AN ANALYSIS OF EXIM STEEL TRADE IN INDIA

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in

International Transportation and Logistics

Submitted by

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DECLARATION

I, **YOGITHA YERRA (Registration number No. 2003305041)**, student of the School of Maritime Management, Indian Maritime University – Chennai Campus, hereby declare that this project report titled "**AN ANALYSIS OF EXIM STEEL TRADE IN INDIA"** has been carried out under the direction of **Dr. A MOUROUGANE** in partial fulfilment of the requirement for the award of the degree of **Master of Business Administration in International Transportation and Logistics Management** is my original work carried under the guidance of my project guide. It has not formed the basis for the award of any Degree/Diploma of any University/Institution. The information submitted is true and original to the best of my knowledge.

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This is to certify that the project report entitled **"An analysis of EXIM Steel trade in India",** submitted to the School of Maritime Management, Indian Maritime University, Chennai Campus, in partial fulfilment for the award of the degree of Master of Business Administration in International Transportation and Logistics Management, is a record of work carried out entirely by **YERRA YOGITHA**, Reg. No. **2003305041**.

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EXECUTIVE SUMMARY

Steel is an essential component of every country's economy and is regarded as one of the modernisation's driving forces. Steel consumption per capita is regarded as one of the most important markers of a country's socioeconomic progress and living standards. Steel remains the most environmentally benign and recyclable of engineering materials.

India's founders recognised power and steel as the cornerstone for the country's future growth after independence. Steel was used to build the majority of India's contemporary infrastructure, confirming the industry's pivotal role in the country's development. India has surpassed Japan as the world's second-largest steel producer, and it is on track to become the world's second-largest steel consumer.

India's local steel sector is particularly sensitive to lower-cost imports and fluctuating demand. The steel industry's overall growth and profitability have been harmed by a drop in domestic steel demand and a decline in investment across industries. Protectionism and trade conflicts are having a negative influence on the sector. However, this is only a phase.

The Indian steel industry is thriving, with a compound annual growth rate of roughly 5% to 6% year on year. In 2021, India's imports of iron and steel articles grew to 1642.91 USD million, up from 698.20 USD million in 2020. Exports of Iron & Steel in India decreased to 2966.98 USD Million in 2020 from 6393.58 USD Million in 2019.

The current scenario necessitates an immediate policy boost to protect the industry from global pressures while also stimulating demand. The Indian Steel Association (ISA) successfully inaugurated its flagship event, the 'ISA Steel Conclave,' in 2018 as a venue for government officials, senior industry experts, and consultants to obtain insights into international steel trade and related difficulties. This research paper aims to offer a comprehensive overview of the steel sector in India, highlighting its growth, problems, and economic effect.

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INTRODUCTION

Metals have long been a driving force behind industrialisation. Steel has always held a leading position among metals. Steel production and consumption are commonly viewed as markers of economic success as a raw material and intermediate product. As a result, it is not an exaggeration to claim that the steel sector has always been at the forefront of industrial progress and is the foundation of any economy.

The steel industry is the pulse of an economy, indicating the general direction of the economy. The industry primarily assesses a country's or regions economic success. This is due to its widespread application in a variety of end-user industries, notably infrastructure, which is a major steel consumer.

1.1 Classification of Steel

Steel is an iron-carbon alloy with less than 2% carbon and 1% manganese, as well as trace of quantities which are silicon, phosphorus, sulphur, and oxygen. Steel producers generally make three sorts of products: flat steel, long steel, and alloy steel.

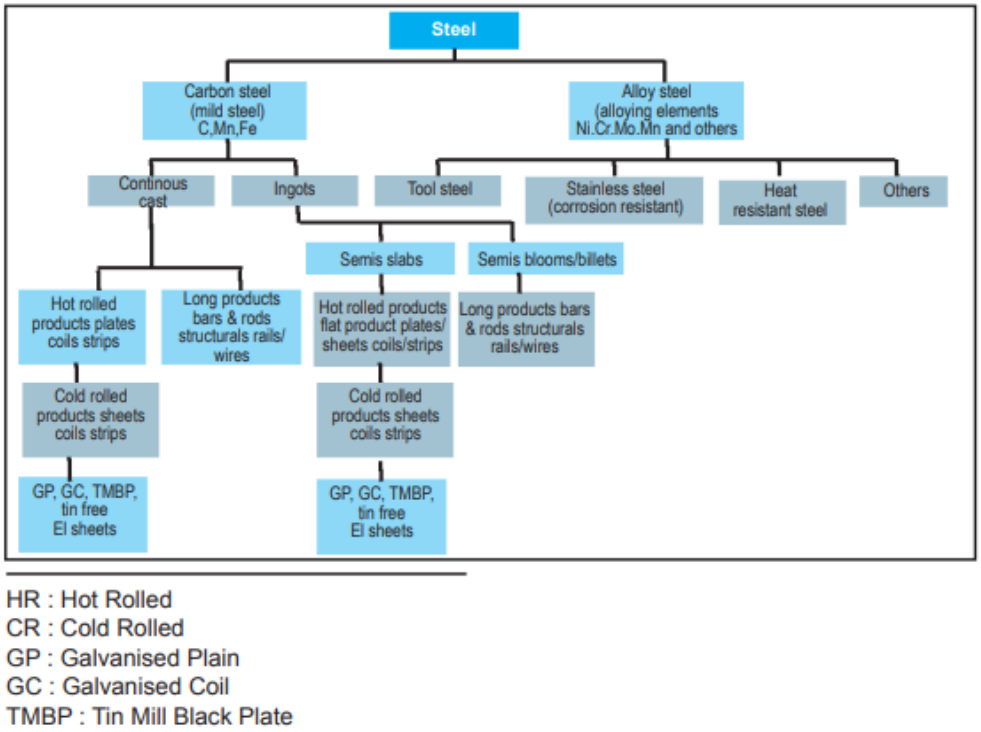

Figure 1: Various types of Steel

Source: eximbankindia.in

To obtain the desired thickness, flat steel is generally rolled via a series of rollers. Rolling mills use flat rollers to generate finished flat steel items from slabs. Hot rolled (HR), cold rolled (CR), and coated versions are available.

- **Plate products:** They range in thickness from 10 to 200 mm. Shipbuilding, construction, big diameter welded pipes, and boiler applications all require plate goods.
- **Strip products:** These come in a variety of thicknesses ranging from 1 to 10 mm and can be hot rolled (HR) or cold rolled (CR). Automotive body panels, home white goods, steel (or tin) cans, and items ranging from office furniture to cardiac pacemakers all employ strip products.

The building sector is the primary user of long items. Lengthy steel bars emerge from the mill as long products. Long steel is available in a variety of forms and sizes. These can have H or I-shaped cross-sections (joists, beams, and columns), U-shaped cross-sections (channels), or T-shaped cross-sections (tubes) (sections).

A rod, a bar, or a section are all examples of lengthy products. Long items are generally rolled using blooms and billets (semi-finished products).

Billets are smaller than blooms and are utilised to make shorter items.

- Reinforcing rods for concrete, technical items, gears, and tools are examples of typical rod products.
- Squares, rectangles, circles, hexagons, and other shapes are common cross-sections for bar items.

Distinct grades of alloy steel exist, each with a different amount of carbon and other elements. These constituents determine the steel's properties. Different alloy steels are used for different purposes. Industrial tools, for example, are made of strong abrasion-resistant steel; heat-resistant steel is used in high-temperature applications; and fatigue-resistant steel is utilised in mechanical applications. The composition of alloy steel is determined by its intended purpose and cannot be generalised as a single commodity, such as HR and CR sheets. Despite the fact that this category contains high-value steel alloys, its quantities are quite modest when compared to carbon steel goods. Stainless steel is the most often used alloy steel. It is a corrosion-resistant metal with substantial alloying components of chromium and nickel.

Historically, the sector has seen significant volatility. For example, growth in 2016 was 3.8 percent, then dipped to 0.5 percent in 2017, before rising to 6.4 percent in 2018. In 2019, sectoral growth is likely to stay below 1.5 percent once again.

Given the enormous changes it has seen and the fact that numerous areas of the economy affect its growth potential, predicting long-term growth for this sector is difficult.

Government programmes, on the other hand, are aimed at encouraging technology suppliers and OEMs to set up shop in India. To reinvigorate the sector, the government is concentrating on Research and Development.

Furthermore, given India's emphasis on the Make in India programme, the sector's prospects have become brighter.

1.2 Production of Steel

Steel is made in two ways:

• Iron ore-based steel accounts for around 70% of global steel production. Steel is made from iron ore that has been reduced to iron. Iron ore, coal, limestone, and recycled (scrap) steel are the primary inputs. The primary ore-based production paths are blast furnace (BF) iron making followed by basic oxygen furnace (BOF) steelmaking, and direct reduction (DRI) iron making followed by electric arc furnace steelmaking (EAF).

• Scrap-based steel accounts for around 30% of total steel production worldwide. Steel is recycled in an EAF to make it. Recycled steel and electricity are the primary inputs. Other sources of metallic iron, such as direct reduced iron (DRI) or hot metal, can be utilised in the EAF route depending on the plant layout and availability of recycled steel.

Slags (90 percent by mass), dusts, and sludges are the most common by-products of iron and crude steel manufacturing. Process gases, such as BF or BOF from the coke oven, are also important by-products.

On average, one tonne of steel produces 200 kg of by-products (EAF) to 400 kg of by-products (BF/BOF).

1.3 Sustainable Steel

Steel that is both environmentally friendly and long-lasting and the steel sector contributes for 3-4 percent of global greenhouse gas emissions, according to the Inter-Governmental Panel on Climate Change (IPCC). Every tonne of steel produced emits an average of 1.7 tonnes of carbon dioxide. Iron production in Brazil, China, India, Japan, Korea, Russia, Ukraine, and the United States, as well as the EU-27 region, is expected to account for approximately 90% of steel sector emissions. Over time, the steel industry has made technical improvements that have resulted in

significant reductions in steel-related emissions. Increased energy efficiency in the steelmaking process, improved steel product recycling, improved use of steelmaking by-products, and improved environmental protection approaches are among these accomplishments.

Steel companies throughout the world are always investing in greener production methods. Changes in process or production technologies, input materials (for example, employing low-sulphur raw materials), onsite reuse and recycling, enhanced housekeeping, and training are all examples of these. The Asia-Pacific Partnership on Clean Development and Climate's Steel Task Force has developed a State-of-the-Art Clean Technologies Handbook, which outlines some of the best available technologies and solutions for increasing energy efficiency and improving environmental performance at steelmaking facilities.

A variety of national initiatives to emissions reduction are being used. The Japanese steel industry is participating in a voluntary action programme that includes everything from international technical collaboration to research and development into new by-product applications. The steel industry in the United States has announced an ambitious goal to achieve net-zero greenhouse gas (GHG) emissions by 2050. In the Asia-Pacific Partnership on Clean Development and Climate, which also includes China and India, the steel industries of the United States, Japan, Korea, Australia, and Canada are also participants. The World Steel Association is taking the strategy of gathering carbon emission data from key steel-producing countries and benchmarking it to strengthen national and regional pledges.

1.4 Global Steel Development

The worldwide situation has served as a forerunner to the situation in India, where steel producers have begun to exhibit indications of a down-cycle, resulting in margin compression. This is owing to high input prices and a bad macroeconomic climate, both worldwide and domestically, which has resulted in low demand for steel products from end-user industries.

India's steel industry has undergone remarkable growth in recent years, owing to increased capacity, resulting in India being the world's fourth largest producer of crude steel (after China, Japan, and the United States) and the world's largest producer of sponge iron.

Steel prices are often volatile due to the global steel industry's extremely cyclical nature. Steel prices are directly affected by rising raw material prices. Overcapacity, a surplus of cheaper Chinese steel imports, the broader economy, and moves to alternative replacements have all had a substantial influence on steel pricing.

While the rupee is currently trading at about 77-78, a weaker currency might result in higher coking coal prices for domestic steel companies like SAIL and JSW, who rely on imports. It might also contribute to increased net debt for corporations with larger FX debt, such as JSW Steel and Tata Steel.

Volume expansion, on the other hand, would be crucial in the long run for the steel sector, given that significant new capacity is expected to be commissioned in the next two years.

Overall capacity utilisation levels and profitability of steel manufacturers will remain affected unless market circumstances improve considerably.

Steel supply in the market outstripped demand due to imports from China. In addition, the situation in Europe and Asia's slowing economy have kept prices in check. Steelmakers' profitability have been impacted by decreasing steel prices. The recovery in price momentum, on the other hand, is expected to be fuelled by a rising domestic economy, Euro-zone stabilisation, and a resurgence in building activity.

In terms of output growth, rising modernisation in the twenty-first century has resulted in a doubling of global steel production from 851 million tonnes in 2000 to 1,950.5 million tonnes in 2021. Despite its scale, the sector is still highly fragmented. It is also quite cyclical and competitive.

1.5 Top 10 largest Steel Producing Countries in the World:

In 2021, the globe produced and used over 1,950 million metric tonnes of crude steel. Emerging economies are rapidly ascending the production ladder, with some accounting for up to 50% of total crude steel output.

Massive technological advancements, rising basic income levels, and dynamic geopolitical and politico-economic considerations are all contributing to the increase in demand, which is causing countries to boost output and, in certain situations, produce a surplus.

However, excess production or export is a concern for the global economy. Steel surpluses result in surplus exports at extremely cheap prices, leading in sharp drops in foreign steel demand and widespread job cuts.

To save employment markets, several global powers have pushed for reductions in surplus production and exports.

The reader will be able to take an informed view on the looming questions about global steel trade and its future after reading this essay, which will outline important changes in global steel production.

1. China:

- China exceeded all expectations in 2021, producing an incredible 1337 million metric tonnes of crude steel.
- China's excess crude steel output has alarmed various countries, notably the United States, the European Union, and India, who fear it has opened Pandora's Box.
- China is in negotiations with the US and other major economies about its extremely inexpensive excess exports.
- According to leading journalists, economists, market and political analysts, public outcry over the necessity to keep factories running and GDP at an all-time high is compelling China to produce more crude steel than the world requires. This is said to help them keep their employment.
- However, numerous countries argue that China is utilising "western markets as export dumps," resulting in enormous unemployment abroad and poor steel production in the United States.
- Since 2009, China has increased its exports by 364 percent, reaching 106.6 million metric tonnes. The top three buyers of Chinese steel are South Korea, Vietnam, and the Philippines.
- The majority of China's steel producers are state-owned and operated
- China's largest steel processors, Hesteel Group and Baosteel Group, serve the worldwide steel and related sectors.
- Because of its excess production capability, China now produces half of all steel in the world. Due to politico-economic dynamics combined with domestic development, as well as China's growing geopolitical power in the South China Sea, the steel sector in China is expected to grow even more.

2. India:

- According to leading economists quoted in reputable publications, India is on track to surpass Japan as the world's second largest producer of crude steel. After reaching 100.3

million metric tonnes at the end of 2020, the world's fourth-largest economy quickly increased by 11% to 118 million metric tonnes in February 2021.

