

The steel pipes value chain

Final report

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Consulting

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1. Global macroeconomic overview

1.1 Global GDP growth scenario

Global growth, after averaging 3.8% annually between 2000 and 2019, contracted 2.7% in 2020 as the Covid-19 pandemic disrupted economic activity. However, the contraction was considerably lower than that estimated by the International Monetary Fund (IMF)¹, with a strong rebound in manufacturing, shift to new ways of working, and fiscal and policy support arresting a further slide.

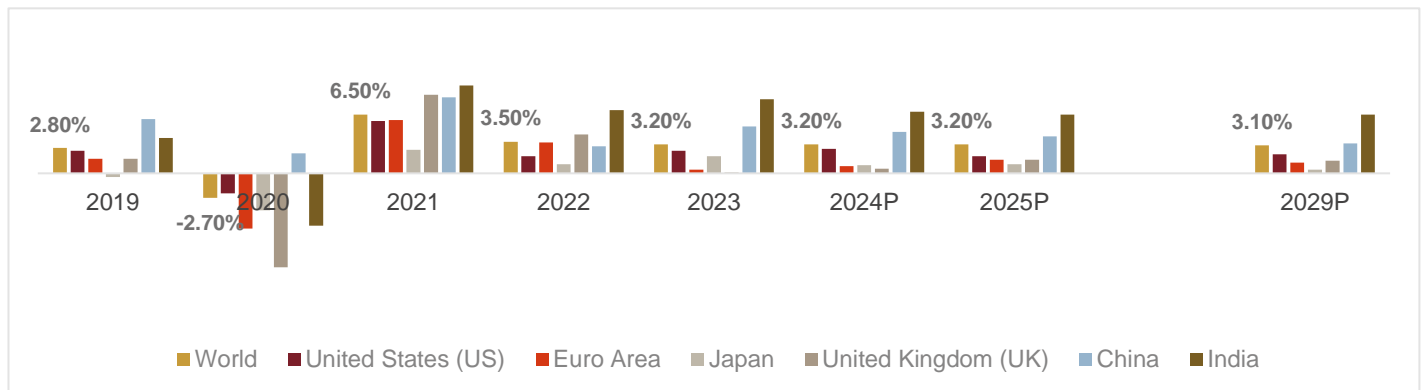
In 2021, growth rebounded to 6.5%, led by vaccine-powered normalisation and continued fiscal support. However, in 2022 and 2023, it slowed to 3.5% and 3.2%, respectively, owing to challenges such as supply-constraint-driven high inflation, tightening financial conditions, long-term effects of the pandemic and geopolitical uncertainties.

The pace of global growth is projected to continue to trend below the historical annual average of 3.8% (2000 to 2019) this year and the next, on account of restrictive monetary policies and withdrawal of fiscal support.

1.1.1 Global GDP growth – historical trend and forecasts

The IMF has projected on-year global GDP growth of 3.2% for 2024 as well as 2025, considering the current geopolitical uncertainties, increasing geoeconomic fragmentation, tighter inflation-tackling monetary policies and fiscal support withdrawal amid high debt and extreme weather conditions.

Global economic review and outlook



Source: CRISIL MI&A Consulting, IMF, World Bank, S&P Global

P: Projected (years mentioned on the horizontal axis correspond to the calendar years)

Please note that unless mentioned otherwise, the years correspond to calendar years, throughout the report.

Real GDP (on-year growth)	2019	2020	2021	2022	2023	2024P	2025P	2029P
World	2.80%	-2.70%	6.50%	3.50%	3.20%	3.20%	3.20%	3.10%
United States (US)	2.50%	-2.20%	5.80%	1.90%	2.50%	2.70%	1.90%	2.10%
Euro area	1.60%	-6.10%	5.90%	3.40%	0.40%	0.80%	1.50%	1.20%
Japan	-0.40%	-4.10%	2.60%	1.00%	1.90%	0.90%	1.00%	0.40%
United Kingdom (UK)	1.60%	-10.40%	8.70%	4.30%	0.10%	0.50%	1.50%	1.40%
China	6.00%	2.20%	8.40%	3.00%	5.20%	4.60%	4.10%	3.30%
India	3.90%	-5.80%	9.70%	7.00%	8.20%	6.80%	6.50%	6.50%

P: Projected (years mentioned on the horizontal axis correspond to the calendar years for world and other countries apart from India; for India year 2017 refers to fiscal 2018 and so on)

Source: CRISIL MI&A Consulting, industry, IMF

¹ IMF – World Economic Outlook April 2024

US: Economic growth increased from 1.9% in 2022 to 2.5% in 2023, primarily due to elevated inflation and, consequently, higher interest rates, which impacted spending.

Euro area: In 2023, the growth slowdown happened due to spillover effects from geopolitical uncertainty and tighter financial conditions.

Japan: A return on pent-up demand, surge in inbound tourism, and accommodative policies, as well as a rebound in auto exports, resulted in increase in growth rate to 1.9% in CY 2023.

UK: Growth declined from 4.3% in 2022 to 0.1% in 2023, reflecting tighter monetary policies to curb still-high inflation and the lingering impact of the terms-of-trade shock from high energy prices.

China: In 2021, China's GDP grew 8.4% on-year, recovering strongly from the previous year's on-year growth of 2.2%, on the back of pent-up domestic demand and strong growth in exports owing to slowdown in global industrial activities.

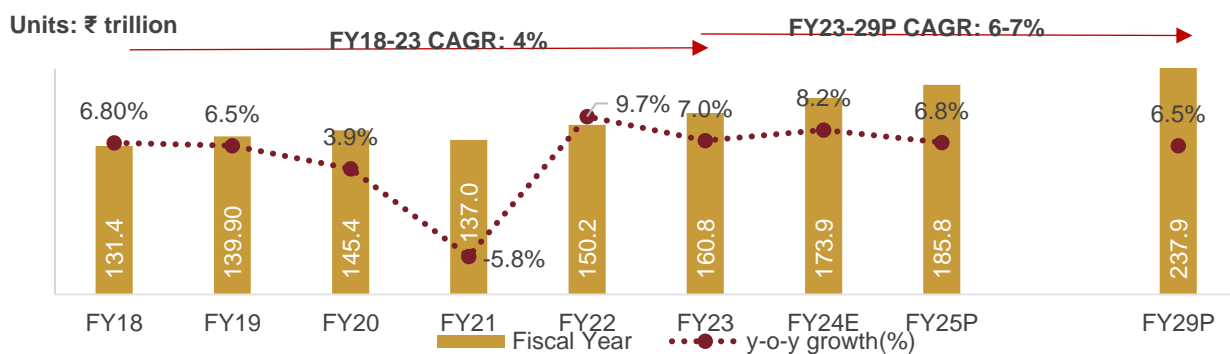
India: India is expected to grow 6-7% in the next five years. After seeing a slowdown in growth to 5.8% in 2020 due to the pandemic, economic growth bounced back to 9.7% in 2021 and to 7% and 8.2% in the subsequent years.

2. India's macroeconomic overview

2.1 India's GDP growth and composition by sectors

India's GDP grew at a compound annual rate (CAGR) of 4.0% between fiscals 2018 and 2023 to ₹160.8 trillion in fiscal 2023. In fiscal 2021, growth slowed down to -5.8% because of Covid-19-induced lockdowns. However, growth bounced back post-pandemic to 9.7% and 7.0% in fiscals 2022 and 2023, respectively, on strong pent-up demand across sectors, pushed primarily by the manufacturing and construction sectors.

India's real GDP (at constant 2011-12 prices)



Source: Central Statistical Office (CSO), CRISIL M&A Consulting
P: Projected
E: Estimated; FY: Fiscal year

In fiscal 2024, India's GDP is estimated to have grown 8.2% on-year², due to strong output from services and manufacturing sectors and a robust infrastructure spending. Although there will be support from the demand side because of an expected spell of normal monsoon and easing inflation, CRISIL expects GDP growth to moderate to 6.8% in fiscal 2025, due to the rising borrowing costs, geopolitical uncertainty and fiscal consolidation, leading to a lower proportion of capital expenditure by the government.

On-year demand-side real GDP growth (%)

At constant 2011-2012 prices	FY18	FY19	FY20	FY21	FY22	FY23	FY24E
Private consumption	7.0%	7.1%	5.2%	-5.3%	11.7%	6.8%	4.0%
Government consumption	11.9%	6.7%	3.9%	-0.8%	0.0%	9.0%	2.0%
Gross fixed capital formation	7.8%	11.2%	1.1%	-7.1%	17.5%	6.6%	9.0%
Exports	4.6%	11.9%	-3.4%	-7.0%	29.6%	13.4%	2.6%
Imports	17.4%	8.8%	-0.8%	-12.6%	22.1%	10.6%	10.9%

Source: CRISIL M&A Consulting, CSO
E: Estimated; FY: Fiscal year

In fiscal 2024, India's economic growth is expected to have been pushed majorly by investments, which is estimated to have grown ~9% on-year. Multiple government-led schemes, such as Make in India and Atmanirbhar Bharat, and the government's push for turning India into a manufacturing hub have supported the investments into the existing and new-age sectors.

² Notably, there will be another growth revision for fiscal 2024 with the availability of the numbers of the fourth quarter.

On-year supply-side gross value added by economic activity

At basic prices	FY18	FY19	FY20	FY21	FY22	FY23	FY24E
Agriculture and allied	6.6%	2.1%	6.2%	4.0%	4.6%	4.7%	1.4%
Industry*	1.1%	3.1%	-0.5%	-6.3%	8.3%	5.7%	7.3%
Manufacturing	7.5%	5.4%	-3.0%	3.1%	10.0%	-2.2%	9.9%
Construction	5.2%	6.5%	1.6%	-4.6%	19.9%	9.4%	9.9%
Services^	6.3%	7.2%	6.4%	-8.4%	9.2%	10.0%	7.6%

* Industry includes mining and quarrying, electricity, gas, water supply and other utilities

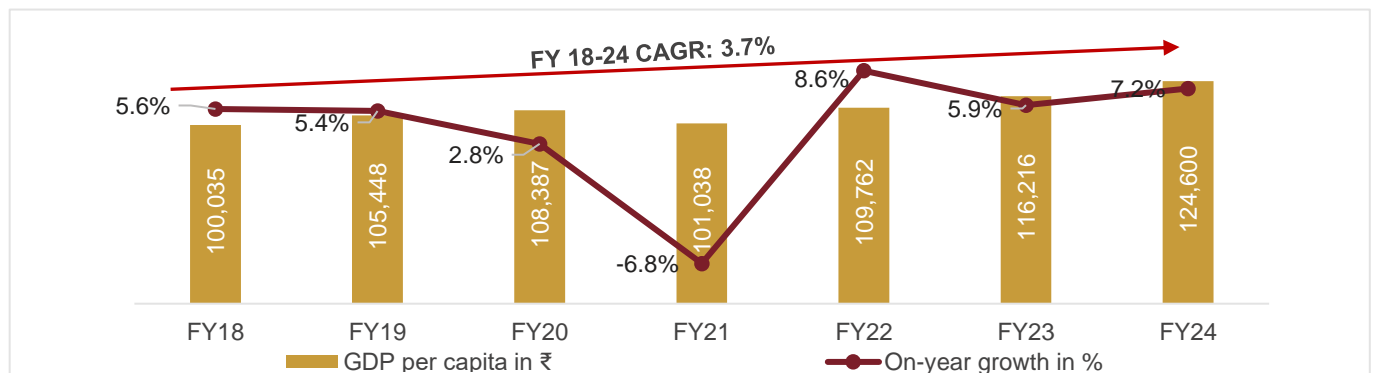
^ Services related to trade, hotels, transport, communication, broadcasting, finance, real estate, public administration, defence and professional and others

Source: CRISIL MI&A Consulting, CSO

E: Estimated; FY: Fiscal year

On the supply side, India's GDP is estimated to have grown in fiscal 2024, because of strong growth in construction, manufacturing and services sectors, which benefitted from robust capital investments from the private sector.

India's gross domestic product (GDP) per capita (at constant 2011-12 prices)

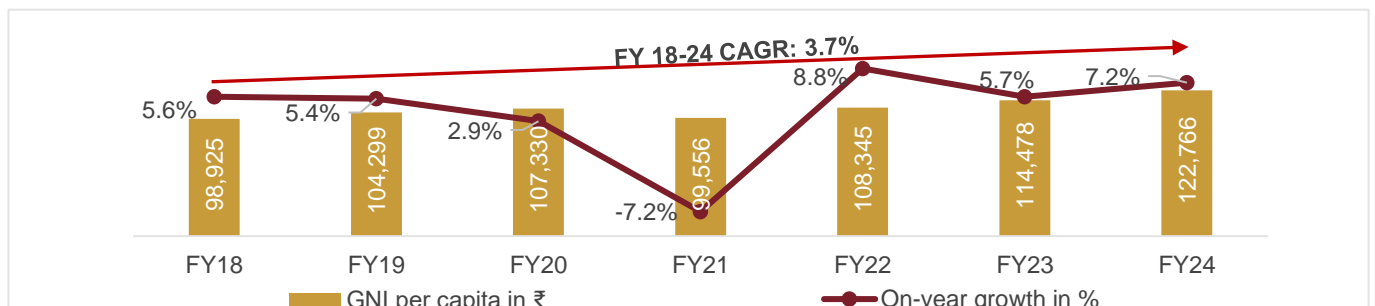


Source: Central Statistical Office (CSO)

Note: FY24 values are provisional

India's GDP per capita grew from ₹ 100,035 in fiscal 2018 to ₹ 124,600 in fiscal 2024, registering a CAGR of approximately 3.7% during the period. During this period, the GDP per capita witnessed an on-year decline (of -6.8%) only in fiscal 2021 owing to economic disruptions caused by COVID-19 pandemic. With the recovery of demand and resolution of supply side disruptions, GDP per capita rebounded in the next fiscal by growing on-year at 8.6%.

India's gross national income (GNI) Per Capita (at constant 2011-12 prices)



Source: Central Statistical Office (CSO)

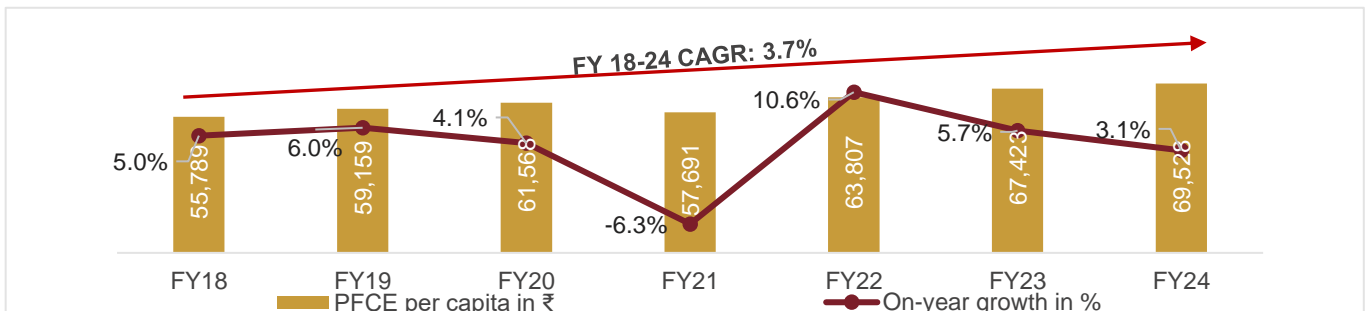
Note: FY24 values are provisional

GNI per capita followed the growth trend of GDP per capita between fiscal 2018 and fiscal 2024. Similar to GDP per capita, GNI per capita grew at a CAGR of 3.7% during fiscal 2018-2024 period to ₹ 122,766; witnessed the only on-year decline in fiscal 2021; and rebounded strongly in the succeeding fiscals.

Both GDP per capita and GNI per capita witnessed strong on-year growths in fiscal 2022 owing to restoration of consumer confidence and domestic demand. However, growth rate decreased for both the economic indicators in fiscal 2023 owing to geopolitical conflicts and supply side disruptions, especially in the automobile sector. In fiscal 2024, GNI

per capita and GDP per capita again grew strongly over the last fiscal, supported primarily by resolution of supply chain issues and government led robust capital expenditure pipeline laid in the run-up to 2024 general elections

India's private final consumption expenditure (PFCE) per capita (at constant 2011-12 prices)

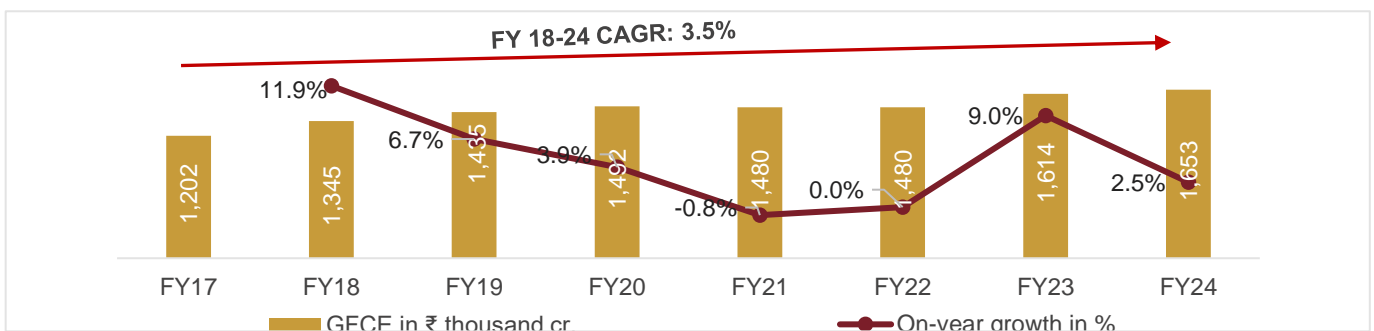


Source: Central Statistical Office (CSO)

Note: FY24 values are provisional

India's PFCE per capita at constant 2011-12 prices, which is an indicator of household spending on goods and services, also grew at a CAGR of approximately 3.7% between fiscals 2018 and 2024 to ₹ 69,528. The growth trajectory of India's PFCE per capita largely showcased a trend similar to that of GDP per capita during said period. While the on-year decline in GDP per capita was 6.8% in fiscal 2021, the PFCE per capita declined on-year at a lower rate of 6.3% in fiscal 2021, indicating that private consumption suffered lesser than most of the other components of GDP in the pandemic affected fiscal of 2021. Further, in fiscal 2022, the on-year growth in PFCE per capita was around 2 percentage points higher than that in GDP per capita, which suggests that the pent-up consumer demand provided the primary support to the economy post-pandemic.

India's Government final consumption expenditure (GFCE) (at constant 2011-12 prices)



Source: Central Statistical Office (CSO)

Note: FY24 values are provisional; cr.: crores

India's Government Final Consumption Expenditure (GFCE) at constant 2011-12 prices increased from ₹ 1,345 thousand cr. in fiscal 2018 to ₹ 1,653 thousand cr. in fiscal 2024, registering a CAGR of approximately 3.5% during the period. While the on-year decline in GDP per capita was 6.8% in fiscal 2021, the GFCE remained almost rangebound on-year in the fiscal. This was primarily on the account of government's focus towards providing direct cash benefits to the public during the first wave of COVID-19 in India. The on-year growth in GFCE remained rangebound in fiscal 2022 as well primarily owing to continued absence of any major government led capital expenditure activities in the wake of second and third wave of COVID-19 pandemic in the fiscal. However, the GCFE increased in the following fiscals as the economy recovered from the lows of pandemic and government pushed for an expenditure boost in the run-up to 2024 general elections

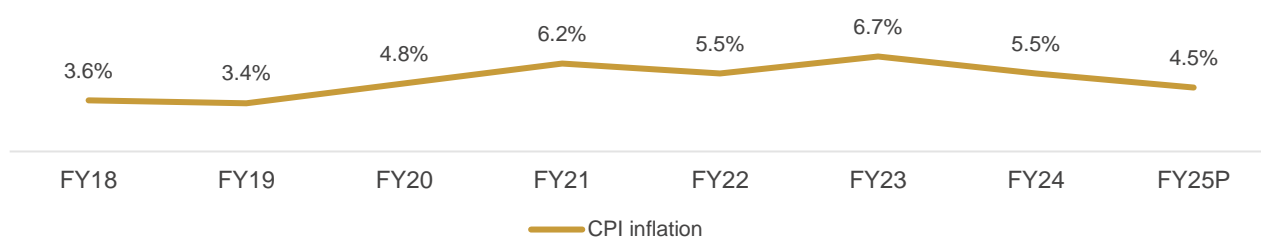
2.2 Performance of key macroeconomic indicators

India's average inflation based on the consumer price index (CPI) remained ~4.70% between fiscals 2018 and 2022, but increased to 6.70% in fiscal 2023, primarily led by surging food prices before moderating to an average of 5.5% in fiscal 2024.

Although core and fuel inflation have remained low, food inflation has been keeping CPI inflation above the Reserve Bank of India's (RBI's) medium-term target 4%. For instance, food inflation remained at 8.5% in March 2024, primarily led by acceleration in foodgrain, meat and fish prices and slower deflation in edible oils.

CPI inflation is expected to moderate to 4.5% in fiscal 2025, due to an expected decline in food inflation, led by a favourable monsoon and higher-base effect.

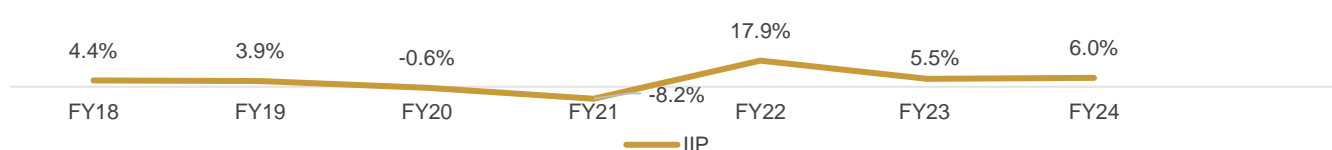
CPI inflation trend



Source: NSO, Ministry of Industry and Commerce, CRISIL MI&A Consulting
P: Projected

The Index of Industrial Production (IIP) averaged 3.8% between fiscals 2018 and 2023 before surging to 6% in fiscal 2024. The uptick was primarily led by a strong pick-up in the sectors related to manufacturing of electrical equipment and basic metals. An uptick in the consumer durables sector also supported.

IIP growth trend



Source: NSO, Ministry of Industry and Commerce, CRISIL MI&A Consulting

Repo Rate

Month	Jun-18*	Aug-18	Feb-19	Apr-19	Jun-19	Aug-19	Oct-19	Mar-20	May-20	May-22	Jun-22	Aug-22	Sep-22	Dec-22	Feb-23
Repo Rate	6.25%	6.50%	6.25%	6.00%	5.75%	5.40%	5.15%	4.00%	4.00%	4.40%	4.90%	5.40%	5.90%	6.25%	6.50%

Source: Reserve Bank of India (RBI)

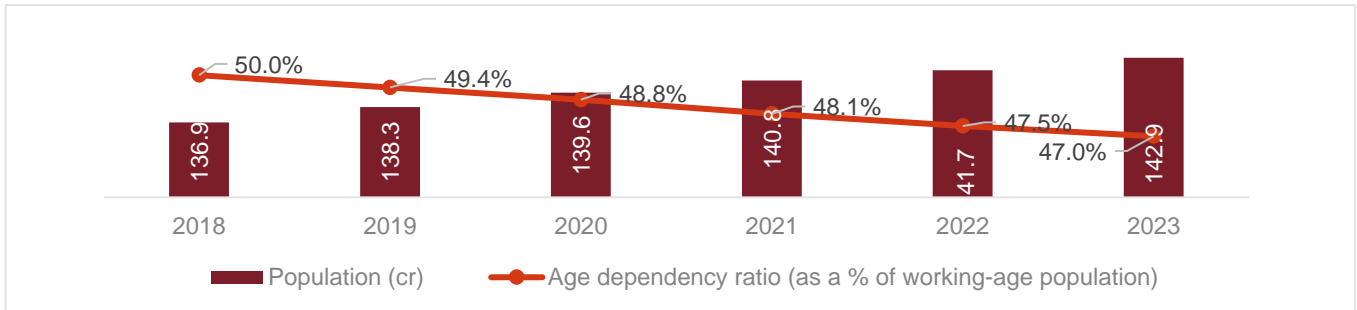
Note: The above table mentions the repo rate only for the months wherein there is a revision. Any downward revision in a month is displayed in "red", while any upward revision is displayed in green. For example, in Aug-18, the repo rate increased from 6.25% to 6.50%, hence represented in green. *Jun-18 is represented in green as the repo rate increased from 6% in April and May of 2018 to 6.25% in June, 2018

The repo rate is a critical tool used by the Reserve Bank of India (RBI) to control inflation and manage liquidity in the economy. The above table shows the repo-rate changes announced by the RBI between fiscals 2019-2024. During this period, RBI made two upwards revisions in fiscal 2019, lifting the repo rate up from 6% in April 2018 to 6.5% in August 2018, to curb inflationary pressures. However, as the economic growth began to slow, the rate was gradually reduced to 4.0% in May 2020, to encourage borrowings and demand in the economy. This low rate was maintained throughout the pandemic to support recovery of the economy. RBI started increasing the repo rate from May 2022 and

gradually pushed it to 6.5% by February 2023 in an attempt to combat rising inflation. Since February 2023, the repo rate has remained at 6.5%, indicating a continued focus of RBI on ensuring maintenance of the economic growth while still addressing inflationary pressures.

