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In The Issue

HRD HALL OF DELHI CHAPTER

VIEW OF AUDITORIUM OF DELHI CHAPTER

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AN OVERVIEW OF STEEL SECTOR

AN OVERVIEW OF STEEL SECTOR

Global Scenario

- In 2016, the world crude steel production reached 1630 million tonnes (mt) and showed a growth of 0.6% over 2015.
- China remained world's largest crude steel producer in 2016 (808 mt) followed by Japan (105 mt), India (96 mt) and the USA (79 mt).
- World Steel Association has projected Indian steel demand to grow by 6.1% in 2017 and by 7.1% in 2018 while globally, steel demand has been projected to grow by 1.3% in 2017 and by 0.9% in 2018. Chinese steel use is projected to show nil growth in 2017 and decline by 2% in 2018.
- Per capita finished steel consumption in 2016 is placed at 208 kg for world and 493 kg for China by World Steel Association.

Note: Data for the year 2016 is provisional (source: World Steel Association report, World Steel in Figures, 2017)

Domestic Scenario

- The Indian steel industry has entered into a new development stage, post de-regulation, riding high on the resurgent economy and rising demand for steel.
- Rapid rise in production has resulted in India becoming the 3rd largest producer of crude steel in 2015 as well as in 2016. The country was the largest producer of sponge iron or DRI in the world during the period 2003-2015 and emerged as the 2nd largest global producer of DRI in 2016 (after Iran). India is also the 3rd largest finished steel consumer in the world and maintained this status in 2016. Such rankings are based on provisional data released by the World Steel Association for the above year.
- In a de-regulated, liberalized economic/ market scenario like India the Government's role is that of a facilitator which lays down the policy guidelines and establishes the institutional mechanism/ structure for creating conducive environment for improving efficiency and performance of the steel sector.
- In this role, the Government has released the National Steel Policy 2017, which has laid down the broad roadmap for encouraging long term growth for the Indian steel industry, both on demand and supply sides, by 2030-31.
- The said Policy is an updated version of National Steel Policy 2005 which was released earlier and provided a long-term growth perspective for the domestic iron and steel industry by 2019-20.
- The Government has also announced a policy for providing preference to domestically manufactured Iron & Steel products in Government procurement. This policy seeks to accomplish PM's vision of 'Make in India' with objective of nation building and encourage domestic manufacturing and is applicable on all government tenders where price bid is yet to be opened. Further, the Policy provides a minimum value addition of 15% in notified steel products which are covered under preferential procurement. In order to provide flexibility, Ministry of Steel may review specified steel products and the minimum value addition criterion.

Production

- Steel industry was de-licensed and de-controlled in 1991 & 1992 respectively.
- India is currently the 3rd largest producer of crude steel in the world.
- In 2016-17 (prov.), production for sale of total finished steel (alloy + non alloy) was 100.74 mt, a growth of 10.7% over 2015-16.
- Production for sale of Pig Iron in 2016-17

(prov.) was 9.39 mt, a growth of 1.8% over 2015-16.

- India was the largest producer of sponge iron in the world during the period 2003-2015 and was the 2nd largest producer in 2016 (after Iran). The coal based route accounted for 79% of total sponge iron production in the country in 2016-17 (prov).
- Data on production / production for sale of pig iron, sponge iron and total finished steel (alloy/stainless + non-alloy) are given in the table (1) for last five years and April-May 2017:

Indian steel industry :(in million tonnes) Table-1

Category	2012-13	2013-14	2014-15	2015-16	2016-17*	April-May 2017*
Pig Iron Production for sale	6.870	7.950	9.694	9.228	9.391	1.53
Sponge Iron Production	23.01	22.87	24.24	22.43	24.39	4.23
Total Finished Steel Production for sale (alloy/stainless + non alloy)	81.68	87.67	92.16	90.98	100.74	17.48

Source: Joint Plant Committee; *prov.

Demand - Availability

- Industry dynamics including demand – availability of iron and steel in the country are largely determined by market forces and gaps in demand-availability are met mostly through imports.
- Interface with consumers exists by way of meeting of the Steel Consumers' Council, which is conducted on regular basis.
- Interface helps in redressing availability problems, complaints related to quality.

Steel Prices

- Price regulation of iron & steel was abolished on 16.1.1992. Since then steel prices are determined by the interplay of market forces.
- Domestic steel prices are influenced by trends in raw material prices, demand – supply conditions in the market, international price trends among others.
- An Inter-Ministerial Group (IMG) is functioning in the Ministry of Steel, under the Chairmanship of Secretary (Steel) to monitor and coordinate major steel investments in the country.
- As a facilitator, the Government monitors the steel market conditions and adopts fiscal and other policy measures based on its assessment. Currently, GST of 18% is applicable on steel and there is no export duty on steel items. The government has also imposed export duty of 30% on all forms of iron ore except low grade (below Fe 58%) iron ore lump & fines and iron ore pellets both of which have nil export duty.
- In view of rising imports, the Government had earlier raised import duty on most steel items twice, each time by 2.5% and imposed a gamut of measures including anti-dumping and safeguard duties on a host of applicable iron and steel items. In a further move to curb steel imports, the Indian government banned the production and sale of steel products that does not meet Bureau of Indian Standard (BIS) approval and to check the sale of defective and sub-standard stainless steel products used for making utensils and various kitchen appliances, it issued the Stainless Steel (Quality Control) Order, 2016 for products used in making utensils and kitchen appliances, that will help filter imports of the metal. Again, in February 2016, the Indian Government had imposed the Minimum Import Price (MIP) condition on 173 steel products. The MIP was extended thrice and ceased to be effective in February 2017. Currently, a mix of anti-dumping /safeguard and other measures are in place on a range of steel items to control the inflow of cheap steel. Further, a Steel Price Monitoring Committee has been constituted by the Government with the aim to monitor price rationalization, analyze price fluctuations and advise all concerned regarding any irrational price behaviour of steel commodity.

Indian steel industry : Imports (in million tonnes) Table-2

Category	2012-13	2013-14	2014-15	2015-16	2016-17*	April-May 2017*
Total Finished Steel (alloy/stainless + non alloy)	7.93	5.45	9.32	11.71	7.23	1.06

Source: Joint Plant Committee; *prov.

Imports

- Iron & steel are freely importable as per the extant policy.
- Data on import of total finished steel (alloy/stainless + non alloy) is given in the table (2) for last five years and April-May 2017:

Exports

- Iron & steel are freely exportable.
- India emerged as a net exporter of total finished steel in 2016-17 (prov.)
- Data on export of total finished steel (alloy/stainless + non alloy) is given in the table (3) for last five years and April-May 2017:

Indian steel industry : Exports (in million tonnes) Table-3

Category	2012-13	2013-14	2014-15	2015-16	2016-17*	April-May 2017*
Total Finished Steel (alloy/stainless + non alloy)	5.37	5.99	5.59	4.08	8.24	1.38

Source: Joint Plant Committee; *prov

Levies on Iron & Steel

SDF levy

- This was a levy started for funding modernisation, expansion and development of steel sector. The Fund, inter-alia, supports:
  1. Capital expenditure for modernisation, rehabilitation, diversification, renewal & replacement of Integrated Steel Plants.
  2. Research & Development
  3. Rebates to SSI Corporations
  4. Expenditure on ERU of JPC
- The SDF levy was abolished on 21.4.94
- Cabinet decided that corpus could be recycled for loans to Main Producers.
- Interest on loans to Main Producers is set aside for promotion of R&D on steel etc.
- An Empowered Committee has been set up to guide the R&D effort in this sector.
- EGEAF – Was a levy started for reimbursing the price differential cost of inputs used for engineering exporters. Fund was discontinued on 19.2.96.

Opportunities for growth of Iron and Steel in Private Sector

The New Industrial Policy Regime

The New Industrial policy opened up the Indian iron and steel industry for private investment by (a) removing it from the list of industries reserved for public sector and (b) exempting it from compulsory licensing. Imports of foreign technology as well as foreign direct investment are now freely permitted up to certain limits under an automatic route. Ministry of Steel plays the role of a facilitator, providing broad directions and assistance to new and existing steel plants, in the liberalized scenario.

The Growth Profile

Steel:

The liberalization of industrial policy and other initiatives taken by the Government have given a definite impetus for entry, participation and growth of the private sector in the steel industry. While the existing units are being modernized/ expanded, a large number of new steel plants have also come up in different parts of the country based on modern, cost effective, state of-the-art technologies. In the last few years, the rapid and stable growth of the demand side has also prompted domestic entrepreneurs to set up fresh Greenfield projects in different states of the country. Crude steel capacity was

126.33 mt in 2016-17 (prov.), up by 3.6% over 2015-16 and India, which emerged as the 3rd largest producer of crude steel in the world in 2016 as per provisional ranking released by the World Steel Association, has to its credit, the capability to produce a variety of grades and that too, of international quality standards. The country is expected to become the 2nd largest producer of crude steel in the world soon.

Pig Iron:

India is also an important producer of pig iron. Post-liberalization, with setting up several units in the private sector, not only imports have drastically reduced but also India has turned out to be a net exporter of pig iron. The private sector accounted for 92% of total production for sale of pig iron in the country in 2016-17 (prov.). The production for sale of pig iron has increased from 1.6 mt in 1991-92 to 9.39 mt in 2016-17 (prov.).

Sponge Iron:

India, world's 2nd largest producer of sponge iron (2016, prov.), has a host of coal based units located in the mineral-rich states of the country. Over the years, the coal based route has emerged as a key contributor and accounted for 79% of total sponge iron production in the country. Capacity in sponge iron making too has increased over the years and stood at around 43 mt (2015-16).

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Worldsteel Short Range Outlook 2017/2018

Moderate but continued growth expected for global steel demand

The World Steel Association (worldsteel) released its October 2017 Short Range Outlook (SRO). worldsteel forecasts global steel demand will reach 1,622.1 Mt in 2017. In 2018, it is forecast that global steel demand will reach 1,648.1 Mt. worldsteel forecasts that global steel demand excluding China will reach 856.4 Mt, an increase of 2.6% in 2017 and 882.4 Mt, an increase of 3.0% in 2018.

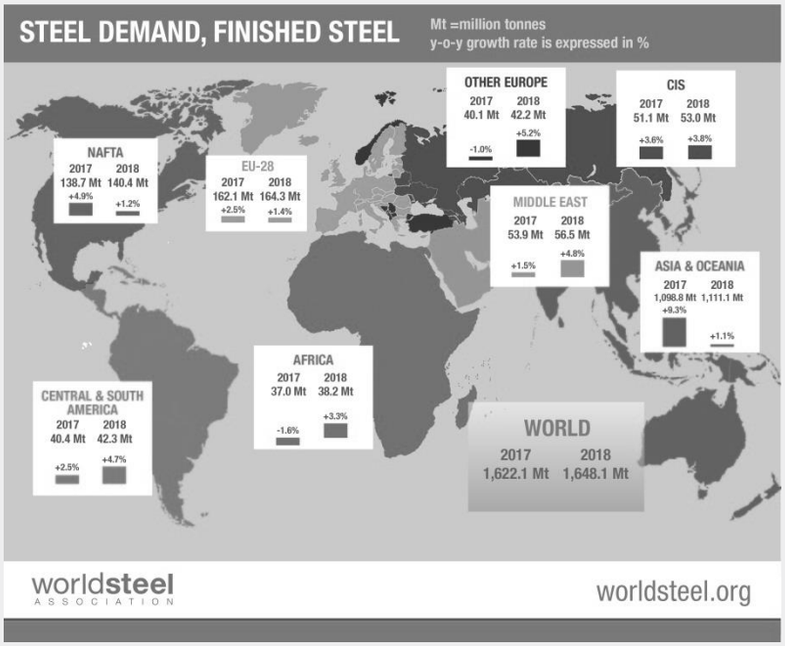
A Special Note on China

China closed most of its outdated induction furnaces in 2017, a category which was generally not captured in official statistics. With closure of the induction furnaces, the demand from this sector of the market is now satisfied by mainstream steel makers and therefore captured in the official statistics in 2017. Consequently, the nominal growth rate for steel demand in China increased to 12.4% or 765.7 Mt. Disregarding this statistical base effect world steel expects that the underlying growth rate of China's steel demand for 2017 will be 3%, which will make the corresponding global growth rate 2.8%.

Commenting on the outlook, Mr T.V. Narendran, Chairman of the worldsteel Economics Committee said, "progress in the global steel market this year to date has been encouraging. We have seen the cyclical upturn broadening and firming throughout the year, leading to better than expected performances for both developed and developing economies, although the MENA region and Turkey have been an exception.

The risks to the global economy that we referred to in our April 2017 outlook, such as rising populism/protectionism, US policy shifts, EU election uncertainties and China deceleration, although remaining, have to some extent abated. This leads us to conclude that we now see the best balance of risks since the 2008 economic crisis. However, escalating geopolitical tension in the Korean peninsula, China's debt problem and rising protectionism in many locations continue to remain risk factors.

In 2018, we expect global growth to moderate, mainly due to slower growth in China, while in the rest of the world, steel demand will continue to maintain its current momentum. So, world steel demand is recovering well, driven largely by cyclical factors rather than structural. The lack of a strong growth engine to replace China and a long term decline in steel intensity due to technological and environmental factors will continue to weigh on steel demand in the future."



Global economic momentum bodes well for steel demand growth in the short term

Both advanced and developing economies are exhibiting stronger economic momentum this year. Confidence and investment sentiments are improving in a large part of the world despite some financial market volatility and growing concern of stock market overvaluation. Also on a positive note, global trade is gaining momentum despite worries about rising protectionism and talks of rearranging existing free trade agreements.

Developed economies gain strong foothold for recovery

The US economy continues to exhibit robust fundamentals supported by strong consumer spending and rising business confidence. Concern about tensions within the EU particularly over migration policies is receding and the EU economic recovery is broadening. Japanese steel demand is showing better than expected performance benefitting from the government stimulus package, improving exports and preparations for the 2020 Olympic games. South Korea's steel demand is suffering from high consumer debts, weakening construction and a depressed shipbuilding sector, while escalated tension around the North Korean nuclear weapons threat poses a serious and highly unpredictable risk. With these generally favourable developments steel demand in the developed economies is expected to increase by 2.3% in 2017 and 0.9% in 2018.

