



Infomerics Ratings

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## INDUSTRY OUTLOOK

### **FORGING THE FUTURE: “AN ANALYSIS OF THE STEEL INDUSTRY'S DYNAMICS, TRENDS, AND PROSPECTS”.**

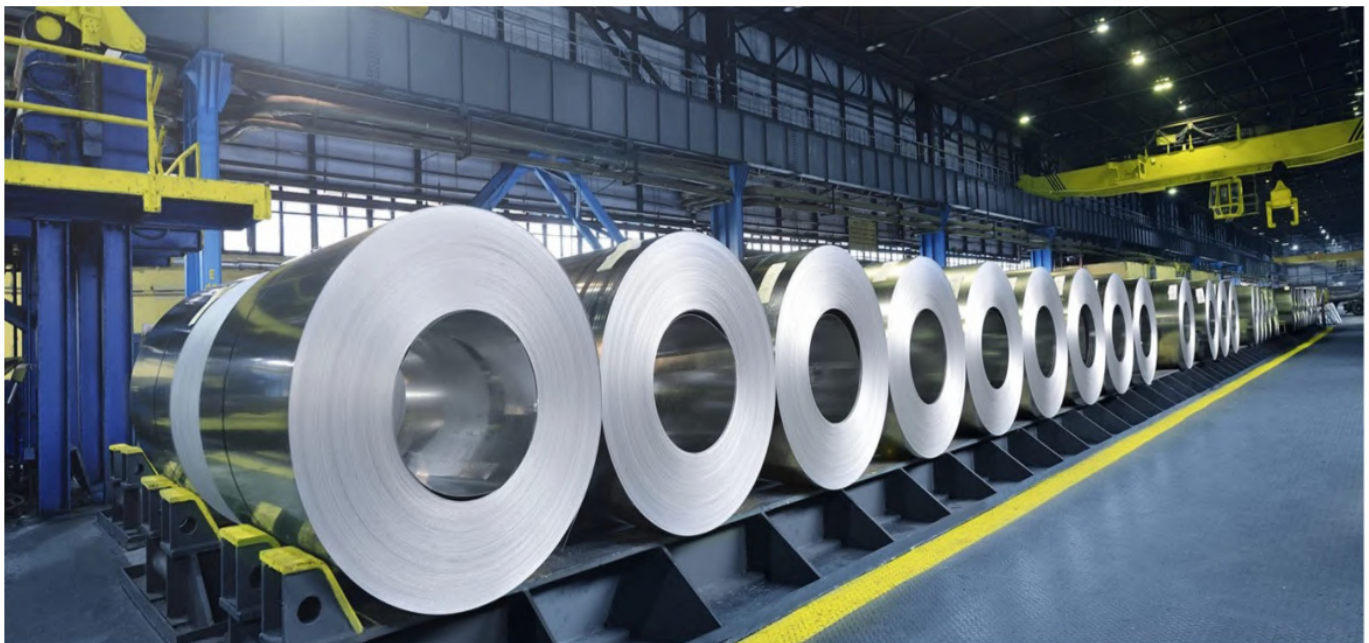
16 January 2024

### Introduction

The Indian steel sector has excellent prospects for growth and transformation. India has a growing need for steel, due to the growing need for construction projects, infrastructure development, and affordable housing. The Government's drive to make India self-sufficient has also created space for logistics parks, industrial corridors, and sustainable urban development. All these aspects are contributing to the accelerated growth in demand for both finished steel and steel as a raw material.

The next two fiscal years will see a continued 8–10 million tonne annual expansion in India's steel demand, driven by a robust momentum in infrastructure expenditure and steady urban consumption. India is the world's second-largest producer of crude steel, behind China, with domestic finished steel production witnessing 14.3 per cent growth y-o-y.

Steel is one of the most inventive and important materials on the planet. It is infinitely recyclable and robust and provides a slew of environmental advantages. It is produced in different parts of the world, creates jobs, and contributes significantly to economic prosperity. It is employed in almost every area of our life, including automobiles and refrigerators, ships, and energy infrastructure, and much more.



Steel is an iron-carbon alloy comprising less than 2 per cent carbon, 1 per cent manganese, and trace amounts of silicon, sulfur, and oxygen. Most commonly used steel is stainless steel. This is a steel alloy that contains at least 10.5 per cent chromium by mass. It is formed of iron, which is the most prevalent element in the earth's crust after oxygen (46 per cent), silicon (28 per cent), and aluminum (8 per cent). A British inventor, Henry Bessemer, is credited with the invention of the first technique to mass produce steel in the mid-1850s. Steel is still produced using technology derived from the Bessemer process of blowing air through molten pig iron to oxidize the material and separate impurities.

## Production

### The Process

Nowadays, Steel is produced via two main routes: The blast furnace-basic oxygen furnace (BF-BOF route) and the electric arc furnace (EAF route). Currently, 71 per cent of steel is produced using the BF-BOF and 19 per cent is produced via the EAF route. Crude steel is then rolled into the finished steel products, such as coil, plate, sections, or bars. (worldsteel.org)

Route 1: Blast oxygen furnace or integrated route (BF-BOF route) – to produce 1000 kg (kilograms) of crude steel, the main inputs are roughly: 1370 kg of iron ore, 780 kg of coal, 270 kg of limestone, and 125 kg of steel scrap.

Route 2: Electric arc furnace route (EAF route) – The primary raw materials are steel scrap, direct reduced iron (DRI) and/or hot metal, and electricity. To produce 1000 kg of crude steel, the EAF route uses roughly: 710 kg of steel scrap, 586 kg of iron ore, 150 kg of coal and 88 kg of limestone, and 1.3 GJ (Gigajoules) of electricity.

### Steps:

1. Mining – This planet consists of Iron (32.1 per cent), Oxygen (30.1 per cent), Silicon (15.1 per cent), Magnesium (13.9 per cent), Sulfur (2.9 per cent), Nickel (1.8 per cent), Calcium (1.5 per cent), and Aluminum (1.4 per cent); the remaining 1.2 per cent are "trace amounts" of the 80 or so remaining elements.<sup>1</sup> The two major varieties used for iron making are Haematite or Hematite ore (containing ferric oxide-  $\text{Fe}_2\text{O}_3$ , red iron ore) and Magnetite ore (containing ferro-ferric oxide-  $\text{Fe}_3\text{O}_4$ , Lodestone). Magnetite ore contains 72.36 per cent of Iron, i.e., 1 kg of Magnetite contains 0.724 kg of Iron. The following is the list of Iron ores and the weightage of Iron in each of them.

Name	Formula	wt. % Fe
Magnetite	$\text{Fe}_3\text{O}_4$	72.36
Hematite	$\text{Fe}_2\text{O}_3$	69.94
Goethite	$\text{FeO}(\text{OH})$	62.58
Limonite	$\text{FeO}(\text{OH}) \cdot n(\text{H}_2\text{O})$	52 (n = 1)
Siderite	$\text{FeCO}_3$	48.2
Bog iron	Limonite plus dirt	? Low
Pyrite	$\text{FeS}_2$	46.5

2. Raw materials – In the processing stage, the mined material is transformed into usable raw material. For iron ore this involves crushing the ore and then concentrating it in different ways, for example by milling, flotation, or magnetic separation. At some sites, the ore is processed further and pelletized for use in direct reduced iron (DRI) steelmaking. There are three main raw materials used to make steel, i.e., Iron ore, scrapped steel and mined coal<sup>i</sup>.
  
