the global benchmarks and still produce only plain carbon steel for which there is a glut in the global market. No surprise that the industry is burdened with nearly one lakh crore non -performing loans and Government has to bring in anti – dumping duties, Minimum Import Price (MIP) etc. to protect it from cheaper import. The resultant effects are the down the line manufacturers' are out of the global market and the Indian consumers are paying at least 50% more the global price of steel.

Question is that how long the Government will keep on setting up and supporting such obsolete mammoths when steel are available freely and at cheaper price in the world market. Incidentally, the MSME producers of steel through electric furnace route are in a better position and remained cost effective through demand oriented production, lower per ton cost and making supplies in small lots as per customer requirements. So instead of creating steel making capacities in integrated plants Government should encourage capacities in the medium sector, who have high flexibility in modifying product mix and are cost competitive being next to the consumption centres. In fact such advantages of MSME steel producers have made them largest producers of Steel in India. While the policy talk about strong MSME sector and its entrepreneurial and innovative strengths there is nothing more for them in the policy. Government should come out with specific policy package for MSME steel producers, near the major consumption centres and provide soft loan to upgrade technology for making special steels for specific use. The advantages of Indian small steel producers in today's world economy are many – they need low investment, smaller parcel of land and provide larger employment per rupee than the large sector. Though India is 3rd largest producer of steel globally, as the policy says, it is still a net importer of stainless steel and alloy steel used in high-end applications. Today, the domestic stainless steel industry has a low capacity utilization of around 50%.

Source: Metaljunction

Government gives nod for sale of 3 SAIL plant

The government has approved an outright sale of state-owned Steel Authority of India's (SAIL) three special steel units, including Salem and Alloy Steel plants. In pursuance, SAIL has now sought advisors, including legal and merchant bankers, to carry out the strategic sale along with transfer of management control in the three steel plants – Alloy Steels Plant (ASP), Salem Steel Plant (SSP) and Visvesvaraya Iron and Steel Plant (VISP). "The government of India has in-principle decided for strategic disinvestment of ASP, SSP and VISP with transfer of management control," SAIL said in the Request for Proposal for appointing advisors. The Maharatna public

sector under-taking is scouting for transaction advisor from professional consulting firms, investment bankers or financial institutions, to provide advisory services and manage the disinvestment process.

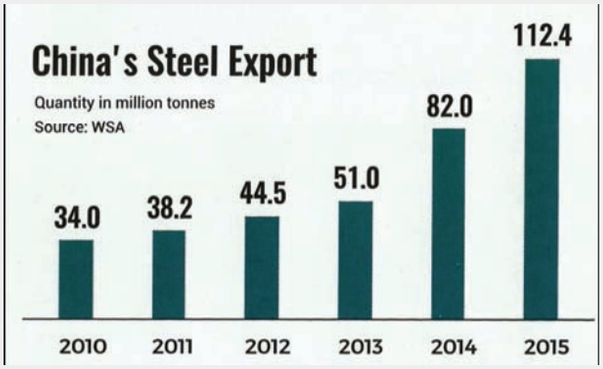
The transaction advisor will advise SAIL on the modalities and timing of the strategic disinvestment of the three steel plans and prepare a detailed operational scheme to successfully implement the process, indicating tentative timelines for each activity. The firm will also finalise the process of strategic sale as to whether it will be done through bidding or auction. And assist SAIL in fixing the range of the fair reserve price considering the valuation of the divesting plants. The reserve price will be based on valuation methods like discounted cash flow, relative valuation and asset-based valuation. Along with the report of asset value, it will highlight the pros and cons of adopting these methods of valuation. The strategic sale of these three units is likely to happen only in the next financial year beginning April. The government has budgeted to raise Rs 15,000 crore from strategic disinvestment in 2017-18.

Source: Business Standard

China Steel Exports Soar in 2015

China's steel industry has grown at an extraordinary rate over the past 15 years. This growth has taken place at a rate faster than the domestic and international demand. As a result, China's steel industry is actively and deliberately flooding the international market with over a 100 mnt of steel each year. For most of the last decade, China has maintained a trade surplus in steel products. Excess steel production has pushed up Chinese steel exports, which has adversely impacted steel markets worldwide. China accounts for half of global steel production but internal demand has slowed sharply along with economic growth, forcing it to look overseas. China's steel exports swelled 20% y-o-y in CY2015.

China's steel products exports increased for six straight years, reached an all time high of 112.4 mnt in 2015, according to the data compiled by the World Steel Association (WSA). China



indirectly exported additional 73 mnt of steel in the form of engineering items containing steel, as per the data released by the General Administration of Customs. According to the government-led agency China Metallurgical Planning and Research Institute, the country in 2015 produced about 804 mnt of crude steel, but only 664 mnt of steel products were consumed in the following year 2016. China's exports represented about 24% of all total steel exported globally in 2015. Brazil, Vietnam, Philippines, USA, Mexico, Chile, Spain, Turkey, Egypt, India etc are among the 26 countries importing over 1 mnt each and accounting for about 78% of China's steel exports in 2015.

The catalysts for China's rising steel exports

1. **Domestic Slowdown**

   The Chinese steel industry is characterized with an oversupply situation, primarily due to a slowing Chinese economy. Chinese steel production stood at 823 mnt in 2014. Steel production comfortably outstripped demand in 2014, which stood at 711 mnt. Weak domestic demand provided a sharp boost to Chinese steel exports.

2. **Currency Devaluation**

   A cheaper Yuan made Chinese exports less costly and competitive in the overseas markets. We could see increase in Chinese steel exports as China sought to increase overall exports to counter the domestic slowdown.

3. **Subsidy by the Chinese Government**

   According to WSA, China's demand for steel dropped 3.5% in 2015. This forced Chinese steelmakers to look outside the country for customers to buy all their extra steel. As a

result, steel exports in the year increased to 112 mnt. That's more than any other country's (expect Japan's) total production. It is said that their produced costs are also subsidized by the Chinese government, so they are covered even if they produce steel at a loss.

Scenario in 2017

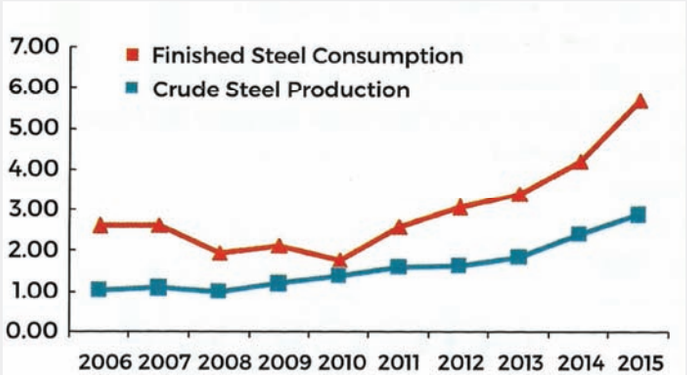
China's steel exports will remain high in 2017 due to flat consumption domestically and slow capacity rationalization, a recent report pointed out, forecasting exports at 100 mnt in 2017. International rating agency – Fitch expects Chinese apparent steel consumption to be about 700-705 mnt reflecting decelerating property growth, stable infrastructure investment growth, and a favourable outlook for Chinese automobile and appliance consumption.

On the other hand, capacity rationalization will remain a key theme of the sector, with a target of 14 to 27 mnt annually until 2020. As a result, exports should remain high in 2017 as Chinese producers continue to benefit from the Yuan's exchange rate and lower raw material prices, the report concludes.

Source: Steel 360

China's Steel Giant to run Pakistan Steel Mill

The Privatization Commission Board of Pakistan has approved a proposal to lease out Pakistan Steel Mill (PSM) for a period of 30 years to a private player under a revenue sharing arrangement. The state-owned facility which is spread over 19,000 acres with accumulated losses of over 1.56 billion dollar has not produced steel since June 2015. The board's chairman has said that some Chinese & Iranian steel companies have shown interest in taking over the plant; however there are also reports that China's steel giant Baosteel has initiated talks for the said lease.



Pakistan's major business houses have quoted that Chinese companies have evinced high interest in investing into Cement, Steel, Energy and Textile sectors which form the backbone of the country's economy. A couple of Chinese entrepreneurs have already snapped up two major deals – acquisition of Karachi Electricity Supply Corporation and 40 percent of Pakistan Stock Exchange. Visibly, these back-to-back events have their roots to the China-Pakistan Economic Corridor (CPEC) which was announced during the state visit of Chinese President Xi Jinping to Pakistan in April 2015.

The China-Pakistan Economic Corridor

The CPEC is a collection of projects currently under construction with estimated investment of USD 54 billion that are typically regarded as a part of China's ambitious One Belt, One Road (OBOR) initiative. Projects under the aegis of CPEC are intended to strengthen the Pakistani economy by the rapid overhaul and construction of major infrastructure projects, establishment of special economic zones, and an improved supply of electricity. Infrastructure projects under the CPEC plan will span the length and breadth of Pakistan, and will eventually link Pakistani seaports in Gwader and Karachi to China's north western autonomous region of Xinjiang via a vast network of highways and railways.

While a large segment of the industry audience views this as the much-needed push to propel steel demand and create jobs in Pakistan, there are some who are cautious whether these massive infrastructure projects proposed under the CPEC and OBOR will use steel that is made in Pakistan or is this more for using the steel produced by over-capacity hit China.

