

Industry Research Report on Steel Pipes and Tubes Industry

September 2026

Disclaimer

This report is prepared by CARE Analytics and Advisory Private Limited (CareEdge Research). CareEdge Research has taken utmost care to ensure accuracy and objectivity while developing this report based on information available in CareEdge Research's proprietary database, and other sources considered by CareEdge Research as accurate and reliable including the information in public domain. The views and opinions expressed herein do not constitute the opinion of CareEdge Research to buy or invest in this industry, sector or companies operating in this sector or industry and is also not a recommendation to enter any transaction in this industry or sector in any manner whatsoever.

This report has to be seen in its entirety; the selective review of portions of the report may lead to inaccurate assessments. All forecasts in this report are based on assumptions considered to be reasonable by CareEdge Research; however, the actual outcome may be materially affected by changes in the industry and economic circumstances, which could be different from the projections.

Nothing contained in this report is capable or intended to create any legally binding obligations on the sender or CareEdge Research which accepts no responsibility, whatsoever, for loss or damage from the use of the said information. CareEdge Research is also not responsible for any errors in transmission and specifically states that it, or its Directors, employees, parent company – CARE Ratings Ltd., or its Directors, employees do not have any financial liabilities whatsoever to the subscribers/users of this report. The subscriber/user assumes the entire risk of any use made of this report or data herein. This report is for the information of the authorized recipient in India only and any reproduction of the report or part of it would require explicit written prior approval of CareEdge Research.

CareEdge Research shall reveal the report to the extent necessary and called for by appropriate regulatory agencies, viz., SEBI, RBI, Government authorities, etc., if it is required to do so. By accepting a copy of this Report, the recipient accepts the terms of this Disclaimer, which forms an integral part of this Report.

Table of Contents

1	Economic Outlook	12
1.1	Global Economy	12
1.2	Indian Economic Outlook	13
1.2.1	GDP Growth and Outlook	13
1.2.2	Fiscal Deficit (as a % of GDP)	14
1.2.3	Consumer Price Index.....	15
1.2.4	GVA in the Industrial Sector	16
1.2.5	Investment Trend in Infrastructure.....	17
1.2.6	Per capita PFCE and GNDI	17
1.2.7	Industrial Growth	18
1.2.8	Budgetary expenditure on Infrastructure	19
1.2.9	Correlation of Steel Demand with GDP Growth	20
1.3	Concluding Remarks	21
2	Global Steel Industry	23
2.1	Overview of the Global Steel Industry.....	23
2.2	Global Production of Steel	24
2.3	Global Steel Demand	26
2.4	Global Steel Prices Trend	27
2.5	Outlook of Global Steel Consumption	28
3	Indian Steel Industry	30
3.1	Overview of the Indian Steel Industry.....	30
3.2	Indian Crude Steel Production	30
3.3	Indian Finished Steel Production and Consumption	31
3.4	Trend in Steel Trade	32
3.5	Domestic Steel Price Trends.....	35
3.6	Outlook of Indian Steel Consumption.....	36
4	Raw Material	38
4.1	Iron Ore	38
4.2	Coal.....	40
4.3	Hot-Rolled (HR) Coils.....	42
4.4	Billets	43
4.5	Cold-Rolled (CR) Coils.....	43
5	Global Steel Pipes and Tubes Industry	45
5.1	Overview	45
5.2	Market Size of the Global Steel Pipes and Tubes Industry	45
5.3	Market Demand of the Global Steel Pipes and Tubes, By Region	46
5.4	Market Demand of the Global Steel Pipes and Tubes Industry, By End-User Industry	48
5.5	Brief Profile of Key Global Players	49
6	Indian Steel Pipes and Tubes Industry	51
6.1	Overview and Current Trade Dynamics of Steel Pipes and Tubes in India.....	51
6.2	Market Size of Steel Pipes and Tubes.....	55
6.3	Manufacturing Process of Submerged Arc Welded (SAW) pipes	55
6.4	Market Size by Technology.....	56
6.5	Market Size of HSAW Pipes and Tubes.....	58
6.6	Market Size by Diameter	60
6.7	Market Size by End-User Industry of SAW/HSAW pipes and tubes	63

6.8	API Grade Pipes	70
7	Key Demand Drivers	73
8	Key Challenges	74
9	SWOT Analysis of the Industry	75
10	Key Government Policies/Regulations	76
11	Threats and Challenges for the Issuer Company and its Products	80
12	Competitive Benchmarking Players in the Steel Pipes and Tubes Industry	81
13	Company Profile	84

List of Tables

Table 1: GDP growth trend comparison - India v/s Other Economies (Real GDP, Y-o-Y change in %)	12
Table 2: RBI's GDP Growth Outlook (Y-o-Y %)	14
Table 3: Industrial sector growth (Y-o-Y growth) - at Constant Prices	17
Table 4: Pricing Trends in HR Coils (In Rs/Tonne).....	43
Table 5: Pricing Trend in Billets (In Rs/Tonne).....	43
Table 6: Pricing Trends in CR Coils (In Rs/Tonne).....	44
Table 7: Allocation among Project components.....	76
Table 8: Benchmarking across Financial Parameters	81

List of Charts

Chart 1: Global Growth Outlook Projections (Real GDP, Y-o-Y change in %).....	12
Chart 2: Trend in Real Indian GDP growth rate.....	14
Chart 3: Gross Fiscal Deficit (% of GDP).....	15
Chart 4: Retail Price Inflation in terms of index and Y-o-Y Growth in % (Base: 2011-12=100, 2023-24=100).....	15
Chart 5: RBI historical Repo Rate.....	16
Chart 6: Gross Fixed Capital Formation (GFCF) as % of GDP (At current prices)	17
Chart 7: Trend of Per Capita GNDI and Per Capita PFCE (Current Price)	18
Chart 8: Y-o-Y growth in IIP (in %)	18
Chart 9: Budgetary outlay towards infrastructure.....	19
Chart 10: Growth in Steel Demand Vs Real GDP Growth.....	20
Chart 11: Global Per capita consumption (in kg)	23
Chart 12: Breakup of region-wise global production capacity in CY25	24
Chart 13: Global Crude Steel Production.....	25
Chart 14: Steel Production Geographical Region in CY25 – 1,849 MT	26
Chart 15: Global Steel Demand (in million tonnes)	27

Chart 16: Trend in Global HRC prices	28
Chart 17: Steel Demand Growth Estimates	29
Chart 18: Finished steel use per capita (Kg)	30
Chart 19: Domestic Crude Steel Production	31
Chart 20: Finished Steel Production in India	31
Chart 21: Finished Steel Consumption in India	32
Chart 22: India's finished Steel exports	33
Chart 23: Country wise exports of finished Steel during FY26	34
Chart 24: India's finished Steel imports	34
Chart 25: Country wise imports of finished Steel during FY26	35
Chart 26: Domestic Average Finished Steel Prices	36
Chart 27: Finished Steel Demand Forecast in India	37
Chart 28: Trend in Iron Ore Production	39
Chart 29: Trend in International Iron ore Prices	40
Chart 30: Trend in International Coal Prices	42
Chart 31: Market Size of the Global Steel Pipes and Tubes Industry	46
Chart 32: Market Demand of the Global Steel Pipes and Tubes Industry, By Region	47
Chart 33: Market Demand of the Global Steel Pipes and Tubes Industry, By End-User Industry	49
Chart 34: Indian Steel Tubes & Pipes Industry	52
Chart 35: Trade Dynamics of Large Diameter Steel Pipes and Tubes	54
Chart 36: Iron and steel pipes, tubes, and hollow profiles	54
Chart 37: Market Size of India Steel Pipes and Tubes Industry	55
Chart 38: Market Size, By Technology	57
Chart 39: Market Size of HSAW Pipes and Tubes	59
Chart 40: Market Size by Diameter of Steel Pipes and Tubes Industry	61
Chart 41: Market Size by End-User Industry of HSAW pipes and tubes	64

Definitions and Abbreviations

Term / Abbreviation	Full Form / Definition	Contextual Explanation
3LPE	Three-Layer Polyethylene	Protective coating system used for corrosion resistance in pipelines.
3LPP	Three-Layer Polypropylene	High-performance pipeline coating system for elevated-temperature environments.
AD 2000	Arbeitsgemeinschaft Druckbehälter 2000	German pressure vessel and pressure equipment code.
AMRUT	Atal Mission for Rejuvenation and Urban Transformation	Government scheme for urban water supply, sewerage, and drainage; drives demand for steel pipes in municipal projects.
API	American Petroleum Institute	Specifies technical standards for pipes used in oil & gas pipelines; ensures safety and reliability.
ARO	Abrasion Resistant Overcoat	Additional protective coating applied to enhance pipe durability.
ASTM	American Society for Testing and Materials	International standards organization for materials, products and systems.
AWWA	American Water Works Association	Organization that develops standards for water infrastructure products.
BIS	Bureau of Indian Standards	National standards body responsible for product and quality certifications in India.
BRSR	Business Responsibility and Sustainability Reporting	ESG disclosure framework mandated by SEBI for listed companies.
CAGR	Compound Annual Growth Rate	Annualized growth rate used for market size and demand projections.
CGD	City Gas Distribution	Network for supplying natural gas to households and industries; major driver for steel pipe demand.
CIS	Commonwealth of Independent States	Regional association of former Soviet republics.
CMIE	Centre for Monitoring Indian Economy	Private economic research organization and data provider.
CNC	Computer Numerical Control	Automated machine control technology for precision manufacturing.
CPI	Consumer Price Index	Measures retail inflation; referenced in economic outlook section.

CR Coils	Cold-Rolled Coils	Flat steel products processed at room temperature for better finish and precision; used in automotive and appliance sectors.
CSA	Corporate Sustainability Assessment	ESG evaluation methodology used by S&P Global.
CSR	Corporate Social Responsibility	Corporate spending and initiatives aimed at social and environmental development.
CS	Carbon Steel	Steel primarily composed of iron and carbon, widely used in piping applications.
DFI	Development Finance Institution	Government-backed entity to finance infrastructure projects; indirectly supports steel demand.
DI Pipes	Ductile Iron Pipes	Alternative to steel pipes in water and sewage systems; mentioned as competing material.
DJSI	Dow Jones Sustainability Index	Global sustainability benchmark index.
DPAP	Drought Prone Area Programme	Scheme referenced under Jal Jeevan Mission for prioritizing water supply in drought-prone areas.
EBITDA	Earnings Before Interest, Tax, Depreciation and Amortisation	Financial performance metric used extensively in benchmarking and profitability analysis.
EBIT	Earnings Before Interest and Tax	Measure of operating profitability before accounting for interest and taxes.
EN	European Norm	European standards adopted across member countries.
EPC	Engineering, Procurement and Construction	Project execution model widely used in infrastructure, energy and pipeline projects.
ERW	Electric Resistance Welded	Pipe manufacturing technology using electric resistance welding; common for low/medium pressure applications.
ESG	Environmental, Social and Governance	Framework used to assess sustainability and responsible business practices.
EFTA	European Free Trade Association	Intergovernmental trade organization comprising Iceland, Liechtenstein, Norway and Switzerland.
FBE	Fusion Bonded Epoxy	Coating type for corrosion protection of steel pipes; mentioned in coating capabilities.
FDI	Foreign Direct Investment	Inflows into domestic steel sector; supports capacity expansion.

FE	Final Estimates	Used in economic data tables for GDP and industrial growth.
FMCG	Fast-Moving Consumer Goods	Consumer products with high turnover and frequent purchase cycles.
FRE	First Revised Estimates	Updated estimates for macroeconomic indicators.
FTA	Free Trade Agreement	Trade pact between countries aimed at reducing tariff and non-tariff barriers.
GDP	Gross Domestic Product	Measures the total value of goods and services produced in an economy; used in the economic outlook section.
GFCF	Gross Fixed Capital Formation	Indicator of investment in physical assets; linked to infrastructure spending.
GNDI	Gross National Disposable Income	Represents income available for consumption and savings; higher GNDI correlates with steel demand.
GST	Goods and Services Tax	Indirect tax levied on the supply of goods and services in India.
Grade B, X42-X80	API 5L Line Pipe Steel Grades	Steel grades used in oil, gas and water transmission pipelines, indicating minimum yield strength.
GVA	Gross Value Added	Indicator of sectoral economic output and contribution to GDP.
HFIW / HFW	High-Frequency Induction Welded / High-Frequency Welded	Pipe manufacturing technologies used for welded steel pipes.
HRRL	HPCL Rajasthan Refinery Limited	Integrated refinery and petrochemical project in Rajasthan.
HSAW	Helical Submerged Arc Welded	Spiral welding process for large-diameter pipes; used in oil, gas, and water transmission. Preferred for large-diameter, high-capacity applications due to superior load distribution, corrosion resistance and pressure-handling efficiency.
HSN	Harmonised System of Nomenclature	International coding system for classification of traded goods.
HR Coils	Hot-Rolled Coils	Flat steel products rolled at high temperature; primary raw material for pipes and tubes.
HVAC	Heating, Ventilation and Air Conditioning	Building utility systems served by certain pipe applications.
IBM	Indian Bureau of Mines	Government organisation responsible for mineral resource statistics and regulation.

IEC	Information, Education and Communication	Awareness and outreach activities under government schemes such as JJM.
IIP	Index of Industrial Production	Measures industrial growth; used to assess steel demand trends.
IMF	International Monetary Fund	International financial institution; source of global economic outlook and growth projections.
IoT	Internet of Things	Network of connected devices used for real-time monitoring and automation.
ISO	International Organization for Standardization	Certification for quality, environment, and safety standards in manufacturing.
IS	Indian Standard	Standards published by BIS for products and manufacturing processes.
IWMP	Integrated Watershed Management Programme	Government programme for watershed development and water resource management.
JJM	Jal Jeevan Mission	Government initiative to provide piped water to every household; major driver for steel pipe demand.
LNG	Liquefied Natural Gas	Natural gas cooled to liquid form for transportation and storage.
LPG	Liquefied Petroleum Gas	Fuel gas commonly used for domestic, commercial and industrial applications.
LME	London Metal Exchange	Global commodities exchange for metals pricing and trading.
LSAW	Longitudinal Submerged Arc Welded	Pipe manufacturing process where plates are welded longitudinally; used for high-strength, large-diameter pipes.
MG-NREGA	Mahatma Gandhi National Rural Employment Guarantee Act	Referenced under JJM for convergence in water projects.
MMTPA	Million Metric Tonnes Per Annum	Unit used to express annual production, transportation or processing capacity.
MOSPI	Ministry of Statistics and Programme Implementation	Government agency providing official economic and statistical data.
MSME	Micro, Small and Medium Enterprises	Classification of small-scale business enterprises in India.
MT	Million Tonnes	Unit of measurement for steel production and consumption volumes.
MTPA / TPA	(Million) Tonnes Per Annum	Unit of annual production or manufacturing capacity.

NMP	National Monetization Pipeline	Government program for asset monetization; indirectly supports infrastructure and steel demand.
NMDC	National Mineral Development Corporation	India's largest iron ore producer and mining company.
NSP	National Steel Policy	Policy targeting 300 MT steel capacity and higher per capita consumption by 2030.
OCTG	Oil Country Tubular Goods	Tubular products used in oil & gas drilling and production; includes casing and tubing.
OD	Outer Diameter	External diameter of a pipe or tube.
PED	Pressure Equipment Directive	European Union directive governing pressure equipment safety.
PIB	Press Information Bureau	Government of India's official information dissemination agency.
PLC	Programmable Logic Controller	Industrial automation controller used in manufacturing processes.
PLI	Production Linked Incentive	Government scheme incentivizing domestic manufacturing of specialty steel.
PNGRB	Petroleum and Natural Gas Regulatory Board	Regulator for natural gas pipelines; oversees National Gas Grid expansion.
PRIs	Panchayati Raj Institutions	Rural local governance bodies involved in development and infrastructure projects.
PU	Polyurethane	Protective coating material used in pipe systems.
Q-o-Q	Quarter-on-Quarter	Growth comparison metric measuring change from one quarter to the next.
Repo Rate	Repurchase Rate	Interest rate at which the Reserve Bank of India lends short-term funds to commercial banks.
RLBs	Rural Local Bodies	Local self-governance institutions in rural areas.
SAAP	State Annual Action Plan	Planning document under AMRUT for water and sewerage projects.
SAW	Submerged Arc Welded	Welding process for manufacturing thick-walled, large-diameter steel pipes.
SCADA	Supervisory Control and Data Acquisition	Industrial control system used for monitoring and managing utility and pipeline networks.
SEBI	Securities and Exchange Board of India	Regulator of securities and capital markets in India.

SS	Stainless Steel	Corrosion-resistant steel alloy used across industrial applications.
SWOT	Strengths, Weaknesses, Opportunities, Threats	Strategic analysis framework used for business assessment.
TMT	Thermo-Mechanically Treated	Steel reinforcement bars processed for high strength and ductility.
UDAN	Ude Desh ka Aam Nagrik	Government scheme for enhancing regional air connectivity.
UHV	Useful Heat Value	Parameter for grading non-coking coal; relevant for steelmaking energy requirements.
UT	Ultrasonic Testing	Non-destructive testing method for detecting internal defects in pipes.
Y-o-Y	Year-on-Year	Growth comparison metric used throughout the report.

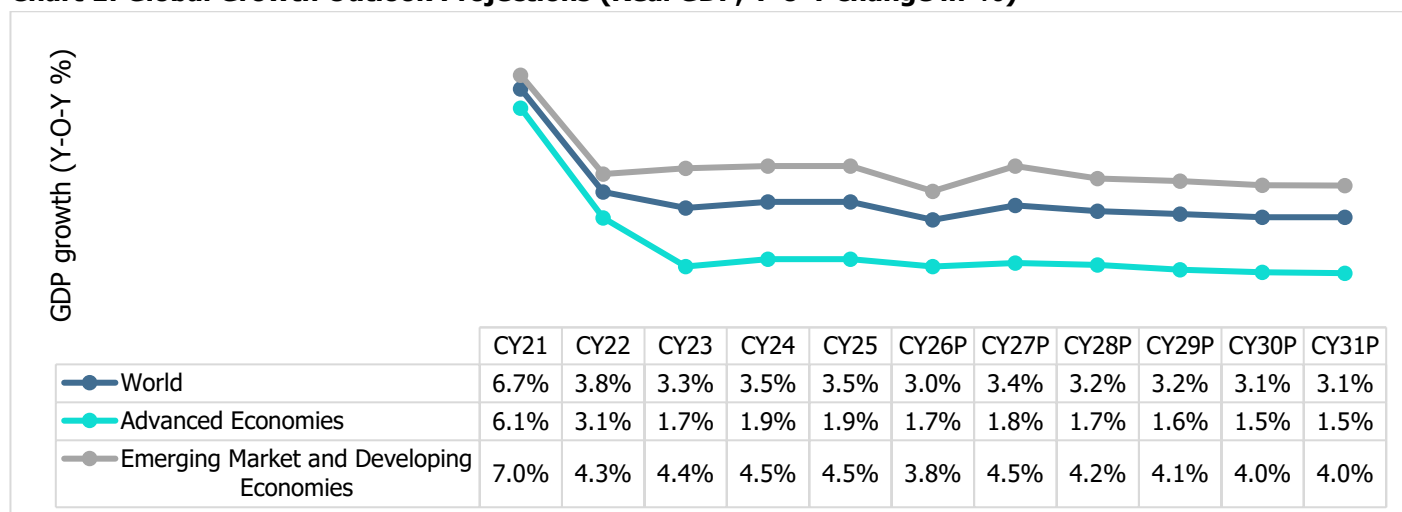
1 Economic Outlook

1.1 Global Economy

Global economic growth is projected to moderate to around 3.0% in 2026, reflecting the impact of geopolitical tensions on energy and trade flows. The ongoing Middle East conflict poses downside risks, with prolonged disruptions potentially reducing growth further to 2.5%, or lower.

However, supportive factors such as continued investment momentum and policy support are helping offset some of these pressures.

Chart 1: Global Growth Outlook Projections (Real GDP, Y-o-Y change in %)



Source: IMF – World Economic Outlook, April 2026 and July 2026; Notes: P-Projection, E-Estimated

Table 1: GDP growth trend comparison - India v/s Other Economies (Real GDP, Y-o-Y change in %)

	Real GDP (Y-o-Y change in %)										
	CY21	CY22	CY23	CY24	CY25	CY26P	CY27P	CY28P	CY29P	CY30P	CY31P
India	9.7	7.6	7.2	7.1	7.7	6.4	6.7	6.5	6.5	6.5	6.5
China	8.6	3.1	5.4	5.0	5.0	4.6	4.1	4.0	3.7	3.3	3.3
Indonesia	3.7	5.3	5.0	5.0	5.1	5.0	5.1	5.2	5.2	5.2	5.2
Saudi Arabia	6.5	12.0	0.5	2.6	4.6	1.7	5.5	3.6	3.5	3.5	3.6
Middle East and Central Asia	4.7	6.4	2.6	3.1	3.7	0.7	6.5	4.0	4.0	3.8	3.8
Latin America	7.5	4.3	2.3	2.4	2.4	2.4	2.7	2.9	2.9	2.7	2.6
Brazil	4.8	3.0	3.2	3.4	2.3	2.4	2.2	2.4	2.5	2.5	2.5
Euro Area	6.4	3.6	0.4	1.0	1.4	0.9	1.2	1.4	1.2	1.1	1.1
United States	6.2	2.5	2.9	2.8	2.1	2.3	2.2	2.1	1.9	1.8	1.8

Source: IMF- World Economic Outlook Database (April 2026, July 2026)

Note: E-Estimate, P- Projections E-Estimated; India's fiscal year (FY) aligns with the IMF's calendar year (CY). For instance, FY24 corresponds to CY23.

Advanced Economies Group

Advanced economies are projected to grow at around 1.7% in CY26 and 1.8% in CY27, the overall effect on growth in advanced economies of the conflict in the Middle East is modest. In the **United States**, growth is forecast at about 2.3% in CY26, supported by fiscal measures and lower interest rates, even as the increase in trade barriers since April 2025 continues to weigh on the trade relations. The **Euro Area** growth is expected to decline in CY26 to 0.9% from 1.4% in CY25 and moderate to 1.2% in CY27, due to negative impact of the war in the Middle East over time even though there was substantial growth in CY25.

Emerging Market and Developing Economies Group

Emerging and developing economies are expected to fall to 3.8% in CY26 and recover to 4.5% in CY27, due to the global conflicts having a greater net impact on emerging economies than advanced economies. **China's** growth remains steady at around 4.6% in CY26 and is expected to fall to 4.1% in CY27 due to higher global oil prices as well as global uncertainty. **India's** growth has been among the fastest-growing major economies, with projections of 6.4% in CY26, driven by strong private consumption and services activity. **Indonesia** is expected to maintain consistent growth of around 5.0% over CY26 and 5.1% in CY27. **Saudi Arabia's** growth in CY26 has a downward projection to have a growth rate of 3.1% on account of the damage due to the ongoing tensions. On the other hand, **Brazil's** growth is projected to be 2.3% in CY26 and 2.4% in CY27, due to the war have a small net positive effect in 2026, as a result of the country being a net energy exporter.

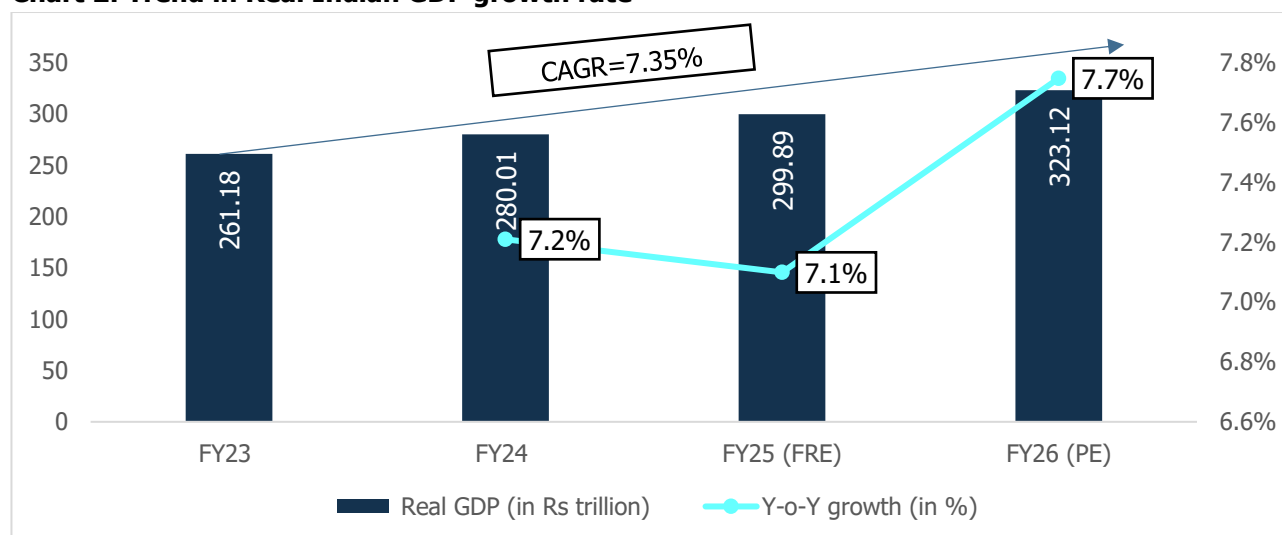
1.2 Indian Economic Outlook

1.2.1 GDP Growth and Outlook

Resilience to External Shocks remains Critical for Near-Term Outlook

India's economy continues to show rapid growth. As per Provisional Estimates, GDP in FY26 is expected to have grown by 7.7%, supported by rising rural demand, better job opportunities and favourable business conditions.

For FY25, First Revised Estimates show a growth of 7.1% (Rs 299.89 trillion), led by robust performance in manufacturing, construction and financial services. Consumer spending rose by 7.7%, and government spending increased by 5.5%, both contributing to the overall growth. In FY23, the real GDP stood at Rs 261.18 trillion and registered YoY growth of 7.2% in FY24 (Rs 280.01 trillion).

Chart 2: Trend in Real Indian GDP growth rate


Source: MOSPI;

Note: FRE- First Revised Estimates, PE- Provisional Estimates;

The trend for FY23-FY26 is based on new series base year 2022-23.

GDP Growth Outlook (June 2026)

FY27 GDP Outlook: The Reserve Bank of India (RBI) projects real GDP growth at 6.6% for 2026–27, supported by sustained momentum in the services sector, strong reservoir levels aiding the agricultural sector, and private consumption expected to remain uplifted by discretionary spending.

However, elevated energy and other commodity prices, cost pressures, as well as the travel disruptions in the Strait of Hormuz are likely to affect the growth this year. However, the government is working towards minimising the impact of the supply chain disruptions towards critical sectors to ensure limited interruptions.

Table 2: RBI's GDP Growth Outlook (Y-o-Y %)

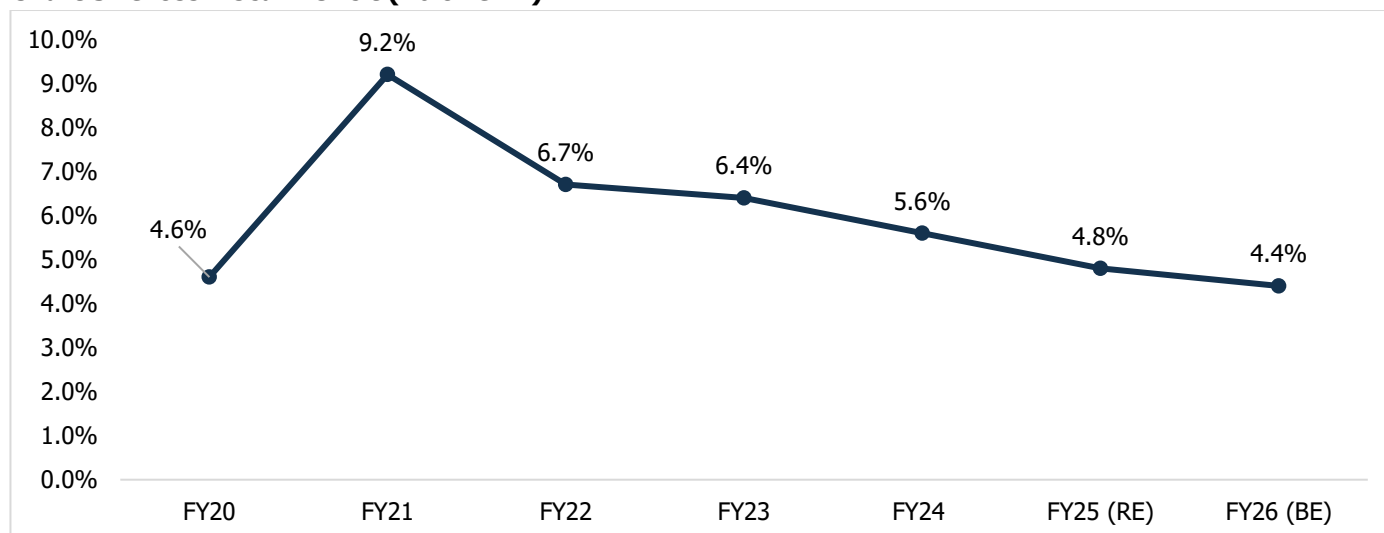
FY27P (Complete Year)	Q1FY27P	Q2FY27P	Q3FY27P	Q4FY27P
6.6%	6.6%	6.3%	6.5%	6.8%

Source: Reserve Bank of India; Note: P-Projected

The trend is based on the old series base year 2022-23.

1.2.2 Fiscal Deficit (as a % of GDP)

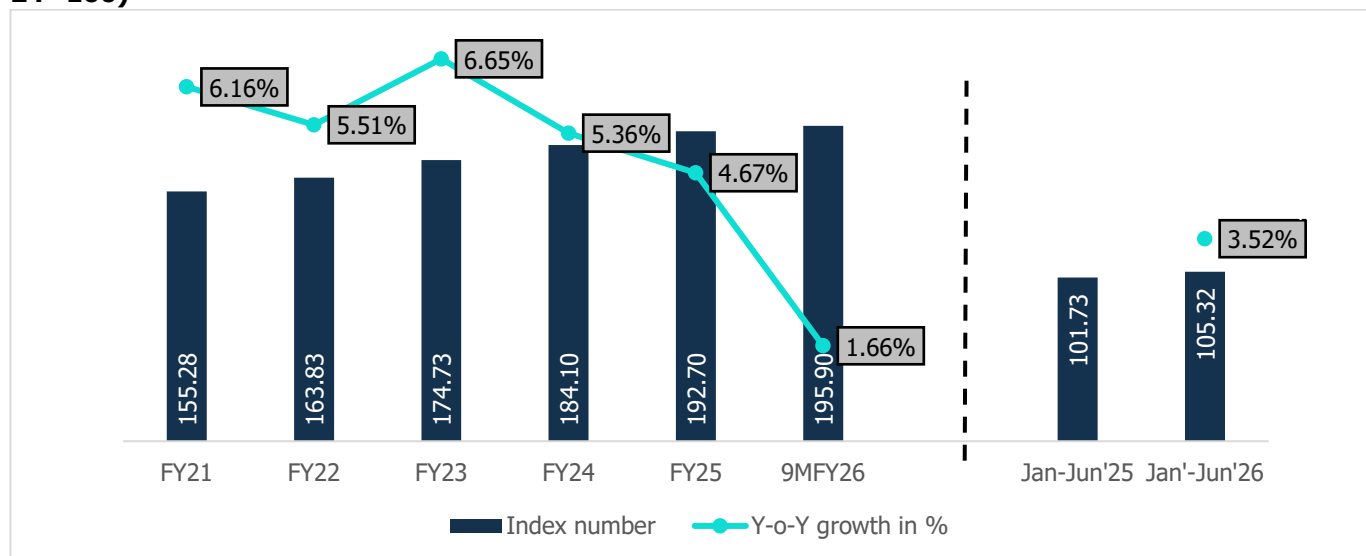
In FY21, India's fiscal deficit was 9.2% due to the impact of COVID-19 pandemic, since then it has seen a steady improvement is expected to reduce to 4.8% of GDP FY25 (RE), driven by strong economic growth and higher tax and non-tax revenues. The government aims for further fiscal consolidation, setting a target of 4.4% of GDP for FY26 to maintain fiscal prudence.

Chart 3: Gross Fiscal Deficit (% of GDP)


Source: RBI; Note: RE-Revised Estimates, BE-Budget Estimates

1.2.3 Consumer Price Index

Between January and June 2026, the inflation averaged around 3.50% across the Consumer Price Index. By June 2026, inflation increased to 4.38% on a year-on-year basis, compared with 3.93% in June 2025. Within this, the rural inflation rate stood at 4.74%, while the urban inflation rate was comparatively lower at 3.92%. This indicates an overall modest inflationary trend, with rural areas experiencing relatively higher price pressures than urban regions.