3. Making Iron or Steel – Before iron ore can be used, oxygen must be removed from it. Known as ‘reducing,’ this can be done either in the Blast Furnace, where hot air is injected into a continuous feed of coke, sinter<sup>ii</sup> and lime, or by the DRI<sup>iii</sup>. The result from both is liquid iron<sup>iv</sup>, which is then transported to the BOF. In DRI, natural gas is used instead of coke for energy for the reduction process. From the DRI furnace, the iron moves to the EAF on conveyors.
  - Electric Arc Furnace- Scrap steel<sup>v</sup> is often fed into these furnaces. To melt the scrap, they employ high-powered electric arcs. They also transform DRI into liquid steel, achieving the same quality as an integrated steel factory. And they are further sent for chemical treatment.
  - Blast Oxygen Furnace (BOF)- The molten iron is blasted with oxygen, which reduces its carbon content from 4 per cent to <0.5 per cent. Scrap is used to regulate the temperature. Slag is removed after steel is tapped from the furnace vessel into a steel ladle ready for casting. Carbon monoxide-containing waste gases are recovered and utilized to generate electricity. The melt is then properly processed to modify its chemical composition according to the necessary steel grade.
  
4. Casting and rolling – Steel produced by either of the two methods is cast using casting machines. Then by hot rolling then further by cold rolling, steels are transformed into Coils or plates for further transportation.
  
5. Finishing – Steel products of assorted sizes and profiles are produced by hot and cold rolling. Subsequently, the processes of metal annealing, galvanizing, and organic coating are used.

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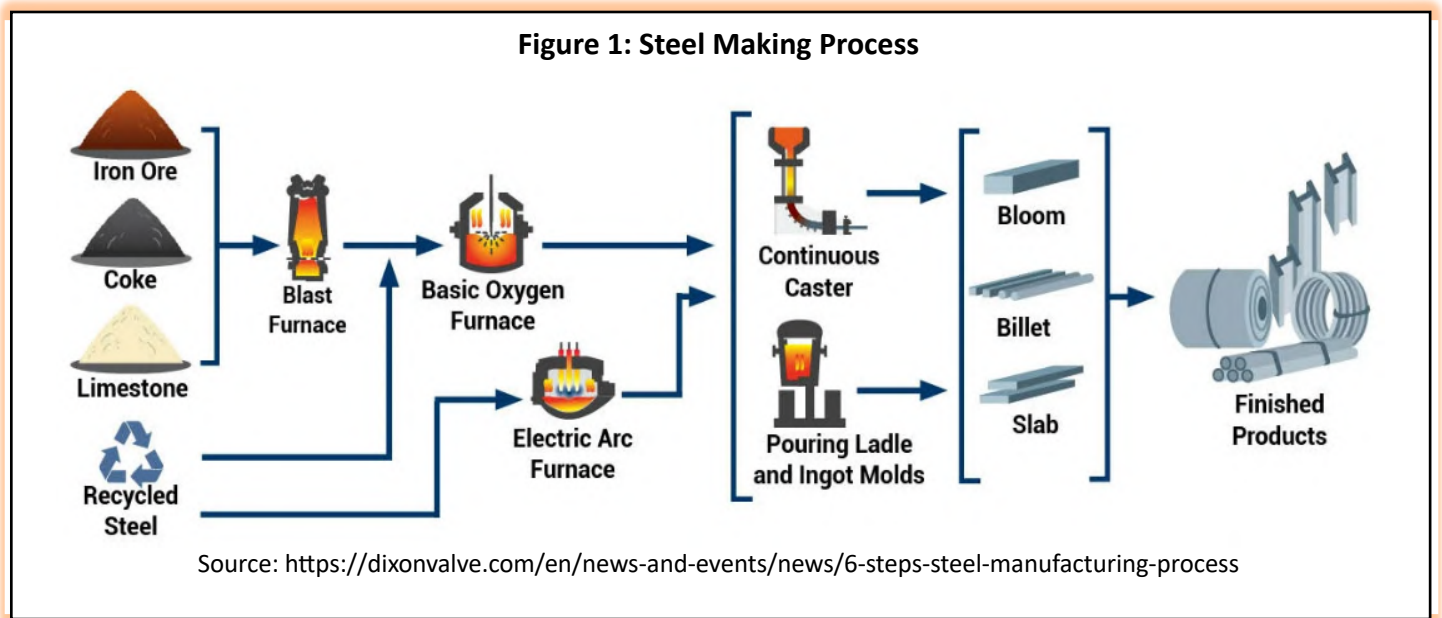
<sup>i</sup> Coal must first be converted into coke before it can be used to create steel in a blast furnace. Coke serves two roles in the steelmaking process. It first supplies the heat required to melt the ore, and when burned, it has the effect of ‘stealing’ the oxygen from the iron ore, leaving only pure iron. Coal is heated to 1250 degrees Celsius in the absence of oxygen at the coking facility. This eliminates any impurities in the coal, yielding coke, a porous material that is almost all carbon.

<sup>ii</sup> Sinter is made by burning a mix of iron ore powder, fluxes, and recycled substances from the steel plant to create an open-grained, consistent substance. Other than pellets iron ores are also converted into sinter, which is optimal for the BF-BOF route.

<sup>iii</sup> In the DRI steelmaking process, pellets made directly from the Iron ores are used and made into a sponge iron. DRI is also known as Sponge Iron because of its spongy microstructure.

<sup>iv</sup> The immediate hot molten steel product from Steel Melting Shop (LD Converter/Electric Arc Furnace/Electric Induction Furnace/Energy Optimizing Furnace). It is further cast into ingots/Semis.

<sup>v</sup> There are about 20 different grades of scrap that can make different types of new steel. Scrap is usually melted down in an electric arc furnace (EAF) but can also be added to the mix in a basic oxygen furnace (BOF) to control heat in that part of the steelmaking process.



### Global Crude Steel Production

World crude steel production for the 71 countries reporting to the World Steel Association (Worldsteel<sup>2</sup>) was 145.5 million tonnes (Mt) in November 2023. This marked an increase of 3.3 per cent on a y-o-y basis. World production of crude steel from Jan – Nov 2023 stood at 1715.1 Mt, a 0.5 per cent y-o-y increase. The 71 countries included accounted for approximately 98 per cent of total world crude steel production in 2022.

**Table 2: Top 10 steel-producing countries**

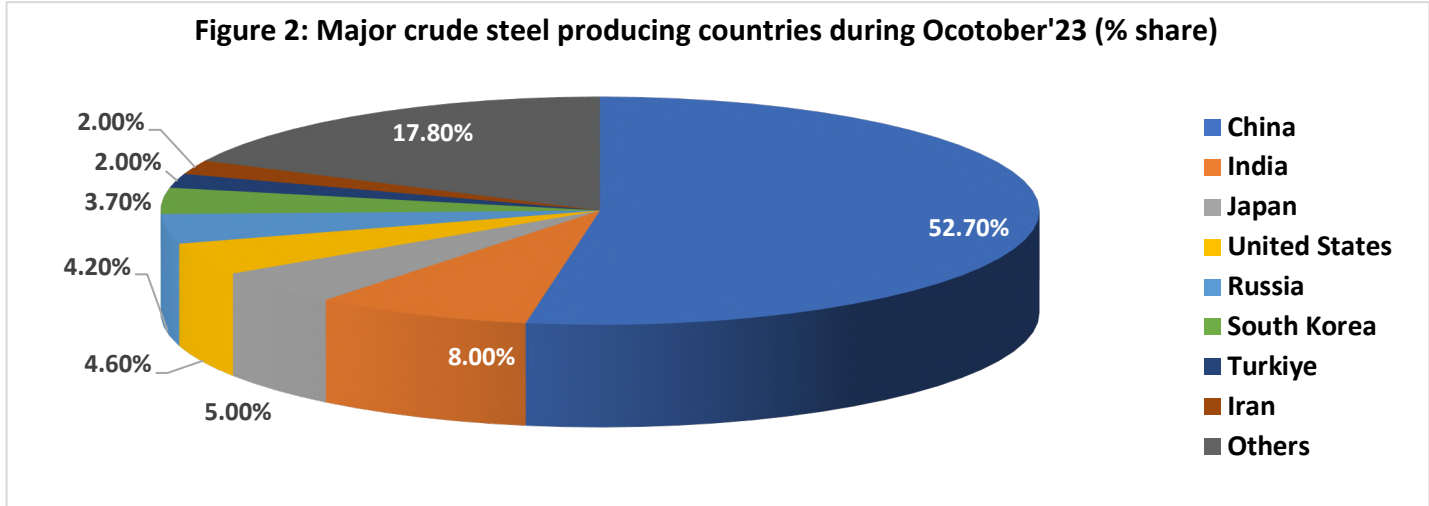
Countries	Nov 2023 (Mt)	% change Nov 23/22	Jan- Nov 2023 (Mt)	% change Jan-Nov 23/22
China	76.10	0.40	952.10	1.50
India	11.70	11.40	128.20	12.10
Japan	7.10	-0.90	80.00	-2.80
United States	6.60	6.10	73.90	-0.50
Russia	6.4 e	12.50	70.20	6.40
South Korea	5.40	11.90	61.30	1.10
Germany	2.70	-2.40	32.80	-4.00
Türkiye	3.00	25.40	30.50	-6.10
Brazil	2.70	3.80	29.30	-7.10
Iran	3.0 e	7.60	28.10	0.60