Pakistan's Steel Industry – an Overview

The World Steel Association (WSA) estimates Pakistan's total steel production in CY2016 at 3.6 million tonnes, approximately 23% increase over 2015 (2.9 mnt). Vietnam (20%) and Iran (11%)

are the only 2 other nations with double-digit growth in 2016. India's steel production grew by 7.4% during this period. WSA also reported last year that Pakistan consumed about 5.7 mnt of finished steel in 2015 mainly importing flat products (~2.5 mnt).Although, the Pakistan steel industry is largely fragmented with about 600 big and small players; some of the major manufacturers have grown significantly in the last 3 to 5 years to cater to strong infrastructure demand from large residential projects and the automotive sector. Prima-facie, considering the potential for infrastructure development in the country, steel demand for the next few years seems intact. Now, it has to been seen how Pakistan's free trade agreement with China to import finished steel at concessional rates will affect local steel mills and expansions.

Source: Steel 360

Steel industry needs to prepare for advancements in processing and manufacturing

The steel industry needs to be prepared for advancements in new processing and manufacturing technologies to meet requirements of original equipment manufacturers (OEMS) in automotive sector. In particular, with new regulations in safety and emissions, the automotive material mix is expected to significantly change towards increased adoption of higher strength and

corrosion resistant materials, T V Narendran, managing director Tata Steel India has said. For this, collaborative engagements between steel majors and downstream processors could be one of the ways to address these evolving needs, he said. Speaking at Metal 2017 organised by The Bengal Chamber of Commerce & Industry recently, Mr Narendran said growing requirements of

OEMs include, facilities for processing Advanced High Strength Steels (AHSS), Tailor welded blanks (TWB), and Tailor rolled blanks, Hot Stamping and Multimaterial welding techniques. Steel contributes to 6065 per cent of the total raw material content in the average Indian car. Currently automotive steel consumption in India is 910 per cent of the total demand which is around 83 million tonne. "Tata Steel has been a long term partner to the auto industry

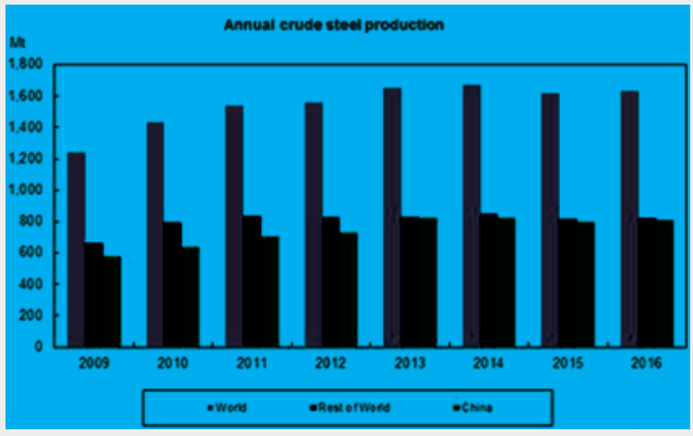
and has maintained a leadership position with a share of around 43 per cent followed by JSW and Essar," Mr Narendran said. Elaborating on the steps taken by Tata Steel to meet evolving needs of the auto industry, Mr Narendran said the company has invested in state of art in Continuous Annealing and Processing (CAPL) Line in joint venture with Nippon Steel to provide full finish exposed panels as well as AHSS steel. "Tata Steel's new plant at Kalinganagar will address AHSS and wider requirements in grades from wheels, commercial vehicles and passenger vehicles segments," he said. The company is also investing in setting up R&D and Product Application Research labs to seek cost down weight reduction (CDWR) solutions and technical support to auto customers and solve issues they face in their press/ weld or paint shops.

Source: Metaljunction

WSA - 2016 World Crude Steel Production

World crude steel output increases by 0.8% in 2016

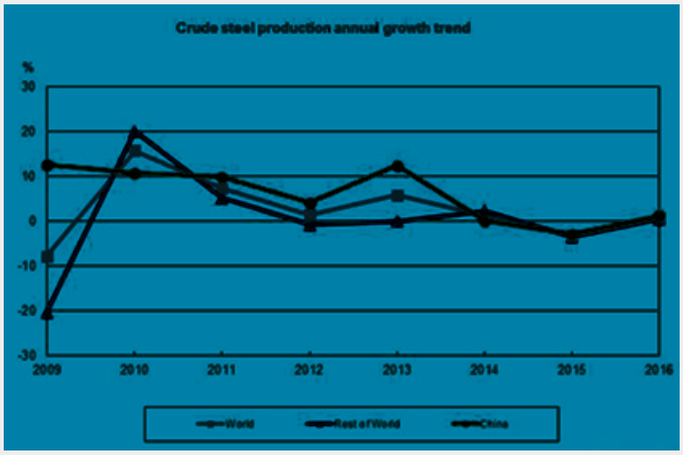
World crude steel production reached 1,628.5 million tonnes (Mt) for the year 2016, up by 0.8% compared to 2015. Crude steel production decreased in Europe, the Americas and Africa. Crude steel production increased in the CIS, the Middle East, Asia and Oceania.



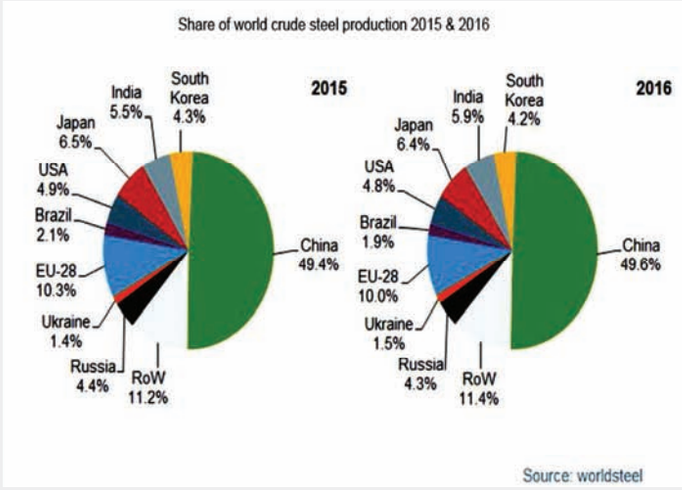
Annual production for Asia was 1,125.1 Mt

of crude steel in 2016, an increase of 1.6% compared to 2015. China's crude steel production in 2016 reached 808.4 Mt, up by 1.2% on 2015. China's share of world crude steel production increased from 49.4% in 2015 to 49.6% in 2016. Japan produced 104.8 Mt in 2016, down by -0.3% compared to 2015. India's crude steel production for 2016 was 95.6 Mt, up by 7.4% on 2015. South Korea produced 68.6 Mt of crude steel in 2016, a decrease of -1.6% compared to 2015.

In 2016, the EU (28) produced 162.3 Mt of crude steel, a decrease of -2.3% compared to 2015. Germany produced 42.1 Mt of crude steel in 2016, down by -1.4% over 2015. Italy produced 23.3 Mt in 2016, an increase of 6.0% over 2015. Spain produced 13.7 Mt of crude steel in 2016, a decrease of -0.8% compared to 2015.



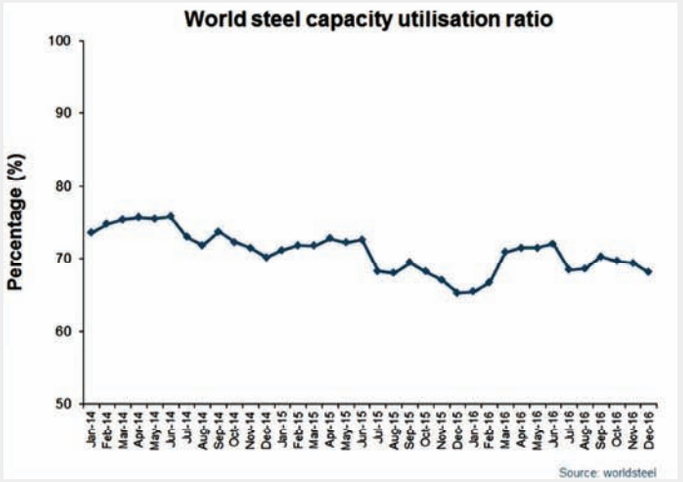
2016 crude steel production in North America was 111.0 Mt, the same amount as in 2015. The US produced 78.6 Mt of crude steel, down by -0.3% on 2015.



Top 10 steel-producing countries				
Rank	Country	2016 (Mt)	2015 (Mt)	%2016/2015
1	China	808.4	798.8	1.2
2	Japan	104.8	105.1	-0.3
3	India	95.6	89.0	7.4
4	United States	78.6	78.8	-0.3
5	Russia	70.8	70.9	-0.1
6	South Korea	68.6	69.7	-1.6
7	Germany	42.1	42.7	-1.4
8	Turkey	33.2	31.5	5.2
9	Brazil	30.2	33.3	-9.2
10	Ukraine	24.2	23.0	5.5

Source: worldstee

Crude steel production in the CIS was 102.4 Mt in 2016, 0.8% higher than in 2015. Russia produced 70.8 Mt of crude steel in 2016, down by -0.1% on 2015. Ukraine recorded an increase of 5.5% with a year-end figure of 24.2 Mt.