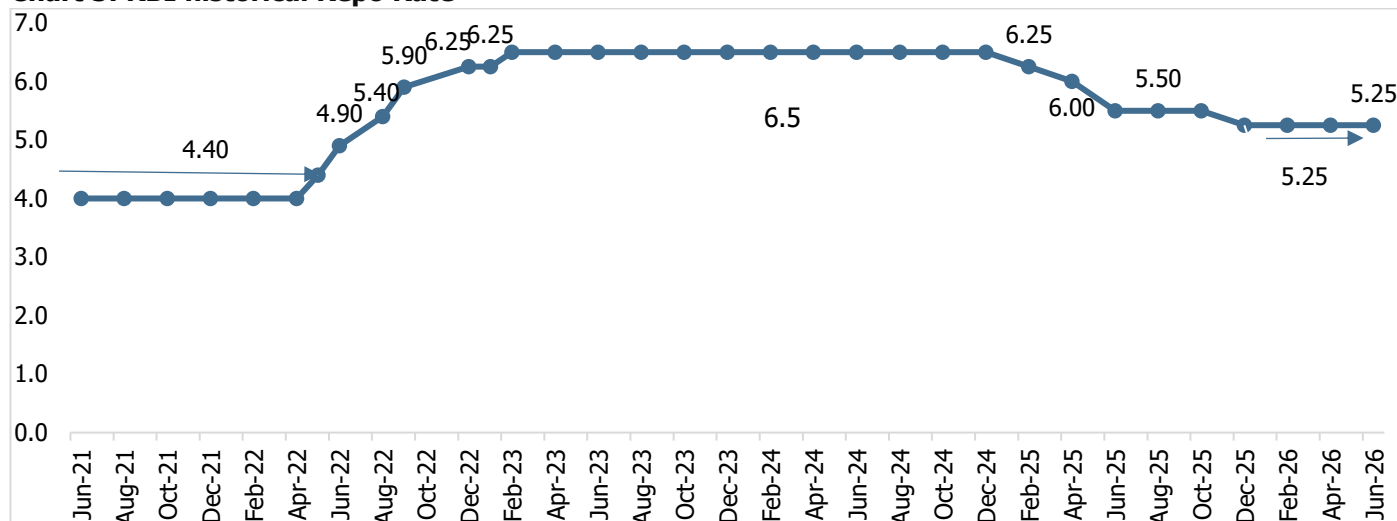
Chart 4: Retail Price Inflation in terms of index and Y-o-Y Growth in % (Base: 2011-12=100, 2023-24=100)


Source: MOSPI

The CPI is primarily factored in by the RBI while preparing their bi-monthly monetary policy. At the bi-monthly meeting held in June 2026, RBI projected inflation at 5.1% for FY27 with inflation during Q1FY27 at 4.2%, Q2FY27 at 5.1%, Q3FY27 at 5.9% and Q4FY27 at 5.4%.

Considering the current inflation situation, RBI has maintained the repo rate at 5.25% in the June 2026 meeting of the Monetary Policy Committee (MPC).

Chart 5: RBI historical Repo Rate



Source: RBI

RBI maintained a 'neutral' monetary policy stance, even as MPC noted an increase in geopolitical tensions. The growth is expected to be supported by robust private consumption and investment demand. RBI has adopted for a non-inflationary growth with the foundations of strong demand and supply with a good macroeconomic balance. With volatile trade conditions in view, the domestic growth and inflation curve requires the policies to be supportive.

The India Meteorological Department (IMD) expects a below normal monsoon, rains in most parts of the country, except in some areas of the northeast, southern peninsula, and northwest India which is likely to affect inflation levels.

The prices of petrol and diesel have increased marginally as the refineries have been absorbing the shocks by reducing the excise duty, despite high global crude oil prices. However, a further hike in prices remains monitorable due to high company losses. The rise in energy prices and weather disturbances affecting food prices are upside risks to inflation.

1.2.4 GVA in the Industrial Sector

India's industrial GVA growth increased to 8.5% in FY26 from 8.3% in FY25, primarily driven by a strong recovery in manufacturing, which accelerated to 10.7% from 9.3%. The improvement was supported by robust domestic demand, higher capital expenditure, sustained infrastructure spending, and increased investment activity. Construction activity remained resilient, supported by continued public infrastructure projects and private sector investments. Government initiatives such as the Production Linked Incentive (PLI) schemes and strong growth in capital goods production also contributed to industrial expansion. These gains more than offset the moderation in mining and utility sector growth during FY26.

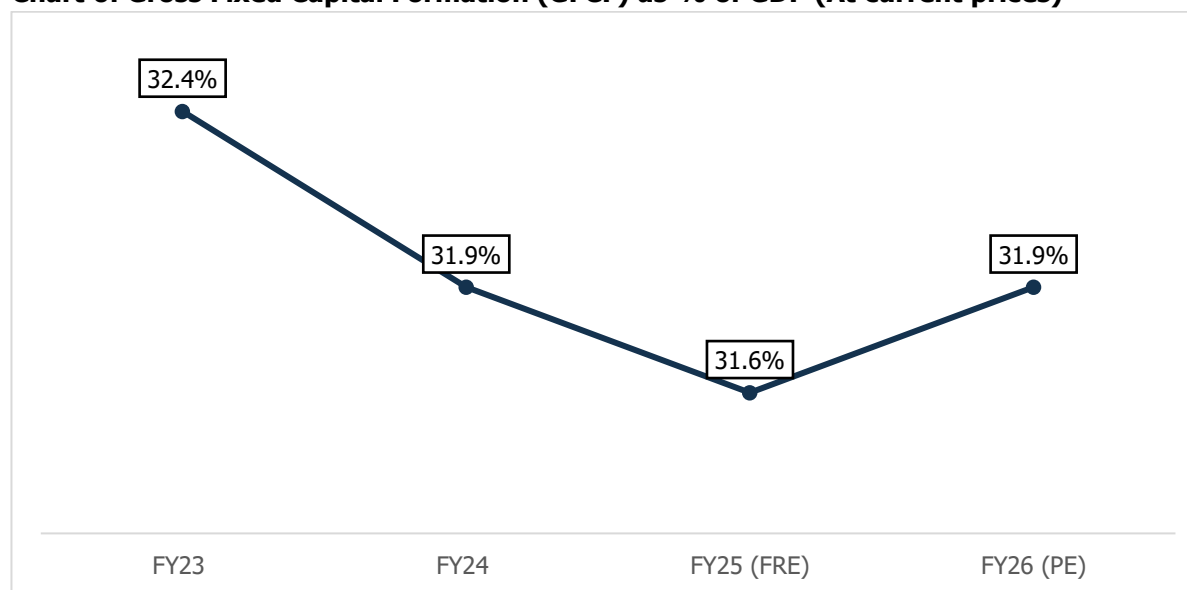
Table 3: Industrial sector growth (Y-o-Y growth) - at Constant Prices

At constant Prices	FY24	FY25 (FRE)	FY26 (PE)
Industry	10.9	8.3	8.5
Mining & Quarrying	2.4	11.7	5.2
Manufacturing	12.7	9.3	10.7
Electricity, Gas, Water Supply & Other Utility Services	10.7	2.9	1.7
Construction	9.9	7.3	7.4

Source: MOSPI; Note: FRE- First Revised Estimates, PE – Provisional Estimates;
The trend for FY24-FY26 is based on new series base year 2022-23.

1.2.5 Investment Trend in Infrastructure

Gross Fixed Capital Formation (GFCF) is a measure of net increase in physical assets. GFCF as a share of GDP eased during FY23–FY25 and was estimated to be broadly stable in FY26. This pattern is aligned with a period in which nominal GDP expanded, while investment growth remained positive, it did not outpace the overall nominal expansion. GFCF rose by 8.9% in FY25 and 9.9% in FY26 in real terms, alongside continued growth in consumption, indicating that the movement in the ratio reflects relative GDP shares rather than a decline in investment activity.

Chart 6: Gross Fixed Capital Formation (GFCF) as % of GDP (At current prices)


Source: MOSPI; Note: FRE- First Revised Estimates, FE – Final Estimates, PE- Provisional Estimates

Overall, the support of public investment in infrastructure is likely to gain traction due to initiatives such as Atmanirbhar Bharat, Make in India, and Production-linked Incentive (PLI) scheme announced across various sectors.

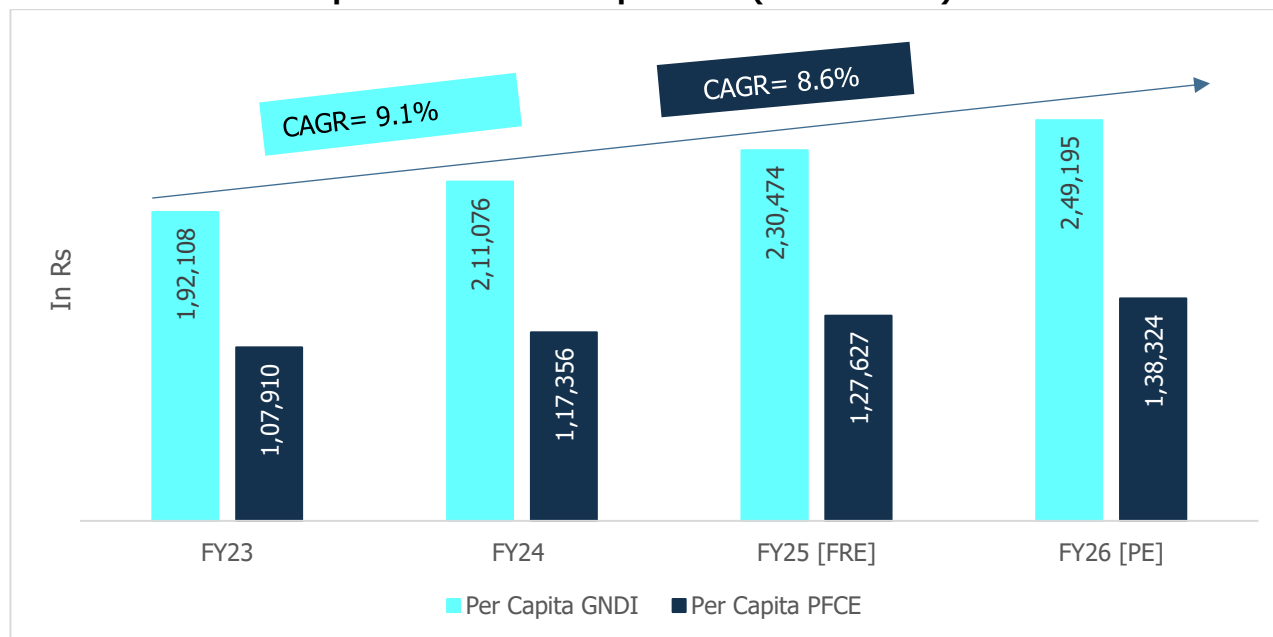
1.2.6 Per capita PFCE and GNDI

• Increasing Disposable Income and Consumer Spending

GNDI is a measure of income available to the nation for final consumption and gross savings. Between the period FY23 to FY26, per capita GNDI at current prices registered a CAGR of 9.1%. More disposable income drives more consumption, thereby driving economic growth.

With increase in disposable income, there has been a gradual change in consumer spending behaviour as well. Per capita PFCE, which is measure of consumer spending, has also shown significant growth from FY23 to FY26 at a CAGR of 8.6%.

Chart 7: Trend of Per Capita GNDI and Per Capita PFCE (Current Price)

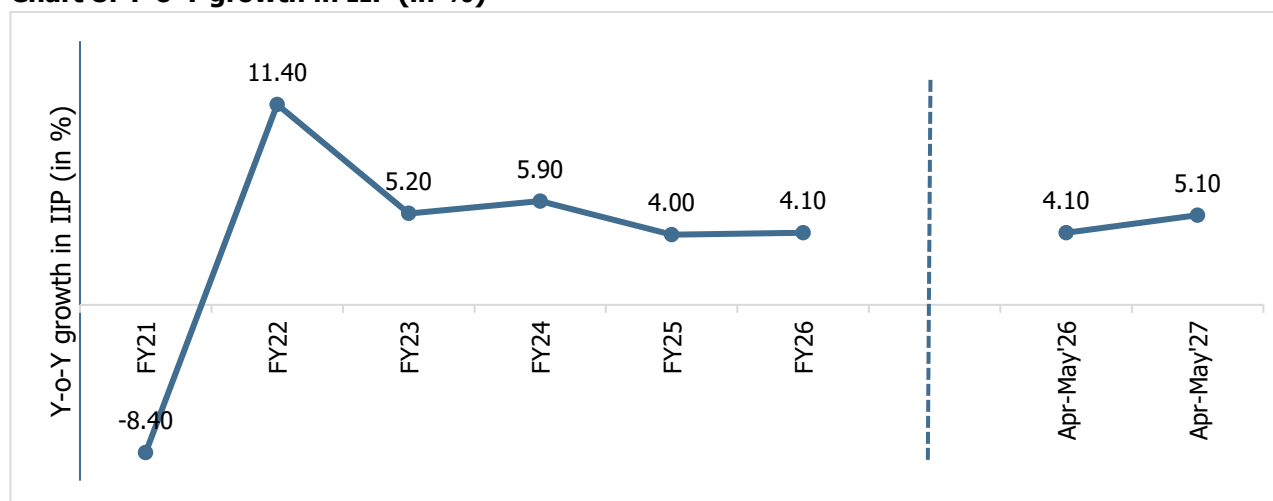


Source: MOSPI; Note: FRE – First Revised Estimates, PE- Provisional Estimates;
The trend for FY23-FY26 is based on new series base year 2022-23.

1.2.7 Industrial Growth

The Index of Industrial Production (IIP) in India grew by 4.1% year-on-year from April-May 2026, showing steady but moderate industrial momentum, supported by 5.5% growth in Manufacturing sector and strong growth of 9.9% in Electricity & Gas Supply sector.

Chart 8: Y-o-Y growth in IIP (in %)

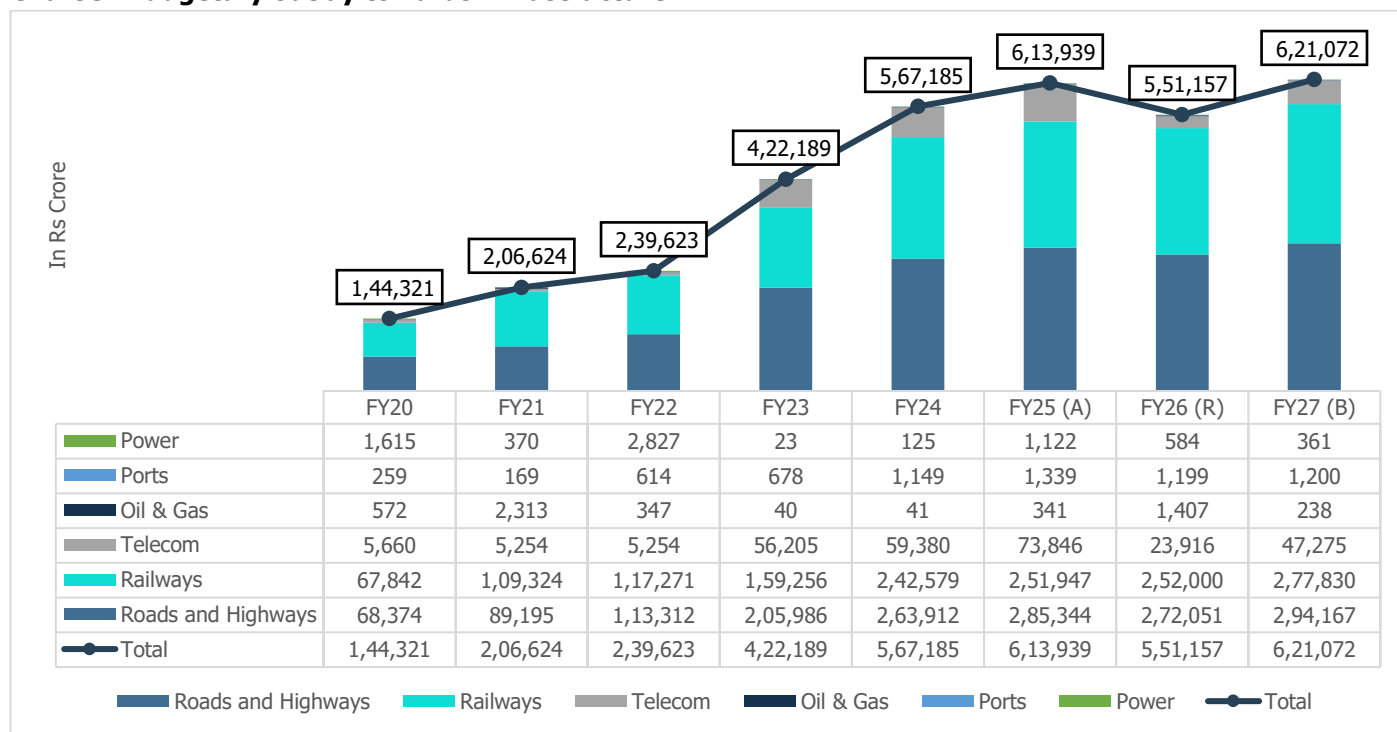


Source: MOSPI

1.2.8 Budgetary expenditure on Infrastructure

With the growing population, the long-term need for robust infrastructure is necessary for economic development. This generates the need for massive investments in the development and modernisation of infrastructure facilities, which will not only cater to the growing demand but will also ensure competitiveness in the global market.

Chart 9: Budgetary outlay towards infrastructure



Source: Union Budget FY27 document; Note: A- Actual, R- Revised, B- Budgeted

Some of the key government infrastructure schemes include:

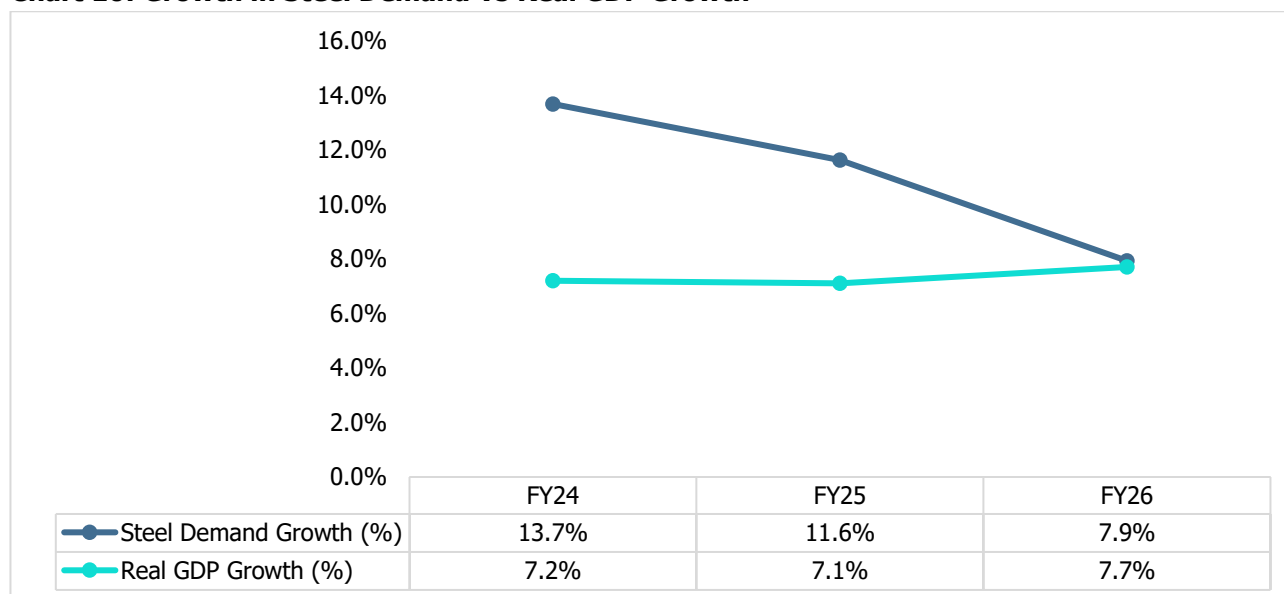
- **Infrastructure financing and asset monetisation (Budget 2026-27)**
 - **Infrastructure Risk Guarantee Fund** announced to strengthen private developer confidence by addressing construction-phase risk.
 - **Dedicated REITs for CPSE assets** announced to accelerate recycling and monetisation of significant CPSE real estate assets, supporting capital redeployment into infrastructure.
 - **Public capex push** continues, with higher Central Government capital expenditure for FY 2026-27 to sustain infrastructure-led growth.
- **Urban infrastructure and city development (Budget 2026-27)**
 - **City Economic Regions (CER)** introduced to support competitive, region-based urban infrastructure and economic agglomerations (Tier II and Tier III focus), with multi-year funding support.
 - **Urban Rejuvenation Mission (including AMRUT and Smart Cities)** continues as the principal umbrella for water supply, sewerage and urban infrastructure investments, with FY 2026-27 allocations provided in the Budget documents.
- **PMAY-Urban 2.0** remains the primary affordable housing programme for urban areas, with FY27 allocations provided in the Budget documents.

1.2.9 Correlation of Steel Demand with GDP Growth

The growth in India's steel demand closely mirrors the country's real GDP performance, underscoring the strong connection between these sectors. Additionally, increased investments in infrastructure and manufacturing play a crucial role in increasing demand for capital-intensive industries like steel. Domestic finished steel consumption has surged, driven by infrastructure investments and a recovery in the automotive sector, particularly with the rise of electric vehicles. This growing demand reflects broader economic recovery and expansion.

Robust GDP growth, fueled by investments in construction and manufacturing, supports the rising demand for steel. The construction, automotive, and infrastructure sectors are key drivers, with government initiatives like Make in India and the PM Gati Shakti plan propelling steel demand. Investments in railways, airports, and metro rail projects, with allocations of Rs 3.09 trillion for the Ministry of Road Transport and Highways and Rs 2.78 trillion for Indian Railways, further strengthen this trend. Additionally, the automotive sector, driven by strong support for electric vehicles, and the growing two-wheeler and three-wheeler markets, fuel ongoing steel demand. As these sectors continue to expand, the demand for steel will remain tightly aligned with India's economic growth, fostering long-term, sustainable growth in steel consumption.

Chart 10: Growth in Steel Demand Vs Real GDP Growth



Source: MOSPI, CMIE, CareEdge Research

Steel Industry's contribution to GDP and Employment

The steel industry is a foundational pillar of India's economic growth, directly contributing around 2% of the country's GDP. It also plays a substantial role in employment: the sector employs $\approx$ 0.5 million people directly and about 2 million people in indirect jobs. Currently, the iron and steel sector directly and indirectly employs about 2.8 million people.

Policy frameworks such as the National Steel Policy 2017 aim to enhance this contribution even further by making the steel industry self-reliant, globally competitive and more intensive in its use of domestic resources. Capacity augmentation, investment in high quality and specialty steel, and promotion of domestic consumption are key levers in this strategy. In sum, while the steel industry's direct GDP share may seem modest, its broader economic impact is much larger tied into infrastructure, manufacturing, mining, and construction and its ability to generate employment (both direct and via supply chains) makes it critical for inclusive growth.

1.3 Concluding Remarks

From a macroeconomic standpoint, India remains one of the most resilient large economies in a challenging global environment. The IMF forecasts GDP growth for India at 6.4% in CY26, far outpacing the estimated CY26 global average of 3.0%. This performance reflects a combination of strong domestic fundamentals, policy stability and a sustained focus on capital formation. While the global economy continues to face uncertainty from geopolitical conflicts, commodity price volatility and rising public debt, India's diversified growth drivers, stable policy framework and expanding export ecosystem position it well to navigate these headwinds.

The key sectors with potential exposure to changes in US tariff policy include engineering goods, electronics, gems and jewellery, pharmaceuticals, textiles and automobiles/auto components, given their material export linkages to the US market.

As of July 2026, India-US trade negotiations are ongoing, and the final Bilateral Trade Agreement (BTA) has not yet been concluded. In February 2026, both countries announced a framework for an Interim Agreement aimed at promoting reciprocal and mutually beneficial trade. Under this framework, the United States proposed an 18% reciprocal tariff rate on Indian goods, while also indicating the possible removal of tariffs on sectors such as generic pharmaceuticals, gems and diamonds, aircraft parts and certain engineering products, subject to finalization of the agreement.

India continues to strengthen its position through diversification of trade partnerships and expansion of FTAs with the European Union, the United Kingdom, EFTA and other key economies. During FY26, India also signed the Comprehensive Economic Partnership Agreement (CEPA) with Oman and formally commenced negotiations for an FTA with the Gulf Cooperation Council (GCC), further strengthening its trade engagement with Middle Eastern economies. These initiatives, together with India's growing manufacturing capacity and deeper integration into global supply chains, are expected to enhance the country's competitiveness across sectors such as electronics, textiles, pharmaceuticals and auto components.

The US and Iran conflict remains ongoing and uncertainties around the same remains. The Iran conflict has led to an increase in prices of consumer products in India due to potential higher fuel, freight and input costs, which can make everyday goods like FMCG items, plastics and packaged foods more expensive. Disruptions in shipping and fertiliser supplies are also pushing up food prices, affecting imports of agricultural inputs and leading to costlier food products for consumers. Overall, delays in trade routes and rising logistics costs are reducing availability and increasing prices of imported consumer goods, especially from Gulf-linked supply chains. Overall, this is leading to supply shortages, rising costs, and production slowdowns in India's chemical and pharma sectors, with the impact likely to worsen if the conflict continues. Prolonged geopolitical tensions or conflict in the region could lead to sustained increases in crude oil and LPG prices, which may translate into higher input costs across industries and contribute to inflationary pressures in the Indian economy.

Domestically, a below-normal monsoon and potential El Niño conditions may contribute to higher food inflation, which could affect household spending and consumer sentiment, particularly in rural markets. Elevated prices of essential commodities may reduce discretionary spending; however, strong domestic demand, urban consumption, and rising income levels are expected to support overall growth in the consumer sector.

Policy momentum remains strong. The 56th meeting of the GST Council marked a major structural reform by proposing a simplified two-rate system of 5% and 18%, replacing the earlier four-slab framework, along with a 40% demerit rate for luxury and sin goods. This rationalisation aims to reduce compliance burdens, enhance efficiency, and stimulate private consumption. Together with recent revisions in personal income tax rates, these measures are projected to release savings exceeding Rs 2.5 lakh crore into the economy, supporting demand and easing inflationary pressures.

The Union Budget's allocation of Rs 12.20 lakh crore for capital expenditure in FY27 further reinforces the government's commitment to infrastructure-led growth. Public investment is expected to catalyse private sector activity, evidenced by rising project announcements and growing imports of capital goods. Improving rural demand, supported by healthy monsoon progress, favourable sowing conditions, and adequate reservoir levels, provides additional tailwinds for consumption and investment.

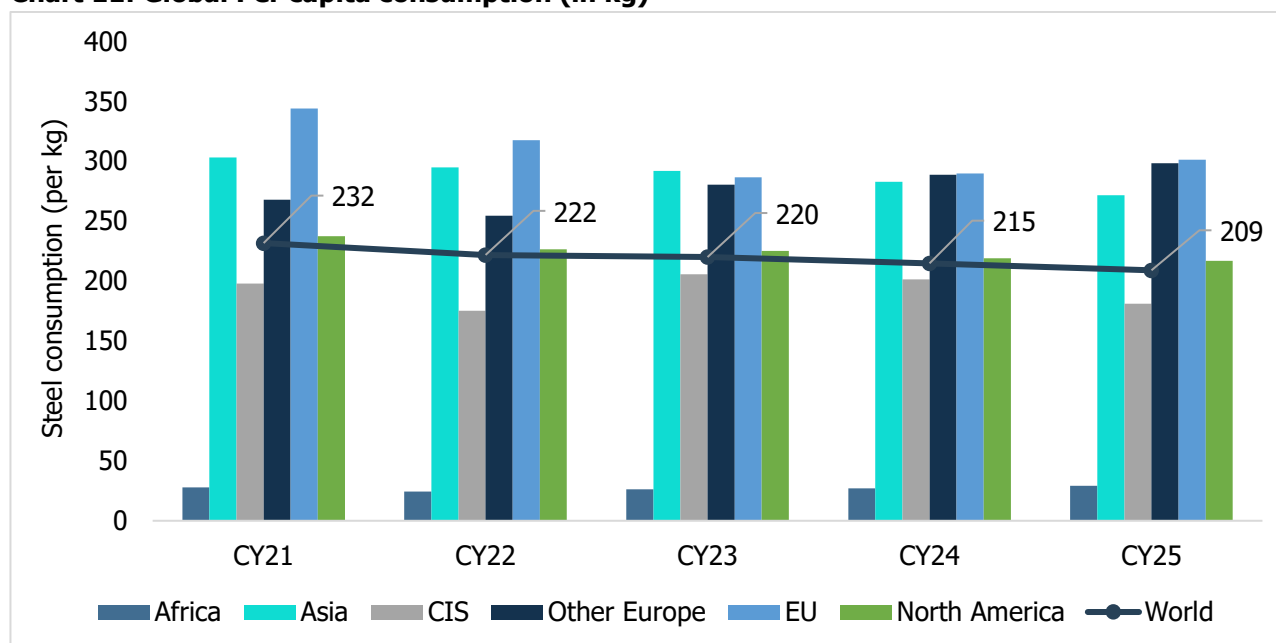
2 Global Steel Industry

2.1 Overview of the Global Steel Industry

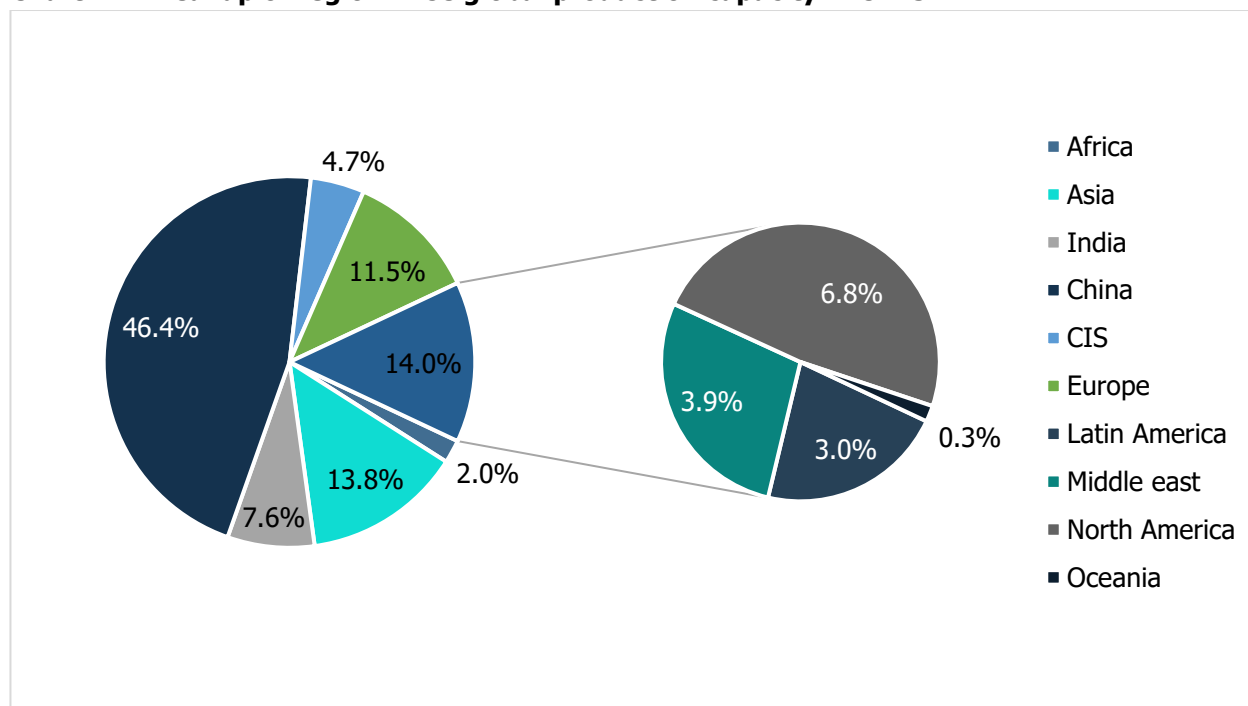
Steel plays a pivotal role in construction and engineering, serving a wide range of industries including automotive, infrastructure, consumer goods, mechanical and medical equipment, packaging, and household utensils. Industry professionals consistently prefer steel as a building material due to its widespread availability, cost-effectiveness, strength, durability, ductility, and recyclability. According to the World Steel Association, manufacturers across the globe produce over 3,500 grades of steel, each offering distinct physical, chemical, and environmental properties tailored to specific applications.

Global per capita steel consumption has declined steadily since CY21. By CY25, consumption dropped to 209 kg, down from 220 kg in CY23. This downward trend reflects a combination of cyclical and structural factors. The most significant driver has been the prolonged slowdown in China's property and construction sector, which historically accounted for a substantial share of global steel consumption. As China's urbanisation and infrastructure build-out slow, steel intensity has moderated, reducing global demand growth. At the same time, weaker manufacturing activity in several developed economies, elevated interest rates, economic uncertainty and slower investment in construction have constrained steel consumption across major regions. Increased material efficiency, greater use of high-strength steels requiring lower volumes, and a gradual shift toward circular economy practices and scrap-based production have also reduced steel requirements per unit of economic output. Consequently, growth in emerging markets such as India has not been sufficient to fully offset the moderation in mature steel-consuming economies.

Chart 11: Global Per capita consumption (in kg)



Source: World Steel Association

Chart 12: Breakup of region-wise global production capacity in CY25

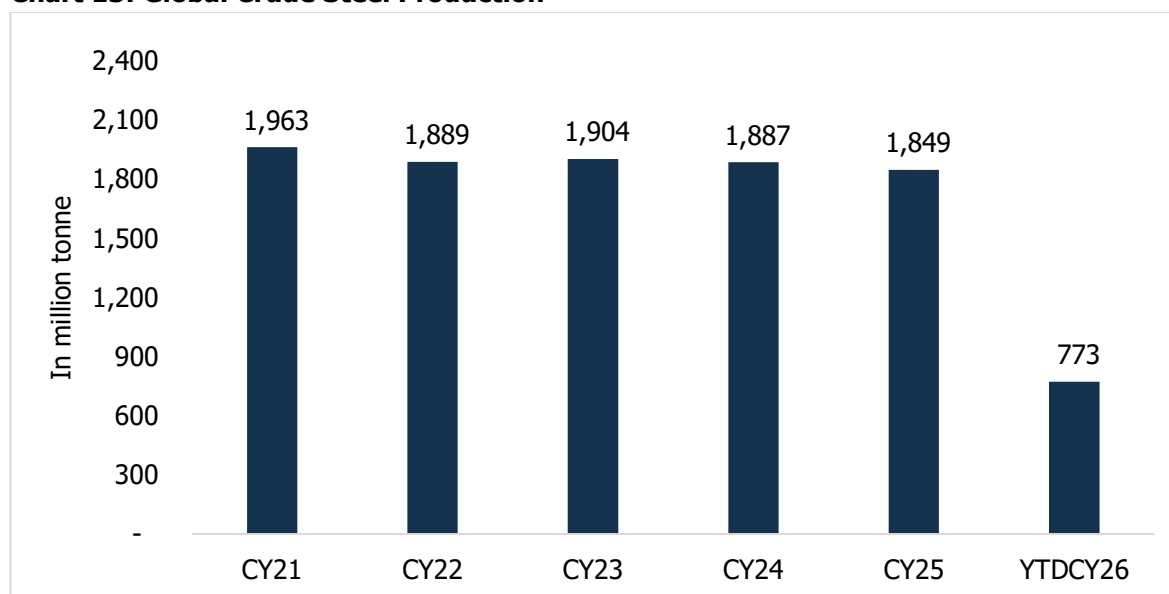
Source: Organisation for Economic Co-operation and Development (OECD)

In 2025, global steel producers operated with a combined production capacity of 2,445.1 million metric tonnes (MT), with Asia accounting for the largest share at 68%. China led the global steel industry, dominating capacity, production, and consumption. It maintained the highest steel production capacity worldwide, followed by producers in the European Union and India.