Source: <https://worldsteel.org/media-centre/press-releases/2023/november-2023-crude-steel-production/>

Note - e - Estimates. Year to date aggregates.

China produced 76.1 Mt in November 2023, up by 0.4 per cent (y-o-y). It accounted for 56.7 per cent of world crude steel production during the first eight months of 2023.<sup>3</sup> Japan produced 7.1 Mt, down by 0.9 per cent (y-o-y). The United States produced 6.6 Mt, up by 6.1 per cent (y-o-y). Russia is estimated to have produced 6.4 Mt, up by 12.5 per cent (y-o-y). South Korea produced 5.4 Mt, up by 11.9 per cent (y-o-y). Germany produced 2.7 Mt, down by 2.4 per cent (y-o-y). Türkiye produced 3.0 Mt, up by 25.4 per cent (y-o-y). Brazil produced 2.7 Mt, up by 3.8 per cent (y-o-y). Iran is estimated to have produced 3.0 Mt, up by 7.6 per cent (y-

o-y). The top 10 steel-producing countries accounted for 87.6 per cent of world crude steel production during Jan-Aug 2023.



Source: Ministry of Steel, monthly summary November 2023.

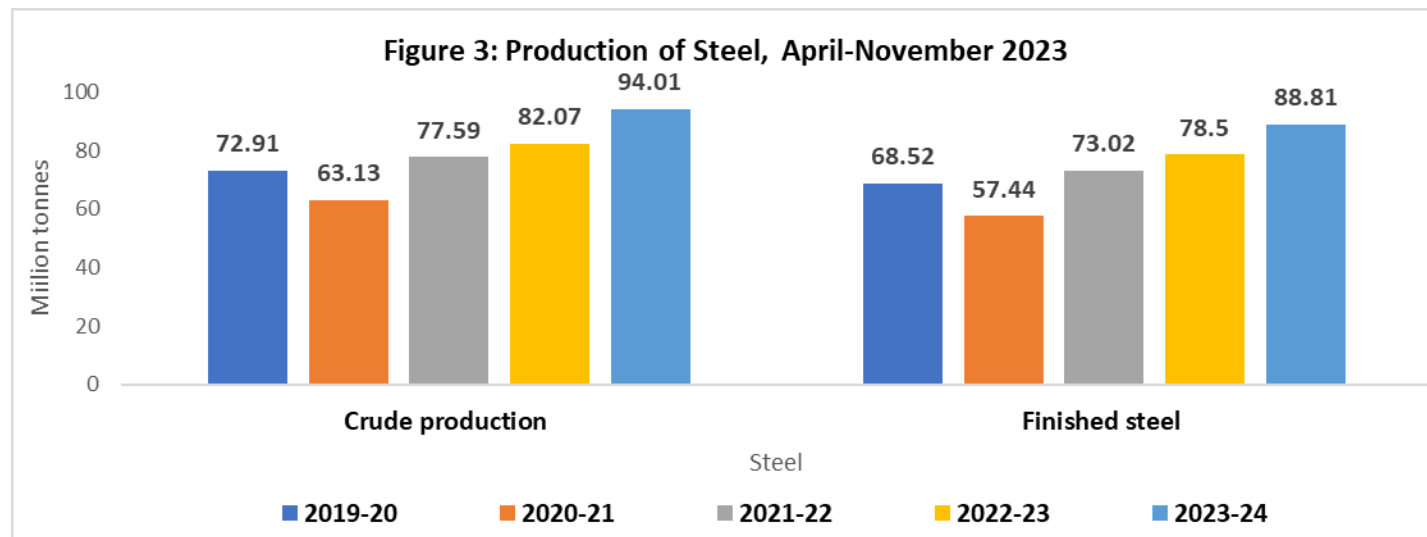
Among the top 10 steel producing countries, China, India, Russia, and Iran registered y-o-y expansion in production during January-August 2023 period, while the remaining countries reported y-o-y contraction in production. By November 2023, South Korea joined the group of countries showing cumulative growth. Asian crude steel production stood at 940.7 Mt in January-August 2023, showing a 2 per cent growth y-o-y, led primarily by China and India, with their respective shares of 76 per cent and 10 per cent in total Asian crude steel production during the period. Below is a list of the world's top 10 steelmakers and their annual output, according to 2022 data from the World Steel Association.

Rank	Company	Tonnage
1	China Baowu Group	131.84
2	ArcelorMittal	68.89
3	Ansteel Group	55.65
4	Nippon Steel Corporation	44.37
5	Shagang Group	41.45
6	HBIS Group	41.00
7	POSCO Holdings	38.64
8	Jianlong Group	36.56
9	Shougang Group	33.82
10	Tata Steel	30.18

Source: <https://worldsteel.org/steel-topics/statistics/world-steel-in-figures-2023/>

## Domestic Production

India was the second largest producer of crude steel with an output of 92.2 Mt in January-August 2023, showing a y-o-y growth of 10.5 per cent. The country accounted for 7.3 per cent of world crude steel production during the January-August 2023 period, while in November 2023, the country produced 11.7 Mt of crude steel, up by 11.4 per cent (y-o-y).<sup>4</sup> During April-November 2023, the cumulative production of crude steel at 94.01 Mt and finished steel at 88.81 Mt was 14.5 per cent and 13.1 per cent higher than their respective levels in April-November 2022.<sup>5</sup>



Source: Ministry of steel, 2023.

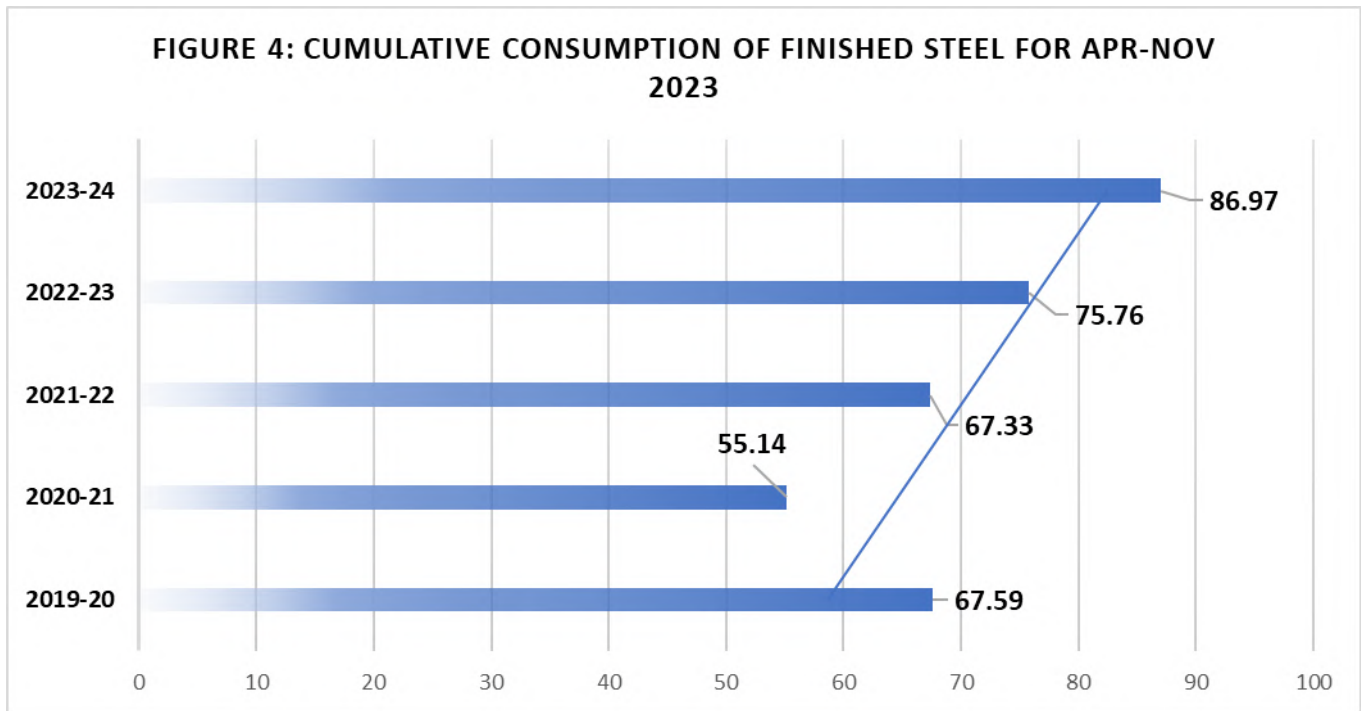
## CAPEX by CPSEs under Ministry of Steel

During FY23, Steel CPSEs had a target of ₹ 11,590.46 crores (RE), against which the CPSEs achieved a CAPEX of ₹ 10,525.84 crores. The CAPEX in FY23 was the highest achieved by Steel CPSEs in the past five years. The CAPEX target for FY24 is ₹ 10,300.85 crores (BE). Against this BE target, Steel CPSEs have achieved a CAPEX of ₹ 5414.51 crores till November 2023 (52.6 per cent). The CAPEX progress is being monitored regularly and the CPSEs have been advised to ensure timely completion of projects and to achieve the physical and financial milestones.<sup>6</sup>

The CAPEX by steel central public sector enterprises (CPSEs) is regularly monitored by the Ministry and steel. The CAPEX by Steel CPSEs in November 2023 at ₹ 602.12 crore was 21.1 per cent higher over the previous month (M-o-M) but was 14.2 per cent lower than CAPEX in November 2022. The CAPEX by steel CPSEs during April-November 2023 at ₹ 5414.51 crore was 4.7 per cent higher than CAPEX during CPLY and it was 52.6 per cent of the BE for the 2023-24 (Ministry).

## Consumption

As per the Ministry of Steel, consumption of finished steel in November 2023 at 11.42 Mt rose by 16.2 per cent over November 2022 and by 0.7 per cent over the previous month. The consumption of finished steel at 86.97 Mt during April-November 2023 was 14.8 per cent higher than the consumption in April-November 2022.

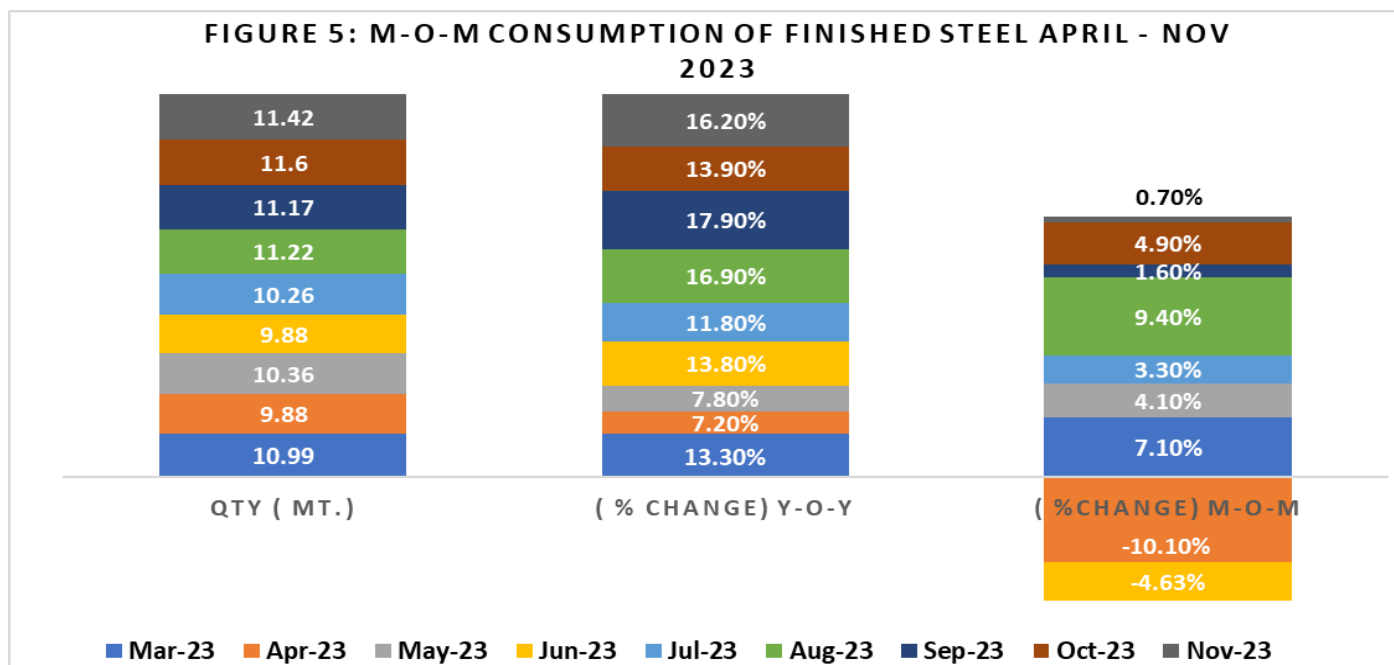


Source: The Monthly summary of Ministry of Steel

After witnessing a 3.1 per cent contraction in global steel demand in 2022, it is expected to grow at a 2.3 per cent and 1.7 per cent in 2023 and 2024, respectively.<sup>7</sup> India saw a growth in steel demand of 9.3 per cent in 2022. Further, India is expected to show steady growth of 8.6 per cent in 2023 and 7.7 per cent in 2024 (Worldsteel). The last year was marked by a rapid rise in steel inventory, the reason being extensive government spending on the infrastructural advancement across traditional applications, process industries, and the household sector, as well as in emerging strategic sectors such as defense, aerospace, and the green and blue economies for the pre-election year.

For the fiscal year 2023-24, the government boosted its projected capital expenditure by a massive 37 per cent. It elevated its capital outlay to a record ₹ 10 trillion in 2022-23, up from a revised forecast of ₹ 7.28 trillion. In the first three months of the current fiscal year, the government has already spent roughly ₹ 2.8 trillion. The spending amounts to 27.8 per cent of the total yearly budgeted capex for the year. The building of roads and railway infrastructure accounted for two-thirds of the government's capital spending in the June 2023 quarter (CMIE).