Annual crude steel production for South America was 39.2 Mt in 2016, a decrease of -10.6% on 2015. Brazil produced 30.2 Mt in 2016, down by -9.2% compared to 2015.

In December 2016, world crude steel production for the 66 countries reporting to the World Steel Association (worldsteel) was 134 Mt, an increase of 5.5% compared to December 2015. The crude steel capacity utilisation ratio of the 66 countries in December 2016 was 68.1%. This is 2.8 percentage points higher than December 2015. The average capacity utilisation in 2016 was 69.3% compared to 69.7% in 2015.

Source: www.worldsteel.org

JSW Steel sole bidder for Monnet Ispat

Sajjan Jindal-led JSW Steel has emerged as the sole bidder for a controlling stake in Monnet Ispat Energy through the strategic debt restructuring (SDR) route.

JSW Steel was the only company to submit the final bid, sources close to the development said, though global private equity fund Blackstone and Sudhir Maheshwari-led Synergy Capital had discussed the matter with lenders. Asked whether Synergy decided not to go ahead with the bid, Maheshwari said, "I am unable to comment on market rumours."

A source said: "We ... the deal with JSW Steel. March would be a realistic time by when the deal could be closed. The discussion would now focus on whether JSW would take the entire equity from the lenders or take part equity and infuse capital in the company."

MONNET ISPAT & ENERGY: STEELING FOR NEW STATUS

Consolidated figures in ₹ crore

Year ended	Net worth	Total debt	Net sales	Net profit
FY14	2,735.7	10,736.8	2,302.1	37.0
FY15	1,850.5	12,499.7	3,242.2	-856.9
FY16	457.0	12,115.1	1,843.4	-1,856.3
Jun'16	NA	NA	376.9	-358.7
Sep'16	-184.3	6,872.7	271.1	-409.0

Lenders have around 53 percent in Monnet Ispat, which was one of the first SDR companies in which lenders converted debt into equity. The existing promoters have around 25 percent.

Sources indicated preliminary discussions had been held recently between lenders and JSW Steel. But there are likely to be many more rounds of talks to finalise the contours of the deal. "The existing promotors could have a residual stake in Monnet without management control," a source said.

It's been around 17 months since lenders invoked the SDR in Monnet. They had been dragging their feet on making a decision on SDR companies primarily because of the haircut (the difference between the market value of an asset and loans) that they would have to take. The extent of the haircut in the JSW Monnet deal is not known. A Religare report of early 2016 had said that to attract a buyer, lenders would have to take a haircut of 84.5 percent. Net margins in the steel sector have improved since then, however.

Monnet ran into a huge debt, and in August 2015 lenders invoked SDR.

SDR had been introduced by the Reserve Bank of India in June 2015 to tackle bad loans by allowing banks to acquire control of a defaulting company by converting the loans into equity. That was to be followed up by bringing in new promoters, after which sticky assets were to be upgraded to standard ones. Monnet's debt increased from Rs 8,606.50 crore in FY13 to Rs 12,499.70 crore in FY15. In FY16, the debt stood at Rs 12,115.10 crore. In the quarter ended September 2016, the company had a negative net worth and total debt stood at Rs 6,872.70 crore; net loss was at Rs 409 crore on net sales of Rs 271.1 crore.

Monnet Ispat's troubles started when the Supreme Court de-allocated 214 coal blocks in 2014. Monnet had five coal mines and was the second-largest coal-based sponge iron producer. Its facilities are based in Raipur and Raigarh. From a sponge iron player, Monnet Ispat had transformed into a steelmaker by commissioning a plant at Raigarh in FY14. The operating mine close to Raigarh provided the coal. That seamless supply arrangement was disrupted when the coal blocks were cancelled.

Source: Business Standard

'Made in India' steel to get preference in infrastructure projects: Steel secretary Aruna Sharma

The Ministry of Steel is taking a three pronged approach to support the domestic industry, which has faced low demand and the influx of cheap imports. It is also trying to lower input costs, steel secretary Aruna Sharma told ET in an interview. Efforts are under way to mandate the use of 'Made in India' steel in government tenders to boost consumption. Edited excerpts:

- **Indian steel companies have been affected by an influx of imports. Will the government**

continue to protect them?

We are not against imports but we have to protect Indian steel against dumping. We will also not take any measure that is not WTO compliant.

Since August 2016, antidumping measures have been initiated and now 124 items are covered under it.

- **What steps are being taken to lower input costs for steel companies?**

  We are trying to improve the logistics network for movement of both raw material and products. For instance, the cost of transporting fines is the same as finished products – Rs 400. One solution is transporting it through slurry pipelines. Now, the railways have agreed to give right of way along railway tracks. We have got a map from pellet makers as to where they want to tap the fines both on the east and west coasts. NMDC will construct the slurry pipelines, which will be underground. Transport costs will thus come down to Rs 50 per tonne. Railways are joining hands in this since it is part of their business and they will also provide protection.

- **What about key inputs like iron ore and coking coal?**

  We are discussing reclassification of iron ore, which is under freight class 165 and shifting it to 145, the same as coal or 145A, which attracts a lower rate. We have also urged for reduction of the 2.5% customs duty on coking coal. Also, the coal ministry will invest in washeries to reduce the ash content of local coking coal from 1718% to an average of 13%. Consequently, imports will reduce by 30%... Also, the pricing mechanism of natural resources like iron ore/coal/gas is being looked into by the Niti Aayog. PSUs in these sectors should be profitmaking, not profiteering. Energy costs, especially power, remain a critical issue. For this, the power ministry is considering whether a combined bunch of smaller user industries can be allowed to take up 26% stake in a power venture to get the tag of a captive user. Alternative energy sources like liquefied natural gas are also being explored. Duty on LNG was cut down by half in the budget to 2.5%. The petroleum ministry is working on long-term contracts to ensure assured supplies. Pellet makers have already assured us that if gas is available, their entire production can shift to gas, which is cleaner and greener.

- **The National Steel Policy 2017 is looking at 300 million tonnes of capacity by 2025, but consumption remains low. What steps are being taken to boost it?**

  Our consumption is 60 kg per capita, while China is at 489 kg per person and the global average is 208 kg. We have a long way to go and are taking serious steps towards it. We are in the final stages of amending the General Financial Rules (GFR), which decide all government tenders. We are bringing the concept of lifecycle cost in GFR. So, if the desired quality is available, 'Made in India' or locally produced steel will get preference for bigticket infrastructure projects and for instance, bridges and drinking water projects, etc. Builders will be encouraged to use steel, which is earthquake resistant.

- **Will you coordinate your efforts with other ministries, too?**

  Yes. The commerce ministry is coming up with a generic policy on this. The steel ministry is also talking to other ministries, which are big spenders on infrastructure, about the advantages of steel usage. While cost effectiveness will remain the key, the focus will be on lower lifecycle cost of steel while evaluating projects. It took seven years for our per capita steel use to cross from 50 to 60 kg. However, we want to go from 60 to 70 kg per person in three years. If domestic consumption goes up, then with lower input cost, protection against dumping and market enhancement, our steel industry should be fortified against global upheavals.

Source: Metaljunction

It's time to promote steel-based construction, says Sushim Banerjee

Only a few years back availability of steel in required sizes and grades at all locations in the country was an issue that prompted many builders, contractors and masons to recommend concrete-based designs and construct houses requiring minimum volume of steel. Things have appreciably changed for the better, thanks to the efforts made by major steel producers, that numerous local dealers, distributors, shop owners emerging in the vicinity of construction areas with limited steel inventories of rebars, light structurals for foundation and columns and coated sheets for the roofing. Thus in the residential housing sector (G+3) use of steel has increased, but RCC construction still predominates as saving of space advantage (compared with concrete slabs) with steel is possible primarily for high rise buildings. For one story low cost houses, innovative technologies like ferro-cement in place of bricks for cladding and wall with sandwich panels and light steel frame structures (including hollow tubular) have been implemented by INSDAG in tribal villages and other places.

The cost per square feet is well within the limit prescribed by the government under the Pradhan Mantri Awas Yojana. The casting of ferro cement panels is easy to make in the rural and semi-urban areas. The same technology can be applied in making anganwadi, primary health centre, school building, community/ panchayat halls, weekly market sheds, small warehouses where column free, long span space is ideally suited for steel based construction.

Steel based toilets both for individual houses and for the community, would reaffirm the spirits of the Swatch Bharat programme. The concept of a model steel village would, therefore, fulfill our basic commitment to create a pollution free and environment-friendly atmosphere and would many ways improve the quality of life of rural population. The use of steel in making household items like tables, chairs, furniture, storage bins, fencing and trunks is getting increasingly popular.

INFORMATION RELATING TO STEEL

Delhi Chapter is pleased to inform our esteemed members that Shri Satendra Kumar Sarna, Life member of IIM and ex-CMD MECON, has been sharing his knowledge and experiences in steel industry through his website http://ispatguru.com/. As on date around 600 technical management articles relating to steel and steel plants are available on this website. The articles' links are provided on page http://ispatguru.com/links/. Presently there are about 43,000 monthly visitors around the world who are visiting around 60000 pages of the website. Around 55% of the visitors are from outside India who are taking advantage of this knowledge base. The website was having a global ranking of 380,237 on 25th December 2016 which places it in 15th position amongst top 102 steel industry related websites of India abroad.

The members may like to visit the above site for accessing the information relating to Steel.