2.2 Global Production of Steel

Global crude steel production grew at a compound annual growth rate (CAGR) of -1.5% over the past five years, decreasing from 1,963 million tonnes (MT) in CY21 to 1,849 MT in CY25. The contraction was primarily driven by lower output in China, where persistent weakness in the property sector, efforts to control excess capacity, and government measures aimed at regulating steel production weighed on overall volumes. While growth in India, the Middle East, and parts of Southeast Asia provided support, it was insufficient to fully offset production declines in several mature steel-producing economies.

Additionally, in the first five months of CY26 (January–May), producers reduced output by 1.5% compared to the same period in CY25, primarily due to a decline in China's production, which accounts for over half of global steel output. The decline was driven by China's prolonged property sector slowdown, weaker construction activity, moderating manufacturing demand and softer export markets. Additionally, subdued industrial activity, weak construction demand and high production costs in several developed economies, particularly Europe, contributed to lower capacity utilisation and production. Despite this decline, global steel demand is expected to stabilise in CY26 and recover in CY27.

Chart 13: Global Crude Steel Production


Source: World Steel Association

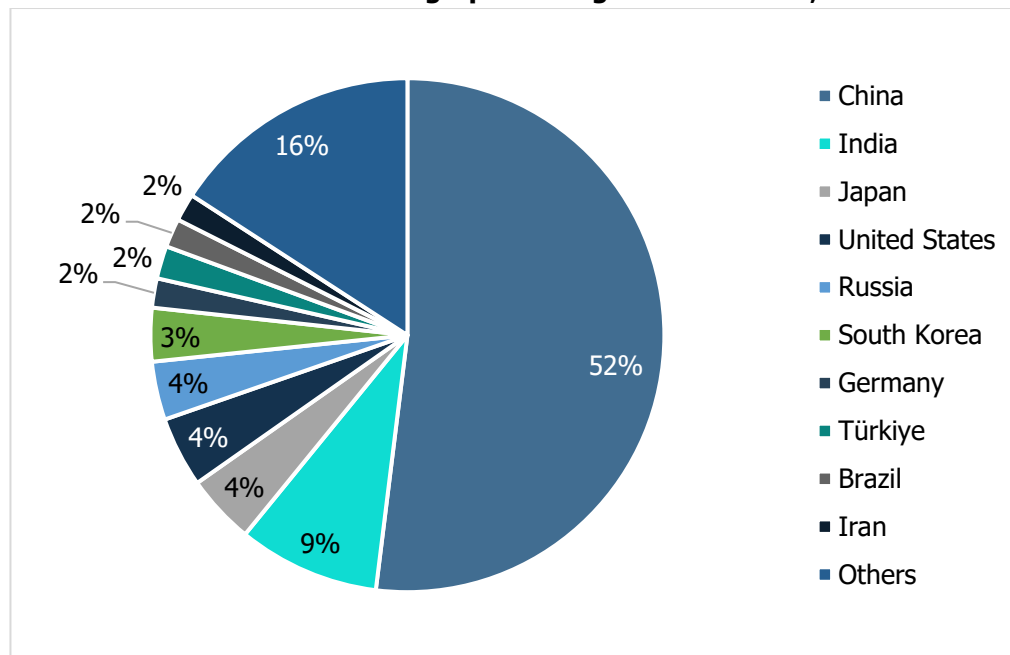
Note: YTD CY25 refers to the period from January 2025 - May 2025

YTD CY26 refers to the period from January 2026 - May 2026

In CY25, global crude steel production totalled 1,849 MT. China retained its position as the largest producer, contributing 52% of the total output. However, Chinese production declined by 4.4% year-on-year to 961 MT, down from 1,005 MT in CY24. This reduction resulted from persistent global overcapacity and cautious production strategies by steelmakers, in response to uncertain demand conditions.

India ranked as the second-largest producer in CY25, accounting for 9% of global output. The United States, Japan, and Russia followed, each contributing approximately 4% to total production.

Global crude steel production is likely to see modest growth in the next few years due to economic uncertainty and geopolitical risks. China's output may remain muted due to its real estate slowdown and environmental policies, while India is expected to drive growth, backed by rising infrastructure and construction demand. Longer-term, green steel initiatives and decarbonisation efforts could reshape the industry, particularly in advanced economies.

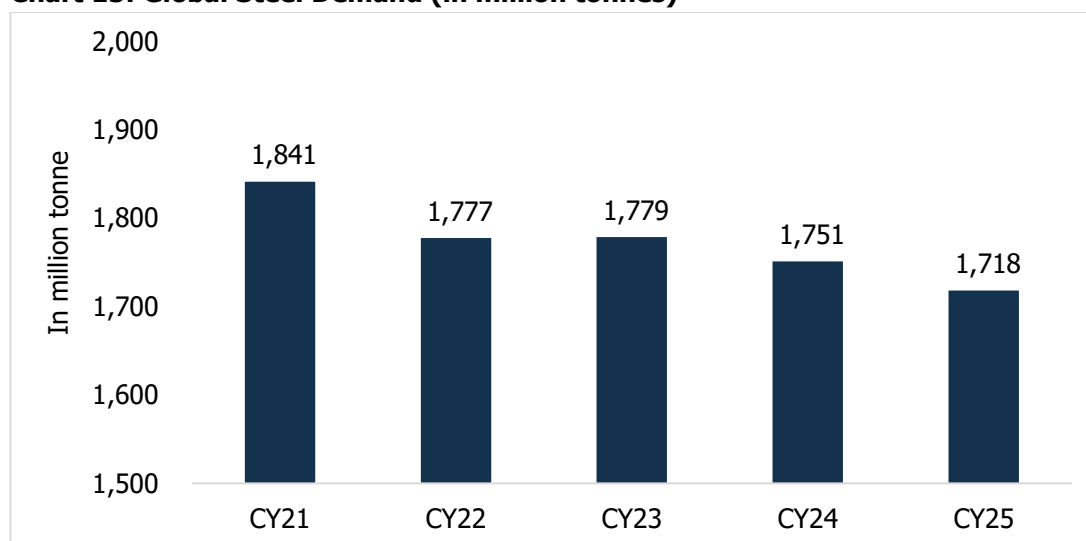
Chart 14: Steel Production Geographical Region in CY25 – 1,849 MT


Source: World Steel Association

2.3 Global Steel Demand

Industries such as energy, construction, automotive, transportation, infrastructure, packaging and machinery rely heavily on steel for their operations. In CY25, global finished steel consumption declined by 2% year-on-year to 1,718 million tonnes (MT). The decline suggests that end-use sectors remain under pressure, particularly construction, real estate, and heavy manufacturing. Demand appears constrained by cautious investment sentiment, tighter financing conditions, and slower industrial activity across key steel-consuming regions. While infrastructure spending, energy transition projects, and emerging-market development may provide some support, these drivers do not appear sufficient to offset broader weakness in traditional steel demand. Overall, CY25 reflects a subdued demand environment, with the market likely focused more on stabilisation and selective regional recovery than broad-based growth.

Global finished steel consumption is expected to recover gradually over the next few years, driven by infrastructure spending, energy transition projects, and automotive recovery in several regions. While China's demand outlook remains cautious due to real estate headwinds and environmental constraints, India is positioned for strong growth, supported by government's infrastructure programs and industrial expansion. Additionally, green technologies, renewable energy projects, and electric vehicles (EVs) are likely to create new avenues for steel demand globally. However, near-term growth may remain moderate given geopolitical tensions and persistent economic uncertainty in developed markets.

Chart 15: Global Steel Demand (in million tonnes)

Source: World Steel Association

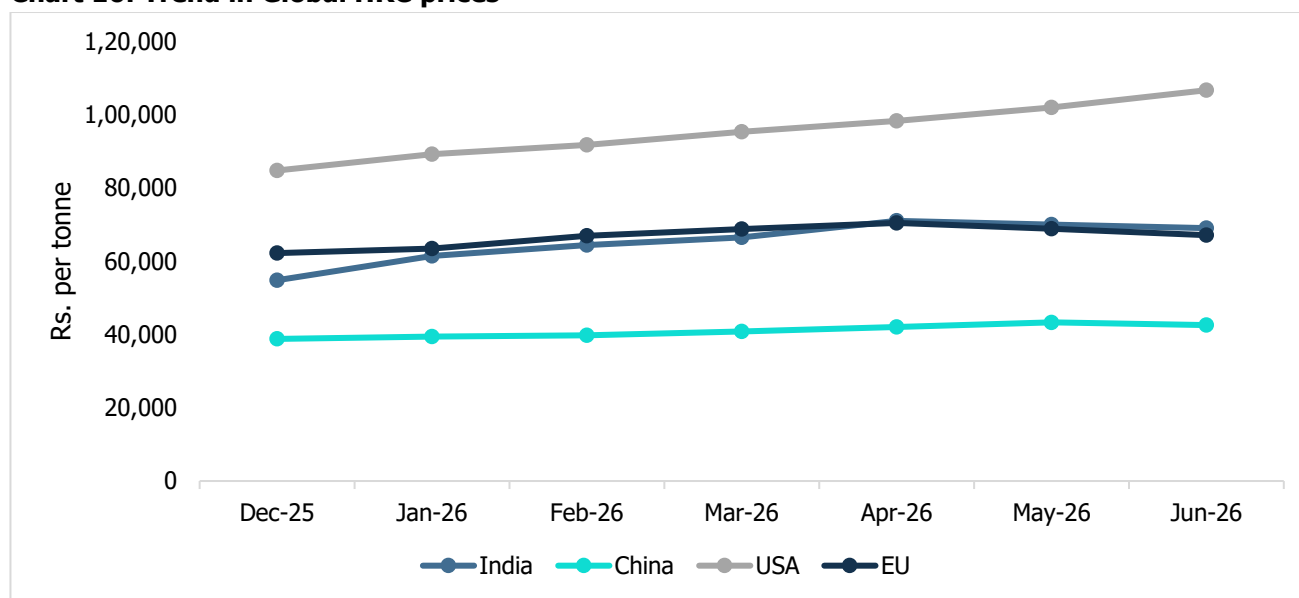
2.4 Global Steel Prices Trend

Global hot-rolled coil (HRC) prices witnessed a broad upward trend between December 2025 and June 2026, although the pace of increase varied across major steel-producing and consuming regions, reflecting differences in domestic demand, supply discipline, raw material costs, and trade policy developments. The United States remained the highest-priced market throughout the period, while India and the European Union exhibited moderate gains before easing marginally towards the end of the period. China continued to record comparatively lower prices, supported by abundant domestic supply and subdued downstream demand.

In India, HRC prices increased steadily from approximately Rs. 54,800 per tonne in December 2025 to around Rs. 71,000 per tonne by April 2026, before moderating slightly during May and June. The improvement was supported by stronger domestic infrastructure activity, safeguard measures against low-priced imports, and higher raw material costs, although softer buying from end-user industries and cautious procurement limited further upside in the later months.

China recorded the most gradual price movement among the four regions, with HRC prices rising from Rs. 38,786 per tonne to nearly Rs. 42,000 per tonne over the period. Prices remained constrained by persistent weakness in the property sector, cautious manufacturing demand, and continued efforts by steel producers to manage elevated supply levels, resulting in only modest gains despite periodic improvements in export sentiment.

The United States maintained the strongest pricing environment, with HRC prices increasing consistently from nearly Rs. 85,000 per tonne in December 2025 to above Rs. 1.06 lakh per tonne by June 2026. Firm mill pricing, controlled domestic supply, and continued support from trade protection measures helped sustain higher realizations despite evolving market conditions. Similarly, European HRC prices advanced steadily through April 2026, supported by reduced import competition, disciplined mill production, and gradual manufacturing recovery. However, prices softened marginally during May and June as demand remained measured and buyers adopted a cautious procurement approach.

Chart 16: Trend in Global HRC prices


Source: LME, Ministry of Steel

2.5 Outlook of Global Steel Consumption

The World Steel Association now expects global steel demand to bottom out over the 2025–2026 period, before transitioning into a phase of gradual recovery. World steel demand is forecast to grow modestly by 0.3% in CY26 to 1,724 million tonnes, followed by a stronger rebound of 2.2% in CY27 to 1,762 million tonnes. This marks a revision from earlier expectations of a quicker rebound and reflects lingering structural adjustments across major economies, moderating industrial activity, and geopolitical uncertainties. The anticipated recovery is expected to be supported by resilience in key economies, continued public infrastructure investments, and gradually improving financing conditions, although downside risks remain from geopolitical tensions, particularly in the Middle East.

China's steel demand continues to weigh on global growth but shows signs of stabilisation. Demand is now expected to contract by around 1.5% in CY26, an improvement from steeper declines witnessed in prior years, as the prolonged housing market correction approaches its bottom. Infrastructure spending is expected to edge higher, supported by local government efforts to maintain stable GDP growth, while manufacturing-related steel demand is projected to grow modestly as exports continue to expand. However, weaker global trade conditions and financial stress at local government levels remain key downside risks. In CY27, China's steel demand is expected to remain broadly flat, reflecting a transition from structural decline toward cyclical stability as real estate sector pressures ease.

In contrast, India remains the strongest growth engine for global steel demand. Steel consumption is projected to grow by 7.4% in CY26 and accelerate further to 9.2% in CY27, reinforcing India's position as the world's fastest-growing major steel market. This growth trajectory is underpinned by sustained infrastructure-led construction, strong momentum in the automotive sector driven by freight demand, a resilient capital expenditure cycle, nationwide railway expansion, and rising consumer durables demand supported by affordability and urbanisation trends.

Steel demand across developing economies excluding China is expected to moderate to 2.5% growth in CY26, a meaningful slowdown from the roughly 5% annual growth recorded in recent years. This deceleration is largely driven by a sharp contraction in the Middle East due to ongoing geopolitical conflict, as well as a temporary normalisation in ASEAN economies following inventory-led expansion in 2025. However, the outlook improves significantly for CY27, with

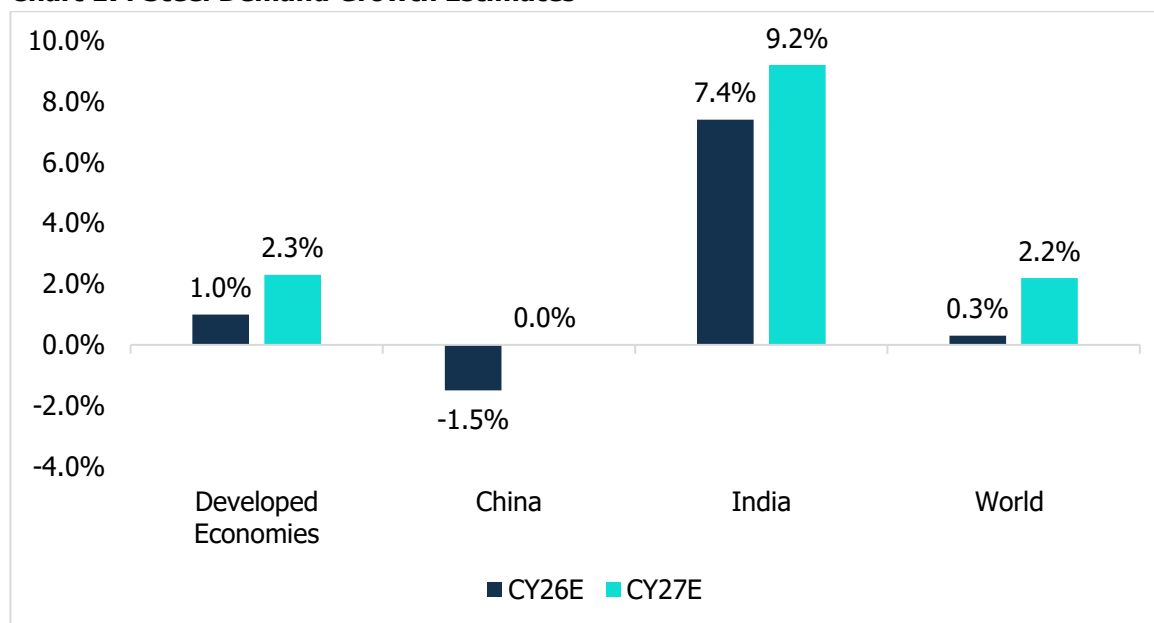
demand growth forecast to rebound to 5.1%, supported by renewed momentum in developing Asia and Africa and a recovery in Middle Eastern demand.

The developed economies have begun to stabilise after several years of decline. Steel demand grew marginally by 0.2% in CY25, ending a three-year contraction cycle. Growth is expected to improve to 1.0% in CY26 and further strengthen to 2.3% in CY27, driven by easing macroeconomic pressures, infrastructure and defence spending, and gradual recovery in industrial activity. Nevertheless, overall demand levels in developed markets remain materially below pre-2018 peaks, indicating that the recovery remains gradual rather than rapid.

Within developed markets, EU and UK steel demand is forecast to grow by 1.3% in CY26 and 3.0% in CY27, supported by rising infrastructure and defence spending and improving real household incomes. However, the region's high exposure to energy price volatility remains a key downside risk. In the United States, steel demand is projected to expand by 1.7% in CY26 and 2.0% in CY27, supported by policy-backed private investments, public infrastructure spending, and a gradual recovery in residential construction. Structural challenges such as high material costs, affordability pressures, labour shortages, and a softening labour market are expected to temper the pace of recovery.

Overall, the latest outlook confirms that global steel demand is transitioning from contraction to stabilisation, with modest growth in CY26 and stronger momentum expected in CY27. Growth is increasingly driven by India, Africa, and other developing regions, while the drag from China continues to diminish and developed economies move into early recovery. However, elevated geopolitical risks, energy price sensitivity, and global trade uncertainty continue to pose meaningful challenges to the outlook.

Chart 17: Steel Demand Growth Estimates



Source: World Steel Association (As per April 2026 Outlook report)

3 Indian Steel Industry

3.1 Overview of the Indian Steel Industry

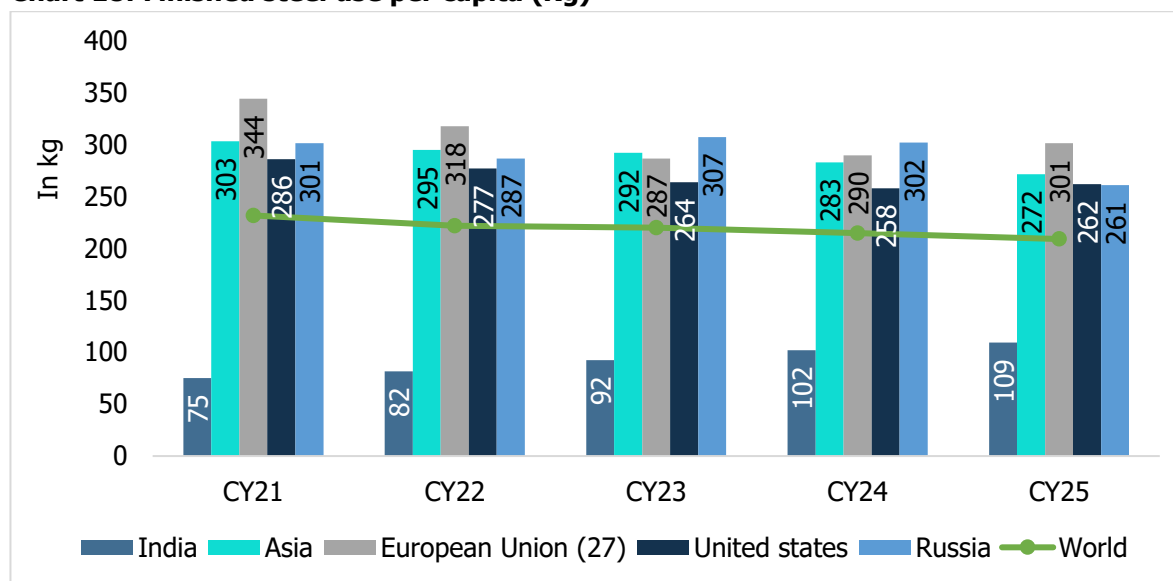
As of June 2026, India has installed a steel production capacity of approx 222 million tonnes (MT). The country ranks as the second-largest consumer of finished steel, with consumption reaching 164 MT in FY26. This growth stems from the domestic availability of key raw materials such as iron ore, cost-effective labour, and strong demand from sectors like construction, consumer durables, capital goods, railways, real estate and automobiles. Additionally, India's extensive coastline has facilitated both exports and imports, positioning the country as a major player in the global steel industry.

In CY25, India's per capita finished steel consumption stood at 109.2 kg, well below the global average of 209 kg. To address this gap, the Government of India, under its Atmanirbhar Bharat vision, introduced the National Steel Policy 2017. The policy targets a steel-making capacity of 300 MT by CY30 and aims to raise per capita steel consumption to 160 kg. These goals highlight the sector's untapped domestic potential and its critical role in driving India's future economic growth. India has attracted substantial investment into its steel sector through initiatives such as joint ventures and 100% foreign direct investment (FDI). These efforts have accelerated the industry's expansion and integration into global value chains.

The steel industry contributes meaningfully to all facets of the economy including GDP growth, industrial output, and infrastructure development. It generates a strong economic ripple effect, with an output multiplier of 1.4x on GDP and an employment multiplier of 6.8x.

Steel plays a vital and versatile role in modern life, significantly enhancing convenience and serving as a foundational material across manufacturing sectors. As a core input for infrastructure and industrial development, steel underpins national economic growth and often acts as a barometer of economic progress.

Chart 18: Finished steel use per capita (Kg)



Source: World Steel Association

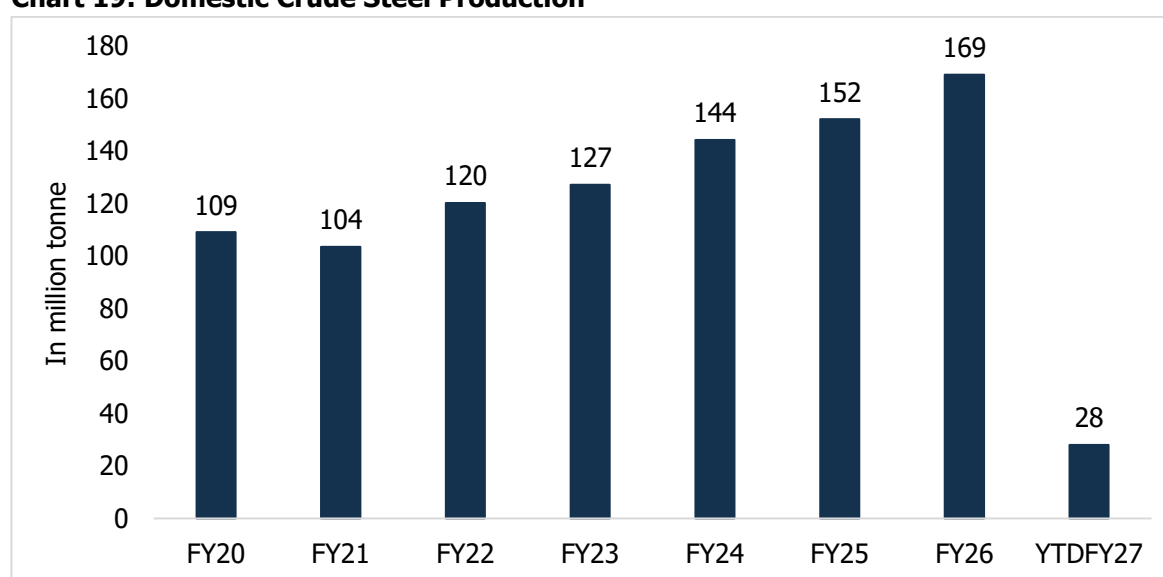
3.2 Indian Crude Steel Production

India's domestic crude steel producers expanded output at a compound annual growth rate (CAGR) of 7.6% over the past seven years, increasing production from 109 million tonnes (MT) in FY20 to 169 MT in FY26. In FY26, crude steel production rose by 11.2% to reach 169 MT, supported by sustained infrastructure development, industrial expansion, and rising manufacturing activity.

Government-led initiatives including capacity-enhancement schemes and policy incentives played a key role in driving output growth. Steel manufacturers also expanded plant capacities, with large players achieving 81% capacity utilisation in FY24. Most major producers have announced plans to further increase crude steel capacity, backed by improved financial health across the industry. This financial stability has positioned companies to comfortably undertake capital expenditure for future expansion.

Under the National Steel Policy 2017, the government aims to scale production capacity from 179.5 MT in FY24 to 300 MT by FY31, to meet the projected steel demand of 230 MT. This ambitious target reflects the sector's strategic importance in supporting India's long-term economic growth.

Chart 19: Domestic Crude Steel Production



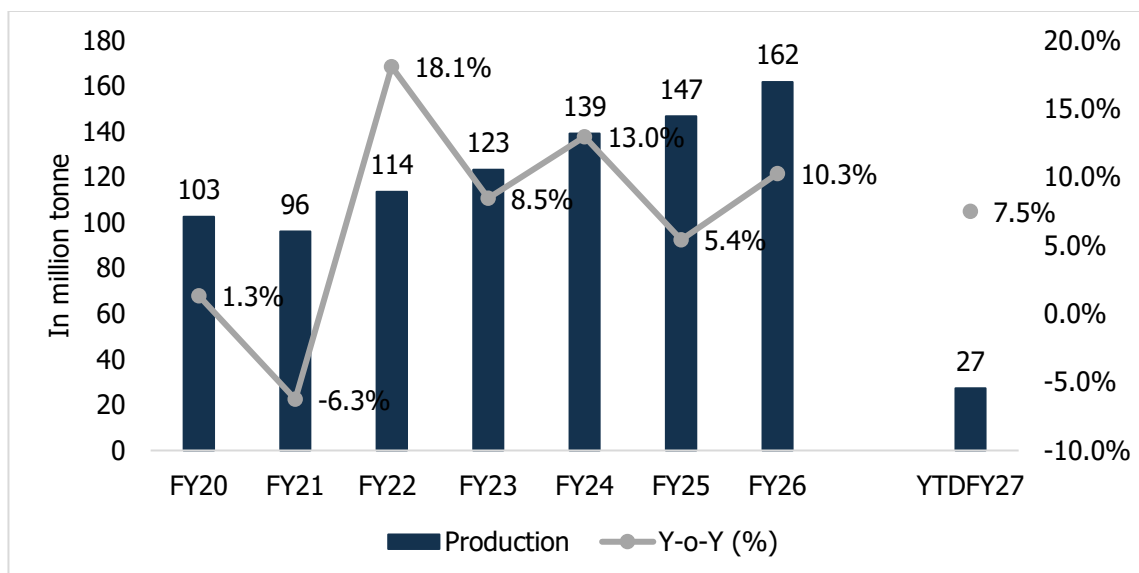
Source: CMIE

Note: YTD FY27 refers to the period from April 2026 - May 2026

3.3 Indian Finished Steel Production and Consumption

India's finished steel producers expanded output at a compound annual growth rate (CAGR) of 7.9% over the past seven years, increasing production from 103 million tonnes (MT) in FY20 to 162 MT in FY26. This growth was primarily driven by robust domestic demand, particularly from infrastructure, construction, railways and manufacturing sector. Large-scale public infrastructure spending and urbanisation initiatives supported higher steel consumption, which in turn incentivised producers to expand output.

Chart 20: Finished Steel Production in India



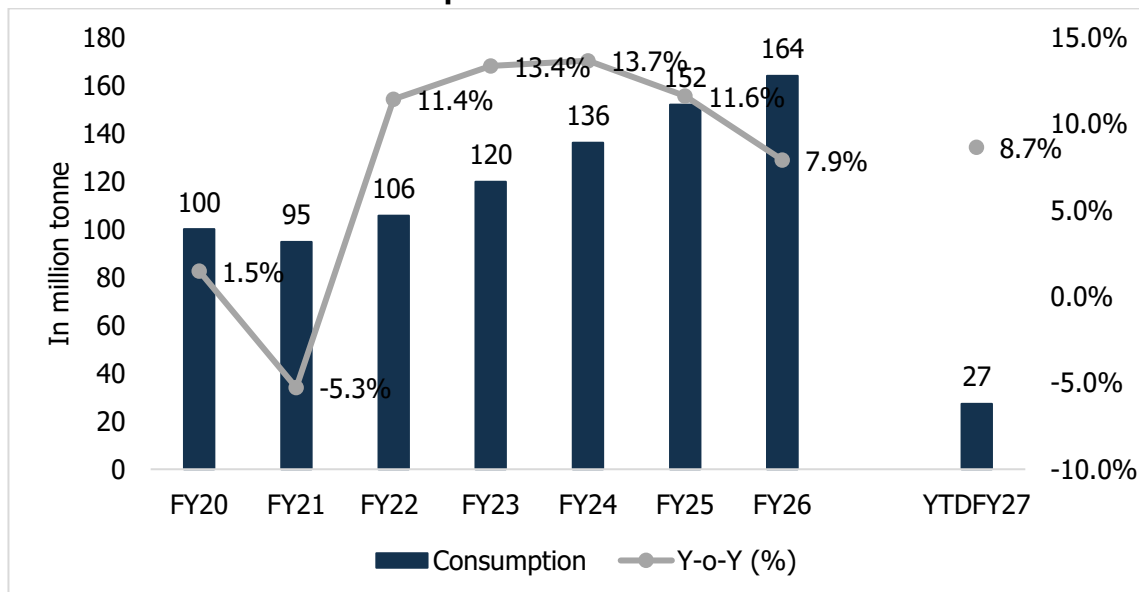
Source: CMIE

Note: YTD FY27 refers to April 2026-May 2026

Finished steel consumption also surged, growing at a CAGR of 8.7% to reach 164 MT in FY26 from 100 MT in FY20. In FY26 alone, consumption rose by 7.9% Y-o-Y, driven by strong domestic demand, rise supported by increased activity in infrastructure, construction, railways and manufacturing sectors.

The government's continued focus on large-scale infrastructure development, urbanisation and capital expenditure played a crucial role in boosting steel demand. Additionally, sustained industrial momentum and expansion in end-use sectors ensured stable consumption growth.

Chart 21: Finished Steel Consumption in India



Source: CMIE

Note: YTD FY27 refers to April 2026-May 2026

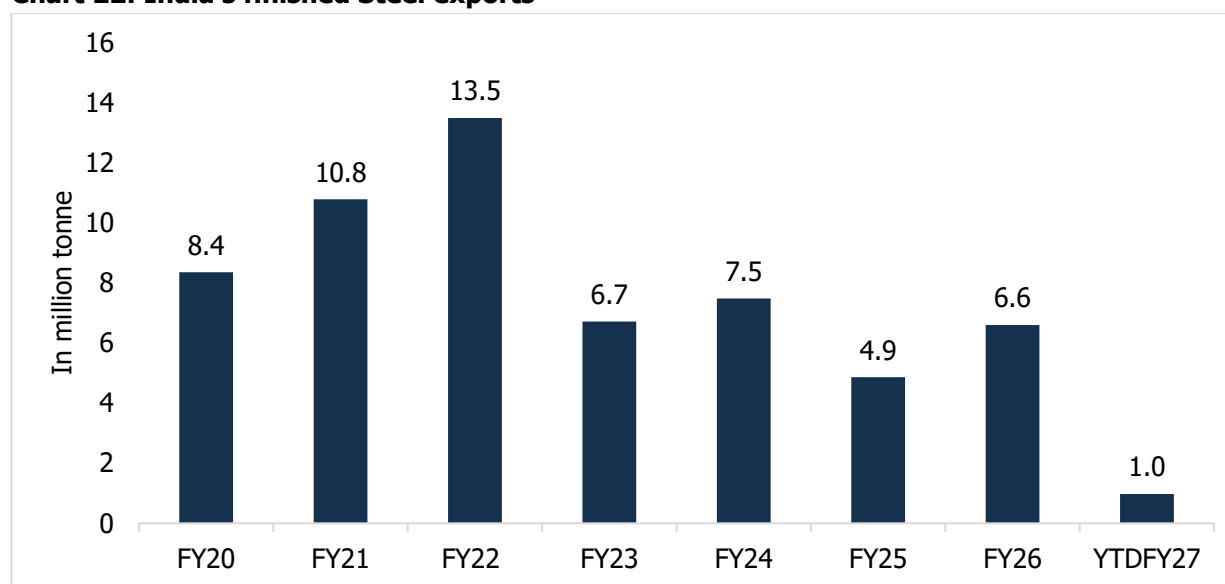
3.4 Trend in Steel Trade

Exports:

India's steel trade dynamics have shifted significantly in recent years. During FY26, Indian steel exporters increased shipments by 35.9% Y-o-Y. This rise was driven by improved global competitiveness of Indian steel and diversification into key markets such as the Middle East, Europe and Southeast Asia. Additionally, a sharp decline in imports and better price realisations supported higher export volumes. Furthermore, sustained capacity expansion and strong production growth enabled surplus availability for exports.

In FY25, exports fell sharply by 35.1% Year-on-Year, continuing the downward trend that began in FY23. Weak foreign demand, intensified competition from low-priced Chinese steel particularly in the Middle East and Vietnam and declining shipments to key markets like Italy drove this decline.