We expect steady growth in the coming year, which might dampen slightly in the fourth quarter, the reason being the model code of conduct before the election. The government plans to complete 80 per cent of its record capex plan for 2023-24 by December 2023. This will drive up the demand for steel in the next year.



An analysis of the monthly consumption of finished steel revealed that in March 2023, it was at 10.99 Mt (rise of 13.3 per cent over corresponding period last year (CPLY) and 7.1 per cent by M-o-M). The consumption of finished steel in April 2023 was at 9.9 Mt, (rise of 7.2 per cent over CPLY but decreased by 10.10 per cent M-o-M); in May 2023, it was at 10.36 Mt (rise of 7.8 per cent over CPLY and 4.1 per cent by M-o-M), in June 2023 it was at 9.88 Mt (rise of 13.8 per cent over CPLY but fall of 4.63 per cent over the previous M-o-M).

Similarly, in July 2023, it was at 10.26 Mt (rise of 11.8 per cent over CPLY and 3.3 per cent over the previous month), in August 2023, it was at 11.22 Mt (rise of 16.9 per cent over CPLY and 9.4 per cent over the previous month) and in September 2023, it was at 11.17 Mt (rise of 17.9 per cent over September 2022 and by 1.6 per cent over the previous month). In October 2023, it was at 11.60 Mt (rise of 13.9 per cent over October 2022 and by 4.9 per cent over the previous month) and in November it was at 11.42 Mt (rise of 16.2 per cent over November 2022 and by 0.7 per cent over the previous month).

## Trade

Imports of finished steel climbed up in November 2023, but exports decreased compared to the preceding month. The reason for declining demand for Indian steel is majorly attributable to the tightening of the monetary policies, geo-political shocks, decline in the domestic demand for China leading to increase in the net exports of finished steel from China, price competition from the countries like China, Korea, and Vietnam (Ministry).

Table 3: Month-wise Imports and Exports of Finished Steel ('000 tonnes)									
Item	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Apr-Nov 2023
Imports	460	457	484	587	530	381	571	782	4253
Exports	855	693	502	513	512	430	293	234	4032
Net exports	395	236	18	-74	-18	49	-278	-548	-221

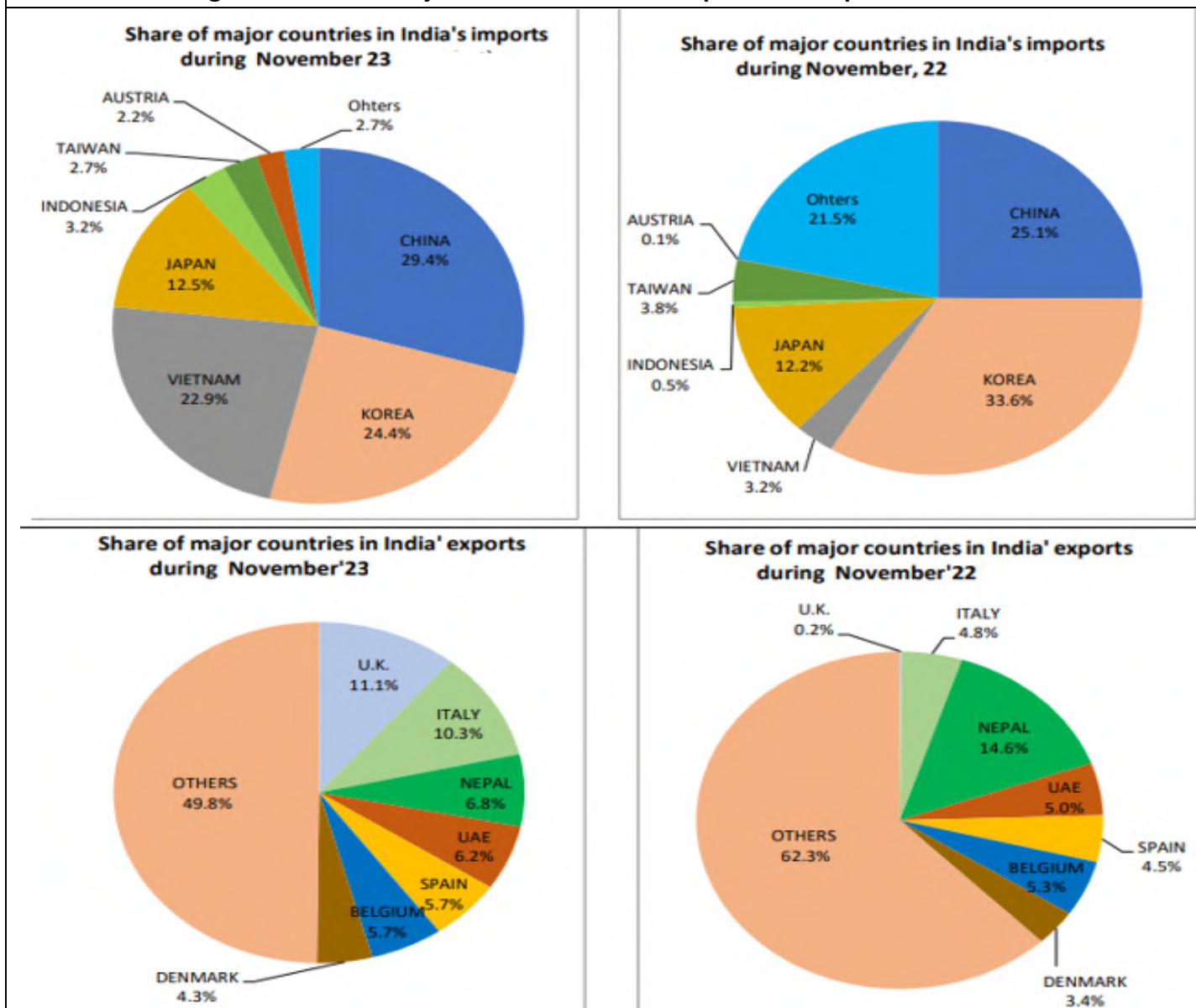
Source: The Monthly summary of Ministry of Steel 2023.



During the period of April-November 2023, India was the net importer of finished steel. India imported 4.26 Mt of finished steel up 13.4 per cent y-o-y and its exports declined 6.2 per cent to 4.03 Mt. In November 2023, exports of finished steel were 2.34 lakh tonnes, whereas its imports were 7.82 lakh tonnes. India witnessed a surplus in international trade of steel in the first quarter of 2023-24.

However, from July 2023 onwards, India has been a net importer every month (except September 2023) as is seen in the table above. India's steel imports in June 2023 rose by 5.9 per cent month-on-month and 7.6 per cent year-on-year, with increased shares from China and Vietnam. Meanwhile, India's steel exports declined by 27.6 per cent compared to May 2023 and 21.3 per cent compared to June 2022.<sup>8</sup>

**Figure 6: Share of major countries in India's exports and imports Nov 2023.**



The share of China, Vietnam, Japan, Indonesia, and Austria increased in total steel import of India in November 2023 as compared to November 2022 while the share of Korea, Taiwan and USA declined over this period.

Similarly, the share of UK, Italy, UAE, Spain, Belgium, Denmark and Russia increased in total steel export from India in November 2023 as compared to November 2022 while the share of Nepal and USA declined over this period as may be seen from the above figure.

## Steel Prices

In 2024, global steel demand will remain weak, driven by lower demand from manufacturing and construction in developed economies and ongoing weakness in China's property sector. Although global prices increased by 23 per cent in the U.S. and 6 per cent in Europe in November 2023, a few domestic steel mills have cut prices by ₹ 1,500 per tonne in December from October 2023.<sup>9</sup>

Despite robust domestic demand, steel prices have dropped by around 6 per cent as a result of surplus inventories at mills and distribution networks. Following the recent correction, local steel prices have converged on import parity, a major improvement from the 12 to 13 per cent premium over import prices reported in October 2023. Steel prices fell during the third quarter, indicating that average prices for the period may remain unchanged. However, raw material costs rose sequentially, with iron ore prices surging by around 14 per cent, spurred by expectations of Chinese economic stimulus.

For Indian steel companies, the second half of FY24 might be challenging, but there is confidence that China's rebound could enhance steel prices globally. A revival in China's steel market could also lead to a reduction in Chinese steel exports, which would be beneficial for the global ferrous industry, including India.

Years	₹/tonnes
2019-2020	49,818
2020-2021	58,581
2021-2022	84,962
2022-2023	76,967
2023-2024 (E)	67,000-71,000

Source: CMIE; updated in April 2023.

Note: The reversal in prices was mainly on account of a decline in steel demand across the globe pulling down international as well as domestic steel prices. Average finished steel prices are based on prices of hot rolled coils (3.15 mm) and cold rolled coils (0.63 mm) in the Delhi, Chennai, Mumbai, and Kolkata markets.

The resumption of operation of the Chinese economy from Covid lockdowns in December 2022 helped to sustain declining steel prices between January and March 2023. Steel prices that dropped to eight-month low of ₹ 69,083 per tonne in December 2022, increased to ₹ 74,665 per tonne by March 2023 with the rise in pent-up steel demand from China. However, prices again cooled off to ₹ 69,275 per tonne by July 2023 as demand in China rose at a much slower rate than anticipated. Prices are likely to stay at around ₹ 67,000-71,000 per tonne at least till the end of the current financial year (CMIE).

The prices of TMT and CRC rose in November 2023 over November 2022 but prices of HRC fell during the same period.

**Table 5: Retail Price of Steel products**

Mumbai				Delhi			
Year	TMT (10mm)	HRC (2.50 mm), JPC	CRC (0.63 mm), JPC	Year	TMT (10mm)	HRC (2.50 mm), JPC	CRC (0.63 mm), JPC
2018-19	47,617.6	55,093.1	61,955.6	2018-19	51,129.0	53,599.1	60,091.0
2019-20	44,143.3	46,684.9	53,361.5	2019-20	45,998.3	45,419.4	50,296.6
2020-21	48,047.0	54,128.5	63,277.8	2020-21	50,218.0	54,656.0	62,077.0
2021-22	63,939.1	81,201.5	92,267.7	2021-22	66,612.5	77,063.3	87,948.9
2022-23	69,959.2	72,282.5	81,315.0	2022-23	71,666.7	70,746.7	78,275.8
Chennai				Kolkata			
Year	TMT (10mm)	HRC (2.50 mm), JPC	CRC (0.63 mm), JPC	Year	TMT (10mm)	HRC (2.50 mm), JPC	CRC (0.63 mm), JPC
2018-19	50,610.8	55,902.0	67,390.0	2018-19	47,743.6	51,901.0	57,519.5
2019-20	43,848.0	47,845.5	58,666.7	2019-20	44,767.0	45,930.0	51,082.7
2020-21	49,335.0	56,015.0	64,768.0	2020-21	47,917.0	51,471.0	61,363.0
2021-22	65,185.7	80,543.7	97,571.7	2021-22	65,533.2	75,698.6	88,316.7
2022-23	71,140.8	74,407.5	85,982.5	2022-23	67,698.3	70,771.7	82,374.2
Gobindgarh							
Year	TMT (10mm), ISI	HRC (Average), JPC	CRC (16-20 grams), MMR				
2018-19	48,750.0	46,251.7	48,682.9				
2019-20	47,151.4	46,020.8	48,316.7				
2020-21	48,677.1	52,346.5	54,909.0				
2021-22	63,711.3	66,462.5	75,162.5				
2022-23	62,064.2	68,598.3					
Source: CMIE							
Note: TMT means Thermo Mechanical Treatment, HRC - Hot rolled coil, CRC - Cold rolled coils, JPC - Joint Plant committee, MMR - Minerals & Metals Review.							

As per the monthly review of the Ministry of Steel as of November 2023, the retail prices of TMT (10mm), HRC (2.50mm) and CRC (0.63mm) in Mumbai market stood at ₹ 64,190/tonne, ₹ 65,990/tonne and ₹ 75,340/tonne respectively on 30<sup>th</sup> November 2023, recording a decrease of 1.2 per cent, 2.7 per cent and 0.2 per cent, respectively over prices on 31st October.

### Government Initiatives

- The Hon'ble Steel Minister (HSM) Shri Jyotiraditya M. Scindia chaired the Consultative Committee meeting for the Ministry of Steel on 23<sup>rd</sup> November 2023 to discuss the progress on the first-of-its kind novel initiative by the Ministry of Steel and the Ministry of Commerce and Industry to introduce branding and labelling of 'Made-in-India' steel products in the global market.<sup>i</sup> The HSM emphasized the efforts to build India as a "manufacturing center" of the world, which requires a unified and distinctive identity for Indian steel that reflects its quality, innovation, and sustainability practices. Made in India branding provides for labelling of domestic steel products with details of the product, and a Made in India Logo along with a QR Code.

- Steel Quality Control Order introduced by Ministry of Steel & 145 Indian Standards notified under it.<sup>10</sup>
- Implementation of Domestically Manufactured Iron & Steel Products (DMI&SP)<sup>11</sup> policy for promoting Made in India steel for Government procurement.
- Establishment of a Project Development Cell (PDC)<sup>12</sup> which identifies projects to facilitate new investments, evaluating the pipeline of projects and taking necessary steps to fast-track their implementation.
- Nagarnar Integrated Steel Plant<sup>13</sup> (NMDC) with 3 MTPA capacity greenfield integrated steel plant has been set up at Nagarnar, located 16 km from Jagdalpur in Chhattisgarh state. The decision to construct the Nagarnar Integrated Steel Plant was taken keeping in view the linkage with iron ore reserves and availability of investible surplus. The plant became functional on August 24, 2023, and has started production of Hot Rolled (HR) coil as final product.
- In line with India's commitments towards net-zero emissions, as enunciated in COP-26, the Ministry of Steel has taken various steps towards decarbonization of the steel sector. Some such steps include:
  1. The Ministry of Steel constituted 13 Task Forces with the engagement of industry, academia, think tanks, S&T bodies, different Ministries, and other stakeholders to discuss, deliberate and recommend upon different levers of decarbonization of steel sector.
  2. Ministry of New and Renewable Energy (MNRE) has announced a National Green Mission for green hydrogen production and usage. The steel sector has also been made a stakeholder in the mission.
  3. The steel sector has adopted the Best Available Technologies (BAT) available globally, in the modernization & expansion projects.
- The Ministry of Steel has integrated BISAG-N's<sup>vi</sup> capabilities into the PM Gati Shakti National Master Plan, uploading geolocations of more than 2000 steel units to gain insights into steel production facilities. This information will aid in planning railway line extension, inland waterways, highways, ports, and gas pipeline connectivity. This includes data for iron ore, manganese ore mines and Iron Ore Slurry Pipelines, allowing for better visibility and management of critical raw material sources.
- The Ministry of Steel has been mandated to create Sectoral Plans for Efficient Logistics<sup>14</sup> (SPEL) in line with the National Logistics Policy of 2022.
- MSTC Limited, a CPSE under Ministry of Steel, in Joint Venture (JV) with Mahindra Accelo, has set up MSTC Mahindra Recycling Private Limited (MMRPL). Till date, the JV has established eight Vehicle Scrapping Centers at Noida, Chennai, Pune, Indore, Ahmadabad, Hyderabad, Guwahati, and Bengaluru.
- A dedicated online portal viz. "Vacancy Status Portal" has been put in place by DoPT for reporting and monitoring the progress in filling up the vacancies. Steel CPSEs are in the process of filling up the vacancies expeditiously. Under the Mission, 1389 direct recruitments have been made by Steel CPSEs mainly SAIL, NMDC, KIOCL, MOIL and MECON in 2023.
- During the FY 2023, a total of 4 R&D projects have been approved with a total cost of ₹360.48 lakhs with financial assistance of ₹ 239.63 lakhs from the Government budget. Additionally, there are currently 14 ongoing R&D projects of the Ministry of Steel.

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<sup>vi</sup> Bhaskaracharya National institute for Space Applications and Geo-informatics.

## Production Linked Incentive Scheme (PLIs)

The Government has approved inclusion of 'Specialty Steel'<sup>vii</sup> under the Production Linked Incentive (PLI) Scheme, with a 5-year financial outlay of ₹ 6322 crore to promote the manufacturing of 'Specialty Steel' within the country by attracting capital investment and promote technology up-gradation in the steel sector. On 17<sup>th</sup> March 2023, the Government signed Memorandum of Understanding (MoU) with 27 companies covering 57 applications for categories under the PLI Scheme.

Committed investment (₹ Crore)	Actual Investment till Q2 2023-24 (₹ Crore)	Committed production for FY 2023-24 (000 tonne)	Actual production till Q2 2023-24 (000 tonne)	Employment generation till Q2 2023-24 (Nos.)	Budgeted incentive outlay (₹ Crore)	Actual incentive disbursed (₹ Crore) (₹ Crore)
29531	10730	935	Nil	3785	6332	Nil*

Source: PIB; <https://pib.gov.in/PressReleaseDetailm.aspx?PRID=1991538>, Note: Incentive to be disbursed from FY 2024-25 onwards

## Steel Scrapage Policy

At the moment, among the industrial sector in India, the iron and steel industry are the one that uses the most energy. Carbon dioxide (CO<sub>2</sub>) emissions from Indian steel manufacturing vary between 2.5 to 2.85 tonnes per tonne of crude steel, in contrast to the world average carbon intensity of 1.4 tonnes per tonne of steel, according to the International Energy Agency (IEA). By contrast, the EAF approach is frequently used for steel manufacturing by other major steel-producing countries such as the USA, Japan, and the EU. India chooses to use the BF or coal based DRI routes to create steel since iron ore, a vital raw ingredient, is easily accessible and reasonably priced there. India would have to investigate more environmentally friendly ways to produce steel. Some of the strategies are to employ green hydrogen in the BOF process rather than coking coal and the Carbon Capture, Utilization, and Storage (CCUS) technology. However, there are a lot of obstacles in the way of these technologies becoming widely used.

Following other nations' lead and implementing the EAF approach is one efficient way to cut CO<sub>2</sub> emissions. Steel scrap is the main raw material used in the EAF technique of making steel. This scrap is mostly produced domestically in the EU. On the other hand, the scarcity of steel scrap poses a serious problem for India. In the fiscal year 2023, imports of almost 10 Mt were the result of this scarcity. The country's availability of steel scrap might be substantially boosted if the new Vehicle Scrapage Policy (VSP), 2022, is implemented successfully. However, it is suggested that, as of April 1, 2023, Automatic Testing Stations (ATS) would be the only means by which commercial vehicles must undergo required fitness testing. On the other hand, starting on June 1, 2024<sup>15</sup>, fitness examinations at ATS will be required for passenger cars. After eight years of original registration, commercial vehicles will need to have annual fitness tests; passenger cars will need to have their fitness exams renewed every fifteen years, good for five years. An automobile will be classified as an "end of life vehicle" (ELV) if it fails its fitness test.

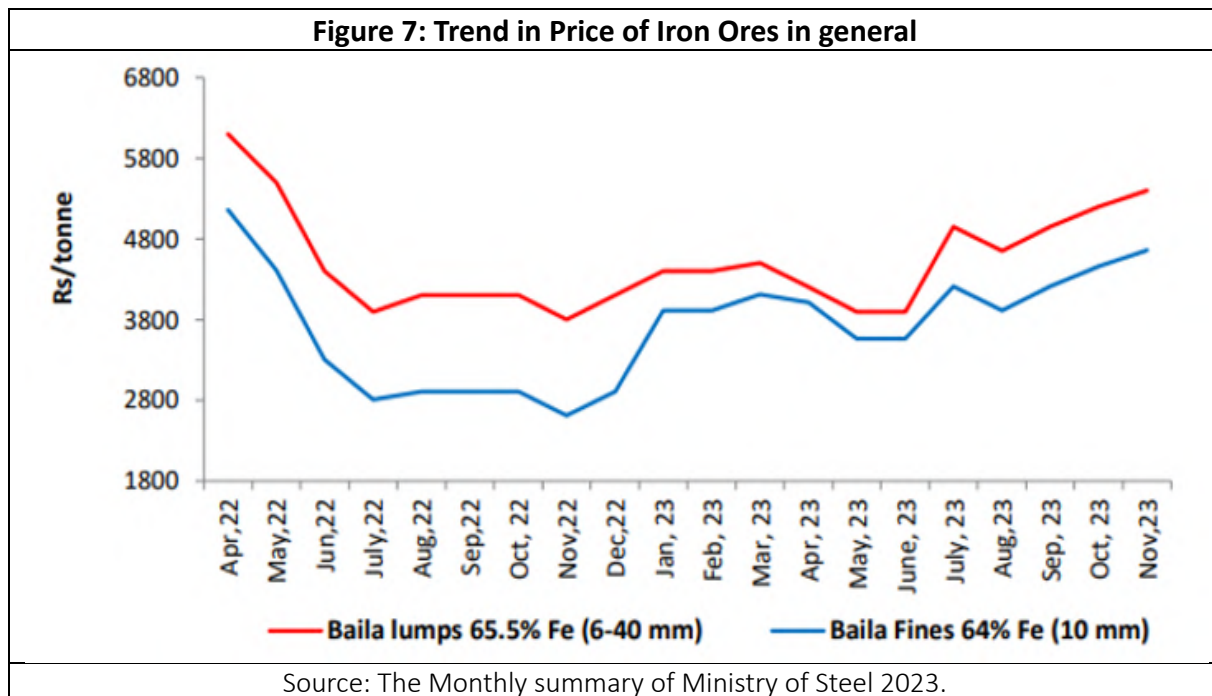
<sup>vii</sup> 'Specialty steel' is a downstream, value-added product of steel manufacturing process. However, there is no universal definition of 'specialty steel'. Link: <https://pib.gov.in/PressReleasePage.aspx?PRID=1738126>

## Industry Risk

While all issues of the steel industry have, by no means, been resolved, the industry has shown significant resilience in these volatile times and is rapidly adjusting to the new geopolitical realities of the “new normal”.

## Ore prices

With the rising price of coke, Steel Authority of India Ltd (SAIL) and Tata Steel are facing a significant challenge. Coke prices have been hovering around US\$ 300 per tonne and are expected to remain high due to weather and labour issues in Australia. Consequently, with steel prices decreasing at the end of the third quarter and raw material costs rising, the profit margins in the fourth quarter could get squeezed. This is largely because of the fact that the global prices outpace the domestic prices.



The prices of HCC Coking coal f.o.b. Australia have decreased from US\$ 350/tonne on 31<sup>st</sup> October 2023 to US\$ 325/tonne on 30<sup>th</sup> November 2023. During the month of November 2023, prices of iron ore lump, and fines was ₹ 5,400/tonne and ₹ 4,660/tonne, which increased by 3.9 per cent and 4.5 per cent respectively over their respective prices in October 2023 (Ministry).

## Rake shortage

Indian steelmakers have expressed concerns over the non-availability of Railway rakes to transport iron ore and other raw materials. Steel makers through the Indian Steel Association (ISA) – which has participation from the likes of Tata Steel, SAIL, JSW, JSPL, AMNS India and others – have pointed out that empty rakes (called BOXN wagons) are moving out from the mills instead of loading slag. (Business line)

On March 13, 2023, the Railways issued an order that came into immediate effect, whereby the General-Purpose Wagon Investment Scheme (GPWIS) Policy was put under review. Moreover, with the Railways imposing a two-year moratorium on the induction of fresh rakes under the GPWIS, the rake shortage continued, as mentioned in a letter to the Steel Ministry.<sup>16</sup> This shortage is not new to the industry and the industry has been facing these issues for the past four years.<sup>17</sup>

### Coal shortage

Another major challenge for the Indian steel industry is its high reliance on imported coking coal<sup>viii</sup> / coke due to limits in coking coal supply and production in India. And as per the Indian steel association (ISA) India is the largest exporter of coke and will remain so in the foreseeable future. In the words of the President of ISA, “though being a far-fetched idea, India is continuously searching for alternatives for coke as the major raw material for the steel production”.

As captive leases<sup>i</sup> are set to expire by 2030, the iron ore mining sector will be positively impacted and so will the steel production. To reduce lag in iron ore evacuation, logistics issues from mining locations must also be addressed.

Both thermal coal price and demand are expected to decline in the medium term, as indicated by the significantly lower coal future prices for 2023 in comparison to 2022. Globally, there will probably be less demand for thermal coal, and as other energy sources like renewables gain traction, the rate of degrowth will intensify.

### Dumping

Indian steelmakers have been badly hit by imports, primarily from China, over the last few months. As mentioned above in the trade section, for the seven-month-period, from April-October, India had been a net exporter with a slender margin of 0.05 Mt.<sup>18</sup> And China’s steel dumping in India has become a major challenge not just for India but for the rest of the global steel industry. To curb this, we need more trade barriers like Stringent Certification Processes as strongly suggested by the Bureau of Indian Standards (BIS).

### High Energy consumption

Energy consumption in most of the integrated steel plants in India is generally high at 6- 6.5 giga calorie per tonne of crude steel as compared to 4.5 – 5 giga calorie per tonne in steel plants abroad. The higher rate of energy consumption is mainly due to obsolete technologies including problems in retrofitting modern technologies in old plants, old shop floor & operating practices, mediocre quality of raw material viz. high ash coal/coke, high alumina iron ore etc. (Ministry)

### CBAM (Carbon Border Adjustment Mechanism) or carbon tax (a kind of import duty)

This tax will come into effect from January 1, 2026, but from October 1, 2023<sup>19</sup>, domestic companies from seven carbon-intensive sectors, including steel, cement, fertilizer, aluminum, and hydrocarbon products, were required to share data on carbon emissions with the European Union. The Commerce and Industry Minister Shri Piyush Goyal has expressed his concern over this and has already voiced his concerns to the WTO and the

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<sup>viii</sup> Coking coal is a key raw material that is used to manufacture steel through the BoF route.

EU. India and other nation will work together in the future to get a better deal. India's exports are likely to be hit by the EU's 20-35 per cent tariffs on high-carbon goods like steel, iron ore, and cement.<sup>20</sup>

## Way Forward

Despite the uncertainty surrounding the economies of the United States and China, and EU nations demonstrating extraordinary resilience in the face of economic issues caused by high energy costs, heightened geo-political tensions, rising global interest rates, the US dollar appreciating, and oil prices falling, India is anticipated to demonstrate robust and resilient growth over the next years. Steel-intensive industries such as construction, real estate, capital goods, big government projects, automotive, and consumer durables are predicted to sustain a robust growth trajectory beginning in 2023-24. Affordable housing projects, PLI schemes, private investment, renewable energy investment, and continued government expenditure would provide tailwinds to the transforming steel industry in India.

## References

- <sup>1</sup> [https://www.tf.uni-kiel.de/matwis/amat/iss/kap\\_a/advanced/aa\\_2\\_1.html](https://www.tf.uni-kiel.de/matwis/amat/iss/kap_a/advanced/aa_2_1.html)
- <sup>2</sup> <https://worldsteel.org/media-centre/press-releases/2023/november-2023-crude-steel-production/>
- <sup>3</sup> [https://jpcindiansteel.nic.in/writereaddata/files/Trend%20Report%20September%202023%20\(1\).pdf](https://jpcindiansteel.nic.in/writereaddata/files/Trend%20Report%20September%202023%20(1).pdf)
- <sup>4</sup> <https://worldsteel.org/media-centre/press-releases/2023/november-2023-crude-steel-production/>
- <sup>5</sup> Ministry of Steel, Monthly summary November 2023. Link: <https://steel.gov.in/sites/default/files/Monthly%20Summary%20for%20November-2023.pdf>
- <sup>6</sup> <https://pib.gov.in/PressReleaseDetailm.aspx?PRID=1991538>
- <sup>7</sup> <https://www.acuitykp.com/blog/steel-sector-outlook-for-2023-and-2024/>
- <sup>8</sup> <https://www.livemint.com/economy/indias-steel-imports-surge-in-june-2023-china-and-vietnam-dominate-share-11689570446578.html#:~:text=India's%20steel%20imports%20in%20June,steel%20imports%20are%20already%20rising.>
- <sup>9</sup> <https://www.thehindu.com/business/Economy/indias-steel-import-to-be-elevated-at-6mt-in-fy24-on-strong-demand-crisil/article67657621.ece>
- <sup>10</sup> <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1985045>
- <sup>11</sup> <https://steel.gov.in/sites/default/files/DMISP%20Ministry%20of%20Steel%20amedment%20in%20the%20Policy%202020.pdf>
- <sup>12</sup> <https://steel.gov.in/en/make-india>
- <sup>13</sup> <https://pib.gov.in/PressReleaseDetailm.aspx?PRID=1991538>
- <sup>14</sup> <https://steel.gov.in/sites/default/files/DRAFT%20%20Sectoral%20Plan%20For%20Efficient%20Logistics%20%20for%20Iron%20and%20steel%20sector.pdf>
- <sup>15</sup> [https://www.business-standard.com/industry/auto/vehicle-scrappage-policy-key-to-cutting-india-steel-sector-emissions-124010801241\\_1.html](https://www.business-standard.com/industry/auto/vehicle-scrappage-policy-key-to-cutting-india-steel-sector-emissions-124010801241_1.html)
- <sup>16</sup> <https://www.thehindubusinessline.com/markets/commodities/indian-steelmakers-express-concerns-over-rake-shortages-impacting-raw-material-transportation/article66874532.ece>
- <sup>17</sup> <https://www.thehindubusinessline.com/economy/metal-companies-still-face-coal-rake-shortage/article37951342.ece>
- <sup>18</sup> <https://www.thehindubusinessline.com/economy/india-should-explore-trade-barriers-as-safeguards-against-rising-steel-imports-dilip-oommen-amns-india-ceo/article67508879.ece>
- <sup>19</sup> <https://economictimes.indiatimes.com/news/economy/foreign-trade/india-will-not-accept-unfair-taxes-on-steel-aluminum-industry-goyal-on-eus-carbon-tax/articleshow/105035361.cms?from=mdr>
- <sup>20</sup> <https://economictimes.indiatimes.com/news/economy/foreign-trade/india-expects-eu-carbon-tax-to-hit-exports-of-steel-iron-ore-and-cement/articleshow/101534874.cms?from=mdr>