Steel based small span (2M/3M/5M) culverts and bridges, steel poles for electricity transmission as part of Grameen Urja Yojana would provide a durable, strong and much faster solution. But the whole concept needs widespread awareness campaign. It is well established from structural engineering point of view that while steel is strong in tension, concrete is strong in compression. An ideal design must blend the strength of steel and cement in steel concrete composite design. In UK, US the steel concrete composite design for residential houses has become popular.

One constraining factor to popularise more use of steel based household items and in general construction, be it in the rural or urban localities, is the lack of fabrication facilities or surplus feast of bad fabricators in these areas who make a mess of steel based fabrication. An ugly welding makes fabricated structures look awkward and discourages the prospective users.

The masons and the small contractors are the real influencers for the individual households when they decide to build a house or any other structures for other purposes. It is essential that these masons are trained to learn the basics of steel based construction, bar bending, use of good quality TMT bar (BIS certified) in construction, earthquake resistant detailing, safety practices in storing, bending. It may be mentioned that although more than 3500 numbers of masons have been trained by INSDAG in association with SAIL, Tata, RINL, JSW, there is an enormous need to enhance the coverage. The training in fabrication,

erection and Welding are the three corners of steel based construction and skilled hands in all these segments would fill up the triangle of good construction practices.

Source: Metaljunction

India to be a net exporter of steel this year: Research

India to be a net exporter of steel this year as finished steel production growth

reaches an alltime high in February but domestic consumption remains tepid, broker company Emkay Research said in a report recently. According to the provisional data furnished by the Joint Plant Committee (JPC), finished steel production grew significantly by 13% year-on-year in the month of February, to 8.8 mt. Maximum production growth was seen by Tata Steel, followed by SAIL, RINL, JSW and then JSPL. JSW and JSPL grew at a consolidated level by 19% to 52 mt. While imports fell by 46.1% YoY in the same month on the back of protectionist measures taken by the government, exports continued to rise and almost doubled on a year-to-date basis to 6.6 mt from 3.7 mt in the previous year. Despite an optimistic sentiment, consumption for finished steel remained low at 7.3 mt, growing only by 3% YoY. Owing to the low domestic demand, manufacturers are being encouraged to export.

Source: Metaljunction

Tata Steel agrees to sell speciality steel business to Liberty House

Tata Steel signed a definitive agreement recently to sell its UK subsidiary's speciality steel business to the Liberty House Group for 100 million pounds (Rs 839 crore), the company said in a regulatory filing on the BSE. Tata Steel said the deal covers several South Yorkshire based assets including the electric arc steelworks and bar mill at Rotherham, steel purifying facility in Stockbridge, a mill in Brinsworth as well as service centres in Bolton and Wednesbury in the UK and in Suzhou and Xi'an in China. Speciality Steels directly employs about 1,700 people, making steel for aerospace, automotive, and oil and gas businesses. Tata and Liberty House had entered into exclusive talks in November as the steelmaker seeks to offload its money losing assets and restructure European operations. UK based Liberty House is owned by Indian origin businessman Sanjeev Gupta, whose strategy is to recycle steel instead of making it fresh from blast furnaces. The speciality business can produce 1 million tonne steel from electric arc furnaces, which can be used in the automobile and aerospace industries.

Source: Metaljunction

Brief Report On Seminar On Outlook Of Ferro-Alloys & Auto Shredding Of Scrap

Indian Institute of Metals - Delhi Chapter organised a Half day Seminar on '*Outlook of Ferro Alloys and Auto Shredding of Scrap*' at India International Centre, Max Mueller Marg, New Delhi on 03 February 2017. The Seminar was jointly sponsored by MOIL Ltd. and MSTC Ltd.

At the outset, Shri K L Mehrotra Chairman Delhi Chapter welcomed the participants in the Seminar. He gave an overview about the activities of Indian Institute of Metals and its Delhi Chapter and gave an overview of Ferro Alloys and Auto Shredding industries. He also introduced the Speakers at the Seminar.

Shri S C Suri, immediate past Chairman of IIM-DC, spoke on the importance of Ferro alloys in Steel Industry.

Three eminent Speakers made their Presentations on the topic.

Mr. K K Mehrotra Former CMD *MECON*, in his presentation, focussed on ***Auto Shredding Facilities: A need under Indian Context.*** He highlighted various steel scraps generated in Indian Industry, current shredding practices, an overview of automobile industry in India & its future outlook, Rationale for installation of Auto scrap facilities in India, global practices and salient features of Auto Shredding facilities. He concluded that such facilities need be set-up zone-wise (North, South and West) in order to optimise transportation costs and making cheaper scrap available to consumers.

Mr. P V V Patnaik CGM *MOIL Ltd.*, in his presentation focussed on ***Use of High Grade Ores & Sinter to reduce specific consumption of power is the need of hour for Silico manganese smelting.*** He focussed on ferro-alloy capacity in India and growing imports of ferro-alloys over a period of time. He highlighted increasing power consumption by indigenous ferro-alloy production industry owing to utilisation of low grade ores & ferro-manganese slag in higher proportions and usage of ultra-fines. He analysed these aspects in detail and concluded that in order to reduce power consumption, beneficiation of low grade ores and sintered fines need be resorted to.

Mr. Chirag Sindhu DM MSTC, in his presentation focussed on ***Automotive Recycling.*** He highlighted the importance of steel shredding in India to reduce dependence on imported shredded steel. He analysed that recycling of automotive vehicles would result in significant consumption of basic raw materials. He proposed integrated involvement of different Govt. agencies, vehicle owners, dealers and shredding units to carry forward automotive shredding on a large scale.

Mr. K K Mehrotra Former CMD *MECON*, spoke on ***Novel Approach for economic production of low alloy and stainless steel by utilising overburden of Sukinda Nickeliferrous ore***. Mr. Mehrotra highlighted the efforts made at MECON for economic production of low alloy/ stainless steel from overburden of Nikeliferrous laterite ore deposits in Sukinda Valley and Samlipal area of Odisa. Salient features of lab scale tests at IMMT Bhubaneshwar and Industrial scale trials in mini blast furnace at Kalinga Iron Works, Kargil were also mentioned. He made comparative case study for conventional production methods for low alloy steel & Stainless steels vis-à-vis production of low alloy Ni-Cr-Mo E-24/E25 steel & production of AISI 302 Stainless Steel. He concluded that low alloy & SS can be economically produced utilising nickeliferrous lateritic ore/chromite burden. In addition utilisation of this overburden will reduce environmental problems.

For the benefit of all participants, Mr. K L Mehrotra, President IIM Delhi Chapter, showed the Presentation ***Indian Steel Industry – Present Scenario and Future Outlook***, which was made by **Ms. Aruna Sundarajan** former Secretary (Steel), Govt. of India at International Manganese Institute Madrid**.** The presentation focussed on Evolution of Indian Steel Industry from an insignificant Global player in 1991-92 to 3rd largest Global producer during 2015-16. It also focussed on steps taken to generate demand, policy interventions, R & D inputs and Environment protection initiatives. The future of Indian Steel Industry was also touched upon.

During each presentation, there were lively Q & A interactions with the audience.

About 50 persons participated in the programme.

All Presenters were honoured with mementos by Sh. K L Mehrotra, Shri S C Suri & Shri Singhal on behalf of IIM Delhi Chapter.

Shri G I S Chauhan, IIM Delhi Chapter proposed vote of thanks.

The programme concluded with Lunch.

MOIL on a Bull-Run: Global Manganese Ore Prices Soar

The year 2016 witnessed the global commodity market booming with prices of coal, iron ore and manganese hitting new highs. The last few months have seen manganese ore price increase substantially to over INR 22,000 per tonne from INR 7,000 per tonne. Manganese ore is in short-supply in the domestic market and most Indian (Mn) alloy producers have to procure material from Manganese Ore India Limited (MOIL).

Indian Manganese Ore Prices in FY17

Particular	Grade	December Prices	November Prices	Q3 FY17 (Oct-Dec'16)	Q2 FY17 (Jul-Sep'16)	Q1 FY17 (Apr-Jun'16)
Ferro Grade	48% Mn, 4.8% Fe Lumps	27,755	21,350	16,423	10,510	11,678
Ferro Grade	37.5% Mn, 7.5% Fe, Lumps	15,935	12,258	9,429	5,647	6,644
Silico Grade	30% Mn, 8% Fe, Lumps	8,219	6,575	5,260	3,817	4,490
Silico Grade	25% Mn, 7% Fe, Lumps	5,018	4,014	3,211	2,099	2,469
Fines	30% Mn, 6.5% Fe, Fines	4,229	3,383	2,706	1,961	2,307

The global bull-run in manganese ore chiefly owes to burgeoning demand in China. According to Mukund Chaudhari, CMD, MOIL "The spurt in China demand is the main reason behind increase in prices. As we have gathered – falling stock of manganese ore at their ports have prompted China to resort to heavy imports and this has in turn resulted in large producers worldwide increasing their prices and therefore the price rise is attribute mainly to the international market."