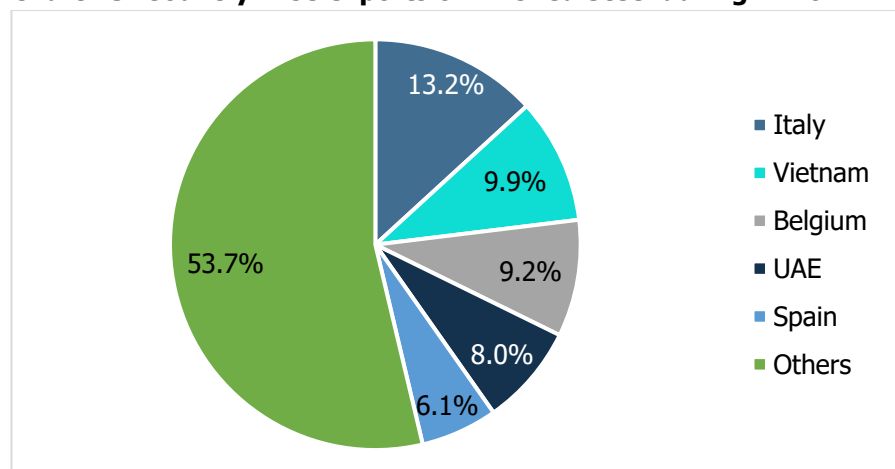
Chart 22: India's finished Steel exports



Source: CMIE

Note: YTD FY27 refers to April 2026-May 2026

The exports to top 5 countries (Italy, Vietnam, Belgium, UAE, and Spain) accounted to 46% of the total outbound shipments from India during FY26.

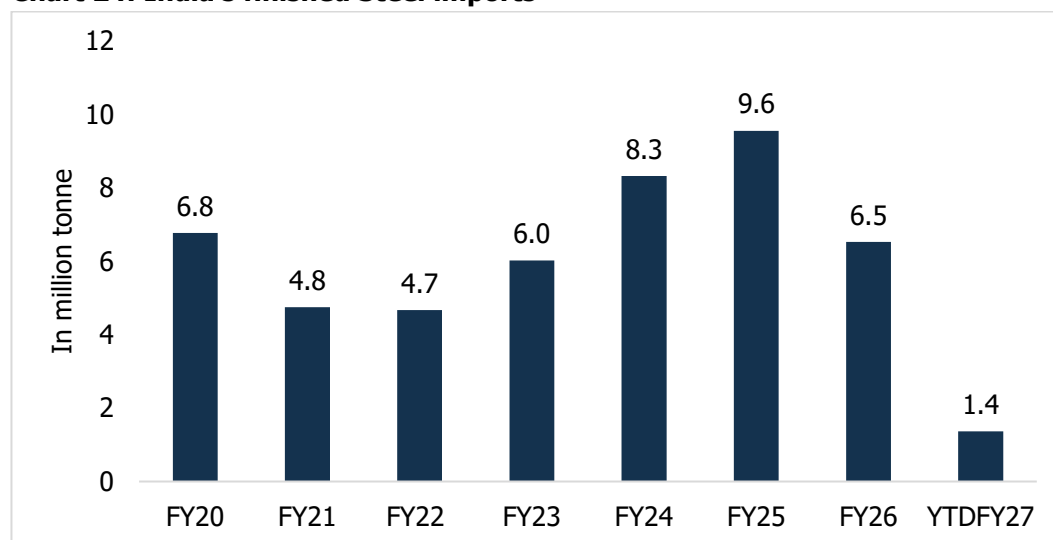
Chart 23: Country wise exports of finished Steel during FY26


Source: CMIE

Imports:

During FY26, import volumes fell by 31.7% Y-o-Y, driven primarily by policy interventions and improving domestic competitiveness. The government imposed safeguard duties of around 12% on certain steel products and strengthened quality control measures, which discouraged cheaper imports. Additionally, a narrowing price gap between imported and domestic steel made local products more attractive. Strong domestic production growth also reduced reliance on imports.

In FY25, Indian importers increased steel imports by 14.8% Y-o-Y, supported by a surge in low-cost flat steel products and specialty grades. India's steel import patterns have evolved significantly in recent years, primarily driven by rising domestic demand for special-grade steel used in end-user segments such as automobiles, defence, shipbuilding, power and railways. Domestic manufacturers continued to rely on imports to meet the growing need for high-grade materials that were either unavailable or in short supply locally.

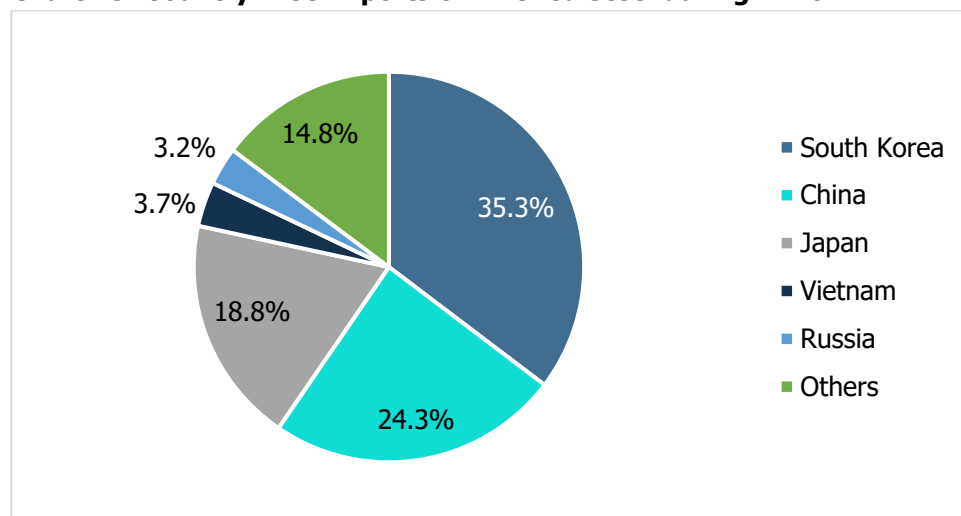
Chart 24: India's finished Steel imports


Source: CMIE

Note: YTFY27 refers to April 2026-May 2026

The imports to top 5 countries (South Korea, China, Japan, Vietnam, and Russia) accounted to 85% of the total outbound shipments from India during FY26.

Chart 25: Country wise imports of finished Steel during FY26



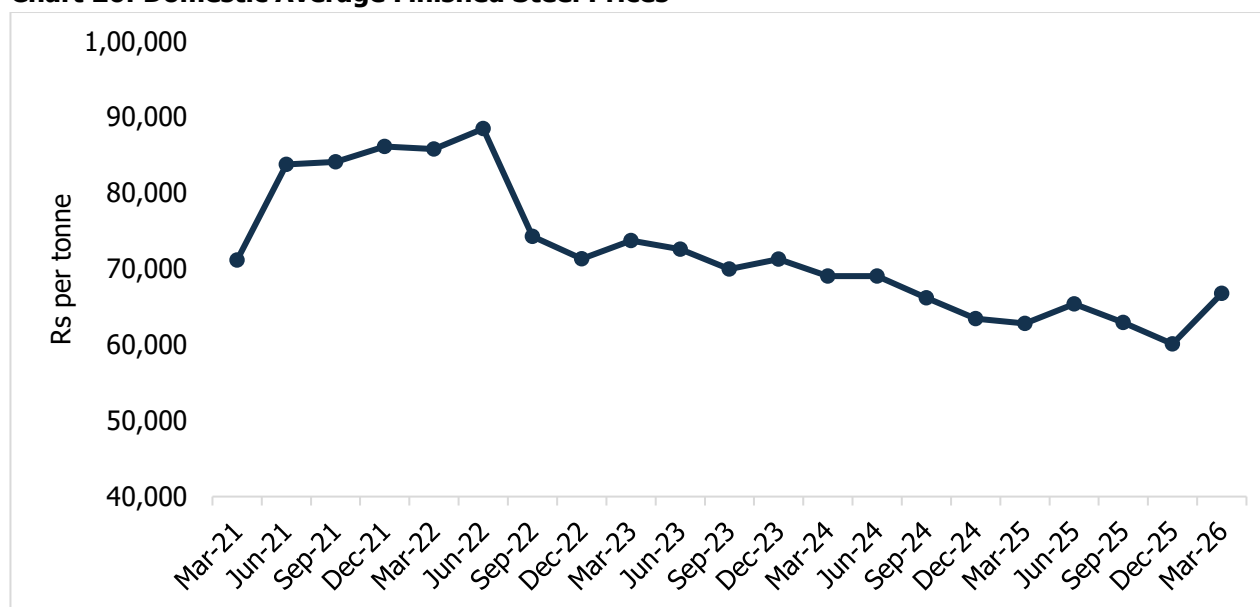
Source: CMIE

3.5 Domestic Steel Price Trends

Domestic finished steel prices in the quarter ending March 2026 showed a recovery trend, rising to around Rs 66,783 per tonne after softer levels in preceding quarters. This improvement can be attributed to strong domestic demand from infrastructure and construction activities, which typically accelerate toward the fiscal year-end due to project execution cycles. Additionally, government interventions such as safeguard duties on imports and improved demand–supply balance supported price firming.

In contrast, prices during the quarter ending December 2025 remained relatively subdued, declining to around Rs 60,121 per tonne. This softness can be linked to relatively weaker seasonal demand, adequate domestic supply, and continued import availability, which kept market conditions comfortable. During quarter ended September 2025, average domestic finished steel prices fell by 3.7% q-o-q and 4.9% Y-o-Y. In the quarter ending June 2025, average domestic finished steel prices rose 4.1% Q-o-Q to Rs 65,413 per tonne, supported by the 12% temporary safeguard duty on select imports that strengthened domestic pricing power. In comparison, prices in March 2025 stood at Rs 62,811 per tonne, marking a 1% Q-o-Q decline. This downward trend continued from September 2024, when prices had already dropped by 4.18% Q-o-Q to Rs 66,195 per tonne. The sustained decline since the June 2022 peak of Rs 88,498 per tonne has been driven by several factors, including weak global demand, a fall in international prices, a surge in low-cost imports, and reduced export volumes.

Previously, during March 2024, prices dropped to Rs 69,051 per tonne from Rs 71,320 per tonne in December 2023, indicating a brief price surge that fizzled out. During FY24, domestic steel prices continued to flounder in catching the upward movement on account of global and domestic tailwinds.

Chart 26: Domestic Average Finished Steel Prices

Source: CMIE

3.6 Outlook of Indian Steel Consumption

India's steel consumption is set to achieve 8% year-on-year growth in FY27, says CareEdge Research. This comes after a good show in FY26 driven by red-hot activity in the construction, real estate, and automobile industries.

Looking forward, steel demand momentum is tightly linked with underlying end-user industries construction, real estate, railways, roads, capital goods, and consumer durables. Infrastructure investments led by the government are also supporting demand.

Union Budget 2026–27 allocations also reflect this trend:

- Rs. 308 crores to the PLI scheme for Specialty Steel, a sharp increase compared to previous years.
- Rs. 12.2 lakh crore for overall capital spending.
- A Rs. 2.8 lakh crore capital expenditure for the Indian Railways.
- An unprecedented Rs. 73,942 crore under PMAY.
- The Jal Jeevan Mission received its allocation increased to Rs. 67,670 crore.

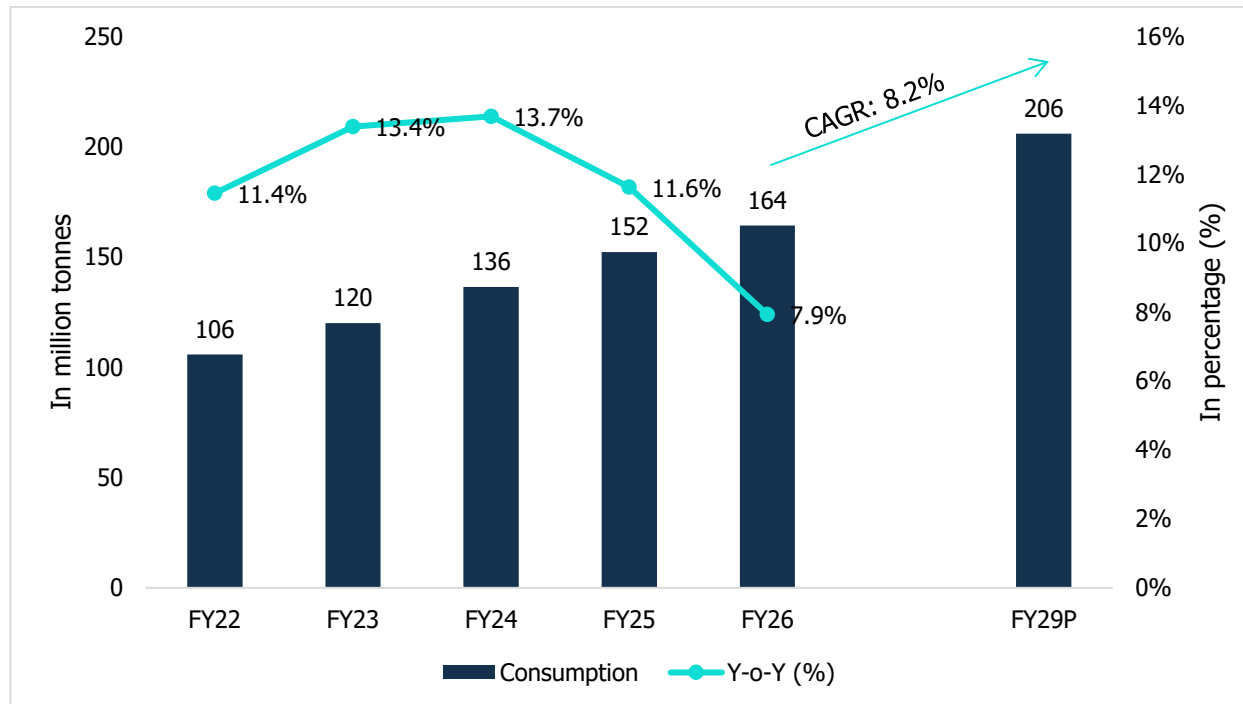
Other drivers of growth are airport expansion under the UDAN scheme, sustained investments in metro rail networks, and urban infrastructure development all adding to increasing steel demand.

Going forward, government initiatives such as Pradhan Mantri Awas Yojana (PMAY) to provide affordable housing, Sagarmala Programme to enhance port connectivity and overall coastal infrastructure, Bharatmala Pariyojana to improve roads and highway network, Atal Mission for Rejuvenation and Urban Transformation (AMRUT) to develop water infrastructure, National Industrial Corridor Development Programme to develop smart cities, National capital goods policy to promote manufacturing of capital goods, The Automotive Mission Plan 2026, Production Linked Incentive (PLI) scheme to encourage manufacturing and reduce import substitution of steel, etc will supplement the steel demand in coming years. Significant infrastructure developments and stable growth from auto sector is expected to bolster the steel industry in the medium to long term. Further, the steel demand is projected to grow at a CAGR of about 8.2% over the forecast period FY26-FY29, surpassing more than 200 million tonnes of finished steel consumption.

While the domestic steel market drivers show good momentum, globally the steel market is navigating challenges due to shifting trade policies, particularly involving U.S.-China tensions and India's potential safeguard duties. The following scenarios explore the possible impacts of these developments on India's steel exports and market dynamics which may impact the above mentioned outlook for the industry.

India has proposed retaliatory tariffs on select U.S. products in response to Washington's reimposition of 25% tariffs on steel and aluminium imports, which were further raised to 50% effective June 4. At the same time, India has imposed a 12% safeguard duty on certain steel imports for 200 days to protect domestic producers from a surge in low-cost shipments, mainly from China, Japan, and South Korea. This move has pushed domestic steel prices higher, benefiting large producers such as Tata Steel, but also increasing input costs for downstream industries like construction equipment makers and MSMEs, potentially affecting their competitiveness. Looking ahead, it seems most likely that the government will adopt the Directorate General of Trade Remedies' (DGTR) recommendation of a three-year phased safeguard duty on select flat steel imports starting at 12% in the first year and tapering to 11.5% and 11% in the following two years. Such a measure would provide certainty to domestic steelmakers and help curb excessive imports, while partially cushioning the shock to user industries. However, given the likely pushback from downstream and export-oriented sectors, the government may still opt for a modified framework by lowering duty levels, shortening the duration, or introducing carve-outs for critical grades. This hybrid approach would aim to balance the twin objectives of protecting local producers and avoiding undue cost pressures on MSMEs, capital goods, and export competitiveness, all while shaping the backdrop for ongoing India-U.S. trade negotiations.

Chart 27: Finished Steel Demand Forecast in India



Source: Industry sources, CareEdge Research

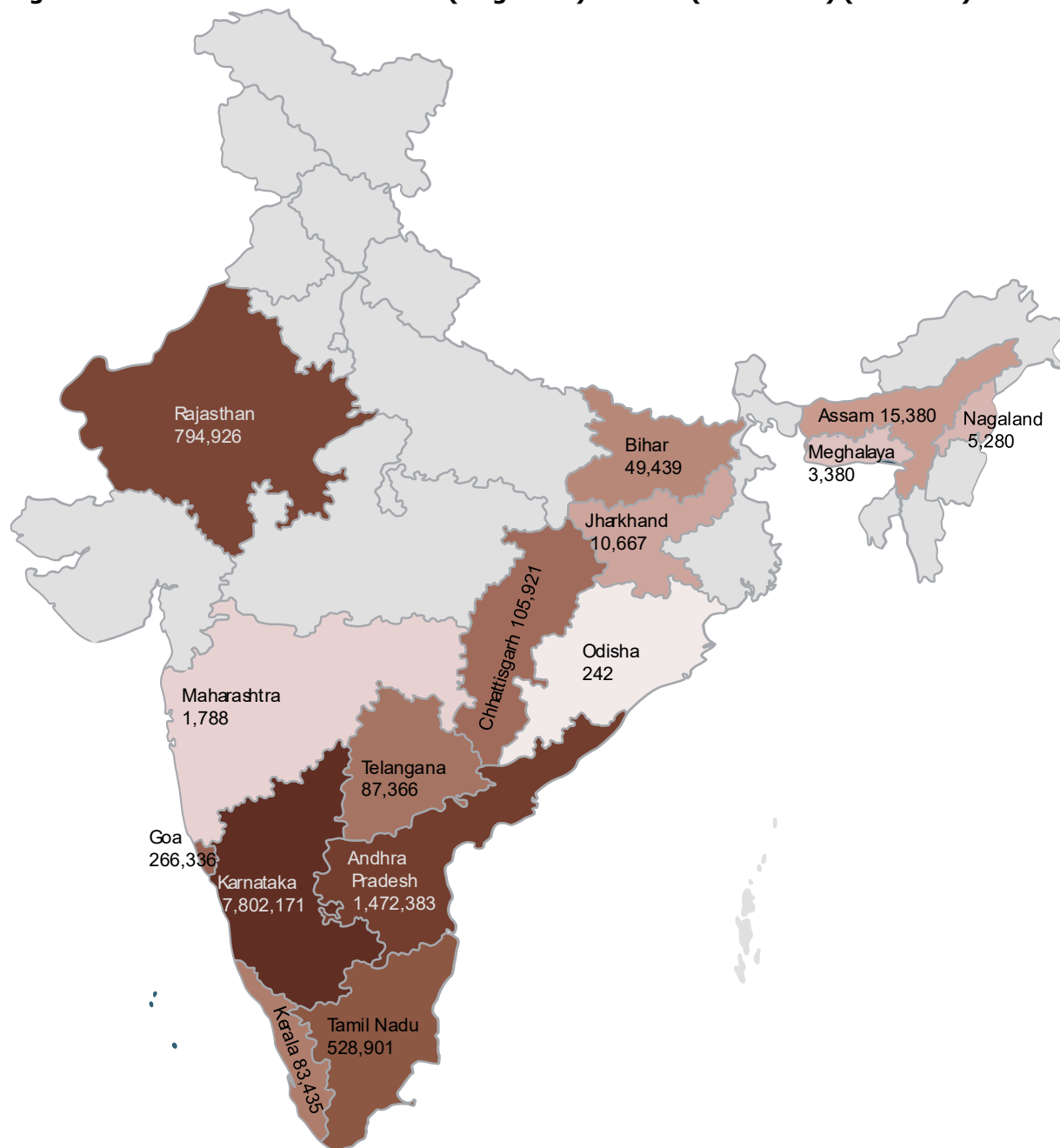
4 Raw Material

4.1 Iron Ore

Overview

Iron ore accounted for 64% of India's total mineral production value in FY26* (April 2025 to January 2026), reaching Rs 94,775 crore. India, the world's fourth-largest iron ore producer, holds estimated resources of 35,286 MT (as of April 2020), including 6,412 MT in reserves.

Figure 1: Total Resources of Iron Ore (Magnetite) in India (State-wise) (in tonnes)

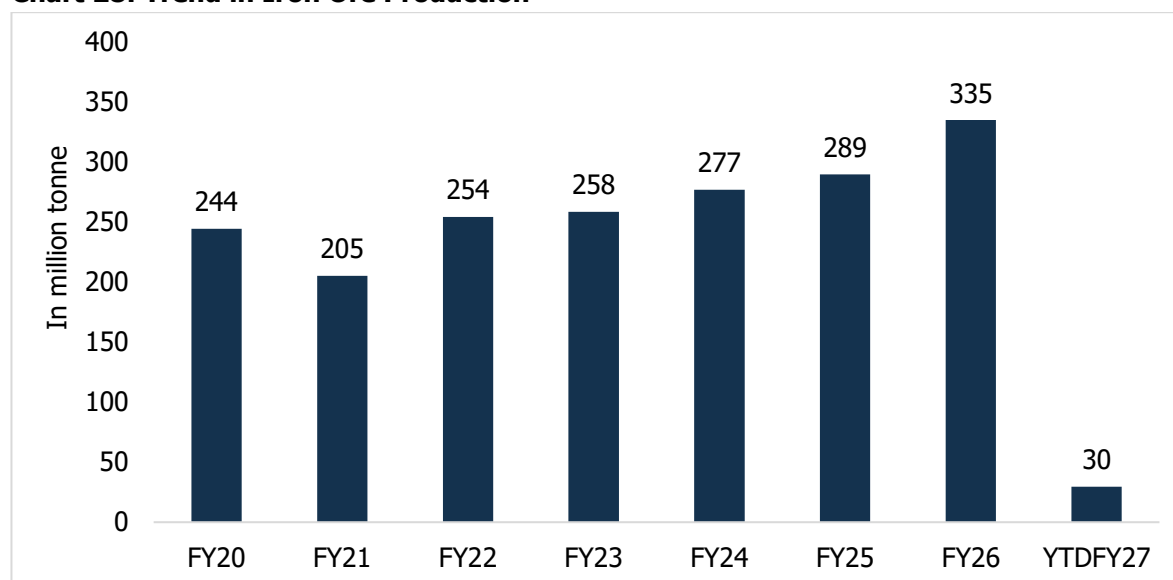


Source: IBM

Production of Iron Ore

Iron ore production in India grew at a compound annual growth rate (CAGR) of 5.4% over FY20–FY26. In FY26, India produced 335 million tonnes (MT) of iron ore, reflecting a Year-on-Year growth of 15.6%. This growth is supported by sustained capacity expansion by major miners, improved productivity in mines, and a growing domestic demand from the steel sector. The Ministry of Mines has highlighted that iron ore production has remained on a growth trajectory, reflecting robust mining activity and continued operational improvements across the sector. The production outlook is further reinforced by expansion initiatives undertaken by leading producers such as NMDC, which achieved record production during FY26 through higher output from its Bailadila and Donimalai mines and the commissioning of new mining assets. The ongoing mine development, logistics enhancements and capacity augmentation will continue to support higher production in line with rising domestic steel demand.

Chart 28: Trend in Iron Ore Production



Source: CMIE

Note: YTD refers to the month of April

Price Trend

In the March 2026 quarter, international iron ore prices appear to remain broadly range-bound with a slight softening bias. The trend suggests the market has moved away from the sharp volatility seen in earlier years and is now reflecting on a more balanced supply-demand environment. Price support likely comes from steady steel production requirements and restocking activity by mills, while upside remains capped by cautious demand from the construction and property sectors, particularly in major consumer markets. Thus, the quarter spans across a relatively stable but subdued pricing environment, with sentiment driven more by demand uncertainty than by any strong shortage-led rally.

In the preceding quarter ending December 2025 prices hovered around USD 107 per tonne. This can be attributed to weak global demand, particularly from China, where a slowdown in the real estate sector and lower steel production reduced iron ore consumption. At the same time, increasing supply from major mining countries and stable shipment levels kept the market well-supplied, limiting upward price movement.

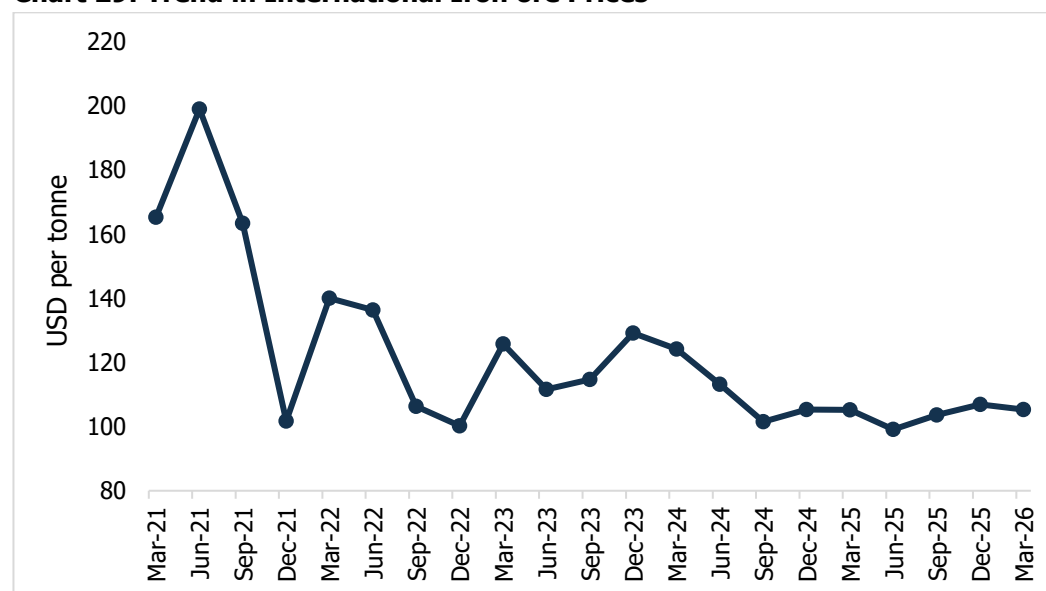
Iron ore prices recorded a modest increase in the quarter ending September 2025 by 4.5% Q-o-Q. This was preceded by a sharp decline in the quarter ending June 2025, falling 12.5% Y-o-Y and 5.8% Q-o-Q, to settle at USD 99 per tonne. This decline was driven by increase in global supply especially from major exporters like Australia and Brazil and softening

of demand from China during the seasonal off-season and structural slowdown in steel output. The oversupply phenomena particularly amid reduced construction activity and production cuts by Chinese mills, further pressures prices downward. Additionally, a weaker US dollar also dented producer profit. These combined factors led to a significant drop in benchmark iron-ore pricing by mid-2025.

Prices declined marginally by 0.1% for the quarter ended March 2025. This was after global iron ore prices inched up slightly by 3.7% quarter-on-quarter (Q-o-Q) to USD 105 per tonne, for the quarter ended December 2024. The drop was primarily fueled by an economic downturn in China then the world's biggest iron ore consumer and oversupply from leading global producers, including Australia, which holds the largest iron ore reserves globally.

Considering the crucial requirement of iron ore in the steel production process, such price volatility has had direct implications on world steel prices emphasising the raw material's significance in the overall supply chain dynamics of the steel sector.

Chart 29: Trend in International Iron ore Prices



Source: CMIE

4.2 Coal

Overview

Coal is one of the most abundant fossil fuels globally, with five countries the U.S., Russia, Australia, China, and India holding 75% of proven reserves. In India, coal is the primary fossil fuel, supplying over 74% of the country's electricity and supporting key industries like steel, cement, and fertilizers. Although the sector has been under government control since nationalisation in the 1970s, private sector participation has grown in recent years through captive and commercial mine auctions.

Most coal reserves are found in the eastern and south-central regions of the country. Jharkhand, Odisha, Chhattisgarh, West Bengal, Madhya Pradesh, Telangana, and Maharashtra collectively hold approximately 97% of the nation's total coal reserves. India's coal reserves stood at 400.72 Billion Tonnes as of FY25. Odisha and Jharkhand have the largest coal reserves of 100.9 Bn Tonnes and 93.3 Bn Tonnes respectively, followed by Chhattisgarh with 85.3 Billion Tonnes of reserves.

Coal in India is broadly classified into two types: coking and non-coking. Coking coal is used in steelmaking and metallurgical processes, where it is converted into coke by heating in the absence of air. Its performance in blast furnaces is influenced by impurities such as moisture, volatile matter, ash, sulphur, phosphorus, and alkali content. High-quality coking coal is essential for efficient coke production. Non-coking coal, primarily used for power generation, contains lower ash and higher fixed carbon. It does not form coke during carbonisation and is also employed in the cement, glass, and chemical industries. Coal grades are determined based on different parameters: Useful Heat Value (UHV) for non-coking coal, ash content for coking coal, and a combination of ash and moisture content for semi-coking coal.

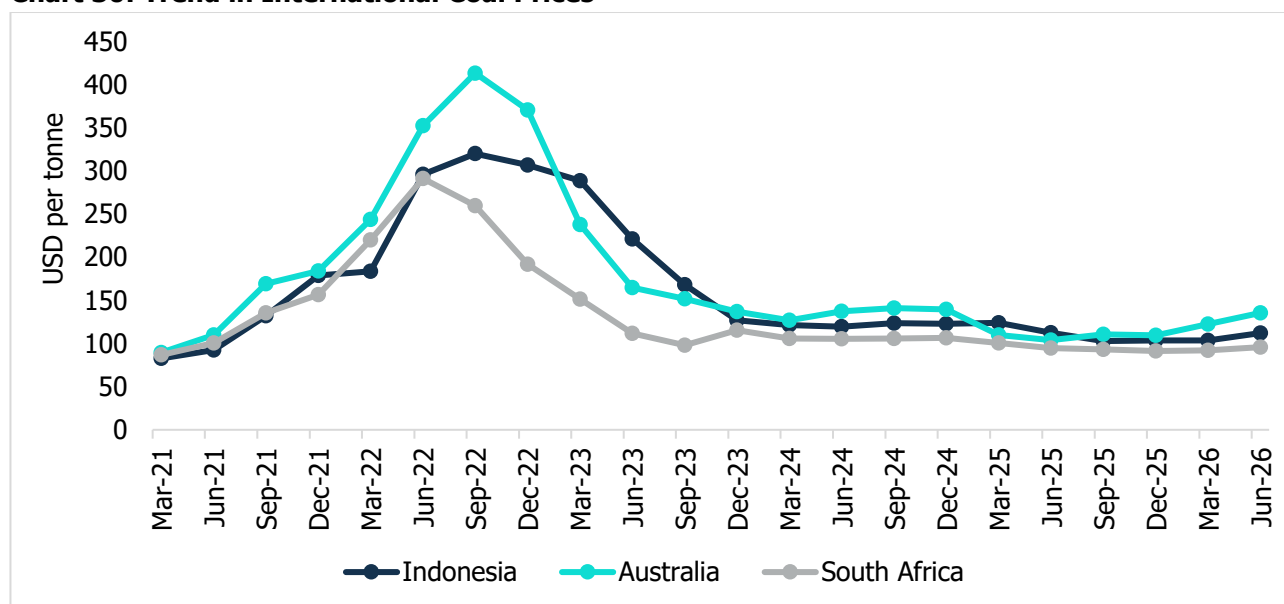
Price Trend

International coal prices remained largely stable during the quarter ended June 2026, supported by balanced seaborne supply and steady demand. Australian thermal coal prices increased from approximately USD 122 per tonne in March 2026 to USD 135 per tonne in June 2026, supported by stronger seasonal demand from North Asian utilities. Indonesian coal prices rose from around USD 104 per tonne in March 2026 quarter to USD 112 per tonne in June 2026 quarter on sustained buying from Asian importers, while South African coal prices edged up from USD 92 per tonne to USD 96 per tonne during the same time period, reflecting balanced export supply. Overall, ample global availability continued to limit significant price increases.

The previous quarter ended March 2026 showed relative stability with a slight uptick, with prices of Indonesia, Australia, and South Africa seen around USD 103.6, 122.3, and 91.9 per tonne respectively. This can be attributed to steady demand from power generation and steel sectors, along with continued reliance on coal as a key energy source. Additionally, gradual supply-demand balancing and stable production levels contributed to price stability during this period.

In contrast, prices in the December ending quarter remained relatively subdued, reflecting adequate global supply and comfortable inventory levels. Increased coal production and supply, along with higher stock availability at power plants, reduced supply-side pressures and kept prices range bound. As on quarter ending September 2025, barring Australia, coal prices for both Indonesia and South Africa declined by 8% and 2%, respectively. Coal prices in Australia for the same quarter increased by 6% Q-o-Q. During June 2025, international coal prices stood at USD 112 per tonne for Indonesia, USD 104 per tonne for Australia, and USD 95 per tonne for South Africa. All three prices have seen drastic decline of 9.2%, 5.3%, and 6% Q-o-Q respectively. This was due to a persistent supply surplus amid softening demand. Global coal consumption is now plateauing, with demand from major markets like China and India easing as renewables and hydropower absorb a larger share of energy generation. At the same time, producers maintained high output, bolstering inventories and easing price pressures. This convergence of steady supply and wavering import appetite has driven prices down across key export markets.

During the quarter ended March 2025, international coal prices eased from previous highs, averaging USD 123.8 per tonne for Indonesia, USD 109.8 per tonne for Australia, and USD 100.6 per tonne for South Africa.

Chart 30: Trend in International Coal Prices


Source: CMIE

4.3 Hot-Rolled (HR) Coils

Overview and Current Trade Dynamics

Hot Rolled (HR) coils are flat steel products manufactured by rolling steel slabs at high temperatures, typically above the material's recrystallization point. This process allows the steel to be formed more easily into large, continuous sheets that are later coiled. HR coils serve as a primary feedstock for a wide range of downstream steel products and industries. They are commonly used in construction, shipbuilding, pipelines, automotive frames, railway equipment, and general engineering due to their strength, versatility, and ease of fabrication. The surface of hot rolled coils is generally less smooth compared to cold rolled products, but they offer cost efficiency and suitability for applications where precise tolerances are not critical. Globally, HR coils form the backbone of steel supply chains, providing base material for further processing into plates, sheets, structural sections, and tubes across industrial and infrastructure applications.