- ❖ India, the world's 14th largest crude steel exporter, supplied 10 million metric tonnes of steel to international clients. According to some estimates, India's exports increased by 75 percent. Other estimates range between 101 percent and 142 percent.
- ❖ Imports, on the other hand, have dropped by over 25%.Nepal, Belgium, and Bangladesh are the top steel importers from India.
- ❖ India's biggest steel producers include TATA Steel Group, Steel Authority of India Ltd. (SAIL), and JSW Steel Limited. These companies are also known as some of the world's largest export-quality steelmakers.

3. Japan:

- ❖ Despite fluctuating graphs, Japan's steel output quantity has remained above 104 million metric tonnes, down from 110.6 million metric tonnes in 2014.
- ❖ The huge sales tax hike in the Island Nation is being blamed for the drop. On any form of resurgence, there is no clear unanimity. According to analysts, a stimulus can help the country recover.
- ❖ The main steel producers in Japan are Nippon & Sumitomo and JFE.
- ❖ With 40.4 million metric tonnes shipped worldwide, Japan remains the world's second largest exporter of complex, high-grade steel. Despite the drop in production, export growth has increased by 22 percent. Japan's steel is primarily purchased by South Korea, Thailand, and China.

4. The United States of America:

- ❖ The United States' steel health does not appear to be improving after a steep reduction in crude steel production from 88.2 million metric tonnes to 86 million metric tonnes in 2021.
- ❖ According to market analysts, cheap, excess imports from large emerging nations are pressuring domestic steelmakers in Western markets to close plants and lay off workers, resulting in a production gap.
- ❖ The United States, which is also the world's largest steel importer, is in talks with several large manufacturers in emerging countries to reduce surplus exports that could destabilise the global market.
- ❖ Economists, on the other hand, expect that steel production will return to normal.

- Despite this, the United States continues to export high-grade steel to roughly 150 countries, with Canada and Mexico being the major importers. The three largest steel companies in the United States are Nucor, US Steel, and ArcelorMittal.
- Nearly 9 million metric tonnes of steel have been shipped to 150 markets by the world's ninth largest steel exporter.

5. Russia

- Following a surge in production in 2014, Russia's steel production silos have slowed, with output reaching 68.6 million metric tonnes in 2016. However, Russia produced over 75.6 million metric tonnes of steel in the first quarter of 2021.
- With 75.6 million metric tonnes of steel exports in 2021, Russia maintains its position as the world's fifth largest steel exporter. Since 2011, the global power has seen a dramatic 22 percent increase in overall exports.
- Russia's top export destinations are Turkey, Taiwan, and Mexico. Novolipetsk Steel, Evraz Group, and Severstal JSC are the three largest steel producers in Russia.

6. South Korea

- South Korea is the world's sixth largest steel manufacturer, with over 70.4 million metric tonnes processed in 2021.
- However, output trends fluctuate, with a little decrease in early 2017. Experts argue that the results are only expected to improve because it is too early to conclude anything before the fiscal year ends.
- The country is also the world's fourth largest exporter of crude steel. China, the United States, and Japan are the top three buyers.
- South Korean steel exports have reached approximately 30.3 million metric tonnes, with POSCO and Hyundai Steel Co. as the leading producers.

7. Turkey:

- Turkey's steel silos and production facilities are reviving after a steady drop in production owing to regional political uprisings, with a strong increase from 31.5 million metric tonnes to 40.4 million metric tonnes (or 15.4% growth) as of 2021.
- Steel exports in Turkey increased by 2% in 2016, from 14.8 million metric tonnes in 2015 to 15 million metric tonnes in 2016.

- The United States, Egypt, and the United Arab Emirates are the biggest buyers of Turkic steel. Erdemir Group, Içdas, and Habas are the three major steel producers in Turkey.

8. Germany:

- Germany, which is known for its high-grade steel, is still the world's seventh largest crude steel producer.
- Its steel output in 2021 was 40.4 million metric tonnes, a little decline from 2019.
- The technological centre is presently the sixth largest crude steel exporter in the world.
- Steel produced in Germany is consumed in France, Poland, and the Netherlands. Steel from Germany is widely used in the automobile and armament industries.
- Germany's main steel producers are ThyssenKrupp, ArcelorMittal, and Salzgitter.
- Experts predict that Germany will overtake several other countries in terms of manufacturing volume in the future years.

9. Brazil:

- Brazil's crude steel output has fallen by about three million metric tonnes due to the country's economic crisis, and is now at 36.2 million metric tonnes in 2021.
- According to a well-known national steel group in Brazil, the country's steel industry has closed 83 operating units, cut over 40,000 jobs, and put off investments worth USD 3.2 billion since 2014.
- According to the group, the country's crude steel output fell by about 9.2 percent.
- This has impacted related industries, such as automotive. Brazil's steel exports decreased by 2% to 13.4 million metric tonnes.
- Gerdau, ArcelorMittal, USIMINAS, and CSN are the main steel producers in Brazil.
- Even while Brazil remains in the top tier of global steel producers, experts predict that its status will not change any time soon.

10. Ukraine:

- Ukraine, a country in Eastern Europe, has dropped two places in terms of crude steel output, from eighth in 2010 to tenth in 2016.

- Because the battle is taking place in the eastern part of the country, where the majority of the steel plants are located, it has crippled the country's steel production, which is currently at 21.4 million metric tonnes as of 2021.
- Ukraine exported 18.2 million metric tonnes in 2017, a 30% decrease from the previous year due to the political crisis.
- The main steel producers in Brazil are Metinvest, ISD, Corporation, JSC, and Zaporizhstal.
- Egypt, Turkey, and Italy are the top steel importers from Ukraine.
- Experts are optimistic, citing a small increase in crude steel output of roughly 2 million metric tonnes.
- Ukraine continues to be one of the top 10 crude steel producers and exporters.

Global Ranking of Indian Steel

According to provisional figures issued by the World Steel Association on January 25, 2022, global Crude Steel output was 1950.5 MT in January-December 2021, up 3.7 percent over the same period the previous year. During this time, Chinese crude steel output fell by 3% to 1032.8 MT, compared to the same period last year. During this time, China remained the world's top Crude Steel producer, accounting for 75% of Asia & Oceania Crude Steel output and 53% of global Crude Steel production. India was the world's second-largest producer of crude steel, with production up 17.8% over the same time previous year.

World Steel Production

Rank	Country	Qty (MT)*	% change over the same period of last year
1	China	1032.8	-3
2	India	118.1	17.8
3	Japan	96.3	15.8
4	USA	86	18.3
5	Russia (e)	76	6.1
6	South Korea	70.6	5.2
7	Turkey	40.4	12.7
8	Germany	40.1	12.3
9	Brazil	36	14.7

10	Iran (e)	28.5	-1.8
	Top 10	1624.8	2.09
	World	1950.5	3.7

Table 1: World crude steel production January – December 2021

Source: World Steel Association. *Provisional

"e" stands for estimate

Major crude steel manufacturing nations' share of total global output

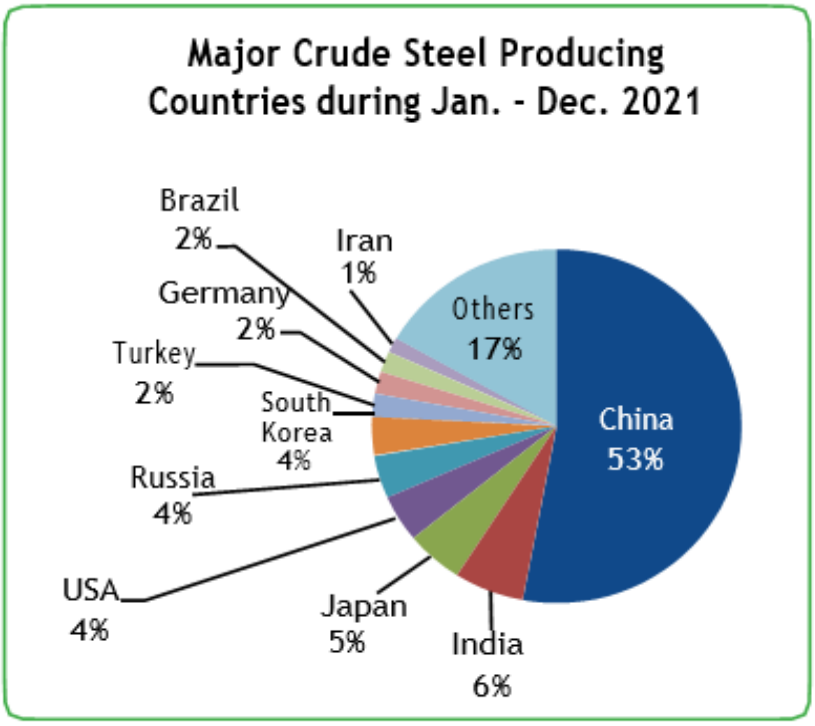

Figure 2: World crude steel production January – December 2021

Source: World Steel Association. *Provisional

1.6 The Development of the Indian Steel Industry

India's founders identified power and steel as the foundation for the country's future development after independence. Steel was used to build the majority of India's contemporary infrastructure, confirming the industry's pivotal role in the country's development. India has surpassed Japan as the world's second-largest steel producer, and it is on track to become the world's second-largest steel consumer.

India's local steel industry is particularly sensitive to lower-cost imports and fluctuating demand. The steel industry's overall growth and profitability have been harmed by a drop in domestic steel demand and a decline in investment across industries. Protectionism and trade conflicts are having a negative influence on the sector. We feel, however, that this is only a phase.

The current situation necessitates an immediate policy boost to protect the sector from global pressures while also stimulating demand. While corporate tax cuts are a significant move in the right direction, they are insufficient to raise demand. Consumer confidence and financial sector credibility must be improved.

Furthermore, the steel sector must assess how digital disruption is affecting other industries and how emerging technology can help offset some of its issues.

The Indian Steel Association (ISA) successfully inaugurated its flagship event, the ISA Steel Conclave, in 2018 as a venue for the government, senior industry officials, and consultants to gather insights into international steel trade and the problems that it faces.

The iron and steel industry in India is about a century old. In 1870, the Iron Work Company founded the first iron and steel company in Kulti, West Bengal. However, large-scale manufacturing did not begin until 1907, when the Tata Iron and Steel Company (TISCO) was established. India had a minor iron and steel manufacturing capability of roughly 1 million tonnes per year when it gained independence in 1947. The iron and steel industry's full capacity was in the private sector at the time. The Indian Iron & Steel Company Limited (IISCO), which was founded in 1918 at Burnpur, West Bengal, and was thereafter listed on the London Stock Exchange, is India's second oldest steel mill. It then changed hands and is now held by the Steel Authority of India, a public sector steel giant (SAIL).

In the second and third five-year plan eras, the emphasis was placed on capital-intensive sectors, particularly the establishment of steel mills.

Three integrated steel factories, each with a capacity of one million tonnes, were built in the public sector at Bhilai (Madhya Pradesh), Durgapur (West Bengal), and Rourkela (Orissa). Following it, two more public sector integrated steel factories in Bokaro (Jharkhand) and Vishakhapatnam were built (Andhra Pradesh).

Since the beginning of public investment in the steel sector, market protection for the indigenous industry has been implemented through reservation (large scale integrated capacity of over 1 million for the public sector), dual pricing with distribution controls for both the public and private sectors, and protection from import competition through tariff barriers, quantitative restrictions, and import licencing.

Aside from policy protection, the industry was provided market and price protection through an administered pricing framework. There was a freight equalisation system in place to keep rates consistent regardless of delivery distance. Steel's basic selling price was set and administered using the normative cost of production plus return on capital.

Cess and levies included the Joint Plant Committee (JPC) cess, the Steel Development Fund (SDF) levy, and the import pool fund, among others. Imports were channelled, and a fund was established to cover the difference between lower international procurement prices and higher domestic sales prices.

In the 1970s, the industry saw the creation of a few small-scale secondary steel makers in the private sector (electric arc furnace and induction furnace units) to fill the gap between expanding domestic demand and stagnant supply from existing integrated factories. Due to a slowdown in state investment as a result of resource constraints and lower capital plan allocation, the private sector was given encouragement. Because of the semi-finished ingots/billets generated by this industry, a considerable number of re-rolling facilities were built to convert semi-finished steel bars and rods utilised mostly in the construction industry.

In terms of licencing, pricing, and distribution, the Indian steel industry was the first major industry to be completely deregulated. Since 1991, the industry has seen an increase in reforms in all areas. With large-scale deregulation (deregulation of price, distribution, and capacity, removal of import and export limitations, and so on), the industry was available to private investment. The steel industry gained 12 million metric tonnes of capacity from 21 new projects in this decade.

1.7 Sectors of High Demand in Sale for Steel

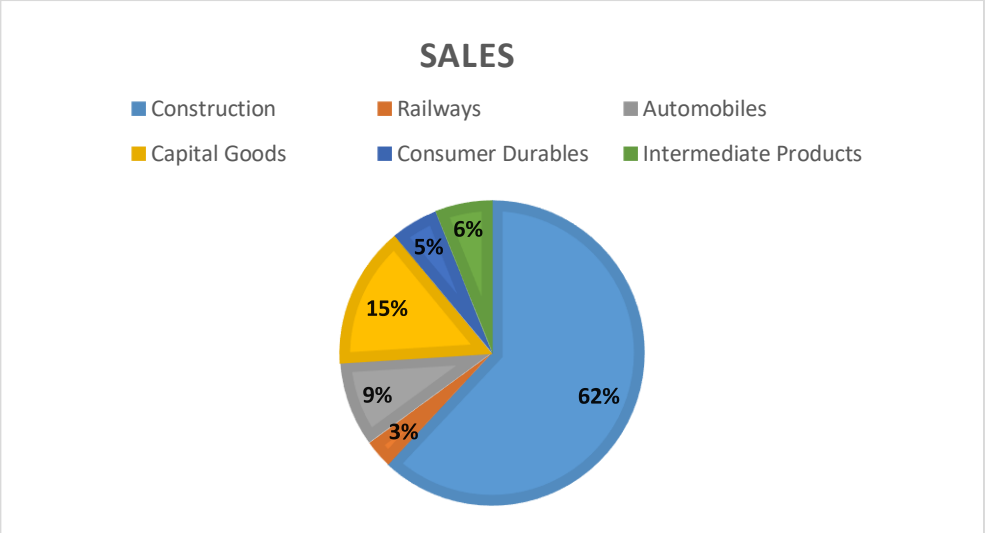

Figure 3: Sector-wise demand for steel

Source: pwc.in

Construction sector

The sector, which includes physical infrastructure (excluding railroads) and real estate, accounts for about 62 percent of India's steel consumption. In 2018, the industry grew by 8.6%. Despite the fact that growth is predicted to dip to 5.4 percent in 2019, the sector is expected to rebound in 2020 and beyond, expanding at approximately 7% through 2024. 12

In 2018, the construction industry was valued at over USD 500 billion. By 2025, India will have surpassed China as the world's third largest construction market. The government's current focus area on infrastructure will promote growth in this sector as well as total steel consumption. The real estate industry is increasing at a CAGR of over 4%, with affordable housing and smart city initiatives driving this sub-growth. The following segments are some of the significant government initiatives, both ongoing and planned:

• The National Highways Development Project, as part of the Bharatmala initiative, calls for the construction of 34,800 kilometres of road. In addition, the Bharatmala programme has identified 24 logistics parks along national corridors that will serve significant production and consumption centres, accounting for 45 percent of total road freight.