China

The Chinese economy, which has been gradually decelerating, is increasingly supported by consumption while investment continues to decelerate. However, government stimuli, particularly a moderate boost to the construction programme, contributed to increased GDP growth in 2017. China's steel demand is expected to increase by 3.0% in 2017, an upward revision over the previous forecast. The recent closure of induction furnaces will lead to a one-off jump in measured steel use in 2017 to 12.4%. The outlook for China's steel demand in 2018 remains subdued, showing no growth over 2017 as the government resumes and strengthens its efforts on economic rebalancing and environmental protection.

Developing countries are benefitting from the global recovery and economic reforms, but to varying degrees

Developing countries benefit from a strengthening global economy. The reform agendas in many developing countries such as Egypt, Brazil, Argentina, Mexico and India are expected to enhance their growth potential over time. India had a slowdown in economic activity in 2017, but accelerating government reforms are expected to bring about a better investment environment leading to growth in the coming years. Investment activities are still driven by government initiatives and private sector investment is still restrained due to leveraged corporate balance sheets. ASEAN remains a high growth region, especially Vietnam and the Philippines, while more mature economies such as Thailand and Malaysia are showing slower growth.

In the CIS steel demand is expected to

strengthen in 2017-2018 and specifically Russia is likely to maintain its slow recovery. Turkish steel demand is expected to resume growth momentum in 2018. The MENA region's outlook has suffered from low oil prices, geopolitical strife and high inflation. The region would benefit from reconstruction efforts once the major conflicts are ended. GCC countries continue to struggle with the low oil price environment. Countries in South America have been slow so far to benefit from the recovery in the global economy. In Brazil continuing depressed construction activity has held demand recovery back in 2017 but a stronger recovery is expected in 2018.Steel demand in the developing economies excluding China is expected to grow by 2.8% in 2017 and 4.9 % in 2018.

The construction and machinery sectors are likely to benefit from improving investment sentiments while the automotive sector might moderate

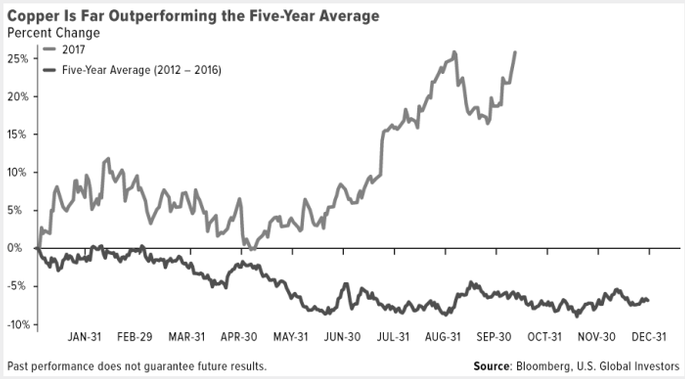
The construction sector in the developed economies, which had been slow to recover from its collapse after the 2008 economic crisis, is now showing more positive signs both in the residential and commercial sectors due to rising incomes and improving investment sentiments. Infrastructure investment, which has been driving steel demand in developing countries, is likely to get some additional support from the developed world's infrastructure renewal initiatives. The global automotive sector is reporting a strong performance in 2017 with an especially strong performance in Turkey and Mexico. However, in the US and China the auto sector could moderate and this trend is likely to extend to other countries in 2018.

Source: www.worldsteel.org

Copper is the 'metal of the future'

As many of you know, copper is often seen as an indicator of economic health, historically falling when overall manufacturing and construction is in contraction mode, rising in times of expansion. That appears to be the case today. Currently trading above $3 a pound, "Doctor Copper" is up close to 28 percent year-to-date and far outperforming its five-year average from 2012 to 2016. Several factors are driving the price of the red metal right now. Manufacturing activity, as measured by the purchasing manager's index (PMI), is expanding at a pace we haven't seen in years in the U.S., eurozone and China. The U.S. expanded for the 100th straight month in September, climbing to a 13-year high of 60.8.

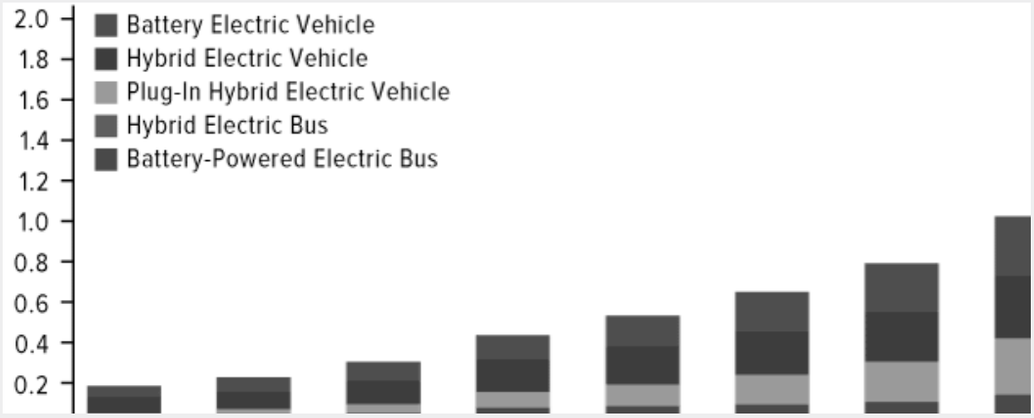
Speculators are also buying in response to word of copper shortages in China, despite September imports of the metal rising to its highest level since March. The world's second-largest economy took in 1.47 million metric tons of copper ore and concentrates last month, an amount that's 6 percent higher than the same month in 2016.



Why copper is the "metal of the future"

Why are we seeing so much copper entering China? One reason could be battery electric vehicles (BEVs), which require three to four times as much copper as traditional fossil fuel-powered vehicles. China is already the world's largest and most profitable market for BEVs, and Beijing is now reportedly working on plans to curb and eventually ban the sale of fossil fuel-powered vehicles, according to the Financial Times. This would place the Asian giant in league with a number of other powerful countries similarly crafting bans on internal combustion engines within the next 25 years, including Germany, France, Norway, the United Kingdom and India. Because of the sheer size of the Chinese market, this move is sure to delight copper bulls and investors in any metal that's

set to benefit from higher BEV production. That includes cobalt, lithium and nickel. According to Bloomberg New Energy Finance, BEVs will account for 54 percent of all new car sales by 2040. That year, China, Europe and the U.S. are expected to make up 60 percent of the global BEV fleet. This could have a huge effect on copper prices over the next 10 years and more. With fewer and fewer large deposits being discovered, demand should accelerate from 185,000 metric tons today to an estimated 1.74 million tonnes in 2027, according to the International Copper Association.



These are among the reasons why Arnoud Balhuizen, chief commercial officer of Australian mining giant BHP Billiton, called copper "the metal of the future" in an interview with Reuters last month. "2017 is the revolution year [for electric vehicles], and copper is the metal of the future," Balhuizen said, adding that the market is grossly underestimating the red metal's potential as BEV adoption surges around the world.

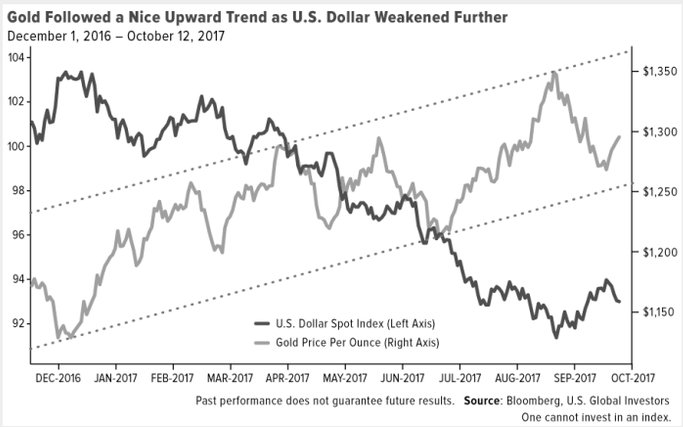
Cobalt gets its day in the sun

And let's not forget cobalt. The brittle, silver-gray metal, used to extend the life expectancy of rechargeable batteries, is up more than 81 percent so far in 2017 and 109 percent for the 12-month period. Performance is being driven not only by growing BEV demand but also supply disruptions in the Republic of the Congo, where more than 60 percent of the world's cobalt is mined. "It's a really bright future for cobalt," Vivienne Lloyd, analyst at Macquarie Research, told the Financial Times. "There doesn't seem to be enough of it." Before now, there was very little mainstream interest in cobalt as an investment, but that's changing as rapidly as world governments are joining the chorus to move away from fossil fuels. One sign of that change is the London Metal Exchange's (LME) upcoming cobalt contracts, one for the physical metal and another for the chemical compound cobalt sulphate. This will allow investors to trade the underlying metal and participate in the electric vehicle "revolution," as Balhuizen calls it. In the meantime, investors can participate by investing in a producer with exposure to cobalt—among our favorites are Glencore, Freeport-McMoRan and Norilsk Nickel—or a natural resources fund.

Gold closes above $1,300 an ounce

Gold also looks constructive as we head into the fourth quarter and beyond, according to a number of new reports and analysis. UBS strategist Joni Teves finds it "encouraging" that gold has managed to recover this year off its 2016 lows. Although a likely December rate hike could be a headwind, Teves points out that the metal performed well in the months that followed the previous three rate hikes. What's more, gold has rallied in each January since 2014. We could see a similar bump in price this coming January. Not only is gold trading above its 50-day moving average again, but for all of 2017, it's been following a nice upward trend as the U.S. dollar dips further.

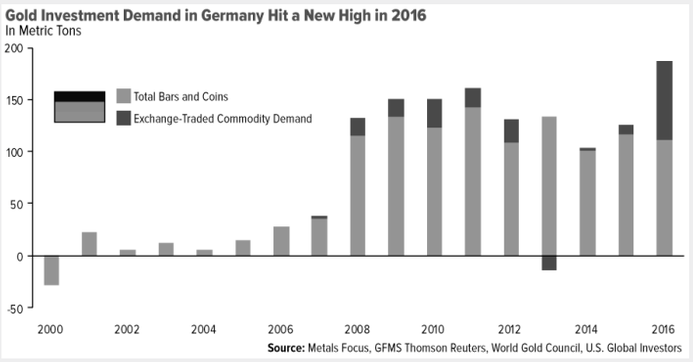
A weaker greenback, of course, is bullish for all commodities, including copper. According



to Bloomberg strategist Mike McGlone, unless the dollar unexpectedly recovers in the near term, commodities, as measured by the Bloomberg Commodities Index, could gain as much as 20 percent between now and year's end. Meanwhile, BCA writes that major risks in 2018—inflationary expectations stemming from President Donald Trump's protectionism, tensions between the U.S. and China, and continued strife in the Middle East among them—could keep the shine on gold. The research firm reminds investors that gold has historically done well in times of economic and geopolitical crisis, outperforming the S&P 500 Index, U.S. dollar and 10-year Treasury by wide margins. Because the metal is negatively correlated to other assets, it could potentially serve as a good store of value if equities entered a bear market. Such a bear market, triggered by tighter U.S. monetary policy, could take place as early as 2019, BCA analysts estimate. Gold would then stand out as a favourable asset to hold, especially if inflationary pressures pushed real Treasury yields into negative territory.

A fear trade lesson from Germany

This is the lesson Germany has learned over the past 10 years, as I shared with you a few weeks back. Before 2008, Germans' investment in physical gold barely registered on anyone's radar, with average annual demand at 17 metrics tons. The country's first gold-backed exchange-trade commodities (ETCs) didn't even appear on the market until 2007. But then the financial crisis struck, followed by monetary easing and low to negative interest rates. These



events ultimately pushed many Germans into seeking a more reliable store of value. Now, a new report from the World Gold Council (WGC) shows that German investors became the world's top gold buyers in 2016, ploughing as much as $8 billion into gold coins, bars and ETCs. Amazingly, they outspent Indian, Chinese and U.S. investors. Analysts with the WGC believe there is room for further growth, citing a recent survey that shows latent demand in Germany holding strong. Impressively, 59 percent of German investors agreed that "gold will never lose its value in the long-term." That's a huge number, suggesting the investment case for gold remains attractive.

Source: www.businessinsider.com.

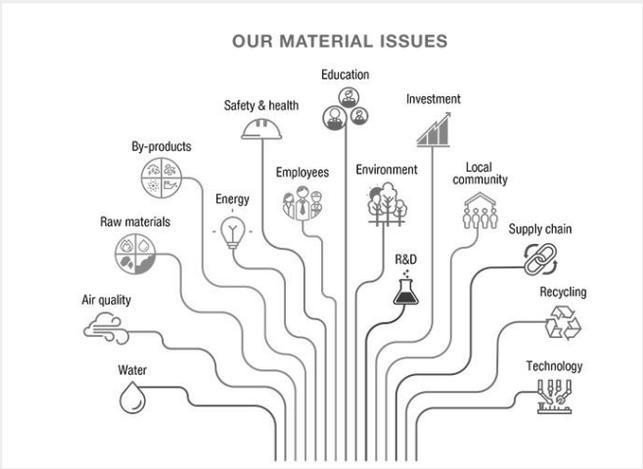
Sustainable Steel – Indicators 2017 and the future

The World Steel Association (worldsteel) launched the 2017 report Sustainable Steel – Indicators 2017 and the future. This report highlights three aspects: steel as a critical enabler and partner for other industries in a sustainable society; steel as an industry which takes its commitments and responsibilities seriously; and the challenges facing the industry along with initiatives that are in place to address them.

Edwin Basson, Director General, worldsteel, said, "Reporting our sustainability performance with the 8 indicators is one aspect that demonstrates our commitment to sustainability. Our intention is to monitor progress and foster improvement from a social, economic and

environmental sustainability perspective. In addition to reporting, we, together with our members, have been taking action through a range of initiatives to address the challenges the steel industry faces to ensure the sustainable development of the industry". "This year we wanted to go beyond the 8 indicators in our reporting of the industry's sustainability performance and commitment, and discuss the material issues which matter most to the industry and its stakeholders. We perform materiality assessments on a regular basis to ensure that the industry's reporting is relevant and meaningful. In addition to our 8 sustainability indicators, our most recent assessment identified 7 further areas which we plan to address extensively in our communications over the coming years. These areas are air quality, water, by-products, recycling, supply chain, environmental investment and product applications."

Reporting is voluntary and open to both members and non-members of worldsteel. Our industry is one of the few that reports at a global level and has done so since 2004. Coverage and representativeness has steadily improved since then, with a total of 125 companies and 6 associations worldwide participating in the 2017 data collection. Crude steel produced by companies who reported on one or more indicators for the 2016 fiscal year was 875Mt, representing 54% of global crude steel production, up from 33% in 2004.



Results for our 8 steel industry indicators for the 2016 fiscal year are as follows:

Environmental sustainability

1. Greenhouse gas (GHG) emissions: An average of 1.9 tonnes of CO2 was emitted for every tonne of crude steel cast.
2. Energy intensity: 19.1 GJ of energy was used per tonne of crude steel cast
3. Material efficiency: 97.6% of materials used to make crude steel were converted to products and by-products.
4. Environmental Management Systems (EMS): 97.1% of employees and contractors worked in EMS-registered production facilities.

Social sustainability

1. Lost time injury frequency rate (LTIFR) was 1.0 injuries per million hours worked.
2. Employees (at both production and non-production facilities) received an average of 7.0 training days per year.

Economic sustainability

1. Investment in new processes and products was 13.0% of revenue
2. Economic value distributed (EVD) was 98.8% of industry revenue

Source: www.worldsteel.org

Recycled steel could herald new era for batteries

An innovative new method has created the possibility of repurposing stainless steel into sustainable potassium-ion batteries

Researchers from the Chinese Academy of Sciences and Jilin University have developed an innovative, environmentally friendly method of recycling stainless steel to make novel electrodes for potassium-ion rechargeable batteries. The team's electrode fabrication, derived from corroded stainless steel meshes, has applications in the electronics industry, and is highly suitable for the fabrication of flexible electronic devices. Good conductivity in electrodes is crucial for applications in energy storage electronic devices. The expected

growth of portable electronics, the need for battery improvement requirements, and huge increase in the manufacture of electric vehicles – such as Tesla cars and others – in the coming years point to a need for exponential growth in renewable energy sources. In turn, this demands the development of large-scale energy storage systems for grid utilisation.

In the past, research for large-scale energy storage solutions led to the first lithium-ion rechargeable battery commercialised by Sony in 1991. It was then when the electronics industry – and in particular the manufacture of mobile devices – was completely transformed. Despite the high efficiency and suitability for small- to medium-scale applications, lithium-ion batteries have a limited life cycle. In addition, they present environmental, safety and thermal management issues. In other words, they are no longer the best available option. Today, sustainability, as well as the high-cost of the extraction of lithium and its limited availability, have triggered researchers to look for alternatives to lithium-ion batteries. New technologies and applications demand the creation of the next generation of rechargeable super batteries, which more efficiently store renewable energy, and have better conductivity.

Sodium vs. potassium: Why potassium is a better choice

A few years ago, sodium-ion was widely considered as an alternative to replace lithium-ion batteries. Sodium, (the sixth most abundant element found in Earth's crust), is cheaper, non-toxic, and more abundant than lithium. Potassium, (the seventh most abundant element on Earth), is also less expensive, and far more plentiful than lithium. Potassium and sodium are chemically very similar, but besides its natural availability, low-cost, and its long life cycle, potassium is a better charge carrier in rechargeable batteries.

Sustainable solutions

Challenges in the development of advanced cathode materials, i.e. the electrode from which a conventional current leaves a polarised electrical device, and design of appropriate electrode structures, i.e. the electrical conductor of electricity for potassium-ion batteries led researchers from the Chinese Academy of Sciences and Jilin University to find a better, more sustainable alternative to lithium. Using an innovative technique, and under the guidance of Prof. Xin-bo Zhang, a team of scientists from the Chinese Academy of Sciences and Jilin University, used corroded stainless steel meshes as iron sources. These stainless steam meshes were converted to develop stable, low-cost, high-performance cathodes for potassium-ion batteries.

The stainless steel mesh is immersed in an acid environment, which dissolves the iron, nickel and chromium ions. These are immediately consumed by excess ferricyanide ions in the acid to form a complex salt known as cubic Prussian blue on the surface of the meshes. The nickel and chromium in stainless steel make it the perfect alloy for this process. Prussian blue is a dark blue pigment that is found as deposits on the surface of a mesh as scaffold-like nanocubes. Thanks to this process, potassium ions can be stored in and released from these structures easily and rapidly. "The nickel and chromium in stainless steel make it the perfect alloy for this process". According to Prof. Zhang's team, compared with existing cathodes of potassium-ion batteries, the as-prepared Prussian blue electrode shows excellent electric conductivity and a unique reduced graphite oxide-coated structure, which enables fast electron transfer and great cycle stability. This means increased stability during charge and discharge cycle, resulting in better battery performance.

Toward a resource-sustainable and environmentally friendly future

The current and future demands for environmentally friendly transportation, power supply for electronic devices and cleaner energy sources calls for solutions that are both resource-sustainable and environmentally friendly. This new method for developing potassium-ion batteries meets all

the necessary requirements. The method is the result of extensive research conducted by the Zhang Group focused on developing advanced materials for high-performance next-generation energy storage, conversion devices and systems. "This technology overcomes the inherent problem of traditional electrode with insufficient conductivity, constructing an ultrafast conducting network. The proposed method opens new avenues for the reuse of stainless steel in new value-added applications, which are of great importance to assist efforts to build a resource-sustainable and environmentally friendly society," concludes Prof. Zhang.

Source: www.worldsteel.org

Birender Singh urges MECON to play a key role in enhancing steel consumption in India

Steel Minister Birender Singh has urged engineering consultancy firm MECON to play a key role in enhancing steel consumption in India by working on steel-intensive structures and showcasing advantages of using steel in major construction projects. With steel production capacity envisaged to go up to 300 million tonne production by 2030, stepping up steel exports is very crucial and the company can contribute in this by application engineering and market development, he said. In this connection, new avenues for using steel like crash barriers, railway sleepers, food grain silos, electric poles, underpass structures etc. must be explored immediately to enhance steel consumption across the country, he felt. The minister's remarks came during a mid-year review meeting with top management of MECON, a PSU under Ministry of Steel. The meeting was held in the presence of steel secretary Steel Aruna Sharma and senior officials from the ministry.

In his opening remarks, Singh said, MECON must utilize its rich experience and expertise in the metallurgical engineering to enhance capacity utilization and product improvement by steel PSUs. The minister added that the company must constantly try to improve and fix physical and financial targets in tune with the times. While the company can explore diversifying its other businesses for top line improvement, it must give due attention to its primary mandate of enabling growth of manufacturing, innovation and technology in India. In particular, MECON can play a big role in "Make in India" initiative in collaboration with capital goods and machinery manufacturers and steel producers, especially in the secondary sector, he added.

Source: The Economic Times

SAIL signs technical pact with POSCO to reap benefits for IISCO Steel Plant

Steel Authority of India (SAIL) stated recently that it has entered into a strategic agreement with POSCO for wide-ranging technical services for its IISCO Steel Plant (ISP) at Burnpur to assist in realising the benefits from the company's new plant. Under the agreement, POSCO will provide technical supervising service, including its know-how relating to operation and maintenance of coke-making, iron and steelmaking, continuous casting process, cold dust injection (CDI) operation and wire-rod mills. SAIL-ISP, which has already completed its modernisation and expansion, is ramping up production from its new facilities and the 0.55 million tonnes wire rod mill of SAIL-ISP shall soon be producing wire rods in special grades to meet both domestic and international requirements, an official statement said.

This agreement, which SAIL and POSCO had entered in November 2016, is a result of an earlier memorandum of understanding (MoU) on technical collaboration for operational improvement and human resource development. This technical agreement will pave the way for sharing of best practices in the area of technology and maintenance that will immensely benefit SAIL-ISP in reaping benefits from its modernised units faster, SAIL Chairman P K Singh said. Earlier in May 2015,

SAIL and ArcelorMittal entered into an MoU to explore the possibility of setting up an auto grade steel manufacturing facility under a joint venture in India. The Rs 5,000-crore auto grade steel plant is expected to be set up close to an automobile hub.

However, the two companies are yet to sign a commercial agreement and are also yet to finalise the location for the plant. A task force team comprising representatives from both SAIL and ArcelorMittal has been working on detailed due diligence and preliminary feasibility study and all other issues for setting up a joint venture plant. The much-awaited JV between steel giant ArcelorMittal and state-run SAIL will also focus on producing specialised grade steel products for defence, space, among others. The proposed JV will construct a cold-rolling mill and other downstream finishing facilities in India, touted as one of the fastest-growing automotive markets in the world with production expected to double between 2014 and 2020, from 3.6 million units to 7.3 million units.

Source: Business Standard

JSW, Tata in race for top slot in steel industry

The largest steelmaker in the country, JSW Steel, is aggressively ramping up capacity to retain top slot, while the number three player, Tata Steel, too, has its agenda set to spring back to its earlier leadership position. The race has heated up even as the Reserve Bank of India (RBI)-mandated insolvency process has gained speed for five other majors in the sector — Essar Steel, Bhushan Steel, Bhushan Power & Steel, Monnet Ispat & Energy, and Electrosteel Steels.

The two steelmakers will use a mix of organic and inorganic routes to achieve their goals. At present, JSW Steel, with a capacity of 18 million tonnes, followed closely by public sector steel major, Steel Authority of India (SAIL) with a capacity of 17.5 million tonnes. Tata Steel has a capacity of 12.7 million tonnes. By the end of the year, however, SAIL is expected to complete its expansion and modernisation programme at the Bhilai steel plant, which will take its capacity to 21.3 million tonnes. No further expansion has been announced by SAIL. But, JSW Steel and Tata Steel are both ready to cash in on the opportunities in the domestic market.

JSW Steel will be ramping up the capacity from 18 million tonnes to 23 million tonnes by 2020. The capex programme for this, along with a few other strategic projects, is pegged at Rs 26,800 crore. "We have taken advantage of opportunities at the right time and yet kept the debt profile balanced. We have a target of taking the capacity to 40 million tonnes by 2030, which would be through a mix of organic and inorganic routes," said JSW Steel Director (commercial and marketing) Jayant Acharya.

Tata Steel, which was the largest steelmaker in the private sector in India till about 2009, also has its agenda set. It already has approval for adding another million tonne to the existing 9.7 million tonne at Jameshedpur and plans to take up the second phase of expansion at Kalinganagar in the near term. But Tata group's new chairman, Natarajan Chandrasekaran, has set aggressive growth targets for Tata Steel in India. At a press conference to announce the Tata-Thyssenkrupp joint venture, Chandrasekaran had said a deleveraged Tata Steel would be better positioned to grow faster

and double capacity over the next five years, organically or inorganically. That would mean taking Tata Steel's capacity to 25.4 million tonnes by 2022.

"Till around a decade back, both Tata Steel and JSW had similar steel making capacities in India. Thereafter, JSW increased the size of its steel making operations at a faster rate than Tata Steel through both organic and inorganic routes. Currently, both companies are in the midst of ramping up their operations further through implementation of brownfield expansion projects," Jayanta Roy, senior vice president, ICRA, said. Growing in India makes sense for the companies because there are some positive indicators. Domestic demand has grown 4.4 per cent in April-August 2017 compared to 2.6 per cent in FY2017; domestic steel prices have grown 14 per cent since June 2017, steel exports have reported a 57 per cent year-on-year growth during April-August 2017 and capacity utilisation has improved to above 80 per cent during the current financial year, according to ICRA.

Industry sources point out that it may not be possible for Tata Steel to double capacity through the organic route alone if the deadline of 2022 is to be met. Tata Steel has said it would look at opportunities thrown in by the insolvency process. Though it hasn't named specific assets, but it hasn't ruled out bidding for assets in the east or west in the country. Among the major assets in the east include Bhushan Steel while the west would include Essar Steel. JSW Steel has said that it would bid for Bhushan Steel, Monnet Ispat & Energy while Essar Steel wasn't ruled out either. An acquisition of any of the bigger assets like Bhushan Steel with a capacity of 5.6 million tonnes or Essar Steel at 10 million tonnes could change the pecking order of the industry.

Source: Business Standard

Indian steel capacity to more than double by end of next decade

Steel demand in India is gathering speed amid an infrastructure building boom that's set to more than double capacity of the nation's mills, according to the government. "We're expecting domestic consumption to accelerate in the decade between 2020-2030," Steel secretary Aruna Sharma said in New Delhi. Annual capacity stands at 126 million metric tonnes and is forecast to rise to 150 million tonnes by 2021, before settling at 300 million tonnes, she said. India is in the midst of a wave of urbanization that is set to boost demand for everything from copper to iron ore to steel as the economy expands over the next two decades, according to an Australian government report. It's taken seven years for per capita steel consumption to rise to 60 kilograms from 50 kilograms and just 18 months to get to 64 kilograms this year, Sharma said. While the government's push on infrastructure will be the main driver for rising demand, the ministry is also seeking to boost steel's use in structures including pipes for drinking water, Sharma said in an interview.

India's finished steel consumption rose 4.3% to 43 million tonnes in the six months to September, while output climbed 5% to 52 million tonnes, according to the steel ministry. In the financial year ended 31 March, usage grew 3% to 84 million tonnes, the slowest pace in three years, even as production gained 11% to a record 101 million tonnes. India is set to displace Japan as the world's second-largest steel producer, and by 2022 will churn out 146 million tons compared with 118 million tons from Japan, according to an April report from Australia's Department of Industry, Innovation and Science. That compares with an estimated 785 million tonnes of production in 2022 by industry leader China, it said.

The optimistic outlook for the industry amid record volumes, a price recovery and higher

demand has sparked a surge in shares of Indian mills. Tata Steel Ltd has rallied 76% this year in Mumbai, the best performer on the benchmark S&P BSE Sensex Index, and JSW Steel Ltd is up 59%. The nation's growing steel capacity may offer an additional source of demand for the top iron ore miners, including BHP Billiton Ltd, Rio Tinto Group and Fortescue Metals Group Ltd. India is a potential "sleeper" that will add to demand growth as steel use rises, Fortescue's chief executive officer Nev Power said in August.

Source: Metal Junction

India imposes antidumping duty on certain Chinese, EU steel products

India recently imposed anti-dumping duty on imports of certain flat steel products from China and European Union (EU) for five years to guard the interest of domestic players from cheap in-bound shipments. The duty was imposed after the commerce ministry's directorate general of anti-dumping and allied duties (DGAD) recommended duty on such imports. In its findings, the DGAD had concluded that 'colour coated/pre-painted flat products of alloy or non-alloy steel' has been exported to India from these regions at below the normal value, due to which domestic industry has suffered material injury. "The anti-dumping duty imposed under this notification shall be effective for a period of five years (unless revoked, superseded or amended earlier) from...11th January and shall be payable in Indian currency," the department of revenue said in a notification.

The duty will be the difference between the landed value of the steel products and USD 822 per tonne. India has already slapped anti-dumping duty on certain cold-rolled flat steel products from four nations, including China and South Korea. While DGAD recommends the duty to be levied, the finance ministry imposes it. Countries initiate anti-dumping probes to determine if the domestic industry has been hurt by a surge in below-cost imports. As a counter-measure, they impose duties under the multilateral WTO regime. Anti-dumping measures are taken to ensure fair trade and provide a level-playing field to the domestic industry. They are not a measure to restrict imports or cause an unjustified increase in cost of products.

Source: www.newindianexpress.com

World steel demand forecast to grow for third year in 2018

Global steel demand appears likely to increase in 2018 for a third straight year, with Latin America, the Middle East and other emerging economies leading the way, a report by the World Steel Association shows. The international trade body released the outlook during its general meeting. The association expects steel demand to reach 1.64 billion tons next year, up 1.6% over the volume projected for this year. Though five of the eight regions as measured by the group registered declines in 2016, all of them should experience higher demand in 2018, the report said. This year's estimate of 1.62 billion tons represents a 7% rise from 2016. But the high growth rate owes to improved statistical capture in China, and the increase translates to 2.8% under the previous metrics.

Demand in China, the world's No. 1 steel market, is forecast to remain at 765 million tons next year. The government will adjust its economic stimulus measures and make environmental protection a higher priority, T.V. Narendran, chairman of the association's economics committee, told reporters. The group projects a 12.4% jump in Chinese demand for this year. Government crackdowns led to the closing of outdated facilities that churned out substandard steel, which the association's statistics did not capture. Normal steel, which the association tracks, has filled the vacuum created by these closures and fueled the one-time boost in demand seen for 2017. China's growth rate shrinks to 3% when excluding this factor.

The estimates for global demand growth shift to 2.6% for 2017 and 3% for 2018 when China is excluded. Third-ranked user India continues to experience solid gains, with a 5.7% increase anticipated for 2018 that would narrow the gap with the U.S. -- where a growth rate of 1.1% is forecast. Japan, ranked fourth, likely will see steel demand rise 0.8% to 64.5 million tons. Demand in eighth-ranked Turkey is expected to climb 6% to 35.5 million tons in 2018 after a decline in 2017. Latin American demand is seen increasing 4.7% next year, thanks partly to an economic recovery in Brazil. The association forecasts 1.1% growth in the Asia-Oceania region, though five Southeast Asian countries -- including Indonesia and Vietnam -- are expected to experience a 6.8% increase.

Source: www. asia.nikkei.com

World crude steel output surges 6.3% in August

The overall output figure of 143.58 million tonnes represented a 6.3% gain over the 135.117 million tonnes of August 2016 while the year-to-date total of 1.122 billion tonnes was 4.9% higher than the 1.069 billion tonnes of January-August 2016. Chinese crude steel production soared more than 30 million tonnes, or 5.6%, in the opening eight months of this year to 566.405 million tonnes. Japan held on to second spot in the world producers' league table despite its output dropping 0.4% to 69.644 million tonnes. India was in third place as a 5.1% year-on-year increase in production yielded a total of 66.459 million tonnes. There was a 2.4% upturn in US crude steel production to 54.703 million tonnes in this year's January-August period while South Korea (+3.7% to 47.012 million tonnes) and Turkey (+ 13.6% to 24.742 million tonnes) recorded even more substantial gains. On the flipside, output in Russia fell 1% to 46.525 million tonnes and Ukraine suffered a 13.9% slump to 14.114 million tonnes. From the regional perspective, EU crude steel production was 4.3% higher in the first eight months of this year at 112.701 million tonnes. There were also strong gains for South America (+8.1% to 28.601 million tonnes), Africa (+11.4% to 8.931 million tonnes), the Middle East (+9.5% to 20.79 million tonnes) and Oceania (+3.6% to 3.909 million tonnes).

Source: Metal Junction

SAIL's Bhilai Steel Plant signs up ACB Mining as Rowghat iron ore mine developer

SAIL has appointed ACB Mining Private Ltd as developer and operator for its 14 mtpa iron ore block at Rowghat in Chhattisgarh, an official of the state-run steelmaker said. SAIL's Bhilai Steel Plant has signed an agreement with ACB Mining Private Ltd for the development and operation of Rowghat iron ore mines, the official, who did not wish to be named, said. Under the agreement signed on September 25, ACB Mining will develop the iron ore mines for a period of 30 years and commercial production would begin from 2022. The Rowghat iron-ore project has been a crucial and important for Bhilai Steel Plant in view of iron ore security for the plant, as ore in existing mines would be exhausted in another 4 to 5 years period, the official said. SAIL had perceived the Rowghat project 25 years back as future source for iron ore for Bhilai Steel Plant.

However, the progress was hampered for some time for want of clearances from department of environment and forests. The steelmaker received final clearances for the project in 2009. The company is also investing Rs 1,142 crore to create logistics infrastructure such as building Rail Line network from Dalli-Rajhara to Rowghat for transporting iron ore and the work would be completed by 2022. The steelmaker received final clearances for the project in 2009.

Source: Metal Junction

Hope alive for SAIL but no big gains soon

In contrast to its large peers, government-owned Steel Authority of India (SAIL) has been

a laggard, both in financial performance and on the bourses (see charts). A key reason is that despite access to captive raw material sources for a large part of its requirement, its operating profit (profit before interest, depreciation and tax) margin has been far lower than peers Tata Steel's domestic operations and JSW Steel.

SAIL LAGS BY A BIG MARGIN

(In ₹crore)	FY15	FY16	FY17	Q1FY18	FY18E	FY19E
TATA STEEL*						
PBIDT	12,482	6,354	11,587	2,462	14,384	15,700
PBIDT margin (%)	29.9	16.6	24.1	19.2	24.9	26.0
Interest	1,976	1,848	2,689	700	NA	NA
Net profit/loss	6,439	956	3,445	506	4,587	6,429
SAIL						
PBIDT	5,707	-2,409	494	-5	4,932	7,026
PBIDT margin (%)	12.4	-6.2	1.1	-0.0	8.6	11.1
Interest	1,555	2,300	2,528	588	NA	NA
Net profit/loss	2,035	-4,177	-2,756	-801	-157	1,146
JSW STEEL						
PBIDT	9,467	4,456	12,326	2,658	13,215	14,657
PBIDT margin (%)	17.9	10.7	22.2	18.4	20.6	21.9
Interest	3,493	3,601	3,768	945	NA	NA
Net profit/loss	1,797	-335	3,523	624	4,197	5,116

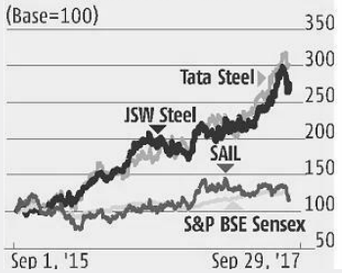
E: estimates; * Standalone; PBIDT: profit before interest, depreciation and taxes

Second, its capacity expansion plans have been delayed time and again. This not only dampened sentiment but also impacted its financials — high debt and low return ratios. While some of this is expected to change, the benefits are likely to take a longer time. The chairman of SAIL, at the recent annual general meeting of shareholders, said the company was in the final leg of its modernisation and expansion programme. The new universal rail mill at Bhilai (Chhattisgarh) was commissioned in January. The new blast furnace at Rourkela Steel Plant (RSP, Odisha) achieved 100 per cent capacity utilisation. SAIL's new three million tonnes per annum (mtpa) hot strip mill at RSP is scheduled to be installed by 2018 and will enlarge the basket of value-added products.

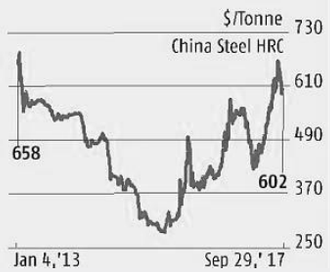
With expansions getting over, SAIL's saleable steel capacities will reach more than 20 mtpa and crude steel to 21.4 mtpa by 2018, helping it regain the status of the country's largest steelmaker. Investors will be hoping these already delayed expansions would now finally get over. The continuous delay in these had meant that the benefits were postponed; also, project costs continued to escalate, leading to higher debt (see chart). Analysts now expect debt to rise to Rs 53,666 crore by the end of FY18. Concern at rising debt is reflected in the view of analysts at Motilal Oswal Securities. "Net debt will continue to rise, eroding equity value," they say and so maintain their bearish stance on SAIL. Rising debt also meant interest costs continued rising, leading to a loss at the net level. Until FY15, SAIL generated enough operating profit to service debt and post net profit. Since then, operating profit has not been enough to meet interest and depreciation costs. This is also in sharp contrast to the performance of Tata Steel (India operations) and JSW Steel.

And, even the recent performance is far from impressive and comes when the macro environment for the domestic industry has improved. For instance, realisations have seen improvement after implementation of a Minimum Import Price (MIP) on steel import in February 2016, besides other measures by the government. This helped the industry rebound from its decade-low utilisation level of FY16. SAIL, benefited like the others, with its per-tonne Ebitda (profitability, excluding other income) improving in April-September of FY17 but rising coal costs and employee expenses have weighed on operating profits since the December '16 quarter.

SAIL UNDERPERFORMING



STEEL PRICES ON THE RISE



Though JSW Steel and Tata Steel also saw cost pressure, they have been reporting

improving profitability. These companies, too, have completed capacity enhancements and are expanding further. Not surprising, the two are preferred picks of analysts.

SAIL says it is in the process of improving profitability by shifting production through

energy-efficient processes. It plans to increase market share through additional volumes and new products, improve its mix in favour of value-added products and focus on finished steel. Efforts are on to reduce employee cost through a voluntary retirement scheme. So, there is hope of a turnaround. Meanwhile, the recent surge in steel prices amid improving demand and supply measures in China should help in improving the profitability of domestic players, including SAIL. Analysts expect SAIL to achieve 15 million tonne sales and report profit at the operating level in FY18 with the profit doubling in FY19. However, operating profit might still not be enough to meet interest and depreciation costs, and SAIL would continue to report loss at the net level till FY19, estimates Motilal Oswal Securities. Analysts at Edelweiss Securities say despite the likelihood of SAIL turning profitable in the ensuing quarters, the relative performance is expected to remain subdued, owing to progressive ramp-up (of capacities), higher conversion cost and leverage playing spoilsport. The benefits of modernisation projects would be visible only after FY20.

Source: Business Standard

SAIL's Jagdishpur unit will be made operational in some weeks: Smriti Irani

Union Minister Smriti Irani said that the Steel Authority of India Limited's unit at Jagdishpur, which has been lying closed, will be made operational in some weeks. The Union Minister of Textiles and Information and Broadcasting who is on a two-day tour of Amethi, inspected the SAIL unit. She told reporters that once the unit is made operational, it will give a new direction to regional development and also provide employment. Once this unit is operational, production of 1.5 lakh tonne TMT iron rods and 23,000 tonne crash barrier and sheets will commence, an official government release said. This will be a first-of-its-kind unit in Uttar Pradesh, it said.

Source: Metal Junction

Steel ministry proposes scrap-based steel plants

The steel minister Chaudhary Birender Singh says the govt proposes to set up steel plants with scrap as the raw material, the initiative would result in saving of 65% of iron ore.

The government announced recently the proposal to set up scrap-based steel plants in the northern and western part of the country. "The steel ministry proposes to set up steel plants with scrap as the raw material in various parts of north and west India," Chaudhary Birender Singh said in New Delhi. The minister was addressing the India Segment of 2017 World Recycling Convention, organised by the Bureau of International Recycling (BIR) in partnership with FICCI, the industry body said in a statement. The government expects that in the coming years, 44% of the total scrap available in India would be generated at different locations in Jammu and Kashmir, Punjab, Haryana and Delhi would be used to produce steel, the statement said. In addition, 67% of scrap reaches western shores which could be utilised as feedstock to produce steel, the statement added.

Singh said that initiative of the government to recycle waste products for productive purposes would result in saving of 65% of iron ore. Iron ore is the main raw material for steel production. The government, he said, is adopting a 360% holistic approach wherein the recycling industry can assist to achieve the production target by providing raw material for the steel sector. The minister also expressed hopes that legislation would be enacted to ban use of diesel vehicles in India. "... the pending legislation on the ban on use of 15-year old diesel vehicles in India would be taken up and passed in the winter session of Parliament," the minister said. According to the estimates of the steel ministry, after the ban, the scrap market would become attractive as it would fetch 10-15% more price for metal scrap.

Source: www.livemint.com

Growth in steel demand forecast to slow next year

Growth in global demand for steel is forecast to slow in 2018, with China's consumption of the metal expected to flatline as the Chinese economy matures and shifts focus from manufacturing to services. Overall demand for the commodity will increase 1.6 per cent to 1.65bn tonnes next year, according to estimates by the World Steel Association. That compares with an underlying growth rate of 2.8 per cent in 2017. Despite the slowdown, the figures mark an improvement compared with earlier estimates by the trade body, of 1.3 per cent demand growth this year and 0.9 per cent in 2018. Steel is often viewed as an economic barometer because it is used in carmaking, construction and manufacturing. "The global steel demand recovery is solid," said T.V. Narendran, chairman of the Worldsteel Economics Committee.

A collapse in the metal's value two years ago due to oversupply hit earnings hard at companies including ArcelorMittal, US Steel and Posco, although prices have since risen from decade-long lows. "Progress in the global steel market this year to date has been encouraging," said Mr Narendran, a managing director at Indian group Tata Steel. "We have seen the cyclical upturn broadening and firming throughout the year, leading to better than expected performances for both developed and developing economies, although the [Middle East and North Africa] region and Turkey have been an exception," he added. "In 2018, we expect global growth to moderate, mainly due to slower growth in China."

All geographic regions are expected to witness demand growth in 2018, while only Africa and the grouping of non-EU European countries will consume less this year, according to the WSA. As the producer of nearly half the world's steel tonnage, China exerts a huge influence on industry dynamics and has been accused by other countries of dumping its excess output on to international markets at lowball prices. Seth Rosenfeld, an analyst at Jefferies, said he believed that China's steel production would stagnate in 2018, roughly in sync with domestic demand, as Beijing pressed ahead with plans to shutter unneeded steel factories. "Chinese steel exports have plunged 30 per cent [so far in 2017], reversing years of export growth that painfully took share from western steelmakers. It seems clear that Chinese steelmakers no longer view exports as a necessary release valve," said Mr Rosenfeld.

With Chinese mills operating at high utilisation rates, their exports should continue to decline, supporting "robust" western steel prices and profit margins, added Mr Rosenfeld. Elsewhere, steel demand growth in India, where the government wants to more than double production capacity by 2030 as it pursues a massive infrastructure programme, was downgraded for this year and next. This was partly down to the impact of last year's withdrawal of large amounts of banknotes, as well as deleveraging in the manufacturing and banking sectors. Nominal global steel demand growth is forecast at 7 per cent in 2017, due to a statistical anomaly caused by China's closure of most of its outdated induction furnaces this year.

Source: Metal Junction

SAIL raises flat steel prices by Rs 600 a tonne; hike double of lapsed rail subsidy

Steel Authority of India has raised prices of its flat products by Rs 600 per tonne while keeping rates of longs unchanged, an industry source told Money control. The hike by the state-owned steelmaker, coming as it does after some months of no change, will more than compensate for the lapse in railways' Rs 300 per tonne subsidy for steel transport in the lean monsoon season. The subsidy is provided by the railways to encourage transportation of commodities in the lean season of monsoon when demand is subdued. It lapsed September 30. Flats are currently trading in the market at around Rs 39,000 per tonne while longs are going for Rs 34,500-Rs 35,000 per tonne. Private steel producers did not raise the prices in October after having increased them in September quarter by 2 to 6 percent, sequentially. SAIL had not hiked the prices then. October is usually a

time for price hikes in the steel sector as general demand for new vehicles and construction and real estate picks up on the passage of monsoon amidst the festival season.

According to a report by Kotak Securities, domestic prices have trailed global prices due to increased supplies from new capacities. Flat products find use in automobile and consumer durable industry. Prices of longs, a product whose supply chain is characterized by many small players, declined during July-September by 2 percent compared to same quarter a year ago due to weak construction demand. Long products are used in real estate and construction activities. "I don't see the prices firming up any more over the next one to two months," an official with a company, making downstream steel products that find use at airports and malls, said. Domestic steel demand increased 4 percent on year to 42.9 million tonnes in the first half of the ongoing financial year. The rise was led by the 16 percent jump in April-August flat product sales to 15.27 million tonnes against the 2 percent decline in demand for longs to 17.12 million tonnes, according to the Kotak report.

Source: Metal Junction

Will India be the next China in steel consumption?

There is some good news for steel producers around the world after years of wait characterised by slowing demand, excess capacity and large inventory.

After facing headwinds that slowed consumption in recent years, world steel demand growth is beginning to face a cyclical upturn. Consumption demand is expected to pick up on the back of the momentum in global economic growth. Based on the demand conditions so far this year, the World Steel Association, in its short-range outlook, has forecast that global steel demand will reach 1,622 million tonnes (mt) in 2017 and will improve to 1,648 mt in 2018. In other words, the industry has by and large been able to ride out this year's political risks, including Fed rate hikes, European elections, rising crude oil prices and Trump-induced market volatility. Admittedly, China is the mover and shaker of the world steel market by virtue of being the largest producer and consumer of the industrial metal.

China's demand growth

China accounts for about 45 per cent of world demand. Its steel demand in 2017 is forecast to grow 3 per cent. Excluding China, steel demand is expected to expand by 2.6 per cent to reach 856 mt in 2017 and by 3 per cent in 2018 to 882 mt. The positive correlation between global economic growth and steel consumption is well-recognised. From less than 3 per cent in 2016, there has been a modest pick-up in global growth to 3.3 per cent this year and a further increase to 3.6 per cent in 2018 is seen. For the world market, at present, risks factors include geopolitical tension (friction between the US and North Korea), protectionist tendencies and China's debt problem.

The Chinese steel industry has been facing environment-related issues as well as trade friction. The big question everyone is asking is: who will replace China as the world's growth engine for consumption. Over the last two decades, China recorded phenomenal growth in steel production and consumption. The Asian major's growth has been driven by investments, led by heavy investments in the construction sector, including infrastructure, housing and commercial premises.

Indian scenario

Will India emerge as the next China in terms of steel consumption? Not anytime soon perhaps; yet, indications are that India's steel consumption in the coming years will register robust growth on the back of the government's thrust on infrastructure development, real estate and automobiles. In the 2017-18 Budget, an outlay of □4 lakh crore for infrastructure expansion, covering railways, roadways, airports, seaports, multi-modal transport and urban amenities, as well as affordable housing to ease dwelling house shortage was made. This has provided a shot in the arm for the domestic steel sector. It is widely believed that an increase in public investment will crowd-in private investment. The New Steel Policy, 2017, envisages an increase in per capita consumption from the present 60 kg to 160 kg by 2030 backed by a target of 300

mt steelmaking capacity. The big challenge will be finding funds for capacity expansion. Where will the □10 lakh crore come from?

Source: Business Line

Sajjan Jindal, T V Narendran elected to worldsteel key posts

JSW Steel CMD Sajjan Jindal has been elected treasurer and Tata Steel MD T V Narendran and ArcelorMittal chief L N Mittal as members of the global body World Steel Association (worldsteel). "The Board of Directors elected ...new officers for 2017/2018 at the worldsteel General Assembly in Brussels. The new officers are elected for a one-year period," the global steel body said recently in a statement. The board elected Kosei Shindo, Representative Director and President, Nippon Steel and Sumitomo Metal Corporation as the Chairman, the body said. John Ferriola, Chairman, Chief Executive Officer, President, Nucor Corporation and POSCO CEO Ohjoon Kwon have been elected to the post of Vice Chairman. Chairman and Managing Director of Indian steel giant JSW Steel Ltd Sajjan Jindal has been elected as the Treasurer of worldsteel. The board also elected a 16-member Executive Committee. Jindal and Kwon were also elected as one of the members of the committee. Tata Steel's Managing Director T V Narendran and NRI steel baron Lakshmi Niwas Mittal were also elected as a member. Besides, John Ferriola of Nucor Corporation, Heinrich Hiesinger of thyssenkrupp AG, André Johannpeter from Gerdau S.A and JFE Steel Corporation's Koji Kakigi were elected to the committee.

MA Guoqiang of China Baowu Steel Group Corporation Limited, Alexey Mordashov of Severstal (PAO), Roger Newport of AK Steel Corporation, Paolo Rocca of Techint Group, Kosei Shindo of Nippon Steel and Sumitomo Metal Corporation, YU Yong of HBIS Group Co. Ltd and World Steel Association's Edwin Basson were were also elected as a member of the executive committee. The World Steel Association (worldsteel) is one of the largest and most dynamic industry associations in the world. Worldsteel members represent approximately 85 per cent of the world's steel production, including over 160 steel producers with 9 of the 10 largest steel companies, national and regional steel industry associations, and steel research institutes.

Source: The Economic Times

World Steel Association: September Production Up 5.6%

World crude steel production for the 66 countries reporting to the World Steel Association (worldsteel) was 141.4 million tonnes (Mt) in September 2017, a 5.6% increase compared to September 2016. World crude steel production was 1,266.9 Mt in the first nine months of 2017, up by 5.6% compared to the same period in 2016. Asia produced 876.3 Mt of crude steel, an increase of 5.9% over the first nine months of 2016. The EU produced 126.4 Mt of crude steel in the first nine months of 2017, up by 4.1% compared to the same period of 2016. North America's crude steel production in the first nine months of 2017 was 86.7 Mt, an increase of 3.5% compared to the first nine months of 2016. The C.I.S. produced 76.4 Mt of crude steel in the first nine months of 2017, the same amount it produced over the same period of 2016. China's crude steel production for September 2017 was 71.8 Mt, an increase of 5.3% compared to September 2016. Japan produced 8.6 Mt of crude steel in September 2017, an increase of 2.0% compared to September 2016.

In the EU, France produced 1.3 Mt of crude steel in September 2017, an increase of 3.2% compared to September 2016. Italy's crude steel production for September 2017 was 2.2 Mt, up by 8.3% on September 2017. Spain produced 1.3 Mt in September 2017, an increase of 6.7% on 2016. Turkey's crude steel production for September 2017 was 3.0 Mt, up by 13.0% on September 2016. The US produced 6.7 Mt of crude steel in September 2017, an increase of 8.6% compared to September 2016. Brazil's crude steel production for September 2017 was 3.0 Mt, up by 7.6% on September 2016. The crude steel capacity utilisation ratio of the 66 countries in September 2017 was

73.5%. This is 2.8 percentage points higher than September 2016. Compared to August 2017, it is 0.6 percentage points higher.

Source: Metal Junction

Removal of disparity key for steel industry growth

Claims Steel Minister, asks industrialists to take responsibility

Praising efforts of the Union Government and Prime Minister Narendra Modi, Union Steel Minister Choudhary Birender Singh stressed that the Centre is committed towards increasing domestic consumption of steel but this can only be done through removal of economic disparity from the society. "A detailed study revealed that there was a need for as many as 50 million housing units in the country. PM Modi took this as a challenge and resolved that no Indian citizen should live without housing, electricity or water" Singh added while speaking at an industry event held recently. According to him the Centre is bent on making this possible and it is through these schemes that steel consumption in India can be pushed exponentially.

Advocating a socialistic approach towards development, Singh said that it was imperative that the affluent classes come forth to build the economy together. According to him it was not enough to be patriotic and people need to commit themselves towards Nation building. Singh asserted, "contributions from Corporate Social Responsibility initiatives was in several thousand crores initially but has dwindled down to merely a few hundred crores in the recent past". According to him in India the divide between lower strata of the society and the middle class is vast unlike developed economies like England where there is hardly any difference between majorities of the population. "It is possible to remove poverty but the real challenge is to remove disparity from the society" Singh stated. He believed that if earnings of farmers double, steel consumption of the country would swell exponentially.

While talking about need to preserve natural resources Singh stressed on increasing scrap generation. "Almost 30-35 percent of foreign reserves can be saved if import of certain raw materials can be reduced" he stated. He also pressed on the need for development of industrial cluster to reduce transportation costs. He suggested the use of slurry pipelines for transport of raw materials from mines to industries so that the country can be globally competitive in steel. "It is by promoting secondary steel and increasing the usage of gas for steel production we can be more competitive at a global level" Singh hoped. During his address Singh also hinted that the policy for metal recycling could be around the corner.

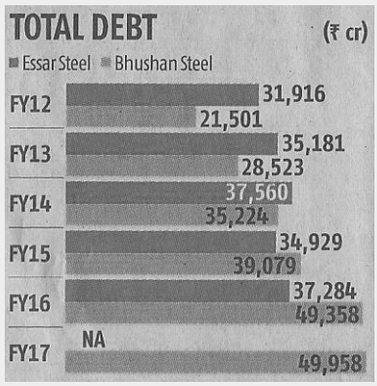
While speaking to industrialist Singh assured them that the government would promote optimum utilization of resources and try to find ways of increasing pellet consumption.

Industrialist while speaking at the event earlier, highlighted before Singh, high cost of raw materials in the country which along with a number of other issues plaguing the steel industry presently. A few industrialist while underlining the low national GDP growth rate, stated that the rate of growth of the steel industry and national GDP is closely interlinked therefore it the Centre should make efforts to propel growth to assist the steel industry grow. Singh while speaking at the event refused to accept the argument put forth by a few industrialists that it was the high cost of raw materials that had pushed many steel producers into the Non-Performing Assets

List. He went on to state that it is the NPA's who should take the responsibility of their financial woes.

Source: Steel 360

Bhushan Steel, Essar Steel low-hanging fruit for buyers



Ready-made capacity at a significantly low price point is what the National Company Law Tribunal (NCLT)-listed Bhushan Steel and Essar Steel will instantly deliver to a new buyer. Where lenders have lost faith in the promoters of the two debt-laden entities, lucrative opportunities await domestic as well as overseas steel players wanting to expand in the alloy sector, said analysts tracking the two companies. Essar Steel and Bhushan Steel are in the high-margin flat products business. Since there is demand for flats in the domestic as well as export market, brokerages are of the view that the sales volumes of the two companies will remain strong through the year, including the usual lean season between July and September. Steel long products, on the other hand, which are a relatively low-margin business, draw demand only from the domestic market. In June, the RBI directed lenders to refer around 12 companies to the NCLT under the Insolvency and Bankruptcy code (IBC) following several failed attempts at loan recovery. The Ruias-owned Essar Steel and the Brij Bhushan Singhal-founded Bhushan Steel featured in this list along with others.

BHUSHAN POWER & STEEL'S REPORT CARD (In ₹ crore)

Year ended	Networth	Total debt	Net sales	PBIDT	PAT
FY11	3,722.5	13,401.8	4,678.4	1,416.5	437.9
FY12	5,459	17,907.5	6,751.1	2,056.1	534.1
FY13	6,266	24,810.5	8,669.8	2,705.1	571.9
FY14	8,072.4	30,558.3	10,309.4	3,295	635.5
FY15	6,804.13	33,784.73	9,247.96	2,002.18	-1,366.06
FY16	4,366.34	37,248.26	7,699.81	1,202.54	-2,435.95

Delhi-based Bhushan Steel, the third largest secondary producer in the country, has a capacity of 5.6 million tonnes located in iron ore-rich Odisha, while Essar Steel has 10 million tonnes of installed capacity in Gujarat. "Both the firms, in terms of their backward integration and also market share, are well positioned in the India market. But with balance sheets remaining heavy, there exists ample bargaining power with the buyer and the asset price can be brought down to even half (compared to a capex greenfield project)," an analyst said on condition of anonymity.

According to Abhisar Jain, senior analyst with Centrum Brokerage, the new owners would be attracted to these assets. "A decent discount to capex greenfield capacity is likely, but what that discount would be is very case-specific," he said. As on March 31, 2017, the debt-equity ratio of Bhushan Steel stood at 153.47, while that of Essar Steel was 32.60. In terms of market share, Essar Steel has a strong presence in the western and northern parts, while Bhushan Steel has a market for its products in the central and eastern parts of India. The domestic steel industry has been receiving strong support from the Ministry of Steel in the last couple of years in resolving industry issues such as curbing cheap imports into the country or providing preference to domestic players in new projects. Due to this, brokerages are of the view that a new buyer has a decent long-term business opportunity though these assets are NCLT-listed.

Through the National Steel Policy 2017, India is aiming to produce 300 million tonnes of steel by 2030. Given the thrust on increasing domestic steel production and estimates of a rise in demand, the two NCLT-listed firms are attractive purchases at this juncture where setting up of greenfield capacities could mean unending approvals. "Between the two, the Bhushan Steel asset is more hassle-free as Essar Steel's 6.8 million tonnes gas-based sponge iron ore plant at Hazira could be a sticking point for a buyer unaware of how to tackle supply,"

said a Mumbai-based analyst on condition of anonymity. Natural gas supply has been an issue with the Essar plant in the past.

Source: Business Standard

JSW, Tata, Vedanta eye Bhushan Power

JSW Steel, Tata Steel and Vedanta are among the seven companies that have expressed interest in Bhushan Power & Steel, undergoing the Reserve Bank of India (RBI)-mandated insolvency process. Apart from the three companies, a private equity player, an investor from the UAE, a mid-sized domestic steel company and the existing promoter, Sanjay Singal, have also submitted EOIs (expressions of interest). The resolution professional for Bhushan Power & Steel and head & partner, business restructuring vertical, BDO India LLP, Mahender Kumar Khandelwal, declined to comment. E-mails sent to JSW Steel and Vedanta remained unanswered. A spokesperson for Tata Steel said, "As a process, we do assess and evaluate various strategic opportunities for growth. This is an ongoing process in the company."

Bhushan Power & Steel was on the list of 12 large non-performing accounts that the RBI had recommended for insolvency proceedings under the Insolvency and Bankruptcy Code (IBC). The other steel companies were Essar Steel, Bhushan Steel, Electrosteel Steels and Monnet Ispat & Energy. The unlisted Bhushan Power & Steel has a steel-making capacity of three million tonnes across Odisha, West Bengal and Chandigarh. A hot-rolled steel facility is in Odisha and cold-rolling facilities are in Kolkata and Chandigarh. Bhushan also has a captive power plant, a pellet plant and an iron ore beneficiation plant. Bhushan's debt in FY16 stood at Rs 37,248.26 crore, net sales were at Rs 7,699.81 crore and losses were at Rs 2,435.95 crore. Bhushan Power & Steel ran into trouble after its licences for iron ore and coal mines were cancelled. The company was allotted a coal mine, with reserves of around 250 million tonnes, but this was deallocated in 2014. The iron ore mines were committed by the Odisha government. Two mines were allocated in 2012 and 2014 after intervention of the Supreme Court. Subsequently, the amended Mines and Minerals (Development and Regulation) Act was passed in 2015. As a result, Bhushan's iron ore mines were also cancelled.

After making a shortlist from the EOIs, an information memorandum will be circulated to the selected companies and bids for Bhushan Power & Steel will be invited based on this. "Quite a few players have evinced interest in the company. But how many of them will finally bid remains to be seen," said an industry source. Among the companies that have submitted EOIs, Tata Steel and JSW Steel are looking to ramp up capacity and the ongoing insolvency process has provided an opportunity to achieve their targets. Tata Steel plans to double capacity in India to 26 million tonnes in the next five years. JSW plans to take its capacity to 40 million tonnes from the current 18 million tonnes by 2030 through a mix of organic and inorganic operations. For Vedanta, steel would be an unchartered territory, if it does decide to bid. Vedanta Resources Plc Chairman Anil Agarwal had recently told Business Standard the company would bid for stressed assets only if it ensured return on capital.

Source: Business Standard

Tatas most eager suitor for stressed steel assets

Tata Steel has emerged as the most aggressive bidder among the companies eyeing stressed steel assets that are undergoing insolvency proceedings. Among the firms that have submitted expressions of interest (EoIs) for the companies admitted under the National Company Law Tribunal (NCLT), Tata Steel is the only investor to participate in four assets – Bhushan Power & Steel, Monnet Ispat & Energy, Electrosteel Steels, and Essar Steel.

FINANCIALS

(in ₹ cr)	Bhushan Power FY16	Bhushan Power FY17	Electrosteel Steels FY16	Electrosteel Steels FY17	Essar Steel FY16	Essar Steel FY17	Monnet Ispat FY16	Monnet Ispat FY17	Bhushan Steel FY16	Bhushan Steel FY17
Total debt	37,248	NA	10,274	7,505	37,284	NA	8,944	NA	44,478	42,356
Net sales	7,700	NA	2,598	2,541	14,381	NA	1,843	1,238	11,803	13,249
PAT	-2,436	NA	-327	-1,463	-5,795	NA	-1,856	-2,132	-2,911	-3,127

FY17 figures are according to unaudited results

Sources: Capitaline, companies

The only other steel company among the 12 large accounts recommended by the Reserve Bank of India for insolvency for which the deadline is not yet over is Bhushan Steel. Tata Steel is expected to throw its hat in the ring for Bhushan Steel as well. A Tata Steel spokesperson said, "As a process, we do assess and evaluate various strategic opportunities for growth. This is an ongoing process in the company."

Tata Steel has set a target of doubling capacity to 26 million tonnes (mt) in the next five years through a mix of organic and inorganic options. In Kalinganagar, while it would be taking up the second phase of expansion, in Jamshedpur it would be adding 1 mt through debottlenecking. It current capacity is 12.7 mt. However, to double the capacity in a short span of time, inorganic options would be considered, and the insolvency process has provided an opportunity. "Tata Steel has recently commissioned the first phase of its Kalinganagar project, and is now in the process of implementing the second phase of the same. But the company wishes to grow its Indian steel-making operations further, and has, therefore, evinced interest in buying stressed assets," ICRA Senior Vice-President Jayanta Roy said.

A source said Tata Steel's current strategy was that it would not like to skip any opportunity and was submitting EoIs for all firms. Later, it could decide which ones to bid for, the source added. After EoIs are submitted, prospective bidders will be shortlisted. Then, an information memorandum will be circulated among the bidders and the data room will be opened. Finally, the bidding will take place. Tata Steel had earlier evinced interest in Electrosteel Steels when lenders applied the strategic debt restructuring route. Electrosteel Steels, Bhushan Power, and Bhushan Steel have facilities in Jharkhand and Odisha where Tata Steel has mines. From that context, acquiring any of these assets would make sense for it. On the other hand, Essar Steel would provide Tata Steel with a base in the west.

Tata Steel would, however, have to fight with other suitors. JSW Steel, currently the largest steelmaker in the country, is looking to widen the gap with competitors, and is focusing on assets in the east. It has submitted EoIs for Monnet, and Bhushan Power, and is expected to bid for Bhushan Steel. Vedanta and ArcelorMittal appear to be eyeing plants of significant scale. Vedanta has submitted an EoI for Bhushan Power. An email sent to Vedanta went unanswered. ArcelorMittal is understood to have submitted an EoI for Essar Steel and evinced an interest in Bhushan Steel. An ArcelorMittal spokesperson could not be reached for comment. "The interest reportedly shown by a number of both domestic and international steel players in stressed steel assets in India possibly points to their expectation of an improvement in industry conditions in the medium term. Moreover, the plants on offer can ramp up production faster than greenfield or brownfield projects, and can feed the growing requirements of India's automobile, infrastructure and construction sectors," Roy said.

Source: Business Standard

FTAs with copper-producing nations threaten domestic sector: Hind Copper

India's free trade pacts with copper producing nations have posed a threat to the domestic industry, state-owned Hindustan Copper (HCL) has said, asking the industry to be innovative to meet future challenges. "Import of finished copper is increasing over the years. Free trade agreements with copper-producing countries have posed a challenge to the Indian copper industry," Hindustan Copper Ltd (HCL) said in Annual Report 2016-17. The copper market in India, the report said, is likely to remain positive with strong growth in key user segments, including power and construction. On the back of improved economic activity in India, the demand for the metal is likely to grow at 6-7

per cent in coming years. Such high demand, the company said, is an offshoot of increasing urbanisation, development of industrial corridors, smart city project, housing for all by 2022, national highway development and rail projects.

The defence production policy to encourage indigenous manufacturing and ambitious green energy plans of the government are also seen to drive the metal demand. "In addition to this, there is a plan for green energy corridor for transmission of renewable energy," Hindustan Copper said. The per capita copper consumption in the country is expected to rise to 1 kg by 2025, from the current 0.5 kg. The consumption figure for China currently is 6 kg and the world average is 2.7 kg. Import of finished copper is on the increase over the years. Three major players dominate the Indian copper scene - HCL from the public sector and Hindalco and Sterlite Industries from the private space.

HCL is the only vertically integrated copper producer in the country. Hindalco and Sterlite Industries have set up port-based smelting and refining plants at Dahej in Gujarat and Tuticorin in Tamil Nadu, respectively. India has a total installed capacity of 9.9 lakh tonnes of refined copper production per annum. Last fiscal, the mine ore production of HCL was 3.85 million tonnes (mt) compared to 3.9 mt in 2015-16. To increase output, HCL has chalked out an expansion plan to ramp up mine production to 12.4 mtpa by 2018-19, from 3.2 mtpa.

Source: Business Standard

MMTC to tie up with NMDC for iron ore exports to Japan, South Korea

State-run Metals and Minerals Trading Corporation of India (MMTC) Ltd has initiated dialogue with leading iron ore producer National Mineral Development Corporation (NMDC) for exports of the commodity to South Korea and Japan. MMTC is looking at a five-year agreement with NMDC for a supply of 2.6 million tonnes of iron ore each year. "We already have an agreement with NMDC wherein its iron ore exports are canalised through NMDC. Now, we are looking at a longer pact of five years to ship 2.6 million tonnes of iron ore annually to steel making industries in Japan and South Korea. The demand is growing in the two countries and NMDC has high-grade iron ore suitable for their consumption", said an MMTC official. MMTC expects to sign the fresh pact with NMDC before the close of this fiscal. Exports of NMDC produced iron ore through MMTC is likely to take off from April 2018.

In 2016-17, NMDC achieved 19 per cent growth in its iron ore output at 34 million tonnes. Its sales stood at 35.6 million tonnes, higher by 24 per cent over the previous fiscal. In FY17, NMDC clocked a turnover of Rs 8,830 crore, 37 per cent higher than 2015-16. The net worth of the central PSU was Rs 22,519 crore (as on March 31, 2017). To meet the growing requirement of iron ore, especially from the Indian steel industries, NMDC aims to ramp up production to 67 million tonnes per annum (mtpa) by 2021-22. This is proposed to be achieved largely through brownfield expansion of existing mines and improvement in the evacuation. NMDC is also looking at developing a greenfield mine through a joint venture with the Chhattisgarh Mineral Development Corporation. Mining lease has already been executed for this purpose.

Source: Metaljunction

Iron Ore Rallies as China Imports Bust 100 Million Ton Level

Iron ore imports by China surged above 100 million metric tons to a record, smashing the previous high set in 2015, as the country's concerted push to clean up the environment stoked demand for higher-grade material from overseas while hurting local mine supply. Prices rallied. Purchases of iron ore expanded to 102.8 million tons in September from 93 million tons a year ago, surpassing the previous record of 96.3 million tons in December 2015, according to customs data on Friday. Over the first nine months, imports climbed 7.1 percent to 817 million tons, putting full-year purchases on course to top 1 billion tons by a comfortable margin. China has been pulling in ever-greater

volumes from miners in Australia and Brazil including Vale SA and BHP Billiton Ltd. to meet resilient demand from steelmakers, who've benefited from rising profit margins. As Asia's top economy presses home a drive to clean up the air, mills are seeking out higher-grade material. At the same time, local mines have been restricted, with Macquarie Group Ltd. saying Chinese iron ore output has collapsed.

Gaining Popularity

"High-grade ore is certainly gaining popularity," Dang Man, an analyst at brokerage Maike Futures Co., said via text message. "Seasonally, September is a strong month for imports as mills tend to stock up before winter. We think purchases will drop significantly in October as steelmakers cut output." China plans to order cuts to steel and aluminum output this winter, potentially crimping supplies of both from the world's largest producer. That means mills and smelters have been keeping more of their products at home. In September, steel exports tumbled to 5.14 million tons, the lowest since 2014, while aluminum cargoes dropped to 370,000 tons, a seven-month low.

Thrown a Lifeline

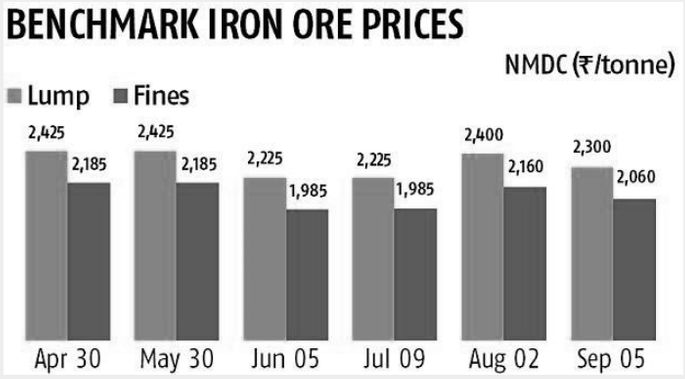
The unprecedented iron ore import figure provided a lifeline for prices that have been beaten down into a bear market in recent weeks amid speculation China's steel cuts will lower overall demand. "Chinese iron ore production has collapsed through the summer," Macquarie said in a report a few weeks back, citing a government-led clampdown on small, private and high-cost mines. Separately, the China Metallurgical Mines' Association said in September the crackdown on small, polluting mines may gradually force the cancellation of more than 1,000 licences. Earlier this month, Ralph Leszczynski, head of research at shipbroker Banchero Costa & Co., told Bloomberg that the crackdown on steelmaking on anti-pollution grounds, which could be bearish for iron ore demand, is compensated by an equally intense crackdown on domestic iron ore mining. That's giving support to demand for higher-quality imported ore, according to Leszczynski.

Ore comes in different grades according to purity of content, and higher-quality shipments are more efficient for mills, enabling them to make more steel, and they also cause less pollution. BHP Billiton, the world's largest mining company, said there's a "new reality" in the global iron ore market as a flight to quality boosts the premium users will pay for better material.

Source: Metal Junction

Steel mills see room for further iron ore price cut

Faced with a minuscule cut in iron ore prices by NMDC, which did not match the global price decline for September, domestic steel mills see the potential of a further cut in the price of the primary steelmaking raw material in the near future. The benchmark iron ore with 62 per cent Fe content reported a decline of a staggering 21.4 per cent in the global markets in September to close the month at $62.1 a tonne. Similarly, iron ore fines with 58 per cent purity closed with a decline of 17.5 per cent in September at $46.4 a tonne.



By contrast, however, the public sector iron ore miner NMDC cut its benchmark iron ore prices by Rs 100 across both segments, lumps and fines, for October. With the current price cut, iron ore lumps and fines are now quoted at Rs 2,300 a tonne and Rs 2,060 a tonne, respectively. Normally, the government-owned NMDC revises iron ore prices for Indian steel mills based on the prices in the global markets during the previous month along with demand from local steel mills.

NMDC's iron ore price cut for October 2017 has been much lower than the global price decline of the steelmaking raw materials for September.

This means there is wide room for a further price cut. But, given that domestic demand remained robust with supply being limited, the price cut may not be as sharp as seen in the global markets," said a senior executive of a merchant mining company. "Prices of both flat and long products in India have been under pressure and have been declining for the past three to four weeks, whereas iron ore remained firm. This will benefit integrated players like Tata Steel while non-integrated players will remain vulnerable to strong iron ore pricing," said Goutam Chakraborty, an analyst with Emkay Global Financial Services. Iron ore prices declined in global markets due to continued oversupply and lower demand resulting from expected reduction in steel production in China. Beijing's war on winter smog, if implemented as promised — if all 28 cities covered by the restrictions and slash production by 50 per cent — will reduce crude steel output by nearly.45.67 million tonnes, which forms around 6 per cent of China's total output. In real terms, however, there has been no cut in production capacity in China. So iron ore prices are falling on expectations of oversupply, while steel prices are firming up on expectations of a production cut.

The rally in steel prices is more speculative (a result of vast financial inflows into commodities trading) than based on fundamentals. There has been no real reduction in steel production by China. In fact, steel production rose by 6 per cent so far this calendar year to 567 million tonnes. "NMDC is following differential iron ore pricing. The price differential between Odisha and Karnataka works out to as high as Rs 1,600 a tonne. Iron ore pricing in India is quite arbitrary. Production is highly regulated with the Supreme Court setting a maximum output target of 30 million tonnes in Karnataka. While supply is constrained, demand continues to remain robust. Thus the pricing power has shifted in favour of miners," said Sesharigi Rao, joint managing director and group chief financial officer, JSW Steel. Interestingly, the government has asked steel mills to make efforts to keep their product prices below Rs 40,000 a tonne. Union Steel Secretary Aruna Sharma said in an interview, "The government will not allow steel makers to exploit the country and hence they need to make efforts to keep steel prices below Rs 40,000." "The government is putting a cap on steel prices without imposing such control on raw materials. So steel mills' margins would certainly be impacted in the long run," said an executive in a large steel mill.

Source: Business Standard

CCEA TO SOON TAKE CALL ON COMMERCIAL COAL MINING METHODOLOGY

The Cabinet Committee on Economic Affairs (CCEA) will soon take a call on methodology for allocation of coal blocks for commercial mining, a top official has said. The comments come amid some of the power producers facing low coal stocks at their plants. "The CCEA note (on methodology of commercial coal mining) is ready. I think in the next one week or 10 days it should come in the Cabinet," Coal Secretary Susheel Kumar told PTI. A discussion paper on the modalities for allocation of coal mines through auction route was earlier placed in the public domain for seeking comments of stakeholders. "We have already received comments of stakeholders," Kumar asserted. The government, he said, plans to put under the hammer around 5-6 coal blocks for commercial mining by private players.

"Five to six mines will be auctioned under commercial mining," the Secretary said. Coal Minister Piyush Goyal had said earlier this year that enabling provisions have been made in the Coal Mines (Special Provisions) Act, 2015 for allocation of coal mines by way of auction and allotment for the sale of coal. Commercial mines are alloted without specifying the end use and allow private entities to sell the fuel to buyers across sectors such as power, cement and steel. India is in the process of throwing open commercial coal mining to private firms for the first time in four decades, with the aim of shifting the world's third-biggest coal importer towards energy self-sufficiency. The government had earlier said that opening up of commercial coal mining to private companies will bring in

competition in the coal sector and will reduce power tariff. The government had said it wants to convey to potential investors that sustainable and efficient mining, not revenue maximisation, is the idea behind commercial coal auction.

Source: www.coaljunction.in

Coal ministry augments fuel supply to states with critical stocks

The coal ministry has drafted a coal supply augmentation plan to supply 730,000 tonne of fuel on a priority basis to multiple states in a bid to tackle shortages at thermal power plants. As per the plan, it has been decided to supply 220,000 tonne coal to Uttar Pradesh (UP), 129,000 tonne coal to Madhya Pradesh, 56,000 tonne to Gujarat, 52,000 tonne to Rajasthan, 187,000 tonne to Maharashtra and 84,000 tonne coal to Tamil Nadu on a daily basis. "The coal requirement of the TPPs had suddenly increased due to reduction in hydro, nuclear and wind power. The implementation of this mutually agreed plan has assured that sufficient coal was available to the generating companies in these states," coal secretary Sushil Kumar told ET Energy world.

Many states have recently complained of coal shortages leading to disrupted power supply. Following a review meeting in September 2017, the ministry had decided to increase coal loading through railway rakes to 250 rakes per day by Coal India Limited (CIL) of which 225 rakes per day were to be supplied to the power sector. Kumar said there has been heavy rain this month in the coal belt areas of the eastern parts of the country which had an impact on production at CIL subsidiaries Bharat Coking Coal Limited (BCCL), Eastern Coalfields Limited (ECL), Mahanadi Coalfields Limited (MCL), and Central Coalfields Limited (CC).

"There have also been festive occasions of Durga Puja, Diwali, Chath Puja etc. Despite these constraints, the average rake loading has been about 221 per day which was 6 per cent higher than the rake loading in the month of October, 2016," he said. The overall loading of railway rakes stood at 214.6 per day in the current calendar year so far, 4 per cent higher than the loading during the same period last year, Kumar said. In October, the average loading has increased to 209 rakes per day as compared to 173 rakes in October last year. Also, the power sector's share in coal loading has grown to 94.6 per cent in the current month as compared to 82.8 per cent in October 2016. The power ministry had last week said it is coordinating with its coal and railways counterparts to address the issue of temporary shortages due to the rise in demand for thermal power.

Source: www.coaljunction.in

Sale limit on minerals from end-use blocks may be lifted

To promote zero-waste mining, the government is likely to relax the ceiling for sale of surplus minerals extracted from an end-use-linked block. The Centre had earlier planned to allow sale of 10 per cent of the quantity extracted in the open market. A company that hold mining blocks linked to an end-use project cannot sell the entire quantity of extracted minerals. It can only use the minerals for its facility. Government officials said any mineral extracted from a mine should not go waste. Therefore, the miner should be allowed to sell the mineral in the open market or even export it. "Even if we cannot use it, someone else (some other country) can if there is demand for the mineral. But if there is a ceiling on the sale volume, it would go waste," a mines ministry official told this newspaper.

Amendments to the draft mineral auction rules propose the companies be granted relaxation to sell 10 per cent of the extracted mineral in the open market. Industry players have said this was insufficient to attract the private sector. The company concerned should have full discretion over the mine and its output, they said. Analysts have said once the government auctions mines, it should let the mine owner decide what it intends to do with the output, as long as the end-use plant's requirements are met. Recently, the mines ministry invited suggestions on draft Mineral (Auction) (Amendment) Rules, 2017, seeking to amend the Mineral (Auction) Rules, 2015. The Ministry of Mines has also sought the views of various stakeholders on the proposed Bill to amend the Offshore Areas Mineral (Development and Regulation) Act, 2002, aimed at introducing

transparent and effective mineral auction rules in offshore areas. This was being done to make mineral block auctions more effective and to attract more investors.

According to a former government official, "There should only be export restrictions on the company extracting minerals. The government should not decide how much a company should produce, what the company should use it for, or if it can sell the produce in the open market. As long as the mineral is being used in the country, there should be no restrictions." In March 2016, the government cleared a proposal to amend the Mines and Minerals (Development & Regulation) Act to include the provisions of allowing transfer of captive mines granted through procedures other than auction.

Source: Business Standard

Idli, dosa help fight mineral deficiency

For vegetarians, a south Indian diet enables higher absorption of iron, says study

Those with a weakness for south Indian food now have a legitimate reason to gorge themselves on idlis and dosas: these dishes help in the body's absorption of minerals such as iron and zinc. A large number of Indians have trouble absorbing iron and zinc from food. While this is mainly due to vegetarian food habits, south Indian vegetarians are better off: their food choices allow for better absorption of iron and zinc, says a study published recently in *Current Science* by scientists of the Indian Institute of Horticultural Research. The article says the high content of phytates (anti-oxidants in cereals, legumes and oilseeds) in Indian foods slows down the absorption of iron and zinc. This causes deficiencies even in people whose diet may contain abundant quantities of these minerals.

"Despite sufficient availability of iron and zinc in the form of food, there is widespread deficiency of these minerals. We are mainly a vegetarian nation and the phytate content of vegetarian diets is high. This may be the main cause for the low absorption of iron and zinc," says the article authored by A. N. Ganeshamurthy, D. Kalaivanan and B. L. Manjunath. The paper suggests that research efforts should focus on bioavailability (absorption by the body) rather than biofortification, as food sources already supply enough iron and zinc. "Methods available for reducing the phytic-acid content of Indian foods…should find a prime place in nutritional programmes," the research paper says. Dr. Ganeshamurthy told *The Hindu* that the absorption efficiency of these minerals among most Indians eating phytate-rich foods was below 10%. It should rise to 25% and above, he said. This does not mean that people should quit vegetarian food, but they should adjust diets to reduce phytates.

Fermentation helps

The article said people who primarily consume south Indian vegetarian food, dominated by dishes such as idli, dosa and sprouts, can absorb iron and zinc effectively. This is because these have undergone fermentation, soaking, and germination, which reduces phytates, leading to enhanced bioavailability. The problem of phytates could also be overcome, the paper suggests, by eating fruits like guava and amla, and meat, poultry or fish.

Source: The Hindu

Steel Minister Birender Singh wants MOIL to make key contribution in Make in India

Bullish on future prospects for the electric vehicles in the country, Steel Minster Birender Singh asked state-owned MOIL to make significant contribution to the Centre's 'Make in India' programme by developing technology to meet manganese requirement for batteries to be used in electric vehicles. In view of growing future prospects for the electric vehicles in the country, the minister said the PSU needs to take measures to remain a leader in the market. Chairing the mid-year review meeting of MOIL, the minister also asked the PSU to plan for building capacities in tungsten mining and production for strengthening manufacturing capabilities for defence production in India, the Ministry of Steel said in a statement. "MOIL must make significant contribution to Make in India by developing technology to meet manganese requirement of batteries to be used in Electric Vehicles etc," Singh was quoted as saying.

He further said, the miner should strategically plan for forward integration to leverage its leadership position of manganese ore production in India. The company can also think of acquiring or taking majority stake in ferro-alloy production facilities, in addition to expansion efforts. There is huge potential for e-rickshaws, e-tempos and e- cars in India, he told the PSU and said MOIL must be prepared for harnessing. In fact, the company should innovate to find new uses of manganese ore, apart from steel making, dry cell batteries and paints, he added. Further, he advised MOIL that R&D efforts should aim for development of new technologies rather than updating or buying technologies from others and there is a need to work on utilising every grade of ore gainfully including the lowest quality ore. The minister assured that his ministry will support every R&D initiative aimed at self-sufficiency and indigenisation. Mineral exploration activities need to be speeded up for strengthening the resource base in India.

MOIL can also examine the feasibility of using alternate modes of ore transportation, which could be environment friendly and cost effective. For closure of mines, sand requirement can be met by innovative means like collaboration with local farmers, he said. In view of increase in requirement for manganese for steel production capacities up to 300 million tonnes and insufficient availability of the ore in India, MOIL must also explore the possibility of acquiring or taking stake in manganese ore assets abroad, the minister said. Steel Secretary Aruna Sharma, senior officials from the Ministry of Steel and top management of MOIL were among those who attended the meeting.

Source: The Economic Times

Pig iron, scrap, steel trade hit by electrode shortage

The steel industry's current hot topic, tight electrode supply and higher pricing, threatens to cut steel output and raise mill costs. This is leading traders to debate the impact across various steel mills and applications. A cut in steel output due to shortages of the raw material is a real fear, while higher costs are already being reflected in spot electrode pricing, up over tenfold in some cases. A beneficiary may be merchant pig iron, and direct-reduced iron/ hot-briquetted iron, used as a supplement to aid steelmaking at furnaces, and reduce impurities in scrap. Interest in how pig iron supply could help bridge iron output and potentially cut electrode consumption rates, especially at scrap-fed mini mills, was debated recently in Germany at an industry event.

The US pig iron imports are the highest since the 2007-08 financial crisis, and over that time Russia and Ukraine have replaced Brazil as the largest seaborne pig iron suppliers.

There is a temporary shortage of electrodes. While the steel industry has yet to be convinced it is purely down to Chinese coal mines being shut or idled, a crucial piece of overall steelmaking raw materials is coming into focus. Hurricane Harvey hitting the US Gulf and other industry factors are affecting electrode supplies stemming from petroleum coke output used in needle coke, which goes into the electrodes, according to the World Steel Association. The steel producers' group has been prompted to conduct a review, and may not form a view until early 2018, it said.

Currently, worldsteel said it is not in a position to estimate how long the electrode shortage and its impact on the steel industry will last. The broad market consensus seems to be that electric arc furnace mills which charge scrap and metallics are affected more due to demand for larger electrodes produced via needle coke from petcoke. Smaller and medium-sized EAF furnaces may make do with smaller electrodes from coal-based needle coke. Production of needle coke in China has fallen partly due to environment- and safety-related closures. While electrodes from coal are suitable for ladle furnaces used to convert steel from blast furnace operations, EAFs may be affected too, said Continuous Improvement Experts managing partner Jeremy Jones, an industry consultant and distinguished member and fellow with the Association for Iron & Steel Technology.

Smaller EAF producers have been more reliant on electrodes from the spot market, rather than long-term contractual supply, and spot prices have surged, Jones said in an interview. Smaller EAFs can use electrodes from coal-based needle coke. Ferrous scrap charged

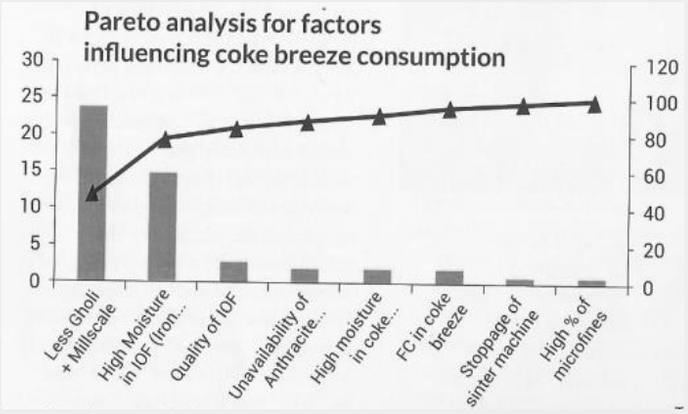
with pig iron and DRI/HBI can allow for reduced electrode consumption, but the results may vary, Jones said. The shortage of needle coke used by electrode manufacturers, and electrodes too, sourced mainly from China and India could prompt a supply-side reaction at current prices. India may increase output if prices stay high, Jones said. Traders and other market participants said steel trade is being affected partly as the higher cost of producing steel due to the rise in electrode prices is being reflected in forward offers.

Pig iron traders say this could drive up demand for metallics and support billet and steel prices. This will determine the quantities they will allocate for merchant pig iron sales too. A pig iron trader with a large group said the quantity allocated for merchant pig iron sales are constantly dependent on steel demand and margins. This is especially true for higher value-added steel products, allowing for higher profits. Iron ore and scrap prices falling in September and electrode shortages gaining prominence, a holiday early October in China prevented bigger trade flow in markets such as pig iron and billets, traders said a few days back. The market may reach deadlock for a further few weeks, a pig iron trader said.

Source: Metal Junction

Innovation of waste to wealth

The coke breeze is the common solid fuel for iron sintering plants. The high consumption of coke breeze leads to depletion of the fossil fuels and increase in cost of production of Sintering process. Several researches, nowadays are concentrating on finding different alternatives for coke breeze that can either partially or completely replace it. In this study, high carbon blast furnace gas dust was used as a supplementary fuel in the iron ore sintering process. Coke breeze was partially replaced in sinter charge. The results of this work shows that the replacement of coke breeze with high carbon blast furnace gas dust helps in sintering process as it increases the vertical velocity of sintering process.



Sintering is a process of heating of mass of the fine particles to the stage of Incipient fusion (temperature little below the melting or softening point) through amalgamation process to agglomerating them into lumps & the heat required for making sinter is usually provided by combustion of coke breeze.

Coke breeze being the costlier material in sintering process, iron making industries are working on how to replace coke breeze with the cheaper solid fuels like Anthracite coal, Charcoal etc. to bring down the overall cost of iron making.

The main objective of this work is selective utilization of blast furnace waste material for reduction in cost of production of sintering process without compromising the quality of product. Higher specific coke breeze consumption were later analyzed.

From the above analysis the major reason resulting in higher coke breeze consumption were identified as non-availability of costly Mill scale & -10 mm Fe chips (Gholi) and we realized that some of the measures cannot be implemented due to techno-commercial aspects. Therefore we checked all waste

Chemical Analysis of Iron Ore fines & F

Componenets	IOF	Dolomite	Limesto
Fe	58.80	-	
Mn	0.79		
SiO2	4.83	5.6	6
Al2O3	2.97	0.86	0.95
P	0.05	0.03	0.044
LOI	6.17	40	42
CaO		29.02	48.6
MgO		19	1.76

Chemical Analysis of coke breeze	
Componenets	Coke Breeze
VM	3.18
ASH	22.05
FC	75.04
H2O	11.94

material available having carbon content. We came up with solution of selective use of high carbon dust of blast furnace. Earlier same were mixed with other fines and available carbon of blast furnace were diluting in the system.

The raw materials used in this work are iron ore fines, limestone, coke breeze and blast furnace gas dust. Their chemical analyses of Iron ore fines & Flux fines are shown in Table 1.

Chemical Analysis of Blast Furnace Gas Dust		
Componenets	Gcp	Dust Catcher
Fe	30.90	38.35
SiO2	9.48	8.06
Al2O3	5.90	5.32
MnO	0.88	0.82
CaO	6.36	4.78
MgO	3.22	2.32
P	0.07	0.05
LOI	28.09	21.88
CARBON	23.58	20.32

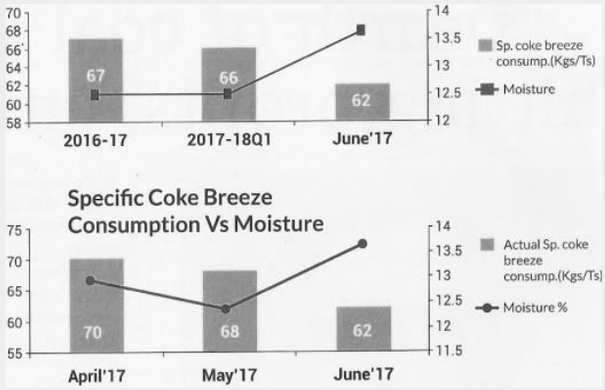
In addition, the physio-chemical characteristics of coke breeze & High carbon blast furnace gas dust are listed in Table 2 & 3.

Blast furnace gas dust added in a quantitate manner in sinter feed mix to see the effect on specific coke breeze consumption, sintering process sintering rate & sinter product quality.

In below graph explained the impact of Blast furnace gas dust quantity on coke breeze consumption (Duration: 1st June'17 to 17th June'17).

Result & Discussion: Effect on coke breeze consumption rate

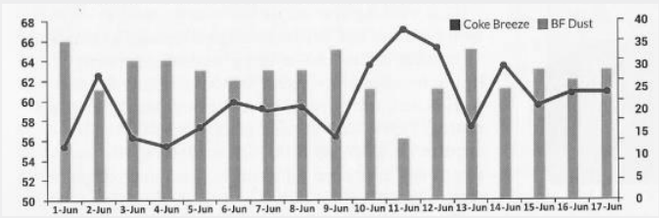
From the below tables it can be seen that with increase in moisture content of iron ore fines the specific coke breeze consumption increases.



In the month of June'17 by using 30 to 35 kg/ts blast furnace gas dust, it can be seen that coke breeze consumption has reduced by 4 Kgs/ts even with increase in Iron ore fines moisture.

Effect on sintering Process & sintering rate:

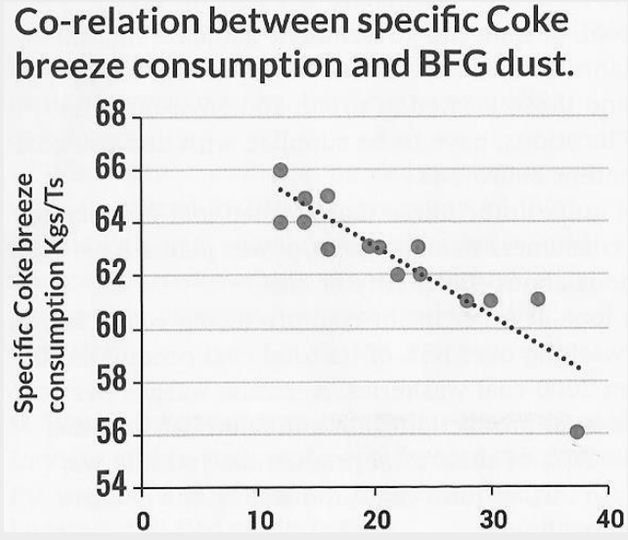
There is no negative impact on sintering process like (permeability of bed, VSS).



Effect on sinter product quality:

Same sinter product quality maintained like TI more than 72, Mean size 22.

Thus our objective of reduction in fuel consumption (coke breeze) in sintering process



by selective utilization of blast furnace waste material was successfully achieved. Selective utilization and innovative use waste materials gave us the fruitful results of reduction in the fuel consumption and saving cost thus decreasing overall cost of production.

Source: Steel 360

Is cellulose nano fiber to take over metal in making of auto parts?

Automotive Manufacturers are looking to incorporate more lightweight materials, such as aluminium, into their vehicles; steel continues to be the most sought after material in vehicles. The average vehicle is comprised of approximately 60% steel. But a number of Automotive Manufacturers are working towards creating much lighter vehicles to increase the fuel economy while improving the overall safety and performance of the vehicle. For example, heavier vehicles that are primarily composed of steel can be limited in their ease of manoeuvrability as compared to lighter vehicles.

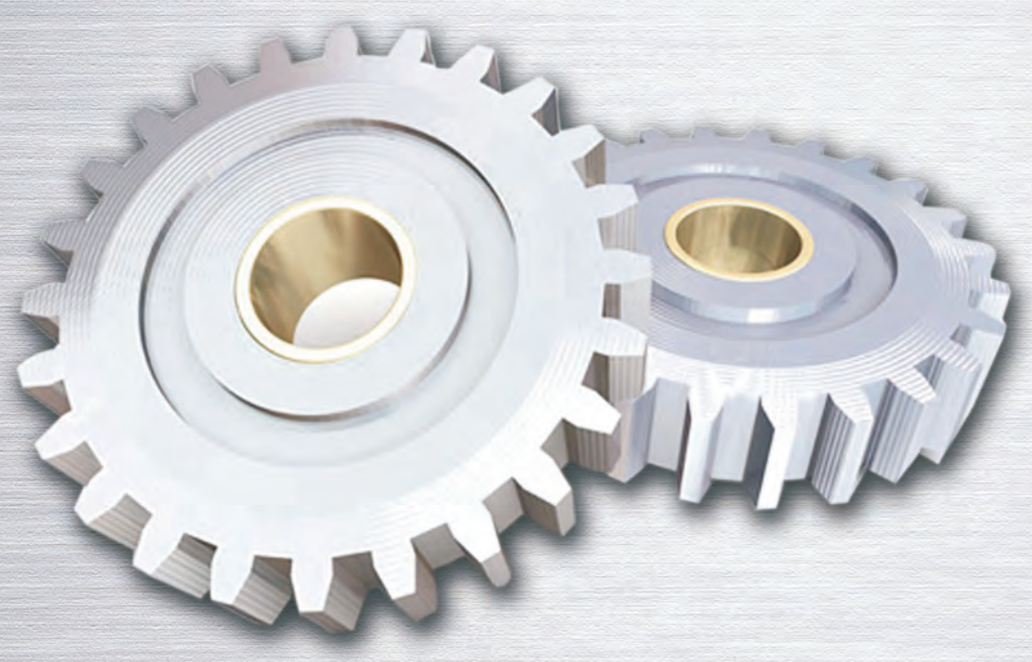
There is a global push among the carmakers to make ever lighter vehicles is pushing auto suppliers in Japan to look for an unlikely substitute for steel that is wood. Japanese researchers and auto component makers say a material made from wood pulp weighs just one fifth the weight of steel, and can be five times stronger. The material – known as cellulose nano fiber – could become a viable alternative to steel in the decades ahead, they say, although it faces competition from carbon-based materials and remains a long way from being commercially viable. By reducing the weight of a vehicle will be critical as manufacturers move to bring electric cars into the mainstream. Batteries are an expensive but vital component, and a reduction in car weight means fewer batteries are needed to power the vehicle and running costs can be reduced. "Light weighting is a constant issue for us," said a project manager overseeing body design at Toyota Motor Corp. "But we also have to resolve the issue fog high manufacturing costs before we see an increased use of new, lighter-weight materials in mass-volume cars."

Researchers at Kyoto University are working on plastics with incorporated cellulose nano fibers – which are made by breaking down wood pulp fibers into fragments several hundredths of a micron (one-thousandth of a millimetre) in size. Cellulose nano fibers have been used in a variety of products, ranging from ink to transparent displays, but their potential use in cars has been enabled by the "Kyoto process," under which chemically treated wood fibers are kneaded into plastics while they are simultaneously being broken down into the nano fibers. The method reduces the cost of production to roughly one-fifth that of other processes. "This is the lowest-cost, highest-performance application for cellulose nano fibers, and that's why we're focusing on its use in auto and aircraft parts," said Kyoto University professor Hiroaki Yano, who is leading the research, during an interview with the media. The university is also currently working with auto parts suppliers to develop a prototype car using cellulose nano fiber-based parts, set to be completed in 2020. "We've been using plastics as a replacement for steel, and we're hoping that cellulose nano fibers will widen the possibilities toward that goal," said a spokesman to media at Daikyo-Nishikawa, which counts Toyota Motor Corp. and Mazda Motor Corp. among its customers.

Aside from aluminium, other materials that are used to replace the traditionally heavy materials, such as steel and iron, used in vehicles include magnesium (Mg) alloys, carbon fiber and polymer composites. A number of automotive companies have already incorporated these types of materials into their vehicles, and the benefits associated with their implementation are drastic. Automakers are also using other lightweight substitutes. BMW uses carbon fiber reinforced polymers for its i3 compact electric car and for its 7 series, while high-tensile steel and aluminium alloys are currently the most widely used lightweight options because they are cheaper and recyclable. Analysts still say high-tensile steel and aluminium will be the more popular alternative for many years to come, mindful that parts makers would need to overhaul production lines and figure out ways to fasten new materials like cellulose nano fiber on to other car parts.

Source: Steel 360

SAIL Steel
Sarvottam Steel



Steel Authority of India Limited - The Largest Producer of Steel in India.
SAIL has taken a big leap with its cutting edge technology contributing to projects of national importance in key sectors like:

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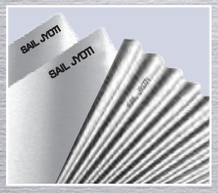
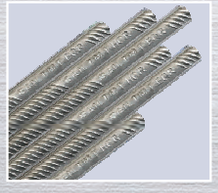


SAIL GP/GC


SAIL HR/CR Coil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