Trade dynamics for HR coils are marked by rising imports alongside pressures on domestic producers. HR coils form a major portion of finished steel imports, especially from countries like China, South Korea, and Japan, prompting the government to impose a provisional safeguard duty on certain flat steel products including HR coils to curb imports. Domestic steel prices have weakened amid import competition, driving calls from the industry for stronger protective measures. At the same time, India is tightening its procurement norms to favour domestically manufactured steel, reinforcing policy support for local mills. On exports, the share of HR coils has shrunk in India's finished steel export basket, as shipments of HR coils and plates declined notably in recent periods. Collectively, the trade environment shows tension between open global supply competition and domestic protection via tariffs and procurement policy.

Price Trend

HR coil prices in India across all thickness grades have moved upward from their trough in late 2024, indicating a modest rebound in market sentiment. The 2.0 mm grade has climbed from its December 2024 low toward a mid-2025 level, while 2.5 mm and 3.15 mm grades exhibit similar modest recoveries. This uptick suggests improving demand from infrastructure, bridging of supply gaps, and possibly stabilization in raw material costs.

Table 4: Pricing Trends in HR Coils (In Rs/Tonne)

Size	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Dec-24	Mar-25	Jun-25	Sep-25	Dec-25	Mar-26
2 mm	70,082	68,106	68,912	66,000	65,817	62,203	59,326	59,631	63,223	60,874	57,454	64,122
2.5 mm	68,848	66,506	67,825	64,600	64,735	61,191	58,442	58,453	61,236	59,237	56,133	62,365
3.15 mm	68,924	66,468	67,818	64,712	64,722	61,080	58,445	58,378	61,215	59,186	56,088	62,157

Source: CMIE

4.4 Billets

Overview and Current Trade Dynamics

Billets are semi-finished steel products, typically produced by casting molten steel into rectangular or square cross-section blocks. They serve as intermediate input for rolling or forging into finished steel items such as bars, rods, structural sections, wires, and other long products. Their importance lies in their role as feedstock in steel mills, enabling flexibility in downstream processing. Billets may be made via various routes including induction furnace, electric arc furnace, and integrated steel plants. The quality, chemical composition, size, and homogeneity are essential parameters, since they influence rolling efficiency and the properties of final steel products.

In India, trade in billets has fluctuated, with periods of rising exports followed by declines. Customs data shows that India is among the leading exporters of billets, though export volumes have on occasion dropped due to weaker overseas demand or competition. Domestic demand for billets has been supported by growth in long product manufacturing - construction rebar, wire rods, structural steel, since these operations require billet supply. Policy factors, such as export duties, trade protection, price volatility, and import competition from regions with lower production cost, also influence trade flows. Additionally, government initiatives to boost infrastructure, housing, and industrial capacity tend to push up internal consumption of billets, helping offset export drop-offs.

Price Trend

Billet prices recovered in the quarter ending March 2026 from the preceding quarter, primarily driven by improving domestic steel demand, inventory replenishment by steel producers and traders, and a recovery in finished steel prices. The increase was further supported by higher raw material costs, tighter scrap availability and improved market sentiment amid robust infrastructure and construction activity.

Historically, billet prices started relatively strong in 2022, then declined through 2023 and into 2024. That downward trend was driven by subdued demand from long product makers (rebar, wire rods), cheaper raw material inputs, and competitive import pressures. The slump deepened in late 2024 when prices across the size segment reached low levels. The rebound in mid-2025 may be attributed to stabilization in raw material costs, renewed infrastructure and construction demand, and tighter trade conditions.

Table 5: Pricing Trend in Billets (In Rs/Tonne)

Size	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Dec-24	Mar-25	Jun-25	Sep-25	Dec-25	Mar-26
100 mm	58,657	56,537	56,479	53,938	56,770	53,356	53,852	52,700	53,963	51,120	49,760	53,153

Source: CMIE; Note: Prices mentioned are Average of prices in Delhi, Kolkata, Mumbai, and Chennai

4.5 Cold-Rolled (CR) Coils

Overview and Current Trade Dynamics

Cold Rolled (CR) coils are a critical component in India's manufacturing landscape, offering enhanced surface finish, tighter tolerances, and improved strength compared to hot-rolled counterparts. These coils are extensively used in sectors such as automotive, appliances, construction, and electrical equipment. The demand for CR coils is driven by the

need for high-quality materials that support precision engineering and aesthetic appeal. Domestic production is concentrated among major steel producers, with significant investments aimed at expanding capacity and technological capabilities. For instance, JSW Steel and JFE Steel have announced a substantial investment to increase the production of cold-rolled grain-oriented electrical steel, underscoring the sector's growth potential.

India's steel industry is currently navigating a complex trade environment. In the first ten months of the fiscal year, finished steel imports surged to a record high, marking a significant increase from the previous year. This influx, particularly from countries like China, has intensified competition, leading to pricing pressures on domestic producers. In response, the Indian government is considering the imposition of safeguard duties to curb the rise in imports and protect local manufacturers. These developments have prompted fluctuations in domestic steel prices, affecting both producers and consumers. Despite these challenges, the demand for CR coils remains robust, driven by ongoing infrastructure projects and industrial activities. The government's policy decisions in the coming months will be pivotal in shaping the future dynamics of the CR coil market in India.

Price Trend

As of March 2026, the price of Cold Rolled (CR) coils in India exhibited a notable increase as compared to the previous quarter. The recovery was primarily driven by improving domestic steel demand, higher raw material costs, safeguard measures against low-priced imports, and increased procurement from automotive, consumer durables and infrastructure sectors.

Table 6: Pricing Trends in CR Coils (In Rs/Tonne)

Size	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Dec-24	Mar-25	Jun-25	Sep-25	Dec-25	Mar-26
0.63 mm	76,293	73,533	74,823	73,391	73,443	71,310	68,443	67,243	69,610	66,750	64,155	71,409
1 mm	75,587	72,749	74,455	72,296	72,714	70,671	68,257	66,387	68,903	65,998	63,657	70,584

Source: CMIE; Note: Prices mentioned are Average of prices in Delhi, Kolkata, Mumbai, and Chennai

5 Global Steel Pipes and Tubes Industry

5.1 Overview

The global steel pipes and tubes industry is on a growth trajectory, fuelled by increased investments in infrastructure and expanding sectors like oil and gas. In recent years, the sector has seen rising demand driven by construction activities, particularly in emerging markets where urbanization and infrastructure projects are booming. Steel pipes are crucial for a variety of applications, including transportation of oil and gas, water supply systems, and structural support in construction.

A key driver of market expansion is the rising investment in petrochemical plants and other industrial facilities, which boosts the consumption of steel pipes and tubes. For instance, significant investments in new petrochemical complexes are expected to enhance market growth.

The steel pipes market benefits from steel's inherent properties such as high durability and resistance to corrosion. However, challenges like high transportation costs and competition from alternative materials like plastics can temper growth. The steel industry is also grappling with volatility in raw material prices and environmental concerns, prompting a shift towards more sustainable production practices.

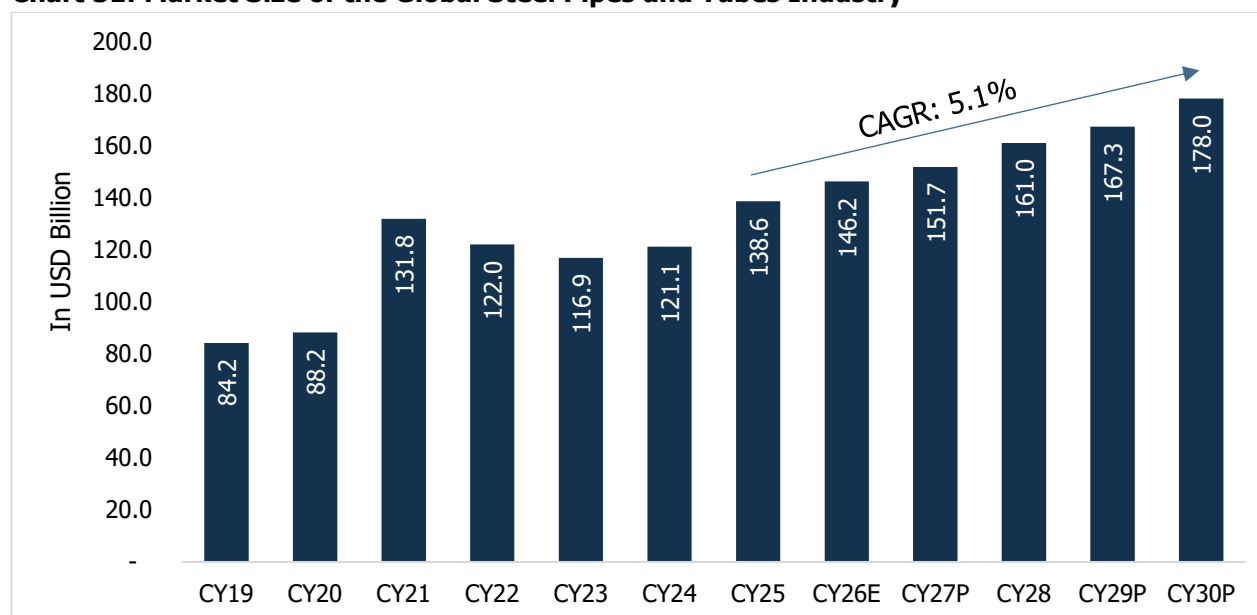
Despite these hurdles, the market is likely to continue expanding as steel remains a preferred choice for its strength and versatility in infrastructure projects worldwide. The ongoing focus on technological advancements and eco-friendly production methods is expected to support the industry's future growth.

5.2 Market Size of the Global Steel Pipes and Tubes Industry

The global steel pipes and tubes industry forms an integral part of industrial and infrastructure development. Historically, demand has been supported by major growth in infrastructure, oil & gas, and industrial expansion. Large pipeline networks for hydrocarbons, expanding water supply and sewage systems, and rising urban construction drove steady uptake. In parallel, economic growth in emerging markets, heavy-industry investment, and global urbanization led to sustained steel consumption for structural tubes, casing, conduits, and mechanical systems.

Looking ahead, demand will likely be shaped by a few key trends. The global energy transition (including hydrogen, carbon capture, offshore wind, and gas infrastructure) will call for more advanced, high-performance steel tubes. Upgrading and replacing existing water and wastewater systems, climate-resilient infrastructure, electrification, smart cities, and growth in process industries will further drive demand. Meanwhile, technological innovations (coatings, higher strength steels, additive manufacturing) and regulatory pressure on durability and emissions may intensify specification demand.

In summary, the global steel pipes and tubes industry remains a heavyweight in industrial materials, historically rooted in infrastructure, energy, and urban growth. Going forward, its trajectory will largely depend on clean energy infrastructure, modernization projects, regulatory requirements, and advanced steel technologies.

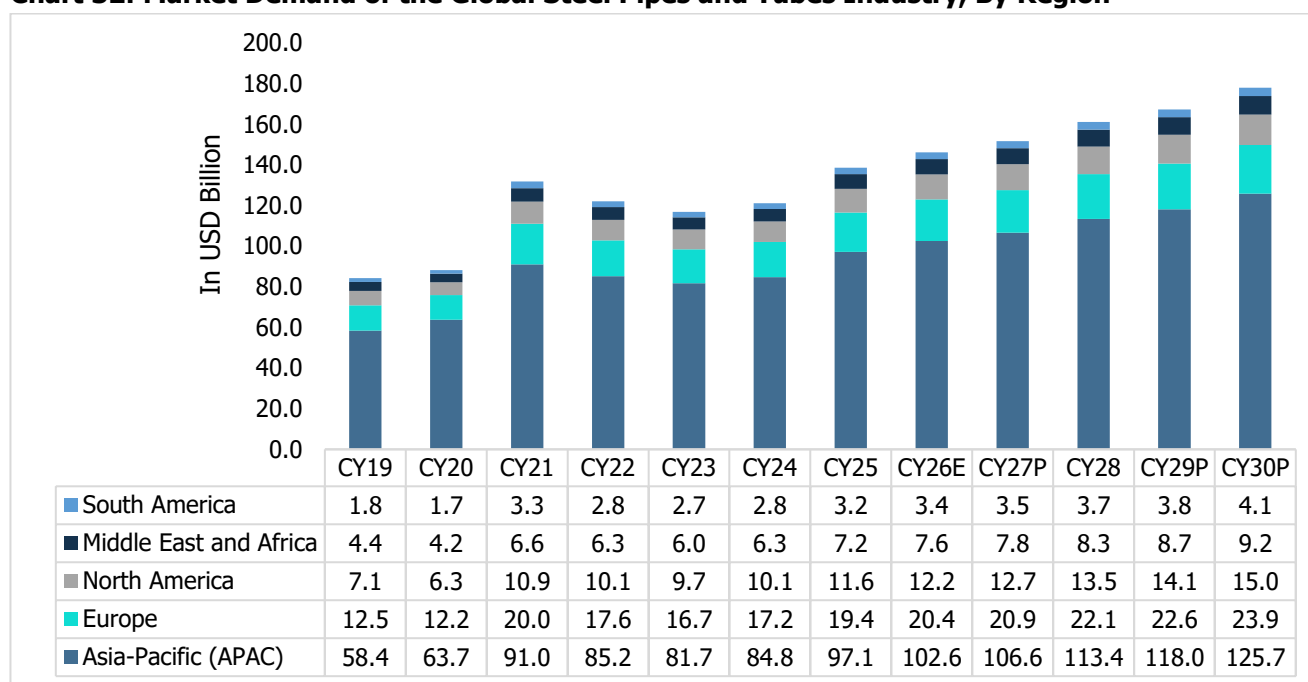
Chart 31: Market Size of the Global Steel Pipes and Tubes Industry


Source: MAIA, CareEdge Research; Note: E-Estimate, P-Projection

5.3 Market Demand of the Global Steel Pipes and Tubes, By Region

Region	CAGR (CY25–CY30)	Historical & Future Growth Drivers
Asia-Pacific (APAC)	5.3%	Historical: Rapid industrialisation, infrastructure expansion in China and India, growth in oil & gas pipeline projects, and strong demand from construction and automotive sectors. Future: Energy transition projects (hydrogen, renewables), replacement of aging pipeline networks, urban water supply infrastructure, and continued industrial investments.
Europe	4.3%	Historical: Demand from oil & gas and manufacturing sectors, refurbishment of old infrastructure, and environmental standards driving high-quality pipe use. Future: Focus on sustainability, hydrogen-ready pipeline development, and energy-efficient systems in construction and utilities.
North America	5.3%	Historical: Expansion of shale gas activities, strong oil & gas transmission network, and industrial growth in the U.S. Future: Increased energy exports, pipeline modernization, infrastructure bills supporting utilities and water projects, and demand from renewable energy applications.

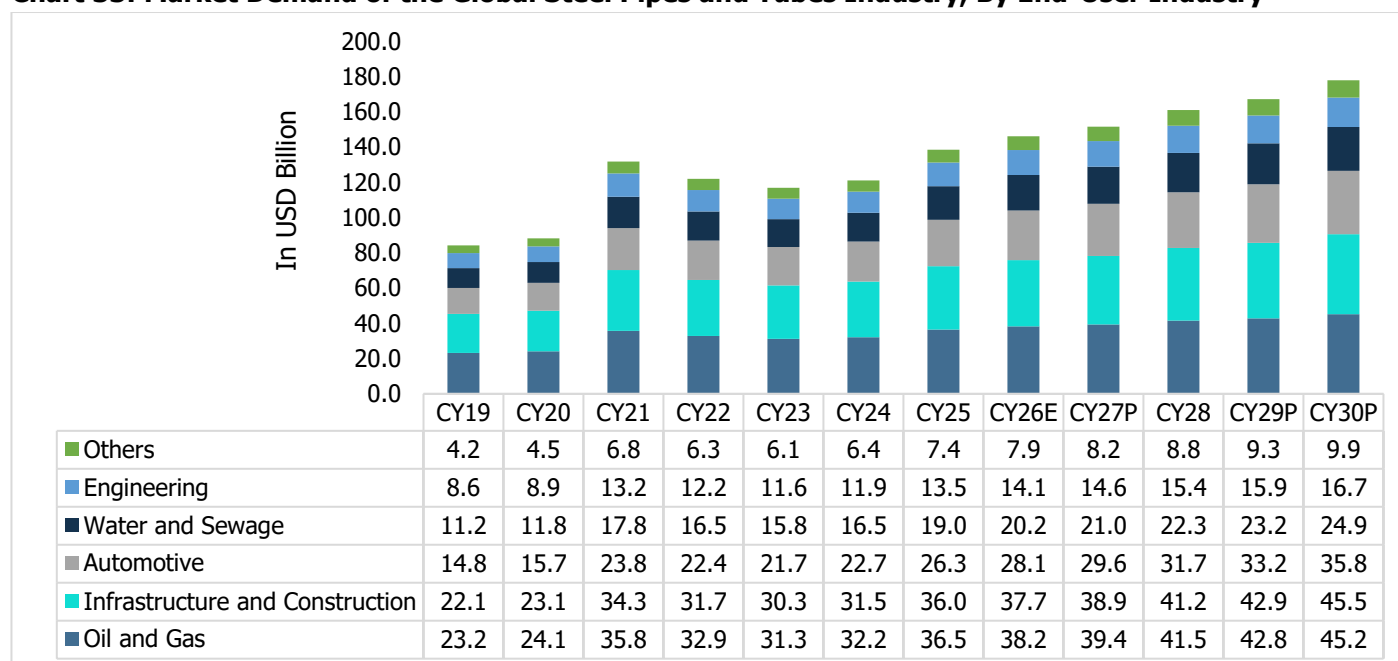
Region	CAGR (CY25–CY30)	Historical & Future Growth Drivers
Middle East & Africa	5.0%	Historical: Major oil & gas infrastructure investments, desalination and water projects, and industrial expansion in GCC countries. Future: Ongoing diversification from hydrocarbons, pipeline capacity expansion, and urban water infrastructure development.
South America	4.9%	Historical: Growth driven by oil & gas exploration (Brazil, Argentina), and construction activities. Future: Infrastructure modernization, offshore energy projects, and investments in utilities and renewable sectors.

Chart 32: Market Demand of the Global Steel Pipes and Tubes Industry, By Region


Source: MAIA, CareEdge Research; Note: E-Estimate, P-Projection

5.4 Market Demand of the Global Steel Pipes and Tubes Industry, By End-User Industry

End-User Industry	CAGR (CY25-CY30)	Demand Drivers
Oil & Gas	4.3%	Historical Drivers: Expansion of exploration & production (onshore & offshore), pipeline networks for crude oil and natural gas, drilling and transmission infrastructure. Future Drivers: Growth in gas infrastructure, hydrogen transport, carbon capture pipelines, replacement of old pipelines, stricter safety / environmental regulations.
Water and Sewage	5.6%	Historical Drivers: Urbanization, Rising public water supply and sanitation needs, increasing sewage infrastructure in developing regions. Future Drivers: Upgrading and replacing existing water and wastewater systems, focus on clean water access, climate resilient water infrastructure, stricter environmental standards, population growth, increasing distance or complexity of water transport.
Infrastructure & Construction	4.8%	Historical Drivers: Construction of buildings, bridges, rail, mechanical plants, structural uses, increasing industrialization especially in Asia-Pacific. Future Drivers: Continued growth of infrastructure projects, smart cities, resilient infrastructure, regulatory push for quality and durability, modernization of plants.
Automotive	6.4%	Historical Drivers: Demand for tubes in vehicle frames, exhaust systems, powertrains, mechanical parts. Future Drivers: Growth in EVs (lighter structures, weight optimization), stricter fuel efficiency/emissions norms, increased use of high-performance steels, demand for higher precision, lightweight components.
Engineering	4.4%	Historical Drivers: Use in machinery, equipment, hydraulics, pressure vessels, industrial tools; demand came from growth in heavy manufacturing, process plants, oil & gas equipment, refining. Future Drivers: Demand expected from robotics, automation, advanced manufacturing, higher strength/precision requirements; replacement/upgrade of mechanical systems; stricter standards for safety, efficiency, and material performance; expanding use in sectors like power plants, renewable energy systems, and specialized industrial equipment.

Chart 33: Market Demand of the Global Steel Pipes and Tubes Industry, By End-User Industry


Source: MAIA, CareEdge Research; Note: E-Estimate, P-Projection

5.5 Brief Profile of Key Global Players

Tenaris

Tenaris is a global manufacturer and supplier of steel pipes and related services for the energy sector and other industrial applications. Its operations are vertically integrated, combining steelmaking, pipe rolling and forming, heat treatment, threading, and finishing across many countries. The company also maintains service and distribution centres, a strong R&D network, and a presence in 17 countries. Tenaris supplies oilfield tubular goods (OCTG), drill pipe, premium connections, line pipe, and other tubular products. Its products are used in upstream, midstream, and downstream segments of oil & gas, as well as in industrial and mechanical sectors (e.g. structural pipes, mechanical tubing) and certain low-carbon or energy transition-related applications. Tenaris has set a target to reduce CO₂ intensity of operations leveraging use of recycled steel scrap, renewable energy, and improving energy efficiency. It emphasises safety, quality, and innovation. Strengths include global footprint, wide product range, strong brand in OCTG and premium connections, R&D capability.

Vallourec

Vallourec is a producer of premium tubular solutions, especially seamless steel tubes and hollow sections, with focus on energy (oil & gas), industrial, and "new energies" markets (geothermal, hydrogen, carbon capture & storage) globally. It maintains several tube mills, finishing units, steel mills (electric arc furnace and blast furnace), and development R&D centres. Vallourec offers products such as seamless and welded tubes, Oil Country Tubular Goods (OCTG), line pipes, hollow sections, premium connections, and accessories. It serves oil & gas for both onshore and offshore, industry applications (mechanical, automotive, construction), and is increasing its business in energy transition sectors. The company emphasises smart tubular solutions, combining product, service, and engineering solutions. Innovation via R&D is central; it has multiple R&D centres and engineers & technicians focused on material grades, connections, finishing, sustainability.

Welspun Corp.

Welspun Corp Ltd. is a player in global steel pipe solutions. The group has manufacturing facilities in India, the United States, and Saudi Arabia, with operations covering more than fifty countries. Its core steel-pipes product line includes large-diameter line pipes (produced via technologies such as HSAW, LSAW, HFIW, HFW), stainless steel tubes and bars, ductile iron pipes, and various steel pipe grades used in oil & gas, water infrastructure, ports and terminals, and structural applications. Welspun is certified under BIS and maintains stringent international approvals, especially for its line pipe operations. The company operates vertically in certain segments, with facilities for steel billets and direct reduced iron feeding its TMT, steel pipe and tube, and other downstream manufacturing lines. Welspun has undertaken challenging pipeline projects globally (deep, heavy, long) to showcase its technical and operational strength. Under its pipe vertical leadership, it focuses on innovation, supply chain efficiency, technology adoption, and global competitiveness.

6 Indian Steel Pipes and Tubes Industry

6.1 Overview and Current Trade Dynamics of Steel Pipes and Tubes in India

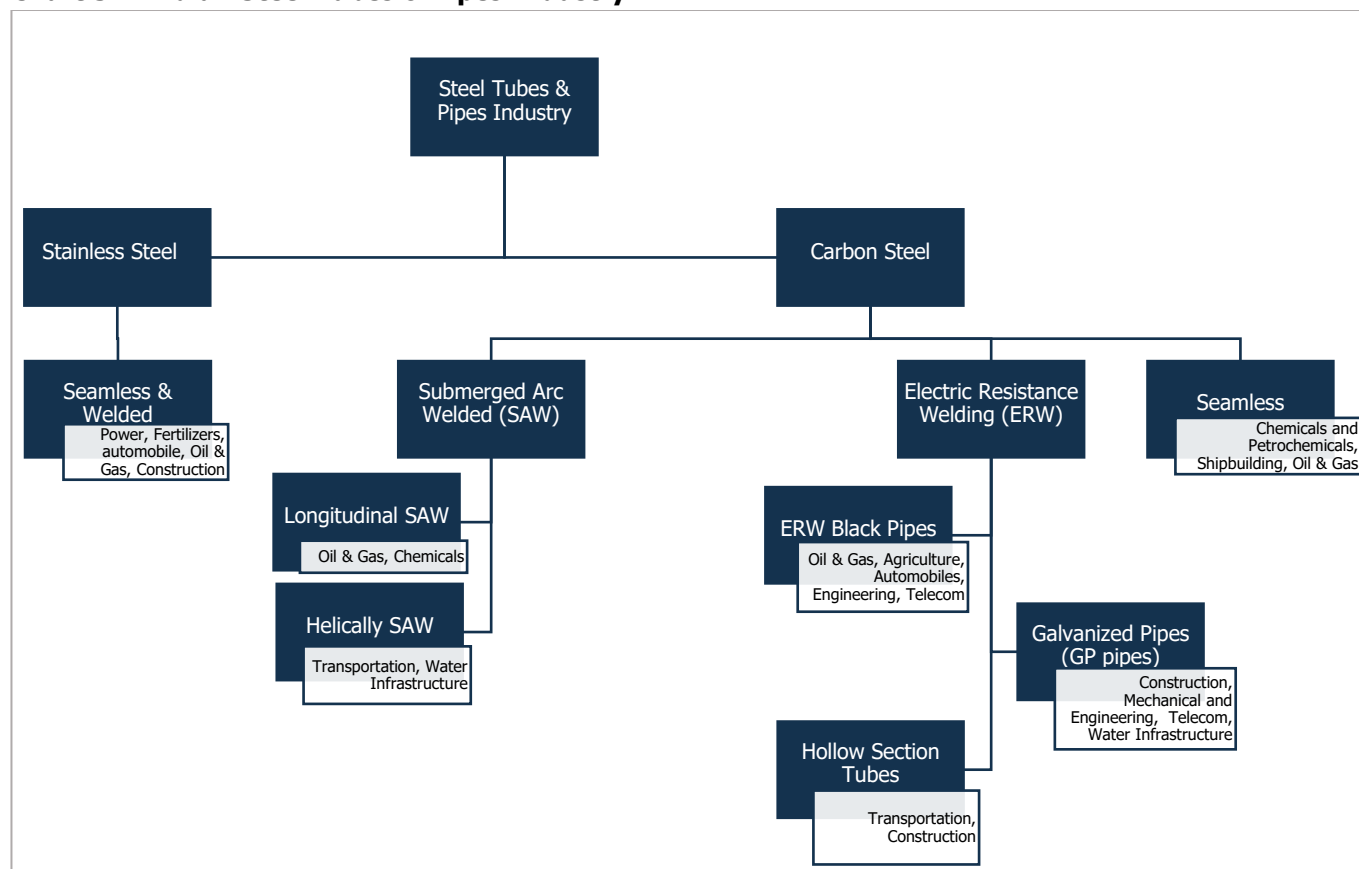
Steel tubes and pipes are cylindrical structures made of steel generally in hollow shape. However, different shapes, sizes, and grades are used to cater for the requirements of various industries.

India is one of the established manufacturers of steel pipes globally, which is also one of the most important sub-industries of the Indian steel sector. Construction, railways, oil & gas, agriculture, and real estate are some of the key consumers of steel tubes and pipes. Different types of steel tubes and pipes are given in the following chart.

The usage of steel tubes and pipes is significant in construction activities and building infrastructure. These materials are used in the construction sector for constructing structural elements such as columns, beams, and trusses to provide strength and support the formation of buildings. They are also used in water infrastructure such as water supply for drinking water, plumbing, drainage, and sewerage systems. Besides, they are used by the manufacturing sector including oil & gas pipelines, agricultural equipment, automobile components, electrical cable conduits, etc.

Steel pipes are increasingly favored over conventional materials like angles, channels, and wood due to their superior strength, durability, and longevity. While wood may initially appear stronger, modern steel tubing can outperform it through advanced alloying and processing methods, making it ideal for high-stress applications like skyscrapers. Steel pipes are lightweight yet robust, making them suitable for projects where weight is a concern. They resist rot, warping, and pests, unlike wood, which require extensive maintenance. Additionally, steel tubing can be easily shaped for precise applications, although its manufacturing process is more labor intensive and costly. Overall, steel pipes offer a reliable and efficient alternative for modern construction needs.

Several initiatives and policies have been adopted by the government to promote domestic steel production through the Make in India initiative and the National Steel Policy (NSP) 2017. The NSP envisages the development of value-added products such as alloy steel and electrical steel in the domestic market. Overall, the increasing demand for steel tubes and pipes will contribute to the country's growth and development, making them an important element of the country's infrastructure and manufacturing sectors.

Chart 34: Indian Steel Tubes & Pipes Industry


Source: Industry Sources

Feature	HSAW Pipes	LSAW Pipes	ERW Pipes	DI Pipes	HDPE Pipes	PVC Pipes
Manufacturing Process	Helical submerged arc welding of steel coil	Longitudinal submerged arc welding of steel plate	Electric resistance welding of steel strip/coil	Centrifugal casting of molten iron	Extrusion of high-density polyethylene	Extrusion of polyvinyl chloride
Raw Material	Steel coil (carbon steel/HSLA steel)	Steel plate (carbon steel/HSLA steel)	Steel strip/coil	Pig iron, scrap and alloys	Polyethylene resin	PVC resin
Diameter Range	Large to very large diameters	Medium to very large diameters	Small to medium diameters	Small to large diameters	Small to large diameters	Small to medium diameters
Strength	High	Very high	Medium to high	High compressive strength	Medium	Medium
Pressure Handling Capacity	High	Very high	Medium to high	High	Medium	Low to medium

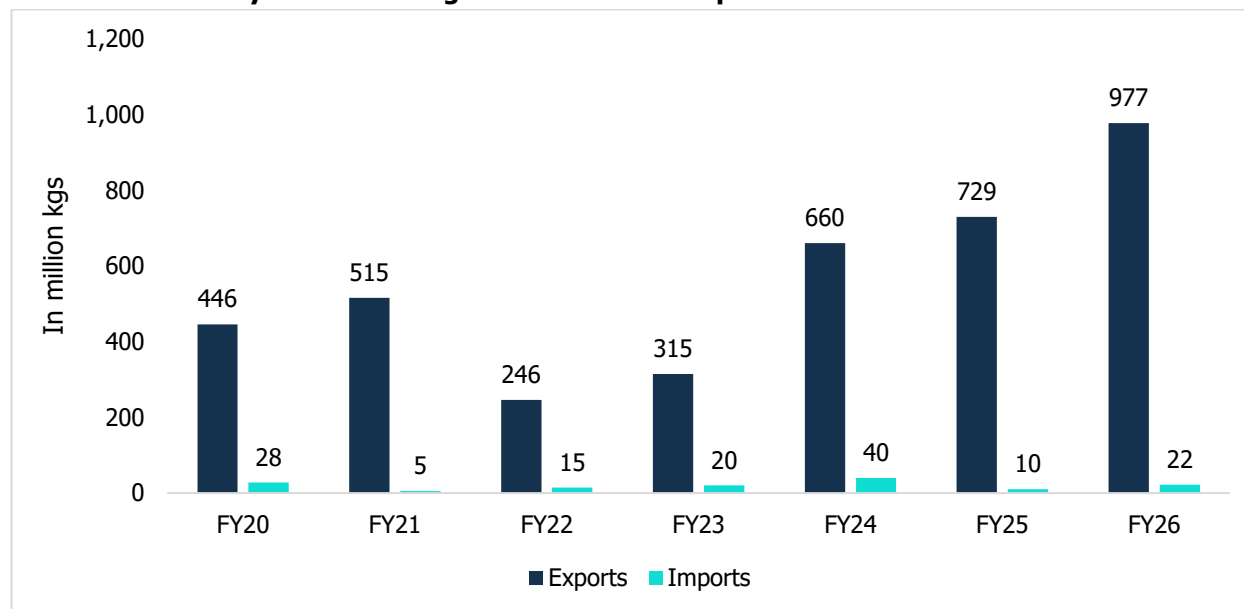
Feature	HSAW Pipes	LSAW Pipes	ERW Pipes	DI Pipes	HDPE Pipes	PVC Pipes
Corrosion Resistance	Requires internal/external coating	Requires internal/external coating	Requires internal/external coating	Excellent with lining/coating	Excellent	Good
Joining Method	Welded joints	Welded joints	Welded/threaded joints	Push-on or mechanical joints	Butt fusion/electrofusion joints	Solvent cement joints
Typical End-use Applications	Oil & gas transmission, water transmission, slurry pipelines, structural piling (Primarily used for bulk transportation)	Oil & gas transmission, offshore pipelines, high-pressure applications (Primarily used for bulk transportation)	Water distribution, fire protection, structural and industrial applications (Generally used for last-mile distribution)	Water supply, sewerage, irrigation (Generally used for last-mile distribution)	Water distribution, gas distribution, irrigation, sewerage (Generally used for last-mile distribution)	Water supply, irrigation, plumbing and conduit applications (Generally used for last-mile distribution)
Cost Competitiveness	Economical for large-diameter applications	Higher cost; suitable for critical applications	Economical for small and medium diameters	Higher material cost	Low to moderate	Low
Key Advantages	Suitable for very large diameters; cost-efficient for bulk transmission	Superior strength and pressure capability	High dimensional precision; cost-effective	Long service life and high corrosion resistance	Lightweight, flexible and corrosion resistant	Low cost, easy installation and smooth internal surface
Key Limitations	Requires corrosion protection systems; lower precision than LSAW	Higher manufacturing cost and longer production cycle	Limited availability in larger diameters	Higher installation and material costs	Lower temperature resistance	Lower pressure capability and limited high-temperature applications
Typical Industry Standards	API, IS, AWWA, EN	API, IS, AWWA, EN	API, IS, ASTM	IS, AWWA	IS, ISO	IS, ASTM
Relative Entry Barriers	High	Very high	Moderate	High	Low to moderate	Low

Trade Dynamics

India's steel pipes & tubes sector is shaped by both strong export ambition and rising import pressures. Export volumes of pipe and tube products form a meaningful share of India's steel exports, supported by global demand and India's competitive manpower and fabrication capabilities. (In earlier years, pipe & tube products accounted for about 10 % of India's steel exports by volume). On the import side, stainless steel tubes, pipes, and hollow profiles are brought in from countries such as China, Spain, Germany, Japan, and Korea, reflecting gaps in domestic supply, specialized alloy grades,

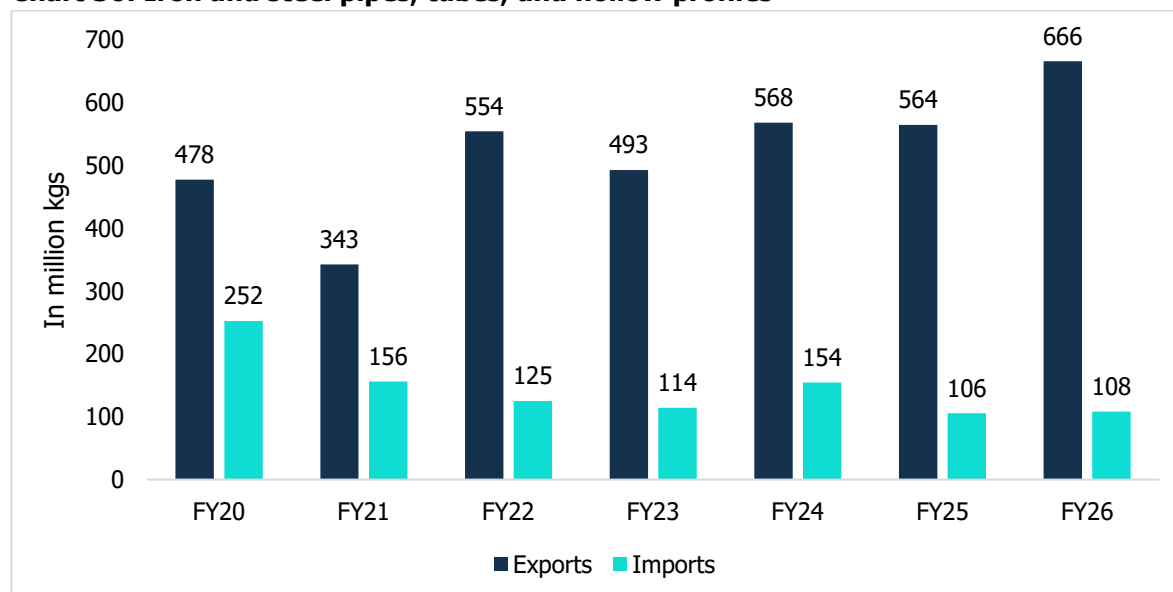
or pricing arbitrage. The product-level import shares suggest India depends on external sources especially for higher grade or corrosion-resistant tubular steels. Trade policy plays a moderating role: the Indian government has been using safeguard or anti-dumping duties and procurement norms to protect domestic producers from surge imports of steel flat products, which also affects pipes and tubes. In sum, India's pipe & tube trade dynamics reflect a balancing act: leveraging export potential while managing import competition and preserving domestic industry viability.