• The Sagarmala initiative, which aims to connect all of India's key maritime zones, envisions port-led industrial development.

• The Urja Ganga Gas Pipeline Project intends to build a 15,000-kilometer gas pipeline network in the oil and gas sector. 100 smart cities will be developed further under urban infrastructure. Aside from the ongoing metro train projects in Delhi, Mumbai, Kochi, and Bengaluru, ten additional cities would be serviced. Basic facilities are being updated as part of the Atal Mission for Rejuvenation and Urban Transformation (AMRUT).

• National Investment and Manufacturing Zones (NIMZs) are being established around the country, with 14 NIMZs having already received preliminary approval. In addition, eight investment zones have been designated along the Delhi–Mumbai Industrial Corridor Project (DMIC).

Over the next five years, India's overall building investment is expected to expand by 50%. Overall, the infrastructure industry is expected to develop at a rate of 9–10 percent per year, primarily due to road and urban infrastructure projects. All of this is projected to enhance steel demand both directly and indirectly. Steel crash barriers, for example, are in higher demand as road building improves.

Furthermore, the real estate sector, which has been hampered by an inventory glut in recent years, is likely to pick up steam in the future years, particularly in the inexpensive housing market. In India, the urbanisation rate is currently around 33% and is expected to reach 40% by 2030–31. This corresponds to 90 million people (almost twice Argentina's population) relocating from rural to urban regions. As a result, housing demand and, as a result, real estate expansion in urban and semi-urban areas are likely to increase in the medium to long term.

Railways:

This sector, which accounts for 3% of total steel consumption, is rapidly expanding. It increased by 13.4% in 2018 and is predicted to increase by more than 20% in 2019. Steel demand is predicted to increase dramatically as a result of projects such as 100 percent track electrification (electrification of 16,540 track km by 2021–22), dedicated freight corridors (of over 3350 km) connecting industrial clusters in western and eastern India, and high-speed rail lines.

Automobiles:

India has the world's fourth-largest automobile industry. In India, it accounts for roughly 9% of total steel demand. India is the world's top producer of two-wheelers, three-wheelers, and tractors, as well as the world's fourth and seventh largest producers of passenger and commercial vehicles. With an 81 percent market share, two-wheelers dominate the market, while overall passenger cars account for 13 percent. Domestic sales account for about 80% of sales in India's vehicle industry. The sector is gradually slowing after experiencing significant growth in recent years. In 2019, all sub-segments experienced a decline in growth. Normalization of growth is predicted in 2020. By 2026, the vehicle industry, including component parts, is estimated to exceed USD 250 billion. Until 2026, India's car and auto component export markets are predicted to rise at a CAGR of 3%. In 2015, the Indian government unveiled the Automotive Mission Plan 2016-26 (AMP 2026). The plan lays out the goals for each sub-segment in terms of scale, global footprint, and technological maturity, among other things. It intends to achieve long-term automotive growth and to bring India up to speed with global auto giants.

As a result, despite a slight slowdown in growth this year, steel demand from the auto industry is expected to stay stable.

Electric vehicles, on the other hand, will require less steel because they have fewer auto components, according to the Indian government.

Capital Goods:

About 15% of steel demand comes from this industry. It is divided into various sub-sections, the most notable of which is machinery and equipment. Construction and earth-moving machinery, plant machinery, heavy electrical machinery, and machine tools are all part of the machinery and equipment industry.

As a result, building, mining, and heavy and light industries are clearly important to the industry. In other words, the capital goods sector is reliant on overall economic growth and the success of the secondary sector in particular.

Machinery and equipment, a subset of the capital goods sector, accounts for around 23% of total manufacturing and 4% of total gross value added in India (GVA). However, in the past, the sector's growth has been inconsistent, and it is heavily reliant on imports, particularly in the large machinery area.

Due to limited acceptance of domestically created products, significant gaps in technology capabilities exist, resulting in a reduced capacity utilisation ratio, weak support infrastructure, and insufficient R&D spending.

India's economic and industrial growth have regularly decreased since the beginning of 2018. As a result, the capital goods industry grew at a healthy 6.4 percent in 2018, but is likely to slow to less than 1.5 percent in 2019. Manufacturing growth has slowed dramatically since late 2018, owing to liquidity worries, particularly among SMEs, and a stalling of new investment. Falling solar and wind energy tariffs have hampered the realisation of previously announced projects. However, in 2020, the sector is likely to revive.

Consumer Durables:

About 5% of India's steel demand comes from this sector. India is a consumption-driven economy with a long history of strong development in this sector. For example, in 2018, the sector grew by 21.7 percent. However, in accordance with slowing GDP growth, this sector's growth slowed in 2019. Consumer durables had a large drop due to a liquidity crisis in the shadow banking sector, high interest rates, and election uncertainty.

However, because the industry is so diverse, growth prospects have not always been consistent. For example, while air conditioners and refrigerators witnessed increase in 2019, frost-free refrigerators and washing machines did not. In metropolitan regions, household demand has continually outpaced personal disposable income, and this has been financed by lower household savings and more borrowing, limiting potential growth. Financial conditions tightening (driven by NBFCs) has also harmed consumption. As a result, growth prospects are projected to be moderate

in the near term, but the growth trajectory is expected to normalise in the latter half of 2020 and beyond.

Intermediate products:

The remaining 6% of India's steel demand comes from this sector. Apart from industrial activities, this segment is directly tied to the auto sector, as well as the oil and gas sector. So, while a weaker automotive sector has harmed demand for gear boxes, bearings, and other components, demand for pipes, particularly big diameter pipes, continues to rise due to ongoing pipeline developments. However, when economic growth slows, demand for packaging (drums and barrels) has slowed, and exports have also slowed.

1.8 Present Status of Indian steel Market

In FY22 (till January), crude steel and finished steel output were 98.39 MT and 92.82 MT, respectively. Crude steel output is predicted to reach 112-114 MT (million tonnes) in FY22, up 8-9 percent Year on Year, according to CARE Ratings. In FY22, finished steel consumption reached 86.3 MT (till January). The usage of finished steel was 86.3 MT from April 2021 to January 2022.

Finished Steel Import and Export from FY 2016 to FY 2022

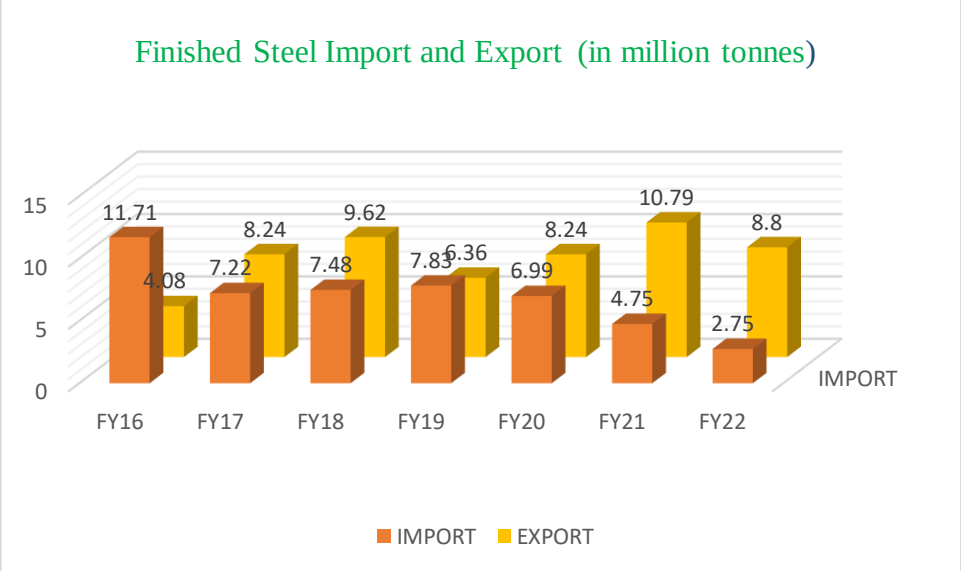

Figure 4: Finished Steel Import and Export from 2016-2022

Source: Indian Brand Equity Foundation

1.9 Indian steel industry growth potential

India's steel industry has risen emphatically as of late, fundamentally to solid homegrown interest. Beginning around 2008, homegrown steel request has move by practically 80%, while yield has expanded by 75%. Steel creation limit has expanded in lockstep, with a natural development.

The Indian government has continually upheld the steel area, making the National Steel Policy in 2017, which projects the business' development way until 2030-31. Coming up next are the vital parts of the approach:

By 2030-31, steel creation limit is assessed to surpass 300 million tons each year.

• At 85% limit usage, unrefined steel creation is assessed to arrive at 255 million tons by 2030-31.

• Creation of completed steel to arrive at 230 million tons, expecting a 10% yield misfortune in the transformation of unrefined steel to completed steel, or a change proportion of 90%.

• By 2030-31, utilization is anticipated to arrive at 206 million tons, with net commodities of 24 million tons.

• Thus, steel utilization per capita is supposed to move to 160 kg.

• An additional an INR 10 lakh crore speculation is arranged.

While the Indian government's National Steel Policy of 2017 is a record, it does highlight the steel industry's future potential in India. India produced 110.9 million tonnes of crude steel last year, according to the Joint Plant Committee.

Production must expand at a CAGR of 7.2 percent to achieve 255 million tonnes of crude steel output by 2030–31.

This is a straightforward endeavour, especially considering that crude steel output rose by 7.6% in 2018–19. As a consequence, the government's growth potential, as detailed in the 2017 National Steel Policy, corresponds to the industry's growth trajectory.

Naturally, the next question is where demand will come from in order to sustain policy production levels. A sectoral plan is thus required.

1.10 Investments

In recent years, the steel industry, as well as its related mining and metallurgical industries, have experienced significant investments and innovations.

According to data supplied by the Department for Promotion of Industry and Internal Trade (DPIIT), Indian metallurgical industries garnered US$ 16.1 billion in FDI between April 2000 and December 2021.

Steel consumption is predicted to rise by 17% to 110 million tonnes in FY22, owing to increased construction activity.

The following are some of the notable investments in the Indian steel industry:

- Tata Steel said in October 2021 that it will build further scrap-based plants with a capacity of at least a billion tonnes by 2025.
- JSW Steel spent Rs.150 billion (US$ 19.9 million) in Jammu and Kashmir in October 2021 to establish a steel facility and stimulate manufacturing in the area.
- In October 2021, ArcelorMittal and Nippon Steel Corp.'s joint venture steel business in India announced plans to invest Rs. 1 trillion (US$ 13.34 billion) over ten years to expand its activities in the nation.
- Tata Steel said in August 2021 that it will invest Rs. 8,000 crore (US$ 1.08 billion) in capital expenditures in India in FY22.
- ArcelorMittal said in August 2021 that it will expand capacity in Gujarat by investing Rs. 1 lakh crore (US$ 13.48 billion).
- Tata Steel stated in August 2021 that it will invest Rs. 3,000 crore (US$ 404.46 million) in Jharkhand over the following three years to enhance capacity.
- Jindal Steel & Power Ltd. announced plans to invest US$ 2.4 billion over the next six years to boost capacity to satisfy increased customer demand in August 2021.
- JSW Steel plans to invest Rs. 47,457 crore (US$ 6.36 billion) over the next three years to boost Vijayanagar's steel production capacity by 5 MTPA and build a mining infrastructure in Odisha.
- In an interview with The Telegraph in June 2021, Mr T.V. Narendran, the newly elected CII president and MD of Tata Steel, stated that steel companies have firmed up plans to invest Rs. 60,000 crore (US$ 8.09 billion) over the next three years—this was the largest private sector investment plan announced in recent times.
- Shyam Metalics and Energy Ltd. (SMEL) stated in June 2021 that it plans to treble its production capacity over the next 3-4 years by investing Rs. 2,894 crore (US$ 389.72 million) in brownfield development at two of its facilities.
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- Mr Shin Bongkil, the South Korean Ambassador to India, announced in April 2021 at a virtual roundtable conference organised by the Indian Chamber of Commerce that POSCO, the South Korean steel giant, is planning to build an integrated steel plant in Odisha at a cost of US$ 12 billion, making it the country's largest FDI project.

- JSW Steel and its strategic alliance partner JFE Steel Corporation inked a Memorandum of Understanding (MOU) in May 2021 to perform a feasibility study to create a Grain-oriented JV Company in India that manufactures and sells electrical steel sheets.
- JSW Steel stated in May 2021 that it will increase steel production at its Vijayanagar facility from 5 MT per year to 17 MT per year by the financial year ending March 2024.
- JSW Steel finalised its buyout of Bhushan Power and Steel Ltd. in March 2021, increasing the latter's entire output to 21.5 mtpa. With the addition of BPSL and a doubling of capacity at JSW Steel's Dolvi steel mill to 10 mtpa, JSW Steel's capacity will increase to more than 26 mtpa.
- Arcelor Mittal Steel inked a Rs. 50,000 crore contract with the Odisha government in March 2021 to build a steel mill in the state.
- Tata Steel BSL partnered with FarEye, a software logistics start up, in February 2021 to boost its digital transformation process.
- Indian steel industries have begun increasing steel production capacity in order to become self-sufficient. In September 2020, SAIL announced the increase of capacity at five of its steel facilities.
- JSW Steel has set a target of 1.5 lakh tonnes of TMT Rebars for metro rail projects across the nation in FY20.
- JSW Steel has set aside US$ 4.14 billion in capital expenditures to boost its entire steel production capacity from 18 million to 23 million tonnes by 2020.

  Through faster expansion of the industry, the Ministry of Steel expects to invest US$ 70 million in the country's eastern area.

  With a total expenditure of US$ 24.88 billion, SAIL's production capacity is planned to rise from 13 MTPA to 50 MTPA by 2025.

  Tata Steel has planned to invest US$ 3.64 billion to boost the capacity of its Kalinganagar integrated steel plant from 3 million tonnes to 8 million tonnes.

1.11 Literature Review

Ghosh and Chatterjee (2008), Chadha (1989): India is credited as being the first to manufacture and use iron and steel, dating back over three thousand years. Following independence, the Indian government assumed control and limited capacity creation to the public sector. During the 1950s and 1960s, the government developed four integrated steel plants: Durgapur, Bhilai, Rourkella, and Bokaro. During that time, the Indian steel industry received technological assistance from the former Soviet Union, the Federal Republic of Germany, and the United Kingdom. More than 200 steel mills were granted licences by the Indian government in the early 1970s, but many of them were forced to close down in the second half of the decade due to a lack of crucial inputs and a severe power crisis. To resuscitate the sector in the 1980s, the Indian government launched a three-pronged strategy (i. expansion of existing steel facilities, ii. setting up new capacity, and iii. modernization and upgradation of technology in existing plants to achieve higher productivity).