Demographic Drivers

Population & Age-Dependency Ratio (in cr., % of working-age population)

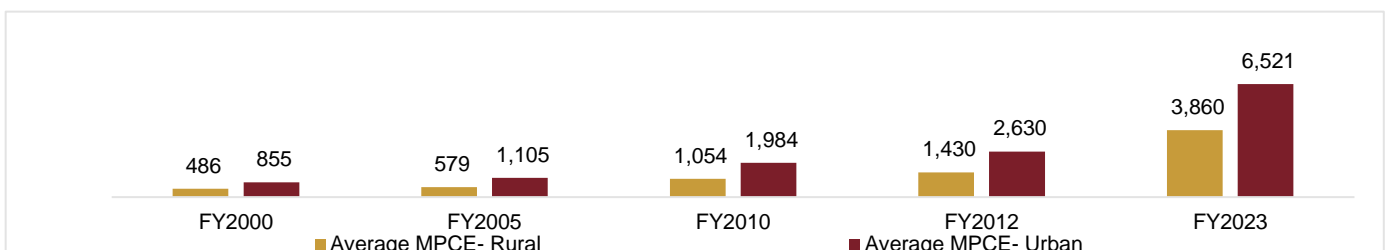


Source: World Bank

Cr: Crores

India's population has risen from approximately 137 cr. in 2018 to approximately 143 cr. in 2023, indicating a rise of around 4-4.5% during the period. Age-dependency ratio, as expressed in percentage, is the number of economically dependent people (i.e. people aged lesser than 14 and more than 65) relative to the number of working people (i.e. the people with age between 14 and 65). This ratio has been showing a decreasing trend, falling from ~50% in 2018 and ~47% in 2023, indicating that India is getting richer in working age population and is contributing to a larger labor force, which is crucial for economic growth. This also indicates that a larger number of people are entering the workforce in India each year.

Household Consumption per capita (in ₹)

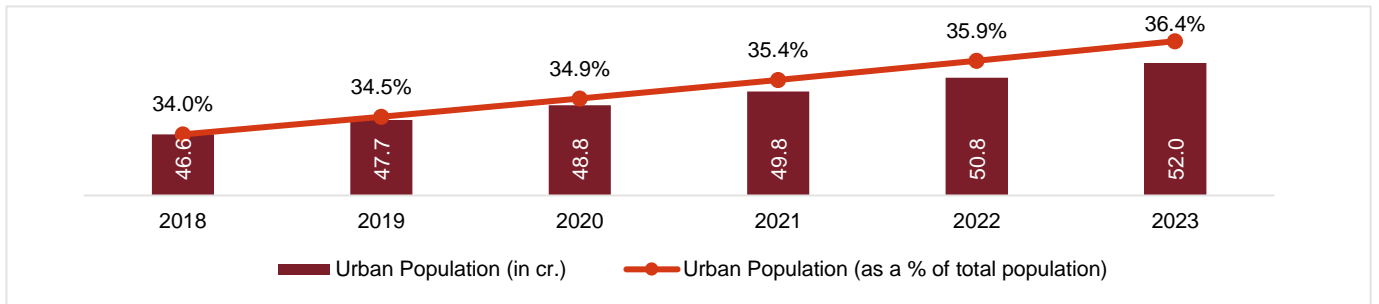


Source: Household Consumption Expenditure Survey 2022-23, Ministry of Statistical and Programme Implementation

Note: 2022-23 figures include imputation. For the years 1999-00 & 2004-05, estimates are based on Mixed Reference Period (MRP) and figures for the years 2009-10, 2011-12 and 2022-23 are based on Modified MRP (MMRP).

Monthly Per Capita Expenditure (MPCE) is the average monthly consumer expenditure per person and is an indicator of the level of consumption activities in India. During the period between fiscals 2000 and 2023, the average MPCE-rural and MPCE-urban, increased at a CAGR of 9-9.5%, each, to ₹ 3,860 and ₹ 6,521, respectively, in fiscal 2023. This remarkable growth highlights the ongoing economic progress, improving disposable income levels, and increasing living standards amidst the expanding consumer base in India.

Urban Population & Urbanization (Population in cr, urban population as % of total population)



Source: World Bank

India's urban population increased from approximately 46.6 cr. in 2018 to approximately 52 cr. in 2023, registering a growth of around 11.5% during the period. The growth in the urban population during this period has remained greater than the growth in overall population in India, resulting in the growth of percentage share of urban population in the India's overall population from 34% in 2018 to ~36.4% in 2023. This steady growth in both urban population and urbanization percentage underscores significant shifts in India's demographic landscape, with profound implications for economic development, infrastructure needs, and social dynamics. This growth also suggests ongoing rural-to-urban migration driven by various factors, including the pursuit of better employment opportunities, improved living standards, and access to education and healthcare.

3. Global steel industry overview

3.1 Global steel production and demand

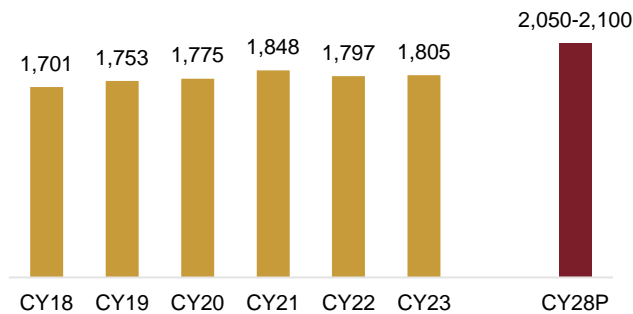
3.1.1 Global production

In CY 2022, global finished steel production declined for the first time in seven years owing to reduced demand, leading to rangebound production. Between CY 2018 and CY 2022, the sector logged a compound annual growth rate (CAGR) of 1.4%. In CY 2022, India was among the top five steel-producing countries and witnessed 7.2% growth in output on-year.

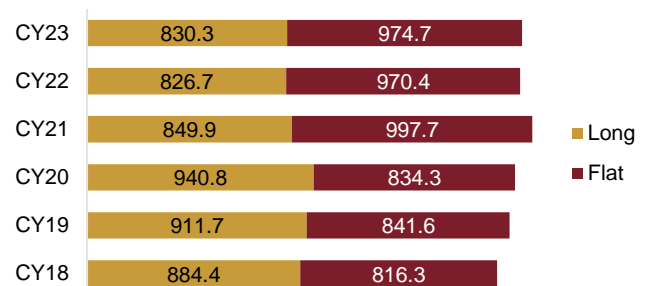
Flat-steel production declined during the year just like the overall steel output, because of global and regional factors, such as rising global interest rates, declining manufacturing and construction activity (notably in China) and Russia-Ukraine geopolitical uncertainty disrupting supplies of raw materials and energy (especially in Europe)

China and India maintained growth in production of hot rolled (HR) coils and plates, leading to a CAGR of 11.5% and 7.7% in global production of the products between CY 2018 and CY 2022.

Global finished steel production (MT)



Flat and long steel global production (MT)



Source: CRISIL M&A Consulting, World Steel Association 2024

E: Estimated; MT: million tonne

Country wise finished steel production trend (MT) and % share in global finished steel production

Country	2018		2019		2020		2021		2022		2023		5-year CAGR
	Prod. (MT)	Share (%)	Prod. (MT)	Share (%)	Prod. (MT)	Share (%)	Prod. (MT)	Share (%)	Prod. (MT)	Share (%)	Prod. (MT)	Share (%)	
China	877.3	51.60%	951.5	54.3%	1,037.8	58.50%	1,010.1	54.70%	1,000.6	55.70%	1,002.9	55.56%	2.7%
India	100.6	5.90%	104.1	5.90%	92.2	5.20%	112	6.10%	120.1	6.70%	132.1	7.32%	5.6%
Japan	92.4	5.40%	87.7	5.00%	73.8	4.20%	84.4	4.60%	78.7	4.40%	86.2	4.78%	-1.4%
United States	86.4	5.10%	87.3	5.00%	73.5	4.10%	85.9	4.60%	81.2	4.50%	81.1	4.49%	-1.3%
Russia	49.2	2.90%	49.9	2.80%	50.2	2.80%	55.7	3.00%	55.1	3.10%	57.4	3.18%	3.1%
South Korea	69.8	4.10%	68.3	3.90%	65.8	3.70%	69.1	3.70%	62.3	3.50%	65.4	3.62%	-1.3%

Prod.: Production; MT: million tonne

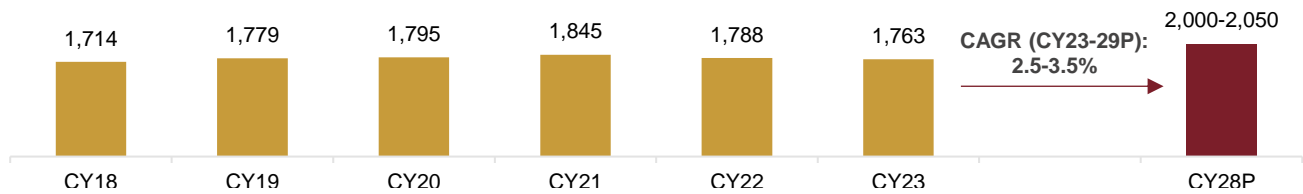
Prod. (MT) column refers to volume of finished steel produced by a particular country in the corresponding year in million tonnes. Share (%) column represents % share of the country in the global finished steel production volume in that corresponding year.

Source: CRISIL M&A Consulting, World Steel Association 2024

3.1.2 Global demand

In CY 2021, the demand for finished steel rose to 1,845 million tonnes per annum. It then dipped to 1,788 million tonnes per annum in CY 2022 and to 1,763 million tonnes per annum in CY 2023. In CY 2023, Chinese finished steel demand stood at 895.6 million tonnes per annum, more than 50% of the overall global demand. North America and India each accounted for approximately 7% of global demand each.

Global steel demand (million tonnes per annum)



Source: CRISIL MI&A Consulting, World Steel Association 2024

Country wise finished steel consumption trend (MT)

Country	2018		2019		2020		2021		2022		2023	
	Volume	Share	Volume	Share	Volume	Share	Volume	Share	Volume	Share	Volume	Share
China	836.1	48.80%	911.9	51.30%	1,008.20	56.20%	954.4	51.70%	925.7	51.80%	895.7	50.81%
India	96.7	5.60%	102.6	5.80%	89.3	5.00%	106.2	5.80%	116.2	6.50%	133.4	7.57%
United States	99.8	5.80%	97.7	5.50%	80	4.50%	97.1	5.30%	94.5	5.30%	90.5	5.13%
Japan	65.4	3.80%	63.2	3.60%	52.6	2.90%	57.4	3.10%	55	3.10%	53.3	3.02%
South Korea	53.7	3.10%	53.2	3.00%	49.2	2.70%	56	3.00%	51.3	2.90%	54.7	3.10%
Russia	41.3	2.40%	43.5	2.40%	42.3	2.40%	43.9	2.40%	41.7	2.30%	44.6	2.53%

Note: Volume column refers to volume of finished steel consumed by a particular country in the corresponding calendar year. Share column represents % share of the country in the global finished steel consumption in that corresponding calendar year.

Source: CRISIL MI&A Consulting, World Steel Association 2024

3.2 Global steel pipes and tubes

Globally, steel pipes and tubes are broadly categorized into types: 1) welded pipes and tubes and 2) seamless pipes and tubes. There is another category of steel pipes which is referred to as hollow section pipes, which can either be welded or seamless in nature.

Welded pipes are generally used in transportation of water, oil, or gases in large quantities, i.e. for less corrosive and low-pressure environments. They are made by forming coils of steel into round or circular shape by a roller or plate bending machine. They can be further classified into two types, namely ERW (electric resistance welded) pipes and SAW (submerged arc welded) pipes.

Seamless pipes, on the other hand, are used in process piping, power piping, construction, and chemical industries and in the environments of high pressure, temperature, and corrosion.

Hollow section pipes (both seamless and welded types) have a high strength-to-weight ratio, excellent durability and high corrosion resistance, and are majorly used in engineering and construction industries. Particularly, these pipes are an ideal choice for making mechanical structures such as scaffolding towers; vehicle frames and columns; and architectural structures such as roof trusses.

3.3 Steel pipes and tubes – global production

As of 2022, China is the global leader in the production of steel pipes and tubes, followed by Russia and India. In 2022, China accounted for more than 60% of pipes and tubes produced globally. India's share in global production volume of steel pipes and tubes increased from 3% in 2019 to over 5% in 2022. The overall production of steel pipes and tubes (both welded and seamless pipes and tubes) decreased on-year by over 5% in 2022 to approximately 132 million tonnes owing to supply related constraints caused by geopolitical conflicts.

Global tubular pipes production (volume in million tonnes)

Country	CY18		CY19		CY20		CY21		CY22	
	Volume	Share	Volume	Share	Volume	Share	Volume	Share	Volume	Share
China	73.2	58.2%	84.2	60.8%	89.5	64.4%	89.3	64.0%	82.6	62.6%
Russia	11.8	9.4%	11.9	8.6%	10.3	7.4%	11.1	7.9%	12.7	9.7%
India	-	0.0%	4.2	3.0%	6.7	4.8%	5.8	4.2%	6.9	5.2%
Japan	6.6	5.3%	6.2	4.5%	4.8	3.5%	5.1	3.7%	5.0	3.8%
South Korea	5.0	4.0%	4.6	3.4%	4.5	3.2%	4.6	3.3%	0.1	0.1%
Others	29.1	23.1%	27.3	19.7%	23.1	16.7%	23.6	16.9%	24.6	18.6%
Total	125.8	100.0%	138.5	100.0%	139.0	100.0%	139.5	100.0%	131.9	100.0%

Source: CRISIL MI&A Consulting, World Steel Association 2024

P: Projected

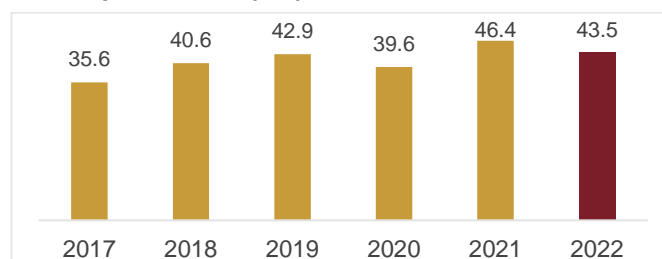
Note:

1. Data for India is not reported for CY 2018.
2. Volume column refers to volume of steel pipes and tubes produced by a particular country in the corresponding calendar year. Share column represents % share of the country in the global production volume of steel pipes and tubes in that corresponding calendar year.

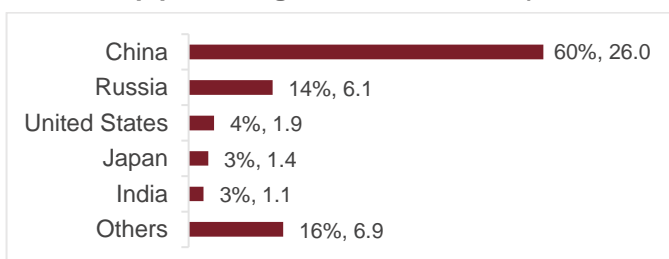
3.3.1 Seamless pipes and tubes

The global production volume of seamless pipes and tubes amounted to 43.5 million tonnes in 2022, rising from 35.6 million tonnes in 2017 at a CAGR of approximately 4% between 2017 and 2022. In 2022, China accounted for around 60% of the global production volume of seamless pipes and tubes with a production volume of 26 million tonnes. India, which accounted for around 3% share in global seamless pipes and tubes production volume, emerged as the fifth largest producer with a production volume of 1.1 million tonnes in 2022.

Global production (MT)



Top producing countries in 2022 (% share, MT)



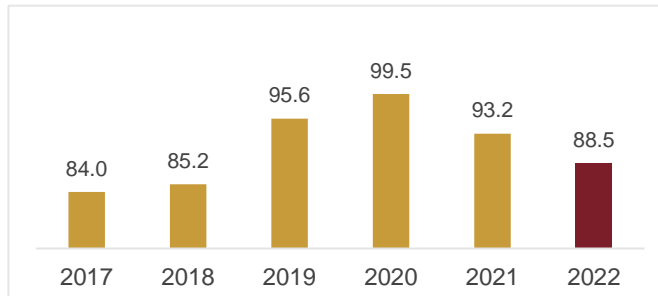
P: Projected; MT: million tonnes

Source: CRISIL MI&A Consulting, World Steel Association 2024

3.3.2 Welded pipes and tubes

The global production volume of welded pipes and tubes amounted to 88.5 million tonnes in 2022, slightly rising from 84 million tonnes in 2017 at a CAGR of approximately 1% between 2017 and 2022. In 2022, China accounted for around 64% of the global production volume of welded pipes and tubes with a production volume of ~57 million tonnes. India, with around 7% share in the global welded pipes and tubes production volume, emerged as the third largest producer with a production volume of 5.8 million tonnes of welded pipes and tubes in 2022.

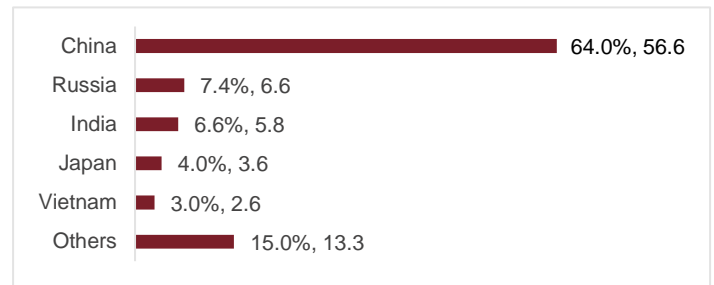
Global production (MT)



P: Projected; MT: million tonnes

Source: CRISIL MI&A Consulting, World Steel Association 2024

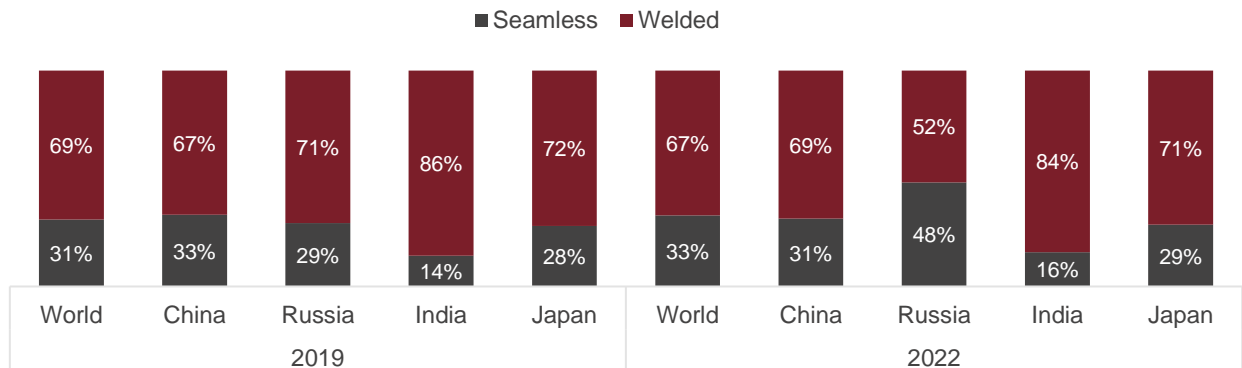
Top producing countries in 2022 (% share, MT)



3.3.3 Production share of welded and seamless pipes and tubes

Welded tubes accounted for 67% share in the total tubular pipes manufactured globally in 2022. In contrast, in India, welded tubes comprised a considerably higher share (84%) in 2022.

Share of seamless and welded pipes and tubes



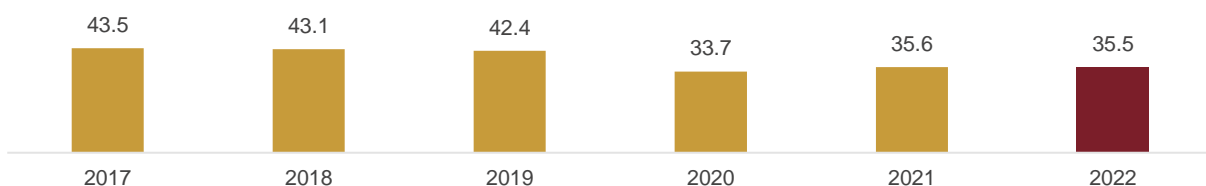
P: Projected

Source: CRISIL MI&A Consulting, World Steel Association 2024

3.3.4 Trade overview of steel pipes and tubes

Global trade flow of tubular pipes declined strongly by over -20% in 2020 to 33.7 million tonnes, as the trade activity slowed with the onset of the pandemic. In 2021, however, global trade flow increased by 5% on-year to 35.6 million tonnes, indicating revival of demand and resolution of supply chain issues.

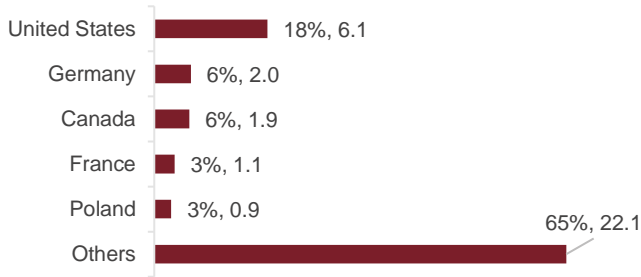
Global trade flow in million tonnes



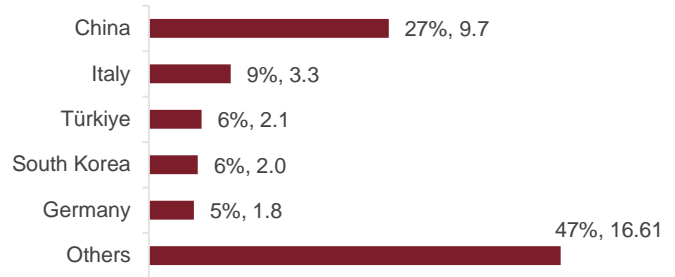
P: Projected

Source: CRISIL MI&A Consulting, World Steel Association 2024

Global imports in million tonnes, % share in overall global trade in 2022



Global imports in million tonnes, % share in overall global trade in 2022



P: Projected

Source: CRISIL MI&A Consulting, World Steel Association 2024

United states, which imported around 6 million tonnes of steel pipes and tubes, was the single largest importer of steel pipes and tubes in 2022. It was followed by Germany and Canada, which imported 2 and 1.9 million tonnes of steel pipes and tubes in the year.

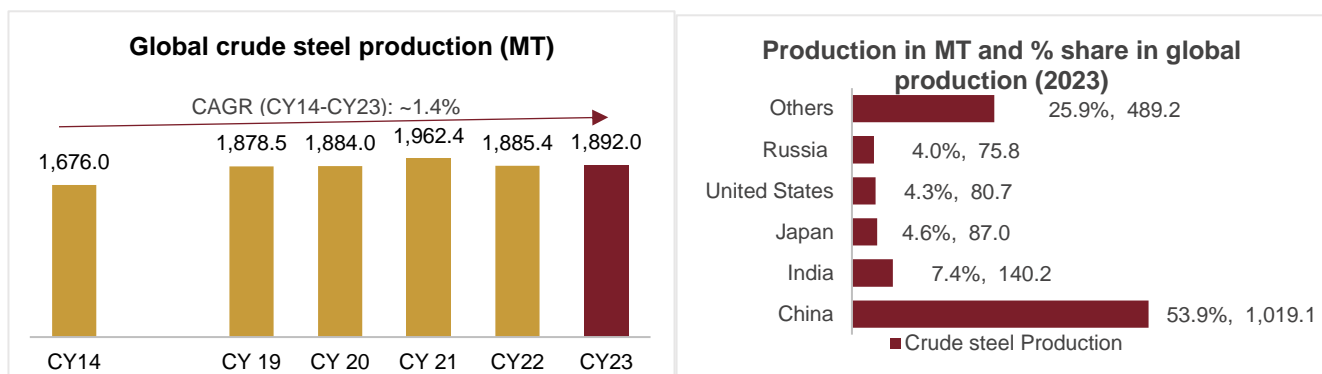
China was the leading exporter in 2022 with an export volume of 9.7 million tonnes of steel pipes and tubes. China was able to hold a high share of 27% in the overall global export volume of steel pipes and tubes in 2022 (significantly greater than the second largest exporter Italy with a share of 9%) on the back of its globally competitive prices supported by low production, labour, and real estate costs.

4. Indian steel industry overview

4.1 India's position in global market

During the last 9-year period i.e., between CY 2014 and CY 2023, the global crude steel production grew at a nominal CAGR of ~1.4%. Crude steel production has been largely rangebound over the past few years as it grew from 1,878 million tonnes in 2019 to 1,892 MT in 2023. China, which has been the largest steel producer in the world for a long period, produced 1,019 million tonnes of crude steel in 2023, accounting for approximately 54% of the total global crude steel production in the year. It was followed by India, which produced around 140 million tonnes of crude steel, accounting for a share of 7.4% in global crude steel production in 2023.

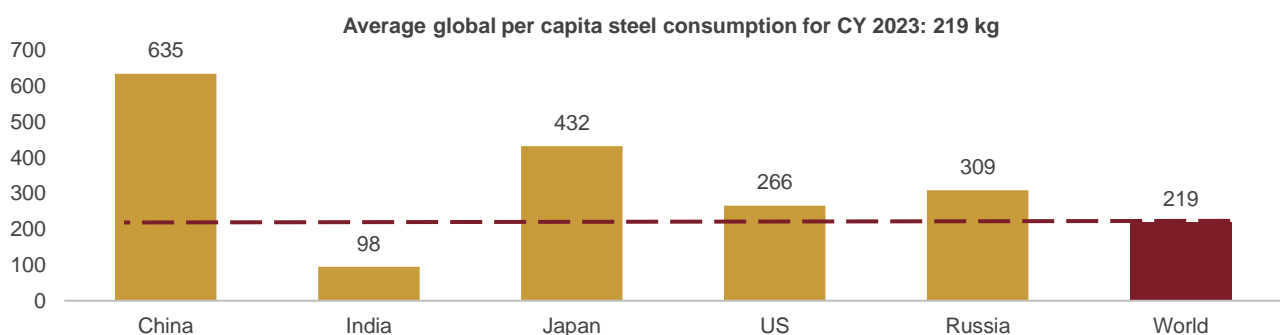
Global crude steel production from 2014 to 2023 and share of major countries in 2023



Source: World Steel Association

Global steel demand is also estimated to have remained flat on-year in 2023, at 1,763 MT, as per the World Steel Association, on the back of persistent elevated inflation and high interest rates in most economies. However, in India, the demand for finished steel in fiscal 2024 increased by 13-14% on-year to 136.2 MT³ backed by strong growth in construction and infrastructure segment.

Per capita steel consumption in India vis-à-vis global benchmarks



Note: For all countries apart from India, volume refers to 2023. For India, volume is as per fiscal 2024.

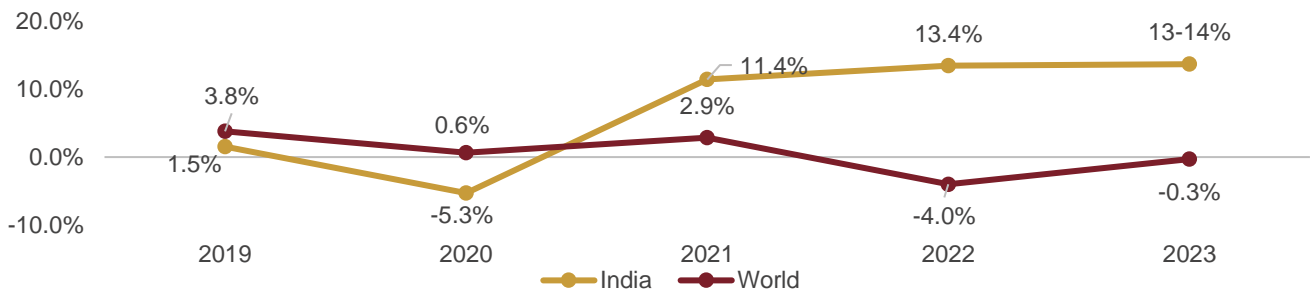
Source: World Steel Association, Worldometer.org

The global average per capita steel consumption was 219 MT in 2023. However, the US, Russia, Japan and China had higher steel intensity owing to significantly higher investment in infrastructure projects; hence, their per capita steel consumption is above the world average.

³ Complete Indian steel demand side analysis is detailed out in section 4.5 of this report

On the other hand, India's per capita steel consumption was only at 98 kg in 2023 (i.e. fiscal 2024), which was less than half of the global average per capital steel consumption. However, with increasing thrust on infrastructure development, the underpenetrated Indian steel market holds considerable growth potential.

4.2 Growth in Indian steel demand vis-à-vis global steel demand



Source: World Steel Association, CRISIL MI&A Consulting, Industry

Note: Years mentioned on the horizontal axis correspond to calendar years for the world; for India, these correspond to nearest fiscal years, for example, year 2019 corresponds to FY20 and so on

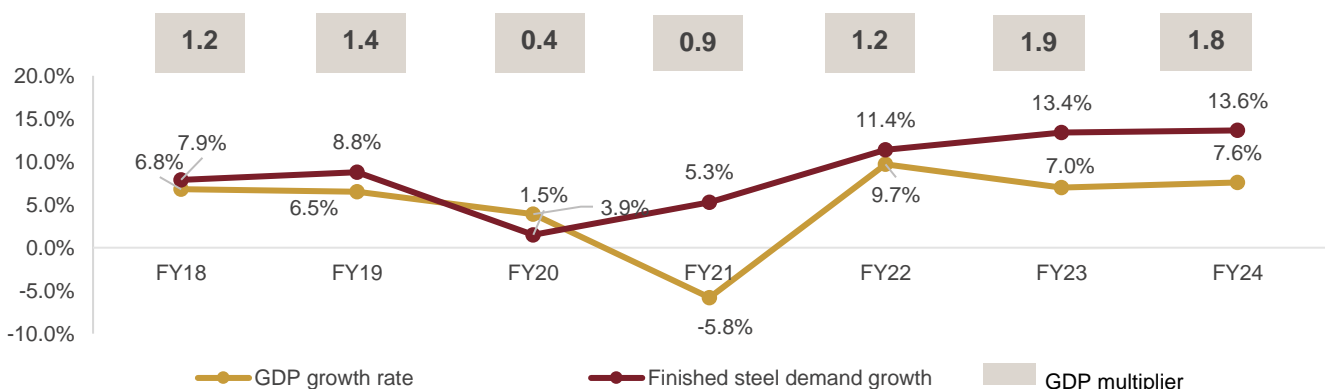
At the global level, all major economies registered an on-year decline in steel demand in CY20 owing to COVID-19 led disruptions in key end use industries. However, in that year, the demand for steel in China grew by around 9-10% on-year, on account of the country's quick recovery from the first wave of Covid-19 and a receipt of a stimulus package to spur industrial and economic activity. This pushed the average on-year demand growth of finished steel above that of India in the fiscal. In 2021 and the following years, the steel demand in India rebounded strongly led by recovery of economic activity post pandemic and pent-up demand from major steel consuming sectors.

4.3 Steel demand-GDP growth correlation

Given the huge population and low level of per capita steel consumption in India, the steel industry has the potential to become a key economic growth driver of the country. A comparative analysis between steel demand increase and the country's GDP growth shows that the former outpaced the latter between fiscals 2018 and 2023, except fiscals 2020 and 2021. While fiscal 2020 saw slowdown in major steel consuming sectors (automobile, construction and infrastructure), fiscal 2021 witnessed pandemic-led country-wide lockdowns.

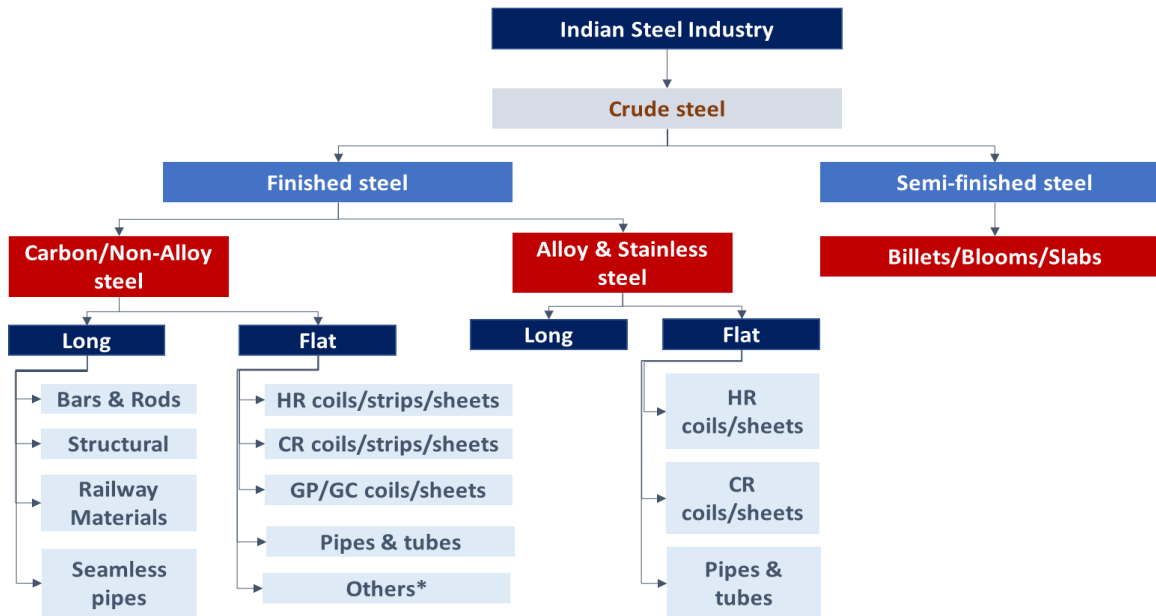
In fiscal 2023, the ratio of steel demand growth to GDP growth reached 1.9 owing to recovery in economic activity from the lows of the pandemic and a strong pent-up demand from the key steel consuming sectors. Despite a slight moderation to 1.8 in fiscal 2024, the ratio/GDP multiplier has managed to remain higher than the pre-pandemic levels.

Finished steel demand growth vs GDP growth



Note: Figures in boxes represent steel demand growth-to-GDP growth multiplier
Source: CRISIL MI&A Consulting, industry

4.4 Structure of Indian steel industry



* Others include prime plate plates, hot strip mill plates, colour-coated coils/sheets, electrical coils/sheets, tin plates, tin-free steel, tin mill black plates, pipes, etc
Source: CRISIL MI&A Consulting, industry

Note: Pipes and tubes included under both flat carbon/non-alloy steel segment and flat alloy & stainless steel segment include hollow section pipes and welded pipes. Further, seamless pipes under long segment also includes hollow section.

4.4.1 Types/definition of steel

By product



Long products: Finished long steel products are typically produced by hot rolling/forging of bloom/billets/ingots into useable shape/sizes. These are normally supplied in straight length/cut length, except wire rods, which are supplied in wound coils. The different types of long products include bar and rods (thermo-mechanically treated (TMT) bars, wire rods, round bars, etc), structural steel (angles, channels, beams, fabricated sections, girders, etc), and railway materials.



Flat products: Flat products are produced from slabs/thin slabs in rolling mills using flat rolls, and comprise HR and cold rolled (CR) coils, coated products, etc. HR flat products are produced by re-rolling slabs/thin slabs at high temperature (above 1,000°C) in plate mills or in hot strip mills. CR coils/strips are produced by cold rolling HR coils/strips in cold rolling mills (normally at room temperature). CR coils/strips/sheets are characterised by lower thickness, better/bright finish and specific mechanical/metallurgical properties.

By composition

Alloy steel: Steel that is produced with one or more elements in specified proportions to impart specific physical, mechanical, metallurgical and electrical properties is called alloy steel. Stainless steel is a type of alloy steel.

Alloy/stainless steel is manufactured in different grades, with varying proportions of carbon and other elements. Common elements used to make alloys are manganese, silicon, nickel, lead, copper, chromium, tungsten, molybdenum, niobium and vanadium.

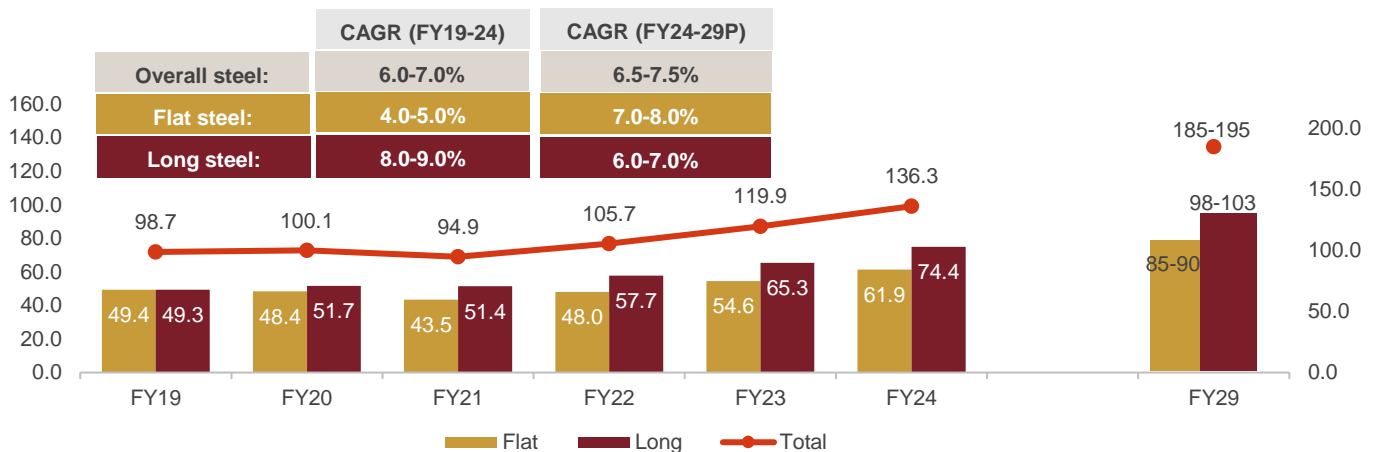
Alloy/stainless steel is used in forgings, tools and dies, bearings, fasteners, etc, which are subsequently used by end-use sectors such as automobiles, power, oil and gas, industrial machines, railways/mass rapid transport systems and defence to manufacture products such as crankshafts, connecting rods, cam shafts, bearings, fasteners, railway carriage wheels, bomb shells, cutting tools, surgical instruments and utensils.

Non-alloy steel: Non-alloy or carbon steel comprises iron and carbon. It is the most produced variant of steel (93-95% share of India’s finished steel production in the past five years). The main components are carbon, manganese and silicon in proportions of up to 1.70%, 0.90% and 0.30%, respectively. A change in the composition of carbon affects the properties of carbon steel. Steel, by definition, does not contain any alloying element.

Non-alloy steel is used in end-user sectors such as construction, infrastructure, automobiles, consumer durables, etc. Popular applications include buildings, bridges, rails, pipelines, body panels for cars, refrigerators and washing machines.

4.5 Indian steel demand review and outlook

The domestic steel industry logged a healthy CAGR of 6-7% between fiscals 2019 and 2024, rising to 136.2 MT in fiscal 2024, thanks to the aggregate effect of growth in the end-use sectors of steel (automobile, infrastructure and construction) and market volatility during the pandemic.



E: Estimated; P: Projected

Source: Joint Plant Committee (JPC), CRISIL MI&A Consulting

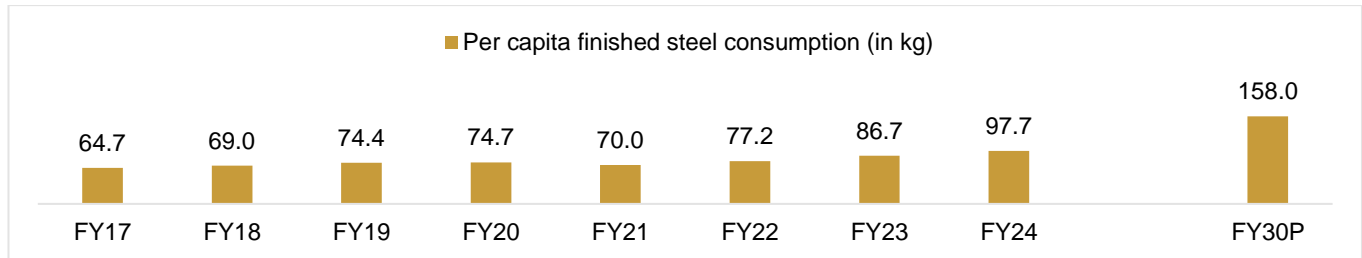
The domestic steel demand decreased in fiscal 2021 owing to pandemic led subdued demand in key end use sectors of steel. In fiscals 2022 and 2023, the domestic steel demand grew 11% and 13% on-year, respectively, on the account of pent-up demand in key end-use sectors after a pandemic-led slowdown in the previous fiscals, restoration of economic activities, and revival of consumer sentiments post pandemic. In fiscal 2024, the demand for finished steel further increased on-year by around 14% primarily owing to a growth in automobile demand on the back of increased disposable income levels, a growth in housing and construction sector primarily led by government’s affordable housing schemes, and an increase in government led capital expenditure in the infrastructure segment in the run-up to the 2024 general elections

Demand for long steel as well as flat steel increased at similar CAGRs of 13-14% between fiscals 2022 and 2024 due to robust growths in primary end use industries of both steel segments. In particular, the demand growth for flat steel

was supported primarily by automobile and construction segments, while that for long steel was fuelled by strong infrastructure development sector.

Going forward, the domestic steel demand is expected to log a healthy CAGR of 6.5-7.5% over fiscals 2024-29, to rise to 185-195 MT in fiscal 2029. This growth will be led by healthy growth prospects in the key steel end-use sectors of building and construction, infrastructure, and automobile, with a strong push from government’s national steel policy.

Per capita steel consumption trend

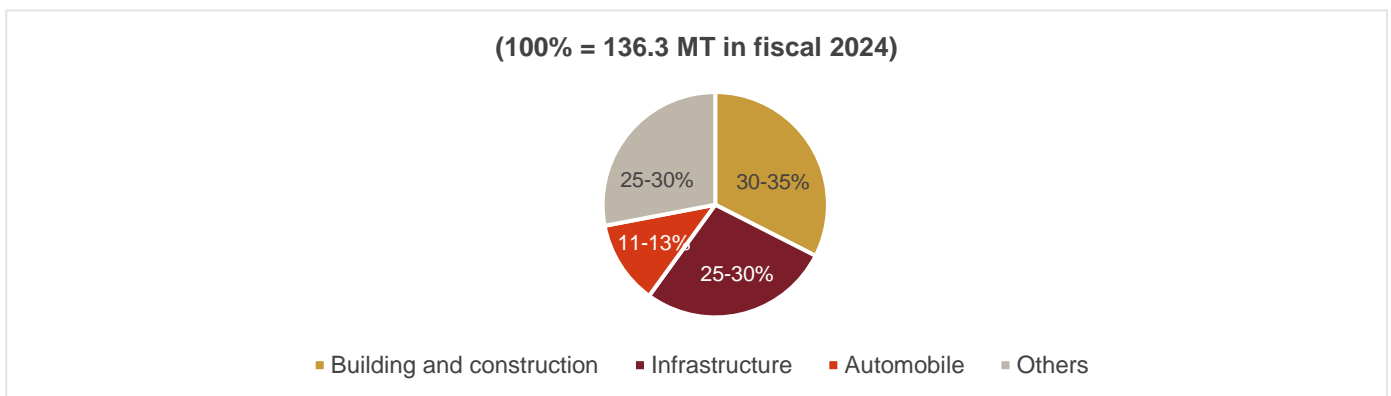


Source: CRISIL MIA Consulting, JPC

Note: The FY 2030 projection for the per capita steel consumption in India is based on the data provided by National Steel Policy, 2017

Per capita consumption of steel in India is expected to grow from an estimated value of 95.4 kg in fiscal 2024 to approximately 158 kg in fiscal 2030, on the account of strong expected growths in the key steel end-use sectors combined with a robust support from government policies.

End-use industry wise split of domestic steel demand (fiscal 2024)



Note: Others include consumer goods, consumer durables, aerospace, defence, transport sectors, etc.

MT: million tonnes

Source: CRISIL MI&A, industry

• Building and construction

Steel demand from building and construction (B&C) accounts for 30-35% of aggregate finished steel demand. Over fiscals 2024-29, demand for steel from this segment is expected to clock a 5-6% CAGR, driven by:

- The government’s focus on execution of affordable housing
- Robust rural housing demand against the backdrop of the government’s continued focus on rural development, and higher minimum support prices
- Improvement in urban housing demand owing to increased commercialisation of tier 3 and 4 cities, led by better infrastructure connectivity

• Infrastructure

The infrastructure segment is currently the second-largest consumer of steel, accounting for 25-30% of the aggregate finished steel demand. Within the infrastructure space, roads, and highways, along with railways (including metros), account for 50-60% of steel demand. Other significant contributors include sectors such as irrigation, dams, water

supply and sanitation. Demand from this sector is expected to remain healthy, led by increasing activities and swift pace of execution in steel-intensive segments such as railways.

Further, in Budget 2024-25, the government laid special focus on infrastructure development, as indicated by the following announcements:

- Rs 11.11 lakh cr., which is around 3.4% of India’s GDP, has been allocated for capital expenditure for infrastructure sector
- The gross budgetary support for Railways sector has been set at ₹ 2.52 lakh cr., which is significantly higher than previous years’ allocations
- The centre extended the long term interest-free loan to states, with an outlay of ₹ 1.50 lakh cr. to boost infrastructure
- The government allocated ₹ 26,000 cr. for multiple road connectivity projects across states
 - This will include the Bharatmala Pariyojana, which aims to develop 65,000 km of national highways, and the creation of expressways to facilitate faster and more efficient transportation.
- Industrial nodes will be set up on industrial corridors in the country; for example, an industrial node at Gaya will be developed on Amritsar-Kolkata Industrial Corridor
- The government also launched the fourth phase of Pradhan Mantri Gram Sadak Yojana for 25 rural areas in the country to provide last mile connectivity
- The government allocated ₹ 2,377 cr. for ministry of ports, shipping and waterways
 - This allocation aims to enhance port infrastructure, improve cargo handling capabilities, develop new ports to accommodate the growing maritime trade, and to develop inland water ways for transportation

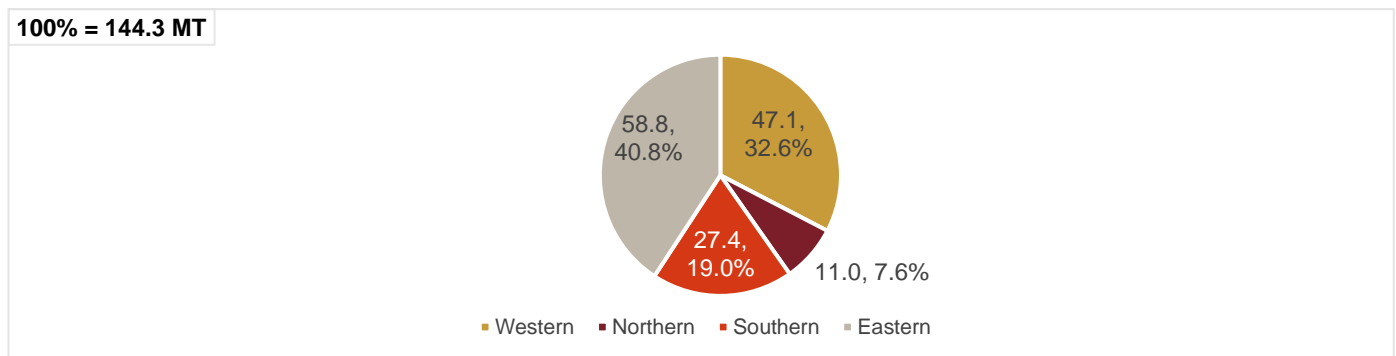
Note: Overall, the infrastructure segment accounts for ~25-30% of the aggregate finished steel demand. Within the segment, roads and highways, and the railways (including metros), account for 50-60% of infrastructure segment driven steel demand. Other significant contributors include sectors, such as irrigation, dams, water supply and sanitation.

• **Automotive**

The automotive sector accounts for 11-13% of aggregate finished steel demand. After a slowdown in fiscal 2022, fiscal 2023 witnessed resolution of the supply side issues and an improved consumer sentiment, thereby fuelling growth in the sector. Going forward, the industry is expected to grow at a healthy CAGR of 6-8% during fiscals 2024-2029 owing to growing public preference for personal vehicles, easy financing options, improving living standards and increasing income levels of rural and urban population.

4.5.1 Steel production and demand segregation by region

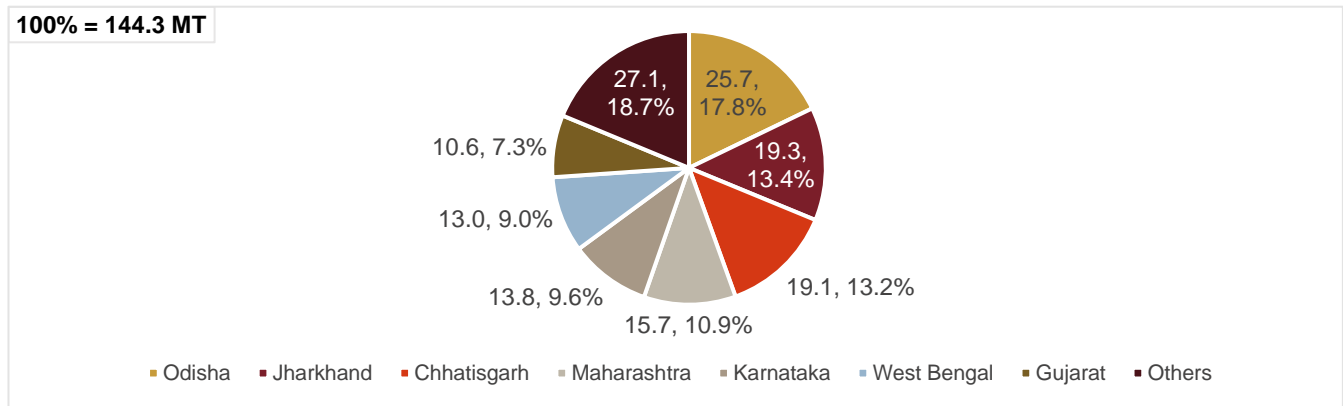
Region-wise crude steel production (in MT and % share in overall domestic crude steel production) (FY24)



Source: CRISIL MI&A Consulting, JPC Statistics 2023-24
MT: million tonnes

The eastern region of India accounted for the biggest share (~41%) in domestic crude steel production in the fiscal, amounting to 58.8 MT primarily on the account of high availability of raw materials and consumables such as iron ore, coal, etc. in the eastern states of Jharkhand and Odisha.

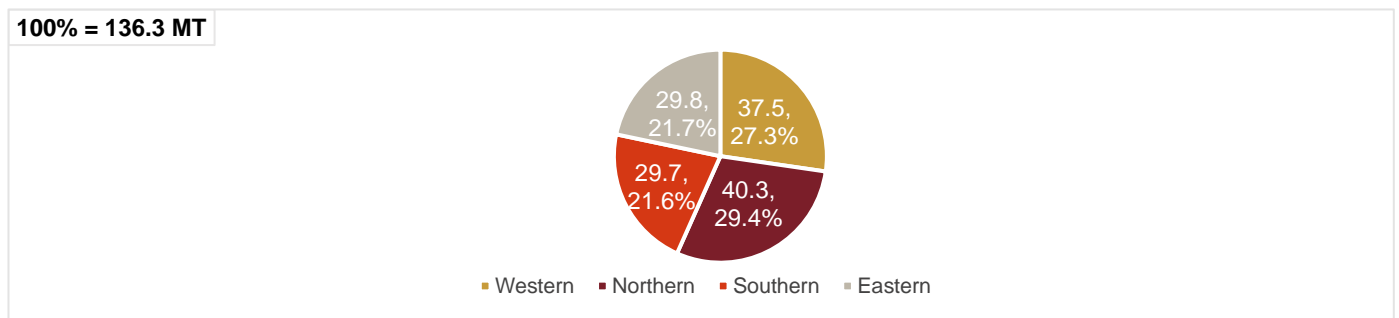
State-wise crude steel production (in MT and % share in overall domestic crude steel production) (FY24)



Source: CRISIL MI&A Consulting, JPC Statistics 2023-24
MT: million tonnes

Odisha and Jharkhand were the leading crude steel producing states in India, with respective shares of 18% and 13% in the overall domestic crude steel production in fiscal 2024, primarily on the account of high abundance of raw materials and presence of major integrated steel plant producers' manufacturing facilities in these states.

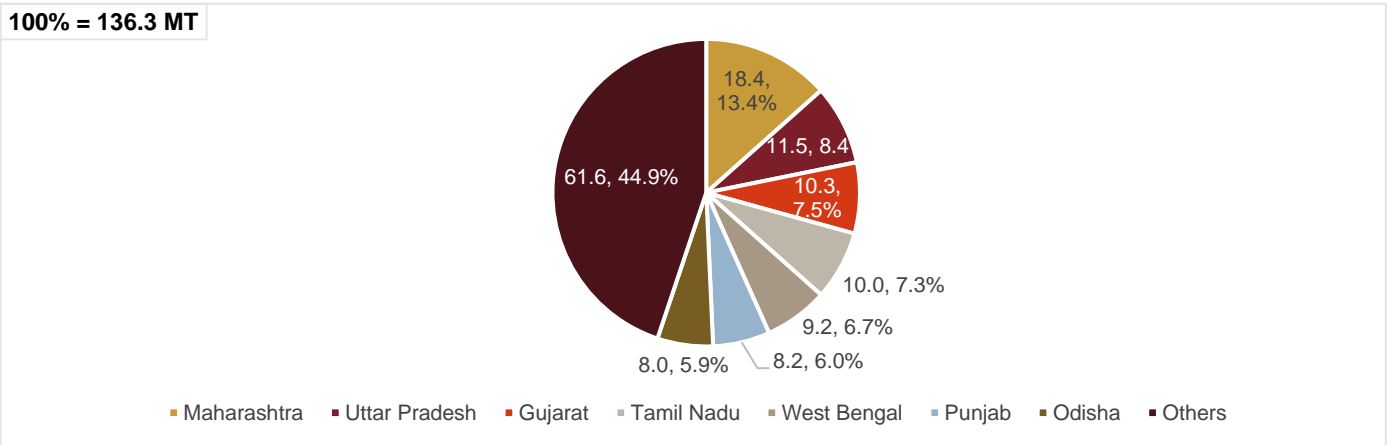
Region-wise finished steel demand (in MT and % share in overall domestic finished steel demand) (FY24)



Source: CRISIL MI&A Consulting, JPC Statistics 2023-24
MT: million tonnes

Western and northern regions of India accounted for a cumulative share of around 57% in domestic finished steel demand. This high share is on the account of high consumption of steel in fast paced infrastructural development activities happening in the northern and western regions of the country.

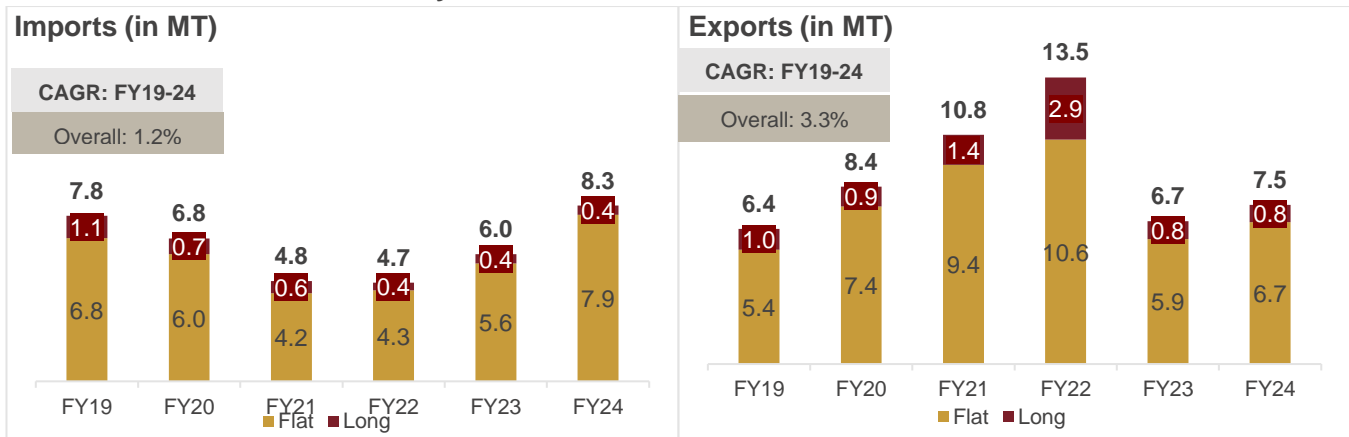
State-wise finished steel demand (in MT and % share in overall domestic finished steel demand) (FY24)



Source: CRISIL MI&A Consulting, JPC Statistics 2023-24
MT: million tonnes

In fiscal 2024, Maharashtra was the single largest consumer of finished steel, accounting for a share of around 13% in overall domestic finished steel demand, primarily on the back of multiple infrastructure development projects, increasing industrialization and improving real estate sector in the state.

Indian finished steel trade analysis



Source: CRISIL MI&A, industry, JPC
MT: million tonnes

Steel imports in India largely remained rangebound during period between fiscals 2019 and 2024. During this period, the imports declined massively by -30% on-year to 4.8 million tonnes in fiscal 2021, primarily on the account of a decrease in domestic demand. The import volume remained rangebound in fiscal 2022, before increasing at a CAGR of over 30% during fiscal 2022-2024 period to clock 8.3 million tonnes in fiscal 2024. The strong growth in the import volume of steel in the last two fiscals happened on the account of a strong recovery post pandemic, wherein the domestic demand increased at a CAGR of 13-14% between fiscals 2022 and 2024. Further, the imports of cheaper steel from China and Vietnam rose strongly in fiscals 2023 and 2024 which led to a strong increase in the overall import volume during the last two fiscals.

The export volume, on the other hand, increased on-year by around 29% to 10.8 million tonne in fiscal 2021 primarily because of COVID-19 led subdued domestic demand and an increased domestic production during the fiscal. The growth momentum continued in fiscal 2022 as well, post which the export volumes declined massively by around -50% on-year to 6.7 million tonnes in fiscal 2023. The sharp decrease in the finished steel export volumes in fiscal 2023

happened on the account of tough competition faced by India-made steel from cheaper foreign-made steel in the export market amid slowing global steel demand. The competitiveness of India-made steel was further hampered by the export tax imposed by the Indian government in May 2022. However, with withdrawal of said export tax in November 2022, the export volume of steel from India registered an on-year increase of ~11% in fiscal 2024 to clock 7.5 million tonnes.

Government policies influencing steel supply and demand

National Steel Policy

The National Steel Policy (NSP), approved in May 2017 by the Union Cabinet, seeks to increase domestic steel consumption, ensure high-quality steel production, and create a technologically advanced and globally competitive steel industry.

NSP's vision for demand, supply and trade

- Increase steel consumption across the infrastructure, automotive and housing sectors, resulting in a potential rise in per capita steel consumption to 158 kg by fiscal 2030 from ~65 kg in fiscal 2017
- Achieve 300 MT of steelmaking capacity by 2030 through additional investments of ₹ 10 lakh cr.
- Produce steel domestically for high-end applications such as electrical steel (cold-rolled grain-oriented), special steel, and alloys for power equipment, aerospace, defence and nuclear applications
- Eliminate reliance on steel imports and increase steel exports to ~24 MT by 2030

Indian steel industry: Historical trend and vision under NSP

Parameter (MT)	NSP 2005	NSP 2017	FY23	FY24
	FY20	FY30	Actual	Actual
	(Target)	(Target)		
Crude steel capacity		300	161.3	~178.0*
Crude steel production	110	255	127.2	144.0
Finished steel demand	90	230	119.9	136.2
Finished steel import	6	0	6.0	8.3
Finished steel export	26	24	6.7	7.5

Note: FY24 estimates are based on April 2023-March 2024 provisional data released by JPC in its March 2024 MIS report

**Fiscal 2024 crude steel capacity is estimated based on capacity additions by ISPs during the fiscal*

MT: million tonnes

Source: CRISIL MI&A, NSP 2005, NSP 2017, JPC

Domestically Manufactured Iron & Steel Products (DMI&SP)

Domestically manufactured iron & steel products (DMI&SP) include those iron and steel products which are manufactured by entities that are registered and established in India (including special economic zones (SEZs)). Further, such products shall meet the criteria of domestic minimum value-addition.

- The policy, approved by the government in 2017 and revised in 2020, mandates to provide preference in government procurement, to domestically manufactured iron & steel products in which a minimum of 20% value addition has taken place domestically
- This policy is intended to prefer domestically produced steel products, encourage domestic production as well as import substitution of steel, and promote growth in the industry.

Quality Control Order on Steel

- In fiscal 2024, the Ministry of Steel issued a fresh quality control regime for 145 steel products. As per this policy, any sub-standard or defective steel and steel product, which do not conform to the specified standard, shall be disposed as scrap.
- This way, the policy intends to ban sub-standard/ defective steel products (domestically sourced or imported) to ensure and enhance the availability of quality steel, conforming to the relevant BIS standards, to the industry and end-users.

Production Linked Incentive (PLI) scheme

Keeping in view India’s vision of becoming ‘Atmanirbhar’, an incentive outlay of ₹ 1.97 lakh cr. under the PLI scheme for 14 key sectors is underway to enhance the country’s manufacturing capabilities and exports. The implementation of the scheme across the sectors aims to attract investments (domestic and foreign) in the areas of core competency and apply cutting-edge technology; ensure efficiencies; create economies of scale and boost exports to make India an integral part of the global value chain.

Particulars	Amount
PLI scheme led investment	1.03 lakh cr.
PLI scheme production/sales	8.61 lakh cr.
PLI scheme led exports	3.20 lakh cr.
PLI led Employment generation	6.78 lakh

Note: All figures in the table are until November-December 2023

Benefits through PLI scheme

Large scale electronics manufacturing (LSEM) sector

- Manufacturing of various electronic components, such as batteries, chargers, printed circuit board (PCB), camera modules, passive components and certain mechanics have been localised in the country
- PLI beneficiaries account for only ~20% of the market share. However, they contributed to ~82% exports of mobile phones in fiscal 2023
- Production of mobile phones surged by more than 125% and exports increased ~4x since fiscal 2021
- Foreign direct investment increased ~254% since the inception of the PLI scheme for LSEM

Specialty steel sector

- Ministry of steel has kept a target of generating an investment of ₹ 29,500 cr., an additional capacity of 25 million tonnes for producing specialty steel grades and an additional employment to about 17,000 people between fiscals 2024 and 2028 through its PLI program
- In fiscal 2024 itself, an estimated investment of around ₹ 16,000 cr. has been made. In fiscal 2025, an investment of another ₹ 10,000 cr. is expected to be made into the sector through the PLI scheme
- As of Q4 2024, 5 of the selected manufacturing companies had started production

Government regulations to promote the domestic steel industry

In May 2022, the government imposed an export duty of 15% on an array of finished steel products and pig iron to improve the availability of steel in the domestic market to meet local demand and ease rising steel prices. To ensure better availability of raw materials, the government increased the export duty on 58% and above Fe-grade iron ore fines and lumps to 50% from 30% and imposed 45% export duty on iron ore pellets, while reducing the import duty on inputs for the steel industry such as coke, coal and ferronickel to zero.

Following the increase in export duty on steel products, India’s steel exports fell 59% on-year to 3.50 Million Tonnes over May-November 2022 as higher costs made exports unviable. However, steel availability increased, leading to a fall in domestic prices.

Prices corrected 20-25% in November 2022 in the domestic steel industry compared with the high rates in April 2022. Consequently, the government withdrew the export duty on raw materials and steel products in November to pull industry profits from the lows of the second quarter of fiscal 2022 and enable companies to tap higher margins in the overseas market. The duties applicable on steel products and its raw materials are summarised below:

Export duty on iron ore and steel intermediaries

Sl. No.	Product	Export duty (%) prior to May 22, 2022	Export duty (%) from May 22 to Nov 18, 2022	Export duty (%) after Nov 19, 2022
1.	Iron ore (lumps and fines <58% Fe)	Nil	50	Nil
2.	Iron ore (lumps and fines >58% Fe)	30	50	30
3.	Iron ore pellets	Nil	45	Nil
4.	Pig iron and spiegeleisen in pigs, blocks, or other primary forms	Nil	15	Nil
5.	Flat-rolled iron, Bars & rods of non-alloy and alloy steel products	Nil	15	Nil

Source: Ministry of Finance, PIB, CRISIL MIA Consulting

Import duty reimposed on raw materials of steel

Sl. No.	Product	Import duty (%) prior to May 22, 2022	Import duty (%) from May 22 to Nov 18, 2022	Import duty (%) after Nov 19, 2022
1.	A. Anthracite/pulverised coal injection (PCI) coal B. Coking coal	2.50	NIL	2.50
2.	Coke and semi-coke 0065	5.00	NIL	5.00
3.	Ferronickel	2.50	NIL	2.50

Source: Ministry of Finance, PIB, CRISIL MI&A Consulting

Factors affecting steel market value chain

Macroeconomy	<ul style="list-style-type: none"> With the global economy facing a slowdown, the government and individual spending is projected to slow down as well, affecting demand for steel Amid geopolitical challenges and major central banks raising interest rates to curb inflation, companies are experiencing pressure on their margins. Consequently, they are reducing production to align with the sluggish demand
Global demand-supply scenario	<ul style="list-style-type: none"> Typically, when global demand is high, steel availability in India for domestic consumption gets impacted. The cost of imported raw materials in India, such as iron ore and coking coal, can be affected by fluctuations in global demand and supply
Raw material prices	<ul style="list-style-type: none"> Raw materials account for ~70% of production cost in the steelmaking process. Iron ore, coal, melting scrap, etc., are the major raw materials used in steelmaking. Any variation in the prices of these raw materials can significantly affect the margins of steelmaking companies, thereby affecting their competitiveness
Raw material availability	<ul style="list-style-type: none"> India is self-sufficient in iron ore, but it has high dependence on imports for coal and scrap Factors such as regulatory issues, environmental concerns, international trade restrictions and logistical constraints pose challenges to the availability of raw materials Any disruption in the availability of raw materials can result in increased production costs, decreased profitability and reduced competitiveness for steel manufacturers

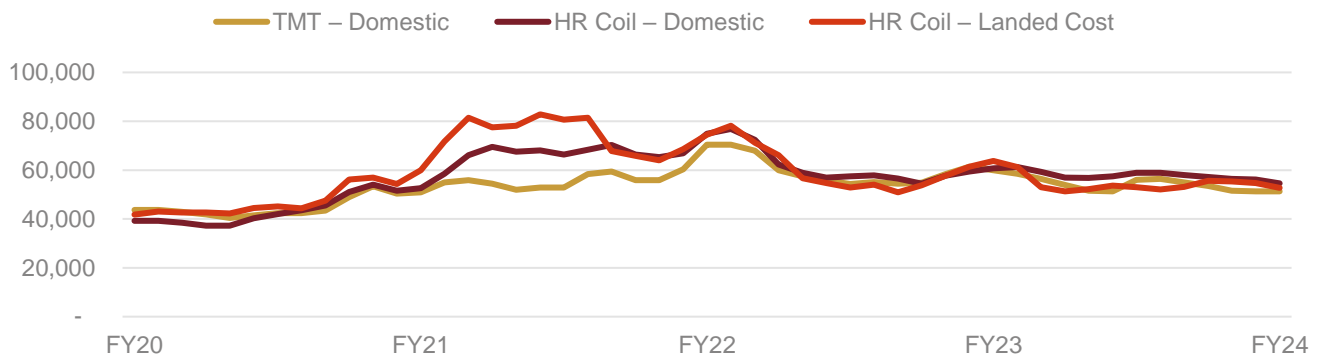
Decarbonisation

- With the global steel industry moving towards achieving net-zero emissions from its steelmaking process, major countries are imposing restrictions on the trade of steel that does not meet their decarbonisation standards
- The European Union (EU) has introduced the Carbon Border Adjustment Mechanism (CBAM) to support its rising climate ambition, which is expected to impact steel imports into the nation
- Trade restrictions negatively affect India's steel exports, thereby impacting the overall growth of the industry
- Domestic steelmakers are making capital investments to upgrade their facilities to produce green steel, in line with the government's climate targets and to remain competitive in the market

4.6 Trends in prices of steel and raw materials

Steel prices (₹ / tonne)

The domestic price of thermos-mechanically treated (TMT) bars and hot rolled (HR) coil and the landed cost⁴ of HR coil showed a parallel trend in the last few years with the prices reaching the peak of last 5 years in FY22 before witnessing a slight decline. In FY24, the domestic prices for TMT and HR coil were ₹ 51,309.7 per tonne and ₹ 54,550.0 per tonne respectively while the landed cost for HR coil was ₹ 52,694.1 per tonne.



Source: CRISIL MI&A Consulting

Note: For the landed cost of HR coil, prices of China were considered.

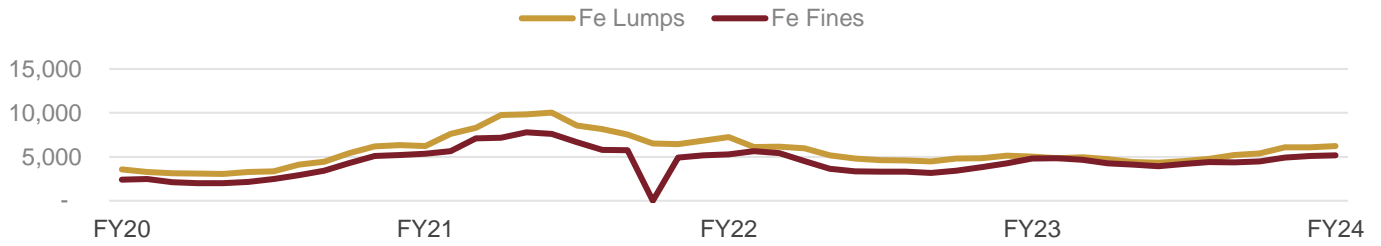
Average price in ₹ per tonne	FY20	FY21	FY22	FY23	FY24
TMT – Domestic	43,699.7	50,899.7	70,399.7	59,949.7	51,309.7
HR Coil – Domestic	39,200.0	52,550.0	74,850.0	60,750.0	54,550.0
HR Coil – Landed Cost	41,795.8	59,962.1	74,456.8	63,744.9	52,694.1

Note: The prices shown above are average for the corresponding fiscals

Iron ore (₹ per tonne)

The annual average prices of iron lumps and fines reached peak in fiscal 2022 during the last 5-year period primarily owing to underperformance of the supply of iron ore from three major exporters to India, namely Australia, Brazil, and South Africa amid geopolitical uncertainties in prices in fiscal 2022.

⁴ Landed cost: It includes currency exchange rate, basic customs duty of 7.5%, cess charges of 10% on basic customs duty, freight charges on a per tonne basis, and handling charges amounting to 2% of the import price



Source: CRISIL MI&A Consulting

Note: The prices are for iron ore grade with Fe content in 62-65% range

Average prices in ₹ per tonne	FY20	FY21	FY22	FY23	FY24
Fe Lumps	3,572.0	6,208.0	7,258.0	5,007.0	6,222.0
Fe Fines	1,697.0	4,593.0	4,526.0	4,805.0	4,708.0

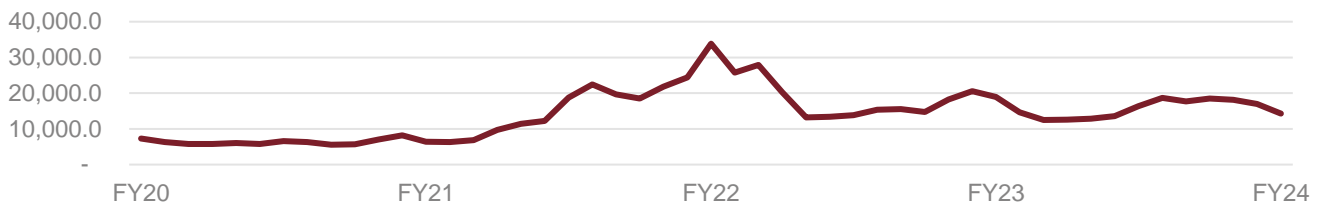
Source: CRISIL MI&A Consulting

Note: Grade considered was 62-65%

The prices shown above are average for the corresponding fiscals

Coking coal (₹ / tonne)

Coking coal prices followed growth similar to that of iron ore. The prices increased on-year in fiscal 2022, before dipping in the subsequent years.



Source: CRISIL MI&A Consulting

Note: Free on board (FOB) prices of Australia are considered for the above chart

Average prices in ₹ per tonne	FY20	FY21	FY22	FY23	FY24
Coking Coal	7,302.3	6,433.3	33,837.3	18,948.8	14,292.5

Source: CRISIL MI&A Consulting

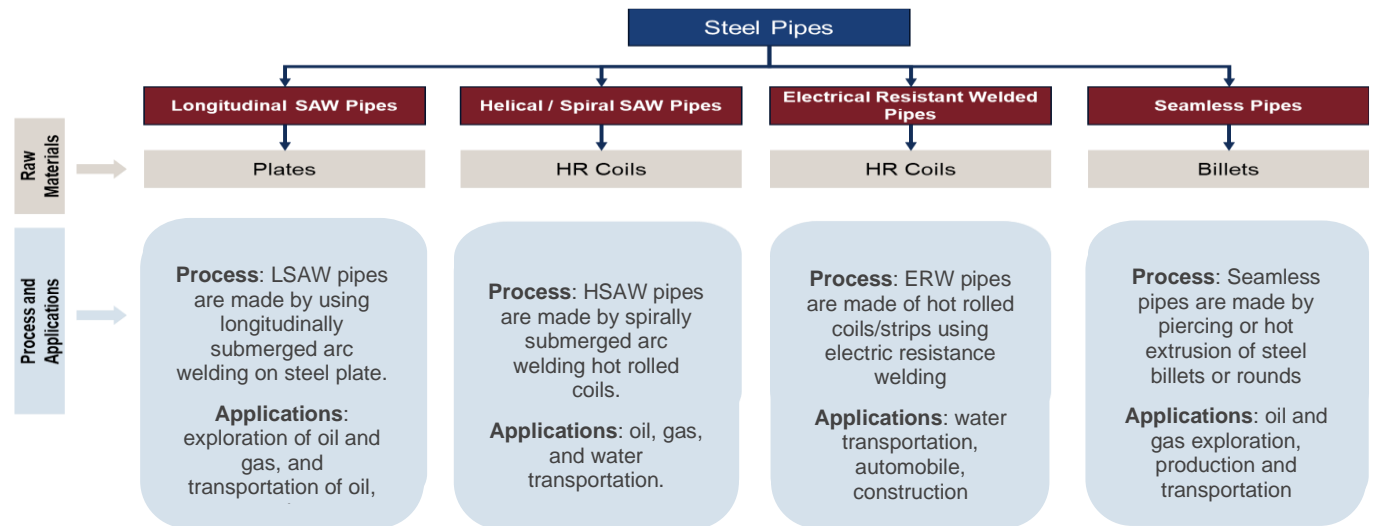
Note: FOB prices of Australia are considered for the above table. The prices shown above are average for the corresponding fiscals

5. Indian steel pipes industry

5.1 Overall steel pipes

Introduction to steel pipes and tubes

Steel pipe, being a key steel downstream product, finds applications primarily in the transport of liquid or gas—including oil, gas, and water and in the construction sector. Overall steel pipes and tubes manufacturing industry is highly fragmented with 100+ steel pipe manufacturers operating in the country.

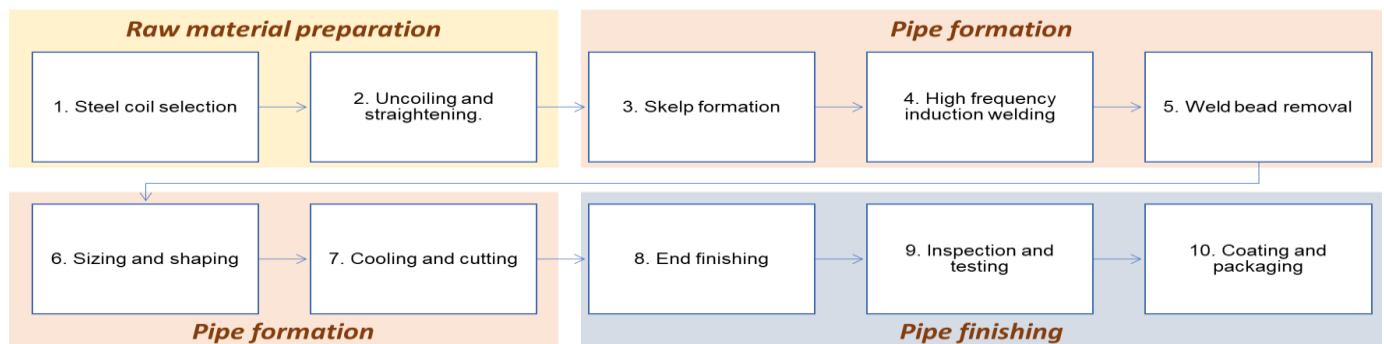


Source: CRISIL MI&A Consulting, JPC

Note: Sponge iron, another product of interest, is used as a key raw material in the steel making process in the electric arc furnace or induction furnace routes.

5.1.1 Manufacturing process for welded pipes and tubes

The manufacturing process of steel pipes involves several distinct steps, including raw material preparation, pipe formation, and pipe finishing.



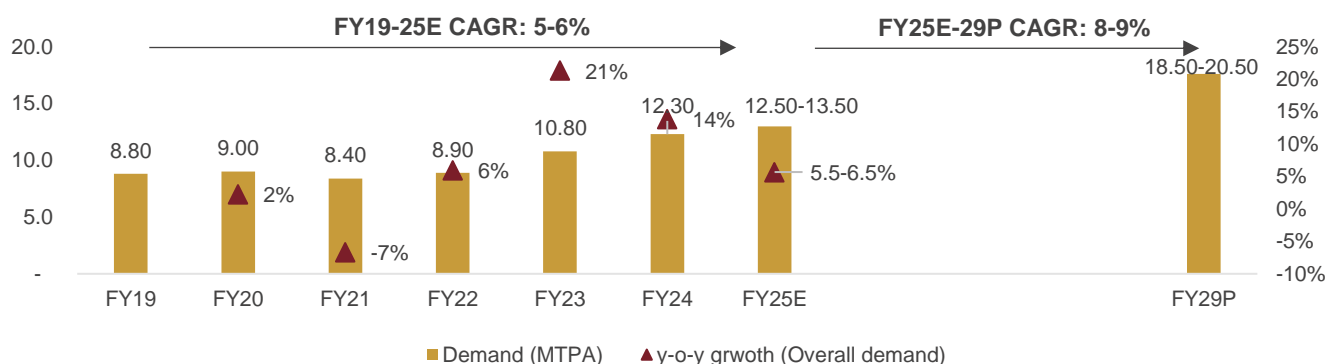
Source: CRISIL MIA Consulting, Industry

5.2 Demand review and outlook for steel pipes and tubes

The demand for domestic steel pipes and tubes is expected to have grown at a CAGR of 5-6% during Fiscals 2019-2025 to rise from 8.8 MTPA in Fiscal 2019 to 12.50-13.50 MTPA in Fiscal 2025, led by government initiatives to augment

urban structural infrastructure and to infuse investments in the oil and gas sector. Only fiscal 2021 witnessed an on-year dip of 7% in demand during this period, owing to the Covid-19 pandemic.

Steel pipes and tubes: Domestic demand review and outlook



Source: JPC, CRISIL MI&A Consulting, industry; E: Estimated; P: Projected; MTPA: million tonnes per annum

Going forward, domestic steel pipe demand is projected to increase to 18.50-20.50 MTPA in Fiscal 2029 at a 8-9% CAGR during the period between Fiscal 2025 and Fiscal 2029 on a high base. The growth would primarily be led by structural infrastructure and irrigation sector, which would continue to account for 50-55% of total domestic steel pipe demand.

Further, the demand for steel pipes and tubes will also be getting the push from the potential substitution of conventional construction materials, such as concrete cement and conventional steel. For example, owing to tubular steel being 10-20% lighter than conventional steel, the foot-over bridges and ceiling planned to be constructed under the government’s “Amrit Bharat Station Scheme” would be made completely from steel pipes and tubes. The scheme, which plans to redevelop around 1,275 Indian railway stations in next 5 years, is expected to present a total sales opportunity of 500-3,000 tons of steel pipes and tubes per railway station. Steel tubes are also finding opportunities in the construction of other infrastructure projects such as new airports, high-rise complexes, warehouses, data centers, water tanks and hospitals.

Welded steel pipes and tubes

Introduction to welded steel pipes and tubes

Welded steel pipes and tubes are broadly categorized into two types: ERW pipes and tubes and SAW pipes and tubes. Like overall steel pipes industry, ERW pipes and tubes manufacturing industry in India is fragmented with low entry barriers. On the other hand, the SAW pipes and tubes industry is relatively more consolidated.

Parameter	ERW pipes and tubes	SAW pipes and tubes
Manufacturing process	<p>Manufactured using electric resistance welding method in which the proximity effect of high frequency current is used to heat the edges of hot rolled coil or plate.</p> <p>The heated edges are then fused together to form a seamless joint.</p> <p>This manufacturing process uses proximity effect of high frequency</p>	<p>Manufactured using submerged arc welding process in which a welding arc is submerged in a welding flux.</p> <p>This process produces a high current density, which concentrates on the welding region and prevents the flux layer from losing heat quickly</p>
Categories		<p>Two broad sub-categories: LSAW and HSAW pipes.</p> <p>LSAW: Produced using submerged arc welding longitudinally. The seam as a result is in a straight line.</p>

		HSAW: Produced using submerged arc welding helically. The seam as a result is in a spiral line.
Size range	Diameter ranges from 10 mm to 500 mm generally	Diameter range is 500 mm and above. For LSAW pipes, diameter ranges generally from 500 mm to 1,500 mm. For HSAW pipes, diameter ranges from 500 mm to 3,000 mm.
Price and operating margins	Lower prices than SAW pipes Operating margins are in the range of 6-7% for the ERW pipe manufacturers	Price range is around ₹65-70 per kg as of fiscal 2024 Operating margins are in the range of 9-10% for the SAW pipe manufacturers

Source: Industry, CRISIL MI&A

For manufacturing welded pipes and tubes, and specifically ERW pipes and tubes, three types of raw material are majorly used, namely, hot rolled (HR) coil, patra coil, or narrow width coil. The following table details out key differences between the categories of pipes based on the type of raw material used:

Parameter	Pipes made using HR coil	Pipes made using narrow width HR coil	Pipes made using patra coil
Quality	Pipes made using HR coils are generally high in quality: <ul style="list-style-type: none"> Consistent width and consistent thickness of HR coils The hot rolling process, which is done at a high temperature, results in uniform properties across the coil. 	The quality of pipes made using narrow width HR coil lies between that of HR coil pipes and patra coil pipes. It depends upon the precision of slitting process and inherent quality of the original larger coil. <ul style="list-style-type: none"> Narrow width coils HR are slit from larger coils which can include hot-rolled coils or cold rolled coils 	Pipes made using patra coils are generally lower in quality when compared to those made using HR coils: <ul style="list-style-type: none"> Patra coils are thinner and narrower as compared to HR coils. These coils can have secondary materials as well The pipes manufactured using patra coils can have lower structural integrity
Physical properties	The pipes have high strength The pipes have rough surface finish because of the hot-rolling process done on the raw material	The strength of the pipes depends upon the physical properties of the original larger coils	The pipes have lower strength than the HR coil-made pipes The pipes have rough surface finish
Applications	The pipes are generally suitable for high pressure applications Common applications include oil and gas pipelines, industrial pipelines, construction and infrastructure projects	The pipes are generally suitable for the application areas which require smaller diameter pipes at precise dimensions, but do not require high strength Common applications include automotive component, water supply and irrigation systems, infrastructure components such as scaffolding, piping structures, etc.	The pipes are generally suitable for application areas where low cost is more crucial than high performance Common applications include non-critical areas such as fencing and low-pressure liquid transportation pipes
Raw material specifications	Width and thickness of HR coil are in >1,200 mm and in 2-6 mm ranges, respectively	Width of narrow width coil is generally less than 1,000 mm	Thickness is generally less than 3-4 mm and width of patra coil is generally lesser than 1,000 mm
Average operating margins	6-8%	8-10%	3-4%

Note: Sambhv Steel, which has presence in multiple products segments, is a major player in the narrow width coil pipes segment. The company's narrow-width HR coil manufacturing capabilities, which are at par with those of primary manufacturers of HR coils, leads to reduced capital expenditure and costs during its pipe manufacturing process and reduces dependency on external HR coil suppliers

Applications of welded steel pipes and tubes

Welded steel pipes and tubes are majorly used in transportation of oil, gas and water. However, based on the type of welded pipe, the specific end-use applications vary as well.

End use application area	ERW pipes and tubes	SAW pipes and tubes
Oil and gas industry	<p>Used to manufacture gathering line networks and distribution networks for transporting oil and gas to the end users, thus acting as last mile connectivity medium</p> <p>Used to transport crude oil and natural gas from production sites such as well heads to processing facilities and refineries</p> <p>Used in making relatively shorter transport pipeline network</p>	<p>Used in the offshore drilling processes because of their high strength, corrosion resistance, and ability to operate at high pressure and temperatures</p> <p>Used in gas storage tanks</p> <p>Used to manufacture trunk lines to transport refined products such as diesel to consumption hubs</p> <p>e.g. API 5L pipes are used in long transport pipeline network</p>
Water transport	<p>Used primarily in transport of water from various water sources to water treatment plants.</p> <p>Used in branch lines which transport water to end-use consumption points from the main line</p>	<p>Used to install main pipelines of water which transport centrally treated water to storage tanks.</p> <p>Used in making a main line that connects storage tanks to various regional distribution hubs</p>
Sanitation/Sewerage/Wastewater mangament	Used to transport industrial and domestic waste from source to main line	Used to transport waste from metropolitan areas to central treatment facilities
Construction and infrastructure	Used in fencing and scaffolding applications	Used in manufacturing foundation piles for buildings, bridges, elevated roads, and tall structures

Source: Industry, CRISIL MI&A

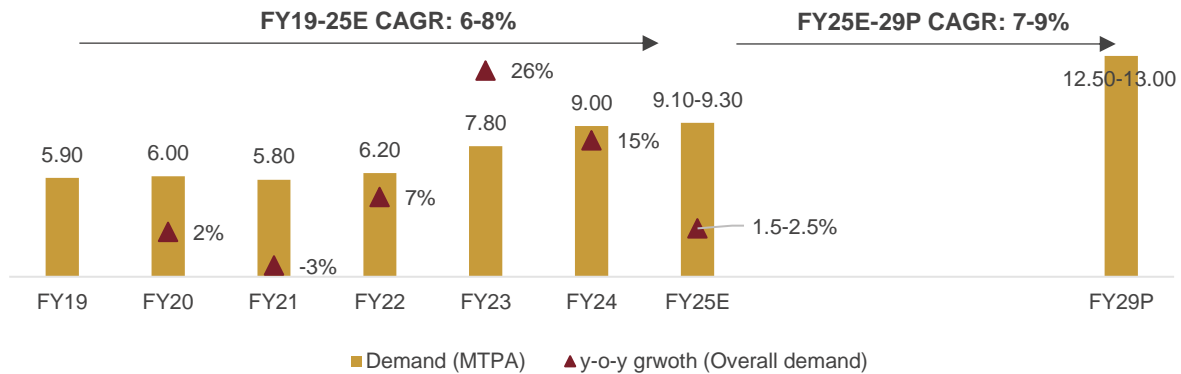
5.2.1 Segregation of demand across ERW, SAW and seamless pipes and tubes

Welded pipes demand scenario

ERW pipes and tubes domestic demand is expected to register a healthy growth at 6-7% CAGR between fiscals 2019 and 2025 to clock 9.10-9.30 MTPA in fiscal 2025. On the other hand, domestic demand for SAW pipes and tubes is expected to remain flat over fiscals 2019 to 2025, growing at a CAGR of just 1.5-2.5% during the period to reach 2.40-2.60 MTPA in fiscal 2025.

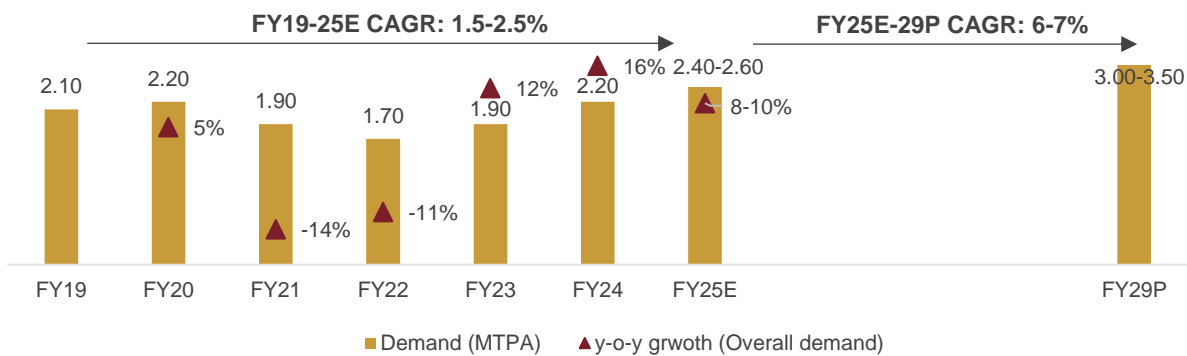
The demand for both ERW pipes and tubes and SAW pipes and tubes fell drastically on-year in fiscal 2021 owing to the pandemic-led disruptions. However, the domestic demand for both surged strongly in the following fiscals on account of demand from various end-use sectors such as irrigation, urban infrastructure, smart cities projects, WSS and oil and gas in combination with the effects of low base, pent-up demand and an overall positive momentum. The growth in government led infrastructure development activities in the run-up to 2024 general elections also supported the domestic demand for ERW and SAW pipes and tubes.

ERW pipes: Domestic demand review and outlook



Source: Industry, CRISIL MI&A Consulting
E: Estimated; P: Projected

SAW pipes: Domestic demand review and outlook



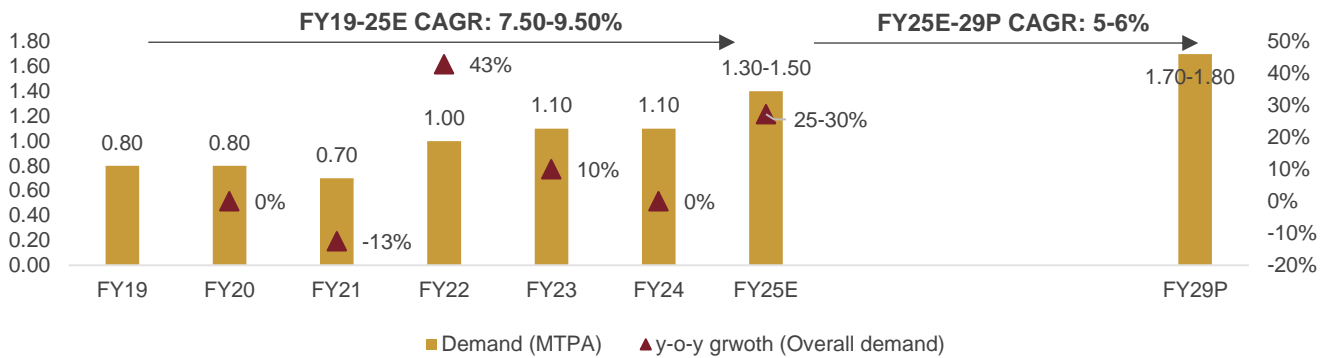
Source: Industry, CRISIL MI&A Consulting
E: Estimated; P: Projected

The demand for ERW pipes and tubes and SAW pipes and tubes are projected to grow at respective CAGRs of 7-9% and 6-7% between fiscals 2025 and 2029 on the back of rising investments in housing, urban infrastructure, WSS, irrigation, smart cities and oil and gas segments. Further, going forward, continued investments in government schemes such as affordable housing, Jal Jeevan Mission, and Har Ghar Nal Yojana and initiatives towards improving city-level gas distribution network and oil and gas transmission pipelines are expected to support growth in the domestic welded pipes and tubes demand.

Seamless pipes demand scenario

Despite an impressive CAGR of 7.50-9.50% between 2019 and 2025, growth in the demand of seamless steel has fluctuated throughout, with a 13% decline observed in fiscal 2021 owing to the outbreak of the pandemic. However, as the economy recovered, demand grew by a robust 43% on year in fiscal 2022 to 1 MTPA. Demand is estimated to grow 25-30% on-year in fiscal 2025 to 1.30-1.50 MT.

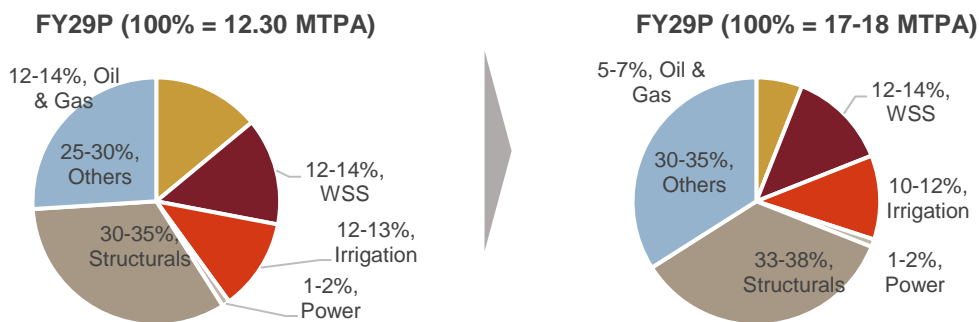
Seamless pipes: Domestic demand review and outlook



Source: Industry, CRISIL MI&A Consulting
E: Estimated; P: Projected

Furthermore, owing to various government initiatives and increased demand for transportation and oil and gas exploration, the demand for seamless pipes is expected to grow at a CAGR of 5-6% to reach 1.70-1.80 MT in fiscal 2029.

5.2.1.1 Segregation of steel pipes demand across key end-use industries



Source: Industry, CRISIL MI&A Consulting
E: Estimated; P: Projected

Particularly, expected strong growth in infrastructure-related sectors such as metros, airports, WSS and railways and relatively lower penetration of irrigation-related infrastructure in the country are expected to drive demand for steel pipes and tubes in the long run. As a result, the share of the structural/infrastructure sector in overall demand for steel pipes is expected to increase from 30-35% in fiscal 2024 to 33-38% in fiscal 2029.

5.2.1.2 Demand split between steel pipe categories (FY 2024 and FY 2029)



Source: Industry, CRISIL MI&A Consulting

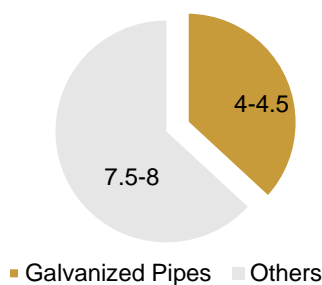
The domestic demand for seamless pipes is expected to increase at a faster rate than for SAW pipes and ERW pipes, thereby taking the share of seamless pipes in overall steel pipes demand from ~9% in fiscal 2024 to 10-11% in fiscal 2029.

5.2.1.3 Demand overview of pipes across hollow-section and galvanised pipes and tubes

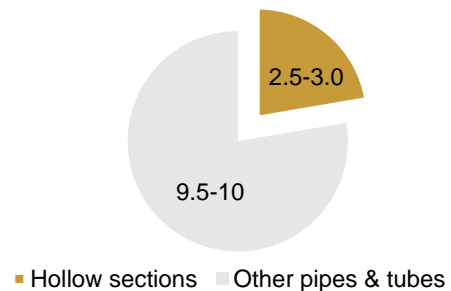
Steel pipes can be classified based on coating (black and galvanised) type and product (pipes, tubes and hollow sections) type. Galvanized pipes and tubes are used majorly in the highly corrosive environments such as those in the segment of raw water supply to rural areas. On the other hand, hollow section pipes are used in structural applications such as those in the segments of scaffolding towers, vehicle frames and columns, and architectural structures.

As of fiscal 2024, out of the 12.3 MT demand for steel pipes, galvanised pipes accounted for ~4-4.5 MT of demand, while hollow sections accounted for ~2.5-3.0 MT.

Demand for galvanised pipes (FY24) (MT)



Demand for hollow pipes (FY24) (MT)



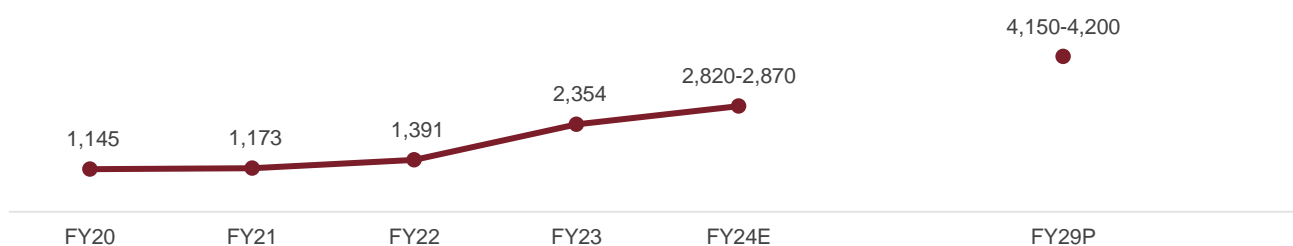
Source: Industry, CRISIL MI&A Consulting

5.3 Assessment of key demand drivers for steel pipes

5.3.1 Government initiatives to promote Indian steel pipes industry

Various projects and schemes initiated by the central government and several state governments have been driving the demand for steel pipes in India. Water supply, sanitation, irrigation, and flood control have consistently been top end-use sectors for the steel pipe industry and are expected to continue to drive the steel pipes' demand over the next few years as well through government led schemes such as Jal Jeevan Mission, Har Ghar Nal Yojana, among others.

Water supply, sanitation and irrigation related investments in India (in ₹ billion)



Source: CRISIL MI&A Consulting, industry

India-level annual investments in the water supply and sanitation and irrigation sectors are estimated to have reached ₹ 2,820-2,870 billion, growing at a CAGR of over 25% between fiscals 2020 and 2024 from ₹ 1,145 billion in fiscal 2020. The rise in investments was led by increasing focus of central and state governments to supply piped water for domestic consumption and increasing initiatives towards flood control and effective irrigation practices. Going forward, the annual investment value is expected to increase at a CAGR of ~8% between fiscals 2024 and 2029 to clock ₹ 4,150-4,200 billion in fiscal 2029, primarily on the back of the government’s mission to ensure 100% coverage of piped water supply across the country.

5.3.1.1 AMRUT

In 2015, the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) was introduced in 500 cities and towns of the country to enhance various aspects of basic infrastructure. These include storm water drainage, green spaces and parks, non-motorised urban transport, water supply, and sewage and septage management.

As part of the scheme, States and Union Territories have so far undertaken 5,873 projects totalling ₹82,222 cr. Of these, 4,676 projects valued at ₹32,793 cr. have been completed, while 1,197 projects valued at ₹49,430 cr. have been grounded and are awaiting implementation at different levels.

Further, on October 1, 2021, the government launched the AMRUT 2.0 scheme under which continuing AMRUT 1.0 projects will also receive funding from CA through March 31, 2023.

5.3.1.2 Jal Jeevan Mission

State-wise investment scenario in JJM and other projects:

States	Coverage % under Jal Jeevan Mission	Other projects
Uttar Pradesh	85%	Automatic water stations, JAL JIVAN Mission, Namami Gange, minor irrigation projects
Maharashtra	87%	Dug well and Bore Well Programme
Karnataka	79%	Development of canals, water purification plants
Odisha	75%	Multiple mega-piped water supply projects
Telangana	100%	Minor and major irrigation projects
Madhya Pradesh	65%	Development of canals, irrigation projects
Rajasthan	53%	Development of canals, irrigation projects
Gujarat	100%	Development of canals, irrigation projects
Andhra Pradesh	73%	Development of canals, irrigation projects
India	78%	

Source: E-jalshakti portal of Government of India, Industry, CRISIL MI&A

On an overall basis, as per August 2024 data, the coverage of Jal Jeevan Mission stands at ~78% in India. Amongst the states which have highest budgetary sum allocated towards water supply, sanitation, irrigation and flood control, Rajasthan, Madhya Pradesh, Odisha, Andhra Pradesh, and Karnataka have the lowest coverage of Jal Jeevan Mission. On the other hand, states like Telangana and Gujarat have achieved 100% Jal Jeevan Mission coverage.

The above-mentioned government led initiatives are expected to support the water supply, sanitation, and irrigation sectors by boosting the water-based pipeline infrastructure in the country. This will in-turn support growth in pipes demand.

5.4 Assessment of demand related challenges/inhibitors for steel pipes

5.4.1 Increasing globalization

Increasing globalization of steel and related products poses a threat to the Indian steel pipes industry from domestic and international manufacturers of the entire value chain products including sponge iron, blooms, HR coils, ERW black pipes, GI pipes, HR coils and CR coils.

5.4.2 Oil price fluctuations

When the oil prices are high, there is an increase in inflation, current account deficit, and fiscal deficit in major oil importing nations like India and China. This cuts government and private sector spending especially in the oil and gas sector, leading to a threat of reduced demand of ERW pipes and tubes in the oil and gas end use industry. Moreover, if there is a decline in the oil prices, there is a negative impact on government spending in nations like Saudi Arabia, Nigeria, and the UAE (United Arab Emirates), as they are heavily dependent on revenues from crude oil export. This reduces the ERW pipes demand in the oil exporting countries, and acts as a export side threat for the Indian ERW pipes and tubes industry.

5.4.3 Geopolitical and trade related challenges

Geopolitical conflicts, trade barriers, taxes, other trade restrictions, and reduced international investments can present a threat to the Indian steel pipes and tubes businesses by limiting their ability to acquire raw materials, export completed goods, access new markets and find growth prospects. Further, availability of less expensive imported steel pipes and tubes may pose a challenge to the sales volume and margins of the domestic players in the industry. However, the companies may also take steps to counteract the effects of less expensive imports, including raising the quality of their goods, streamlining their supply chain, and growing their clientele.

5.4.4 Other challenges

Volatility in raw material prices and commodity prices; changing government policies; custom duties; environmental, health and safety regulations; employment, confidence, and disposable income levels of consumers can pose threat to both the supply-side and demand-side of the steel pipes and tubes industry.

Further, fluctuations in the steel prices based on the availability and cost of raw materials, steel demand, worldwide production and capacity, fluctuations in the volume of steel imports / exports, transportation costs and various social and political factors poses threat to steel pipes and tubes industry in India

- Low steel prices adversely affect the results of operations of the industry, resulting in lower revenues, lower margins, and write down of products and raw material inventories. Notably, decreases in steel and steel product prices during periods of economic weakness have not always been balanced by commensurate price increases during periods of economic strength.
- The domestic players in the steel pipes and tubes industry could also be affected by the introduction of or increase in the levy of import tariffs in the countries to which they export or plan to export their products, changes in trade agreements between countries, and additional tariffs in the form of countervailing duty and anti-dumping duty on a number of items imported in India.

5.5 Steel pipes trade review

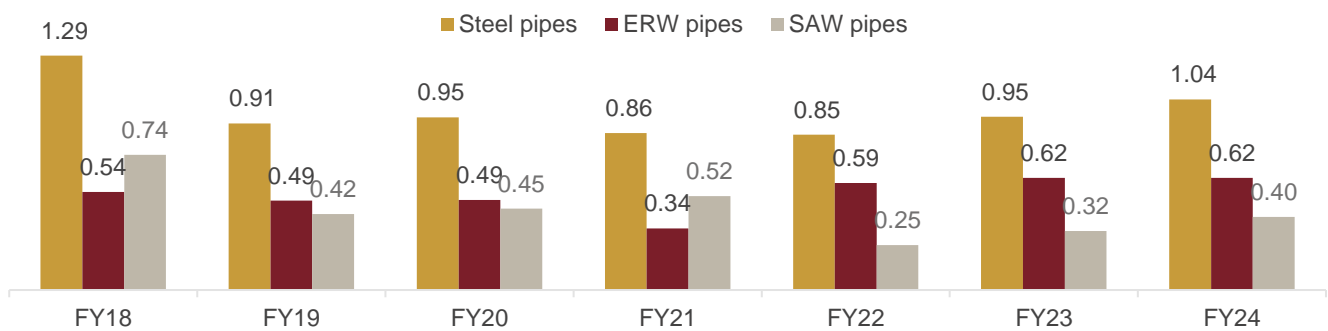
ERW pipe exports
Consulting

The ERW pipes and tubes segment accounted for a major share of India’s steel pipe exports in fiscal 2024, constituting 59% of the overall pipes and tubes exports. The exports have grown consistently over the years, except for fiscal 2021, when the ERW pipes and tubes exports plummeted on-year owing to pandemic led demand side disruptions across the globe.

SAW pipe exports

After a reduction in export volumes in the pandemic affected fiscal of 2022, the export volume of SAW pipes and tubes increased by 31% on-year to 0.32 MTPA in fiscal 2023, indicating a strong recovery in global demand.

ERW and SAW pipes - export volume in MT



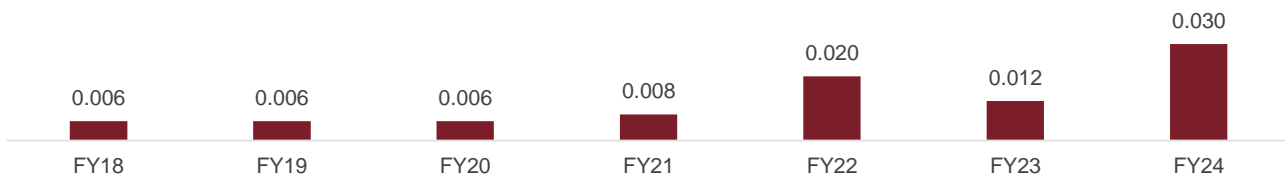
Source: Ministry of commerce, CRISIL MI&A Consulting, Industry
Note: The volume of steel pipes factors in seamless pipes
MT: million tonnes

Growth in export volumes of steel pipes and tubes in the last two fiscals has been led by strong demand from the Middle East, where investment towards the oil and gas sector has increased. Further, several water desalination projects in the region have also increased demand for pipes made in India.

Seamless pipe exports

In fiscal 2024, India only exported 0.03 MT of seamless pipes and tubes. That said, the segment has seen an upward trend as exports rose 143% on-year in fiscal 2024.

Seamless pipes - export volume in MT



Source: Ministry of Commerce, CRISIL MI&A Consulting, Industry
P: Projected; MT: million tonnes

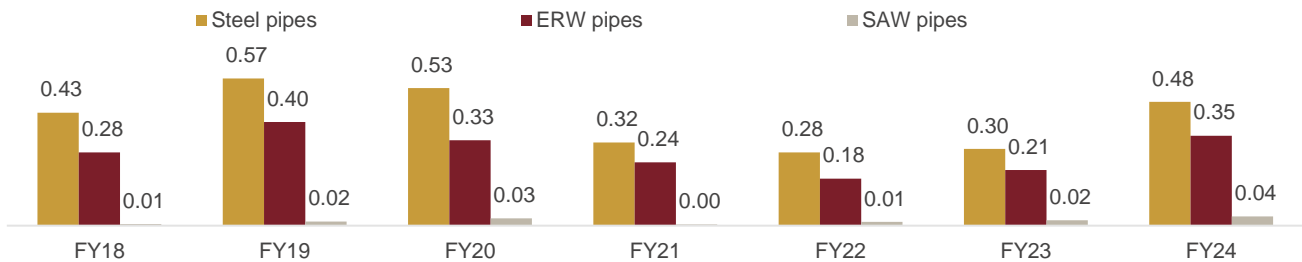
ERW pipes and tubes imports

ERW pipe’s imports to India dwindled over fiscals 2018 and 2024, plummeting during the pandemic as economic activities slowed. However, the imports recovered to grow at over 50% on-year in fiscal 2024 to 0.35 MT. Notably, ERW pipes constituted more than 70% of India’s steel pipe imports in fiscal 2024.

SAW pipes and tubes imports

The imports of SAW pipes and tubes accounted for only 7-8% of steel pipe imports in fiscal 2024, grew more than 77% on-year to 0.04 MT in fiscal 2024, indicating an increase in domestic demand for imported pipes and tubes.

ERW pipes and SAW pipes - import volume in MT

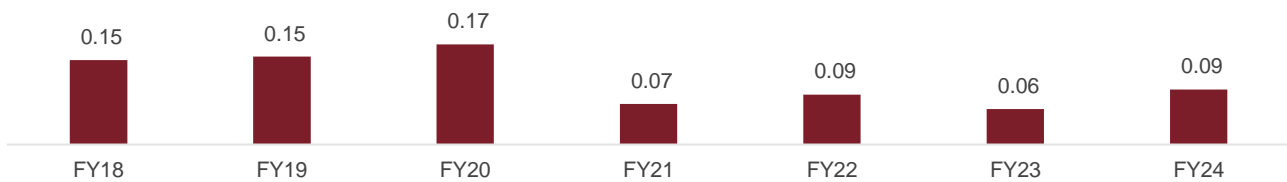


Source: Ministry of commerce, CRISIL MI&A Consulting, Industry
Note: The volume of steel pipes factors in seamless pipes
MT: million tonnes

Seamless pipe imports

Seamless pipes imports amounting to 0.09 MT in fiscal 2024, accounted for around 20% of India's total steel pipe imports.

Seamless pipes - import volume in MT



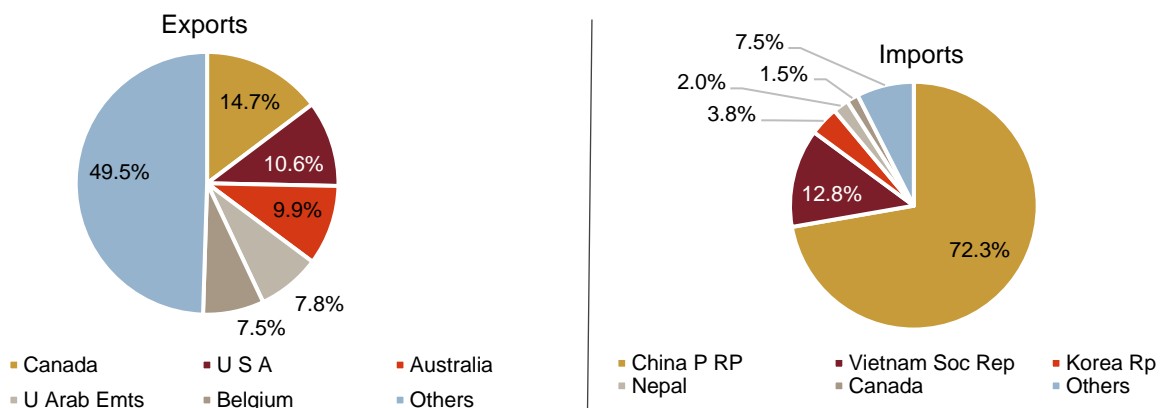
Source: Ministry of commerce, CRISIL MI&A Consulting, Industry
MT: million tonnes

5.5.1 The import-export split in the steel pipe sector

ERW pipes

North America (Canada and USA) accounted for about 25% of India's ERW pipe and tube exports in fiscal 2024. Further, three-fourth of India's import requirements for ERW pipes and tubes were fulfilled by supply from China in fiscal 2024.

ERW pipes import-export split by region (% share) (FY24)



USA: United States of America; U Arab Emts: United Arab Emirates; China P RP: People's Republic of China; Vietnam Soc Rep: Socialist Republic of Vietnam; Korea Rp: Korea Republic

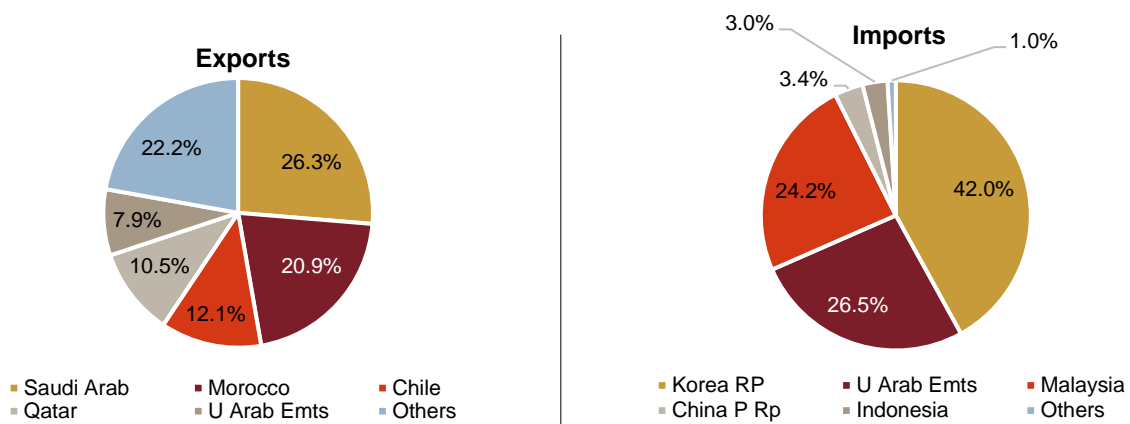
Source: Ministry of commerce, CRISIL MI&A Consulting, Industry

SAW pipes

Countries in the Middle East were the biggest consumers of India-made SAW pipes, accounting for more than 40% of the segment's total exports as of fiscal 2024. In light of these countries' plans of boosting their crude oil production capacity, they are expected to remain primary target markets for the Indian SAW pipes industry.

On the imports front, Korea, UAE and Malaysia cumulatively accounted for more than 90% of India's SAW pipe imports in FY24.

SAW pipes import-export split by region (% share) (FY24)



U Arab Emts: United Arab Emirates; Korea RP: Korea Republic; China P Rp: People's Republic of China

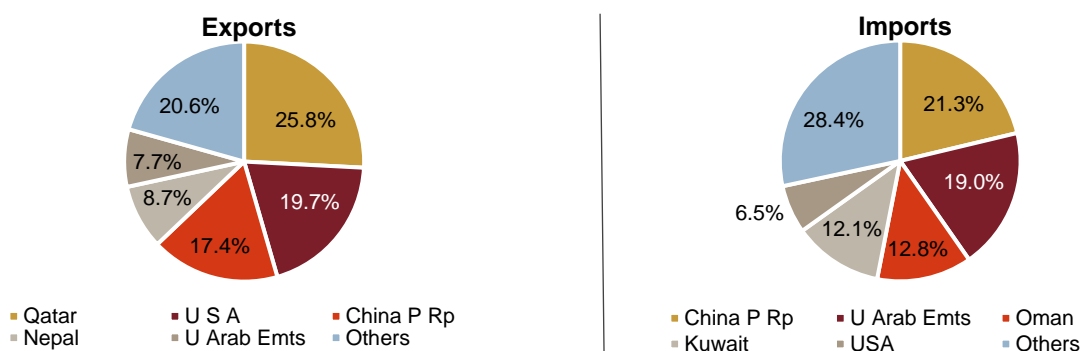
Source: Ministry of commerce, CRISIL MI&A Consulting, Industry

Seamless pipes

The Middle East is also a key market for seamless pipe exports from India, with Qatar accounting for 25.8% of the seamless pipes and tubes exports from India as of fiscal 2024. A significant proportion of the India made seamless pipes and tubes were also supplied the US and China which accounted for 19.7% and 17.4% share in India's total exports.

On the other hand, China remained the top exporter of seamless pipes and tubes to India in fiscal 2024, which accounted for 21% share in total imports in India.

Seamless pipes import-export split by region (% share) (FY24)



USA: United States of America; U Arab Emnts: United Arab Emirates; China P RP: People's Republic of China
Source: Ministry of commerce, CRISIL MI&A Consulting, Industry

5.6 Supply assessment and outlook/ value-chain assessment

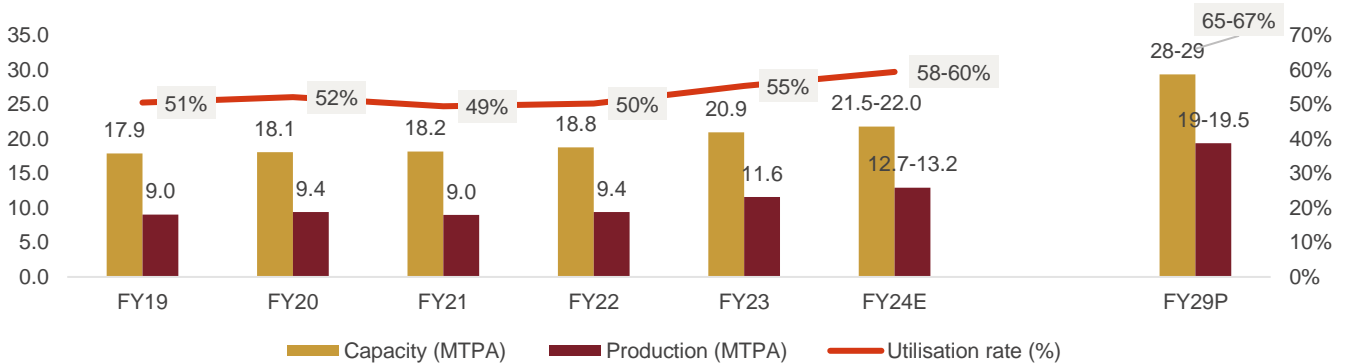
5.6.1 Estimated capacity and utility across pipe types (ERW, SAW and seamless)

Domestic steel pipe production capacity rose from 17.9 MTPA in fiscal 2019 to an estimated 21.5-22.0 MTPA in fiscal 2024. There was a significant capacity increment of 2-2.5 MTPA in fiscal 2023, followed by an estimated capacity addition of 0.7-0.9 MTPA in the following fiscal.

In fiscal 2023, APL Apollo tubes and Surya Roshni, which added around 1 MTPA and 0.36 MTPA of steel pipe capacity, respectively, were the key players contributing to the overall expansion of steel pipes capacity in India. In fiscal 2024, APL Apollo and Hitech pipes added around 0.4 MTPA and 0.17 MTPA, respectively, in the ERW pipe segment.

Along with the increase in capacity, the overall utilisation level of the steel pipe industry also improved from ~51% in fiscal 2019 to an estimated 58-60% in fiscal 2024, indicating bright prospects for the sector.

Steel pipes – domestic capacity and production trend



Note: E – estimated; P – projected
Source: Industry, CRISIL MI&A Consulting
MTPA: million tonnes per annum

The domestic steel pipe industry is projected to increase its production capacity to 28-29 MTPA with a capacity utilisation rate of 65-67% in fiscal 2029. The improvement in the overall capacity and utilisation rate will be on the back of expectations of upbeat demand from various end-use sectors such as infrastructure, real estate, oil and gas, WSS, and irrigation.

Expansion plans of steel pipe manufacturers in India

Company	Type of product	Expansion in MTPA	Expected commissioning
APL Apollo	ERW pipes (structural pipes)	1 MTPA	FY 2025
Hitech Pipes	ERW pipes	0.15 MTPA	FY 2025
Utkarsh India	ERW pipes	0.1 MTPA	FY 2025
JTL Industries	ERW pipes	1.4 MTPA	FY 2027

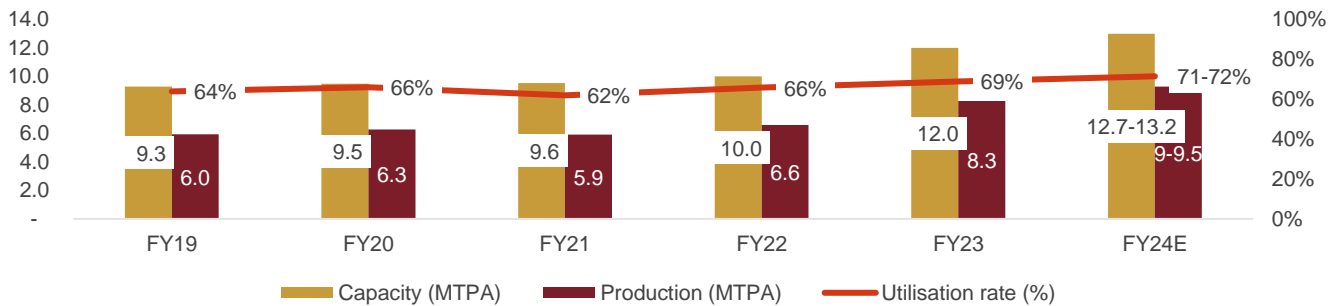
Source: Industry, CRISIL MI&A

ERW pipe supply scenario

Production capacity of ERW pipes grew from 9.3 MTPA in fiscal 2019 to an estimated 12.7-13.2 MTPA in fiscal 2024. Along with the capacity addition, the capacity utilisation level also improved from 64% in fiscal 2019 to an estimated

71-72% in fiscal 2024, primarily owing to a demand uptick from the real estate, infrastructure, WSS, irrigation, and gas distribution sectors.

ERW pipes – domestic capacity and production trend



Note: E – estimated

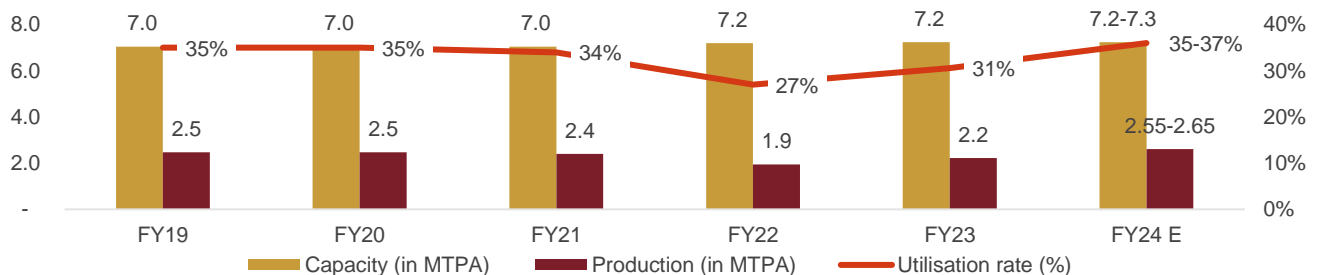
Source: Industry, CRISIL M&A Consulting

MTPA: million tonnes per annum

SAW pipe supply scenario

Production capacity of SAW pipes grew an estimated 0.2-0.3 MTPA from 7.0 MTPA in fiscal 2019 to an estimated 7.2-7.3 MTPA in fiscal 2024. The growth in production capacity was limited owing to a lower utilisation level, which was hit further by the pandemic in fiscal 2021 and 2022. The capacity utilisation level, however, is estimated to have breached the pre-pandemic level to clock 35-37% in fiscal 2024 on account of resumption of economic activity in key domestic end-use sectors (leading to a revival in domestic demand, improving the government’s funding towards oil, gas, water infrastructure and irrigation) and an on-year surge in demand from the export market.

SAW pipes – domestic capacity and production trend



Note: E – estimated

Source: Industry, CRISIL M&A Consulting

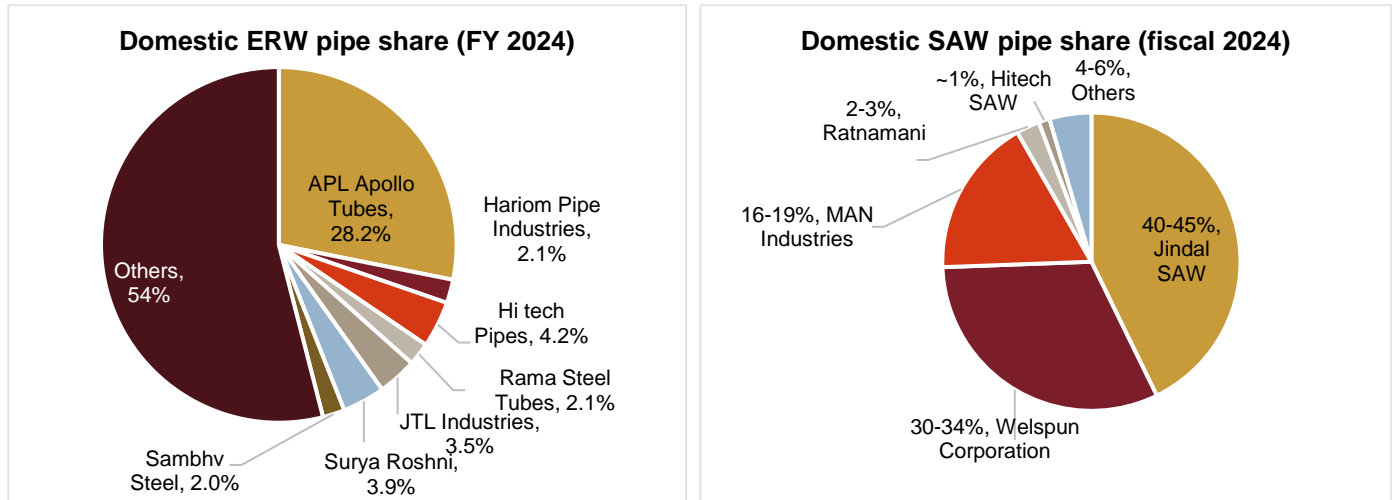
Going forward, the capacity utilisation level in the domestic SAW pipe industry is expected to get a boost from the government's strong focus on laying natural gas pipelines to complete the nationwide natural gas grid network, improving water transport infrastructure in the country, and investing in schemes such as Jal Jeevan Mission and Har Ghar Nal Yojana. Further, an expected increase in demand from countries in the Middle East would help increase production and, hence, utilisation.

Overall pipes industry structure

Overall steel pipes manufacturing industry is highly fragmented with 100+ steel pipe manufacturers operating in the country. While ERW segment, specifically, is similarly fragmented with low entry barriers, the SAW pipe industry is

more consolidated. The top 10 SAW pipe manufacturers in the country account for ~70% of SAW pipe capacity and almost 90% of SAW pipe production.

Market share for steel pipes (FY24)

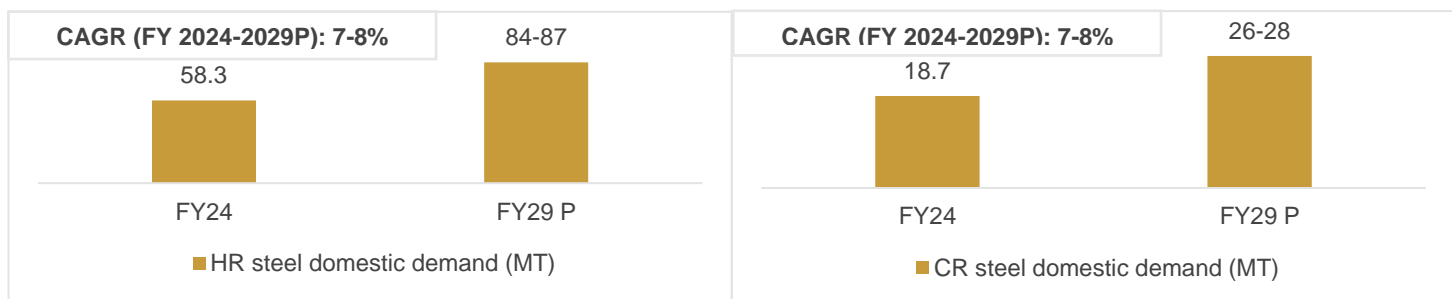


Source: Industry, CRISIL MI&A

Sambhv Steel has a market share of around 2.00% in domestic ERW pipe segment as of fiscal 2024 (in terms of sales volume). Amongst the three key sub-segments for ERW pipe segment, namely (1) hot rolled coil ERW pipes, (2) patra coil ERW pipes, and (3) narrow width coil ERW pipes, Sambhv Steel holds a significant market share in the narrow width coil ERW pipe segment. The specialization and strong market position of Sambhv Steel in the narrow width coil ERW pipe sub-segment helps it cater to the requirements of a large section of designated end use industries such as automobile, electrical appliances, furniture, fitness equipment, etc.

5.7 Overview of other products in the steel pipes value chain

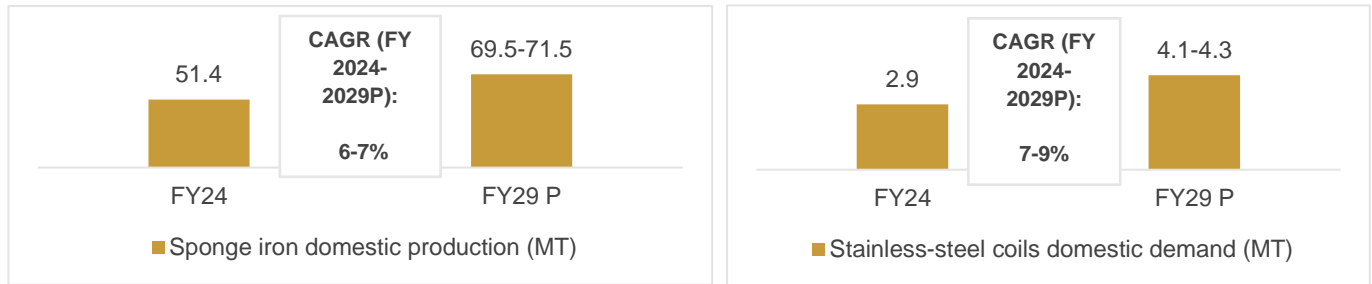
Hot rolled steel and cold rolled steel – domestic demand overview in MT



Source: Industry, CRISIL MI&A; MT: million tonnes

Flat steel is of two major types: hot rolled steel (HR steel) and cold rolled steel (CR steel). Domestic demands for both the categories of flat steel are expected grow at CAGRs of 7-8% during fiscals 2024-2029 on the account of expected healthy growths in urban housing, infrastructure, capital goods, and automobiles segments. The domestic demand for HR steel is expected to grow to 84-87 MT in fiscal 2029 from ~58 MT in fiscal 2024. On the other hand, the domestic demand for CR steel is expected to increase from ~19 MT in fiscal 2024 to 26-28 MT in fiscal 2029.

Sponge iron (domestic production in MT) and stainless steel coils (domestic demand in MT)



Source: Industry, CRISIL MI&A; MT: million tonnes

Sponge iron is one of the key raw materials used in induction furnace (IF) and electric arc furnace (EAF) to manufacture steel. Sponge iron sector is mainly domestic dependent with export/imports constituting a minimal share in production. Its domestic production is expected to increase at a CAGR of 6-7% from 51.4 million tonnes to 69.5-71.5 million tonnes in fiscal 2029. It is to be noted that majority of steel produced through the IF route (wherein sponge iron is majorly used) is converted to long products. However, the production growth CAGR of sponge iron during fiscals 2024-2029 is expected to remain a tad lower than the demand growth CAGR of long steel during the same period. This gap in the growth outlook between the two highly correlated products is on the account of expected decrease in share of steel production through the IF or EAF route as majority of the future capacity expansions are expected in the blast furnace or basic oxygen furnace route routes.

Domestic demand for stainless-steel coils is expected to grow at a CAGR of 7-9% during fiscals 2024-2029 from 2.9 million tonnes per annum to 4.1-4.3 million tonnes per annum in fiscal 2029. The major end-use industries that are expected to support growth include consumer goods, process industries, infrastructure, construction, and automobile.

5.8 Manufacturing process and end-use applications of the products

Product	Product description	Key end use market	Domestic demand (FY24)	CAGR (FY24-29)
Sponge iron	Sponge iron, which is a substitute for scrap in steel making process, is a refined form of iron ore with a metallic content ranging from 80% to 88%, produced through the direct reduction process. The basic raw materials to produce sponge iron are iron ore, iron ore pellets, non-coking coal (bituminous) and dolomite.	Sponge iron is used for the manufacturing of crude steel (blooms/ slabs).	51.4 million tonnes	6-7%
Blooms/ slabs (mild steel and stainless steel)	Blooms are semi-finished steel products which typically have a square or rectangular cross-section. These are produced through a melting and casting process, wherein, molten steel obtained by melting sponge iron, scrap, and other ancillary minerals in the induction furnace, is poured into a mould and cast in the form of blooms/slabs of required cross section and length.	Blooms are rolled into multiple long and flat finished products such as HR coils, narrow-width HR coils	144.4 million tonnes	6.5-7.5%
Narrow-width HR coil (mild steel and stainless steel)	HR coil manufacturing process primarily involves deforming the blooms/ slabs at high temperature with roll pressure. Hydraulic Automatic Gauge Control (HAGC) technology in the hot rolling mill infrastructure controls the thickness and surface quality of HR coil with high precision.	Narrow-width HR coils are used to manufacture ERW black pipes and tubes. Further, stainless steel HR coils are used to manufacture HR AP coils and SS CR coils.		

ERW black pipes and tubes	ERW black pipes and tubes are manufactured by rolling HR coils and then welding them longitudinally across their length through an electric resistance process.	The ERW black pipes and tubes are used in transportation of water, oil, gas, and chemicals; and in manufacturing fencing and scaffolding.	5.5-6 million tonnes	7-9%
GI pipes	GI pipes are manufactured by coating a protective layer of zinc on ERW black pipes and tubes through hot dipping process.	GI pipes are used as an essential product for hot and cold-water supply systems, irrigation systems, plumbing systems, etc.	3-3.3 million tonnes	8-10%
Steel door frames	Single or double door steel frames are manufactured by rolling HR coils and further welding them longitudinally across their length through an electric resistance process.	Steel door frames are used in affordable housing projects, villages and forest areas due to their termite proof and ecofriendly properties.		

Source: Industry, CRISIL MI&A

6. Competition benchmarking

6.1 Operational benchmarking

The steel pipes industry is a highly fragmented one, with the top 10 manufacturers contributing to ~25% of overall production. Sambhv steel faces competition from domestic and international manufacturers of sponge iron, blooms/slabs, HR coils, ERW black pipes, GI pipes and CR coils. Its peers are APL Apollo Tubes, Hariom Pipe Industries, Hi-Tech Pipes, Rama Steel Tubes, Surya Roshni and JTL Industries.

6.1.1 Product range mapping for companies

Company	Manufacturing set up			Finished products				
	DRI	Casting	Cold Rolling	HR coils	Pipes & Tubes	GI pipes	Steel Door frames	SS coils
APL Apollo Tubes								
Hariom Pipe Industries								
Hi tech Pipes								
Rama Steel Tubes								
JTL Industries								
Surya Roshni								
Vibhor Steel Tubes								
Sambhv Steel								

Note: Green colored tab indicates presence of the corresponding facility with the respective company.

DRI: Direct reduced iron (Sponge iron)

Amongst the above listed players, Sambhv steel is the only integrated player with an efficient backward integration, as it has the captive availability of sponge iron which is used to produce slabs/blooms which are then processed to form coils/sheets and to make value added products such as GI pipes and steel door frames. In particular, the company uses the sheets to form welded pipes and tubes and further does the value-addition to make galvanized (GI/GP) pipes. As a result, the company has a wide product portfolio with the products ranging from sponge iron to mild steel and stainless-steel blooms/slabs, hot rolled coils, and pipes and tubes, along with the value-added products such as GI pipes and steel door frames. This wide product portfolio along with the complete integration gives the company an added advantage in the highly competitive domestic steel products industry.

6.1.2 FY 2024 Capacity overview & Pipes production

Company	ERW pipes and tubes (FY24)		
	Capacity (tonne)	Production (tonne)	Utilisation rate
APL Apollo Tubes	3,600,000	2,618,000	73%
Hariom Pipe Industries	252,000	199,000	79%
Hi tech Pipes	580,000	391,000	67%
Rama Steel Tubes	294,000	194,040	66%
JTL Industries	586,000	329,853	56%
Surya Roshni	601,000	360,600	60%
Vibhor Steel Tubes*	223,160		
Sambhv Steel	250,000	185,602	74%

Source: Company reports, Industry, CRISIL MI&A Consulting, Industry

* Jindal pipes limited (JPL) and Vibhor Steel tubes have a long term agreement under which Vibhor steel tubes acts as a third-party contract manufacturer for JPL majorly for JPL's pipe brand "Jindal Star". Around 90% of Vibhor Steel's operating revenue comes from the contract manufacturing with JPL.

Note:

1) The above table only specifies the capacity and production for welded pipes (ERW pipes & SAW pipes). It does not include the capacity and production for seamless pipes, DI pipes.

2) The product-wise data of the listed peers is either not available in the public domain or the basis and manner of calculation of the figures is not ascertainable; thereby it may not be an accurate comparison with the company's data in a comparable manner, and hence not mentioned.

Sambhv Steel is one of the key manufacturers of electric resistance welded (“ERW”) steel pipes and structural tubes (hollow section) in India in terms of installed capacity as of March 31, 2024. The capacity of company's ERW steel pipes and tubes facility is 250,000 metric tonnes per annum. High capacity and resulting high production volumes would give the company benefits of economies of scale.

6.1.3 Plant locations

Company	Total Units	Locations
APL Apollo Tubes	11	Sikanderabad (3 units), Raipur (2 units), Hosur, Murbad, Chegunta, Bengaluru, Malur, and Dujana
Hariom Pipe Industries	4	Mahabubnagar (2 units), Anantapur, and Erode
Hi tech Pipes	6	Sikanderabad (2 units), Sanand (2 units), Hindupur, and Khopoli
Rama Steel Tubes	3	Sahibabad (2 units), Khopoli, Anantapur
JTL Industries	4	Derabassi, Mangaon, Mandi Gobindgarh, Raipur
Surya Roshni	4	Bahadurgarh, Malanpur, Hindupur, Bhuj
Sambhv Steel	2	Raipur (2 units)

Source: Company reports, Industry, CRISIL MI&A Consulting, Industry

Note: The data corresponds to fiscal 2024

6.1.4 Manufacturing capabilities – level of integration

Company	Backward Integration	Forward Integration
Hariom Pipe Industries	The company purchases iron ore mostly through online bidding process through MSTC portal	Company manufactures H-frame systems, cuplocks, planks, clamps, etc.
Hi tech Pipes	The company sources raw material (flat steel) from key integrated steel producers	Company produces GI pipes, GP pipes, crash barriers, coated coils and roofing sheets
Rama Steel Tubes	Most of the raw material is procured from the domestic suppliers under short-term fixed price contracts	Company produces scaffoldings, light poles, GI pipes, etc.
JTL Industries	The company has strategically positioned plants in Punjab, Maharashtra, and Raipur, which helps it get raw materials such as iron ore, coal and natural gas at competitive pricing The company mitigates the raw material supply chain risks by entering into strategic partnerships with reliable suppliers	Company produces GI pipes, solar module mounting structures, road safety barrier, etc.
Surya Roshni	Sources raw material for pipe manufacturing from domestic as well as international sources	Company manufactures external coated pipes and various consumer goods such as fans, heating appliances, etc.
Sambhv Steel	Fully integrated single location setup with the capability of manufacturing sponge iron, power, blooms/slabs, and hot rolled (HR) coils as major intermediate products for manufacturing finished and value-added products.	Company manufactures ERW pipes and tubes, GI pipes and single/double door frames, etc. Further, the company is in process of setting up manufacturing facilities for CRFH Pipes, GP Coils, Pre-Galvanised (GP) Pipes, SS HRAP Coils and SS CR Coils

HR: Hot Rolled; CR: Cold Rolled; GI: Galvanized iron; GP: Galvanized Plain; CRFH: Cold Rolled Full Hard; HRAP: Hot Rolled Annealed and Pickled; SS: Stainless Steel

Source: Company Website, Industry, CRISIL MI&A Consulting

6.1.5 Dealer & distributor network

Company	Dealers & distributors*
APL Apollo Tubes	800+
Hariom Pipe Industries	800+
Hi tech Pipes	450+
Rama Steel Tubes	300+
JTL Industries	800+
Surya Roshni	250+
Sambhv Steel	600+

Source: Company website, Industry, CRISIL MI&A Consulting

*As of fiscal 2024

6.2 Financial benchmarking

To benchmark the performance of Sambhv Steel with its competitors, a comparison is drawn across the profitability, liquidity and leverage parameters for fiscals 2022-2024.

Peer comparison for fiscal 2022 (₹ million, unless mentioned otherwise)

Particulars	APL Apollo Tubes	Hariom Pipe Industries	Hi-Tech Pipes	JTL Industries	Rama Steel Tubes	Surya Roshni	Sambhv Steel
Revenue from operations	130,633.20	4,305.67	18,788.47	13,553.17	7,681.68	77,308.20	8,193.49
EBITDA	9,452.60	561.19	1,005.18	894.19	419.07	4,428.80	1,245.14
EBITDA margin (%)	7.24%	13.03%	5.35%	6.60%	5.46%	5.73%	15.20%
PAT	6,189.80	319.57	403.26	610.63	273.15	2,049.20	721.08
PAT margin (%)	4.74%	7.42%	2.15%	4.51%	3.56%	2.65%	8.80%
Return on capital employed (%)	29.58%	26.47%	14.31%	30.96%	17.66%	15.45%	28.90%
Return on equity (%)	31.27%	37.20%	17.39%	41.46%	24.11%	14.06%	63.65%
Fixed asset turnover (ratio)	7.69	8.05	7.86	27.90	14.57	8.20	3.48
Working capital days (number)	4	111	67	55	65	61	47
Cash profit	7,279.50	400.62	499.88	642.14	315.89	3,133.00	822.27
Debt/equity	0.26	0.87	1.41	0.46	0.11	0.39	1.62
Interest coverage ratio	19.72	6.20	2.52	11.67	4.30	6.05	6.06
Operating cash flow to EBITDA	0.69	0.07	-0.17	0.19	-0.83	0.64	0.27

Source: Company financials, CRISIL MI&A Consulting

Definitions of the financial parameters mentioned in the above table:

- EBITDA is calculated as profit for the period minus other income plus finance costs, depreciation and amortisation and total tax expense.
- EBITDA margin is calculated as EBITDA divided by revenue from operations.
- PAT Margin is calculated as profit for the period divided by revenue from operations.
- Return on capital employed is calculated as EBIT divided by capital employed. EBIT is calculated as profit for the period plus finance costs and total tax expense. Capital Employed is calculated as the sum of Tangible Net Worth, Debt and Deferred Tax Liability.
- Return on equity is calculated as profit for the period divided by average equity where average equity is the average of opening and closing equity for the year.
- Fixed Asset Turnover Ratio is calculated as revenue from operations divided by Property, Plant and Equipment.
- Working capital days is computed as Inventory days plus Trade receivable days minus Trade payable days. Inventory days is calculated as Inventory divided by revenue from operations multiplied by 365 days. Trade receivables days is calculated as Trade receivables divided by revenue from operations multiplied by 365 days. Trade payable days is calculated as Trade payable divided by revenue from operations multiplied by 365 days.
- Cash profit is calculated as the sum of profit for the period and depreciation.
- Debt/equity is calculated as Debt divided by total equity. Debt is calculated as the sum of long term borrowings, short term borrowings and lease liability. Total equity is calculated as the sum of equity share capital and reserves and surplus for the year.
- Interest Coverage Ratio is calculated as EBIT divided by Finance Cost. EBIT is calculated as profit for the period plus finance costs and total tax expense.
- Operating Cashflow to EBITDA is calculated as CashFlow from Operations divided by EBITDA.

Peer comparison for fiscal 2023 (₹ million, unless mentioned otherwise)

Particulars	APL Apollo Tubes	Hariom Pipe Industries	Hi-Tech Pipes	JTL Industries	Rama Steel Tubes	Surya Roshni	Sambhv Steel
Revenue from operations	161,659.50	6,437.12	23,858.47	15,499.19	13,367.54	79,967.10	9,372.20
EBITDA	10,215.50	818.84	966.96	1,282.83	530.83	6,141.60	1,173.00
EBITDA margin (%)	6.32%	12.72%	4.05%	8.28%	3.97%	7.68%	12.52%
PAT	6,418.60	462.08	376.81	901.28	274.37	3,355.20	603.83

PAT margin (%)	3.97%	7.18%	1.58%	5.82%	2.05%	4.20%	6.44%
Return on capital employed (%)	23.28%	10.82%	12.62%	24.89%	12.47%	21.47%	20.20%
Return on equity (%)	24.36%	19.41%	11.14%	29.80%	14.56%	19.67%	33.57%
Fixed asset turnover (ratio)	6.62	4.79	8.33	23.71	17.97	8.76	3.19
Working capital days (number)	0	160	49	66	58	68	57
Cash profit	7,801.90	556.33	514.54	943.83	321.66	4,509.30	765.34
Debt/equity	0.29	0.79	0.56	0.26	0.77	0.22	1.35
Interest coverage ratio	13.87	7.05	2.41	20.31	2.73	12.81	4.72
Operating cash flow to EBITDA	0.68	-1.23	1.38	0.03	-1.81	0.46	0.55

Source: Company financials, CRISIL MI&A Consulting

Peer comparison for fiscal 2024 (₹ million, unless mentioned otherwise)

Particulars	APL Apollo Tubes	Hariom Pipe Industries	Hi-Tech Pipes	JTL Industries	Rama Steel Tubes	Surya Roshni	Sambhv Steel
Revenue from operations	181,188.00	11,531.88	26,992.93	20,402.29	10,465.10	78,092.70	12,857.57
EBITDA	11,921.70	1,385.95	1,148.59	1,521.90	600.99	5,724.20	1,598.72
EBITDA margin (%)	6.58%	12.02%	4.26%	7.46%	5.74%	7.33%	12.43%
PAT	7,324.40	568.00	439.31	1,130.11	299.96	3,291.60	824.39
PAT margin (%)	4.04%	4.93%	1.63%	5.54%	2.87%	4.21%	6.41%
Return on capital employed (%)	22.38%	13.02%	10.38%	19.50%	12.27%	20.96%	17.66%
Return on equity (%)	22.16%	13.54%	8.83%	19.12%	10.25%	16.34%	25.42%
Fixed asset turnover (ratio)	5.77	3.15	7.62	18.32	13.44	9.38	3.82
Working capital days (number)	-4	127	63	57	42	67	41
Cash profit	9,083.70	906.66	594.19	1,185.69	356.41	4,464.30	1,033.49
Debt/equity	0.32	0.80	0.63	0.03	0.43	0.01	0.80
Interest coverage ratio	9.62	3.38	2.40	30.49	2.77	23.38	4.48
Operating cash flow to EBITDA	0.93	0.04	-0.83	-0.15	0.30	0.94	0.87

Source: Company financials, CRISIL MI&A

6.2.1 EBITDA margin

Year	FY22	FY23	FY24
EBITDA margin (%)			
APL Apollo Tubes	7.24%	6.32%	6.58%
Hariom Pipe Industries	13.03%	12.72%	12.02%
Hi-Tech Pipes	5.35%	4.05%	4.26%
JTL Industries	6.60%	8.28%	7.46%
Rama Steel Tubes	5.46%	3.96%	5.74%
Surya Roshni	5.73%	7.68%	7.33%
Peer set average	6.64%	6.63%	6.79%
Sambhv Steel	15.20%	12.52%	12.43%

Note: The peer set includes the following six companies: APL Apollo Tubes, Hariom Pipe Industries, Hi-Tech Pipes, Rama Steel Tubes, JTL Industries, and Surya Roshni

Source: Company financials, CRISIL MI&A Consulting, industry.

Sambhv Steel has achieved higher EBITDA margins than average EBITDA margins of its peer set over fiscals 2022-24. It indicates that Sambhv Steel has been able to efficiently control operating costs throughout the period.

6.2.2 PAT margin

Year	FY22	FY23	FY24
PAT margin (%)			
APL Apollo Tubes	4.74%	3.97%	4.04%
Hariom Pipe Industries	7.42%	7.18%	4.93%
Hi-Tech Pipes	2.15%	1.58%	1.63%
JTL Industries	4.51%	5.82%	5.54%
Rama Steel Tubes	3.56%	2.05%	2.87%
Surya Roshni	2.65%	4.20%	4.21%
Peer set average	3.90%	3.92%	3.97%
Sambhv Steel	8.80%	6.44%	6.41%

Note: The peer set includes the following six companies: APL Apollo Tubes, Hariom Pipe Industries, Hi-Tech Pipes, Rama Steel Tubes, JTL Industries, and Surya Roshni.
Source: Company financials, CRISIL MI&A Consulting, industry

Similar to EBITDA margins, the PAT margins of Sambhv Steel have also remained higher than the average PAT margins of its peer set during fiscals 2022-24.

6.2.3 Return on capital employed (ROCE)

Year	FY22	FY23	FY24
ROCE (%)			
APL Apollo Tubes	29.58%	23.28%	22.38%
Hariom Pipe Industries	26.47%	10.82%	13.02%
Hi-Tech Pipes	14.31%	12.62%	10.38%
JTL Industries	30.96%	24.89%	19.50%
Rama Steel Tubes	17.66%	12.47%	12.27%
Surya Roshni	15.45%	21.47%	20.96%
Peer set average	22.83%	20.53%	19.46%
Sambhv Steel	28.90%	20.20%	17.66%

Note: The peer set includes the following six companies: APL Apollo Tubes, Hariom Pipe Industries, Hi-Tech Pipes, Rama Steel Tubes, JTL Industries, and Surya Roshni.
Source: Company financials, CRISIL MI&A Consulting, industry

ROCE for Sambhv Steel has remained close to average ROCE of its peer set. In fiscal 2022, the ROCE of Sambhv Steel was significantly higher than that of its peer set's average. However, in fiscals 2023 and 2024, the ROCE of Sambhv Steel declined to 20.20% and 17.66% respectively, falling a tad behind average peer set ROCE of 20.53% and 19.46% in the respective fiscals.

6.2.4 Return on equity (ROE)

Year	FY22	FY23	FY24
ROE (%)			
APL Apollo Tubes	31.27%	24.36%	22.16%
Hariom Pipe Industries	37.20%	19.41%	13.54%
Hi-Tech Pipes	17.39%	11.14%	8.83%
JTL Industries	41.46%	29.80%	19.12%
Rama Steel Tubes	24.11%	14.56%	10.25%

Surya Roshni	14.06%	19.67%	16.34%
Peer set average	27.56%	24.32%	20.38%
Sambhv Steel	63.65%	33.57%	25.42%

Note: The peer set includes the following six companies: APL Apollo Tubes, Hariom Pipe Industries, Hi-Tech Pipes, Rama Steel Tubes, JTL Industries, and Surya Roshni.
Source: Company financials, CRISIL MI&A Consulting, industry

ROE of Sambhv Steel has remained significantly higher than the average ROE of its peer set throughout fiscals 2022-2024 period.

6.2.5 Working capital days

Year	FY22	FY23	FY24
Working capital days (number)			
APL Apollo Tubes	4	0	-4
Hariom Pipe Industries	111	160	127
Hi-Tech Pipes	67	49	63
JTL Industries	55	66	57
Rama Steel Tubes	65	58	42
Surya Roshni	61	68	67
Peer set average	30	29	25
Sambhv Steel	47	57	41

Note: The peer set includes the following six companies: APL Apollo Tubes, Hariom Pipe Industries, Hi-Tech Pipes, Rama Steel Tubes, JTL Industries, and Surya Roshni.
Source: Company financials, CRISIL MI&A Consulting, industry

Working capital days of Sambhv Steel remained more than its peer set average during fiscals 2022-2024. However, barring APL Apollo tubes, Sambhv Steel has managed to achieve working capital days lower than each of the other peers during the entire period. Sambhv Steel has also managed to bring working capital days down from 57 days in fiscal 2023 to 41 days in fiscal 2024, indicating company's improved ability to convert working capital into sales.

7. Profiling of Sambhv Steel

7.1 Business profile

Sambhv Steel is a leading domestic manufacturer of steel pipes and structural tubes (hollow section) with its two manufacturing facilities based in Raipur (Chhattisgarh). It is the only company in India with a single location (in Raipur) backward integrated manufacturing facility for steel pipes and tubes. It produces narrow width HR coils in-house by implementing high-end technology, which is unheard of in the Indian market, which are then used to manufacture pipes and tubes. The company's plants are strategically located in Raipur, which has an easy availability of heavy vehicles and is considered as the logistics and consumption hub. Further, owing to the location of its facilities in the mineral-rich state of Chhattisgarh, the company has access to the best quality coal and iron ore.

As of March 31, 2024, Sambhv Steel produced ~1 million tonne per annum of high-quality steel (intermediate and finished) products⁵.

Finished products and industry applications

Finished products	Applications
HR coils (including stainless steel HR coils)	Automatic clutch plates, wheels and wheel rims, pipes and tubes, agricultural equipment, metal buildings, and industrial and engineering parts
ERW black pipes and tubes	Engineering and structural purposes, fencing, scaffolding, automobile and agricultural sectors, and water and gas transportation
Galvanised iron (GI) pipes and tubes	Hot and cold-water supply, telecommunications, fire-fighting systems, agriculture and for use in coastal regions

Intermediate products: Sponge iron, mild and stainless steel blooms/slabs, (and captive power).

The company is also expanding into stainless steel hot rolled annealed and pickled (HRAP) coils, cold rolled (CR) coils, stainless steel CR coils, galvanized plain (GP) coils, cold rolled full hard (CRFH) pipes, and GP pipes from fiscal 2025.

Manufacturing process at the company

The company is primarily involved in the manufacturing of ERW steel pipes and tubes along with value added products such as GI pipes. The company's production process is highly backward integrated as it starts with the production of sponge iron at its facilities through the direct reduced iron (DRI) process. The key raw materials utilized in the DRI process include iron ore and coal, which are sourced by the company from the nearby coal and iron ore mines. The company then produces steel blooms/slabs which are hot rolled to form hot rolled coils. The production process of crude steel is highly energy efficient as waste heat recovery boiler (WHRB) and atmospheric fluidized bed combustion (AFBC) methods are used to power the steel melting operations. The hot rolled coil is then slitted into strips, which are joined together through electric resistance welding (ERW) process to form ERW pipes.

Key process innovation techniques adopted at the company

Manufacture of Stainless Steel through argon oxygen decarburization ("AOD") process:

In this process, scrap or virgin raw materials are melted in an induction furnace and subsequently decarburized and refined in a special AOD vessel. Controlled injection of oxygen mixed with argon or nitrogen decarburizes the molten metal with a minimum of unwanted metallic oxidation. De-oxidation, desulfurization (in the case of low alloy steels, dephosphorization), and recovery of desirable metals from the slag are carried out in the AOD vessel. Degassing, homogenization, and inclusion flotation proceed continuously throughout all stages of the process to produce a clean

⁵ Note: As of fiscal 2025 (year-till-date), the company is producing at the rate of 1.5 million tonnes per annum

and uniform product. The company is among a limited number of manufacturers in India manufacturing SS blooms/slabs through the AOD process, which is a cost-effective process. This process consumes lower raw material and gives higher metallic yields than the other equivalent processes. Thus, better quality of product at a low cost and a minimum raw material consumption provides a degree of competitiveness edge to the Company.

Manufacture of alloy steel through ladle refining process:

A ladle refining furnace is used to raise the temperature and adjust the chemical composition of molten steel by conducting operations such as de-oxidation, desulphurization, dephosphorization, controlled additions of alloying elements and inclusion modification on molten steel. This process allows the company to manufacture quality steel products (alloy steel) through induction furnace route.

WHRB based power plant:

A WHRB power plant generates power using flue gases generated from DRI kilns. Use of this process for power generation results in energy conservation as no fuel is involved.

AFBC based power plant:

The AFBC boiler installed by the company is suitable for combustion of relatively low quality fuel (such as Dolochar) which is generated as a by-product during the sponge iron manufacturing process. This results in the reduction of the waste, the company generates and a relatively cost-effective method for power generation.

Proposed / planned products

Product	Key end use market
CR coils (mild steel)	CR coils are used to CRFH pipes and GP coils
Galvanized plain (GP) coils	GP coils are used to manufacture GP pipes. Further, GP pipes are directly sold to industries such as pre-fabricated buildings, purlin, cable trays
Stainless Steel hot rolled annealed and pickled (HRAP) coils	Stainless steel HRAP coils are used for production of stainless steel CR coils
Stainless Steel CR coils	Stainless steel CR coils are majorly sold to stainless steel pipe manufacturers, utensil makers, etc.
Cold rolled full hard (CRFH) pipes	CRFH pipes are generally used in furniture industry and in making industrial machinery components.
Galvanized plain (GP) pipes	GP pipes are generally used for telecommunications, infrastructure, construction, firefighting systems, irrigation systems, solar module mounting structure, fencing and handrails and in industrial and manufacturing applications. Due to their corrosion resistant properties, they are also widely used in the coastal regions for construction and fabrication in place of ERW black pipes and tubes.

Source: Company

7.2 Operational performance of the company

Product wise capacities (in metric tonnes per annum) and capacity utilization levels (in %) (FY 2022-2024)

Products	FY22			FY23			FY24		
	Installed capacity	Available capacity	Capacity utilization (%)	Installed capacity	Available capacity	Capacity utilization	Installed capacity	Available capacity	Capacity utilization (%)
Figures in Metric Tonnes Per Annum, unless mentioned otherwise									

Sponge iron	90,000	90,000	120.16%	105,000	99,904	111.32%	105,000	105,000	114.67%
Blooms/Slabs	150,000	138,575	110.40%	231,000	178,849	94.52%	317,400	298,227	82.57%
HR coils	150,000	92,877	102.66%	350,000	221,233	54.63%	350,000	350,000	58.71%
Cold rolled coils	-	-	-	100,000	35,616	-	100,000	100,000	-
ERW (black) pipes	-	150	-	250,000	168,767	41.78%	250,000	250,000	74.04%
GI pipes	-	-	-	-	-	-	-	-	-

Source: Company

Note: Capacity utilization is determined with respect to available capacity

Product wise production and sales volume (both in metric tonnes per annum) (FY 2022-2024)

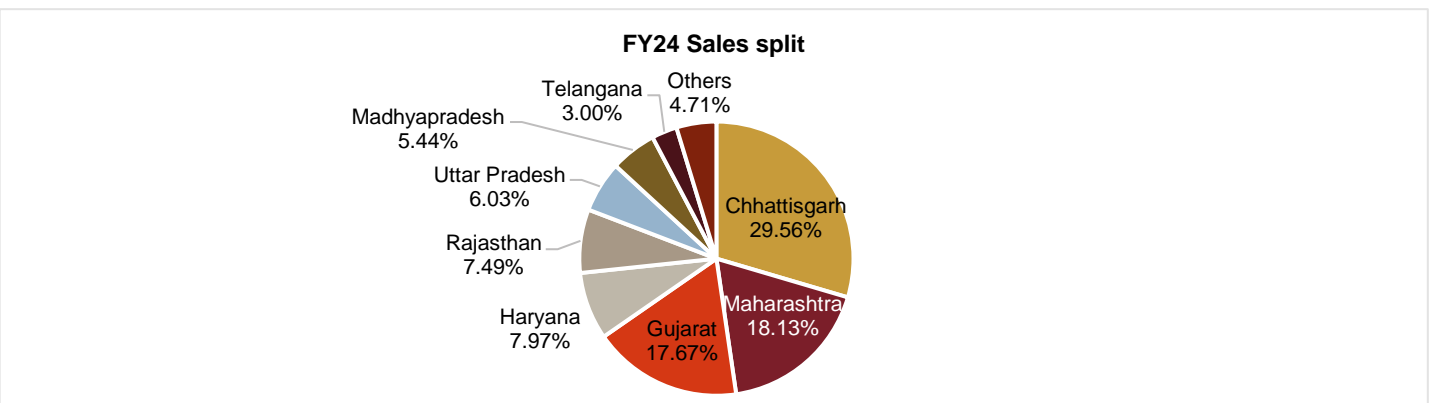
Products	FY22		FY23		FY24	
	Production volume	Sales volume	Production volume	Sales volume	Production volume	Sales volume
Figures in Metric Tonnes Per Annum						
Sponge iron	108,141	14,157	111,213	7,941	120,405	2,125
Blooms/Slabs	152,991	53,893	169,048	42,122	246,240	31,096
HR coils	95,346	89,334	120,863	42,303	205,485	4,977
ERW (black) pipes	150	-	70,509	64,780	185,096	179,374
GI pipes	-	-	-	907	5,709	5,689
Total	356,628	157,384	471,633	158,053	762,935	223,261

Source: Company

7.3 Footprint across Indian steel pipes market (FY 2024)

Region-wise sales of products

At present, the company is supplying its products to over 15 states and one union territory with more than 60% of the sale volume coming from just 3 states, namely Chhattisgarh, Maharashtra, and Gujarat. The region-wise split for the company's sales volume for fiscal 2024 is as below:



Source: Company

7.4 Strengths, weakness and opportunity analysis

Strengths

Manufacturing and backward integration capabilities

- Sambhv Steel is the only company in India with a single location backward integrated manufacturing facility for ERW steel pipes and tubes with presence across the value chain as of March 31, 2024. The company is also the only player in India to manufacture narrow-width HR coil with backward integration capability, as of March 31, 2024. The company's backward integration processes allow it to manufacture a range of finished products including ERW

black pipes and tubes (hollow section) and galvanized iron (“GI”) pipes, using intermediate products such as sponge iron, blooms/slabs and hot rolled (“HR”) coil which are manufactured in-house. Further, the company is one of the two players in India manufacturing ERW steel pipes and tubes (along with hollow section pipes and tubes) using narrow-width HR coil as of March 31, 2024. Furthermore, the company is the only ERW steel pipes and tubes manufacturer in India that refines steel directly from iron ore instead of making products from aftermarket coil.

- Sambhv Steel is the only company in India producing narrow-width HR coils through a secondary manufacturing route, using induction furnaces and direct reduced iron (“DRI”). The backward integration capability helps the company to reduce inventory management costs and logistics costs.
- The induction furnaces convert steel scrap and sponge iron into liquid steel by induction heating. This liquid metal is further processed into blooms/slabs, narrow width HR coils and other products. As compared to production of HR coils by way of a blast furnace, a method generally adopted by primary HR coil manufacturers, Sambhv Steel’s narrow-width HR coil manufacturing capabilities, which are at par with those of primary manufacturers of HR coils, leads to reduced capital expenditure and costs during its pipe manufacturing process and reduces dependency on external HR coil suppliers.
- The company uses sponge iron or DRI as a feed in induction furnaces and as a substitute for steel scrap because high-quality scrap is costly and scarcely available.
- The company’s in-house narrow-width HR coil manufacturing allows it to manufacture ERW pipes and tubes with varied thickness and size as per customer requirements and reduce the dependency on the external markets, giving it a competitive edge. The company’s integrated manufacturing facility is designed in such a manner that it is able to respond swiftly to market demand for a particular size of pipe or tube as it controls the end-to-end supply chain for its products unlike other industry players who rely on external coil manufacturers for supply of the required grade and size of HR coils. Furthermore, the integrated manufacturing processes enable the company to deliver consistent quality products with reduced delivery timeline and at competitive prices, ensuring that the customers prefer the company, which gives it a competitive advantage.
- Backward integration helps the company in achieving operational efficiency, reducing product costs, controlling supply of raw materials, and monitoring quality of the products, thus giving it a competitive advantage.
- The company has an integrated Hydraulic Automatic Gauge Control (HAGC) system controlling coil thickness which can gauge thickness tolerance of around 0.05 mm which is at par with the best industry standards ensuring high quality output.
- The company’s WHRB based power plant, which powers steel making process using the gases generated during the sponge iron manufacturing process and thus uses no fuel, results in energy conservation.
- The company’s AFBC based power plant generates power from the combustion of low-quality fuel (such as Dolochar), which is generated as a by-product during the sponge iron manufacturing process. This results in a cost-effective while also reducing waste generation in the whole process.

Locational advantages

- The company’s manufacturing facility is well connected by roads and railways.
- Chhattisgarh, which is present near the geographical center of the country, is emerging as the country’s logistics and distribution hub. Raipur, where the company’s operations are situated, is a major distribution hub for consumables such as FMCG products, grains, fruits, vegetables and other household items which are received from various parts of India and distributed to nearby states. Thus, the location of the manufacturing facilities in Raipur serves the company multiple advantages from the perspective of logistics and distribution.
- The current manufacturing facilities of the company, located respectively in villages Sarora (Tehsil: Tilda) and Kuthrail (Tehsil: Dharsiwa), and a new proposed facility located in Village Kesda (Tehsil: Simga) are in proximity to each other. Further, the strategic selection of these three locations helps the company to streamline its operations in an efficient manner while keeping the logistics costs low.

- The company's strategic location in Raipur helps it to cater to the demand across India, with well-connected road and rail infrastructure.

(FMCG: Fast moving consumer goods)

- *Proximity to raw material suppliers*

The company manufactures ERW black steel pipes and structural tubes (hollow section) at its Sarora (Tilda) Facility, which is spread across 334,540 square meters of owned land strategically located in the mineral rich belt of Raipur, Chhattisgarh. The facility is located in close proximity to its key raw material suppliers. The company sources its iron ore requirements from a navratna PSU mining company's mines which are known for producing India's highest grade of iron ore. As a result, the company has access to DRCLLO grade iron ore as raw material for its products. Further, one of the key iron ore producing units of this PSU is present in the Bailadila Sector in Chhattisgarh, which is nearby to company's plant location in Raipur, providing the company a key locational advantage.

(PSU: Public sector undertaking; DRCLLO: Directly reduced calibrated lump ore)

Further, the company sources its coal requirements from a maharatna PSU through one of its highest coal producing subsidiary whose mines are Asia's largest coal mines and are merely 250 kilometres from the company's Sarora (Tilda) Facility. Maharatna PSU is the largest coal producer in India and contributes to approximately 85% of India's total domestic coal production and the company has a long term coal supply agreement with them to fulfill its major coal requirements. This strategic proximity not only optimizes the company's logistics but also ensures a steady and efficient supply chain.

Sales / distribution / margins advantages

- As of March 31, 2024, the company has 33 distinct distributors with two distributors distributing through six branches in 15 states and one union territory taking the total distributor network to 39. These distributors in turn distribute the company's finished products through its 600 dealers in India as of March 31, 2024. The company's distribution network and its marketing initiatives have resulted in effective outreach of its products to a wide network of retailers and fabricators, thus increasing its brand presence in the market. Additionally, easy availability of heavy vehicles in the Chhattisgarh region ensures connectivity to states across India for the company's finished products.
- The company has a wide-spread presence in the Indian states of Chhattisgarh, Maharashtra, Gujarat, Haryana, Rajasthan, Uttar Pradesh, Madhya Pradesh and Telangana.
- In fiscal 2024, the company had a market share in domestic ERW pipes segment in India of approximately 2.00% in terms of sales volume.
- Further, the company has been posting operating margins of over 12-13% consistently for the last few fiscals

Opportunities

- The demand for steel pipes and tubes in India is expected to grow at a CAGR of 8-9% between fiscals 2025-2029 to 18-20 million tonnes per annum in fiscal 2029, primarily owing to government initiatives to augment urban structural infrastructure and irrigation sector and to infuse investments in the oil and gas sector.
 - Water supply, sanitation, irrigation, and flood control have consistently been top end-use sectors for the steel pipes and tubes industry and are expected to continue to drive their demand over the next few years.
 - Government led schemes such as Jal Jeevan Mission, Har Ghar Nal Yojana, etc. will also support the demand growth for steel pipes and tubes.
- The company's continuous endeavor is to innovate to produce specialized material grades that are in limited supply in India to meet market requirements. It has recently supplied corten steel, a type of steel alloy, which resists the corrosive effects of rain, snow, ice, fog, and other meteorological conditions by forming a coating of dark brown

oxidation over the metal, which inhibits deeper penetration and negates the need for painting and costly rust-prevention maintenance over the years. Corten Steel is used primarily for container manufacturing which are used in marine transport.

- Through process innovation, the company has been able to produce customized value-added products. As part of its forward integration strategy, the company has recently introduced GI pipes, engineered with advanced threading to enhance performance. The company has also diversified into manufacture of single as well as double door frames, which are gaining market share over traditional door frames and are increasingly used in affordable housing projects, villages and forest areas due to their termite proof and ecofriendly properties. These ventures will help the company to cater to a new category of customers.
- The company aims to leverage its expertise in ERW pipes and tubes (GI and GP) and the increasing demand from international markets for these pipes and tubes.
- The company's planned venture into SS HRAP coils, SS cold rolled coils, CRFH pipes, GP coils and GP pipes will increase its capability to provide an improved dimensional accuracy and an improved surface finish. These new products will provide a diversification opportunity to the company by increasing its end-use industry exposure towards various sectors such as hot and cold-water supply systems, telecommunications, infrastructure, construction, firefighting systems, irrigation systems, plumbing systems, poles, signage supports, fencing, and handrails.
- The company's proposed supply of pre-galvanized (GP) pipes aims to meet the growing demand, especially targeting the coastal belt of the country where the demand of such products is higher.

Weaknesses

- The company's EBITDA margins and PAT margins have remained rangebound in the last two fiscals of 2023 and 2024 after falling from the highs of fiscal 2022. The company would need to optimize costs to keep growths in financial parameters intact.
- Working capital days in fiscal 2024, although improved from the low levels of fiscal 2023, remained higher than those of fiscal 2022. The company would need to find new ways in which it can optimize its raw material and finished goods inventory to quickly convert into sales.

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