Chart 35: Trade Dynamics of Large Diameter Steel Pipes and Tubes



Source: Ministry of Commerce and Industry; Note: HSN code used here is 7305

Chart 36: Iron and steel pipes, tubes, and hollow profiles



Source: Ministry of Commerce and Industry; Note: HSN code used here is 7306

Barriers to Entry in the Steel Pipes Industry

- High barriers to entry stem from the necessity of deep, long-standing relationships with major steel producers, along with the capacity to source raw materials in large volumes at favourable prices.

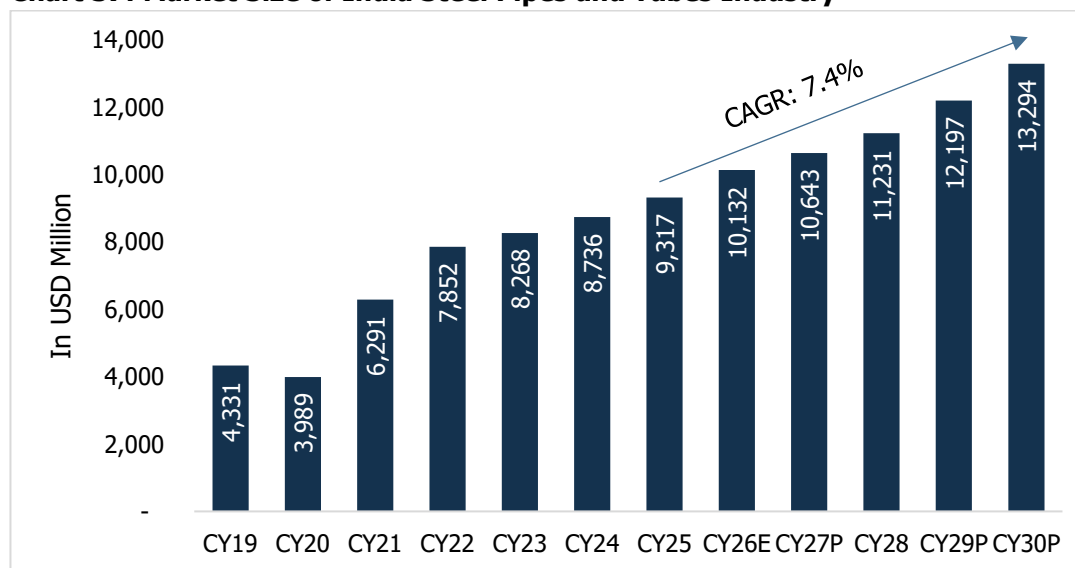
- Sustained supply contracts and a strong credit profile with leading steel mills are critical, as they ensure reliable access to quality inputs especially during volatile or tight market conditions.
- These procurement strengths translate into cost advantages, stable pricing, and stronger margins benefits that are difficult for new players to build or match.

6.2 Market Size of Steel Pipes and Tubes

The Indian steel pipes & tubes industry holds a meaningful share of the overall steel sector. The industry comprises welded, seamless, electric resistance welded, and submerged arc welded segments, catering to oil & gas, infrastructure, transport, water supply, construction, chemicals, and mechanical engineering users. Historically, growth has been supported by expanding demand for pipelines (both upstream and downstream energy sectors), urbanization and housing programs, investment in water and sanitation projects, and infrastructure spending under government initiatives. Domestic capacity expansion and modernization of steel fabrication technologies have also played roles, along with rising exports in certain pipe/tube segments.

Looking ahead, growth is set to be driven by continued infrastructure development backed by public capital expenditure; expansion of oil & gas and natural gas pipeline networks; increasing demand for clean water supply and wastewater systems; rising industrial, automotive, and mechanical engineering applications; and policy support favoring “Make in India” and domestic manufacturing. Advances in metallurgy, welding, corrosion resistance, and material specifications (including seamless and high-performance grades) will also influence demand. Regulatory requirements (environmental, safety, standards) and supply chain stability will be additional enablers for future growth.

Chart 37: Market Size of India Steel Pipes and Tubes Industry



Source: MAIA, CareEdge Research; Note: E-Estimate, P-Projection

6.3 Manufacturing Process of Submerged Arc Welded (SAW) pipes

Steel Plate/Coil Preparation

Steel strips or coils (also called strip steel) are selected based on required chemical composition and mechanical properties. Before forming, material undergoes physical and chemical inspection to verify quality. The strip is uncoiled (decoiled), leveled to remove coil set or curvature, trimmed of irregular or rough edges, and edges may be beveled or

planned for weld readiness. Edge preparation is important for ensuring good fit-up when forming and welding. Often the tail end of one coil is welded to the head of the next to enable continuous production.

Helical Forming and Spiral Welding

Once the strip is ready, it is fed into a forming machine where rollers bend the strip into a spiral or helical shape. The angle or geometry of forming determines the pipe diameter relative to strip width. In spiral forming, the edges meet in a helical seam rather than a straight longitudinal one. Tack welding or temporary welds may be used to hold the geometry before the main welding. Adjustments are made during this stage to ensure correct alignment, gap control (between edges), and dimensional tolerances (diameter, roundness).

The Use of Submerged Arc Welding (SAW) and its Benefits

In SAW welding, the seam (inside and outside if required) is welded automatically using one or more electrode wires; a granular flux covers the arc, shielding the molten metal from the atmosphere, helping control weld quality and reducing defects. Internal welding (from inside surface) is done first, followed by external welding to complete the joint. Benefits include deep penetration, high deposition rate, strong welds, relatively lower distortion, good consistency, and efficient welding especially for large diameters or thick walls.

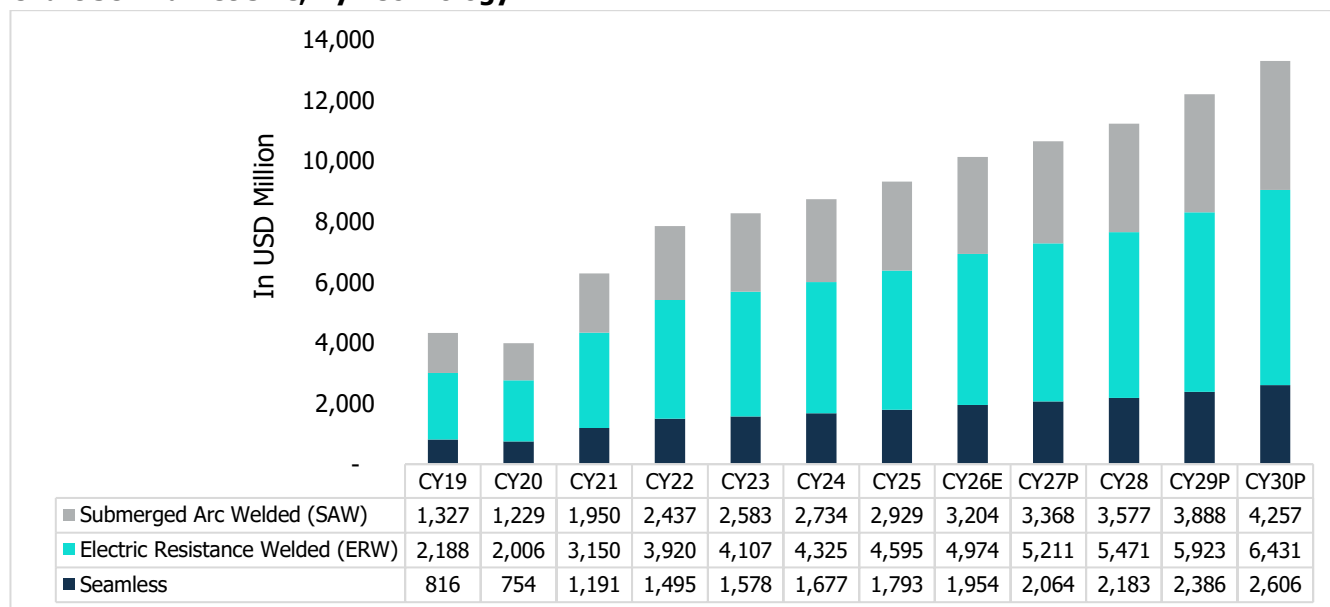
Quality Control and Testing

Quality checks run throughout the process. Non-destructive testing (NDT) methods like ultrasonic testing (UT) are used to detect internal and edge defects, often continuously or online during production. Radiography (X-ray) or computed radiography may be used especially for critical weld joints or areas flagged by UT. Hydrostatic pressure testing is carried out: pipe is filled with water, sealed, and pressurized to verify integrity of welds and body under working pressures. Other checks include visual inspection, dimensional measurements (diameter, wall thickness, weld seam geometry), mechanical property testing (tensile strength, yield, elongation) and sometimes destructive testing on sample rings. Ends of pipes are machined/beveled for installation.

6.4 Market Size by Technology

Technology	Description	CAGR (CY25–CY30)	Historical & Future Growth Drivers
Seamless	Pipes made from solid billets, heated and stretched over a mandrel to form a hollow tube. No welding is involved. Suitable for high-pressure applications.	7.8%	Historical: Used in oil & gas, infrastructure, and high-pressure systems. Future: Rising demand in energy, petrochemicals, and automotive sectors.
Electric Resistance Welded (ERW)	Steel sheets or coils are formed into pipe shape and edges are welded using electric resistance. Cost-effective and widely used for low to medium pressure applications.	7.0%	Historical: Infrastructure, water pipelines, and general industry. Future: Urbanization, water & gas distribution projects, industrial expansion.
Submerged Arc Welded (SAW)	Steel plates are rolled and welded longitudinally using submerged arc welding, creating thick-walled, high-	7.8%	Historical: Used in oil & gas pipelines and large diameter industrial piping. Future: Expansion of energy, cross-country pipelines, and heavy industry projects. Additionally, growth will be

Technology	Description	CAGR (CY25–CY30)	Historical & Future Growth Drivers
	strength pipes for large diameter applications.		driven by government initiatives such as AMRUT and Cross River Linkage projects, the shift to piped canal systems, and the Jal Jeevan Mission aimed at expanding water supply networks. Additionally, rising demand for HSAW API-grade pipes in the Oil & Gas sector for pipeline expansion and infrastructure upgrades will further support market growth.
HSAW Pipes	Spiral welding process for large-diameter pipes; used in oil, gas, and water transmission.	7.7%	Historical: This segment offers higher entry barriers, superior margin potential a significantly larger addressable market. Future: Entering this segment is expected to unlock incremental domestic and export market opportunities, thereby expanding the overall addressable market.

Chart 38: Market Size, By Technology


Source: MAIA, CareEdge Research; Note: E-Estimate, P-Projection

Steel pipes and tubes are manufactured using different technologies, each suited for specific applications and offering distinct advantages. **Seamless pipes** are produced by heating solid steel billets and stretching them over a mandrel to form a hollow tube. This process avoids welding, resulting in uniform strength and superior resistance to high pressure and extreme temperatures. Seamless pipes are commonly used in critical applications such as oil and gas exploration, petrochemical industries, and high-pressure systems, where reliability is paramount.

Electric Resistance Welded (ERW) pipes are made by forming steel sheets or coils into cylindrical shapes and joining the edges through electric resistance welding. ERW pipes are cost-effective, lightweight, and suitable for low to medium

pressure applications. They are widely used in water supply, gas distribution, and general infrastructure projects due to their efficient production process and relatively lower manufacturing costs.

Submerged Arc Welded (SAW) pipes, on the other hand, involve rolling thick steel plates and welding them longitudinally using a submerged arc process. SAW pipes can handle larger diameters and higher wall thicknesses, making them ideal for high-capacity industrial applications, such as cross-country pipelines and energy sector projects. They offer excellent mechanical properties and are designed for heavy-duty performance.

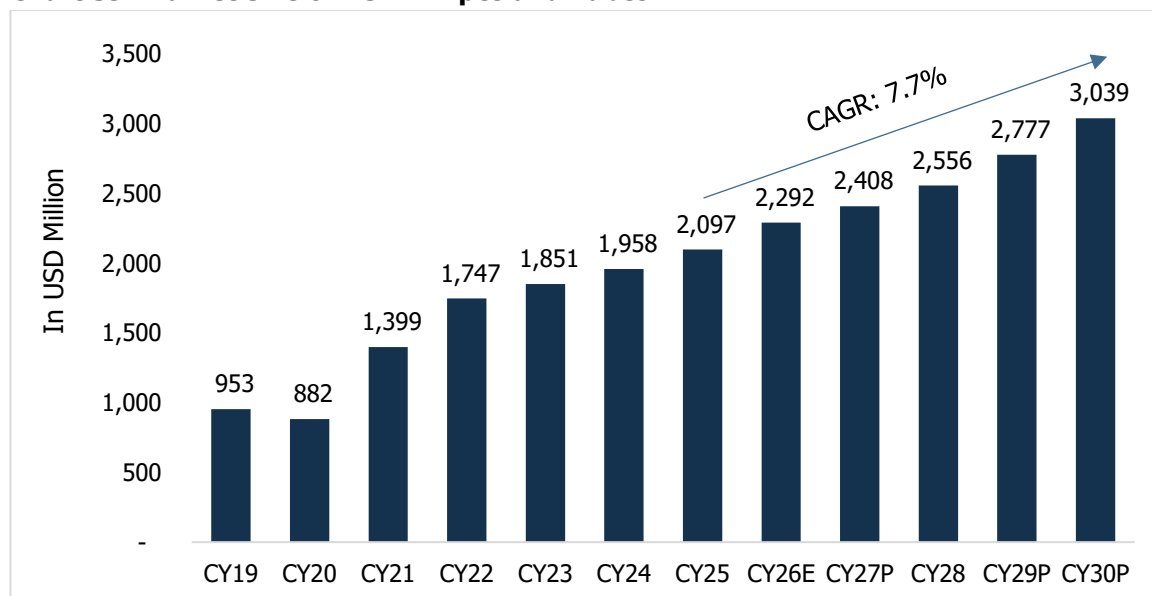
In summary, seamless pipes provide unmatched strength and pressure resistance, ERW pipes are economical and versatile for everyday applications, and SAW pipes cater to large-scale, high-demand industrial projects. The choice of technology depends on factors like pressure requirements, diameter, application type, and cost considerations. Each technology continues to evolve, driven by infrastructure growth, energy demand, and industrial expansion.

6.5 Market Size of HSAW Pipes and Tubes

HSAW Pipes are a specialized type of steel pipe manufactured by forming steel plates into a helical or spiral shape and joining the edges using the submerged arc welding process. Unlike traditional longitudinal SAW pipes, HSAW pipes are spirally wound, allowing for the production of large-diameter pipes with variable wall thicknesses while maintaining high structural integrity. The spiral welding distributes stress more evenly along the pipe, enhancing its resistance to internal pressure, external forces, and mechanical stresses. Due to these properties, HSAW pipes are widely used in critical applications such as oil and gas transportation, water transmission systems, urban infrastructure projects, and industrial pipelines where long lengths and high capacity are required.

The historical growth of HSAW pipes has been driven by large-scale infrastructure and energy projects. Rising demand for oil and gas pipelines, coupled with the need for water transmission and urban utility networks, has consistently fueled adoption. Government-led infrastructure initiatives and industrial expansion, particularly in emerging economies, have further bolstered demand. The cost-efficiency of spiral welding compared to traditional longitudinal welding, along with the ability to manufacture large-diameter pipes in longer lengths, made HSAW pipes an attractive choice for pipeline projects. In addition, the growth of industrial and urban development increased the requirement for durable and reliable piping solutions, supporting steady market expansion over the past decade.

Looking ahead, HSAW pipes are expected to continue growing due to ongoing investments in energy and water infrastructure, especially in regions focusing on pipeline networks to enhance energy security and improve urban water supply. Industrialization and the expansion of oil, gas, and petrochemical sectors will sustain demand for large-diameter pipelines. Technological advancements that improve welding quality, corrosion resistance, and manufacturing efficiency will further enhance adoption. Environmental regulations encouraging efficient water and energy transportation, along with renewable energy projects requiring robust pipeline systems, will act as key growth drivers. Overall, HSAW pipes are poised to maintain strong demand in both traditional and emerging pipeline applications, supported by infrastructure growth, technological innovation, and global industrial expansion.

Chart 39: Market Size of HSAW Pipes and Tubes


Source: MAIA, CareEdge Research; Note: E-Estimate, P-Projection

Impact of Evolving Geopolitical Landscape on Global HSAW Pipe Demand

The evolving geopolitical landscape, particularly recent developments in the Middle East and the increased focus on energy security following disruptions to key global energy corridors, is expected to influence long-term investment patterns in oil and gas infrastructure globally. Recent geopolitical events have reinforced concerns regarding the concentration of global hydrocarbon transportation routes and the vulnerability of critical energy chokepoints, prompting producers and consumer nations to evaluate diversification of energy transportation infrastructure and strengthen supply resilience.

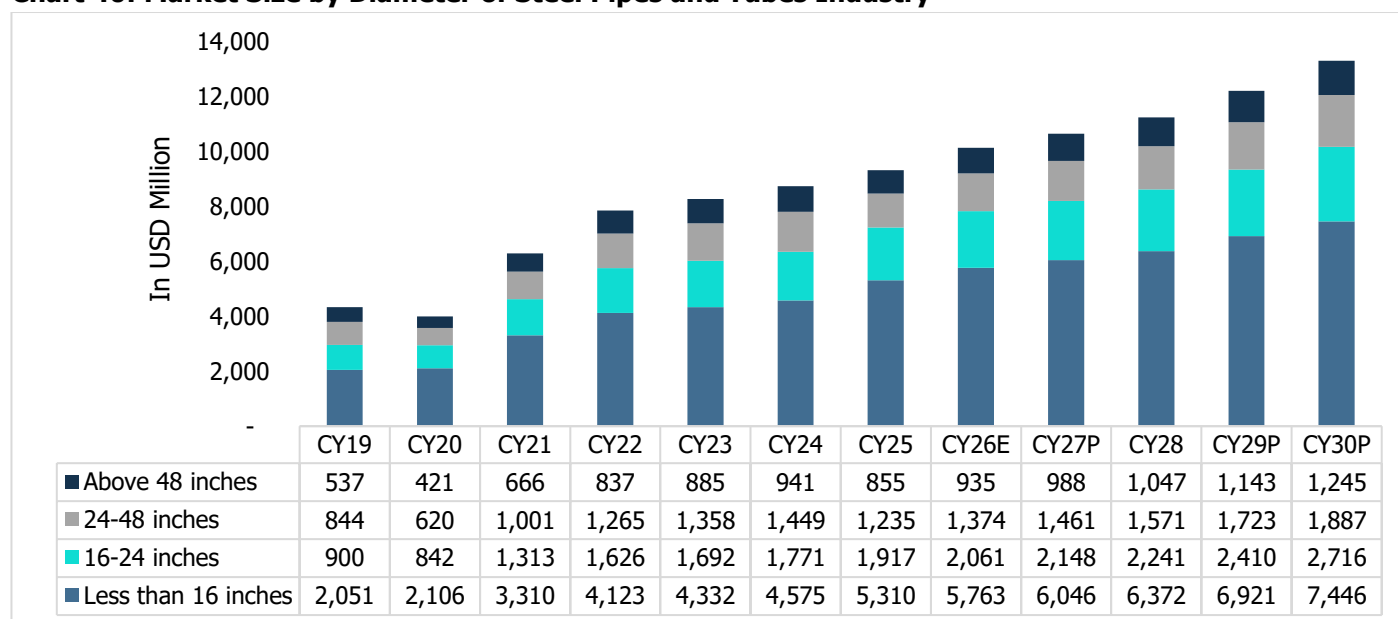
In response, governments and energy companies are increasingly exploring investments in strategic pipeline infrastructure, including bypass pipelines, cross-country transmission networks, export corridors and inter-regional connectivity projects aimed at reducing dependence on vulnerable maritime routes. Energy security considerations are expected to remain a key determinant of global energy investment decisions, with diversification of supply routes and strengthening of domestic and regional energy infrastructure emerging as important strategic priorities.

Such investments are expected to support demand for large-diameter steel pipes, particularly HSAW and LSAW pipes, which are extensively used in long-distance oil, gas and water transmission infrastructure. In addition, post-conflict reconstruction activities, restoration of damaged hydrocarbon infrastructure and the development of strategic alternative transportation corridors may create incremental opportunities for manufacturers of API-grade HSAW pipes and associated engineering products.

While the timing and magnitude of such investments remain subject to geopolitical developments, regulatory approvals and capital allocation decisions, the increasing emphasis on energy security and supply diversification is expected to provide favorable medium- to long-term demand prospects for the global HSAW pipe industry.

6.6 Market Size by Diameter

Diameter	CAGR (CY25–CY30)	Historical & Future Growth Drivers
Less than 16 inches	7.0%	Historical: Widely used in residential, commercial, and small-scale industrial applications. Strong demand from water supply, gas distribution, and urban infrastructure projects. Future: Growth driven by expanding urban pipelines, industrial utilities, and replacement of aging infrastructure.
16-24 inches	7.2%	Historical: Common in mid-sized industrial and municipal projects, including medium-capacity water and gas pipelines. Future: Rising demand in medium-scale infrastructure, irrigation projects, and energy transmission pipelines.
24-48 inches	8.8%	Historical: Used for large-diameter pipelines in oil, gas, and industrial sectors. Infrastructure expansion and energy transport were key drivers. Future: Growth supported by cross-country pipeline projects, industrial expansion, and rising energy transportation needs.
Above 48 inches	7.8%	Historical: Limited use historically due to high manufacturing costs; mostly for major oil & gas trunk lines. Future: Increasing adoption for large-scale energy and water transmission projects, driven by industrialization, renewable energy projects, and strategic national pipeline initiatives.

Chart 40: Market Size by Diameter of Steel Pipes and Tubes Industry


Source: MAIA, CareEdge Research; Note: E-Estimate, P-Projection

Large-diameter steel pipelines are long-life infrastructure assets designed to operate reliably for several decades, subject to appropriate maintenance, integrity management and periodic rehabilitation. The operational life of pipelines depends on several factors, including material specifications, operating conditions, corrosion protection systems, environmental exposure and maintenance practices. In many jurisdictions, pipeline operators undertake regular inspections, monitoring and refurbishment activities to extend asset life and maintain operational safety and efficiency.

Replacement and rehabilitation demand constitute an important component of the long-term pipeline industry demand cycle. As pipeline networks mature, operators are required to undertake replacement of aging assets, upgrade existing infrastructure to comply with evolving safety and environmental regulations, improve operational efficiency and expand capacity to meet changing energy transportation requirements. In addition, pipeline replacement demand may arise due to corrosion, material degradation, changes in operating pressures and the need to integrate newer transportation networks.

In the Indian context, expansion of oil and gas transportation infrastructure continues to remain the primary driver of demand for large-diameter steel pipelines. However, as the installed pipeline base expands and matures over time, replacement, rehabilitation and capacity augmentation activities are expected to emerge as increasingly important contributors to industry demand. Consequently, long-term demand for large-diameter steel pipes is expected to be supported by a combination of new infrastructure development, network expansion, asset replacement and ongoing maintenance requirements.

6.7 Market Size of Indian Steel Pipes and Tubes Industry, by End-User Industry

End-user industry	CY20	CY26E	CY30P	Key Demand Drivers
Oil and Gas	44%	42%	40%	Oil and gas is expected to remain the largest end-use segment, supported by continued investments in pipeline infrastructure, gas transmission and distribution networks. However, its share is expected to moderate as demand from non-oil and gas applications expands.

Infrastructure and Construction	18%	18%	18%	Sustained infrastructure spending, including transportation, urban infrastructure and construction activity, is expected to support steady demand for structural and other steel pipe and tube applications.
Automotive	15%	14%	14%	Demand is expected to remain relatively stable, supported by vehicle production and replacement demand, although the segment's share may moderate marginally as other applications grow at a faster pace.
Water and Sewage	7%	8%	8%	Demand is expected to be supported by investments in water transmission, distribution, irrigation and wastewater management infrastructure, driven by urbanisation, increasing water requirements and government-led infrastructure programmes.
Engineering	6%	6%	6%	Demand is expected to remain broadly stable, supported by industrial capex, machinery manufacturing, process industries and general engineering applications.
Others	9%	13%	15%	The increasing share reflects greater diversification of applications, including energy transition-related infrastructure, renewables, industrial applications and other emerging uses of steel pipes and tubes.

Source: MAIA, CareEdge Research; Note: E-Estimate, P-Projection

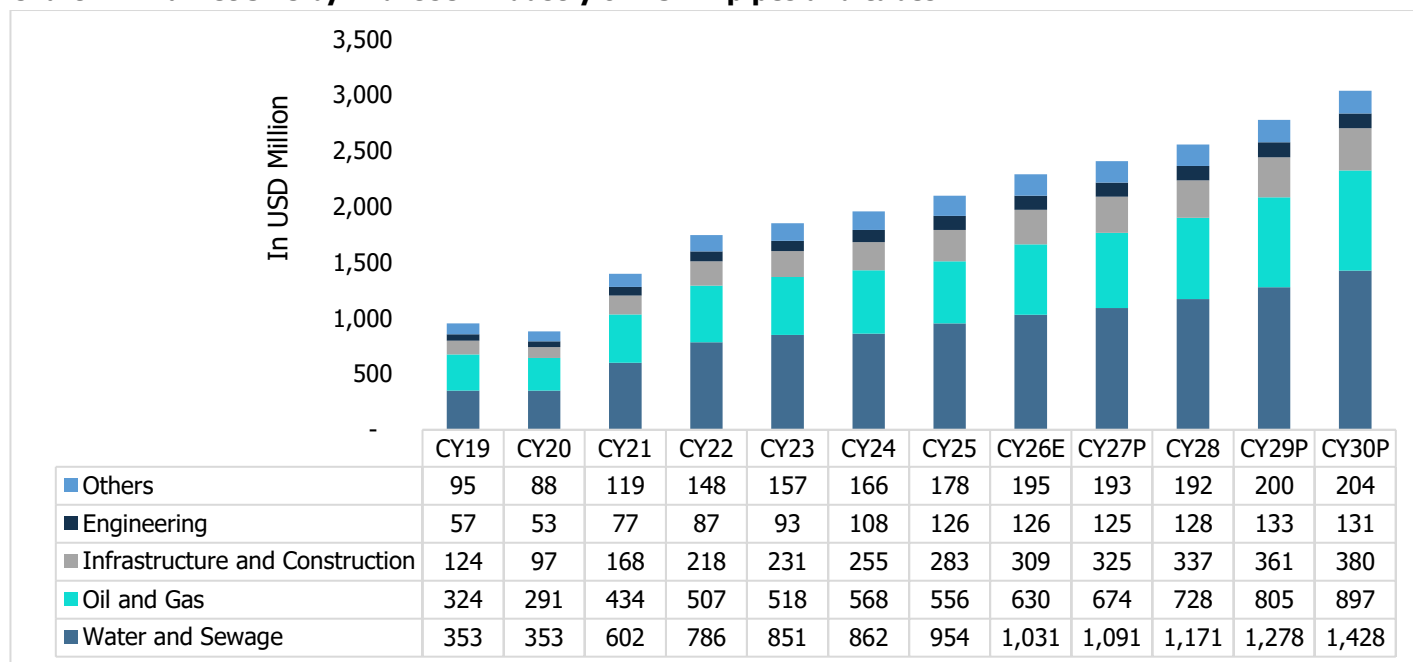
The end-user mix of the Indian steel pipes and tubes industry is expected to gradually diversify over the forecast period. Oil and gas is expected to remain the largest end-use segment, supported by continued investments in hydrocarbon transmission, gas distribution and associated pipeline infrastructure. However, its share is projected to decline from 44% in CY20 to 40% by CY30P, as demand from non-oil and gas applications expands.

The water and sewage segment is expected to benefit from increasing investments in water supply, irrigation and wastewater infrastructure, supported by urbanisation and rising requirements for water management. Meanwhile, infrastructure and construction and engineering applications are expected to maintain relatively stable shares, supported by sustained infrastructure development and industrial capital expenditure. The automotive segment is also expected to remain an important application, although its share may moderate marginally as other end markets expand.

The increasing contribution of other applications, from 9% in CY20 to 15% in CY30P, indicates a broadening demand base for steel pipes and tubes. This diversification is expected to be supported by emerging industrial applications, energy-related infrastructure and other non-traditional uses. Overall, while oil and gas is expected to continue anchoring industry demand, growth in water infrastructure, industrial applications and emerging end markets is expected to progressively reduce the industry's dependence on a single end-use segment.

6.8 Market Size by End-User Industry of SAW/HSAW pipes and tubes

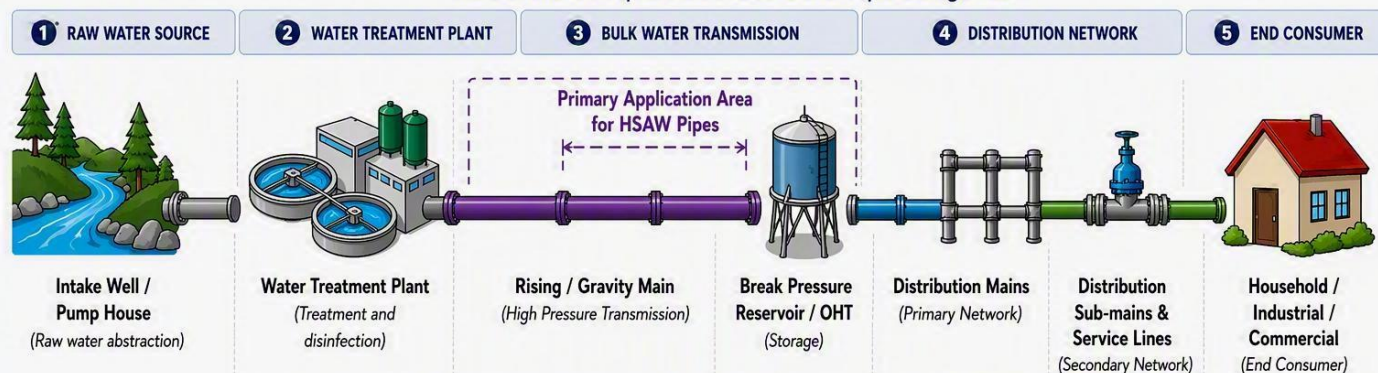
End-User Industry	CAGR (CY25–CY30)	Historical & Future Growth Drivers
Oil and Gas	10%	Historical: Strong demand from oil & gas transportation pipelines (HSAW API grade pipes), exploration, and petrochemical projects. HSAW API coated pipes are used extensively in oil and gas transmission, petrochemical networks, energy transportation corridors. Future: Growth driven by new pipeline infrastructure, offshore and onshore energy projects, and rising oil & gas consumption.
Water and Sewage	8.4%	Historical: Increasing municipal water supply and sewage management projects. Future: Expansion of urban water networks, government initiatives for sanitation, and rising demand for clean water infrastructure.
Infrastructure and Construction	6.1%	Historical: Roads, bridges, and commercial building projects drove moderate demand for medium and large-diameter pipes. Future: Urbanization, smart city projects, and large-scale construction activities will sustain demand.
Engineering	0.8%	Historical: Pipes utilized in machinery, industrial equipment, and fabrication projects. Future: Rising industrialization, manufacturing expansion, and infrastructure upgrades will drive adoption.