Government of India(2003), Sengupta (2004), Bagchi (2005), Banerjee (2005), Muthuraman (2006), Research Bharti Bala and De (2009), Burang and Yamini (2010) : Due to increased demand for steel from the infrastructure, building, automobile, and power sectors, the Indian steel industry saw a phenomenal increase in crude and finished steel production during that time. However, the global recession of 2008 had a significant impact on the business. To keep steel prices stable, Indian steel companies were required to reduce production. The profit margin is significantly impacted by high raw material prices and a demand-supply mismatch in the steel industry. The land acquisition problem, which could pose a difficulty for the sector in the near future, has a significant impact on capacity creation.

Burange and Yamini (2008), from 1971 to 2008, the focus was on the performance of the Indian iron and steel sector as well as corporate competitiveness. The data for the study came from SAIL's annual report and the commercial and industrial department's annual report. Tables and CAGR approaches were used in the study for data display. The researcher analysed variables such as production, export, and import in the analysis and discovered that iron output has increased steadily since India's independence.

Indian steel industry (2009), centred on the 2002-2007 Prepared for the Competition Commission of India The analysis is based on secondary data obtained from the annual report of the CARE steel industry and the India statistical report. The study was carried out for the purpose

of data presentation, which included the usage of tables and the growth rate. The researcher examined variables such as production, export, and import in the study and discovered that iron output rose continuously after financial changes.

S. Mukherjee & S. Mukherjee (2012): The performance of India's exports and other related elements impacting exports were examined; manufactured exports account for a large portion of the country's overall exports, and the increasing relevance of exports in the country's economic growth was identified.

Paudel, R.C. (2014): For the period 1975-2008, the impact of liberalisation on India's exports was examined using the ARDL approach, and it was discovered that export supply is impacted by domestic output, whilst export demand is driven by global demand. The study found that liberalisation changes had a positive influence on India's industrial exports.

Jayakumar et.al (2014): By establishing the relationship between foreign direct investment, imports, and exports of India, and finding a positive link between FDI and exports and imports, the relevance of many factors of India's imports and exports was highlighted.

Prasad et.al (2014): By analysing the current trade scenario in both global and Indian trade, the study suggested various general and specific policy measures such as export infrastructure, market diversification, export promotion schemes, and the formation of Regional Trading Agreements, among others, to compete in the global emerging trade scenario.

Goyal, S. (2016): Exports are important because they contribute to the country's economic growth by contributing to foreign exchange reserves. The study looked at the current trends in Indian exports and found that, despite the US subprime crisis, India's merchandised exports grew at a phenomenal pace of 15.79 percent during a ten-year period (2004-05 to 2013-14).

Veermani, C. (2012): The post-reform growth and pattern of India's merchandise exports were examined. The study found that the first decade after reforms had a lower export growth rate (8%), compared to the second decade's growth rate (12%). (21 per cent). India's export destination has shifted significantly from traditional developed countries to emerging markets.

1.12 Objectives

- ❖ To analyse the production of steel in India with its effect of the future GDP.
- ❖ To evaluate and analysis of the steel export and import of India

1.13 Research Methodology

Research Design: The current study is both descriptive and analytical in character because it describes the current situation of the country's GDP. The research is analytical in nature, since it aims to determine the effect of the steel market on India's GDP.

Data Collection: The study is entirely based on secondary data (during a ten year period) gathered from several Government Of India websites, journals, and other related sources to see the performance of import and export of steel in India.

Statistical Techniques: The acquired data was analysed using a variety of statistical tools and techniques such as pie charts, graphical representation, among others.
Using pie charts and graphical representation of data for the comparative analysis.
The effect of the steel market on India's GDP.

1.14 Scope

The study is undertaken at a national sector for exporting and importing of steel in India. Raw materials, production and finished goods are covered under this survey. The underlying focus is to determine the impact that the export and import of steel has on the Indian economy. The top steel producing companies have been discussed along with their latest contribution to production of steel.

1.15 Limitations

- All analyses have been limited by the data provided in the annual reports of the steel industry.
- All the data used in this study is secondary data.

- We have limited scope because market conditions are not constant and may change over time.
- The covid-19 period has led to a gap in the industry and to obtain the data during that period was a challenge.

CHAPTER 2

STEEL PRODUCTION PATTERN IN INDIA

2.1 Indian Steel Association (ISA)

In both local and international arenas, the Indian Steel Association (ISA) represents the Indian steel industry. It is at the centre of all discussions on public and regulatory policy, raw resources, international trade, logistics, environmental issues, technology, and other areas of steel production. The Indian Steel Industry looks on ISA to help it achieve its crucial goal of sustainable growth in steel production and domestic demand generation.

ISA was founded in 2014, with eight full members and ten associates. Steel Authority of India (SAIL) and Rashtriya Ispat Nigam Ltd (RINL) are full members, while private-sector giants include Tata Steel Limited, Tata Steel BSL Ltd, JSW Steel Ltd, Jindal Steel and Power Ltd, ArcelorMital Nippon Steel India Ltd, and Bhushan Power and Steel Limited. ISA, as an affiliate member of the World Steel Association (WSA), engages with WSA on event planning and attends other critical meetings with worldwide partners on a regular basis.

Eight Full Members are

- Steel Authority of India Ltd.
- JSW Steel Ltd.
- Rashtriya Ispat Nigam Ltd.
- ArcelorMittal Nippon Steel India Ltd.
- Jindal Steel & Power Ltd.
- Tata Steel Limited
- Tata Steel BSL Limited
- Bhushan Power and Steel Ltd.

Our Ten Affiliate Members are

- Monnet Ispat & Energy Ltd.
- INSDAG (Institute for Steel Development and Growth)
- KISMA (Karnataka Iron and Steel Manufacturer's Association)
- Arjas Steel

- Jindal Stainless
- Electro steel Steels
- Shyam steel
- Orissa Metalliks Pvt. Ltd
- Tata Steel Long products
- Rungta Mines Limited

2.1.1 Vision of ISA

To strive toward transforming the Indian steel industry into a global leader known for its quality, productivity, and competitiveness, with a focus on health, safety, and the environment, as well as an increasing emphasis on innovation through R&D, through an inclusive and collaborative approach.

2.1.2 Objectives of ISA

Steel promotion involves promoting knowledge of the multiple benefits of high-quality steel
Collaboration with worldwide steel organisations on mutually beneficial problems.
Collaboration with the government on issues that affect the steel sector

2.2 Domestic Scenario:

The Indian steel business has entered a new age of development as a result of deregulation, riding high on the recovering economy and rising steel demand.

India has risen from third to second place as the world's second largest producer of crude steel in the last three years (2018-2020), up from third place in 2017. According to World Steel Association rankings given in 2020 (provisional), the country was also the world's largest producer of sponge iron or DRI and the world's second largest finished steel consumer after China.

The government's function in a deregulated, liberalised economic/market environment like India is that of a facilitator, putting down policy guidelines and developing institutional mechanisms and structures.

In this role, the government has announced the National Steel Policy 2017, which lays out a comprehensive roadmap for long-term growth in the Indian steel sector, both on the demand and supply sides, by 2030-31. In addition, the government has adopted a policy of giving domestically manufactured iron and steel goods priority in government procurement.

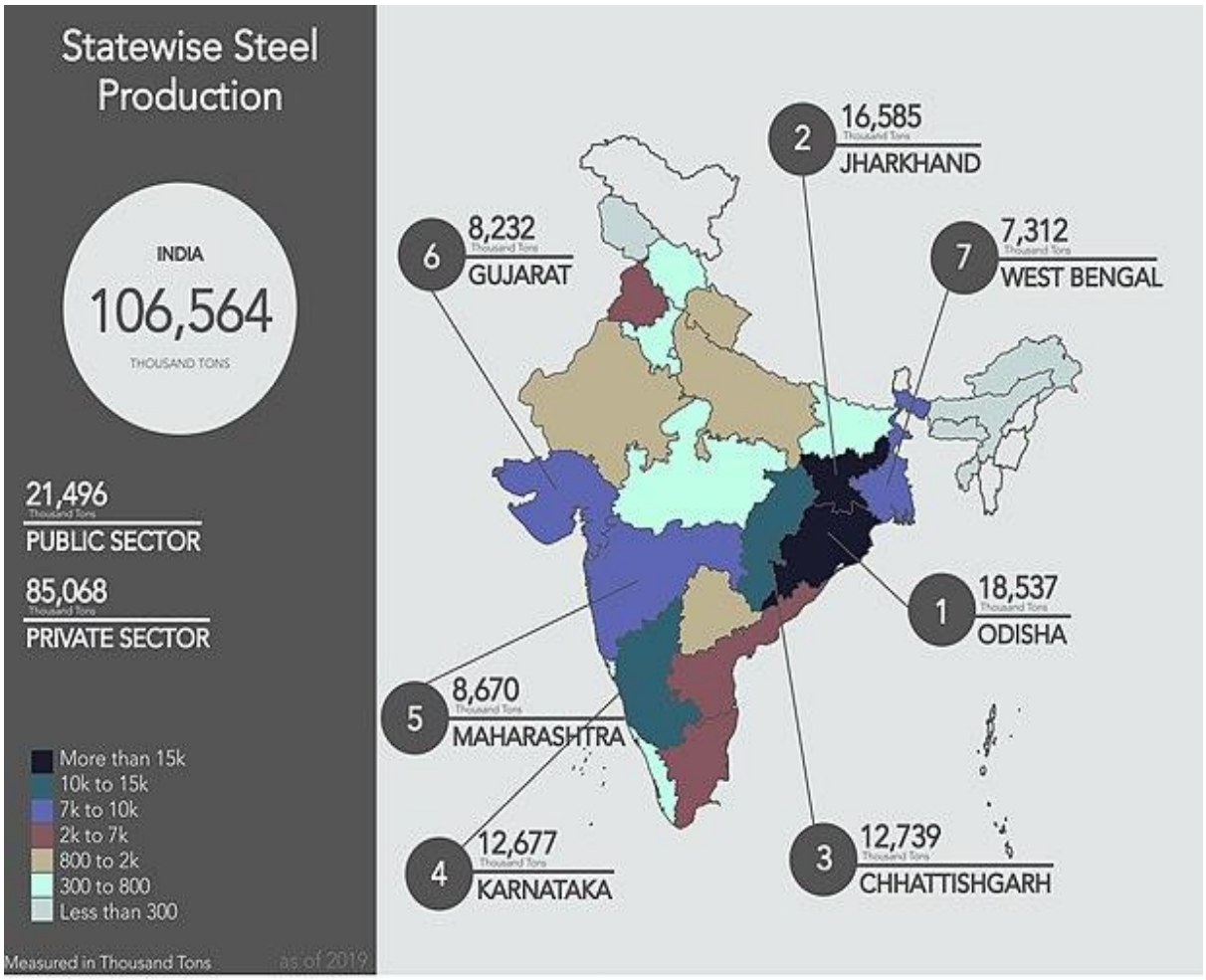

Figure 5: PRODUCTION OF STEEL IN VARIOUS STATES

Source: commons.wikimedia.org

2.3 Top 10 Steel companies in India

TATA Steel

Tata Steel, Asia's first integrated private steel company, was formed in India in 1907 and is today one of the world's top low-cost steel producers. The company's financial and operational performance for FY21 reveals that it achieved good free cash flow, with a focus on growth initiatives, reduced net debt levels, higher return ratios, and, last but not least, significant cost savings. Along with the clear improvement in Indian markets, its European facilities (which were previously considered a problem child) are expected to perform better, especially in terms of free cash flow generation. Plans to boost capacity from 21 mt to 35-40 mt by 2030 indicate management's belief in the company's development story. Tata Steel boosted its market share in

the Indian automobile industry and increased exports in FY21 (in line with the industry). Iron ore prices in the country are remain among the lowest in the world. As a result, it has one of the highest operating leverages (and fin

ancial leverage) in the world in a strong steel cycle. TATA Steel is one of the best steel companies in the country for significant projects.

FINANCIAL STATEMENT FOR THE YEAR 2020 AND 2021 FOR TATA STEEL

TATA Steel	Financial year 2021	Financial year 2020
REVENUE	156,294.19	148,971.72
PROFIT	7,490.23	1,556.54

Table 2: Revenue and Profit for TATA Steel for FY 20 and FY21

Source: www.constructionworld.in

Vedanta

Vedanta entered the steel industry when it bought a 90% share in ESL Steel Limited (ESL). In June 2018, Vedanta Limited took control of ESL through the Corporate Insolvency Settlement Process, which was intended to handle the resolution of non-performing assets in the Indian banking industry. . Vedanta plans to use brownfield development to grow its steel operations in Bokaro and become one of the country's top steel producers. It is looking forward to expanding horizons and breaking down boundaries in both present and future activities, as well as ensuring continued growth, profit, and success for all of its stakeholders. Vedanta Ltd aims to focus on long goods and ductile iron products as part of its 5-million-tonne brownfield development.

FINANCIAL STATEMENT FOR THE YEAR 2020 AND 2021 FOR VEDANTA

VEDANTA	Financial year 2021	Financial year 2020
REVENUE	86,863.00	84,447.00
PROFIT	11,602.00	-6,664.00

Table 3: Revenue and Profit for Vedanta for FY 20 and FY21

Source: www.constructionworld.in

JSW Steel

JSW Group is one of India's most prominent corporate titans. It has grown from a single production unit to become India's largest integrated steel firm, with a capacity of 28 MTPA in India and the United States, in under three decades. Since its inception, the organisation has always been at the forefront of research and development. The goods are employed in a variety of industries besides building and infrastructure, including as automobiles, electrical applications, and appliances. JSW Steel is a well-known company for its exceptional business methods and environmentally friendly activities. JSW Steel has been named among the top 15 worldwide steel manufacturers for the 13th year in a row by World Steel Dynamics, making it the first Indian business to do so.

FINANCIAL STATEMENT FOR THE YEAR 2020 AND 2021 FOR JSW STEEL

JSW Steel	Financial year 2021	Financial year 2020
REVENUE	79,839.00	73,326.00
PROFIT	7,911.0	4,030.00

Table 4: Revenue and Profit for JSW Steel for FY 20 and FY21

Source: www.constructionworld.in

Steel Authority of India Limited (SAIL)

Steel Authority of India Limited (SAIL) is one of India's largest steel producers. It is a steel corporation owned by the Indian government and based in New Delhi. SAIL produces iron and steel primarily in India's eastern and central regions, close to local raw material sources, through five integrated plants and three unique steel mills. Steel items are manufactured and distributed by the corporation. An annual output of 16.30 million metric tonnes, SAIL is the world's 20th largest steel maker and India's largest.

FINANCIAL STATEMENT FOR THE YEAR 2020 AND 2021 FOR SAIL

SAIL	Financial year 2021	Financial year 2020
REVENUE	69,113.61	61,664.16
PROFIT	4,148.13	2,120.71

Table 5: Revenue and Profit for SAIL for FY 20 and FY21

Source: www.constructionworld.in

Jindal Steel and Power

Jindal Steel and Power Ltd is owned by the OP Jindal Group (JSPL). The company's steel capacity in India is 8.6 million tonnes per year, with a 9-million-tonne-per-year pellet plant and a 3.11-million-tonne-per-year iron-ore mine nearby. The company has 3,400 MW of single-location thermal-power production capacity in Chhattisgarh, with about 38% of capacity under power purchase agreements (PPAs) having about 38% capacity and a coal linkage with Coal India. JSPL has global mining operations in Mozambique (coal), South Africa (coal), and Australia (coking coal). It recently sold its 2.4 million tonne Oman steel factory to the promoter firm and aims to sell JPL's electrical assets as well.

FINANCIAL STATEMENT FOR THE YEAR 2020 AND 2021 FOR JSPL

JSPL	Financial year 2021	Financial year 2020
REVENUE	38,988.63	36,917.48
PROFIT	3,633.56	-109.17

Table 6: Revenue and Profit for JSPL for FY 20 and FY21

Source: www.constructionworld.in

Hindalco Industries

Hindalco Industries Limited is an Aditya Birla Group company based in Mumbai, Maharashtra, India, that produces aluminium and copper. Among the Forbes Global 2000 firms, it is placed 895th. Hindustan Aluminium Corporation Limited was created in 1958 by the Aditya Birla Group. In 1962, the company began production in Renukoot, Uttar Pradesh, with a capacity of 20 thousand metric tonnes of aluminium metal and 40 thousand metric tonnes of alumina per year. After the company was restructured in 1989, it was renamed Hindalco.

FINANCIAL STATEMENT FOR THE YEAR 2020 AND 2021 FOR HINDALO INDUSTRIES

Hindalco Industries	Financial year 2021	Financial year 2020
REVENUE	131,985.00	118,144.00
PROFIT	3,483.00	3,767.00

Table 7; Revenue and Profit for Hindalco Industries for FY 20 and FY21

Source: www.constructionworld.in

TATA Steel BSL

Every company has its own set of strengths, and understanding them is critical to success. Tata Steel BSL experienced the same thing. Bhushan Steel was going through some difficulties. Tata Steel BSL (formerly Bhushan Steel) was purchased by Tata Steel in 2018 through its wholly owned subsidiary Bamnipal Steel. The company's performance has been outstanding since then, thanks to the Tata Group's strong management bandwidth, propelling it to our list of top steel performers. Without a doubt, Tata Steel BSL is a prominent player in India's steel industry. It is currently India's sixth largest secondary steel producer, with a steel production capacity of 5.6 mtpa and more than three decades of experience. It also features a 1 mt coated product facility, 2.1 mt CRM and downstream product capacity, and one of India's largest 1,700 mm-wide cold rolling mill facilities.

FINANCIAL STATEMENT FOR THE YEAR 2020 AND 2021 FOR TATA STEEL BSL

TATA Steel BSL	Financial year 2021	Financial year 2020
REVENUE	21,418.63	18,199.14
PROFIT	2,518.16	-628.49

Table 8: Revenue and Profit for TATA Steel BSL for FY 20 and FY21

Source: www.constructionworld.in

Jindal Stainless

Shri O.P Jindal founded Jindal Stainless in 1970. It is one of India's major stainless steel conglomerates and one of the world's top ten stainless steel firms. The Jindal Stainless Group's crude steel capacity is projected to be 1.9 MTPA.

FINANCIAL STATEMENT FOR THE YEAR 2020 AND 2021 FOR JINDAL STAINLESS

Jindal Stainless	Financial year 2021	Financial year 2020
REVENUE	12,188.46	12,950.87
PROFIT	419.23	71.32

Table 9: Revenue and Profit for Jindal Stainless for FY 20 and FY21

Source: www.constructionworld.in

TATA Steel Long Products

Tata Steel Long Products (TSLP), formerly Tata Sponge Iron Limited, is a maker of high alloy steel. With a capacity of one million tonnes, it is one of India's largest specialty steel mills in the long product class. The steel plant uses high-quality iron ore from its own mine, which allows it to keep product homogeneity high. Jamshedpur's steel plant was the first in India to use Hot Metal in an Electric Arc Furnace, which has subsequently become normal practise. With a total capacity of 0.90 million tonnes and production sites in Jamshedpur and Joda, the company also produces and sells sponge iron for the secondary steel sector. The company also generates power from the latent heat generated inside its furnaces, which is generally used for internal use.

FINANCIAL STATEMENT FOR THE YEAR 2020 AND 2021 FOR TATA STEEL LONG

TATA Steel Long	Financial year 2021	Financial year 2020
REVENUE	4,749.87	3,489.99
PROFIT	572.01	-516.23

Table 10: Revenue and Profit for TATA Steel Long for FY 20 and FY21

Source: www.constructionworld.in

Godawari Power and Ispat

HIRA Group of Industries, Raipur, owns Godawari Power & Ispat Ltd. (GPIL), formerly known as Ispat Godawari Ltd (IGL). Mr B. L. Agrawal, Managing Director, founded GPIL in 1999 with the goal of establishing an integrated steel mill with captive power generation. The National Stock Exchange and the Bombay Stock Exchange both list GPIL. GPIL is a mild steel wire company that offers a broad range of services. Sponge iron, billets, Ferro alloys, captive power, wire rods (through subsidiary firm), steel wires, oxygen gas, fly ash brick, and iron ore pellets are all produced during the process.

FINANCIAL STATEMENT FOR THE YEAR 2020 AND 2021 FOR GPIL

GPIL	Financial year 2021	Financial year 2020
REVENUE	4,071.92	3,288.53
PROFIT	638.39	166.78

Table 11: Revenue and Profit for GPIL for FY 20 and FY21

Source: www.constructionworld.in

2.4 Production of Indian Steel Plant (Isp) And Other Producers of Raw Steel To Finished Steel

('000 TONNES)

SL. NO.	ITEM / PRODUCER	2017	2018	2019	2020	2021(P)
	PRODUCTION					
I.	**CRUDE STEEL:**					
	SAIL, TSL Group, RINL, AM/NS, JSWL, JSPL					
	Oxygen Route	41,298	46,059	46,764	42,878	50,892
	E.A.F. Units	17,048	20,513	21,889	21,190	22,165
	Other Producers					
	Oxygen Route	4,811	2,949	1,909	1,774	2,041
	E.A.F. Units (incl.Corex & MBF/EOF)	9,840	7,773	6,741	6,974	9,715
	Induction Furnaces	28,457	31,955	34,041	27,439	33,322
	TOTAL (Crude Steel)	**1,01,455**	**1,09,250**	**1,11,344**	**1,00,256**	**1,18,134**
	% share of Other Producers	42.5	39.1	38.3	36.1	38.2
II.	**PIG IRON :**					
	SAIL, TSL Group, RINL, AM/NS, JSWL, JSPL	724	1,358	1,435	1,250	1,582
	Other Producers	6,164	4,891	4,548	3,298	4,294
	TOTAL (Pig Iron)	**6,888**	**6,249**	**5,983**	**4,548**	**5,876**
	% share of Other Producers	89.5	78.3	76.0	72.5	73.1
III.	**SPONGE IRON :**					
	Gas Based	6,223	7,052	6,699	6,074	8,402
	Coal Based	23,282	27,161	30,120	27,519	30,606
	TOTAL (Sponge Iron)	**29,505**	**34,213**	**36,819**	**33,593**	**39,008**
	% share by Process (Coal Based)	78.9	79.4	81.8	81.9	78.5

IV.	**FINISHED STEEL (Production)(Alloy/Non-Alloy) :**					
	SAIL, TSL Group, RINL, AM/NS, JSWL, JSPL	51,915	59,154	61,450	54,659	63,957
	Other Producers	41,823	41,420	42,612	37,571	47,901
	TOTAL (Finished steel)	**93,737**	**1,00,574**	**1,04,062**	**92,231**	**1,11,858**
	% share of Other Producers	44.6	41.2	40.9	40.7	42.8

Table 12: PRODUCTION OF ISP AND OTHER PRODUCERS

Source: JPC

2.5 Production:

• In 1991 and 1992, the steel industry was de-licensed and de-controlled, respectively.

• In 2020, India was the world's second-largest producer of crude steel.

• Total finished steel output (alloy/stainless + non-alloy) was 96.20 million tonnes in 2020-21. (mt).

• Pig iron production in 2020-21 was 4.88 mt, down 10.0 percent from the previous year.

• India was the world's largest sponge iron producer in 2020. The coal-based technology accounted for 82% of total Sponge Iron production in 2020-21. (34.38 mt).

•For the previous five years, production figures for pig iron, sponge iron, and total finished steel (alloy/stainless + non-alloy) are presented below:

Indian steel industry: Production (in million tonnes)					
Category	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
Pig Iron	10.34	5.73	6.41	5.42	4.88
Sponge Iron	28.76	30.51	34.71	37.1	34.38
Total Finished Steel	91.54	95.01	101.29	102.62	96.2
Source: Joint Plant Committee					

Table 13: Production of steel for the past 5 years

Source: steel.gov.in

2.6 Demand – Availability:

• Demand - iron and steel availability in the country is mostly determined by market factors, and demand deficits are often addressed through imports.

• Steel Consumers' Council, which meets on a monthly basis to handle availability difficulties and quality complaints, contacts consumers.

Steel Costs:

• On 16.1.1992, iron and steel price restriction was eliminated. Since then, the interaction of market forces has set steel pricing.

• Patterns in raw material prices, market demand-supply situations, and worldwide pricing trends, among other things, influence domestic steel prices.

• As a facilitator, the government keeps an eye on the steel market and makes budgetary and other policy decisions based on its findings. Steel is currently subject to an 18 percent GST and steel items have no export duties.

•The government has established a Steel Price Monitoring Committee to monitor price rationalisation, study pricing variations, and inform all parties involved about any unreasonable price behaviour of steel commodities.

• The government used a number of steps to reduce price distortions caused by erratic and growing imports, including raising import taxes and slapping a spate of anti-dumping and safeguard levies on a variety of iron and steel goods. Another attempt to cut down on steel use.

• The Indian government issued the Stainless Steel (Quality Control) Order, 2016 for products used in the manufacture of utensils and kitchen appliances, which will help filter metal imports, to combat the sale of defective and sub-standard stainless steel products used in the manufacture of utensils and various kitchen appliances.

India has a competitive edge in steel manufacturing due to the following factors:

- The two critical inputs to steel manufacture, high-grade iron ore and non-coking coal, are both available locally.
- Domestic and international markets are expanding.
- MSME industry that is thriving
- Competitive labour prices and a youthful workforce

In comparison to the global average of 208 kg, India's current per capita steel consumption is 69 kg. If we concentrate on rural regions, the figure falls to 10 kg. This suggests that India has a significant consumption growth potential.

India is expected to see massive demand growth in the coming decade as a result of government initiatives such as affordable housing in urban and rural areas, railway network expansion, development of the domestic shipbuilding industry as part of the Sagarmala project, opening up of the defence sector for private participation, and growth in the automobile sector. In fact, by 2030-31, demand is expected to quadruple, reaching 230 MT.

2.7 Indian Steel Sector Development Since 2010-11

Economic changes implemented by the government since 1991 have added new dimensions to industrial growth in general and the steel sector in particular. Except for particular locational limitations, the steel industry was removed from the list of industries designated for the public sector, and licencing was no longer required for capacity increase. Automatic permission was granted for up to 100 percent foreign equity involvement. Price and distribution limits were removed in order to make the steel industry more efficient and competitive. Import tariffs were dramatically reduced, and limitations on both import and export commerce were eliminated. The Indian steel sector profited from general policy measures such as lower import duties on capital goods, rupee convertibility on trade accounts, and the ability to raise funds from international financial markets, among others. The Indian steel industry has come a long way to become the world's second largest crude steel manufacturer, with a capacity of about 140 million tonnes. The following are some recent notable statistics on such increase.

2.7.1 Production/Production for Sale

The production data in the following parts incorporates and illustrates JPC's aforementioned (changing) reporting system.

a) Total Finished Steel Production/Sale Steel Production

According to the JPC reporting system, the Majors and Other Producers had a larger share of total finished steel output for sale in 2013-14 than the Main Producers.

Total Finished Steel Production/Production for Sale				
Year	(a) Main Producers	(b) Majors and Other Producers	Production for sale (a+b)	%share of Majors and Other Producers
2010-11	18.407	50.214	68.621	73.2
2011-12	17.978	57.718	75.696	76.2
2012-13	19.244	62.437	81.681	76.4
2013-14	22.196	65.479	87.675	74.7
Source: JPC				

Table 14: Total finished steel production

Source: steel.gov.in

According to the reporting system in use from 2014-15 to 2017-18, Other Producers' share of total finished steel output has gradually decreased.

Production of Total Finished Steel (alloy/stainless + non-alloy) (million tonnes)				
Period	(a) SAIL, RINL, TSL, ESL, JSW, JSPL	(b)Other Producers	Production (a+b)	% share of Other Producers
2014-15	50.717	53.861	104.578	51.5
2015-16	52.375	54.227	106.602	50.9
2016-17	61.916	58.224	120.14	48.5
2017-18	69.143	57.712	126.855	45.5
Source: JPC				

Table 15: Total Finished Steel Production (alloy/stainless + non-alloy) (million tonnes)

Source: steel.gov.in

The JPC reporting mechanism has changed since the introduction of the crude steel equivalent reporting format in 2018-19. Under the new reporting method, Other Producers' proportion of total finished steel output has increased somewhat.

Production of Total Finished Steel (alloy/stainless + non-alloy) (million tonnes)				
Period	(a) SAIL, RINL, TSL Group, AM/NS, JSW, JSPL	(b)Other Producers	Production (a+b)	% share of Other Producers
2018-19	61.283	40.004	101.287	39.5
2019-20	61.286	41.336	102.621	40.3
2020-21	55.322	40.882	96.204	42.5
Source: JPC; AM/NS =erstwhile Essar Steel				

Table 16: Total Finished Steel Production (alloy/stainless + non-alloy) (million tonnes)

Source: steel.gov.in

(b) Pig Iron Production/Sale Production

According to the JPC reporting method in place until 2013-14, the Majors and Other Producers had a larger share of total pig iron output for sale than the Main Producers.

Production for Sale of Pig Iron (million tonnes)				
Year	(a) Main Producers	(b) Majors and Other Producers	Production for sale (a+b)	%share of Majors & Other Producers
2010-11	0.579	5.104	5.683	89.8
2011-12	0.502	4.869	5.371	90.6
2012-13	0.674	6.196	6.87	90.7
2013-14	0.552	7.398	7.95	93.1
Source: JPC				

Table 17: Production for Sale of Pig Iron (million tonnes)

Source: steel.gov.in

According to the reporting system in use from 2014-15 to 2017-18, Other Producers' proportion of total pig iron output has been dominant.

Production of Pig Iron (million tonnes)				
Period	(a) SAIL, RINL, TSL, ESL, JSW, JSPL	(b)Other Producers	Production (a+b)	% of share of Other Producers
2014-15	1.213	9.015	10.228	88.1
2015-16	1.287	8.953	10.24	87.4
2016-17	0.905	9.437	10.342	91.2
2017-18	0.726	5.002	5.728	87.3
Source: JPC				

Table 18: Production of Pig Iron (million tonnes)

Source: steel.gov.in

With the introduction of the crude steel equivalent reporting format in 2018-19, the JPC reporting system has altered. According to the new reporting system, Other Producers account for the majority of total finished steel output.

Production of Pig Iron (million tonnes)				
Period	(a) SAIL, RINL, TSL Group, AM/NS, JSW, JSPL	(b)Other Producers	Production (a+b)	% of share of Other Producers
2018-19	1.663	4.751	6.414	74.1
2019-20	1.193	4.227	5.421	78
2020-21	1.413	3.464	4.877	71
Source: JPC; AM/NS =erstwhile Essar Steel				

Table 19: Production of Pig Iron (million tonnes)

Source: steel.gov.in

(c) DRI – Production/Sale Production

According to World Steel Association statistics, India has been the world's leading producer of DRI or Sponge Iron since 2003.

Production for Sale of Sponge Iron		
Year	Qty(million tonnes)	% change over last year
2010-11	25.081	4.20%
2011-12	19.633	(-) 21.7%
2012-13	14.329	(-) 27%
2013-14	18.204	27%
Source: JPC		

Table 20: Production for Sale of Sponge Iron

Source: steel.gov.in

In the current reporting system, output for sale has been replaced by gross production, or simply production, a phrase that applies across the board, from iron-making to finished steel.

Production of Sponge Iron		
Year	Qty(million tonnes)	% change over last year
2014-15	24.24	5.9
2015-16	22.43	-7.5
2016-17	28.76	28.2
2017-18	30.51	6.1
2018-19	34.71	13.7
2019-20	37.1	6.9
2020-21	34.38	-7.3
Source: JPC		

Table 21: Production of Sponge Iron

Source: steel.gov.in

2.8 Total Finished Steel Consumption (TFSC) or Apparent Steel Use (ASU)

Apparent Steel Use is computed from the combined supply, i.e. (production + imports), after accounting for exports, materials utilised in downstream processing, and variations in total finished steel inventories. The graph below shows the annual trends in Apparent Steel Use of total finished steel.

Apparent Steel Use (ASU) or Consumption of Total Finished Steel		
Year	ASU: Total Finished Steel (million tonnes)	% change over last year
2010-11	66.423	11.9
2011-12	71.021	6.9
2012-13	73.482	3.5
2013-14	74.095	0.83
2009-10	76.994	3.9
2015-16	81.525	5.9
2016-17	84.042	3.1
2017-18	90.708	7.9
2018-19	98.71	8.8
2019-20	100.171	1.5
2020-21	94.891	-5.3
Source : JPC		

Table 22: Total Finished Steel Consumption (ASU) or Apparent Steel Use (ASU).

Source: steel.gov.in

Production, Consumption and Growth of Steel

Year	Total Finished Steel (alloy + non-alloy)(in Million Tonnes)			
	Production	Import	Export	Consumption
2017	93.737	7.828	10.871	88.679
2018	100.574	7.295	6.692	96.737
2019	104.062	7.440	8.205	102.622
2020	92.231	4.463	10.150	89.331
2021*	111.858	5.001	12.799	106.134

Table 23: Consumption of Total Finished Steel

Source: steel.gov.in, JPC; *Provisional figure (January-December, 2021)

Here, from 2017-2021 there is a rise in production, dip in the imports, rise in exports and also a steady rise in the consumption. There is an overall dip during the year 2020 due to the covid-19 situation and its effect of trade.

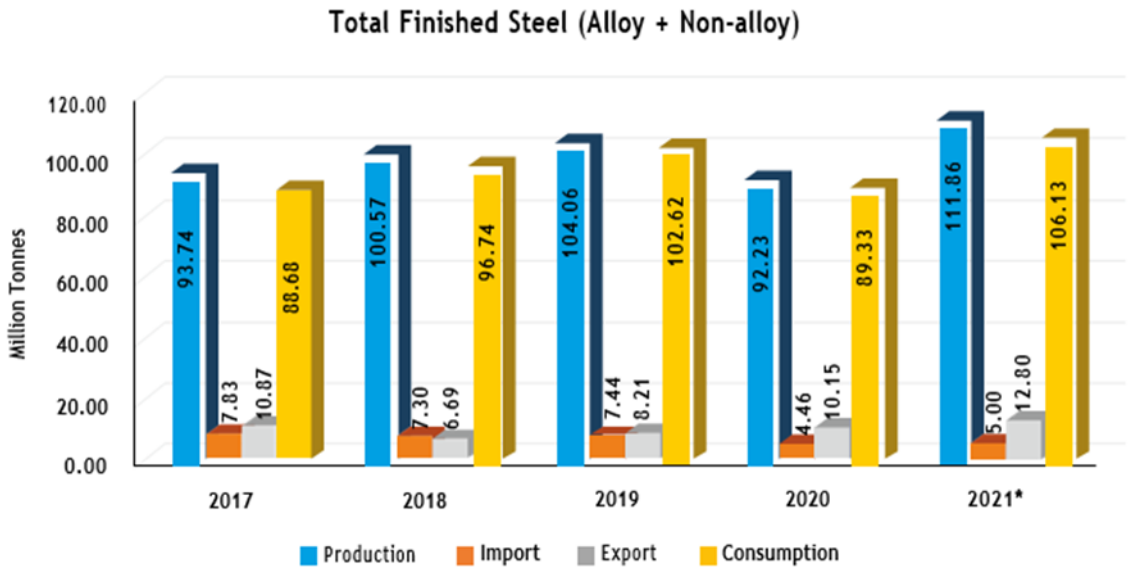

Figure 6: Total Finished Steel (Alloy + Non-alloy)

Source: steel.gov.in, JPC; *Provisional figure (January-December, 2021)

Data on crude steel production, capacity and capacity utilization

Year	Crude steel		
	Capacity (MT)	Production (MT)	Capacity Utilization (%)
2017	137.975	101.455	74
2018	142.236	109.250	77
2019	142.299	111.344	78
2020	143.914	100.256	70
2021*	154.269	118.134	77

Table 24: Total Finished Steel (Alloy + Non-alloy)

Source: steel.gov.in, JPC; *Provisional figure (January-December, 2021)

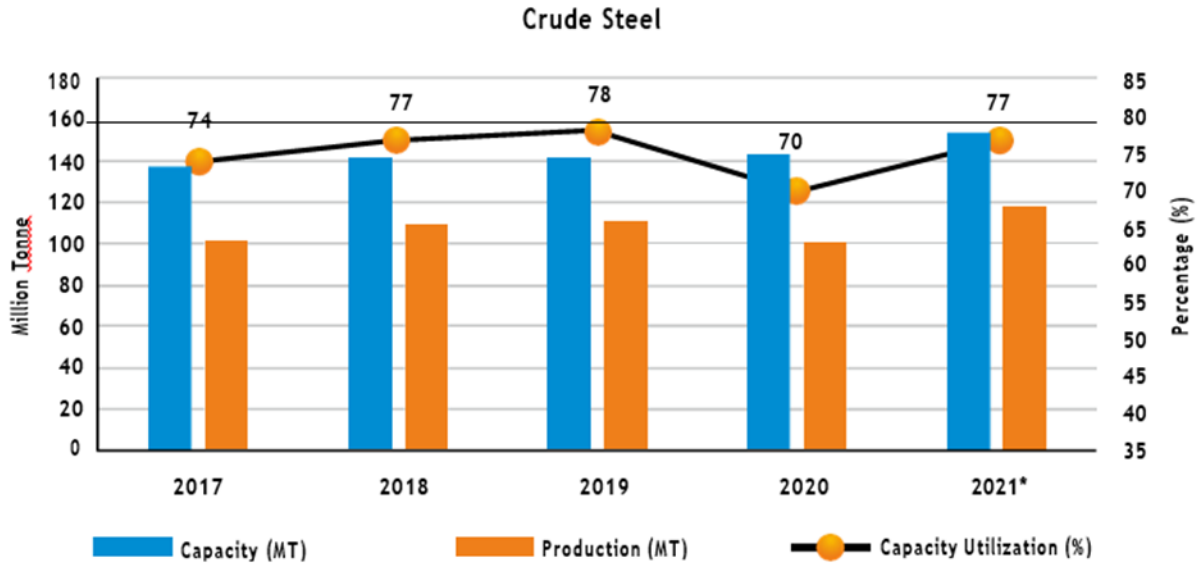

Figure 7: Crude Steel

Source: steel.gov.in, JPC; *Provisional figure (January-December, 2021)

- Crude steel output increased from 101.455 metric tonnes in 2017 to 118.134 metric tonnes in 2021.
- During this five-year period, capacity expansion drove up output from 137.975 Million Tonnes (MT) in 2017 to 154.269 MT in 2021.
- Total Finished Steel (alloy + non-alloy) domestic consumption was 106.134 MT in 2021, up from 88.679 MT in 2017.
- Total Finished Steel (alloy + non-alloy) exports were 12.799 MT in 2021, up from 10.871 MT in 2017; Total Finished Steel (alloy + non-alloy) imports were 5.001 MT in the same year, down from 7.828 MT in 2017
- In the year 2021, India was a net exporter of total finished steel.

2.9 Role of Private Sector in Steel Industry

With the Indian economy continuing to open up, a focused reform process in place, and a fast but stable growth rate, investments have flooded into the country's steel sector, with major investment plans announced in Odisha, Jharkhand, Karnataka, Chhattisgarh, and West Bengal. SAIL-RSP, SAIL-ISP, RINL, NMDC, Tata Steel, JSPL, JSW Steel, and AM/NS have all made rapid progress toward commissioning new capacity (formerly Essar Steel). According to JPC statistics, the

country's crude steel capacity was 143.91 million tonnes in 2020-21, with domestic crude steel capacity expected to reach 300 million tonnes per year by 2030-31, according to the National Steel Policy 2017.

2.10 Revenue Contribution To The Central And State Governments And The Gross Development Product (Gdp) Forecasts

CONTRIBUTION MADE TO THE CENTRAL GOVERNMENT AND INSURANCE COMPANIES BY THE STEEL PSU'S

(Rs. in crore)

Sl. No.	PSU/COMPANY	2017-18	2018-19	2019-20	2020-21	2021-22*
1.	SAIL	6894	10916	8094	6074	11806
2.	RINL	1810.32	2518.12	2119.53	1888.05	2170.34
3.	NMDC Ltd.	4435	5376	5300	6269	5607^
4.	MOIL Ltd.	262.07	381.15	188.61	95.17	44.83
5.	MECON Ltd.	87.15	112.98	98.81	108.64	69.24
6.	MSTC Ltd.	80.00	91.26	73.20	73.72	289.35
7.	KIOCL Ltd.	71.68	53.60	84.91	148.54	71.75
8.	FSNL	38.67	36.31	33.79	34.84	29.01
9.	OMDC	1.46	3.00	2.03	1.82	5.5
10.	BSLC	0.76	0.89	0.78	1.93	1.66

Table 25: CONTRIBUTION BY THE STEEL PSU'S TO THE CENTRAL GOVERNMENT AND INSURANCE COMPANIES

Source: Ministry of Steel | www.steel.gov.in

* Provisional April-December, 2021

CONTRIBUTION MADE TO THE STATE GOVERNMENT BY THE STEEL PSUs

(Rs. in crore)

S. No.	PSU/COMPANY	2017-18	2018-19	2019-20	2020-21	2021-22*
1	SAIL	2402.00	2604	3250	2084	5008
2	RINL	584.66	767.37	587.91	322.26	331.98
3	NMDC Ltd.	2381	1726	2997	2809	7029^
4	MOIL Ltd.	148.50	123.43	111.07	90.49	73.46
7	MECON Ltd.	5.87	6.74	13.25	12.06	9.34
5	MSTC Ltd.	28.00	24.43	16.26	8.67	15.17
8	KIOCL Ltd.	0.07	1.11	2.56	3.02	3.35
6	FSNL	11.30	18.83	21.46	18.26	16.51
9	OMDC	40.34	550.21	2.81	2.50	32.02
10	BSLC	7.17	6.40	6.59	13.75	7.61

Table 26: CONTRIBUTION BY THE STEEL PSU'S TO THE STATE GOVERNMENT

* Provisional April-December, 2021

Source: Ministry of Steel | www.steel.gov.in

Country-wise Growth Forecasts From 2021-2026

Countries	in %	2021	2022	2023	2024	2025	2026
China	Real GDP Growth	7.9	5.3	5.0	4.7	4.5	4.4
	Inflation	1.0	2.3	2.5	2.3	2.1	2.2
India	Real GDP Growth	8.2	7.8	5.2	5.5	5.7	5.8
	Inflation	1.0	2.3	2.5	2.3	2.1	2.2

Japan	**Real GDP Growth**	**2.3**	**3.0**	**1.4**	**1.5**	**1.2**	**1.0**
	Inflation	**-0.2**	**1.6**	**0.9**	**1.1**	**1.2**	**1.0**
USA	**Real GDP Growth**	**5.7**	**3.8**	**2.2**	**1.9**	**2.1**	**1.8**
	Inflation	**4.4**	**3.2**	**2.2**	**1.9**	**2.1**	**1.8**

Table 27: GDP and Inflation Forecasts

Source: https://indsteel.org/pdf/October-2021_A-Review-of-development-in-the-Global%20-Indian-Steel-Industry.pdf

2.11 SWOT Analysis of The Steel Indusry

It is a description of an organization's internal and external position that aids in recognizing present organisational strengths, weaknesses, market opportunities to exploit, and mitigate the threats to future success.

Strength

1. Iron ore and coal availability.
2. Low wages for workers.
3. Ample supply of skilled labour.
4. A well-established manufacturing base.

Weaknesses

1. Illegitimate mining.
2. Low efficiency.
3. Import dependency on coking coal.
4. Low R&D spending.
5. Exorbitant debt costs.
6. Lack of infrastructure.

Opportunities

1. The untapped rural market.

2. Domestic demand is increasing.

3. Exports.

4. Reorganization.

Threats

1. China's transition to a net exporter.

2. Western Protectionism.

3. Competitors' dumping.

India has an abundance of mineral resources. It contains plenty of iron ore, coal, and other raw materials for iron and steel production. Many raw materials are accessible at significantly reduced prices. It possesses the third greatest pool of technical people capable of grasping and integrating new technology, after the United States and the former Soviet Union. In terms of workforce quality, the Indian steel sector has a low unit labour cost that is proportionate with expertise. This is seen in India's cheaper steel manufacturing costs when compared to several advanced countries. With such resources and a large local untapped market, the Indian steel sector has the capacity to overcome challenges.

CHAPTER 3

STEEL EXPORT PERFORMANCE OF INDIA

India's all-time high steel consumption of roughly 106 million tonnes and output of 120 million tonnes demonstrates not just the sector's resiliency, but also the steel industry's unparalleled grit and resolve. The steel sector's outstanding success led to India's all-time high of $420 billion in goods exports. The Indian steel industry is thriving, with a compound annual growth rate of roughly 5% to 6% year on year.

Due to increased investment in infrastructure and industrial production, the sector is expected to grow significantly in the coming years as a result of our government's policy announcements and changes in global supply-demand equations across sectors such as railways, roads, aviation, gas pipelines, and housing.

3.1 Category-Wise Export of Iron And Steel

('000 TONNES)

CATEGORY	2017	2018	2019	2020	2021 (P)
SEMIS (Non-Alloy)	**1,530**	**2,259**	**2,660**	**6,087**	**5,236**
FINISHED STEEL (Non-alloy)					
Non-Flat					
Bars & Rods	1,972	615	529	767	1,966
Structurals	194	196	167	120	179
Railway Materials	84	4	1	23	2
Total Non-Flat	**2,250**	**815**	**697**	**910**	**2,147**
Flat					
Plates	459	462	291	521	756
H R Coils/Sheets	3,766	2,479	4,603	6,467	5,814
C R Sheets/Coils	1,390	748	636	470	1,007
GP/GC Sheets	1,270	1,025	930	814	1,769
Elec. Sheets	72	79	35	46	38
Tin plates	46	39	27	16	35

Tin Free Steel	2	2	2	2	2
Pipes	646	426	253	136	130
Total Flat	**7,651**	**5,260**	**6,777**	**8,472**	**9,551**
Total Fin. Steel (Non-Alloy)	9,901	6,075	7,474	9,382	11,698
Total Steel (Non-Alloy)	11,431	8,334	10,134	15,469	16,934
Non-Flat Alloy/Stainless	530	289	268	254	604
Flat Alloy/Stainless	441	327	462	514	496
Total Finished Steel (Alloy/Stainless)	**971**	**616**	**730**	**768**	**1,100**
Semi-Finished (Alloy/Stainless)	29	35	9	46	12
Total Steel (Alloy/Stainless)	**1,000**	**651**	**739**	**814**	**1,112**
Total Fin. Steel (Non-Alloy+Alloy)	**10,872**	**6,691**	**8,204**	**10,150**	**12,798**
Total Steel (Non-Alloy + Alloy)	**12,431**	**8,985**	**10,873**	**16,283**	**18,046**
PIG IRON	668	335	421	823	1,407
SPONGE IRON	269	558	819	584	666

Table 28: Category – wise Export of Iron and Steel

Source: steel.gov.in

Steel is in various forms. Depending on the usage, steel is exported in various forms as a semi-finished products and finished products. The exports semi-finished goods has increased by around 40 % from 2017 to the present scenario. However, the trend in the non-flat steel is not encouraging as it has declined upto 60% in the pandemic time which has now reached to pre-covid stage. The export pattern of both alloy and non-alloy steel has a linear growth since 2017.

3.2 India's Top 10 Export Partners of Steel

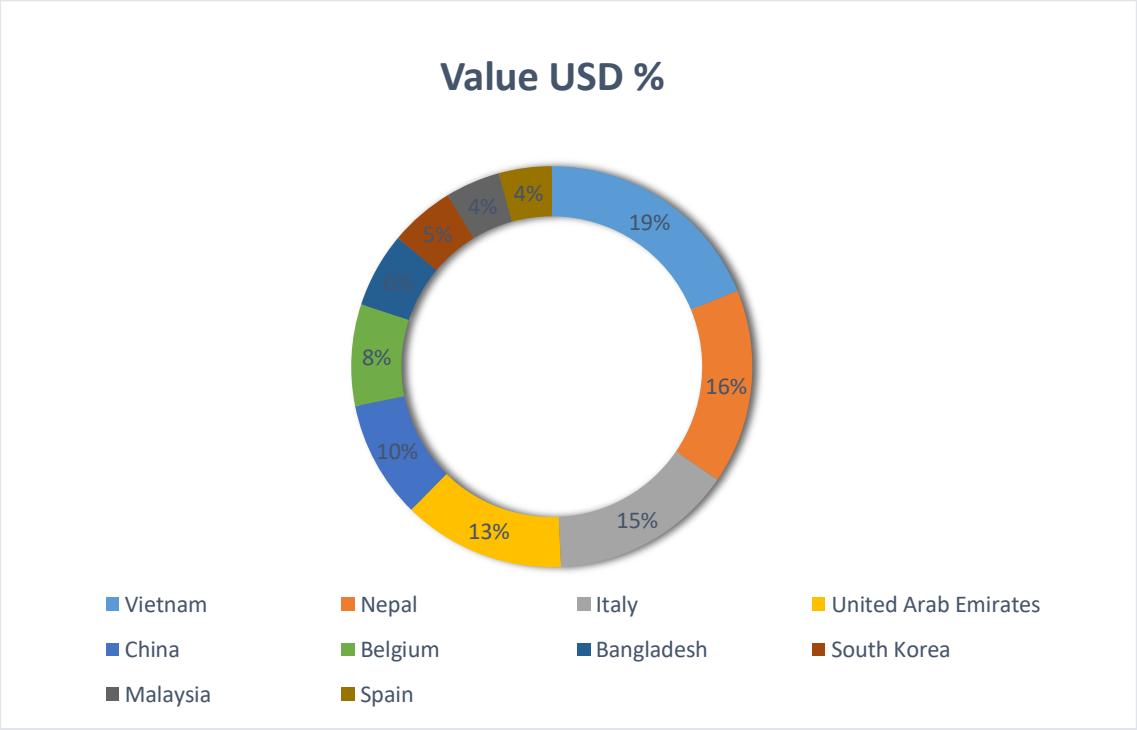

Figure 8: Category – wise Export of Iron and Steel

Source: steel.gov.in | www.exportgenius.in

Exports of iron and steel to China soared by nearly 1400 percent to USD 524 million in June 2020, compared to USD 35 million the previous month. Exports of iron and steel to Vietnam increased by over 700 percent to USD 183 million, while exports to Taiwan increased by over 200 percent to USD 35 million.

Iron and steel is one of India's top 10 export commodities, with a huge increase since June 2020, when the country entered when the country came out of the corona virus lockdown.

3.3 Year Wise Export of Steel

• Steel and iron can be freely exported.

• In 2016-17, 2017-18, 2019-20, and 2020-21, India became a net exporter of total finished steel.

•For the last ten years, the following data on total finished steel exports (alloy/stainless + non alloy) is provided:

Export of Iron and Steel					
Year	Pig Iron	Semis	Total Finished Steel	Total Steel**	Total Steel Value
	('000 tonnes)				(Rs. Crores)
2010-11	358	350	3637	3987	18433
2011-12	491	198	4588	4789	21946
2012-13	414	144	5368	5512	26912
2013-14	943	486	5985	6471	31315
2009-10	540	640	5595	6235	31283
2015-16	297	639	4079	4718	24083
2016-17	387	1192	8242	9434	38182
2017-18	518	1994	9620	11614	52812
2018-19	319	2183	6361	8544	40900
2019-20	422	2827	8355	11183	45102
2020-21	1099	6602	10784	17385	67131
Source : JPC; **Total Steel = Semis+ Total Finished Steel					

Table 29: Export of Iron and Steel

Source: steel.gov.in

India's completed steel exports hit a new high in the fiscal year April 2021-March 2022, as better foreign pricing encouraged Indian mills to increase shipments.

Provisional figures from the steel ministry's joint plant committee (JPC) reveal that completed steel exports increased by 25% year on year to 13.5 million tonnes in 2021-22, compared to 10.8 million tonnes the previous financial year. Alloyed and non-alloyed steel make up finished steel.

According to the United Nations COMTRADE database on international commerce, India's iron and steel exports totalled $21.2 billion in 2021. The data, historical chart, and statistics on India's iron and steel exports were last updated on May of 2022.

3.4 Revenue Obtained From India Through Steel Exports

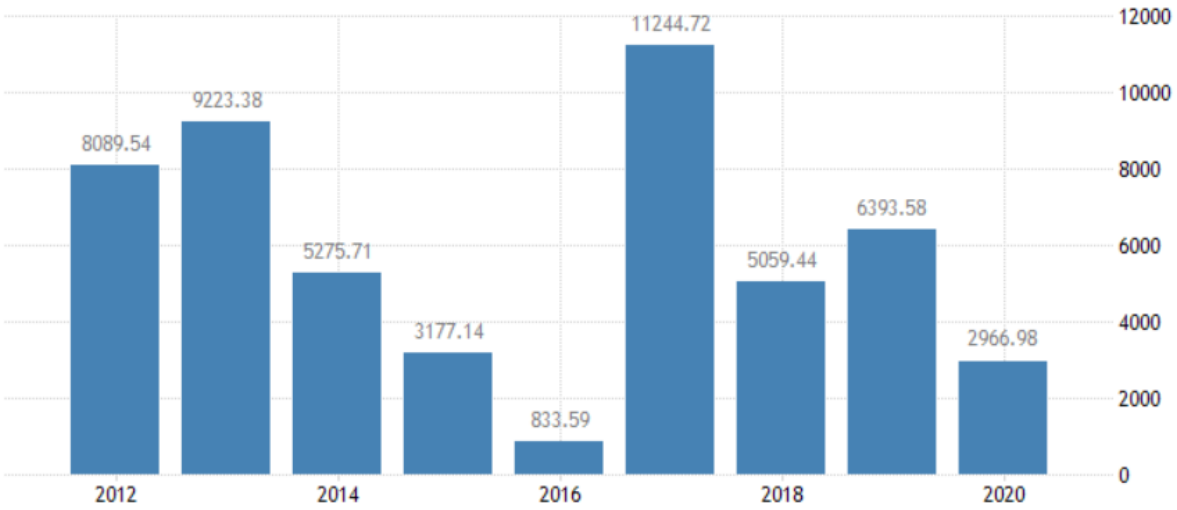

Figure 9: Export of Steel (in million tonnes

Source: tradingeconomics.com | Ministry of Commerce & Industry, India

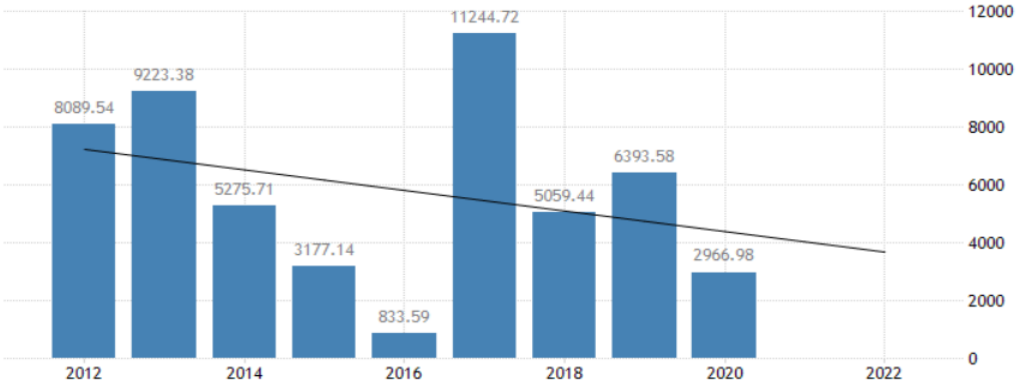

Figure 10: Trend of Export of Steel (in million tonnes)

Source: tradingeconomics.com | Ministry of Commerce & Industry, India

In the above graph, the trend line shows a steady decline in the export of steel goods but has a maximum peak during the year 2017.

Although India began exporting steel in 1964, it was unregulated and primarily dependent on domestic surpluses. Steel exports, on the other hand, increased dramatically in the years following economic liberalisation. The rate of increase of steel exports from India has slowed as a result of the large growth of local steel demand, ensuring that domestic needs are met. India is now a net exporter of total finished steel.

3.5 Export volume of steel from India

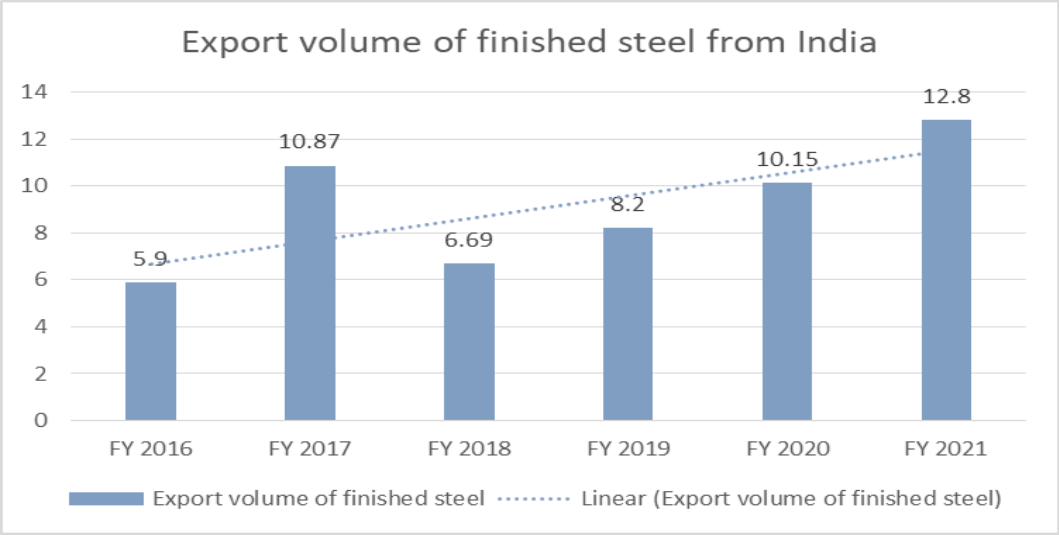

Figure 11: Export volume of finished steel from India from 2016-2021

Source: www.statista.com

Exports of Iron & Steel in India decreased to 2966.98 USD Million in 2020 from 6393.58 USD Million in 2019.

We hope that our strong steel sector will be successful in producing the identified products in the coming days to meet domestic demand as well as export to increase their share in the country's external trade. The Government of India has introduced the Production Linked Scheme (PLI) to produce specialty steel in India, and we hope that our strong steel sector will be successful in producing the identified products in the coming days to meet domestic demand as well.

Steel demand has increased in the country. But, at the same time, steel is facing greater competition from alternative materials. Steel is being replaced by alternative materials such as composite materials in numerous areas such as automobiles, white goods, trains, and space due to its high cost and heaviness. Composite materials are lighter, stronger, and cheaper than steel.

CHAPTER 4

STEEL IMPORT PERFORMANCE OF INDIA

Steel is imported into India from more than 160 nations and territories. The main source nations for India's steel imports by volume differ depending on the kind of steel.

India needs to increase its share in important import markets; there are some areas where India currently has export competitiveness, but its imports are still low. These markets have the potential to drive India's iron and steel exports, and they must be targeted appropriately.

4.1 Category-Wise Import Of Iron And Steel

('000 TONNES)

Sl.No.	CATEGORY	2017	2018	2019	2020	2021 (P)
I	Semi-finished Steel(Non-Alloy)					
	Semis	410	390	164	134	31
	Re-rollable Scrap	411	429	287	147	123
	TOTAL	821	819	451	281	154
II	Finished Steel(Non-Alloy)					
	Non-Flat					
	Bars & Rods	312	286	317	134	117
	Structurals	50	44	36	35	17
	Rly.Materials	26	42	68	54	80
	TOTAL Non-Flat	388	372	421	223	214
	Flat					
	Plates	660	478	344	371	233
	HR Sheets	16	12	6	1	0
	HR Coils/Skelp/Strips	1,875	1,750	1,913	804	855
	CR Coils/Sheets	705	478	465	201	295
	GP/GC Sheets	1,058	1,232	949	726	798
	Elec.Sheets	540	654	621	421	513
	TMBP	1	8	0	0	0

	Tin Plates	207	181	197	123	103
	Tin Free Steel	58	74	79	50	23
	Pipes	377	315	354	194	156
	TOTAL Flat	5,497	5,182	4,928	2,891	2,976
	TOTAL Fin. Steel (Non-Alloy)	5,885	5,554	5,349	3,114	3,190
	TOTAL STEEL (Non-Alloy)	6,706	6,373	5,800	3,395	3,344
	Alloy/Stainless Steel					
	Non-Flat	445	554	427	287	295
	Flat	1,499	1,190	1,664	1,062	1,516
	Semi-finished	56	176	61	20	49
	TOTAL Fin. STEEL (Alloy/Stainless)	1,944	1,744	2,091	1,349	1,811
	TOTAL STEEL (Alloy/Stainless)	2,000	1,920	2,152	1,369	1,860
	TOTAL Fin. STEEL (Alloy+Non-Alloy)	7,829	7,298	7,440	4,463	5,001
	TOTAL Steel (Non-Alloy + Alloy)	8,706	8,293	7,952	4,764	5,204
III	Other Steel Items					
	Fittings	245	193	163	119	136
	Misc. Steel Items	1,504	1,377	369	214	346
	Steel Scrap	4,894	5,974	6,763	5,649	5,015
IV	Iron					
	Pig Iron	16	67	13	7	15
	Sponge Iron	58	58	44	44	47
V	Ferro-Alloys	554	576	642	545	707
	GRAND TOTAL	15,977	16,538	15,946	11,342	11,470

Table 30: Category – wise Import of Iron and Steel

Source: steel.gov.in

Steel is imported in various forms as a semi-finished products and finished products. The imports of semi-finished goods has decreased by around 45 % from 2017 to the present scenario. However, the trend in the non-flat steel is not encouraging as it has steady decline upto 45%. The import pattern of both alloy and non-alloy steel has a linear decline since 2017.

4.2 India's Top Import Partners Of Steel

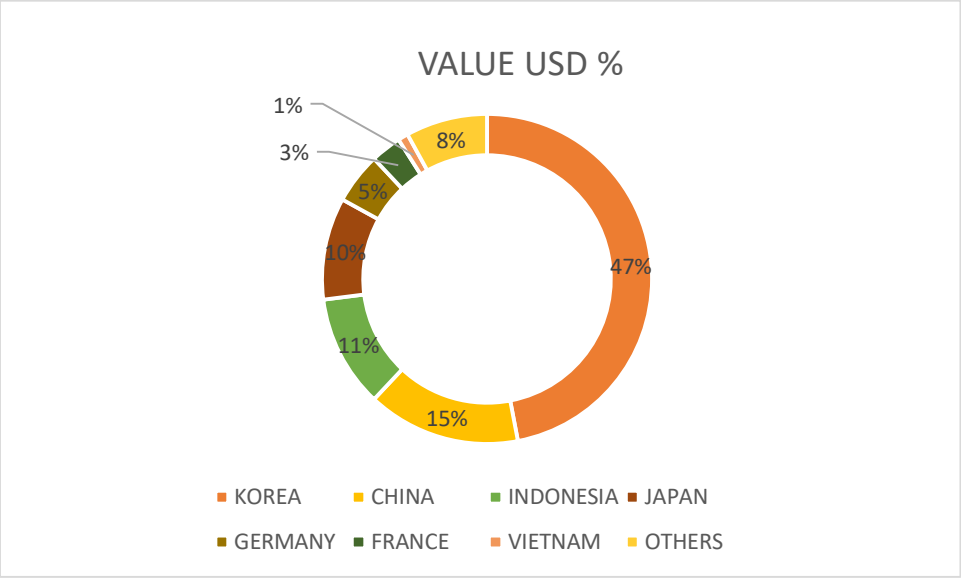

Figure 12: Category – wise Import of Iron and Steel

Source: steel.gov.in

4.3 Year Wise Import Of Steel

• For the last ten years, the following data on total finished steel imports (alloy/stainless + non-alloy) is provided:

Import of Iron and Steel			
Year	**Pig Iron**	**Total Finished Steel (Non-Alloy + Alloy/Stainless)**	**Total Value(Pig Iron + Steel)**
	('000 tonnes)	('000 tonnes)	(Rs. In Crores)
2010-11	9	6664	26996
2011-12	8	6863	27017
2012-13	21	7925	39347
2013-14	34	5450	30525
2009-10	23	9320	44994
2015-16	22	11711	45066
2016-17	34	7224	34277
2017-18	16	7483	39544
2018-19	67	7835	49368
2019-20	11	6768	44722
2020-21	9	4752	32154
Source : JPC			

Table 31: Import of Iron and Steel

Source: steel.gov.in

The below table shows the steel import of pig iron and finished steel. From 2010 to 2014 there was a steady rise in the import of pig iron and there was a decline from 2014-2016. Import for Pig Iron was the highest during from 2018-19 and there was a subsequent decline till 2021.
As for the import of finished goods there was a clear growth from 2010-2013 followed by a dip the year 2013-2014. There is an exponential raise during 2009-2016 followed by a steep decline uptil 2021.

In 2021, India's imports of iron and steel articles grew to 1642.91 USD million, up from 698.20 USD million in 2020.

4.4 Revenue Obtained From India Through Steel Imports

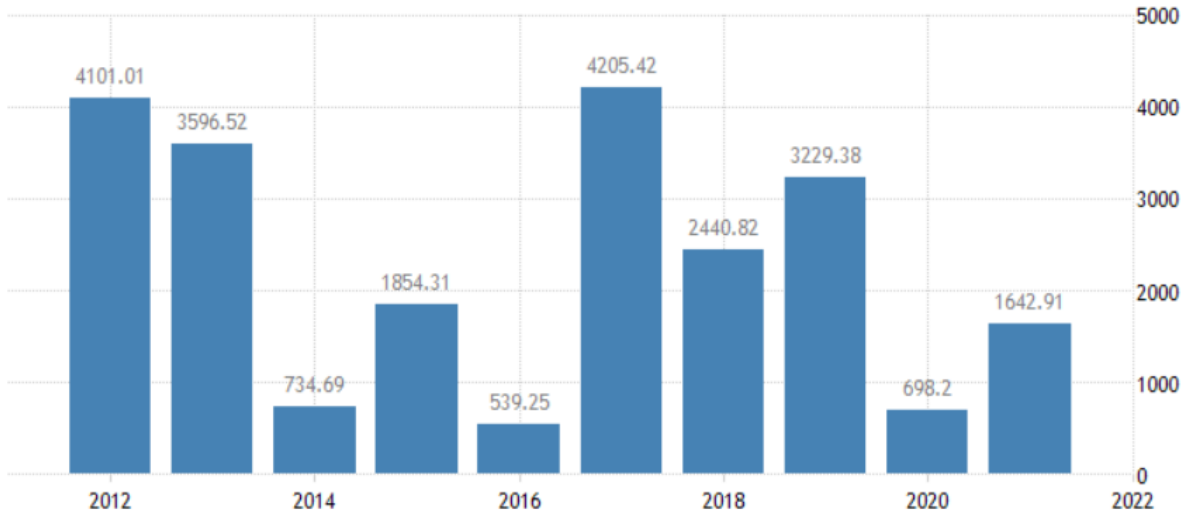

Figure 13: Import of Steel (in million tonnes)

Source: tradingeconomics.com | Ministry Of Commerce & Industry, India

In 2021, India's imports of iron and steel grew to 3511.06 USD million, up from 1835.04 USD million in 2020.

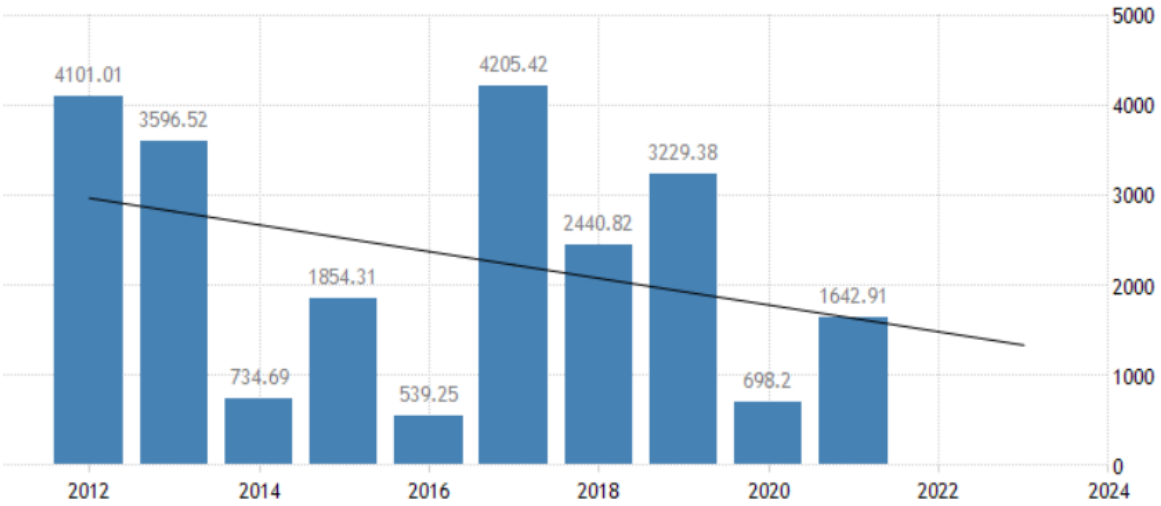

Figure 14: Trend of Import of Steel (in million tonnes)

Source: tradingeconomics.com | Ministry of Commerce & Industry, India

In the above graph, the trend line shows a steady decline in the import of steel goods but has a maximum peak during the year 2017.

4.4 Value of Iron And Steel Import (In Billion Rupees)

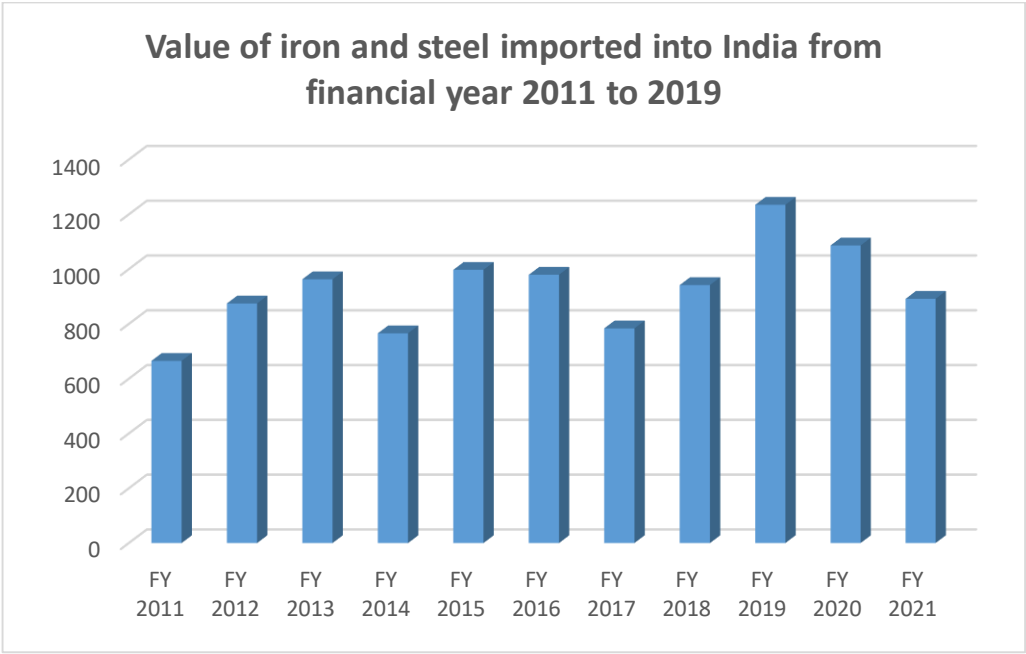

Figure 15: Value of iron and steel imported into India from financial year 2011 to 2021

.Source: www.statista.com

The financial statues for the financial year of 2011 till 2018 is an up and down curve with rise and decline in a few places. Financial year 2019 marked the highest revenue generation to the nation. Due to covid-19, there was a decline in the financial years 2020 and 2021.

Despite the danger of steel imports, Indian steel producers have spent substantially in upgrading and expanding existing units as well as environmentally friendly operational plants in order to develop a world-class, cost-effective, ecologically friendly, and socially responsible business. In addition to promoting competitiveness, the Indian steel industry is focused on increasing steel exports to other developed nations in order to increase profitability.

CHAPTER 5

SUMMARY AND CONCLUSIONS

5.1 Findings

1. Surging imports of raw materials and finished steel into India.

2. Higher cost of inputs to end user sector.

3. Reduction in direct and indirect employment opportunities.

4. There has been a boom in the construction sector.

5. There has been a rise in exports and fall in imports from India.

5.2 Suggestions

1. Future researchers can use primary data for better

2. There is a scarcity of sources and a dire dearth of data in a synchronised format which needs to be rectified.

3. Steel is being produced, imported and exported in various forms all over India and that data has to be available in state wise and port wise format for addressing the logistics challenges.

4. There is a major cost disadvantage in the Indian steel industry which stands to a considerable percentage against other steel exporting countries.

5.3 CONCLUSION

Steel exports are vital to the economy of every country today. China is the biggest steel producer in the world, followed by India. The steel industry is governed by the "WORLD STEEL ASSOCIATION," which was created on October 19, 1967. It is one of the world's

largest and most vibrant industrial associations, with 170 steel companies, national and regional steel industry groups, and steel research institutes. 85 percent of steel companies are members of the World Steel Association. Shri Jamshedji Tata founded the Tata Iron and Steel Company in Jamshedpur, Jharkhand, which was the country's first iron and steel plant. Steel is one of the most important components for the development of the country's infrastructure. India's steel exports are forecast to increase by 4-5 percent this year, and the country has surpassed China as the world's second largest steel consumer.

Despite the threat of steel imports, Indian steel producers have spent substantially in modernising and expanding existing units as well as environmentally friendly operational plants in order to develop a world-class, cost-effective, environmentally friendly, and socially responsible business. In addition to promoting competitiveness, the Indian steel industry is focused on increasing steel exports to other developed countries in order to increase profitability. In this capacity, the government issued the National Steel Policy 2017, which outlined a broad road map for promoting long-term economic growth in the Indian steel industry's demand and supply sectors by 2030-31.

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