



Indian Steel Industry

Stress in Assets

2018

In this issue:

- 1 Global Steel Industry Overview
- 2 India Steel Industry Overview
- 3 Profile of Leading Indian Players
- 4 Stress in Steel Assets

Steel – Building the World

Steel is a vital material in today’s world – extensively used in transportation systems, infrastructure, housing, manufacturing, agriculture or energy. From stainless and high-temperature steels to flat carbon products, steel in its various forms and alloys offer different properties to meet a wide range of applications. For these reasons, as well as the metal's combination of high strength and a relatively low production cost, steel is now used in countless products. Steel applications can be divided into five sectors as below.

Construction

The majority of steel goes to the construction industry. Depending on the conditions the structure is exposed, steel can be alloyed or treated differently for protection.

Transport

Engineering steels, designed to specifications are used in the general engineering and manufacturing sectors, but the bulk goes to transport vehicles

Energy

All segments of the energy sector, including nuclear, wind power, electric and natural gas, demand steel for infrastructure. Steel is also used for resource extraction.

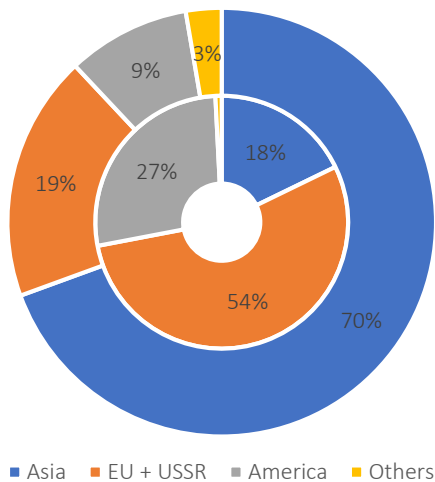
Packaging

Steel packaging protects goods from water, air, and light exposure, and is fully recyclable. This method of storage has been around for over 200 years.

Appliances & Industry

About 75% of the weight of typical household appliances (fridges, washing machines, microwaves, sinks, cutlery, etc.) comes from steel.

493 MT (1967) -> 1630 MT (2016)



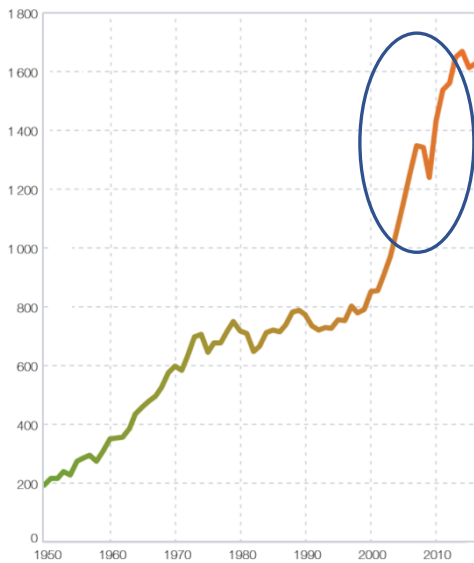
World Steel Production

World Crude Steel production was 1630 MT for the year 2016 with CAGR of 2.5% over 50 years.

In last 50 years, industrialization has moved eastwards and so has the steel production. In 1967, Europe and America accounted for more than 81% of steel production. In 2016, Asia accounts for nearly 70% of steel production.

Within Asia, most new capacities have come in China. China which used to produce 2.1% of World Crude Steel Production in 1967 is now contributing to 50% world production whereas combined share of Europe, Russia and North America has reduced to 25.4% in 2016.

New capacities have been added in Japan, however the share of Japan has reduced from 12.6% (1967) to 6.4% (2016). India and South Korea have added capacities, mostly led by domestic consumption. India quadrupled its share in world production from 1.3% to 5.9% in 2016, while South Korea increased its share from mere 0.1% to 4.2% in 2016.



Source: World Steel Association

Growth in Crude Steel production in last 60 years

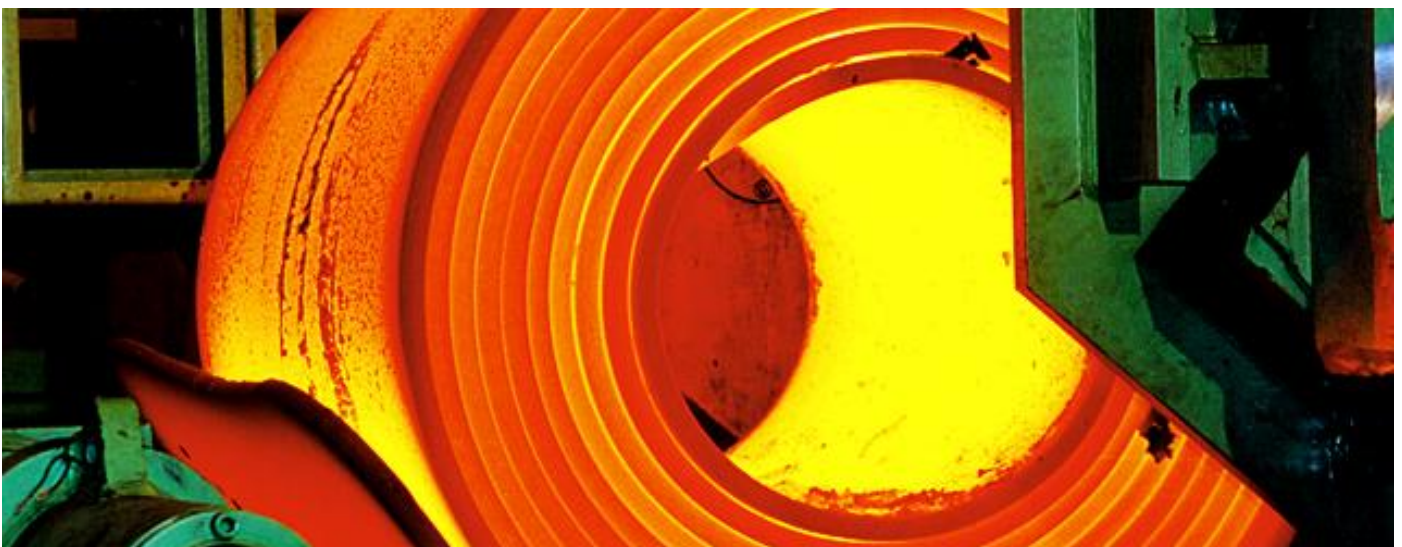
In last decade 2000-2010, Crude Steel production has spiked more than 67% (i.e. from 850 MT in 2000 to 1433 MT in 2010) in comparison to sluggish growth witnessed in 30 years prior to that indicating the industrialization and urbanization across the globe

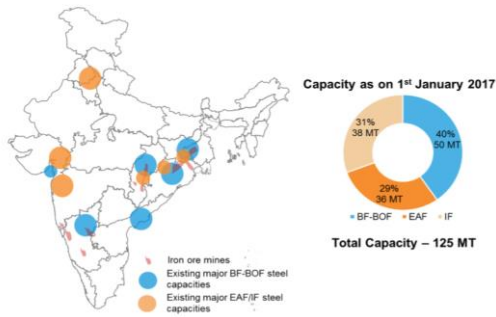
With rapid developments happening across the emerging markets in the infrastructure, the demand for steel for steel is expected to even grow further and the 2010-2020 decade would see a jump of about 20% over the previous decade.

Rank	Company	Tonnage (MT)
1	Arcelor Mittal	95.5
2	China Baowu Group	63.8
3	HBIS Group	46.2
4	NSSMC Group	46.2
5	POSCO	41.6
6	Shagang Group	33.3
7	Ansteel Group	33.2
8	JFE Steel	30.3
9	Shougang Group	26.8
10	Tata Steel Group	24.5

Leading Steel Producers

Due to the high capital intensity & cyclical nature of business, the industry is very consolidated. Arcelor Mittal formed by takeover of Arcelor group by Mittal steel is the largest steel producer in World. Tata Steel largest steel producer in India is the tenth largest steel producer globally.





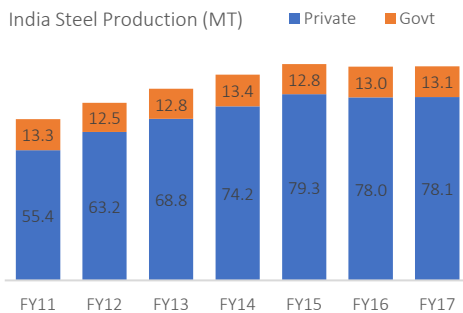
Source: Ministry of Steel, JPC

Overview of Indian Steel

The Indian steel industry has entered 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 as the 3rd largest producer/consumer of steel in world with installed production capacity of 125 MT and consumption of ~85 MT per annum with average growth rate of about 7% per annum.

India has abundant and adequate iron ore and thermal coal reserves to have a competitive indigenous steel production. Of the total 125 MT of steel capacity, 50 MT is Blast Furnace route and the balance 75MT is through DRI (Induction Furnace) and EAF route.



Source: Ministry of Steel, JPC

Positive Policy Scenario

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 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.

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. Going forward, the consumption demand for steel is expected to grow at a healthy rate of 10% driven by public/private expenditure in infrastructure creation, fast growing domestic automobile and white goods industry, expansion of

railway and other public transportation sector and large scale affordable housing construction.

Per capita Steel Consumption of India is 63kg three times lower than the World per capita of 208kg.

Raw Material - Key for the growth & development of Steel Industry

Raw Materials Iron Ore and Coking Coal accounts for 60-70% of cost of steel. Raw material availability at affordable price is essential for success of steel industry.



IRON ORE

Iron Ore:

- Iron Ore the key raw material for steel making accounts of ~ 30 - 35% of the cost of production. India has 2 varieties of iron ore, Hematite and Magnetite. Domestic steel industry has majorly been using Hematite ore.
- As per IBM the total iron ore resources in the country is 28.5 bn tonnes (Hematite reserves of 17.88 bn tonnes and Magnetite reserves of 10.65 bn tonnes)
- States of Odisha, Jharkhand and Chhattisgarh account for 77% of total Hematite resources whereas States of Karnataka and Andhra Pradesh accounts for 90% resource of Magnetite Iron ore in India
- The country has at present an estimated iron ore production capacity of about 300 million tonnes, which is about three times the present domestic consumption of iron ore
- The generation of fines is to tune of ~65% leading to growth in pellet and sinter plants
- The total iron ore requirement, considering the growth @ 7.5%, in 2041 would be 1.4 bn tonnes to manufacture 0.9 bn tonnes of crude steel.



COAL

Coking Coal:

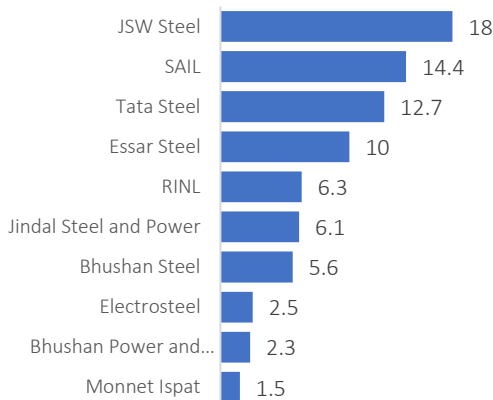
- Coking coal is the key raw material required to manufacture crude steel under blast furnace route.
- Situation about to coking coal in India for steel industry is not encouraging.
- Poor domestic availability (despite enough reserves (33.47 bn tonnes) as well as quality problems of Indian coking coal have forced the steel industry to import coking coal,

thereby making them susceptible to the vagaries of the fluctuating international coking coal prices and adversely affecting their competitive position in view of high price of the same in the international markets.

- Most of the requirement of coking coal is being met through imports.

Non-Coking Coal:

- Non-Coking coal (with lower ash content) is used in coal based DRI Plants (sponge iron plants).
- Domestic supply of low ash non-coking coal has been responsible for continued increase in the production of sponge iron in the country making it largest producer of sponge iron in the world.
- India has total non-coking coal resources of 252.39 bn tonnes, enough to meet the future requirement in the steel production.



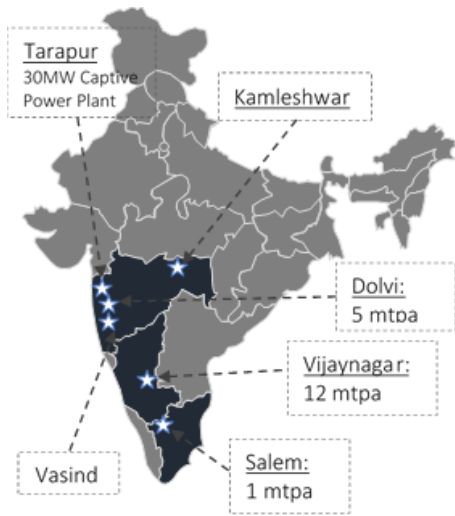
Source: Annual Report of Companies

Key steel manufacturing players in India

The top ten Indian steel players account for ~ 60% of India's steel capacity

Government Companies v/s. Private steel players:

- Government entities constitute 18% (22.6 MT) of India steel capacity
- Private steel players constitute 82% (102 MT) of which 65% is owned by top 5 players.

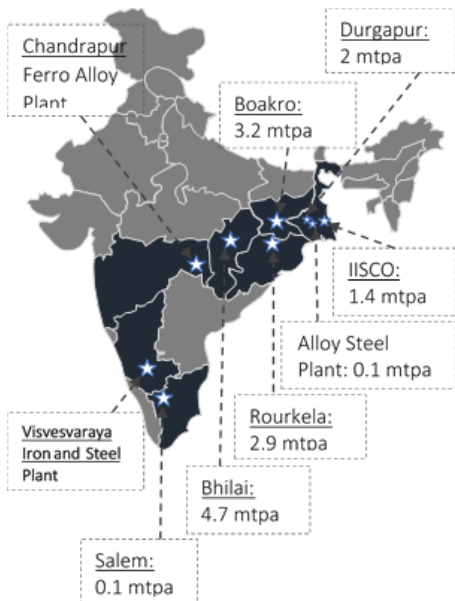


JSW Steel (18 mtpa)

Products: Hot Rolled, Cold Rolled, Colour Coated Products, Galvanized, Galvalume, TMT Bars, Wire Rods, Special Alloy Steel

It also has a unit in Baytown, Texas where it produces Hot Rolled Plates (1.2 mtpa) and DSAW Pipes (2,50,000 40' joints of Pipes per year).

Entered into technological collaboration with JFE Steel Corp, Japan and JV with Marubeni-Itochu Steel Inc, Tokyo, to set up steel processing centres

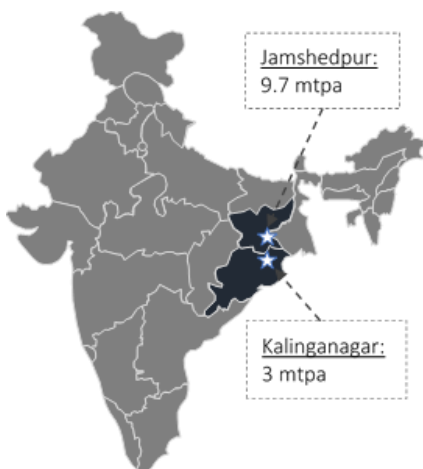


Steel Authority of India Limited (14.4 mtpa)

Products: - Semis (Blooms, Billets, Slabs), Pig Iron, Structurals, Bars, Rods, Plates and Rebars, Hot /Cold Rolled Products, Galvanised Products, Pipe, Electrical Steel and Tin plates, Railway Products, Alloy, Stainless and other Special Steel, Parallel Flange Beams and Structurals

It has on-going expansion & modernisation plan includes

- Capacity of 21.4 mtpa.
- Technological shift to BOF Steel making and introduction of Palletisation Plant, Top Pressure Recovery Turbine, Beam Blank Casting, Coupled Pickling & Tandem Mill.

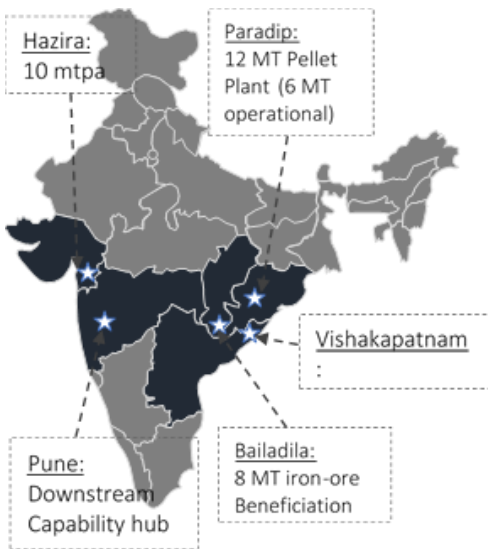


Tata Steel (12.7 mtpa)

Products: Hot Rolled, Cold Rolled, Galvanized, products, TMT Bars, Coated coils, Wire and Wire Rods, Tubes, Rebar

It has on-going expansion plan of 6.3 mtpa (Jamshedpur - 1.3 & Kalinganagar – 5 mtpa). Tata Steel has integrated steel making sites at Netherland and South Wales with combined capacity of 12.1 mtpa.

It also has strong presence in downstream long steel operations in South-East Asia.



Essar Steel (10 mtpa)

Products: Hot / Cold Rolled, Galvanised and Colour Coated, Pipes, Plates, shot blasted and primed plates, Factory welded beams, Burnt-to-shape plates, Trapezoidal blanks, Chequered plates

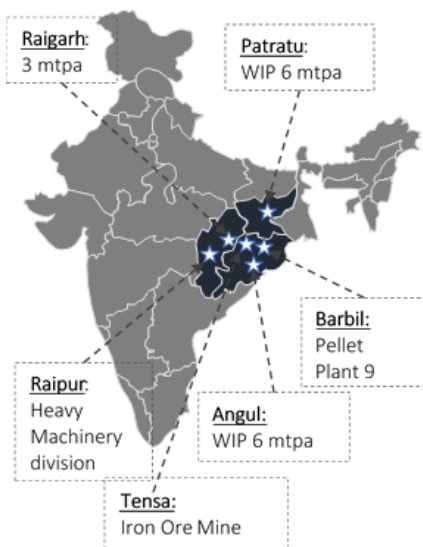
The Hazira plant is supported by a complete infrastructure set up including a captive port (30 mtpa), power plant 515 MW), lime plant and oxygen plant. It has 12 mtpa Beneficiation plant is being set up at Dabuna (Odisha). Essar Steel has processing and distribution centres in Pune, Hazira, Bahadurgarh, Chennai, Bhuj and Dubai having a combined capacity of 4 mtpa.



RINL (6.3 mtpa)

Products: Forged Rounds, Rounds, Hot Rolled Rebars, Pig Iron, TMT Rebars, Wire Rod Coils, Structurals – Angles, Channels, Beams, Special Steel including Wire Rod Coils, Rounds, Billets, Blooms, Reinforcement bars

- It is in process to increase its capacity by another 1 mtpa by FY 2019 end.
- It has signed MoU with Kudremukh Iron Ore Company Ltd for setting up a 1.2 mtpa pellet plant project at Vizag which will partially satisfy RINLs raw material requirement.

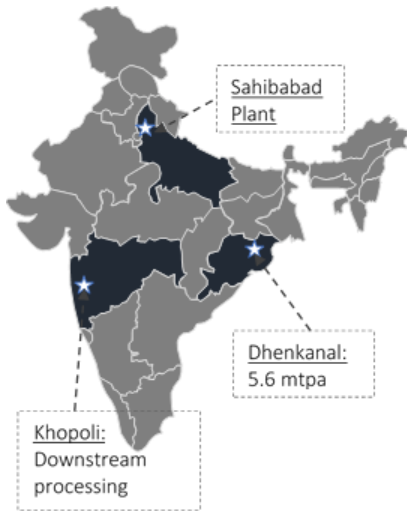


Jindal Steel and Power (6.1 mtpa)

Products: Rail, Parallel Flange Beams and Columns, Plates and Coils, Angles and Channels, TMT Rebars, Wire Rods, Fabricated Structures, Speed floor, Semi Finished Products, Sponge Iron

Company has operations in Oman with 1.5HBI, 2 mtpa SMS, 1.4 mtpa Rolling Mill and is being transformed into integrated steel plant

Company has coal mines in Africa, South Africa and Australia

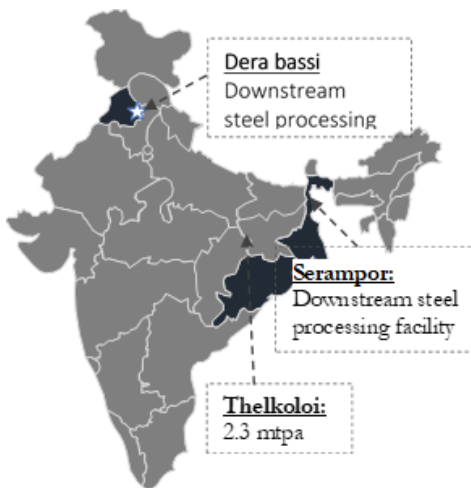


Bhushan Steel (5.6 mtpa)

Products:

Hot Rolled Coils, Cold Rolled, Galvanised, Galume Sheets
 Colour Coated Coils / Tiles, Tubes of OEM Grades, H&T
 Steel Strips, High Tensile Steel Strap, API Pipes, Alloy
 Billets, Sponge Iron

Dhenkanal Plant at Odisha, with Captive Iron ore mines, is also in proximity to Thermal Coal mines.



Bhushan Power and Steel (2.3 mtpa)

Products

Coated Products, Galvanised, Colour Coated Products
 Cable Tapes, Cold Rolled Products, Precision Tubes and
 Pipes, Sponge Iron, Pig Iron

Thekoloji Plant at Odisha, with Captive Iron ore mine allotted at Jharkhand, is also in proximity to 3 allotted Thermal Coal mines in Odisha and Jharkhand.

Thekoloji Plant has power generation capacity of 506 MW. Captive Limestone facility further assists in cost reduction.



Electrosteel Steel (2.3 mtpa)

Products: TMT Bars, DI Pipes, Billets, Pig Iron, Wire Rods

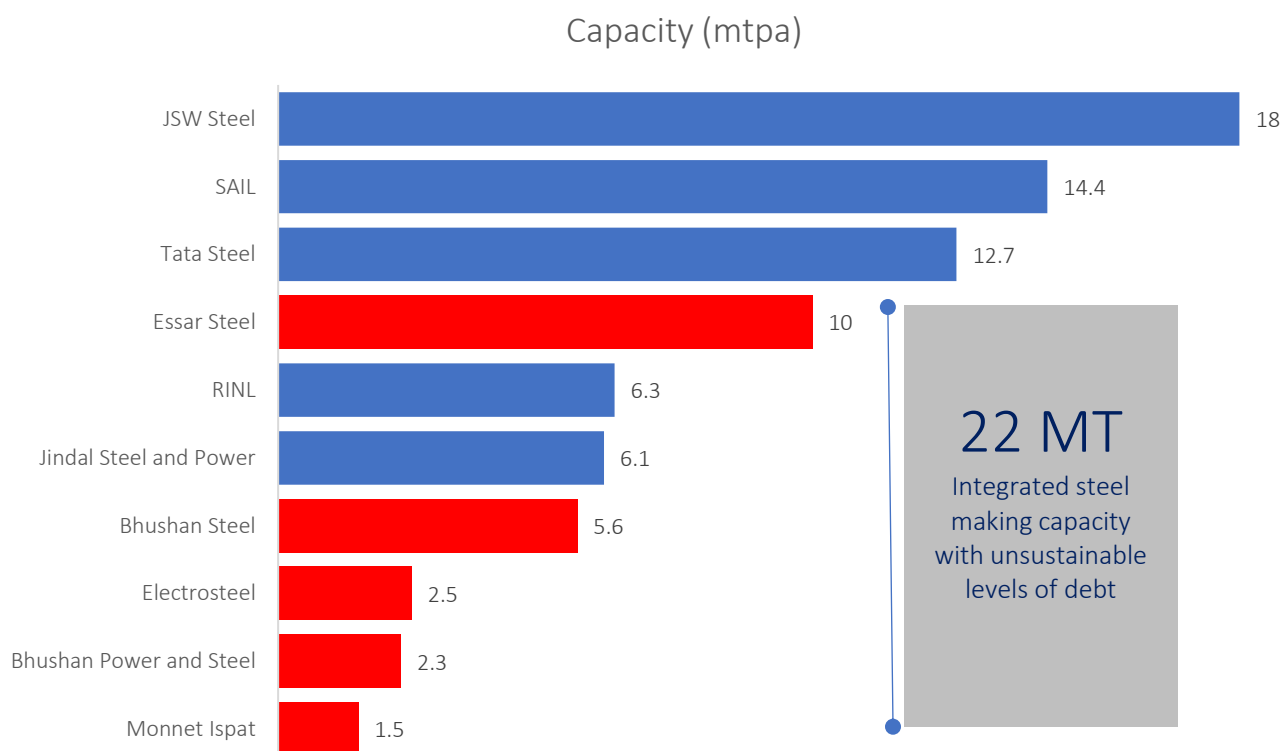
Electrosteel has been allocated Iron ore mine at Kodolibad near Barajamda, in the state of Jharkhand with rich reserves.

Plant at Sijaljori is 12 kms from Railway line - Talgheria and 8 kms from Water Source - Damodar River is 8kms

Of the total 80 mtpa capacity of top 10 players ~ 22 mtpa has been referred for Insolvency and is the main trigger for the M&A activity in the sector.

A large capacities of steel facilities came up post 2005 when the steel sector was doing good and many steel players added more capacity with leveraged balance sheet. However, steel demand fell steeply post 2012 and these players couldn't service their debt. Huge dumping from the Chinese manufacturers added to the woes of Indian Steel players.

Since these Indian steel players could not service the debt, lenders referred the defaulting companies for Corporate Insolvency and Resolution Plan (CIRP) under Insolvency and Bankruptcy Code 2016.



A total of 22 MT of integrated steel making capacity which was installed in the period 2005-2010 has very high level of debt which were used to set up these plants and it could not sustain due to sharp fall in steel realizations, slow-down in demand and disruptive government policy on iron ore / coal. As a result, the overall debt levels have compounded, and the banks driven by Reserve Bank of India have initiated bankruptcy proceeding under the newly constituted Bankruptcy Code.

191

Deals closed in 2017

\$12+ bn

Transaction value of deals closed in 2017

36%

Cross border transactions share in 2017

About IMAP

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