Chart 41: Market Size by End-User Industry of HSAW pipes and tubes


Source: MAIA, CareEdge Research; Note: E-Estimate, P-Projection

Schematic Representation of a Typical Water Transmission and Distribution Network

Role of HSAW Pipes Relative to Other Pipe Categories



PIPE CATEGORIES – TYPICAL USES AND CHARACTERISTICS

1. RCC / PSC Concrete Pipes	2. HSAW Pipes	3. DI Pipes / HSAW Pipes	4. ERW Pipes / DI Pipes / HDPE Pipes	5. HDPE Pipes / PVC Pipes
- Large diameter (600 mm to 3000+ mm) - Used for raw water / gravity pipelines - Suitable for low to moderate pressure, high-volume flow	- Large diameter (500 mm to 3000+ mm) - Used in bulk water transmission mains - Handles high pressure and long distance - Cost-effective for large diameter and high-volume flow - Available in required pressure classes and coatings	- Medium to Large diameter (150 mm to 1200 mm) - Used in primary distribution mains - Suitable for moderate to high pressure	- Small to Medium diameter (100 mm to 600 mm) - Used in secondary distribution networks - Suitable for moderate pressure and shorter distances	- Small diameter (20 mm to 110 mm for HDPE, up to 160 mm for PVC) - Used in service connections and internal plumbing - Suitable for low pressure

Primary application area for **HSAW Pipes**: From Water Treatment Plant outlet through Bulk Transmission Main to Reservoir / OHT.

Irrigation and Agricultural Water Infrastructure as a Demand Driver for HSAW Pipes

Irrigation and agricultural water infrastructure constitute an important end-use segment within the broader water infrastructure market and represent a significant source of demand for large-diameter steel pipes, including HSAW pipes. Demand from this segment is generally captured within the overall water infrastructure market, particularly in relation to bulk water transmission systems, lift irrigation schemes, canal modernization projects, inter-basin water transfer projects and pressurized irrigation networks. HSAW pipes are typically deployed in applications requiring high-volume water conveyance over long distances, especially in lift irrigation projects, bulk transmission networks and large-scale irrigation modernization initiatives.

The long-term outlook for irrigation-related pipeline infrastructure in India remains favorable, supported by increasing emphasis on water security, expansion of assured irrigation and improvement in agricultural water-use efficiency. The Government of India approved the continuation of the Pradhan Mantri Krishi Sinchayee Yojana ("PMKSY") for 2021–26 with an overall outlay of Rs 93,068.56 crore, comprising Rs 37,454 crore of central assistance, Rs 20,434.56 crore towards debt servicing and Rs 35,180 crore as the State share. Within the central assistance, Rs 23,918 crore was allocated to the Accelerated Irrigation Benefits Programme ("AIBP") and Command Area Development & Water Management ("CAD&WM"), while Rs 5,402 crore was allocated to Har Khet Ko Pani ("HKKP"), comprising Rs 4,580 crore for Surface Minor Irrigation and Repair, Renovation and Restoration of water bodies and Rs 822 crore for groundwater development. Under AIBP, the Government targeted creation of 13.88 lakh hectare of additional irrigation potential during 2021–26, along with focused completion of 60 ongoing projects covering 30.23 lakh hectare of command area development. HKKP additionally targeted irrigation through 4.5 lakh hectare under surface minor irrigation and rejuvenation of water bodies and 1.52 lakh hectare through groundwater irrigation.

Further, the Government approved the Modernization of Command Area Development and Water Management ("M-CADWM") as a sub-scheme of PMKSY for 2025–26 with an initial total outlay of Rs 1,600 crore, including Rs 1,100 crore of central share and Rs 500 crore of State share. The programme is focused on modernizing irrigation distribution networks through underground pressurized piped irrigation, including delivery of water from existing canals or other sources to the farm gate, with SCADA and IoT-based water management. Pilot projects under the programme are planned to cover approximately 75,000 hectares of farmland, while a total of 32 clusters across 23 States/Union Territories have subsequently been sanctioned for inclusion.

This creates a more quantitative investment case for irrigation-related pipelines: the relevant government programmes collectively indicate substantial planned expenditure, with PMKSY's Rs 93,069 crore five-year framework and the Rs 1,600 crore M-CADWM modernisation programme specifically supporting irrigation conveyance, command-area development and pressurised piped distribution infrastructure. The M-CADWM design is particularly relevant to pipeline demand because it explicitly envisages replacing or supplementing conventional open-channel distribution with underground pressurised piped networks extending towards the farm gate.

In particular, the government's increasing emphasis on underground pressurized piped irrigation systems, canal modernization and technology-enabled water management solutions is expected to create additional opportunities for large-diameter pipeline systems.

Furthermore, ongoing investments in major irrigation projects, inter-basin transfer schemes and lift irrigation infrastructure across several states are expected to support sustained medium-term demand for bulk water transmission pipelines. As India continues to prioritize agricultural productivity, water conservation and irrigation efficiency, irrigation and agricultural water infrastructure are expected to remain an important complementary demand driver for the HSAW pipe industry alongside traditional end-markets such as urban water supply, oil and gas transmission and industrial infrastructure.

Data Centre Infrastructure as an Emerging Demand Driver for HSAW Pipes

The rapid expansion of data centre infrastructure, particularly hyperscale and artificial intelligence ("AI") data centres, is emerging as an indirect demand driver for water and utility infrastructure, thereby creating potential opportunities for manufacturers of large-diameter steel pipes. India's data centre industry is expected to experience significant capacity expansion, supported by increasing digitalisation, growing cloud adoption, the proliferation of artificial intelligence ("AI") applications and data localisation requirements.

Modern data centres require substantial cooling and utility infrastructure, including chilled water networks, condenser water systems, district cooling facilities and water recycling systems. As computing densities increase with the deployment of AI workloads, the industry is witnessing a gradual shift towards liquid- and water-based cooling technologies, which are expected to increase investments in associated water transmission and distribution infrastructure.

While data centres do not directly utilise HSAW pipes within their core computing infrastructure, their development may generate demand for large-diameter steel pipes through the construction of bulk water transmission pipelines, treated wastewater networks, district cooling systems, industrial utility corridors and municipal water augmentation projects supporting data centre campuses. Such requirements may be more pronounced in regions with constrained water availability, where dedicated water supply and water reuse infrastructure is required to support large-scale developments.

Although data centre-related infrastructure is currently expected to account for a relatively small share of overall HSAW pipe demand compared with traditional end-use sectors such as oil and gas transmission, bulk water supply, irrigation and industrial infrastructure, the continued expansion of data centre capacity, increasing adoption of liquid cooling technologies and growing emphasis on sustainable water management may support incremental demand for large-diameter pipeline systems over the medium to long term.

Assessment of the Oil & Gas Pipeline Infrastructure Opportunity for HSAW Pipes

The oil and gas sector represents one of the largest and technically demanding end-markets for HSAW pipes globally. API-grade HSAW pipes are used in crude oil, natural gas and petroleum product transportation pipelines, particularly for long-distance and large-diameter transmission applications. Demand for such pipes is influenced by investments in cross-country transmission pipelines, refinery connectivity projects, city gas distribution infrastructure, LNG-related infrastructure and strategic energy transportation corridors.

In India, the long-term outlook for oil and gas pipeline infrastructure remains favorable, supported by continued investments in the national gas grid, expansion of city gas distribution networks, development of LNG infrastructure and efforts to strengthen domestic energy security. Government initiatives such as "One Nation, One Gas Grid" are intended to expand and integrate India's natural gas transmission infrastructure, while increasing gas availability and connectivity is expected to support the development of associated pipeline infrastructure.

India has an extensive cross-country hydrocarbon pipeline network supporting the transportation of crude oil and petroleum products between import terminals, refineries, storage facilities and consumption centres. PPAC data indicates that the country had approximately 35,307 km of crude oil and petroleum-product pipelines as of August 2026. The infrastructure base is expected to expand further through ongoing and planned pipeline projects being undertaken by major oil marketing companies and their joint ventures.

Company	Existing Pipeline Network	Pipeline Capacity	Key Pipeline Projects / Initiatives	Relevant Pipeline Capex
Indian Oil Corporation Limited (IOCL)	Over 20,000 km	Over 130 MMTPA liquid transportation capacity	Major crude oil pipeline systems include Salaya–Mathura Pipeline (2,663 km) and Paradip–Haldia–Barauni Pipeline (1,465 km). The network connects crude oil import terminals, offshore facilities, refineries, storage terminals and consumption centres.	NA
Bharat Petroleum Corporation Limited (BPCL)	3,962 km	31.3 MMTPA	Mumbai Refinery–Rasayani Terminal Pipeline (Rs 2,585 crore); Irugur–Devangonhi Pipeline (Rs 1,725 crore); Vadinar–Bina Crude Pipeline capacity enhancement (Rs 1,016 crore)	Rs 8,000 crore committed towards pipeline infrastructure additions under Project Aspire
Hindustan Petroleum Corporation Limited (HPCL)	5,440 km	25.5 MMTPA throughput capacity	Barmer–Palanpur Pipeline (234 km); Haldia–Panagarh LPG Pipeline (215 km); augmentation of Visakh–Vijayawada–Secunderabad Pipeline; dedicated crude oil pipelines connecting Mundra Port and Mangala Processing Terminal with the HRRL refinery	Rs 5,074 crore invested in pipeline network expansion over the past five-year cycle

Continued refinery capacity additions, expansion of marketing infrastructure and the need for efficient long-distance transportation are expected to support demand for line pipes, coatings and associated pipeline infrastructure.

Further, the Government's recent National Offshore Exploration Scheme ("Samudra Manthan") provides an additional potential demand driver for associated hydrocarbon infrastructure. The Government has approved Phase-I of the scheme with an outlay of Rs 84,084 crore through FY2030–31, with the objective of accelerating offshore exploration and increasing domestic hydrocarbon production. The scheme includes Rs 28,534 crore for offshore seismic data acquisition and processing and Rs 43,200 crore for accelerated deepwater exploration, including support for 60 deepwater and ultra-deepwater exploration wells. It also provides for investment in common offshore production and evacuation infrastructure.

The development of additional offshore production and evacuation infrastructure under the scheme may create incremental requirements for associated pipeline infrastructure, including offshore gathering systems, evacuation pipelines and connectivity with coastal receiving, storage and processing infrastructure, subject to exploration success and subsequent development of commercially viable discoveries. This could provide an additional medium- to long-term opportunity for suppliers of API-grade large-diameter steel pipes.

The manufacture and supply of API-grade HSAW pipes involve relatively high technical and commercial entry barriers compared with several other HSAW applications. Manufacturers are typically required to comply with applicable API and other industry standards and maintain robust quality management systems, process controls and testing capabilities.

Higher-specification applications may involve extensive destructive and non-destructive testing, product-specific certifications and stringent controls over welding, material properties and dimensional tolerances. Participation in major pipeline projects may also require vendor registration and technical qualification from national oil companies, EPC contractors and other large energy companies. Such qualification processes may involve assessment of manufacturing capabilities, testing facilities, quality systems, previous project experience and product performance, thereby resulting in longer qualification cycles and higher entry requirements.

Globally, evolving geopolitical dynamics and increasing focus on energy security have reinforced the importance of diversified and resilient energy transportation infrastructure. The escalation of geopolitical tensions in West Asia and disruption risks around key maritime energy routes, particularly the Strait of Hormuz, have further highlighted the importance of diversifying crude sourcing and strengthening the resilience of domestic oil logistics infrastructure. The Government of India has indicated that Indian energy companies have expanded access to crude supplies through routes outside the Strait of Hormuz, with around 70% of crude imports being sourced through such routes as of March 2026, compared with about 55% earlier. Such developments are increasing the focus on resilient overland transportation infrastructure, with governments, national oil companies and infrastructure operators evaluating or prioritizing oil, gas and water pipeline investments to reduce reliance on vulnerable maritime routes and strengthen supply-chain resilience. This could create an incremental medium-term demand opportunity for large-diameter steel pipes, including HSAW pipes, across crude oil, natural gas and bulk water transmission projects. Indian manufacturers are positioned to benefit from this trend given their established large-diameter pipe manufacturing capabilities, export experience and ability to serve technically demanding infrastructure projects. However, the potential opportunity remains dependent on projects progressing from the proposal stage to funded tenders and execution, while higher freight costs, shipping disruptions and regional operational risks could affect near-term deliveries and margins. Accordingly, investments in domestic transmission networks, cross-border pipelines, energy corridors, alternative transportation routes and associated storage and connectivity infrastructure may support long-term requirements for large-diameter steel pipelines. However, the pace and scale of such investments remain dependent on factors including crude oil and commodity prices, regulatory approvals, geopolitical developments, project economics and capital allocation.

Accordingly, the combination of existing and expanding hydrocarbon pipeline infrastructure, government-led initiatives for energy connectivity and offshore exploration, increasing focus on energy security, and relatively high technical and qualification barriers are expected to provide a sustained demand base for API-grade HSAW pipes over the medium to long term. The extent to which this translates into incremental HSAW pipe demand will depend on the execution of identified projects, exploration outcomes, subsequent infrastructure development and manufacturers' ability to meet applicable technical and qualification requirements.

Benchmarking India's Water Transmission Infrastructure

Compared with several middle-income economies that have undergone rapid urbanisation and industrialisation, India remains relatively underpenetrated in terms of bulk water transmission and distribution infrastructure. Historically, investment in India's water sector has lagged investments in transport and energy infrastructure, resulting in uneven access to piped water networks, significant regional disparities and high dependence on groundwater resources. The Government of India's recent focus on expanding piped water connectivity through initiatives such as the Jal Jeevan Mission and urban water infrastructure programs reflects the recognition that substantial investments are required to bridge existing infrastructure gaps and ensure long-term water security.

Furthermore, rising urbanisation, industrial growth, climate-related water stress and increasing per capita water consumption are expected to necessitate significant investments in bulk water transmission pipelines, regional water grids, inter-basin transfer projects and distribution networks. The extension and restructuring of the Jal Jeevan Mission with an enhanced focus on sustainable water supply infrastructure further underscores the long-term requirement for continued investments in water transmission systems.

Consequently, India's relatively low penetration of integrated water transmission infrastructure compared with similarly placed developing economies suggests a substantial long-term addressable market for large-diameter pipes, including HSAW pipes, which are extensively used in bulk water transportation, regional water supply schemes and major irrigation and urban infrastructure projects.

Fungibility and End-Market Hierarchy of HSAW Pipe Manufacturing

HSAW pipe manufacturing is based on a broadly common production platform comprising coil or plate preparation, spiral forming, submerged arc welding, inspection and testing, coating, finishing and dispatch. The underlying manufacturing process remains broadly similar across end-use applications, enabling a degree of operational flexibility in the deployment of manufacturing assets. However, operational fungibility does not necessarily translate into immediate commercial access across all end-use segments, as the ability of a manufacturer to serve different markets depends on applicable product specifications, certifications, testing protocols, quality management requirements and customer or vendor approval processes.

The practical flexibility of a manufacturing facility is also influenced by its ability to manufacture the required pipe diameter, wall thickness, steel grade and pressure class, together with the availability of appropriate forming, welding, testing, coating and material-handling infrastructure. Manufacturers with broader product ranges and more comprehensive testing and finishing capabilities may therefore be able to deploy their capacity across a wider range of applications, subject to project-specific requirements. In addition, the ability to manufacture a product does not, by itself, establish eligibility to supply it, as end users may impose specific technical, quality and qualification requirements.

Oil and gas transmission generally represents a relatively specialised and technically demanding end-use segment. Requirements may include compliance with applicable API-grade specifications, enhanced destructive and non-destructive testing, product-specific certifications and customer or vendor approvals. Large oil and gas projects may also require suppliers to demonstrate manufacturing capabilities, quality management systems, testing facilities, relevant project experience and consistent product performance. These requirements can result in longer qualification cycles and higher investments in technical and quality capabilities compared with relatively less specialised applications.

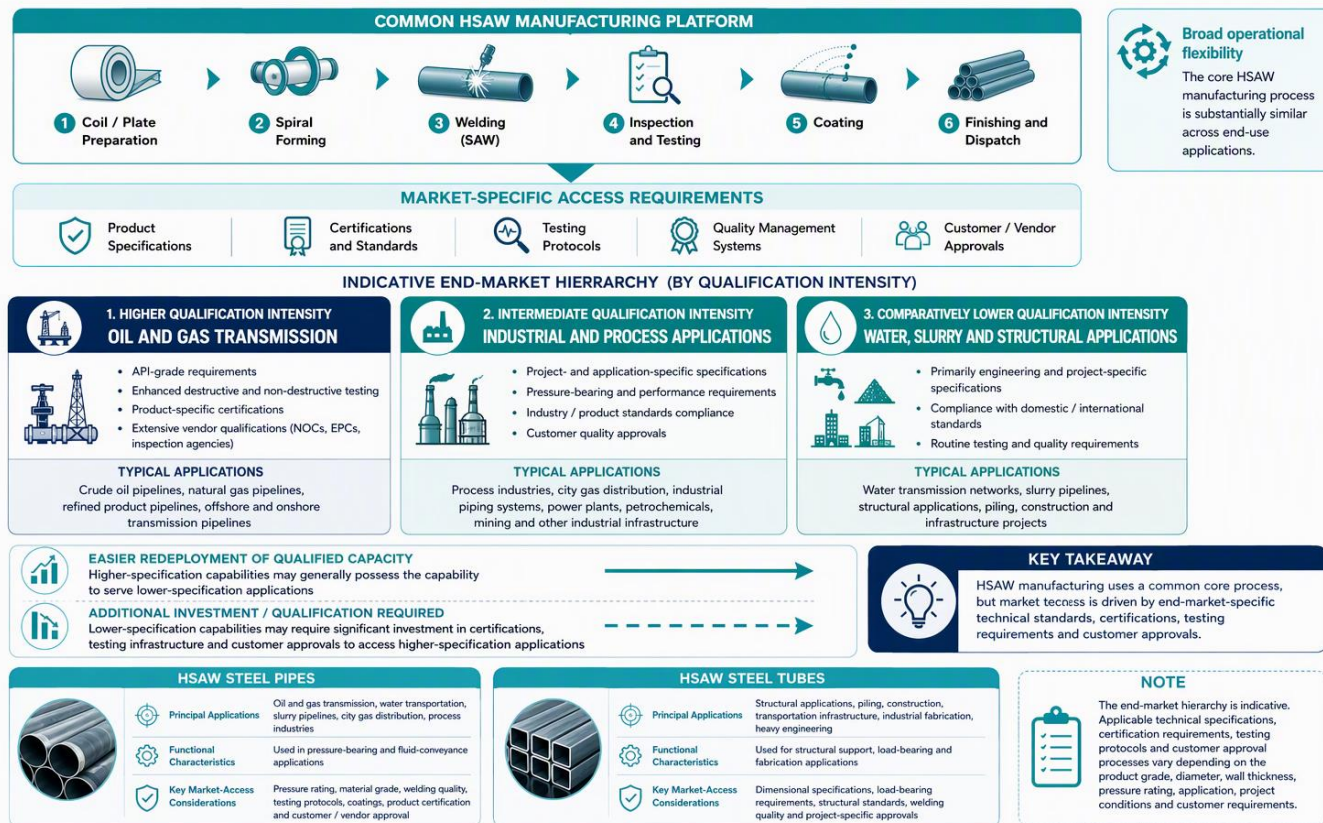
Industrial and process applications generally involve project- and application-specific technical requirements, while water transmission, slurry transportation and structural applications may involve comparatively lower qualification intensity, depending on the nature, specifications and criticality of the project. Consequently, manufacturers qualified to serve higher-specification applications may generally possess capabilities that enable them to participate in comparatively lower-specification applications, subject to applicable standards, project specifications and customer requirements.

Conversely, manufacturers primarily serving lower-specification applications may require incremental investment in specialised testing infrastructure, quality management systems, certifications, technical personnel and customer qualification processes to enter higher-specification segments. Vendor approvals from oil and gas companies, EPC contractors and other project stakeholders may further influence access to large projects and can require manufacturers to undergo technical evaluations and qualification procedures.

Key interpretation: HSAW manufacturing capacity may be operationally fungible; however, the commercially addressable market is determined by the intersection of manufacturing capability, product range, certifications, testing infrastructure, quality systems, customer approvals and demonstrated technical track record. Thus, installed capacity alone may not be an adequate indicator of a manufacturer's ability to address the broader HSAW end-use market.

FUNGIBILITY AND END-MARKET HIERARCHY OF HSAW PIPE MANUFACTURING

Common manufacturing platform with differentiated market access requirements



API: American Petroleum Institute | NOC: National Oil Company | EPC: Engineering, Procurement and Construction

6.9 API Grade Pipes

The global oil and gas industry is expected to witness significant investments in pipeline infrastructure over the medium term, driven by energy security considerations, supply diversification strategies and the anticipated recovery of upstream, midstream and downstream assets following the resolution of ongoing geopolitical conflicts in the Middle East region. API-grade steel pipes, including line pipes, oil country tubular goods (OCTG), casing and tubing products, constitute critical components of oil and gas transportation and production infrastructure and are expected to benefit from the anticipated increase in global energy infrastructure investments.

The post-war recovery phase is expected to create substantial opportunities for Indian manufacturers of API-grade pipes and engineering products. Reconstruction of damaged energy infrastructure, restoration of oil and gas production facilities, and the development of strategic pipeline networks designed to diversify transportation routes are expected to support demand for line pipes, OCTG products and related engineering services. Indian manufacturers are well-positioned to capitalize on these opportunities owing to their established manufacturing capabilities, competitive cost structures, integrated production facilities and increasing acceptance in international markets. Further, manufacturers possessing globally recognized certifications, approved vendor registrations with national oil companies and established export capabilities are expected to benefit from increased participation in international energy infrastructure projects.

Globally, demand for oil and gas pipeline infrastructure is expected to be supported by investments in pipeline reconstruction, expansion of cross-country transmission networks, development of strategic bypass corridors and strengthening of domestic energy security infrastructure. The Middle East, North America and Asia-Pacific regions are expected to remain key demand centers, driven by infrastructure reconstruction, expansion of energy transportation networks and increasing domestic energy consumption requirements. In particular, demand for large-diameter line pipes,

OCTG products and specialty alloy pipes is expected to remain robust due to their critical role in oil and gas transportation, drilling and processing applications.

In India, the long-term outlook for API pipe demand remains favorable, supported by the government's continued emphasis on strengthening domestic energy infrastructure, expanding the national gas transmission network and enhancing energy security. Ongoing investments in cross-country natural gas pipelines, city gas distribution networks, refinery connectivity projects and domestic exploration activities are expected to support sustained demand for API-grade pipes over the medium term. In addition, policy measures promoting domestic sourcing and infrastructure development are expected to further strengthen the growth prospects of domestic API pipe manufacturers.

The manufacture of API-grade pipes requires compliance with stringent international quality, testing and certification standards. Manufacturers are generally required to obtain quality management certifications and product-specific licenses under applicable American Petroleum Institute (API) standards, including approvals for various manufacturing processes such as seamless, electric resistance welded, longitudinal submerged arc welded and helical submerged arc welded pipes. In addition, API pipe manufacturing involves extensive chemical, mechanical and metallurgical testing procedures, including destructive and non-destructive testing protocols, hydrostatic testing, ultrasonic inspection and radiographic examination. Products intended for specialized applications, including sour service and offshore environments, are also subject to additional international certifications and performance testing requirements. Furthermore, manufacturers seeking to supply major domestic and international oil and gas projects are typically required to obtain vendor approvals from national oil companies and undergo third-party quality inspections, creating significant barriers to entry and supporting the competitive positioning of established manufacturers.

API Coated HSAW Pipes

API coated Helical Submerged Arc Welded (HSAW) pipes are high-performance steel pipes primarily used in oil and gas transmission pipelines, cross-country hydrocarbon transportation networks, refinery connectivity projects, city gas distribution infrastructure and other critical energy applications. These pipes are manufactured in accordance with standards prescribed by the American Petroleum Institute (API), particularly API Specification 5L, and are designed to operate under high-pressure, corrosive and demanding operating environments.

Raw Material and Steel Grades

The principal raw material used in the manufacture of API coated HSAW pipes is hot rolled steel coil (HRC), typically produced from carbon steel and high-strength low-alloy (HSLA) steel grades. Depending on the operating pressure, transportation medium and end-use application, manufacturers utilize API 5L steel grades including Grade B, X42, X52, X60, X65, X70 and X80. Higher-grade steels are generally used for long-distance and high-pressure transmission pipelines owing to their superior strength, weldability and fracture resistance characteristics.

Certifications and Approvals

The manufacture of API coated HSAW pipes requires compliance with stringent international quality management systems, product certifications and customer qualification standards. Manufacturers are generally required to obtain API Spec Q1 certification for quality management systems and API 5L Monogram licenses for the manufacture of line pipes. In addition, manufacturers supplying to offshore and other specialized applications may be required to comply with supplementary industry standards and customer-specific technical requirements. Participation in major domestic and international pipeline projects also typically requires vendor registration, technical qualification and approval from national oil companies, engineering, procurement and construction contractors, and other large energy companies.

Testing and Quality Assurance Requirements

API coated HSAW pipes are subjected to extensive quality assurance, destructive testing and non-destructive testing protocols throughout the manufacturing process. These typically include chemical composition analysis, tensile testing, flattening and bend testing, hydrostatic pressure testing, ultrasonic testing, radiographic inspection and dimensional

verification. For premium grades and critical applications, additional testing such as Charpy V-notch impact testing, drop weight tear testing, hydrogen-induced cracking (HIC) testing and sulphide stress cracking ("SSC") testing may also be required to ensure operational reliability under severe service conditions.

Key Benefits of API Coated HSAW Pipes

API coated HSAW pipes offer several operational advantages, including high pressure-bearing capacity, superior weld integrity, enhanced corrosion resistance through external and internal coatings, cost-effective manufacturing for large-diameter applications and suitability for long-distance transmission networks. These characteristics have contributed to their widespread adoption across oil and gas transmission infrastructure globally.

Entry Barriers

The API coated HSAW pipe segment is characterized by significant barriers to entry arising from substantial capital investment requirements, stringent certification and testing protocols, extensive customer qualification procedures, long approval cycles and the requirement to establish a demonstrated operating track record. Furthermore, obtaining approvals from major national oil companies, international energy companies and engineering procurement contractors typically involves rigorous technical audits, trial production qualifications and periodic compliance assessments. Consequently, the market for API coated HSAW pipes remains relatively specialized, with established manufacturers benefiting from significant competitive advantages and high barriers to entry.

7 Key Demand Drivers

- **Government-backed pipeline projects for natural gas and water**

Government initiatives in infrastructure are a major catalyst for steel pipe demand. Large-scale projects such as the National Gas Grid, city gas distribution networks, and water supply schemes under programs like Jal Jeevan Mission require extensive use of steel pipes for safe and durable transportation. These projects are long-term and backed by public funding, ensuring stable demand. In addition, pipelines are preferred for efficiency, lower transmission loss, and reduced environmental footprint compared to other modes of transport.

- **Rising Infrastructure Development**

India's focus on highways, smart cities, industrial corridors, and housing creates robust opportunities for steel tubes and pipes. Applications span structural support, water and sewage lines, construction scaffolding, and fire-fighting systems. With growing urbanization, metro projects, and commercial complexes, steel pipes are essential due to their strength, adaptability, and durability. Infrastructure spending, a key pillar of GDP growth, directly translates into increased demand for tubular steel products.

- **Rising Energy Needs**

With India's energy demand projected to nearly double in the coming decades, steel pipes play a critical role in oil, gas, and power projects. Transmission pipelines, refineries, and power plants rely heavily on seamless and welded steel tubes. Renewable energy installations also use tubular products for supporting structures. Thus, the expanding energy basket covering hydrocarbons, renewables, and electricity fuels consistent demand.

- **Oil and Gas Sector**

Oil exploration, refining, and transportation rely extensively on steel pipes due to their ability to handle high pressure and corrosive environments. Offshore drilling platforms, refineries, and petrochemical units require seamless tubes, while cross-country pipelines for crude oil and natural gas form a major application area. India's push to reduce import dependence by expanding domestic exploration and refining capacities supports future consumption of steel pipes.

- **City Gas Distribution/Cross Border Gas Distribution**

The rollout of city gas distribution (CGD) networks across urban and semi-urban areas is one of the fastest-growing drivers. Steel pipes are used to build trunk pipelines that feed into distribution networks for domestic, commercial, and industrial consumers. With government policies aiming to increase the share of natural gas in India's energy basket, the expansion of CGD networks has gained strong momentum. In parallel, regional and cross-border gas transportation projects highlight the growing demand for large-diameter, high-strength pipes capable of handling long-distance, high-pressure operations. These projects not only strengthen domestic energy infrastructure but also enhance energy security by diversifying supply routes.

- **Water Supply and Sewage Management**

Rapid urbanization and government schemes for rural water supply boost demand for steel pipes in potable water transmission and sewage disposal. Unlike alternatives, steel pipes offer durability and higher load-bearing capacity, making them suitable for large-scale distribution networks and wastewater treatment plants. They also find usage in desalination and irrigation-linked water supply projects.

- **Irrigation**

Agriculture remains a cornerstone of India's economy, and irrigation systems increasingly rely on steel pipes for durability and efficient water transport. From lifting water to distribution in canals and drip irrigation support structures, steel pipes ensure long-term performance under diverse weather conditions. With rising focus on efficient water usage and expansion of irrigation networks, steel pipes are integral to modernizing agriculture.

8 Key Challenges

- **Volatility in Raw Material Prices**

The steel pipes and tubes industry is heavily dependent on hot rolled (HR) coils as its primary raw material. Price fluctuations in HR coils, driven by global iron ore and coking coal prices, trade policies, and demand-supply mismatches, directly affect production costs and margins. Sharp increases can compress profitability, while sudden declines may impact inventory valuations and create instability in supply contracts. As HR coil prices are linked to global commodity cycles, pipe manufacturers face limited control over input costs, making hedging and long-term planning difficult.

- **Geopolitical Conflicts**

Geopolitical tensions, such as conflicts in Europe, trade sanctions, and shipping disruptions in key maritime routes (like the Red Sea), create supply chain uncertainties for raw materials and finished products. Exporters face fluctuating freight rates, delays, and even loss of market access due to protectionist measures or retaliatory tariffs. This not only impacts raw material procurement but also reduces competitiveness in overseas markets. Uncertainty from global conflicts makes long-term investment and pricing strategies riskier for the industry.

- **Environmental Regulation and Compliance**

Increasingly stringent environmental regulations require manufacturers to reduce emissions, adopt energy-efficient processes, and manage waste responsibly. Compliance often demands investment in pollution control equipment, green technologies, and certifications, which raise capital and operating costs. Non-compliance risks penalties and reputational damage, especially for companies supplying to international clients that follow strict ESG norms. For small and medium pipe manufacturers, these compliance costs can be particularly burdensome, challenging their sustainability.

- **High Logistics Cost**

The transportation of bulky and heavy steel pipes and tubes involves significant freight costs, particularly over long distances. Rising fuel prices, limited availability of specialized carriers, and infrastructure bottlenecks such as port congestion and inadequate last-mile connectivity further inflate logistics expenses. For exporters, volatile container shipping rates amplify cost pressures. Since pipes are generally low-margin, high-volume products, logistics inefficiencies can erode competitiveness and limit manufacturers' ability to expand into distant domestic or international markets.

9 SWOT Analysis of the Industry

SWOT Analysis:

Key strengths, weaknesses, opportunities, and threats shaping the industry



10 Key Government Policies/Regulations

AMRUT (Atal Mission for Rejuvenation and Urban Transformation)

The Atal Mission for Rejuvenation and Urban Transformation (AMRUT) was launched in June 2015 under Government of India. It is the first focused national water mission launched in 500 cities and covers 60% of the urban population. In the FY27 Budget, the allocation to AMRUT has been Rs 80 billion.

The program focuses on the development of basic infrastructure, in the sectors of water supply, sewerage and septage management, stormwater drainage, green spaces and parks, and non-motorized urban transport.

The projects will be prioritized based on the following outcomes with a focus on improving sustainability and efficiency in the water sector:

- i. Universal coverage of water supply
- ii. Sewerage, septage management, and recycling/reusing of treated water
- iii. Rejuvenation of water bodies (including urban wetlands) and creation of green spaces

The universal coverage of water supply is the priority under the mission, under which 5.86 million tap connections have been provided. The total plan size of all State Annual Action Plans (SAAPs) was Rs 776.40 billion. Of which, Rs 390.11 billion, i.e., 50% has been allocated to water supply.

The tentative distribution of central fund allocation among project components of Mission are as follows:

Table 7: Allocation among Project components

Description	Central share (in Cr)
Water supply projects	35,250
Rejuvenation of water bodies and development of green spaces and park projects	3,900
Sewerage and septage management projects	27,600

Source: Ministry of Housing & Urban Affairs

AMRUT and AMRUT 2.0 have a more direct linkage to HSAW pipe demand because the programme is centred on urban water supply, sewerage, septage management, treatment capacity and network expansion. AMRUT and AMRUT 2.0 together have sanctioned projects worth about Rs 2.73 lakh crore, with Rs 1.12 lakh crore worth of works completed. It also notes that water supply and sewerage were given top priority under the Mission. The expenditure funnel for AMRUT is sanctioned / completed project cost → project capex → pipeline and network expenditure → trunk mains, transmission mains, rising mains and large sewerage mains → HSAW / SAW steel pipe share. AMRUT's HSAW intensity is likely higher because urban schemes require larger-diameter pipelines for bulk water transmission, treatment-plant connectivity, city-level trunk distribution, sewer interceptors and pumping mains. However, not all AMRUT pipeline expenditure converts to HSAW demand, since smaller distribution lines, house-service connections, sewer laterals and non-pipe components such as treatment plants, reservoirs, pumping stations and civil works also absorb a large share of capex. Still, the PIB-backed scale of sanctioned projects and planned network expansion makes AMRUT a stronger structural demand driver for HSAW pipes than rural last-mile tap-connection schemes.