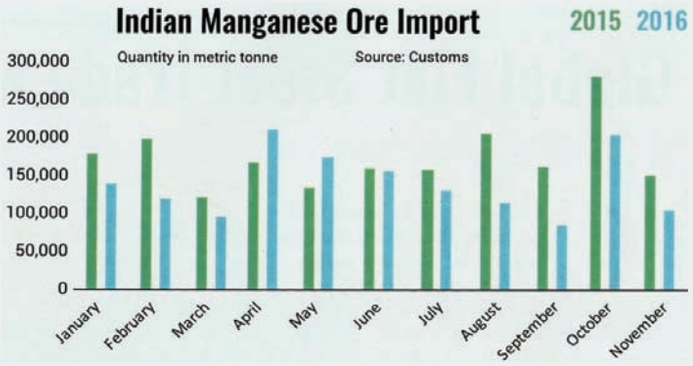
Industry Status

- In India, manganese ore consumption has grown from about 3 mnt to 5.4 mnt whereas production has reduced from 2.61 mnt in FY09 to 2.15 mnt in FY16.
- Although manganese ore production in the country is on decline, the production of value added products namely ferro manganese and silico manganese has witnessed substantial increase.
- The higher demand for manganese ore is met through imports. India is deficient in high grade, low phosphorus variant of this raw material. This necessitates imports of high grade ore to blend with domestic quality for production of manganese alloys. Demand from domestic producers has seen some increase owing to reduced imports of late. Steel production has moved up by around 8% while steel consumption has also increased by 3% as per data available with MOIL.

The domestic steel industry has increased the capacity by about 33% in the last 5 years which is positive for the domestic manganese ore producers. Recently, the government and the industry together have proposed to increase the steel capacity to 300 mnt by 2031. Such massive investment outlays in the steel industry would lead to steep spurt in demand for manganese ore which would help MOIL in increasing its sales manifold in the long term.

MOIL's Expansion Plans

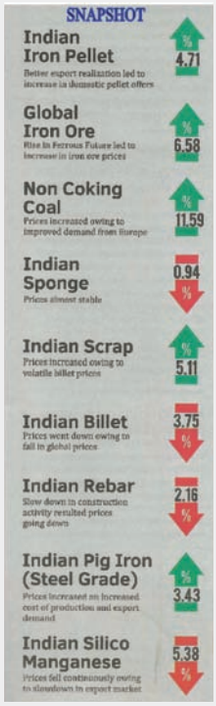
Taking into consideration anticipated growth in steel production and, as a result, increase in demand for manganese ore, in order to meet the requirement in future and maintain leadership, MOIL has planned to enhance its production from present level of 1.1 mnt to 2 mnt by 2020 and 2.5 mnt by 2030. In this direction, several shaft sinking & deepening projects have been completed and some other projects are ongoing and planned.



Key Assumptions for Realizations for H2FY17 and FY18

	FY14	FY15	FY16	FY17 (E)	FY18 (E)
Sales (Metric Tonne)	1,132,919	910,443	967,000	1,044,000	1,155,000
EBITDA/ Metric tonne	4,424	4,165	868	2,290	3,743
Net Sales	8,350	8,237	5,913	7,229	8,500

The company has approved investment of INR 2.66 billion in the first phase for sinking high speed vertical shaft at Balaghat mine which will help the company to increase production from about 0.3 mnt to 0.6 mnt by FY2025. The board has also approved investment of INR 1.95 billion in the first phase at Gumgaon mine to enhance its production from about 70,000 mt to about 140,000 mt by 2024. The company has set up ferro manganese plant with a capacity of 10,000 mt per year and Electrolytic Manganese Dioxide (EMD) Plant with a capacity of 1,000 mt per year as per its diversification plan for value addition to manganese ore. MOIL has also set up a captive power plant and is further considering expanding the capacity of ferro manganese plant and setting up a new silico manganese plant. As the largest producer of manganese ore in India, MOIL has taken steps to ensure higher recovery and for improving the quality of ore by installation of 0.5 mnt pa capacity integrated beneficiation plant including Air Pulsated Jig at Balaghat mine and 0.4 mnt pa capacity beneficiation plant at its Dongri Buzurg mine. There are reports that with the improvement in steel production and reduction in imports, MOIL will increase its production and sales volume. Strong volume growth coupled with higher prices would lead to 3x jump in operating profit over FY2016-18E. Hence with the increase in ore prices coupled with reduced equity capital, MOIL is set to post quite impressive performance going forward.



Source: Steel 360

Coal India Plans to Produce Oil & Gas

Coal India Ltd is contemplating a major diversification as it plans to produce oil and gas from its coal in a big way as growth from its core activity is declining. It also plans to enter commercial production of coal bed methane and expand presence in thermal & solar power generation, company executives said. "The board of directors of Coal India is seriously contemplating diversifying into energy-related fields. The proposals are to be placed before the company board soon. While Coal India is yet to take up coal to oil and coal gasification, it has already tested the waters in thermal and solar power generation and coal bed methane. These would now be taken up on a larger scale," said a senior Coal India executive.

A decade ago, Coal India had entered into talks with South Africa's $22-billion Sasol Ltd and the world's largest producer of coal-to-oil (CTL) for setting up at least a Rs 3,000-crore project with coal supplied from either IB-valley or Talcher in Orissa. Talks advanced but the proposal was later dropped because crude prices dipped making it uneconomic at the time. "With crude prices on the rise again, coal to oil is turning out to be attractive again," the executives said.

Source: The Economic Times

India may source lithium from Latin America

India is planning to reach out to Bolivia, Argentina and Chile to procure supplies of lithium that are used to make batteries for electric vehicles (EV) and solar power plants. It is also aimed at meeting defence production requirements and to cut India's dependence on imports. India has set an ambitious target to achieve 6-7 million sales of electric/hybrid vehicles in India by the year 2020 and of meeting target of 100 GW of solar power generation by 2022. But it has no lithium to power these dreams and so is expected to turn to the three countries in South America, the so-called "lithium triangle", which hold the world's greatest reserves of the metal. Countries including Argentina, Chile and Bolivia, are members of International Solar Alliance (ISA), initiative of Prime Minister Narendra Modi, which fosters South-South Cooperation. Speaking to The FE on condition of anonymity, an officer in the Ministry of Mines & Minerals, said: "Lithium has been designated as a strategic metal. India does not have reserves of the rare metal needed for making lithium-ion batteries." Debajit Palit, senior Energy Researcher in TERI told FE, "Such large scale use of EV will save considerable amount of money on petroleum fuels as well as pollution. These vehicles will run on batteries, which are going to be mostly lithium based." Further, India has set an ambitious target of 100 GW of solar power generation by 2022 which also includes 40 GW from rooftop solar. These roof-top plants will also require batteries for storage. Most of the advanced storage systems, used with rooftop

solar plants, currently are lithium-ion based.

"Both are expected to create a huge demand for lithium-ion batteries in the near future. However, India does not have reserves of lithium. Most deposits are in the "lithium triangle" in Bolivia, Argentina and Chile. We are going to be completely dependent on exports from these countries for the battery storage system – whether for electric vehicles or for using solar energy for electricity or in portable electronic devices," said experts. According to Palit, "Bolivia has the world's largest untapped reserves, so from India's geo-economic standpoint, Bolivia is very important. Indian industries may forge partnerships to set up joint ventures in these South American countries, especially, to produce processed lithium that will be required for the batteries." As reported by FE earlier this year, "the landlocked country which has vast reserves of natural gas, and is largely dependent on natural gas and mineral exports, is seeking Indian capital to invest in develop Bolivia's massive lithium deposits."

Source: Business Standard

Be used for a mighty purpose bigger than you

People nearly always pick a problem their own size and ignore or leave to others the bigger or smaller ones. Pick a problem that's bigger than you. "Success, real success, in any endeavor demands more from an individual than most people are willing to offer-not more than they are capable of offering".

The desire for safety stands against every great and virtuous dream. Security, many times, is the first step towards stagnation. The trouble with this world is that too many people try to go through life with a catcher's mitt on both hands.

Boldness in vision is the first, second and third most important thing. If you dare nothing you should expect nothing.

"One who is contented with what he has done will never be famous for what he will do". If you have achieved all you have planned for yourself, you have not planned enough.

Be used for something significant. Dare to do what's right for you. Choose a goal for which you are willing to exchange a piece of your life.

The surest way to happiness is to lose yourself in a cause greater than yourself. You'll be unhappy if you do not reach for something beyond yourself. If God is your partner, make your plans BIG.

"It is difficult to say what is impossible, for the dream of yesterday is the hope of today and the reality of tomorrow". Every great action is impossible when it is undertaken. Only after it has become accomplished does it seem possible to the average man.

To small thinkers, everything looks like a mountain. The grandest things are, in some ways, the easiest to do because there is so little competition.

To be completely satisfied with yourself is a sure sign that progress is about to end. If you are satisfied with yourself, you'd better change your ideals. "How much better to know that we have dared to live our dreams than to live our lives in a lethargy of regret".

You'll never succeed beyond your wildest dreams unless you have some wild dreams.

This is the thirtieth 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.

Compiled by Shri K L Mehrotra

Chairman – IIM-DC & Former, CMD – MOIL

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Disruptive Innovations in Operations

The Delhi Chapter of IIM celebrated Foundation Day of The Indian Institute of Metals on 25th February 2017. 24th February 2017 being a holiday on account of Maha Shivratri, the celebration was held on 25th February 2017 at our Chapter's premises. On this day, Mr. Manoranjan Ram, Honorary Secretary, IIM Delhi Chapter gave a presentation on **"Disruptive Innovations in Operations".**

Mr. Manoranjan Ram enjoys about 24 years of working experience in steel industry. He has worked in SAIL, Rourkela Steel Plant for about 15 years and in ArcelorMittal for about 5 years. Presently, he is working as Associate Vice President - Technology Marketing and Commercial Sales in Paul Wurth India, SMS Group.

A summary of the presentation is as under:

"Disruptive Innovation has a very specific definition - It transforms a product that is historically so expensive and complicated that a few people with lots of money and lot of skill have access to it - as defined by Harvard Business School Professor Clayton Christensen.

Mr. Ram explained this topic through various real life examples, highlighting the underlying fact that a "disruptive innovation" makes a product so affordable that a much larger population have access to it.

The product innovation from Mainframe Computer to Personal Computer to Smart Phone is an example of disruptive innovation through which a larger mass of people could be able to access digital technology.

Similarly, from ice harvesting to ice factory to refrigerator is another example of disruptive innovations in Ice Industry.

Disruptive Innovation should not be confused with breakthrough innovation that makes good product a lot better. In fact, the incumbent

companies introduce higher quality products or services to satisfy high end of the market, they overshoot the need of low-end customers and many mainstream customers. The entrants typically win at disruption because they focus on the needs of low–end customers.

Furthermore, the presentation highlighted the fact that many companies tried to imitate operational innovations but failed miserably. This is because of Organisational Design issues. Operational Innovation follows a staircase model and takes the organization to a different strategic positioning. Once attained it can work on different other attributes within the organization and keep increasing the efficiency with every step.

Finally, Mr. Ram concluded his presentation by giving some interesting examples of ongoing disruptive innovations in Operations such as application of 3D printing in manufacturing industry and application of **I**nternet **O**f **T**hings (**IOT**) for Energy Management. IOT enabled HVAC (Heating, Ventilation and Air-conditioning) system can help the manufactures forecast energy related expenses and plan usage of energy beforehand by offering an integrated weather report and prediction analysis system".

About 50 persons from various organizations attended the presentation. There was a lively question-answer session after the presentation.

The presentation concluded with lunch.

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Panel on iron ore pricing to submit report by the end of March: Govt

The Government said the panel on iron ore pricing will submit its recommendations by the month-end. The government is also likely to finalise the National Steel Policy by next month. "I have formed the committee (on iron ore pricing) and I am waiting for the report," Steel Minister Chaudhary Birender Singh told reporters here. The panel which is headed by Steel Additional Secretary will come out with its recommendations before the finalisation of the steel policy, he said. Asserting that there should not be much fluctuation in the prices of iron ore, Singh said: "We also want (the iron prices) to be competitive." Asked whether the government wants to put a cap on the iron ore prices as it does not want the raw material used for steelmaking to be that volatile, the minister said: ". The committee would come out with the recommendations. What recommendation IT would give I don't know but the panel is on the job." An official had in February said that the government is working on a policy initiative to ensure the availability of iron ore at a cheaper price and will soon come out with details. "What policy steps we need to take to ensure that iron ore is plentifully and cheaply available is something which we are working on and there could be various formulations to that," an official privy to the development had earlier said. "We are examining those and hopefully in a month or so we would be able to say that these are the recommendations," the official had said.

Source: Metaljunction

CHAPTER LEVEL NMD CELEBRATIONS

The Chapter level NMD was celebrated at our Chapter's premises on 18th March 2017.

At the outset, Chairman welcomed the members and their families on the occasion.

On the eve of Chapter level NMD, it was decided to honour the following members of

IIM DC who made significant contribution to the cause of Metallurgical profession and to the activities of the Delhi Chapter with suitable awards:

a) Mr. K K Mehrotra
b) Mr. G I S Chauhan
c) Mr. Manoranjan Ram
d) Mr. N Vijayan
e) Mr. K L Mehrotra

Shri KL Mehrotra, Chairman IIM DC, spoke about the institution of Chapter level award in 2011. Chairman informed that from 2011 onwards our Chapter has been organizing the event every

year. Thereafter Shri S C Suri, Past Chairman, Delhi Chapter, narrated the contributions made by Mr. K K Mehrotra, Mr. G I S Chauhan, Mr. Manoranjan Ram, Mr. N Vijayan and Mr. K L Mehrotra in the metallurgical profession and in promoting the technical activities of Delhi Chapter. Subsequently the above awardees were honoured with befitting mementoes on the occasion.

After receipt of the Awards, the above recipients of the award thanked IIM DC for conferment of the award and spoke about their experiences relating to IIM and metallurgical industry.

On this occasion Shri Bhim Sain, Executive Officer, Delhi Chapter, was also honoured with a memento for his dedicated services to the Chapter.

The event was attended by about 50 persons. Sweets packets were also distributed on the occasion.

The function ended with lunch.

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HOLI MILAN GET-TOGETHER

The Delhi Chapter of IIM organised Holi Milan get together on 18th March 2017 at our Chapter's premises. The members of IIM DC along with their families participated in the social get-together. The Chairman IIM DC welcomed the members and their families in the function.

Holi-Milan greetings were exchanged among the members and their families. Members of the IIM DC enjoyed the function through various jokes and anecdotes. Holi songs were also played on occasion. A special quiz programme relating to the old songs was the highlight of the event. Suitable prizes were given to the winners of the Quiz Function. The function enabled networking among members of the Chapter and their family members. The function was very much appreciated by the members and their families. As a matter of fact, some members stated that they always look forward to participate in the Holi-Milan get-together function with a lot of excitement.

About 50 members including their families participated in the function. Sweets packets were also distributed on the occasion.

The function ended with lunch.

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Government's Strategic Disinvestment Plan for NMDC in Chhattisgarh

The government's proposed strategic disinvestment plan for NMDC's 3 MT pa Nagarnar steel plant at Chhattisgarh has already hit the roadblock, reason being stiff resistance pouring in from various quarters including the state government, local people and both from the management and the trade unions of the Hyderabad – based mining firm. In November, 2016 the cabinet had given its go-head for the strategic disinvestment of the steel plant, being built at a cost of INR 155.25 billion. The plant was slated to be operational by the end of this year or early next year.

In 2009-10 NMDC had conceived the plan of putting up the steel plant, much to the wish of it's the then management. However, the Centre wanted the company to go ahead as

it would help the miner to move up in the value chain and diversifying its portfolio.

Sources said that the state government has already aired its reservation on the disinvestment plan by saying that any such move would jeopardize its effort to bring permanent peace in the Maoist infested Bastar region with development and prosperity. The state chief minister has already communicated his views to the steel minister and to the Prime Minister's Office.

In the recent past the Bastar region has been badly affected with the Maoist upsurge. Though the left-wing extremism has stabilized a bit, thanks to government's various development initiatives, it has not withered away altogether. One wrong move, at this juncture, could potentially spoil the efforts of restoring peace in the region. The local feeling is also against disinvestment. People in the region want that the unit should remain a part of the state-run NMDC, fearing that any move to dispense with its public sector character would reduce the chances of local area development and their employment opportunity in the firm.

Senior company officials also feel that disinvestment would mean a huge monetary loss for NMDC. Due to the cost and the time overrun the company might end up spending around INR 220 million to make the plant operational. Any potential buyer would buy stake, even if it is awarded with management control, only at the market rates and never fork out anything which would be in proportionate with NMDC's excess expenditure. However, analysts are saying that it is tough to get a buyer, particularly from overseas, for the unit in the present global scenario, flushed with over capacity across regions. In 2013, NMDC has tried to float a global tender for roping in a partner with experience and expertise in making steel for the unit, but it went in vain. Representatives from South Korean steel major Posco also visited the plant last year, but have not come out with any proposal so far.

Trade unions, associated with the miner, had also given a two-day strike call protesting against the proposed disinvestment of government's stake in the venture. The strike, however, was eventually called off after government assured them that there would be no outright sale of the unit. Steel ministry sources, however, said that during the tripartite meeting between government, company management and the worker's union, a decision to induct a partner for managing the plant has been taken. Unions have also demanded that the stake should be diluted only to a public sector player – either SAIL or RINL. However, problems may crop up in that proposal as well. SAIL's plates are already full with its massive capacity expansion programmes. RINL is also mulling to enhance the brown-filed capacity expansion in Vizag to foray into the flat products manufacturing. Government might do well by keeping faith in the current management for managing the unit. Senior NMDC leadership has time and again said that they do not feel that roping in a partner was required at the 3 mnt pa level.

Source: Steel 360

A Record Iron ore Output can Catapult Odisha to the Export League

The rebound in iron ore prices globally has seen a cascading effect on production in the eastern state of Odisha, the top iron ore producer in India. At the beginning of this fiscal, Odisha's iron ore production showed a soaring trend, buoyed by reopening of scores of mines. The uptrend in iron ore production and dispatches sparked promise of higher output raising hopes of cooling prices by easing supply tightness.

The state government came up with a startling announcement that iron ore production by the end of FY17 would be in excess of 100 mnt, a decadal high rate. True to the government's avowed standpoint, iron ore production in the state has peaked in FY16 and by all means expected to breach the 100 mnt mark by the end of FY17. This will be Odisha's bet ever iron ore output in a decade.

Iron ore dispatches in this fiscal have also been buoyant, standing at close to 90 mnt. Despite including some carry over stock, the robust dispatch figure is a pointer to the demand from end use industries, both within Odisha and beyond. The figures for both production

and dispatch are a mirror to Odisha's startling recovery of iron ore mining which only a couple of years back was in the dumps. Iron ore mining in Odisha reached a nadir in FY15 with production of only 47 mnt. That was a phase of lull for the industry when iron ore mining was sullied by a series of scams. A two-pronged surveillance on illegal mining in the form of MB Shah Commission of enquiry and the Supreme Court anointed central empowered committee (CEC) dealt a body blow to production as scores of key operating mines downed their shutters.

Mines and Minerals Development & Regulation (MMDR) Act 2015 was a path breaking legislation which injected hope in to iron ore mining. Many lease deeds were extended and they resumed production after a hiatus. The result showed up in 2015-16, when Odisha's iron ore production bounced back to its near peak level of 80 mnt. And, the growth saga continues with Odisha holding its position as the highest iron ore producer in India, accounting for 100 mnt of the anticipated nationwide output of 180 mnt for this fiscal.

A state government official also attributes the spike in production to the rising mechanization at some of the crucial iron ore mines. A production tally in excess of 100 mnt coupled with surplus inventory of iron ore establishes Odisha's case for emerging as a major iron ore export hub. This is more opportune now given the unprecedented rally in international iron ore prices.

In 2016, sea borne iron ore prices witnessed 80 percent spike but average prices were only USD 58.50 per tonne. Higher than expected Chinese demand propped up by government stimulus and falling production rate by the titans of iron ore mining led this rally. Speculative activities in iron ore futures trading also backed this rally. 2017 commenced on an even more robust note.

But, Odisha's positioning has never been that of a state oriented for iron ore exports, its consistent leadership role in production notwithstanding. Exports are an area where historically, Goa and Karnataka have shared the spoils. Odisha's iron ore is viewed more to be conserved for the domestic steel industry, especially the ones within the state.

The state government had even announced a policy to pre-empt at least 50% of the iron ore produced by merchant miners for the benefit of the local steel and other end use industries. But, the policy proved to be flawed since local steel industries can at best consume 25 mnt annually if they operate at full capacities, leaving a comfortable export surplus. Besides this, the absence of incentives has led to a situation where Odisha is gradually losing the plot in global sea borne iron ore trade.

An analyst says even with the escalating iron ore prices, Odisha's miners are finding it increasingly tough to find committed buyers as

GOOD NEWS FOR ESTEEMED MEMBERS OF DELHI CHAPTER

Delhi Chapter has been trying its best to widen the canvas of membership of IIM. Recently our Chapter has succeeded in enrolling The Institute of Indian Foundrymen (IIF) as a Donor Member of IIM.

This is a flagship achievement of our Chapter as it is for the first time in the last ten years that our Chapter could bring IIF into our fold as Donor Member. Needless to say that both the institutions would stand to gain through this bonding.

We welcome IIF as a Donor Member.

We would also like to inform our learned members that the papers presented in various technical seminars and MMMM events organised by our Chapter are available on our website www.iim-delhi.com. Our newsletters can also be accessed on this website.

Members may like to visit this site to access the contents of the **Newsletters and technical papers** presented by Delhi Chapter in various **Seminars and MMMM Conferences.**

competing states and other nations have stolen the thunder. Government data shows till the first week of February, only a little over 4 mnt iron ore has been shipped overseas from Odisha.

Skewed fiscal incentives by the Government of India have not come to Odisha's rescue. The Union government in Budget for 2016-17 lifted the export duty for low grade iron ore fines – this step immediately revived exports from Goa which predominantly produces low grade iron ore (Fe content less than 58%) with no scope for value addition domestically. Odisha, with its higher grade iron ore has suffered silently over the years, but realizes the time has come to swing to action.

The state government has written to the Centre, pressing for removal of 30% export duty to facilitate exports. Along with waiver of the steep export tax, making available dedicated rakes can prepare Odisha to shine in the export market and harvest gains from the iron ore price upswings.

Source: Steel 360

JSW Group to invest Rs 7,000 crore more in ports sector by 2020

Industrialist Sajjan Jindal said his JSW Group will invest Rs 7,000 crore more in the ports sector over the next three years to create assets in the country as well as abroad. The company is also looking at diluting up to 15 percent stake in the ports operating company, JSW Infrastructure, to a private equity player soon, and take it public by 2019.

"We will be investing Rs 9,000 crore more in the ports sector till 2020 (including the Rs 2,000 crore already invested)", he told reporters at JSW Infrastructure-run flagship port here in Ratnagiri district. The company has already invested Rs 2,000 crore in the project at Jaigad and the overall investment plan for the company includes Rs 2,000 crore for capacity expansion here, Jindal added.

Of the remaining Rs 5,000 crore of investments (excluding the Rs 4,000 crore in Jaigad), Jindal said the company is looking at putting up four berths in Paradip that will have a 50 million tonnes per annum (mtpa) capacity and a green-field project in Fujairah in the UAE. The Rs 4,000 crore Jaigad Port project has a capacity of 40 million tonnes per annum now, which will be doubled by 2020 and raised further to 125 mtpa by 2025, he said.

At the company level, total capacity target is 200 mtpa by 2020, Jindal said, adding the port now handles dry bulk cargo but has plans to enter container handling. One of the biggest opportunities that the port is eyeing is the proposed public sector mega refinery by IOC-HPCL-BPCL in the Konkan belt of Maharashtra, even though the exact location is not finalised yet. Jindal said JSW is "pitching" to act as a "captive port" for the proposed refinery project which will host the very large crude carriers to ferry in crude, and also ships to evacuate refined products.

The JSW group has tied up with the Hiranandni Group, which is investing up to Rs 4,000 crore to construct an LNG terminal at the Jaigad Port and then evacuate the cargo through a dedicated pipeline that will be connected with GAIL's pipeline at Dabhol.

What is to be noted is that the Ratnagiri Gas & Power (formerly Dabhol Power) does the same work already, but Jindal is confident that the growing market will ensure there are opportunities for all. The JSW Group is also looking at sites in the Palghar district which is north of Mumbai, to build a greenfield port.

Jindal said the Palghar project will be independent and not a part of the Wadhawan Port being developed by the Centre and the state. He said the company, which primarily handles captive cargo for group companies, had a turnover of Rs 4,000 crore and a pre-tax profit of Rs 800 crore in the last financial year. JSW Infrastructure is fully-owned by the Jindal family now and is looking at first diluting up to 15 percent before launching an IPO, Jindal said. It has decided on milestones before it going public, he added, specifying that a capacity of utilisation of 100 mtpa is essential before it goes public, which at present is around 30 mtpa and 100 mtpa target can be achieved by 2019 and will be jacked up further to 140 mtpa by 2020.

Source: Sunday Business Standard

Alumil SA enters India, to offer aluminium extrusion products

Alumil SA, a European company with base in Greece, has announced its India entry in partnership with Value Line to offer its range of aluminium extrusion products.

As a leading aluminium extrusion products maker with manufacturing units across 12 countries and a turnover of over €500 million, the Alumil Group believes India will be its next big market to offer is products initially and gradually services.

In partnership with Value Line, Alumil plans to offer architectural products for residential and commercial projects in the Indian market initially and follow this up with a services model.

The European company offers innovative and niche architectural products across 60 countries with 24 subsidiaries in Europe, Africa, Middle East, Russia and the United States.

George Alex Milonas, Chairman and CEO, Alumil SA, said, "Alumil will offer architectural products and solutions in India in partnership with Value Line. Apart from residential projects, the Indian commercial building is a big opportunity and we look forward to working with large airports, hospitality projects in India as we do in other countries."

"Having set up operations across a number of countries, we expect to build our business in India initially with products exported. As volumes grow, which will take some time, we may consider a manufacturing unit in India. Typically a unit requires about €20-25 million investment," he told *BusinessLine*. "We are currently offering most of the international luxury brands in the sanitaryware segment with some being exclusively available only at Value Line. With Alumil, we will tap into the huge market in the country," Narinder Anand, Chairman and Managing Director, Value Line, said.

New fabrication unit

Value Line has set up a ₹40-crore assembly cum fabrication unit near Hyderabad. The aluminium items imported from Alumil's facilities will be fabricated as per the requirements of the consumers and delivered locally.

With manufacturing units in Greece, Romania, Bulgaria, Albania, Serbia and Bosnia, Alumil produces a wide range of aluminium extrusion products, aluminium composite panels, polyamide profiles etc.

Source: The Hindu BusinessLine

For IISc, big joy in 'small' list

The Indian Institute of Science which was among the world's top 100 engineering and technology universities in 2015 in annual rankings put out by the UK-based Times Higher Education (THE), has now taken a place among the top 20 'small' universities for the year 2016-17. In rankings released by THE a few days back, IISc, Bengaluru was placed No. 8 in the list of the World's Best Small Universities. THE introduced this new category in 2015-16. IIT Guwahati and Savitrabai Phule Pune University were placed 14th and 18th respectively in the list last year. To qualify for the Best Small Universities list, institutions had to feature in THE's overall World University Rankings for 2016-17, had to be teaching more than 4 subjects, and have less than 5,000 students, according to a statement on the new rankings put out by THE.

IISc has consistently been the top ranked Indian university in THE rankings over the last few years — it is now in the 201-250 band globally. According to THE, "India's leading university — the Indian Institute of Science — is edging closer to the top 200, claiming a spot in the 201-250 band, its highest ever position". IISc Director Prof Anurag Kumar said, "I have not seen the

numbers but this (World's Best Small Universities) seems to be a new category at THE. One of our strengths is research, and we would expect to score best in that category. This ranking is the result of over 100 years of hard work, a high quality faculty, independence given to researchers, government support and an ability to compete with the top universities." Oddly, despite being the top Indian university, with a ranking in the 251-300 band in 2015-16, IISc did not feature in the top 20 small universities category that year. IIT Guwahati, which ranked in the 501-600 band, and Savitribai Phule Pune University, which ranked in the 601-800 band, were the Indian universities that made it instead.

The California Institute of Technology, or Caltech, has retained its position from 2016 as the world's top small university in the 2017 rankings. Caltech is incidentally also the only university in the small universities category to also feature among THE's rankings of top 10 universities in the world. It has come in at No. 2 behind table leader University of Oxford. The École Normale Supérieure, based in Paris, is placed No. 2 in the small universities' list, and is at No. 66 in the World University Rankings. Pohang University of Science and Technology, South Korea, the top small Asian university, is at No. 3 in the small universities list, and at No. 104 in the world rankings. The world university rankings are based on marks allotted under five key areas — teaching, research, citations, industry income and international outlook — with a maximum of 100 marks in each category and for overall performance. According to country-wise data put out by THE, universities in Singapore are among the best in the world on all five counts, while Indian universities tend to be weak on scores for citations and international outlook.

Caltech — No. 2 in the world rankings and No. 1 in the small universities rankings — had an overall score of 94.3, with 99.8 for citations, 90.8 for industry income, 63.4 for international outlook, 95.7 for research, and 95.9 for teaching. Caltech has 2,181 students and a teacher-student ratio of 6.7. It has 27% foreign students.

IISc — No. 8 — scored 47.3 for citations, 48 for industry income, 18.1 for international outlook, 49.2 for research, and 50.1 for teaching. IISc has a total of 3,398 students, making it eligible for the small universities category, and a 8.3 student-teacher ratio. However, only 1% of its students are foreigners.

The South Korean Pohang University of Science and Technology has an overall rating of 59.6, with citations registering 79.2, industry income 99.6, international outlook 34.2, research 48.7 and teaching 53.8. The university has 3,017 students with a teacher-student ratio of 10. Despite its strong showing in the THE small university rankings, IISc has lagged in recent years in other rankings for international universities. In the Shanghai rankings or Academic Ranking of World Universities put out

BEST SMALL UNIVERSITIES

Rank	University	WUR rank 2016-17
1	California Institute of Technology, USA	2
2	École Normale Supérieure, France	66
3	Pohang University of Science and Technology, South Korea	104*
4	École Polytechnique, France	116*
5	Scuola Normale Superiore di Pisa, Italy	137*
6	Scuola Superiore Sant'Anna, Italy	190*
7	École Normale Supérieure de Lyon, France	201-250
8	Indian Institute of Science, India	201-250
9	Swedish University of Agricultural Sciences, Sweden	251-300
10	Free University of Bozen-Bolzano, Italy	251-300

WUR: World University Rankings **One or more other universities have the same rank*

ELIGIBILITY
To qualify for the Best Small Universities list, an institution must appear in Times Higher Education's World University Rankings 2016-17, teach more than 4 subjects, have fewer than 5,000 students.

NUMBERS
Average number of students at an institution in the 2017 World's Best Small Universities ranking is 3,038. By contrast, the average number of students at an institution in THE's main global ranking is 24,953.

VOICES
Many students prefer the smaller class sizes, closer relationships with teachers, greater sense of community. Small universities in larger cities offer perks of an intimate campus amid metropolitan life, students say.

WORLD UNIVERSITY RANKINGS 2016-17

1	University of Oxford	Oxford, United Kingdom
2	California Institute of Technology	Pasadena, California, US
3	Stanford University	Stanford, California, US
4	University of Cambridge	Cambridge, United Kingdom
5	Massachusetts Institute of Technology	Cambridge, Massachusetts, US
6	Harvard University	Cambridge, Massachusetts, US
7	Princeton University	Princeton, New Jersey, US
8	Imperial College London	London, United Kingdom
9	ETH Zürich	Zürich, Switzerland
10	University of California, Berkeley	Berkeley, California, US
10	University of Chicago	Chicago, Illinois, US

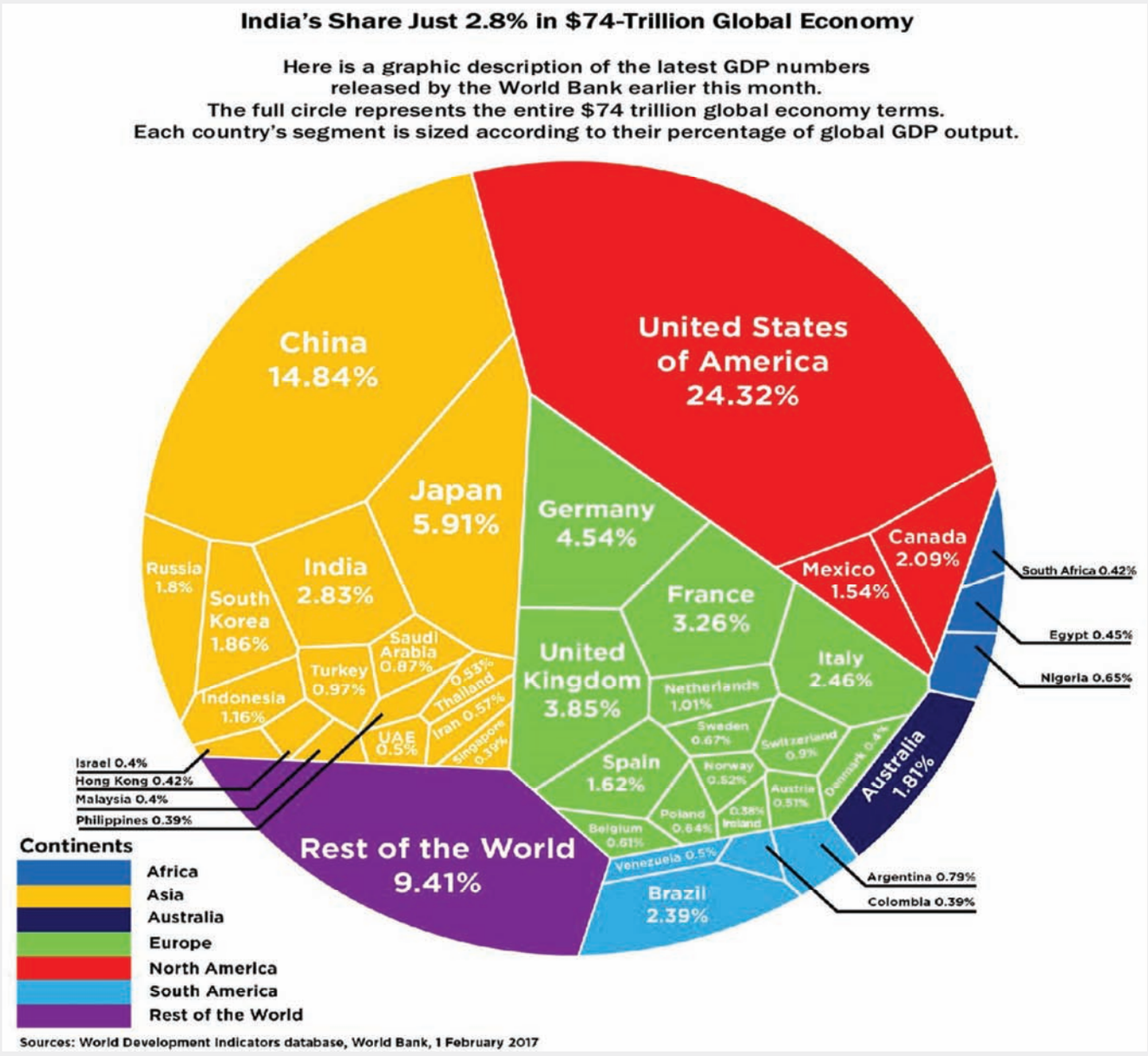
by the Shanghai Jiao Tong University, IISc's best ranking was between 201-300 — back in 2003. Since 2005, IISc has been slotted consistently in the 301-400 rank bracket.

In the engineering category in the Shanghai rankings, IISc reached its top ranking in 2007, when it was slotted between the 77 and 106 ranks. The two subjects in which IISc has had good rankings over the years in the Shanghai list are chemistry, where it reached a high rank of 43 in 2013, and computer science, where it ranked at a high of 51-75 in 2013.

These are the world's best universities

The 2016-17 Times Higher Education World University Rankings published a few days back is its biggest international list yet — more than the 801 universities listed last year. THE judges universities across their core missions of teaching, research, knowledge transfer and international outlook, using 13 performance indicators. The 2016-17 list includes institutions from 79 countries, representing an elite 5% of the world's higher education institutions. For the first time since the THE's inception in 2004, an American institution has failed to take the top spot — however, as many as 148 of the total 980 universities in the list, 63 of the top 200, and 3 of the top 5 are still American.

Source: The Indian Express







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