Jal Jeevan Mission - 'Har Ghar Jal'

The Jal Jeevan Mission (JJM) is a flagship Central Government initiative undertaken by the Ministry of Jal Shakti, with the objective of ensuring piped water supply to every household in India. Launched on 15 August 2019 by the Prime Minister of India, the Mission aims to provide functional household tap connections delivering water in adequate quantity,

prescribed quality, and adequate pressure on a regular and long-term basis. The programme is implemented in partnership with state governments and covers not only rural households but also public institutions such as anganwadis, schools, ashramshalas, public and community health centres, sub-centres, wellness centres, community centres, and gram panchayat buildings.

Under JJM, specific emphasis has been placed on difficult and water-scarce regions. Thirty per cent weightage was assigned to difficult terrains, including areas under the Desert Development Programme (DDP) and Drought Prone Area Programme (DPAP), while allocating funds to prioritise coverage in these regions. The operational guidelines also provide for bulk water transfer from long distances and the development of regional water supply schemes to ensure water availability in drought-prone areas or regions with inadequate rainfall or groundwater sources. Additionally, provisions have been made for source sustainability through groundwater recharge structures, rainwater harvesting, and rejuvenation of water bodies in convergence with schemes such as MGNREGA, IWMP, 15th Finance Commission grants to RLBS/PRIIs, state schemes, and CSR initiatives.

For water-scarce villages, states are encouraged to implement dual piped water supply systems, supplying fresh water for potable use and treated grey or wastewater for non-potable applications. The Mission was originally approved with a central outlay of Rs 2,08,652 crore during 2019–20 to 2023–24, against an overall envisaged plan size of Rs 3.60 lakh crore, with most of the central share utilised by 2024–25. Further underscoring its priority, the Union Budget 2026–27 allocated Rs 67,670 crore to JJM. Despite substantial progress, a significant number of water supply projects remain under implementation or yet to be awarded, creating sustained multi-thousand-crore opportunities across transmission pipelines, storage, and treatment infrastructure.

Jal Jeevan Mission (JJM) creates HSAW pipe demand indirectly through rural bulk-water-transfer and multi-village water-supply schemes, rather than through household tap connections alone. In expenditure translation terms, only a portion of JJM outlay becomes physical capital expenditure after excluding support activities, water-quality monitoring, IEC, capacity-building and programme-management costs. Within physical capex, pipe networks typically dominate rural water-supply schemes, but most distribution and household-connection pipelines use smaller-diameter DI, HDPE, PVC or similar pipes. The HSAW-relevant portion emerges mainly from large-diameter raw-water / clear-water transmission mains, rising mains and inter-village bulk transfer pipelines, especially where local sources are inadequate and water must be transported from surface-water sources. Therefore, an indicative funnel would be Total JJM expenditure → physical capex → pipeline expenditure → large-diameter transmission infrastructure → HSAW / SAW steel pipe share. Given JJM's rural-distribution-heavy nature, the HSAW share is likely a modest subset of total expenditure, but the absolute opportunity remains meaningful because of the programme's very large outlay and the growing need for regional bulk-water systems in water-stressed or quality-affected areas.

National Gas Grid Project

The Petroleum and Natural Gas Regulatory Board (PNGRB) has authorised a natural gas pipeline network spanning around 34,803 km (as of March 2026) across the country. Out of this, a total of 27,905 km of pipelines, including spur lines, tie-in connectivity, sub-transmission pipelines, and dedicated pipelines are operational. Currently, the gas pipeline network serves the western and northern India while the eastern and southern regions are yet to be integrated with the National Gas Grid. This expansion plan is based on the gas demand assessment of various regions.

The grid is expected to support the growth of city gas distribution projects. Furthermore, the country's pipeline density is also expected to double with the addition of nearly 12,000 km of under-construction gas pipelines. There are some delays being faced by gas pipeline projects (approximately 6,000 km).

PNGRB has authorized GAIL (Gas Authority of India Limited) to develop the Jagadishpur –Haldia –Bokaro- Dhamra Pipeline (JHBDPL) project and the approximately 750 km long Barauni - Guwahati pipeline as its integral part which will connect Northeast region with the National Gas Grid. Further, PNGRB has also authorized Indradhanush Gas Grid Limited (IGGL), a joint venture company of five Central Public Sector Enterprises (CPSEs) i.e. IOCL (Indian Oil Corporation Limited), ONGC (Oil and Natural Gas Corporation), GAIL, OIL (Oil India Limited) and NRL (Numaligarh Refinery Limited) for the development of Northeast Gas Grid to connect eight states of Northeastern India. It is critical to address the issue of the non-existence of pipelines in the eastern and southern regions to fully leverage their potential.

Other Projects

- **GAIL's Mumbai–Nagpur–Jharsuguda (MNJPL) natural-gas pipeline**

The MNJPL project is being fast-tracked as part of the National Gas Grid and is moving toward commissioning in 2025–2026 end, expanding gas connectivity across Maharashtra, Madhya Pradesh, Chhattisgarh and Odisha. Increased pipeline capacity and new gas supply options will improve access to cleaner and competitively priced fuel for energy-intensive steel plants (reducing coal dependence and emissions) and for captive power and downstream industries.

- **Nagpur–Umred / Nagpur–Nagbhid gauge conversion and allied rail upgrades**

Ongoing gauge-conversion works including the Itwari–Umred section as part of the broader Nagpur–Nagbhid project are being progressed with staged inauguration targets in 2025–26 aimed at shortening transit times and raising line capacity for heavy freight traffic. The first phase covering the 61 km Itwari–Umred stretch is targeted for completion by March 2026, with the second phase (Umred–Nagbhid) expected to be commissioned by March 2027 under the Maharashtra Rail Infrastructure Development Corporation's execution plan. This phased approach will integrate the converted broad-gauge line into the national network and requires final safety approvals before full operations commence. Faster, higher-capacity rail corridors reduce coal and raw-material evacuation times to steel plants and ports, lowering logistics cost and improving the reliability of inbound ore and outbound finished-steel shipments.

- **Coal-evacuation corridors & power-plant modernization**

The Ministry of Coal's Coal Logistic Plan and First-Mile Connectivity initiatives, together with state plans for coal corridor development and power-plant modernization, aim to reduce evacuation bottlenecks and improve coal handling efficiency. For steelmakers that still rely on coal (coking and power), these measures should ease supply disruptions, lower landed fuel costs, and support more predictable captive power operations while complementary modernization reduces emissions intensity at nearby thermal plants.

- **Cross River Linkage Project**

The Inter-Linking of Rivers (ILR) programme in India is a strategic national initiative formulated under the National Perspective Plan (NPP) to redistribute water from surplus river basins to deficit basins/regions through an engineered network of canals and link projects. The objective is to address uneven spatial and temporal rainfall distribution, enhance irrigation, improve flood management, and promote socio-economic development across regions with water scarcity.

The National Water Development Agency (NWDA), under the Ministry of Jal Shakti, is the implementing agency entrusted with identifying, surveying and preparing pre-feasibility, feasibility and detailed project reports for these links. Under the NPP, 30 link projects have been identified, comprising 14 under the Himalayan component and 16 under the Peninsular component. As part of the planning process, Pre-Feasibility Reports (PFRs) have been completed for all 30 links, Feasibility Reports for most, and Detailed Project Reports for several links.

The Government of India adopts a consensus-driven approach for ILR implementation, requiring agreement among involved states on water sharing and clearances before execution can proceed. The Ken–Betwa Link Project has

become the first ILR initiative to enter the implementation stage, with an approved cost and active work underway through dedicated institutional arrangements.

A notable intra-state example is the Kosi-Mechi Intra-State Link Project in Bihar, which has received Union Cabinet approval under the Pradhan Mantri Krishi Sinchai Yojana-Accelerated Irrigation Benefit Programme. The project is estimated at Rs 6,282.32 crore with Rs 3,652.56 crore as central assistance, and is scheduled for completion by March 2029. It aims to remodel the existing Eastern Kosi Main Canal and extend it to the Mechi River to provide additional irrigation in the Mahananda basin and assist with flood management in north-eastern Bihar.

Overall, the river interlinking initiative reflects a long-term, phased infrastructure strategy to optimise water resource management and support agricultural and rural development across water-stressed regions.

11 Threats and Challenges for the Issuer Company and its Products

- **Raw material price volatility & supply constraints**

Hi-Tech Flow Solutions Limited depends on inputs like hot rolled coils, steel plates, welding consumables, and possibly alloying elements. Fluctuations in global iron ore, steel scrap, and energy prices can squeeze margins. Any disruption in supply (imports, logistics, trade barriers) can increase cost unpredictability and hamper planning.

- **Competition from large, integrated players & substitute materials**

Bigger steel companies or integrated pipe-makers with economies of scale, backward integration, or better technology may undercut smaller or mid-sized firms. Also, alternative materials (e.g. polymer pipes, composite pipes, ductile iron) might substitute for some applications, especially in water or sewage networks, putting pressure on demand or pricing.

- **Regulatory / environmental compliance burden**

As governments tighten emissions norms, waste treatment, effluent disposal, and environmental clearances, Hi-Tech may need to invest significantly to comply with new requirements, if any.

- **High logistics & transportation cost, and infrastructure bottlenecks**

Steel pipes are large, heavy, and bulky goods. Transporting them over long distances adds major freight cost. Poor road connectivity or delays in loading/unloading, especially in remote infrastructure or pipeline projects, can eat margins or lead to project delays.

- **Demand cyclicity & project delays**

Much of Hi-Tech's demand depends on infrastructure, water & pipeline projects. These are susceptible to delays, budget cuts, or policy changes. In times of economic slowdown or government spending cuts, demand could weaken significantly, leaving installed capacity underutilized and fixed costs high.

12 Competitive Benchmarking Players in the Steel Pipes and Tubes Industry

Table 8: Benchmarking across Financial Parameters

	Hi-Tech Flow Solutions Limited			Man Industries (India) Limited			Ratnamani Metals and Tubes Limited			Jindal Saw Limited			Welspun Corp Limited		
	FY24	FY25	FY26	FY24	FY25	FY26	FY24	FY25	FY26	FY24	FY25	FY26	FY24	FY25	FY26
Revenue from Operations (In Rs Million)	2,290.28	2,982.81	4,171.71	31,421.80	35,053.54	35,639.00	50,590.96	51,864.74	44,939.62	209,576.90	208,288.95	178,951.65	173,396.00	139,775.40	167,701.40
Total Income (In Rs Million)	2,297.62	2,989.46	4,180.74	31,942.34	35,253.14	35,924.90	51,323.10	52,460.94	46,159.15	211,259.01	209,478.44	179,868.52	175,820.60	141,673.30	169,053.90
Revenue Growth (%)	41.39	30.11	39.85	40.69	10.36	1.91	13.87	2.22	-12.01	16.97	-0.84	-14.14	74.46	-19.42	19.33
EBITDA (Rs Million)	280.39	353.56	529.68	2,411.71	3,363.30	4,393.00	8,971.22	8,235.16	7,577.27	33,209.52	34,292.54	22,147.36	15,614.30	16,681.80	22,356.40
EBITDA Growth (%)	126.70	26.10	49.81	76.09	39.46	30.62	15.70	-8.20	-7.99	99.53	3.26	-35.42	222.23	6.84	34.02
EBITDA Margin(%)	12.24	11.85	12.70	7.68	9.59	12.33	17.73	15.88	16.86	15.85	16.46	12.38	9.00	11.93	13.33
EBITDA/tonne	8,066.24	6,801.63	7,823.31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PAT (In Rs Million)	183.24	242.56	364.23	1,051.44	1,531.70	1,704.80	6,251.01	5,415.70	5,344.65	15,928.77	14,580.48	9,253.26	11,360.00	19,022.80	16,204.90
PAT Growth (%)	131.70	32.37	50.16	56.84	45.68	11.30	22.02	-13.36	-1.31	252.57	-8.46	-36.54	470.37	67.45	-14.81
PAT Margin(%)	7.98	8.11	8.71	3.29	4.34	4.75	12.18	10.32	11.58	7.54	6.96	5.14	6.46	13.43	9.59
ROE (%)	42.29	29.37	32.24	8.29	10.17	9.23	21.22	15.74	13.58	19.14	14.35	7.96	21.48	28.26	18.91
ROCE(%)	57.25	39.21	35.62	14.55	16.24	16.54	27.26	21.19	17.63	20.43	18.21	9.93	17.90	17.79	19.05
Net Debt to EBITDA	-0.72	-0.03	0.91	0.50	0.84	0.71	-0.07	-0.10	0.30	1.46	1.16	1.64	0.70	-0.13	0.29
Debtors Turnover days	14	18	24	49	70	115	82	89	93	61	62	68	31	47	38
Credit Turnover days	22	20	24	64	128	219	40	40	49	89	84	93	73	112	116
Other Current Assets days	2	14	20	12	18	23	3	7	10	15	11	15	0	16	19
Inventory Turnover days	29	25	44	80	144	230	143	155	189	135	151	185	121	134	158
Net Working Capital Days	21	15	49	62	56	66	175	153	190	68	99	141	42	-19	-27
Current Ratio	2.64	1.56	1.54	1.93	1.39	1.36	4.44	3.31	3.92	1.24	1.45	1.61	1.53	1.33	1.33
Debt/Equity Ratio	0.02	0.10	0.37	0.22	0.28	0.24	0.04	0.04	0.07	0.60	0.42	0.33	0.33	0.12	0.23
Fixed Assets Turnover Ratio	14.10	6.86	5.28	5.97	5.65	4.27	4.02	3.67	2.64	2.50	2.20	1.80	4.02	3.10	2.85
Revenue from top 5 customers (In Rs Million)	1,035.60	1,374.72	1,646.51	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Revenue from top 10 customers (In Rs Million)	1,602.04	1,877.35	2,360.43	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Source: AceEquity, CareEdge Research

Revenue and Growth

- Hi-Tech Flow Solutions Limited (Formerly known as Hi-Tech SAW Limited) has demonstrated strong revenue growth over the three-year period, recording a CAGR of approximately 35% between FY24 and FY26, which was higher than that reported by all selected peers.

Profitability Margins

- EBITDA margins for Hi-Tech Flow Solutions Limited (Formerly known as Hi-Tech SAW Limited) improved from 12.24% in FY24 to 12.70% in FY26.
- PAT margins have also improved steadily, reaching 8.71% in FY26, which is higher than Man Industries and Jindal Saw Limited, though below Ratnamani Metals and Tubes Limited and Welspun Corp Limited in FY26.

Return on Capital Employed (ROCE)

- Hi-Tech Flow Solutions Limited (Formerly known as Hi-Tech SAW Limited) has consistently reported the highest ROCE among peers at 35.62% in FY26. This indicates efficient capital utilization and strong return generation relative to invested capital.

Working Capital Efficiency

- The Company has maintained a relatively lean working capital cycle, with net working capital days remaining below 25 days in FY24 and FY25, before increasing to 49 days in FY26. Despite this increase, the Company continued to have the second-lowest working capital cycle among the selected peers in FY26.
- This reflects efficient inventory and receivables management over the period FY24-FY26.

Liquidity and Leverage

- The current ratio has declined from 2.64 to 1.54 over the period FY24-FY26.
- Debt/Equity ratio has increased from 0.02 to 0.37 from FY24 to FY26, suggesting increasing leverage.

Peer Analysis Summary

- Hi-Tech Flow Solutions Limited (Formerly known as Hi-Tech SAW Limited) demonstrates superior financial efficiency, achieving the highest return on capital employed (ROCE) and the second lowest net working capital days among its peers highlighting capital discipline and asset-light operating model.

	ROCE (%)			Net Working Capital Days		
	FY24	FY25	FY26	FY24	FY25	FY26
Hi-Tech Flow Solutions Limited	57.25	39.21	35.62	21	15	49
Man Industries (India) Limited	14.55	16.24	16.54	62	56	66
Ratnamani Metals and Tubes Limited	27.26	21.19	17.63	175	153	190
Jindal Saw Limited	20.43	18.21	9.93	68	99	141
Welspun Corp Limited	17.90	17.79	19.05	42	-19	-27

- Hi-Tech Flow Solutions Limited (Formerly known as Hi-Tech SAW Limited) maintains a relatively higher leverage among the peers, ranking among the top three players in peer set in terms of current ratio with strong liquidity that supports future expansion and potential strategic investments. This proposed expansion represents a strategic forward integration into a high-value segment of the steel pipe industry, aimed at broadening the

product mix and enhancing value addition, while positioning the company to benefit from rising demand for welded steel pipes, including HSAW pipes, driven by large-scale municipal water distribution and conveyance projects.

	Current Ratio			Debt/Equity Ratio		
	FY24	FY25	FY26	FY24	FY25	FY26
Hi-Tech Flow Solutions Limited	2.64	1.56	1.54	0.02	0.10	0.37
Man Industries (India) Limited	1.93	1.39	1.36	0.22	0.28	0.24
Ratnamani Metals and Tubes Limited	4.44	3.31	3.92	0.04	0.04	0.07
Jindal Saw Limited	1.24	1.45	1.61	0.60	0.42	0.33
Welspun Corp Limited	1.53	1.33	1.33	0.33	0.12	0.23

- The company has established a strong market position with extensive brand approvals, a broad customer base, and a consistent track record of performance. It benefits from the extensive industry experience of its promoters and management team, while its robust pre- and post-order engagement practices help maintain strong customer loyalty and support business sustainability.
- The company manufactures pipes with diameters ranging from 406 mm to 2540 mm and wall thicknesses from 5 mm to 20 mm.
- The company is strategically located near primary transport networks and Tier-1 suppliers enabling the manufacturing facilities to benefit from structural cost advantages and secured raw material availability. This proximity enables rapid 1–2 day sourcing, significantly minimizing inbound freight costs, mitigating steel price volatility and ensuring continuity during demand spikes
- The company is among the top three in the peer set by PAT and EBITDA margins, with steadily improving operating margins; profitability is expected to further strengthen with the introduction of higher-margin new products

	EBITDA Margin (%)			PAT Margin (%)		
	FY24	FY25	FY26	FY24	FY25	FY26
Hi-Tech Flow Solutions Limited	12.24	11.85	12.70	7.98	8.11	8.71
Man Industries (India) Limited	7.68	9.59	12.33	3.29	4.34	4.75
Ratnamani Metals and Tubes Limited	17.73	15.88	16.86	12.18	10.32	11.58
Jindal Saw Limited	15.85	16.46	12.38	7.54	6.96	5.14
Welspun Corp Limited	9.00	11.93	13.33	6.46	13.43	9.59

13 Company Profile

Hi-Tech Flow Solutions Limited (Formerly known as Hi-Tech SAW Limited) Limited has over seven years of experience in the Indian steel pipe and tube industry. The company operates on a business-to-business ("B2B") model and primarily cater to private engineering, procurement and construction contractors engaged in the execution of large-scale pipeline and allied infrastructure projects. Company's HSAW pipes serve a diverse range of applications, with a primary focus on large-diameter water-transmission pipelines used in bulk water-supply systems, irrigation networks, inter-basin river-link pipelines, municipal water-distribution networks, dam-based irrigation systems, transport-linked utility corridors, and sewerage and urban-infrastructure projects. In addition, Company's products are also used in various infrastructure applications including airport, flyovers, power projects utilities, including HVAC utility networks, where long-distance, high-capacity, and corrosion-resistant pipeline solutions are required. These varied applications reflect the wide end-use spectrum of Company's products and Company's ability to meet the technical and operational requirements of complex infrastructure projects.

The company is an approved vendor with certain infrastructure authorities engaged in water supply, sewerage and urban development projects, including state level Public Health Engineering Department, Jal Nigam and State Water Supply and Sewerage Boards. The approval follows technical and quality assessments, including inspections of the company's Manufacturing Facilities and verification of compliance with prescribed product and performance standards. The approval inherently operates as a barrier to entry for new or unqualified manufacturers, as supply in government-funded water-transmission and pipeline projects is permitted only to vendors that meet defined eligibility requirements including capacity, quality certification and testing requirements. The empanelment typically takes up to 9 to 18 months. The company's approval with these authorities enables them to service the demand arising from government tenders and infrastructure projects that require adherence to stringent quality, safety and durability norms, thereby strengthening their credibility and competitive positioning in the HSAW pipe manufacturing sector.

The company operates two manufacturing facilities:

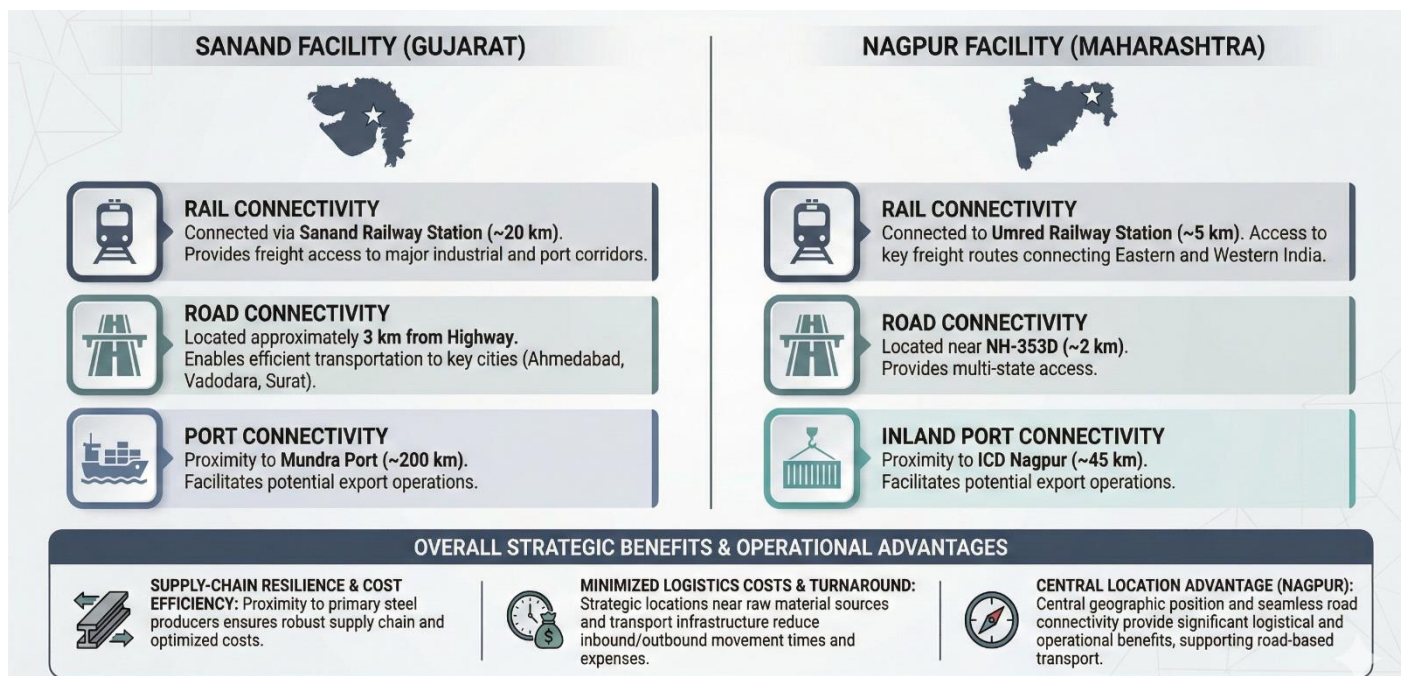
- **Sanand, Gujarat** – Capacity: 40,000 MTPA; Size Range: 400mm–1600mm

The Sanand, Gujarat facility benefits from strong multimodal connectivity. It is well connected by road through the state and national highway network, facilitating efficient movement of raw materials and finished pipes. The location also offers proximity to major ports along the western coast, enabling ease of dispatch for coastal and export-oriented projects. Additionally, rail connectivity in the region supports bulk transportation for long-distance infrastructure projects.

- **Nagpur, Maharashtra** – Capacity: 1,20,000 MTPA; Size Range: 500mm–2540mm

The Nagpur, Maharashtra facility enjoys a strategic central location, providing logistical advantages for pan-India project execution. Nagpur is a key rail and road hub, connected to major industrial and consumption centres across western, central, northern, and southern India. The facility's access to multiple national highways and rail routes enables cost-effective movement of large-diameter pipes to project sites. Proximity to inland logistics hubs further supports efficient handling of oversized cargo and project-based dispatches.

The proximity of these primary suppliers provides significant operational advantages, including faster material delivery, savings in logistics and transportation costs, competitive procurement pricing and consistent quality and uninterrupted supply chain.



Business Model and Dynamics of the Company

Hi-Tech Flow Solutions Limited (Formerly known as Hi-Tech SAW Limited) Limited operates a vertically integrated business model focused on:

- **Manufacturing** of HSAW pipes using spiral welding techniques
- **Coating and lining** services including epoxy, polyurethane, cement-mortar, and coal-tar enamel for corrosion protection are provided through third party
- **Quality assurance** is done by internal team
- **Supply chain integration** with raw material sourcing from major steel producers.

The company caters to both public sector infrastructure projects and private industrial clients, registration with multiple government bodies and certifications including ISO 9001:2015, ISO 14001:2015, and ISO 45001:2018 .

SWOT Analysis of the Company

Strengths

- The company's manufacturing facilities are strategically located across key regions in India, allowing for efficient distribution and reduced transportation costs, ensuring timely delivery to customers nationwide.
- The company is a recognized and approved supplier for several large-scale water supply and sewerage infrastructure projects, demonstrating compliance with stringent quality and regulatory standards.
- With extensive experience in the industry, the promoters bring deep technical and managerial expertise, which has helped the company build a strong reputation and credibility among customers and stakeholders.
- The company maintains a dedicated in-house quality control and testing setup, ensuring that all products meet stringent industry standards and customer specifications before dispatch.
- The company has low dependency on a single client for their offerings.

Weaknesses

- Dependence on large government projects may expose the company to policy and funding delays
- Recent entry into exports has resulted in a limited international footprint as per available data

Opportunities

- Ongoing government programs aimed at improving water supply networks, developing urban infrastructure, and expanding energy projects are expected to drive demand for reliable and large-scale piping solutions across India.
- The company intends to strategically expand its product portfolio through the introduction of HSAW API pipes, enabling it to cater to a wider range of industrial and infrastructure applications. The anticipated post-war recovery in global energy markets is expected to create significant opportunities for Indian API pipe manufacturers, driven by increased investments in oil and gas infrastructure, reconstruction activities, and strategic pipeline projects. Indian manufacturers are well-positioned to benefit from these opportunities owing to their competitive manufacturing capabilities, established certifications, and growing acceptance in global markets, potentially resulting in increased exports and long-term order visibility.
- Growing industrial and infrastructure needs, coupled with a focus on long-term durability, are driving higher demand for corrosion-resistant and large-diameter pipes that can withstand challenging operating conditions.
- The Company's established experience in supplying EPC contractors involved in government projects enhances its eligibility and credibility to participate in upcoming government tenders, creating opportunities for incremental order inflows.

Threats

- Volatility in raw material prices
- Competition from domestic and international HSAW pipe manufacturers

Service and Product Mix with End-Use Application Areas

Core Products

- **HSAW Pipes** (406mm–2540mm OD; 5mm–20mm thickness)
 - Applications: Water transmission, infrastructure, agriculture, construction

Coating & Lining Services

- Liquid Epoxy Coating
- Cement-Mortar Lining
- Polyurethane Exterior Coating
- External Varnish and Epoxy-Based Painting

Geographic Presence and Operational Footprint

- **Manufacturing Plants:** Sanand (Gujarat), Nagpur (Maharashtra)
- **Registered Office:** New Delhi
- **Raw Material Sources:** Major Steel Producers

Positioning Statements

- Hi-Tech Flow Solutions Limited (Formerly known as Hi-Tech SAW Limited) is positioned as a reliable manufacturer of large-diameter HSAW pipes for critical infrastructure applications.
- It serves marquee clients across sectors including water transmission and transportation.
- Strategic plant locations and vendor approvals enable efficient service delivery across India.

Peer Comparison on Operational Parameters

Parameter	Hi-Tech Flow Solutions Limited (Formerly known as Hi-Tech SAW Limited)	Man Industries (India) Ltd.	Ratnamani Metals & Tubes Ltd.	Welspun Corp Ltd.	Jindal Saw Limited
Manufacturing Locations	2 (Sanand, Gujarat; Nagpur, Maharashtra)	2 (Anjar, Gujarat; Pithampur, MP)	4 (Indrad, Chhatral, Bhimasar - Gujarat, Sundargarh - Odisha)	Multiple (India, USA, Saudi Arabia)	16 (Gujarat, UP, Maharashtra, Andhra Pradesh, Karnataka, MP, Rajasthan)
Installed Capacity (TPA)	~1,60,000	~1.2 million +	Not disclosed (significant in SS/CS)	~23,00,000	11,38,000 MTPA
Capacity Utilization	45.12%	NA	NA	NA	NA
Product Types	HSAW Pipes, Coated Pipes	LSAW, HSAW, ERW, Coated Pipes	SS & CS Seamless, Welded, ERW, SAW	HSAW, LSAW, ERW, DI Pipes, Coated Pipes	Saw Pipes, Ductile Iron (DI) Pipes and Fittings
End-Use Sectors	Water Transmission, Infrastructure	Oil & Gas, Water, Petrochemicals, CGD	Oil & Gas, Power, Nuclear, Pharma	Oil & Gas, Water, Hydrogen, Infrastructure	Carbon, Alloy, and Stainless Steel Pipes and Tubes
Coating Capabilities	Yes (Epoxy, PU, Cement Mortar, Coal Tar) (Provided through third party)	Yes (3LPE, FBE, Cement Mortar)	Yes (Paint, PP, ARO, Cement Mortar)	Yes (3LPE, FBE, Concrete, Cement Mortar)	Yes (PU, Coal Tar Epoxy, Polypropylene (3LPP), etc.)

Certifications	ISO 9001:2015, ISO 14001:2015, ISO 45001:2018	ISO 9001:2015, ISO 14001:2015, ISO 45001:2018, API 5L	ISO 9001, PED, AD 2000, ISO 17025	ISO 9001, ISO 14001, ISO 45001, ISO 17025	ISO 9001: 2015, ISO 14001: 2015, ISO 29001, API 5L, IS 5504, APL Q1, ISO 45001, IS 3589, ISO14025
Technology Adoption	Semi-automated; in-house lab	Semi-automated; in-house lab	High automation (PLC, CNC, SCADA)	High automation; backward integration	Seamless pipe piercing mill, premium thread cutting JV with Hunting Energy
Export Orientation	Low	~57.3% of steel revenue from exports	~37 of revenue from exports	Strong global presence (USA, Europe, Middle East and Africa)	~25 of revenue from exports
Hydrogen-Ready Pipes	Under development	In R&D phase	Commercial supply to Europe	Commercial supply (API-grade X65 ERW)	NA
ESG Practices	Use renewable energy as a source of power	BRSR-compliant; Zero Liquid Discharge; Waste segregation	29% renewable energy; Zero Liquid Discharge; 3,041 trees planted	CSA ESG score of 78; Top 10 in global steel sector (S&P DJSI)	Using renewable energy
R&D and Innovation	Continuous product improvement and development	Product development in ERW and SS	In-house metallurgy and product development	Hydrogen pipeline, carbon capture, EPC integration	Seamless pipe mill expansion
Backward Integration	No	No	Yes (SS melting, extrusion)	Yes (DI pipes, billets, coating, EPC)	NA
Top States by Sales	Maharashtra, Gujarat	NA	NA	NA	NA

Formula Table

Parameter	Formula
Revenue	Revenue from Operations
EBITDA	Depreciation + Finance Cost+ Profit (Loss) before exceptional item and tax- Other Income
EBITDA Margin	EBITDA/ Revenue from operations
PAT Margin	Profit after Tax/ Total Income
Debt	Long term Borrowings + Short term Borrowings
Debt to Equity	Debt/ Total Equity
Return on Equity (ROE)	PAT/ Average Total Equity
Return on Capital Employed (ROCE)	EBIT/Average (Total Equity + Total Debt + Deferred Tax Liability)
Current Ratio	Current Assets/ Current Liabilities
Debtor Days	(Average Trade Receivable/Revenue from Operations)*365

Creditor Days	$(\text{Average Trade Payables} / \text{Cost of Goods Sold}) * 365$
Inventory Days	$(\text{Average Inventory} / \text{Cost of Goods Sold}) * 365$
Fixed Assets Turnover Ratio	$\text{Revenue from Operations} / \text{Fixed Assets}$
Net Debt to EBITDA	$(\text{Long term Borrowings} + \text{Short term Borrowings} - \text{Cash and Cash Equivalent}) / \text{EBITDA}$

Contact

Tanvi Shah	Senior Director	tanvi.shah@careedge.in	022 6837 4400
Vikram Thirani	Director	vikram.thirani@careedge.in	022 6837 4434

About CARE Analytics and Advisory Private Ltd (CareEdge Research)

CareEdge (CARE Group) is a knowledge-based analytical group that aims to provide superior insights based on technology, data analytics capability and detailed research methods. CareEdge (CARE Ratings Limited) is one of the leading credit rating agencies in India. It has an impressive track record of rating companies for almost three decades and has played a pivotal role in developing the corporate debt market in India. CareEdge provides near real time research on all domestic and global economic developments. CARE Analytics & Advisory Private Ltd is a wholly owned subsidiary focused on providing advisory and consultancy services including the following:

Advisory Services



- Investment Advisory
- Stressed Assets Advisory
- Debt Viability Studies
- Corporate Due Diligence
- Vetting of Resolution Plans

Customised ESG Solutions



- ESG Assessments
- ESG Gap Analysis
- Policy Advisory
- ESG Strategy and Roadmaps
- ESG Portfolio Mapping and Monitoring

Research Services



- Customized Sectoral Research
- Credit & Investment Research for Global Fund Houses

Grading Services



- ESG Grading
- AIF Grading
- MFI & COCA Grading
- NGO Grading
- ESCO, LPG, Grading

CARE Analytics & Advisory Private Ltd

(Wholly-owned subsidiary of CARE Ratings Ltd.)

Office No. 602, 6th Floor, Rustomjee Aspiree, Off Eastern Express Highway, Sion East, Mumbai- 400022

Phone: +91-22-68374400

Connect:

