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Pipelines of Progress: Global and Indian Steel Tubes & Pipes Industry

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List of Abbreviations

AMRUT – Atal Mission for Rejuvenation and Urban Transformation
API – American Petroleum Institute
APL – Above Poverty Line
ASTM – American Society for Testing and Materials
BIS – Bureau of Indian Standards
BOF – Basic Oxygen Furnace
BSE – Bombay Stock Exchange
CAGR – Compound Annual Growth Rate
CE – Conformité Européenne (European Conformity)
CGD – City Gas Distribution
CMIE – Centre for Monitoring Indian Economy
CNG – Compressed Natural Gas
COO – Chief Operating Officer
COVID – Coronavirus Disease
CPI – Consumer Price Index
CR – Cold Rolled
CRC – Cold Rolled Coil
CRFH – Cold Rolled Full Hard
CY – Calendar Year
DCS – Distributed Control System
DFC – Dedicated Freight Corridor
DFT – Dry Film Thickness
DRI – Direct Reduced Iron
EAF – Electric Arc Furnace
EBITDA – Earnings Before Interest, Tax, Depreciation, and Amortization
EMS – Environmental Management System
EN – European Norm
EPC – Engineering, Procurement, and Construction
ERP – Enterprise Resource Planning
ERW – Electric Resistance Welded
ESG – Environmental, Social, and Governance
EV – Electric Vehicle
FY – Financial Year
GAIL – Gas Authority of India Limited
GDP – Gross Domestic Product
GI – Galvanized Iron
GJ – Gigajoule
GNDI – Gross National Disposable Income
GP – Galvanized Plain
GST – Goods and Services Tax
GVA – Gross Value Added
HR – Human Resources
HRC – Hot Rolled Coil
HSAW – Helical Submerged Arc Welded
HSLA – High Strength Low Alloy
IBEF – India Brand Equity Foundation
IF – Induction Furnace
IIP – Index of Industrial Production
IMF – International Monetary Fund
INR – Indian Rupee
IOCL – Indian Oil Corporation Limited
IRC – Indian Roads Congress
IS – Indian Standard
ISI – Indian Standards Institution
ISO – International Organization for Standardization
JJM – Jal Jeevan Mission
LFPR – Labour Force Participation Rate
MOSPI – Ministry of Statistics and Programme Implementation
MS – Mild Steel
MT – Million Tonnes
MTPA – Million Tonnes Per Annum
MW – Megawatt
NHAI – National Highways Authority of India
NIP – National Infrastructure Pipeline
NMDC – National Mineral Development Corporation
OEM – Original Equipment Manufacturer
OHSAS – Occupational Health and Safety Assessment Series

FE – Foreign Exchange
PAT – Profit After Tax
PE – Provisional Estimate
PESTLE – Political, Economic, Social, Technological, Legal, and Environmental
PFCE – Private Final Consumption Expenditure
PIB – Press Information Bureau
PLFS – Periodic Labour Force Survey
PLI – Production Linked Incentive
PM – Prime Minister
PMAY – Pradhan Mantri Awas Yojana
PMI – Purchasing Managers' Index
PNGRB – Petroleum and Natural Gas Regulatory Board
PPP – Purchasing Power Parity
RBI – Reserve Bank of India
RINL – Rashtriya Ispat Nigam Limited
ROCE – Return on Capital Employed
RONW – Return on Net Worth
SAIL – Steel Authority of India Limited
SAW – Submerged Arc Welded
SCADA – Supervisory Control and Data Acquisition
SEBI – Securities and Exchange Board of India
SGS – Société Générale de Surveillance
SWOT – Strengths, Weaknesses, Opportunities, and Threats
TMCP – Thermo-Mechanically Controlled Process
UAE – United Arab Emirates
USA – United States of America
USD – United States Dollar
WEO – World Economic Outlook

1. Global Macroeconomic Scenario

The global economy is projected to experience a moderate slowdown, with world output expected to grow by 3.0% in CY 2025, down from 3.3% in CY 2024, and marginally rising to 3.1% in CY 2026. This deceleration reflects a combination of lingering trade tensions, policy uncertainties, and region-specific structural challenges.

Global inflation is expected to ease, with headline inflation forecast at 4.2% in CY 2025 and 3.6% in CY 2026, supported by tighter monetary policies in advanced economies, improving labour market conditions, and the gradual resolution of supply-side disruptions. Global trade growth is set to moderate to 2.6% in CY 2025 and further to 1.9% in CY 2026, reflecting the impact of elevated trade barriers and geopolitical instability.

Advanced Economies are projected to slow, with GDP growth at 1.5% in CY 2025 and 1.6% in CY 2026. The United States is expected to expand by 1.9% in CY 2025 and 2.0% in CY 2026, supported by resilient consumer spending despite fiscal and trade pressures. The Euro Area faces subdued growth at 1.0% in CY 2025, with Germany at 0.1% and France at 0.6%, amid lingering trade disruptions and domestic challenges. Japan's growth is forecast at 0.7% in CY 2025, reflecting weak domestic demand, while the United Kingdom is projected to grow at 1.2%.

Emerging Markets and Developing Economies are expected to maintain moderate expansion, with GDP growth of 4.1% in CY 2025 and 4.0% in CY 2026. China's growth is projected at 4.8% in CY 2025, slightly higher than previously expected, constrained by real estate sector weakness and soft consumer demand. India is projected to grow at 6.4% in CY 2025 and CY 2026, driven by robust rural consumption, infrastructure investment, favourable demographics, and digitalisation. Other key economies, including Brazil (2.3%) and Russia (0.9%) in CY 2025, are expected to grow more slowly amid structural and geopolitical challenges.

Global commodity prices are anticipated to remain volatile. Oil prices are projected to decline by 13.9% in CY 2025, following a 1.8% decline in CY 2024, before recovering moderately in CY 2026. Non-fuel commodities are expected to increase by 7.9% in CY 2025, driven by agricultural and industrial demand.

Overall, the global economic outlook indicates slowing growth, easing inflation, and continued uncertainty due to geopolitical tensions and trade fragmentation. Nevertheless, India stands out as a relative growth leader among major economies, supported by macroeconomic stability, demographic advantages, and continued investment-led expansion.

1.1 Global GDP Growth Scenario

The global economy began to recover from its lowest levels following the lifting of lockdowns in 2020 and 2021. The pandemic-induced lockdown was a key factor that severely disrupted economic activities, leading to a recession in CY 2020, where global GDP contracted by -2.7%.

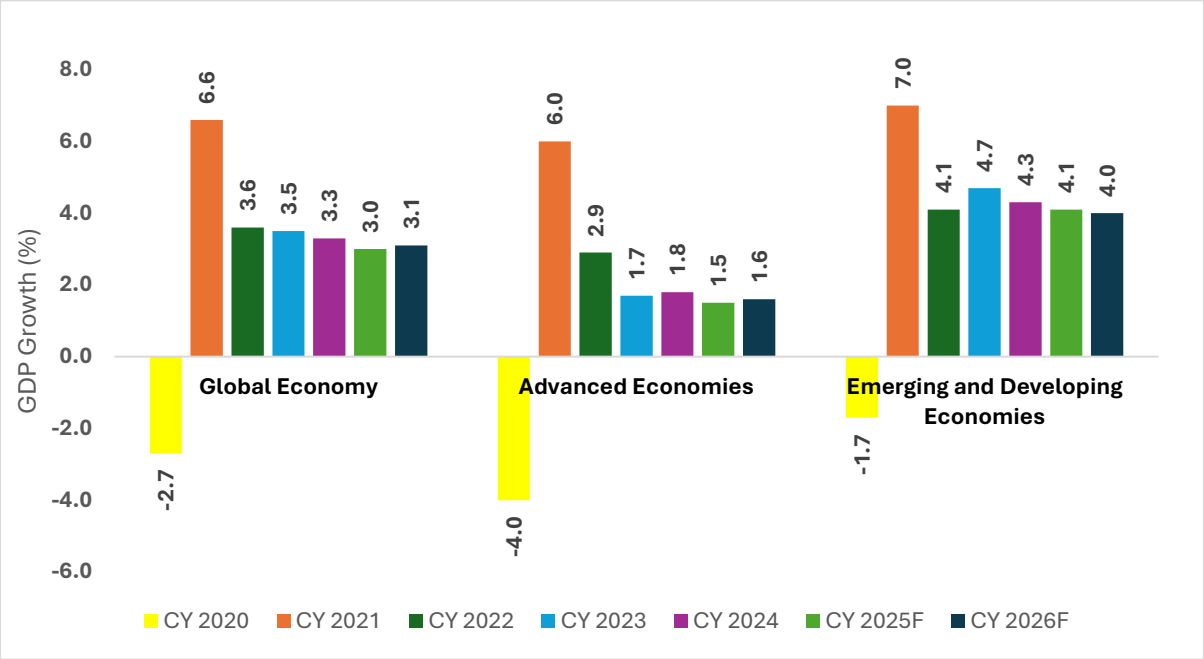
In CY 2021, supply chain disruptions significantly impacted both advanced economies and low-income developing economies. The rapid spread of the Delta variant and the threat of new variants in mid-2021 further heightened uncertainty in the global economic environment.

Global economic activity saw a sharper-than-expected slowdown in CY 2022. The highest inflation in decades, observed in 2022, forced most central banks to tighten their monetary & fiscal policies. Russia's invasion of Ukraine exacerbated global food supply issues, further increasing the cost of living.

Despite initial resilience in early CY 2023, marked by a rebound from the pandemic and progress in curbing inflation from the previous year's highs, the situation remained precarious. Economic activity continued to lag its pre-pandemic trajectory, especially in emerging markets and developing economies, leading to widening regional disparities. Several factors impeded recovery, including the lasting impacts of the pandemic, geopolitical tensions, tightening monetary policies to combat inflation, reductions in fiscal support amid high debt levels, and extreme weather conditions. As a result, global growth slowed from 3.6% in CY 2022 to 3.5% in CY 2023.

The global economy maintained moderate momentum in CY 2024, with real GDP growth estimated at 3.3%, supported by easing inflationary pressures, recovering supply chains, and resilient consumer demand in some major economies. Advanced economies, particularly the U.S., benefitted from strong labour markets and improved private consumption. However, growth remained uneven across regions, with emerging markets facing tighter financial conditions and subdued export demand. Inflation declined faster than anticipated in many regions, enabling some central banks to consider gradual monetary easing by the end of the year.

1.2Historical GDP Growth Trends



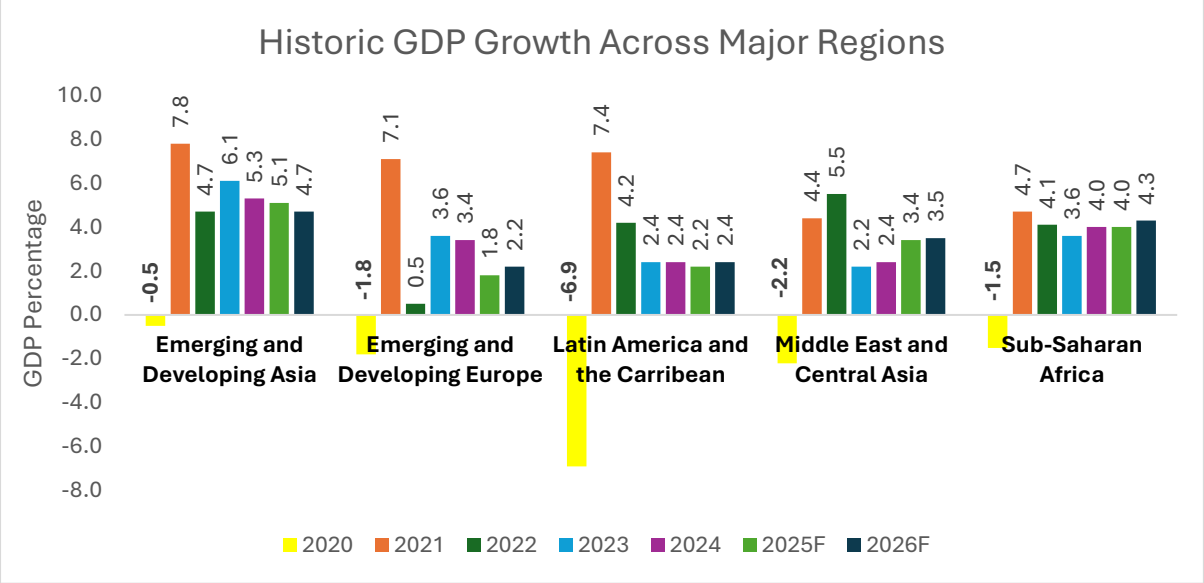
F – Forecast, Source – IMF World Economic Outlook July 2025

Note: Advanced Economies and Emerging & Developing Economies are as per the classification of the World Economic Outlook (WEO). This classification is not based on strict criteria, economic or otherwise, and it has evolved over time. It comprises of 40 countries under the Advanced Economies including the G7 (the United States, Japan, Germany, France, Italy, the United Kingdom, and Canada) and selected countries from the Euro Zone (Germany, Italy, France etc.). The group of emerging market and developing economies (156) includes all those that are not classified as Advanced Economies (India, China, Brazil, Malaysia etc.)

In the current scenario, global GDP growth is projected to decelerate to 3.0% in CY 2025, reflecting mounting economic pressures across both advanced and emerging markets. This marks a significant slowdown driven by intensifying trade fragmentation, the impact of new U.S. tariffs, and elevated geopolitical tensions. Structural weaknesses such as the ongoing real estate crisis in China, minimal growth in the Eurozone, and tight financial conditions in major economies are expected to weigh heavily on global output. Additionally, stress in housing and banking sectors, coupled with subdued industrial activity, is contributing to a muted growth outlook. On the inflation front, the IMF projects global headline inflation to decline to 4.2% in CY 2025, continuing a disinflationary trend as energy prices stabilize and supply-side disruptions ease. The softening of labour markets—reflected in lower job vacancy rates and modest increases in unemployment—is also expected to help reduce core inflation. This provides room for some central banks to initiate cautious interest rate cuts, although the broader economic outlook remains uncertain due to persistent global risks.

1.3 GDP Growth Across Major Regions

GDP growth across major global regions—including Europe, Latin America & the Caribbean, Middle East & Central Asia, and Sub-Saharan Africa—continues to display varied trajectories. While some regions are stabilizing post-pandemic, others remain challenged by structural and cyclical issues. The global outlook presents a mixed scenario, with emerging economies continuing to outperform advanced economies.



Source-IMF World Economic Outlook July 2025 update.

In Emerging and Developing Asia, growth is projected to moderate from 5.3% in CY 2024 to 5.1% in CY 2025, before slightly declining to 4.7% in CY 2026. India is expected to grow at 6.4% in CY 2025, supported by resilient rural consumption and sustained infrastructure investments, though lower than 6.5% growth recorded in CY 2024. In contrast, China's growth is likely to decelerate to 4.8% in CY 2025, amid persistent real estate concerns and weak domestic demand.

Sub-Saharan Africa is projected to grow at 4.0% in CY 2025, maintaining the same pace as CY 2024, with growth expected to accelerate slightly to 4.3% in CY 2026. This gradual improvement is being supported by better weather conditions and more efficient supply chain operations.

In the Middle East and Central Asia, the economy is forecasted to expand at 3.4% in CY 2025, up from 2.4% in CY 2024, and further strengthen to 3.5% in CY 2026, driven by stabilization in oil production and ongoing economic reforms.

For Latin America and the Caribbean, modest growth of 2.2% is forecast for CY 2025, slightly below 2.4% in CY 2024, with expectations of a rebound to 2.4% in CY 2026, helped by stronger macroeconomic management across key economies.

Emerging and Developing Europe remains subdued, with growth estimated at 1.8% in CY 2025, down from 3.5% in CY 2024, expected to rise modestly to 2.2% in CY 2026. The region continues to face structural manufacturing challenges, particularly in major economies like Germany.

Overall, while global growth is expected to remain steady at 3.0% in CY 2025, regional disparities persist, influenced by a combination of domestic challenges, external geopolitical tensions, and fluctuating commodity prices.

1.4 Global Economic Outlook

At the midpoint of the year, so far in 2025, the global economy continues to exhibit mixed performance, with divergence in outcomes across regions due to differences in economic growth, inflation dynamics, and policy responses. The global GDP growth is projected at 3.0% in CY 2025, marking a deceleration from an estimated 3.3% in CY 2024. While short-term prospects have improved due to eased financial conditions and fiscal expansion in some regions, the broader environment remains challenging. Structural headwinds, such as tighter credit conditions, supply-side bottlenecks, and lingering geopolitical risks, are keeping global growth below historical averages.

The United States has continued to outperform other advanced economies, with growth projected at 1.9% in CY 2025, significantly down from 2.8% in CY 2024, as the economy absorbs the lagged effects of previous monetary tightening and persistent inflation. In contrast, the Euro Area is expected to accelerate slightly to 1.0% in CY 2025, up from an estimated 0.9% in CY 2024. This modest acceleration is supported by the European Central Bank's initial interest rate cuts and stronger domestic demand. However, countries like Germany are still struggling, with its GDP forecast at 0.1% in 2025, while others like Spain have benefited from robust tourism.

In China, growth is expected to slow to 4.8% for CY 2025, down from 5.0% in CY 2024, despite being supported by targeted stimulus and a gradual recovery in the real estate sector. India remains one of the strongest performers globally, with GDP growth forecasted at 6.4% in 2025, a minor moderation from 6.5% in 2024. This resilience is supported by robust consumption, capital investment, and favourable demographics.

In Latin America and the Caribbean, the regional outlook is expected to strengthen, with GDP growth forecast at 2.2% in CY 2025, an increase from 2.0% in CY 2024. Meanwhile, Sub-Saharan Africa's growth is expected to hold steady at 4.0% in CY 2025, unchanged from CY 2024. The Middle East and Central Asia region is seeing strengthened prospects, with growth revised sharply up to 3.4% in CY 2025 from 2.4% in CY 2024.

Globally, industrial production has remained sluggish, constrained by high interest rates and lingering supply chain disruptions. However, a mild recovery is anticipated in the second half of the year as global trade stabilizes. Global headline inflation is projected to decline to 4.2% in 2025. Disinflation has progressed slower than expected, particularly in services and wage-heavy sectors, making monetary easing cautious and data-dependent.

Overall, the global economy appears to be stabilizing, but growth in CY 2025 is trending below the previous year's pace. Advanced economies continue to grow modestly under the weight of tight policies and weak external demand, while emerging markets, particularly in Asia, show

stronger but slowing momentum. The outlook for the remainder of 2025 depends significantly on geopolitical developments, the trajectory of inflation, and the pace of monetary easing.

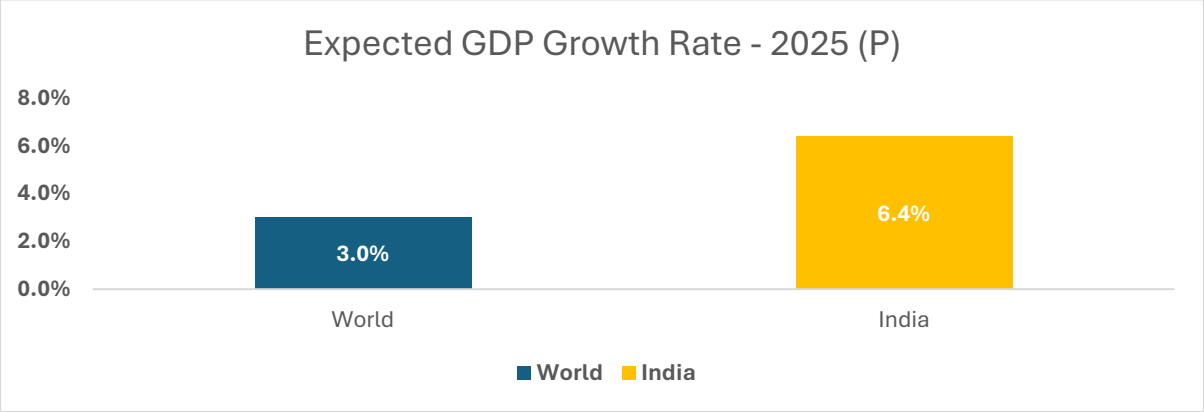
2. India's Macroeconomic Scenario

2.1 Gross Domestic Product (GDP)

India Expected to Grow at Twice the Pace of Global Economic Growth

The global economy continues to face persistent challenges, including the lingering effects of the COVID-19 pandemic, heightened geopolitical tensions, and climate-related disruptions that have affected energy and food supply chains. Global real GDP growth is projected at 3.0% in CY 2025, indicating a moderation in global momentum. In contrast, India's real GDP is projected to grow at 6.4% in CY 2025, continuing its trend of significantly outpacing global averages and reaffirming its position as the fastest-growing major economy. This implies that India is expected to grow at more than twice the pace of global GDP, supported by strong domestic demand, structural reforms, and increased infrastructure investment. India's resilience among the G20 economies further strengthens its role as a key driver of global economic growth in the coming years.

Global and India Growth Outlook Projections (Real GDP growth)



Notes: P-Projection; Source: IMF – World Economic Outlook, July 2025

India's Economic Growth Momentum Remains Strong - Surpassed USD 4 Trillion.

In FY 2024-25, India was the fifth-largest economy globally, with an estimated real Gross Domestic Product (GDP) at constant prices of INR 187.97 lakh crore, against the First Revised Estimates (FRE) of GDP for the year 2023-24 of INR 176.51 lakh crore registering a GDP growth rate of 6.5% as compared to 9.2% in FY 2023-24. Since FY 2005, India's GDP growth has consistently outpaced global economic growth, often growing at nearly twice the global average, and this trend is expected to continue over the medium term.

Source: PIB, Provisional estimates of GDP 2024-25 released on May 30th, 2025

In June 2025, India became the fourth-largest economy in the world and retained its position as the fastest-growing major economy. The country is projected to become the world's third largest economy by 2030, with an estimated GDP of USD 7.3 trillion.

Source: PIB, Press Release - India Becoming an Economic Powerhouse posted on June 16, 2025

GDP Growth Rate Projections for India

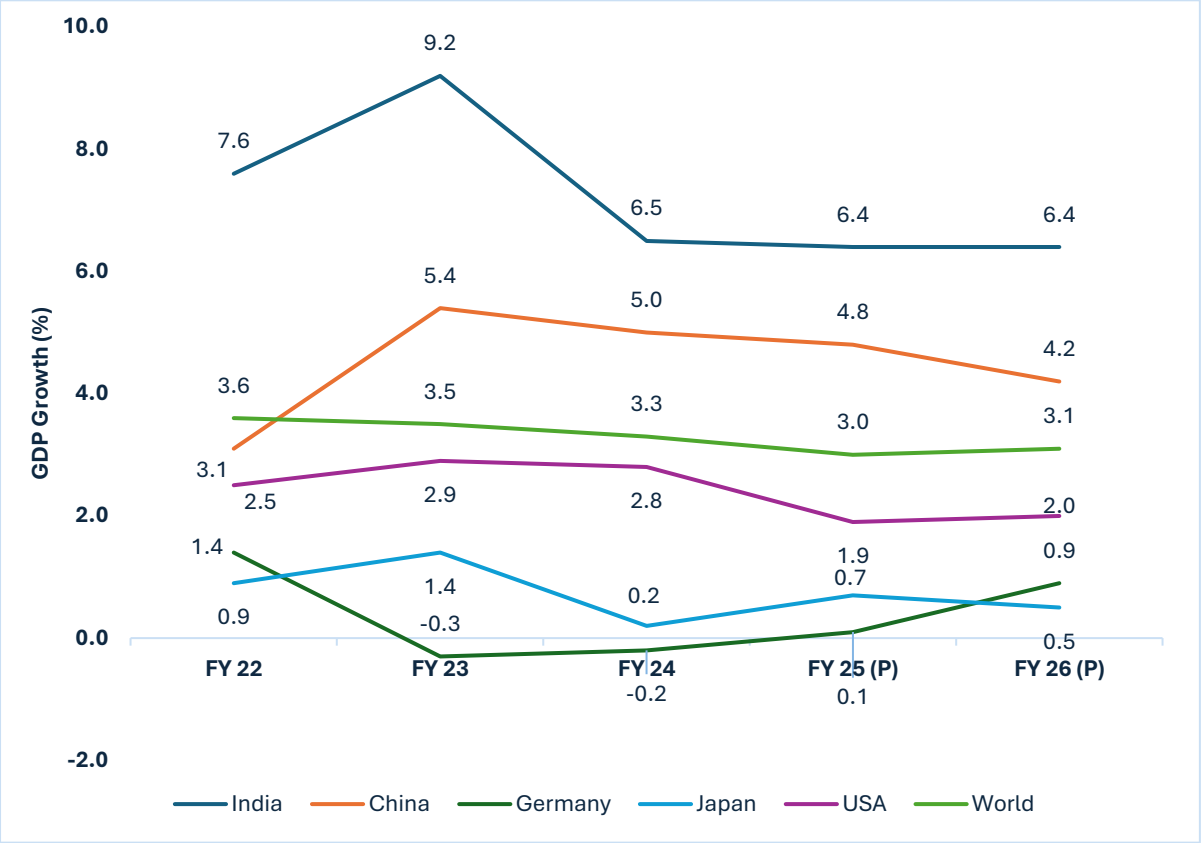
GDP growth projections by Government of India and other agencies are summarised below:

	Estimated GDP Growth Rate		
	FY 25E	**FY 26E**	**FY 27E**
Ministry of Finance, GOI	6.4%	6.3%-6.8%	N.A.
IMF*	6.4%	6.4%	N.A.
RBI#	6.6%	6.5%	N.A.
National Statistical Office (NSO)@	6.4%	N.A.	N.A.
PHDCCI@	6.5%	6.7%	6.7%
S&P Global@	6.8%	6.5%	6.8%
Morgan Stanley@	6.3%	6.5%	6.5%
Asian Development Bank#	6.5%	6.7%	N.A.
Moody's Agency	6.1%	N.A.	N.A.
Fitch Ratings@	6.3%	6.5%	6.3%

** Source: World Economic Outlook Update July 2025*

@ Data is updated as of 28th March 2025, #updated as of 10th April 2025

India, Top 4 Global Economies GDP Growth Forecast



Note: P = Projections, Source: IMF World Economic Outlook July 2025 update.

In September 2024, India achieved a significant milestone by overtaking Japan to become the third most powerful nation in the Asia-Pacific region, as per the Asia Power Index 2024. India's overall score rose to 39.1, reflecting a 2.8-point increase from the previous year, driven by growing influence across economic, military, and diplomatic dimensions.

Key factors behind India's rise include its strong economic performance, expanding and youthful workforce, and increasing strategic engagement across the region. India's Economic Capability improved significantly, supported by its position as the world's third-largest economy in terms of purchasing power parity (PPP). Additionally, a notable increase in its Future Resources score highlights the demographic advantage that is expected to sustain its growth trajectory in the coming years.

2.2 Gross Value Added (GVA)

Gross Value Added (GVA) is the measure of the value of goods and services produced in an economy. GVA gives a picture of the supply side whereas GDP represents consumption.

Industry and Services sector leading the recovery charge

- India's economy demonstrated robust growth across various sectors. The gap between GDP and GVA growth turned positive. The positive gap between GDP and GVA growth indicates robust tax collections contributing to GDP growth.
- India's sector-wise economic performance in FY 2024–25 reveals a shift in momentum across its primary, secondary, and tertiary sectors, with notable differences compared to the previous fiscal year.
- The Primary Sector—comprising agriculture, livestock, forestry, fishing, and mining & quarrying—registered a growth of 4.4% in FY25, showing a notable improvement from the 2.7% growth in FY24. This uptick can be attributed to stronger performance in agriculture and allied activities, along with moderate gains in mining and quarrying. However, erratic monsoon patterns and rising input costs may have constrained agricultural output during the year.
- In contrast, the Secondary Sector—which includes manufacturing, electricity, gas, water supply & other utilities, and construction—recorded a solid growth of 6.1% in FY25, though lower than the impressive 11.4% growth seen in the previous year. This resilient performance was primarily driven by a notable recovery in manufacturing and robust momentum in infrastructure-related segments like construction and utilities.
- The Tertiary Sector or services sector posted 7.2% growth in FY25, slightly lower than the 9.0% achieved in FY24, yet it remained a major pillar of overall economic growth. Strong performances were observed in trade, hotels, transport, financial services, real estate, and professional services. However, public administration and defence services saw more modest growth, slightly dampening the overall momentum in this segment.
- Overall, growth in India's real Gross Value Added (GVA) in FY25 was primarily driven by the resurgence of the secondary sector and sustained strength in key segments of the services sector, even as the primary sector showed signs of moderation.

Sectoral Growth (Y-o-Y % Growth) - at Constant Prices

Sector-wise growth in GVA at constant (2011-12) prices (in %)	FY 2024 (FRE)	FY 2025 (PE)
Primary	2.7	4.4
Secondary	11.4	6.1
Tertiary	9.0	7.2

Source: PIB, Provisional estimates of GDP 2024-25 released on May 30th, 2025

2.3 Consumer Price Index (CPI)

Inflation Stable Inflationary Environment

In fiscal year 2025 (FY25), India's General Index inflation, as measured by the Consumer Price Index (CPI), averaged 4.6%, marking the lowest annual inflation rate since 2018–19. This moderation in inflation reflects a significant improvement in the country's price stability post-COVID. In March 2025, CPI Inflation stood at 3.34%, the lowest monthly rate since August 2019, indicating sustained disinflationary momentum in recent months.

Source: - RBI, Annual Report-Inflation, Money and Credit Dated May 29th, 2025

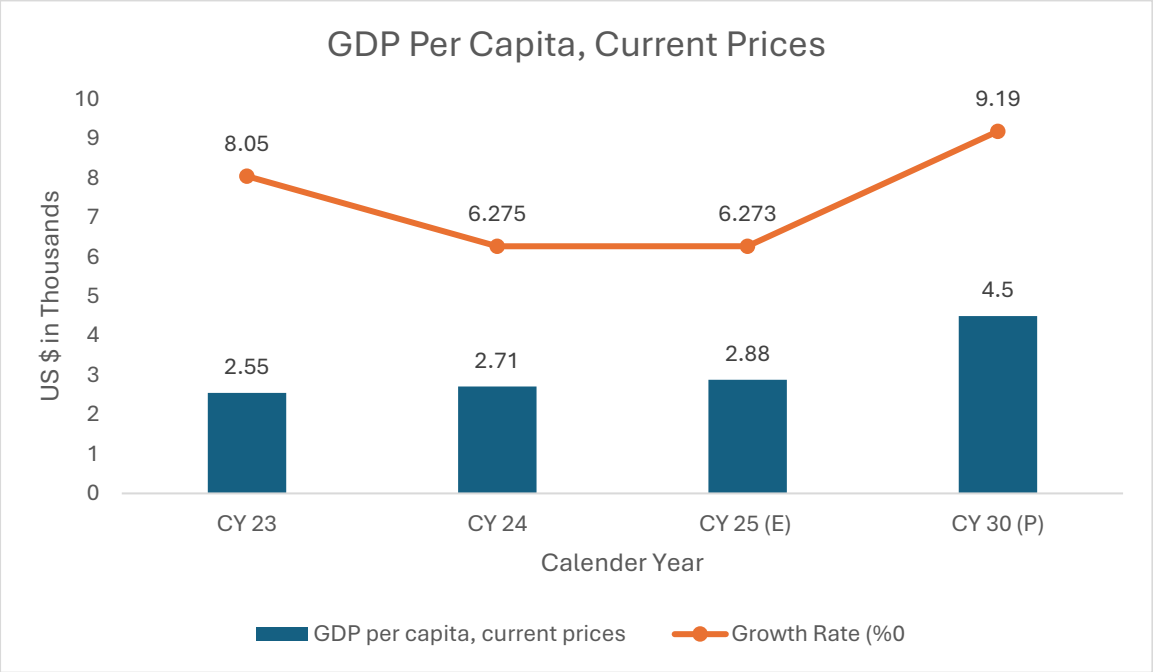
Several key factors contributed to this decline in inflation:

The Reserve Bank of India (RBI) pursued a pro-growth monetary policy, aiming to strike a balance between supporting economic recovery and containing inflation. In parallel, the government actively intervened in food markets, particularly by augmenting buffer stocks of essential commodities and releasing them strategically to stabilize prices. These coordinated efforts helped ease supply-side pressures, especially on food inflation.

Looking ahead, projected CPI inflation for FY26 to average around 4%, signalling continued focus on maintaining price stability. In support of this trajectory, the RBI recently announced a cut in the repo rate, which is expected to result in a more accommodative monetary policy stance in the coming months. This environment of low inflation and easing interest rates may provide a favourable backdrop for economic expansion in the near term.

2.4 India Per Capita GDP Forecast

Per capita GDP growth for India is estimated at 9.19 % CAGR between CY2025-CY2030. Increased individual incomes are expected to create additional discretionary spending, which may be beneficial for the sector.



Note: E = Estimated, P = Projected

Source: IMF Data Mapper, World Economic Outlook April 2025, India, GDP Per Capita

2.5 Private Final Consumption Expenditure (PFCE)

Private Final Consumption Expenditure (PFCE) represents the total spending by resident households on final consumption of goods and services, serving as a key indicator of consumer demand and overall economic well-being. It reflects the extent of household consumption and plays a crucial role in driving GDP growth. In FY2025, PFCE at constant prices rose to 56.5% of GDP, up from 56.1% in FY2024, indicating a gradual improvement in household spending patterns. This increase suggests stronger consumer confidence, supported by factors such as easing inflation, improving income levels, and a favourable consumption environment.

Source: PIB, Provisional estimates of GDP 2024-25 released on May 30th, 2025

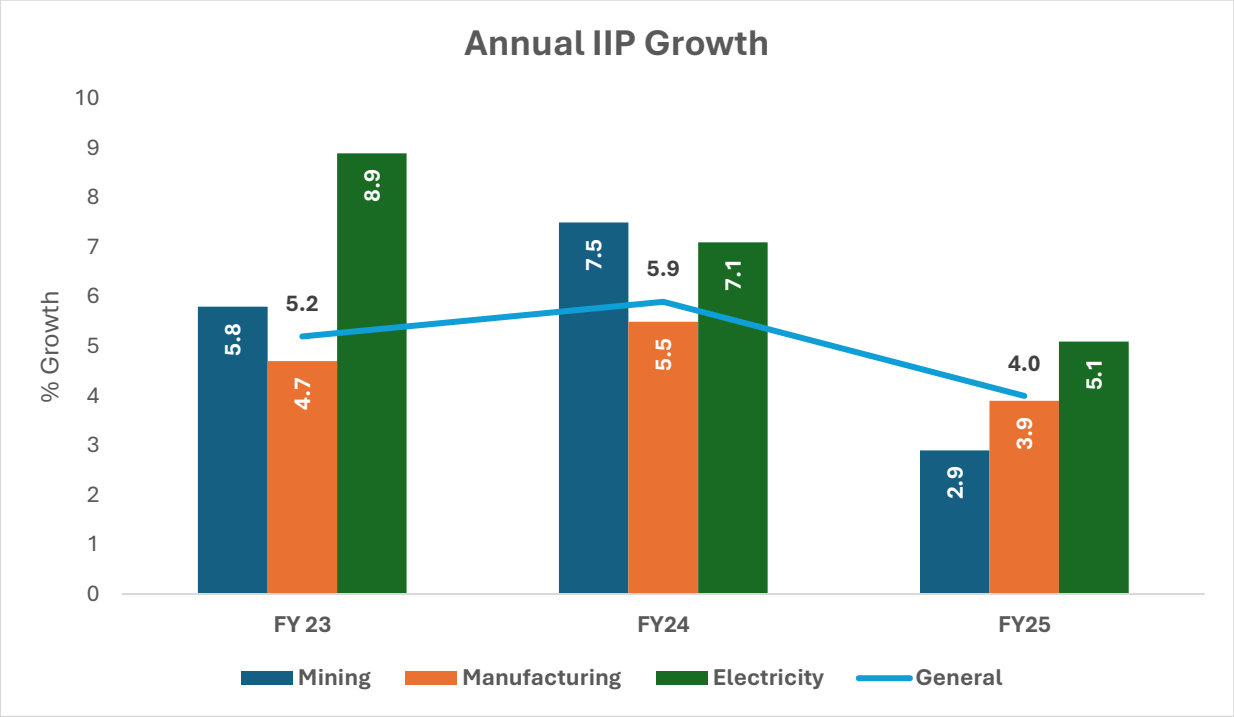
2.6 IIP Growth – Index of Industrial Production

As per the Index of Industrial Production (IIP), the industrial sector grew by 4.0% in FY 2025, moderating from 5.9% in FY 2024 and 5.2% in FY 2023. This deceleration in overall IIP growth in FY 2025 reflects a softening of industrial momentum amidst global headwinds and tighter financial conditions.

Among key components:

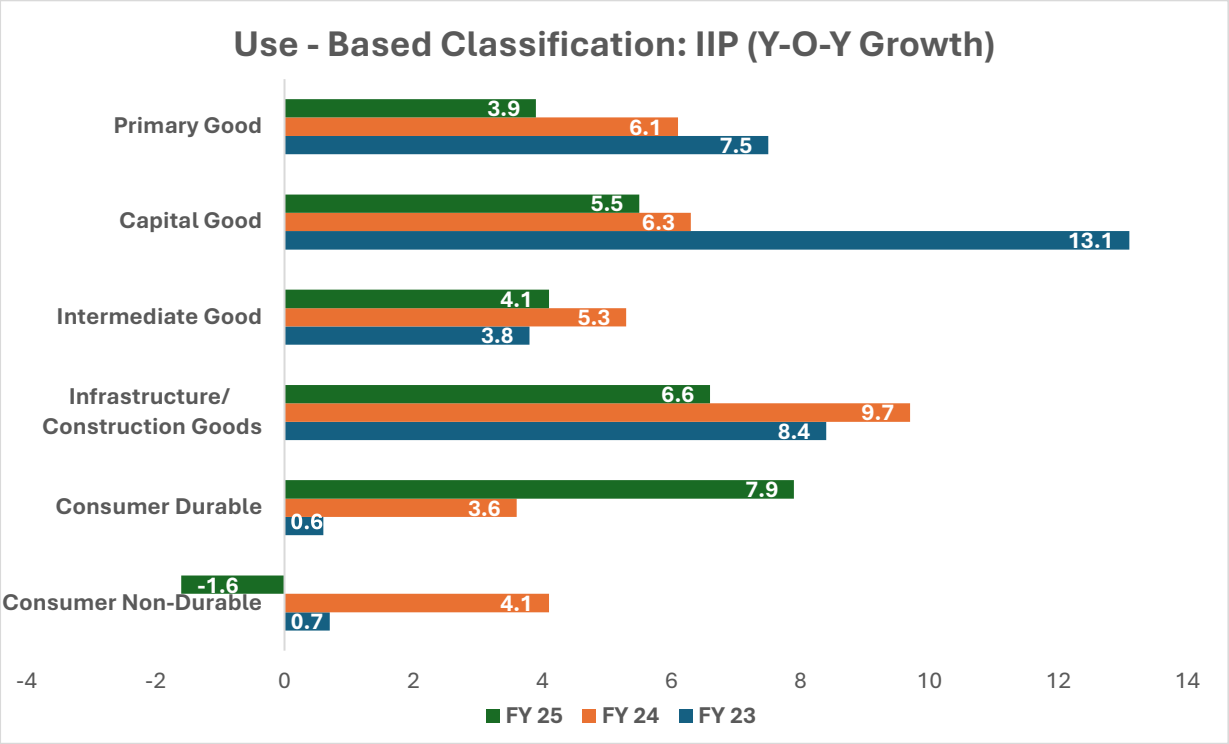
- **Manufacturing** (which holds a 77.6% weight in IIP) registered a slower growth of 3.9% in FY 2025, compared to 5.5% in FY 2024 and 4.7% in FY 2023.
- **Mining** growth also moderated sharply to 2.9% in FY 2025 from 7.5% in FY 2024 and 5.8% in FY 2023.
- **Electricity** growth remained relatively stable at 5.1% in FY 2025, slightly down from 7.1% in FY 2024 and significantly lower than 8.9% in FY 2023.

This slowdown indicates tightening domestic demand and spillover effects from a weaker global industrial cycle.



Source: Ministry of Statistics & Programme Implementation (MOSPI)

Use-Based Classification Trends:



Source: Ministry of Statistics & Programme Implementation (MOSPI)

According to the use-based classification:

- Capital Goods segment growth slowed to 5.5% in FY 2025, down from a high of 13.1% in FY 2023 and 6.3% in FY 2024, indicating a reduction in investment momentum.
- Primary Goods also witnessed slower growth at 3.9%, compared to 6.1% in FY 2024 and 7.5% in FY 2023.
- Intermediate Goods rebounded modestly to 4.1% in FY 2025, up from 3.8% in FY 2023, although still lower than 5.3% in FY 2024.
- Infrastructure/Construction Goods slowed to 6.6% in FY 2025 from 9.7% in FY 2024 and 8.4% in FY 2023, pointing to softening construction and infrastructure activity.
- Consumer Durables grew significantly by 7.9%, rebounding from 3.6% in FY 2024 and 0.6% in FY 2023, indicating improved demand in consumer electronics and appliances.
- In contrast, Consumer Non-Durables contracted by 1.6% in FY 2025, reversing the 4.1% growth in FY 2024, likely reflecting subdued rural and essential goods demand.

The divergence in growth across segments suggests an uneven industrial recovery in FY 2025. While certain consumer categories have rebounded, investment-related and primary sectors remain under pressure.

2.7 Overview on Key Demographic Parameters

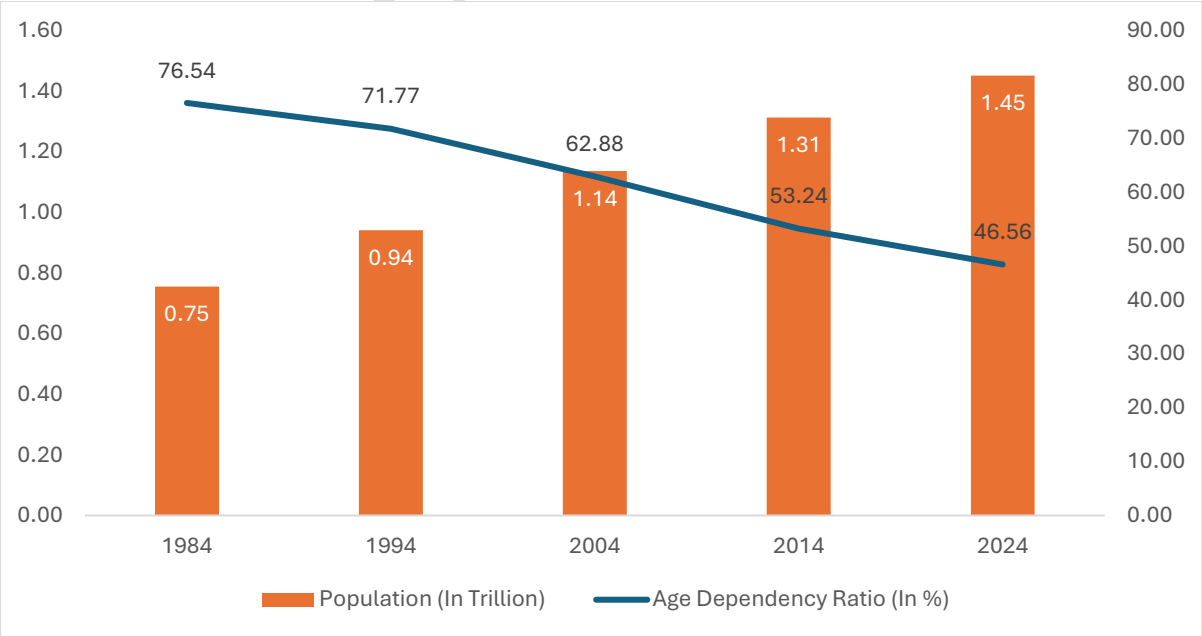
2.7.1 Population growth and Urbanization

India's economic trajectory and consumption dynamics are closely tied to its demographic shifts. According to the World Bank, India's population expanded from approximately 0.75 trillion in 1984 to 1.45 trillion in 2024, consolidating its position as the world's most populous nation. This growth underlines the emergence of a vast labour force and consumer base, essential for driving sustained economic progress.

A key demographic indicator—the age dependency ratio—has witnessed a steady decline over the last four decades. From a high of 76.54% in 1984, it reduced to 71.77% in 1994, 62.88% in 2004, and 53.24% in 2014, before reaching a low of 46.56% in 2024. This downward trend signifies that for every 100 working-age individuals, there are now fewer than 47 dependents, compared to over 76 dependents in the mid-1980s. Such a shift reflects a growing share of the working-age population, unlocking India's demographic dividend—a critical driver of productivity, savings, and investment.

Together, the rising total population and declining dependency ratio provide a dual advantage: a larger workforce capable of supporting economic activity and a lower demographic burden, which allows for higher disposable incomes and consumption growth. These demographic fundamentals form a strong backbone for India's long-term economic and private consumption expansion.

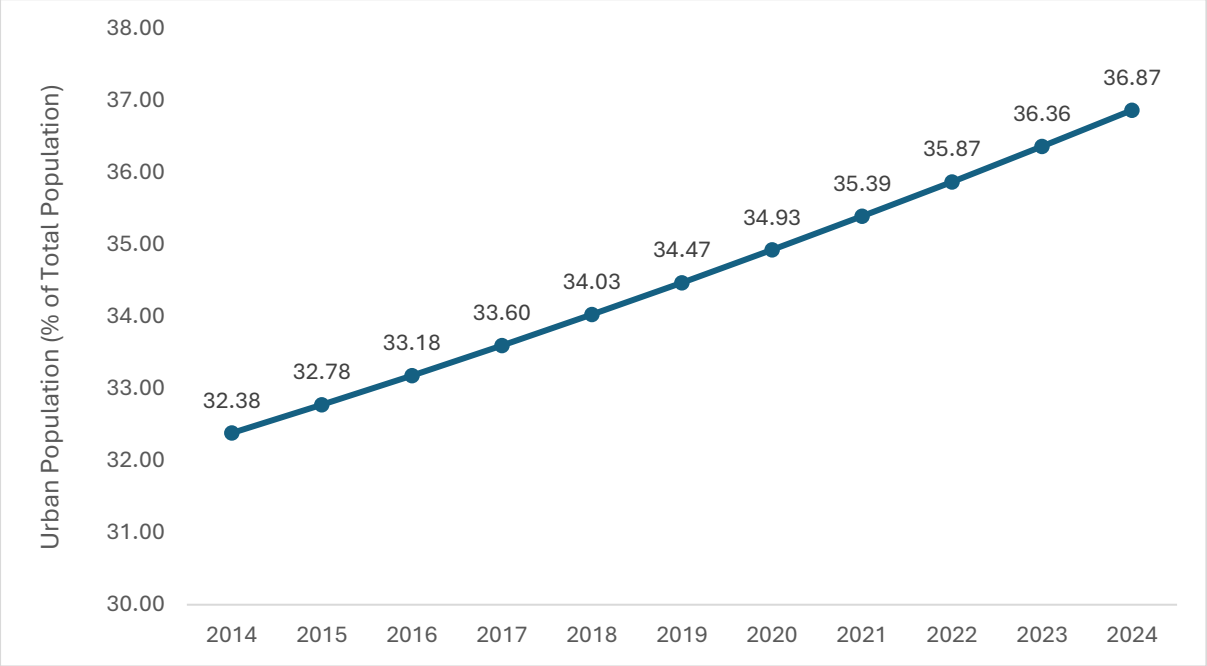
Trend of India Population vis-à-vis dependency ratio



Source: World Bank Database

Urbanization, too, is transforming India's socio-economic fabric. The urban population rose from 424.96 million in 2014 (32.38% of total population) to 522.93 million in 2023 (36.36%), and further to approximately 534.91 million in 2024 (36.87%), according to World Bank estimates. This rapid growth in urban areas underscores the need for sustainable urban planning, investment in infrastructure, and development of smart cities to accommodate and benefit from the shifting population dynamics.

Urbanization Trend in India



Source: World Bank Database, Infomerics Analytics & Research

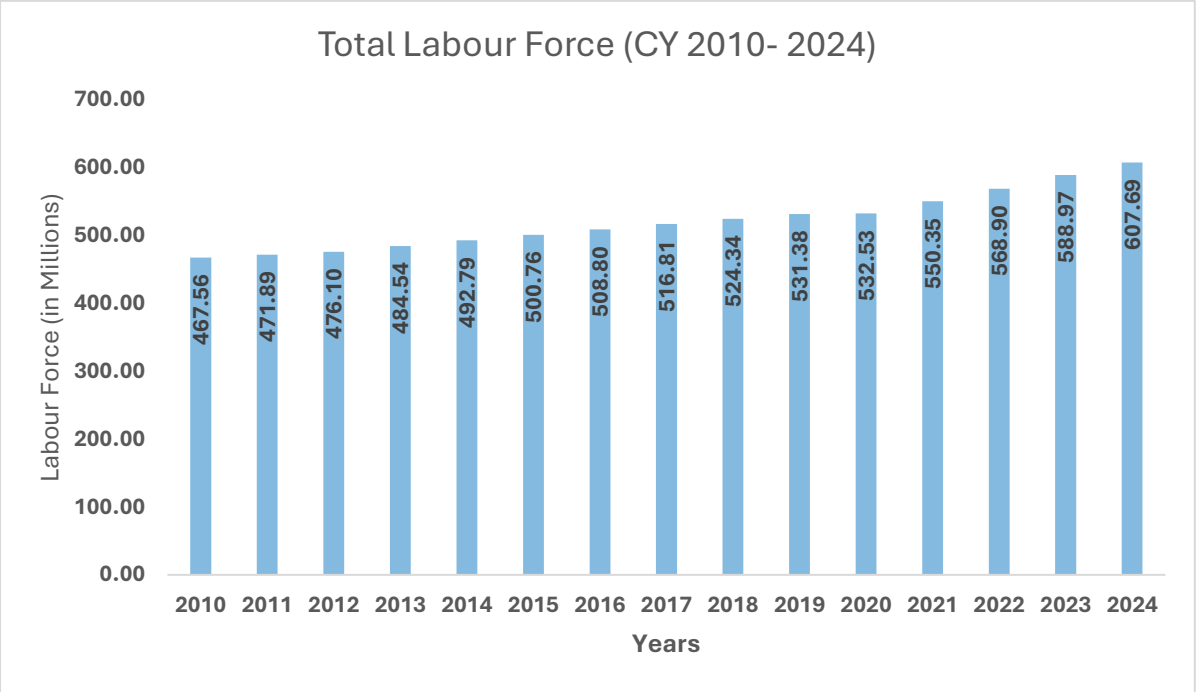
2.7.2 Labour Force in India

India's labour force has experienced significant growth over the past decade. In 2010, the total labour force was approximately 467.56 million. By 2024, this number had increased to 607.69 million, reflecting a Compound Annual Growth Rate (CAGR) of 1.89% over the 14-year period.

This upward trend underscores the expanding working-age population and the country's ongoing economic development. However, it also highlights the need for effective employment policies to ensure that the growing labour force is adequately absorbed into productive sectors.

The labour force participation rate (LFPR) has also seen fluctuations, influenced by various socio-economic factors. As of 2024, the LFPR stood at 45.1%, indicating the percentage of the working-age population that is either employed or actively seeking employment.

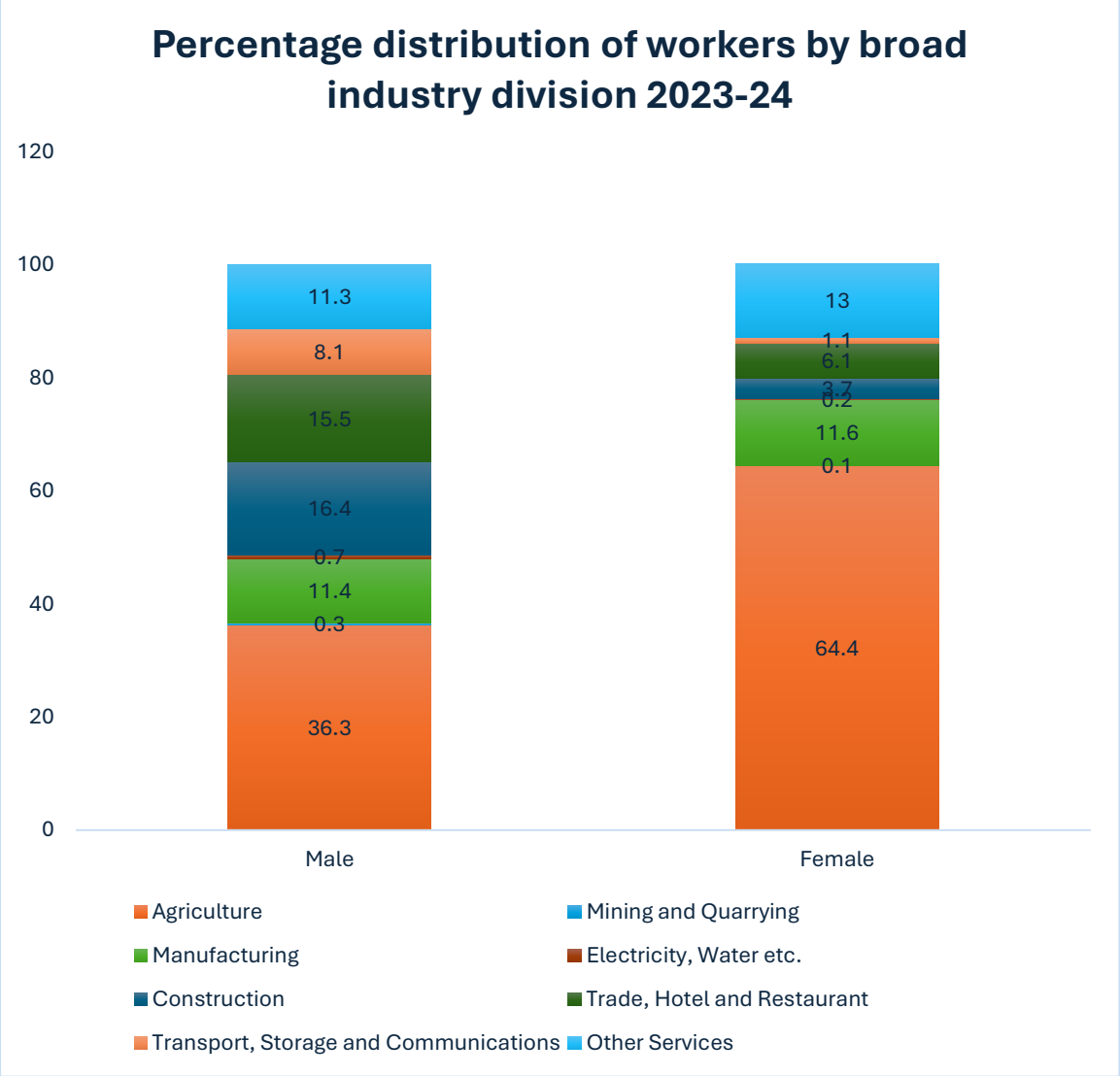
These statistics emphasize the importance of implementing strategies that not only create employment opportunities but also enhance the quality and inclusivity of jobs across different sectors of the economy.



Source: World Bank Database

2.7.3 Breakdown of Employment by Sector

According to the Periodic Labour Force Survey (PLFS) 2023–24, the employment distribution across various sectors exhibits distinct gender-based patterns. A significant portion of male workers are engaged in agriculture, followed by notable participation in construction, manufacturing, and trade-related activities. In contrast, female workers are predominantly employed in agriculture, with considerable involvement in manufacturing and other services sectors. While female representation in trade and construction is lower compared to males, Additionally, a substantial proportion of employed women are self-employed, often contributing as unpaid helpers in household enterprises or operating small businesses, indicating a reliance on informal employment avenues.



Source: Annual Report 2023-24, Periodic Labour Force Survey

2.7.4 Labour Laws in India

Labour is a subject under the Concurrent List of the Indian Constitution, enabling both the Central and State Governments to frame relevant legislation. In a major reform initiative, the Government of India has consolidated 29 existing central labour laws into four comprehensive Labour Codes to simplify compliance, reduce multiplicity of definitions, and promote transparency. These include:

- The Code on Wages, 2019
- The Industrial Relations Code, 2020
- The Code on Social Security, 2020
- The Occupational Safety, Health and Working Conditions Code, 2020

As of 31st December 2024, the Central Government and a majority of States/Union Territories had pre-published draft rules under all four Labour Codes. Regional consultations were held to align state-level rules with the central framework. Once fully implemented, these Codes are expected to harmonize the needs of workers and industry, facilitate ease of doing business, and support employment generation.

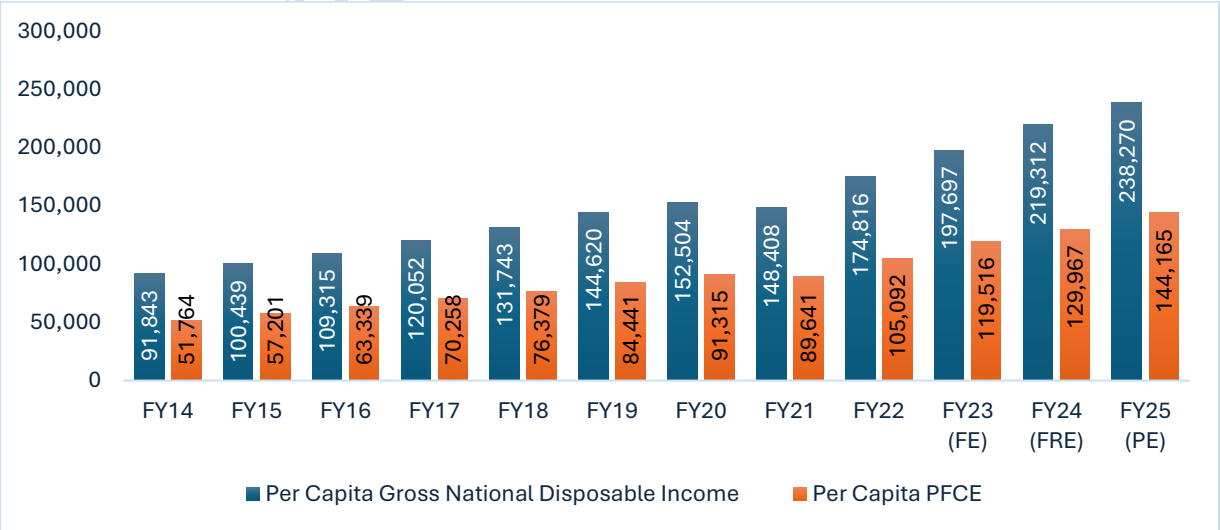
Additionally, the Ministry of Labour & Employment is revamping the Shram Suvidha Portal to improve regulatory compliance and has launched the e-Shram Portal to register workers from the unorganised sector. Over 30 crore registrations have been completed, and the portal has been integrated with 12 key social welfare schemes, enabling targeted delivery of benefits.

2.7.5 Disposable Income and Consumer Spending

Gross National Disposable Income (GNDI) represents the total income available to a nation's residents for consumption and saving after accounting for income transfers with the rest of the world. In FY24, Per capita GNDI grew by 10.9%, followed by a moderate growth of 8.6% in FY25. This steady increase indicates that households and businesses had more income at their disposal, which is critical for supporting both consumption and savings—key components of economic resilience and expansion.

The rise in GNDI has translated into higher consumer spending, as reflected in the growth of Private Final Consumption Expenditure (PFCE), which measures the total value of goods and services consumed by households. Per Capita PFCE grew by 8.7% in FY24 and further accelerated to 10.9% in FY25, highlighting strong consumer confidence and robust domestic demand.

Trend of Per Capita GNDI and Per Capita PFCE (Current Price)



Note: Data mentioned is in Rs. Crore, FE – Final Estimates, FRE – First Revised Estimates, PE – Provisional Estimate; Source: PIB, *Provisional estimates of GDP 2024-25 released on May 30th, 2025*

2.8 Union Budget FY25-26 Highlights

The Union Budget FY 2025–26, presented by Finance Minister Nirmala Sitharaman, introduces a comprehensive set of measures aimed at stimulating economic growth, enhancing infrastructure, and fostering inclusive development. With a focus on sectors such as agriculture, MSMEs, infrastructure, innovation, and exports, the budget seeks to create a conducive environment for sustained economic expansion.

- **Capital Expenditure and Infrastructure Development**
  The government has earmarked a substantial ₹11.21 lakh crore (3.1% of GDP) for capital expenditure in FY 2025–26. This allocation is directed towards infrastructure projects, including rural development, manufacturing, and skill-building initiatives. Notably, the Urban Challenge Fund has been established with a corpus of ₹1 lakh crore, aimed at financing 25% of the cost of bankable urban infrastructure projects, thereby promoting sustainable urban development.
- **Support for MSMEs**
  Recognizing the pivotal role of Micro, Small, and Medium Enterprises (MSMEs) in India's economic landscape, the budget introduces several measures to bolster this sector. The Credit Guarantee cover has been enhanced to ₹10 crore, unlocking ₹1.5 lakh crore in additional funding for MSMEs over the next five years. Additionally, the establishment of a Fund of Funds with a ₹10,000 crore corpus aims to provide equity support to startups and potential MSMEs, focusing on high-growth sectors such as electronics and renewable energy.
- **Tax Reforms and Disposable Income**
  To stimulate consumption and investment, the budget introduces significant tax reforms. The tax-free income threshold has been raised to ₹12 lakh, and the new tax regime offers reduced rates for higher income brackets. These changes are expected to increase disposable income, thereby encouraging higher savings and investment among the middle class.
- **Focus on Agriculture and Exports**
  The budget prioritizes agriculture as a key engine of development, with increased allocations for agricultural credit and initiatives aimed at enhancing productivity. Furthermore, measures to promote exports include the reduction of customs duties on select goods and the introduction of policies to facilitate easier market access for Indian products.
- **Urban Development Initiatives**
  A significant increase in the budget allocation for the Ministry of Housing and Urban Affairs to ₹96,777 crore reflects the government's commitment to urban development. Key initiatives include the establishment of the Urban Challenge Fund, enhanced loans under the PM SVANidhi scheme, and substantial provisions for the Pradhan Mantri Awas Yojana

and Urban Rejuvenation Mission, all aimed at improving urban infrastructure and living standards.

The Union Budget FY 2025–26 presents a balanced approach to economic growth by addressing immediate consumption needs and laying the foundation for long-term sustainability. Through targeted investments in infrastructure, support for MSMEs, tax reforms, and sector-specific initiatives, the budget aims to foster an inclusive and resilient economy. These measures are expected to create new opportunities for financial institutions, as the growing demand for investment products will provide avenues for expansion and innovation in the financial services sector.

2.9 Concluding Remarks about Macroeconomic Scenario

The major headwinds to global economic growth remain significant, with escalating geopolitical tensions, volatile global commodity prices, high interest rates, inflationary pressures, instability in international financial markets, climate change, rising public debt, and the rapid evolution of new technologies. Despite these challenges, India's economy is relatively well-positioned compared to other emerging markets. According to the latest IMF forecast, India's GDP growth is expected to be 6.4% in 2025, maintaining its position as the fastest-growing major economy globally, well above the global growth projection of 3.0%. Key positive factors for the Indian economy include continued strong domestic demand, robust government support for capital expenditure, moderating inflation, growing investments in technology, and improving business confidence.

India's strategic position as a manufacturing hub is further strengthened by government initiatives, a skilled labour force, and a dynamic startup ecosystem, all of which bolster the country's economic outlook. The ongoing reforms and focus on innovation are enabling India to seize emerging opportunities, making it a growing player in the global manufacturing landscape. In addition, several high-frequency growth indicators—such as the Purchasing Managers' Index (PMI), E-way bills, bank credit, toll collections, and GST collections—have shown a positive trajectory in FY25. The normalization of employment post-economic reopening is expected to provide further support to consumption expenditure.

Public investment is also poised to grow, with the government allocating a significant ₹11.21 lakh crore for capital expenditure in FY25. The private sector's investment intentions are showing positive signs, as evidenced by increased new project investments and a strong import of capital goods. Furthermore, rural demand is likely to improve, bolstered by healthy sowing, better reservoir levels, and the positive progress of the southwest monsoon, coupled with the government's push for infrastructure investment and other policy measures. These factors are expected to further support the investment cycle and strengthen India's economic resilience in the coming years.

3. Industry Definition and Scope

The steel pipe and tube industry is a critical segment of the broader steel sector, encompassing the production of pipes and tubes for diverse applications across oil and gas, construction, infrastructure, power, water transportation, automotive, and engineering industries. Steel pipes serve as conduits for fluids and gases, as well as structural applications, offering high strength, durability, and cost efficiency.

The industry is broadly classified into seamless pipes, produced without welding and primarily used in high-pressure and high-temperature environments such as oil and gas exploration, refineries, and power generation; welded pipes, fabricated by welding steel sheets or coils, which include Electric Resistance Welded (ERW) pipes commonly used for water supply, construction, and general engineering, and Submerged Arc Welded (SAW) pipes typically used for larger diameter pipelines, industrial fluid transport, and structural applications; and structural hollow sections or value-added pipes, manufactured by forming and welding steel into hollow or specialized profiles engineered for strength and rigidity, widely used in construction, industrial frameworks, bridges, solar mounting structures, and road safety applications, with demand supported by rising urban infrastructure development.

In India, the steel pipe and tube industry has transitioned from being largely import-dependent to a robust domestic manufacturing ecosystem, supported by integrated steel producers and specialized pipe manufacturers, with growth driven by industrialization, government infrastructure initiatives, oil and gas pipeline expansion, and increasing urban water demand.

Globally, demand for steel pipes is linked to energy infrastructure, industrial expansion, urbanization, and modernization of transmission networks, with rising investment in renewable energy projects, city gas distribution (CGD) networks, and pre-engineered modular construction expected to support steady industry growth. Technological advancements in manufacturing, including automated ERW lines and high-strength seamless production, are enhancing product quality, reducing costs, and meeting stringent safety and durability standards.

The steel pipe and tube industry encompasses both standard and value-added products, serving critical industrial and infrastructure needs, and is positioned for sustained growth in India and globally.

4. Market Segmentation

The Steel Pipes and tubes Industry exhibits a structured and diversified landscape, reflecting variations in manufacturing processes, material specifications, end-use applications, and geographic demand. Segmentation of this sector provides insight into demand drivers, informs capacity planning, and highlights opportunities for value-added products and services.

Category	Sub-Category		Description / Insights
By Product Type	**Welded**		
		Electric Resistance Welded (ERW) Pipes	ERW pipes and tubes, manufactured by cold-forming steel coils and joining the edges through high-frequency electric resistance welding, dominate domestic consumption. They are extensively deployed in structural, water supply, and medium-pressure applications due to their dimensional accuracy, cost efficiency, and adaptability to various coatings such as galvanized or pre-painted finishes.
		Submerged Arc Welded (SAW) Pipes	SAW pipes, produced by forming and welding steel plates with a submerged arc process, are preferred for high-pressure transmission and long-distance pipelines used in oil, gas, and water conveyance systems.
	Seamless Pipes and Tubes		Seamless pipes, on the other hand, are manufactured through extrusion or rotary piercing of solid billets, creating a homogeneous, weld-free product suitable for high-temperature and high-stress applications such as refineries, power plants, and petrochemical installations.
	Structural Hollow Sections / Value-Added Pipes		Manufactured by forming and welding steel into hollow or specialized profiles; engineered for strength and rigidity. Used in construction, industrial frameworks, bridges, solar mounting structures, and road safety applications.

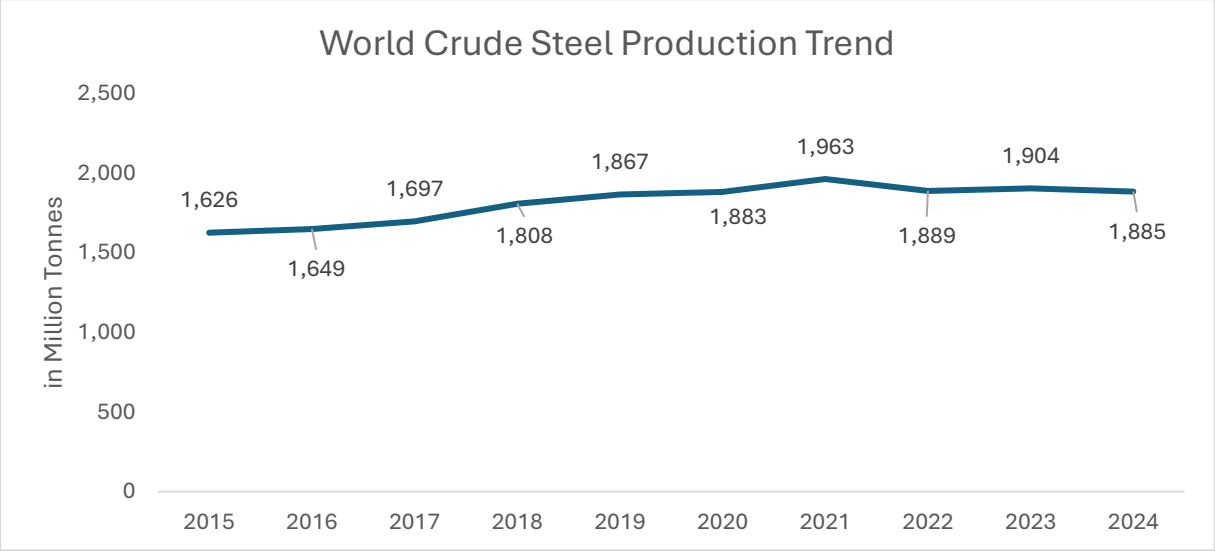
		Demand supported by rising urban infrastructure.
By End-Use Industry	**Infrastructure & Construction**	Demand driven by residential, commercial, bridges, metro, and highway projects.
	Water Supply & Sanitation	Demand driven by rural and urban water distribution, irrigation schemes, and government initiatives (e.g., Jal Jeevan Mission. ERW and galvanized pipes dominate this segment.
	Oil & Gas	Demand driven by transmission pipelines, refineries, and storage facilities. SAW and alloyed pipes used extensively.
	Industrial & Manufacturing	Demand driven by power generation, petrochemical plants, process industries, and automobile manufacturing. Seamless pipes and specialized alloys dominate.
	Other Applications	Includes renewable energy structures, telecommunications, fencing, furniture, and agricultural use.
By Material Type	**Mild Steel (MS)**	Cost-effective, versatile, weldable; used in structural frameworks, scaffolding, and general industrial applications. MS accounts for the bulk of domestic pipe production.
	Galvanized Steel	Zinc-coated for enhanced corrosion resistance; used in water pipelines, irrigation, outdoor construction, and agricultural infrastructure.
	Alloyed / Specialty Steel	High-strength, corrosion-resistant, or heat-resistant alloys; used in oil & gas pipelines, high-pressure industrial applications, and petrochemical infrastructure.
By Geography	**Domestic Regions**	Concentrated in industrial clusters such as Haryana, Maharashtra, Gujarat, Madhya Pradesh, and Tamil Nadu; demand driven by construction growth, urban/rural infrastructure schemes, and industrial corridors.

	Export Markets	Growing exports to Southeast Asia, Middle East, Africa, and select European regions; driven by competitive pricing, adherence to international quality standards, and trade partnerships. Finished steel exports were 4.858 MT in 2024–25.
By Manufacturing Process / Technology	**Cold-Formed Pipes**	Cost-efficient, precise dimensions; primarily used in ERW and structural tubes; supports domestic construction and water supply sectors.
	High-Frequency Welded	Provides superior joint strength; widely used in industrial pipelines and building frameworks.
	Submerged Arc Welded	Handles high-pressure and long-distance applications; used in oil, gas, and power transmission pipelines.
	Seamless / Extruded	Weld-free, capable of withstanding high stress and temperature; used in critical industrial, petrochemical, and automotive applications.

5. Global and Indian Industry Outlook

5.1 Global Steel Industry

The global steel industry is a mature, yet steadily expanding market, shaped by cyclical industrial demand and long-term infrastructure growth. Global crude steel production reached 1,885 million tonnes in CY2024, reflecting a compound annual growth rate (CAGR) of approximately 1.65% between 2015 and 2024. Leading producers include China, India, Japan, the United States, and Russia, collectively accounting for most of the global output.



Source: *World Steel Association (June 2025), Infomerics Analytics & Research.*

Sustainability and Operational Performance

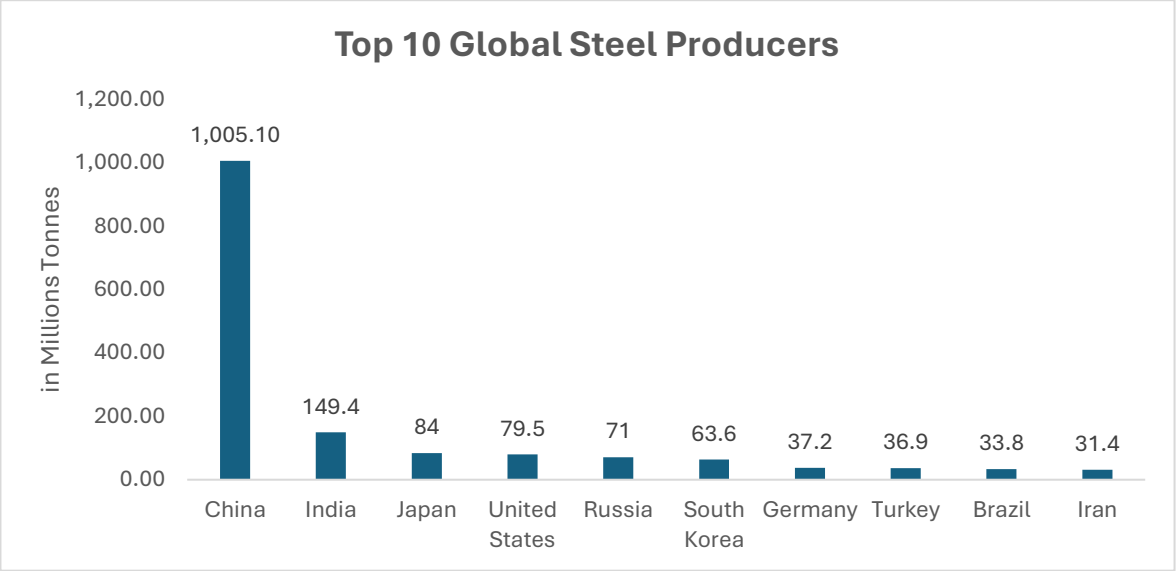
The steel industry has demonstrated significant progress in sustainability, encompassing environmental, social, and economic dimensions. Key performance indicators for 2023–24 include:

- **CO_2 Emissions Intensity:** 1.92 tonnes CO_2 per tonne of crude steel cast.
- **Energy Intensity:** 21.27 GJ per tonne of crude steel cast
- **Material Efficiency:** 98.15% of raw materials converted into steel products or co-products
- **Environmental Management:** 94.81% of employees working in EMS-registered facilities
- **Workplace Safety:** 0.70 injuries per million hours worked
- **Training:** 8.90 days per employee per year
- **Investment in Innovation:** 7.25% of revenue allocated to new products and processes
- **Economic Value Distribution:** 98.82% of revenue returned to society

These metrics highlight the industry's focus on energy efficiency, environmental stewardship, workforce safety, and social responsibility.

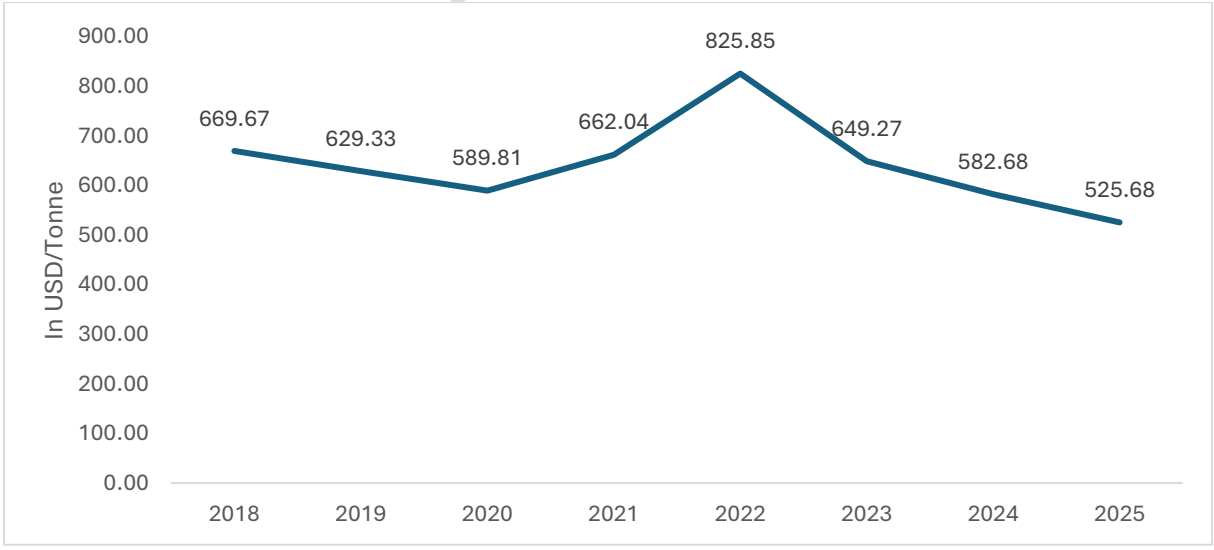
Global Leading Producers

Global crude steel production trends reflect steady expansion, driven by industrialization in emerging economies and infrastructure investment in developed markets. Production data (million tonnes) are as follows:



Source: *World Steel Association (June 2025), Infomerics Analytics & Research.*
Note: The Data is as per CY-2024.CY denotes Calendar Year

Global Steel Prices Trend:

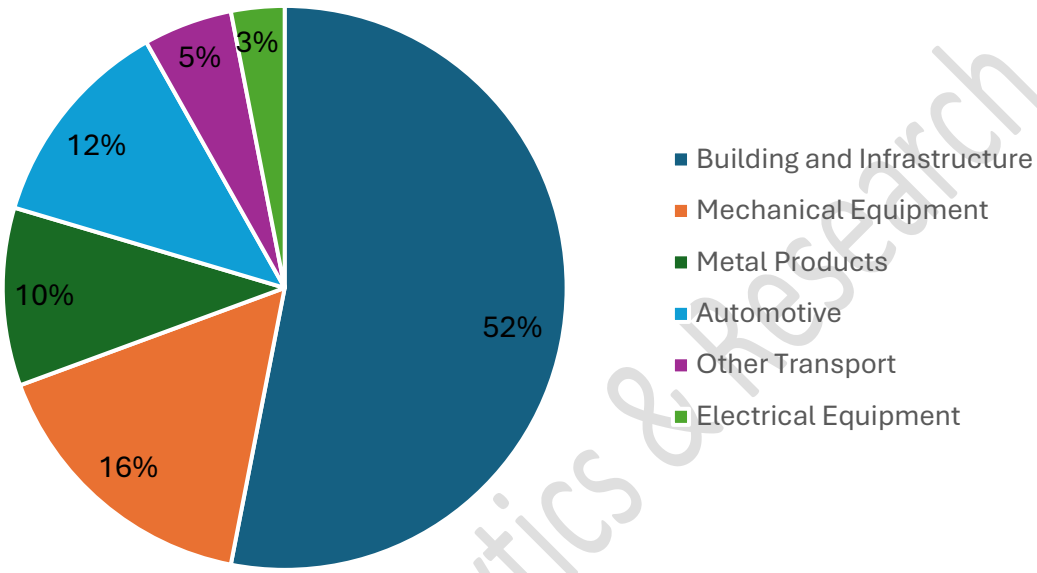


Source: *World Steel Association (June 2025), Infomerics Analytics & Research.*

Global finished steel prices have shown cyclical movement between 2018 and 2025, reflecting fluctuations in global demand, input costs, and supply chain conditions. Prices declined from USD 669.67 per tonne in 2018 to USD 589.81 per tonne in 2020 due to weak industrial activity, before rebounding sharply to USD 825.85 per tonne in 2022 on account of post-pandemic

recovery and supply disruptions. Thereafter, prices moderated to USD 649.27 per tonne in 2023 and USD 582.68 per tonne in 2024, with a further softening projected to USD 525.68 per tonne in 2025, in line with normalization of global trade and easing raw material prices.

Steel Consumption by Sector



Source: *World Steel Association (June 2025), Infomerics Analytics & Research.*

Steel consumption is closely linked to downstream industries such as construction, mechanical equipment, automotive, and other specialized sectors. Building and infrastructure, which accounts for the largest share of global steel demand, steel is used extensively in residential, commercial, and industrial projects, as well as bridges, ports, and metro systems. Mechanical equipment and automotive sectors drive demand for high-strength, durable components, including machinery, vehicles, and heavy equipment. Other sectors—including metal products, other transport, electrical equipment, and domestic appliances—also contribute, with steel used in consumer goods, transformers, specialty components, and high-performance industrial and defence applications.

Trade and Market Dynamics-Steel

Global steel exports reached 422.7 MT in CY 2024, highlighting significant trade flows from leading producers to consumption markets.

Top Importers and Exporters

Country/Region	Exports (MT)	Country/Region	Imports (MT)
China	117.1	EU (27)	42.8
Japan	31.2	United States	27.3
South Korea	28.0	Turkey	19.7
EU (27)	27.8	Italy	18.5
Germany	22.6	Germany	18.3

Source: *World Steel Association (June 2025), Infomerics Analytics & Research.*

Trade patterns reflect global interdependencies, with high-volume producers catering to consumption-intensive regions.

Raw Materials and Strategic Production

In steelmaking, Direct Reduced Iron (DRI) is a premium iron material produced from iron ore through a non-melting process. Its form enables direct incorporation into steel furnaces, improving process efficiency and control over steel composition. In 2024, global DRI production reached 144.1 million tonnes, with India contributing 54.8 MT and Iran 34.1 MT, making them the largest producers worldwide. These raw materials underpin both high-volume and value-added steel production, including low-carbon routes and specialty products.

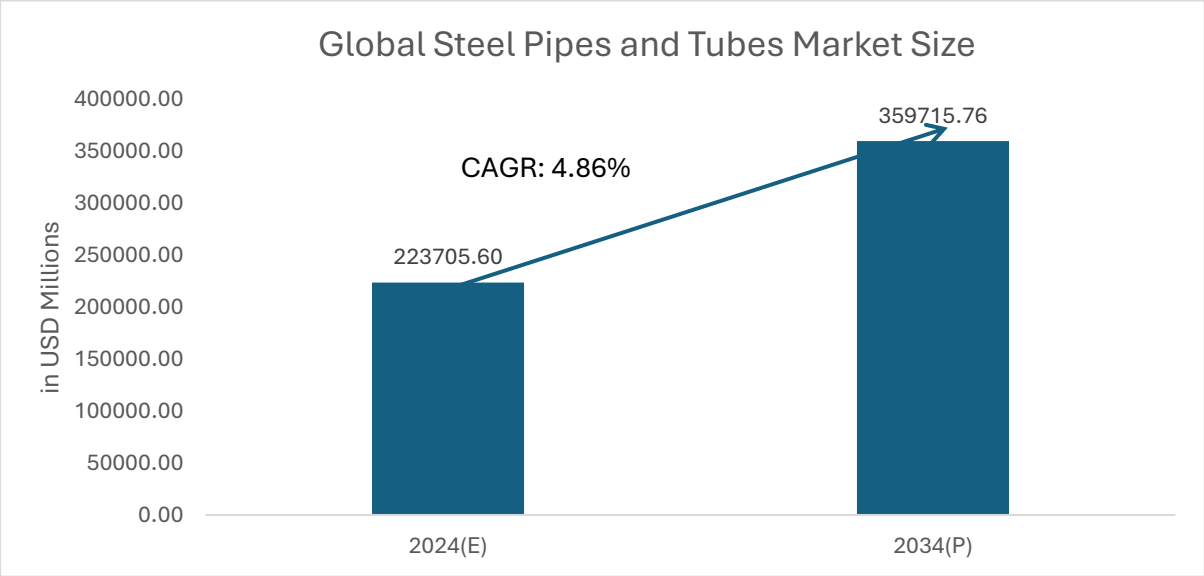
The global steel industry operates within a framework of sustained production growth, evolving sustainability standards, and diversified consumption across downstream industries. Asia-Pacific remains the dominant production and consumption region, with China and India leading global output. Trade, raw material security, and technological innovations continue to shape the competitive landscape, while sustainability initiatives underscore the industry's commitment to environmental, social, and economic performance.

5.2 Global Steel Pipes and Tubes Industry

The global steel pipes and tubes industry has exhibited steady growth, supported by consistent demand from infrastructure development, industrial expansion, and energy transportation networks. Production remains geographically concentrated, with China, India, and Japan collectively accounting for a significant share of both seamless and Electric Resistance Welded (ERW) pipe output. The market structure is characterized by scale-driven competitiveness, technological specialization, and the presence of large integrated manufacturers catering to diverse regional and application-specific needs.

Global Market Overview

The global steel pipes and tubes market is estimated at USD 223,705.60 million in 2024 and is projected to reach USD 359,715.76 million by 2034, reflecting a CAGR of 4.86%. The market continues to exhibit resilience amid cyclical raw material fluctuations and changing energy dynamics. Growth is primarily supported by demand from sectors including construction, water management, power generation, oil and gas transmission, and renewable energy.

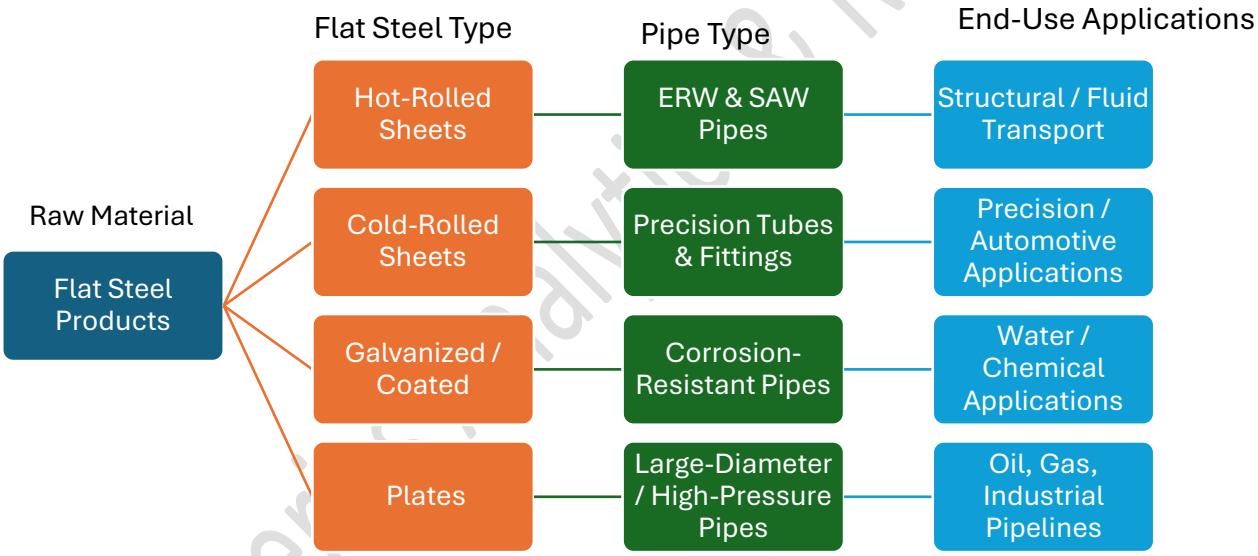


Source: Infomerics Analytics & Research

The overall industry trend reflects a gradual shift toward high-performance and sustainable products, with manufacturers investing in advanced coating technologies, improved metallurgy, and automated production lines. Value-added segments, while representing a smaller volume share, are expanding faster due to higher profitability and alignment with international quality and environmental standards

Raw Material Linkages in Steel Tubes and Fittings

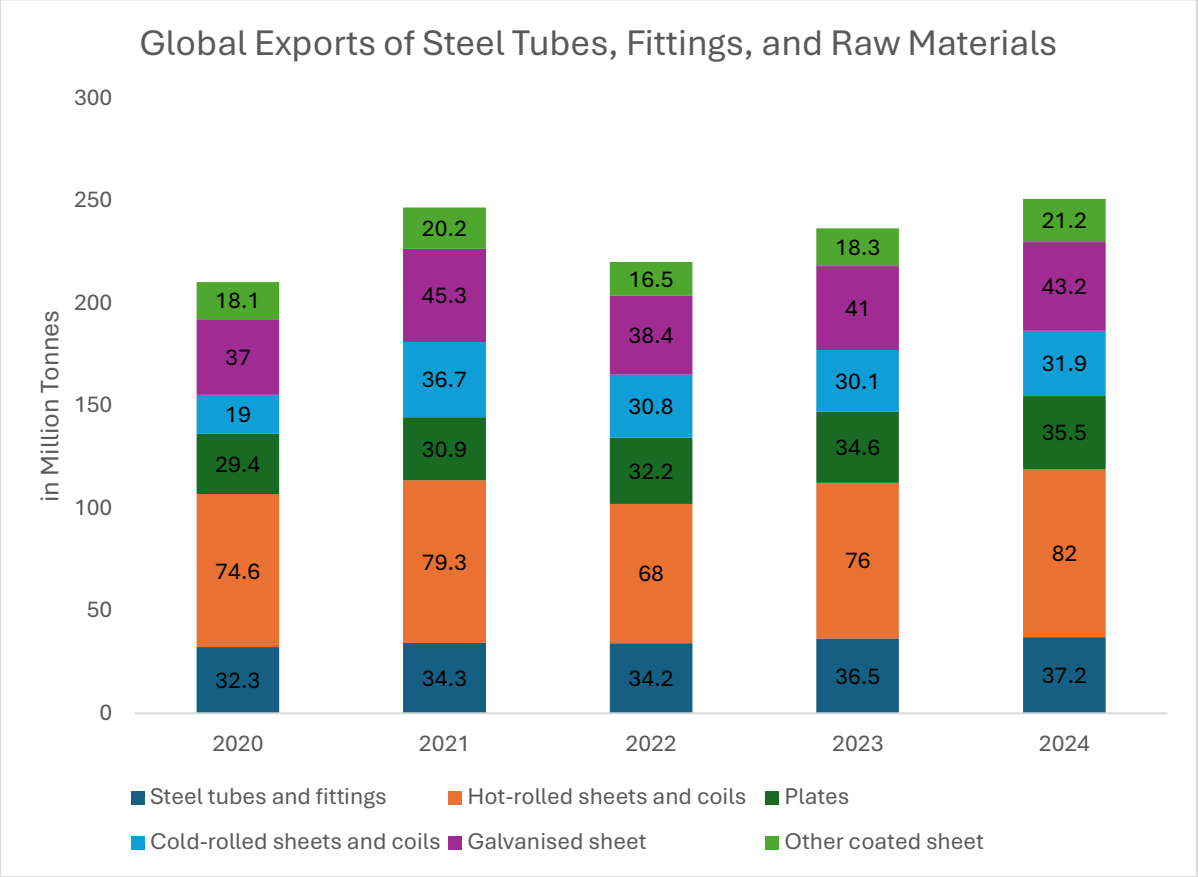
Steel tubes and fittings rely heavily on upstream flat steel products, which form the primary raw material for their manufacture. Hot-rolled sheets and coils provide the bulk material for ERW and SAW pipes, offering the necessary thickness and strength for structural and fluid transport applications. Plates, with their higher gauge and mechanical properties, are essential for producing large-diameter and high-pressure pipes, particularly for oil, gas, and industrial pipelines. Cold-rolled sheets contribute to precision applications requiring tight dimensional tolerances, while galvanized and other coated sheets enhance corrosion resistance, extending the service life of tubes and fittings in outdoor, water, and chemical environments. Collectively, these flat steel products underpin the quality, performance, and versatility of steel tubes and fittings across infrastructure, industrial, energy, and automotive sectors



Global Trade- Steel Pipes and Tubes

The steel pipes and tubes trade ecosystem remains globally integrated, balancing regional disparities in supply and demand through sustained export flows. China, Japan, South Korea, and India collectively account for a substantial share of global exports, while Southeast Asia, the Middle East, Europe, and North America serve as major import destinations. Developing economies exhibit strong demand driven by industrialization and infrastructure expansion, whereas mature markets focus on replacement cycles and technology-intensive applications in energy and utilities.

Export competitiveness is increasingly influenced by product certification and adherence to international technical standards such as ASTM, API, and EN, alongside compliance with sustainability requirements and carbon-footprint monitoring across the value chain. Cost efficiency is further enhanced by logistical integration and port connectivity, which remain decisive factors in maintaining trade margins.



Source: World Steel Association (June 2025), Infomerics Analytics & Research

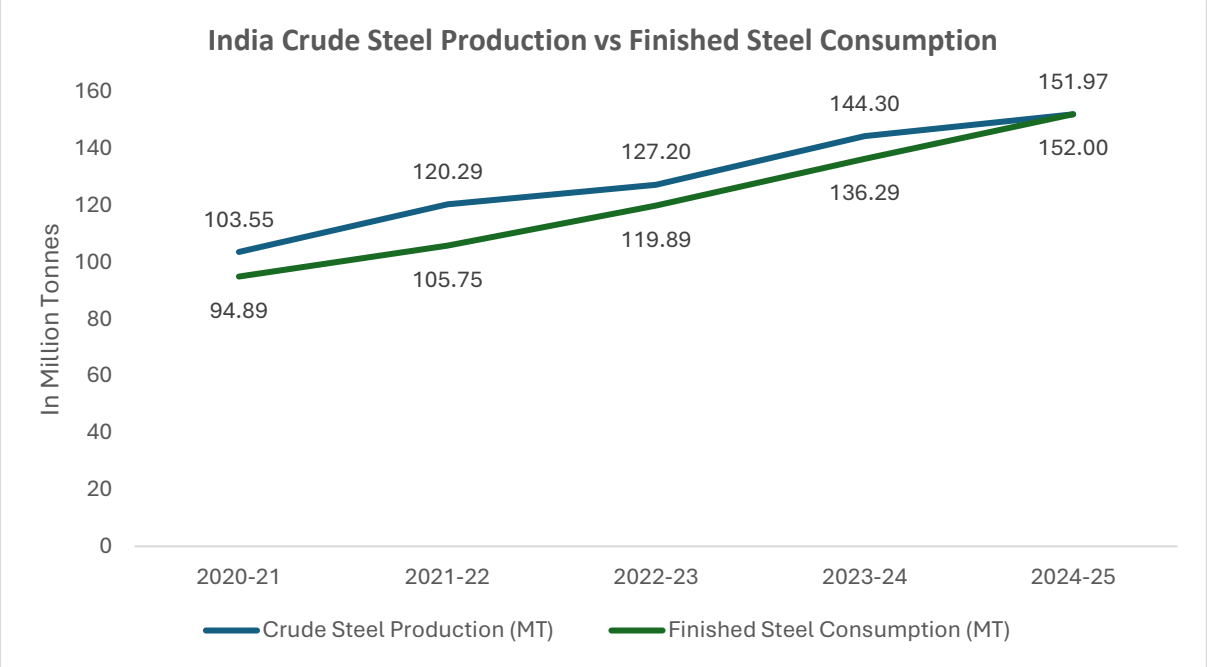
Despite moderate protectionist trends and raw material price volatility, global trade flows in steel pipes and tubes have remained relatively stable, reflecting the sector's structural role within industrial and infrastructure supply chains. Export data from CY2020 to CY2024 (see accompanying graph) illustrate a gradual recovery across steel tubes and fittings, as well as related flat steel products. Notably, hot-rolled sheets, galvanized sheets, and plates demonstrate parallel upward trends, underscoring the interdependence of upstream and downstream segments in the global steel value chain.

5.3. Indian Steel Industry

India is the second-largest producer of crude steel globally, with output of 144.30 MT in FY24. Crude steel production is expected to reach approximately 152 MT in FY25 (Apr–Dec provisional), driven by consistent year-on-year growth of 5.3–6.8% across steel sub-segments. Domestic steel consumption remains closely linked to GDP growth and infrastructure development, with demand supported by urbanization, metro rail projects, industrial corridors, and large-scale government initiatives, including Smart Cities and Dedicated Freight Corridors (DFC).

Steel production in India has expanded steadily over the last decade. Crude steel output rose from 109.14 MT in FY20 to 144.30 MT in FY24, while finished steel production increased from 103.20 MT to 138.50 MT over the same period. Domestic consumption of finished steel stood at 136.29 MT in FY24, with a projected growth of 9–10% year-on-year, as per IBEF. Per-capita steel consumption rose to 97.7 kg in FY24, highlighting significant untapped potential relative to global benchmarks.

Production and Consumption Trends



Source: *CMIE Outlook; Infomerics Analytics & Research*

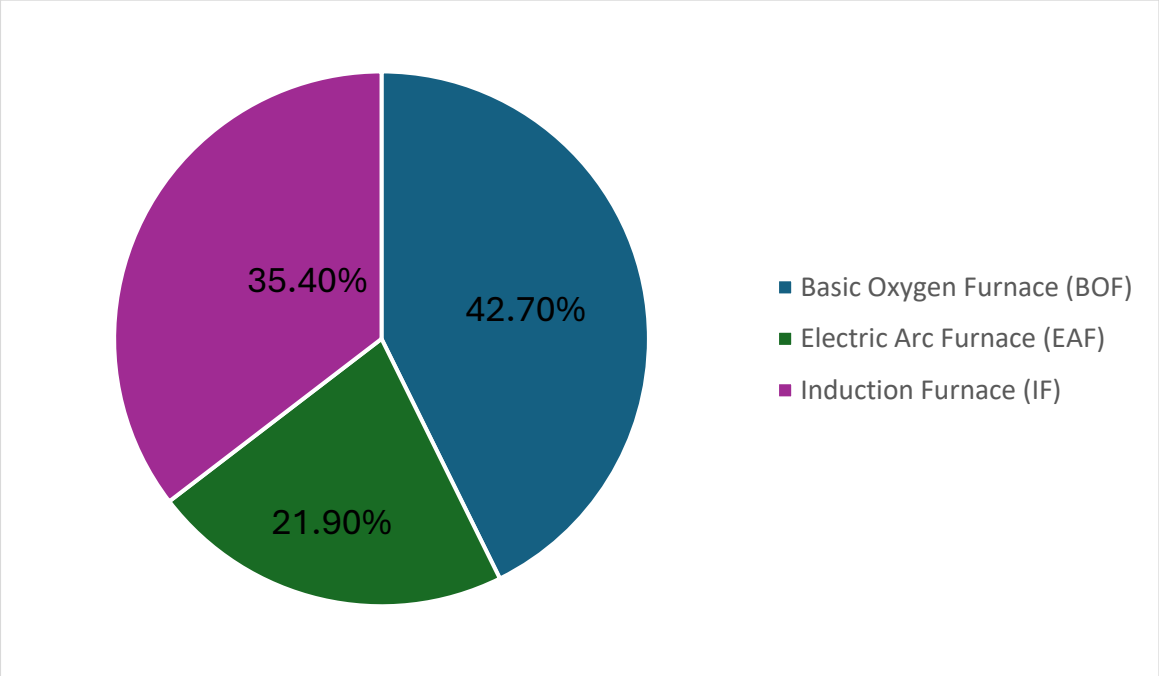
India's crude steel production and finished steel consumption have demonstrated consistent year-on-year growth from FY21 to FY25, reflecting a robust and expanding steel industry. In FY25, finished steel consumption (152.00 MT) slightly exceeded crude steel production (151.97 MT), indicating a balanced supply-demand scenario with efficient utilization of domestic output and potential reliance on inventory. This growth is driven by infrastructure development, urbanization, and government initiatives such as Smart Cities and Dedicated

Freight Corridors, while supportive policies like the National Steel Policy 2017, targeting 300 MTPA crude steel capacity by 2030–31, are expected to further sustain production and consumption

Raw Material Availability

The Indian steel sector benefits from abundant raw material availability, cost-effective labour, and modernization of mills. Iron ore production reached 275 MT in FY24, while coal-based sponge iron production accounted for a significant portion of total output. India possesses the fifth-largest iron ore reserves globally, providing a cost advantage for domestic steel manufacturing.

Crude Steel Production by Furnace Type

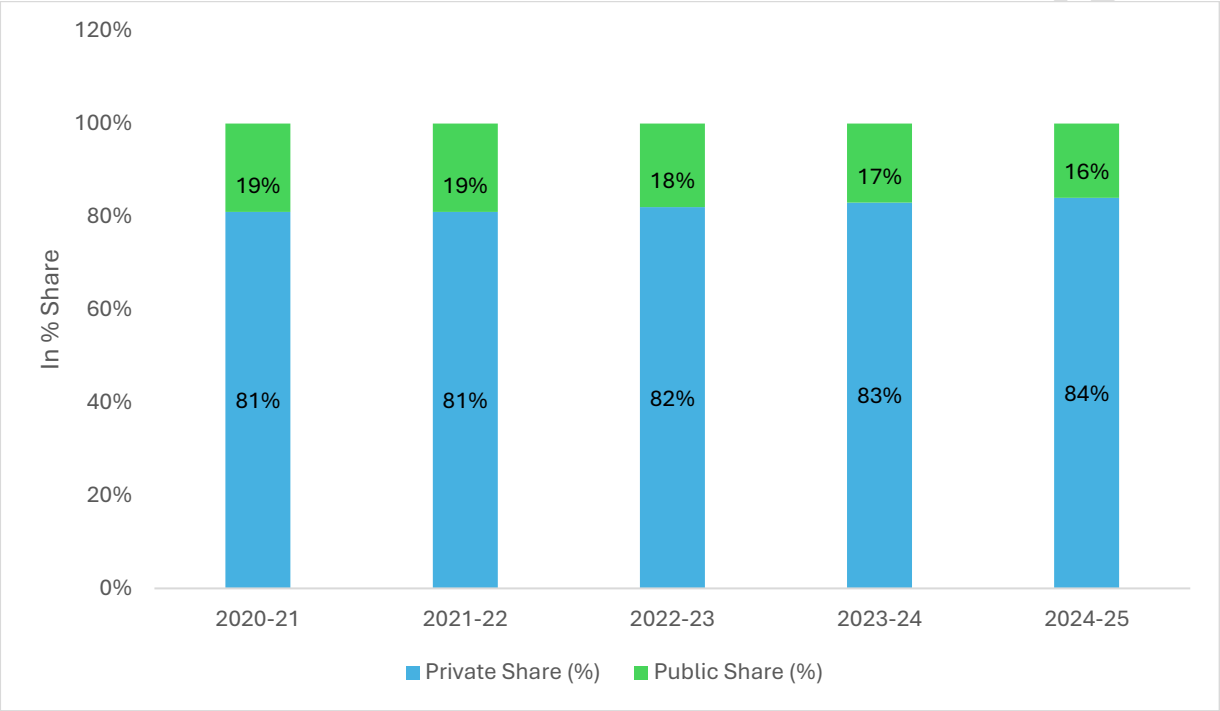


Source: Government of India, Ministry of Steel, Annual Report 2024-25.

In FY2023–24, the Basic Oxygen Furnace (BOF) route accounted for 42.7% of India's crude steel production. BOFs are predominantly used in large integrated steel plants, where molten iron from blast furnaces is converted into steel, supporting high-capacity production and large-scale infrastructure and industrial demand. The Electric Arc Furnace (EAF) route contributed 21.9% of crude steel output and primarily utilizes scrap steel as input, providing flexibility and energy efficiency; this technology is widely employed by mini steel plants, enabling cost-effective production cycles and supporting steel recycling. Induction Furnaces (IFs) accounted for 35.4% of total production and are small-batch furnaces commonly used in mini steel plants and foundries to produce customized steel grades. While lower in scale compared to BOFs and EAFs, IFs are significant for meeting domestic demand for specialty and alloy steels.

The distribution of furnace types demonstrates a balanced mix between traditional integrated production (BOF), modern scrap-based production (EAF), and small-scale induction-based operations (IF), allowing India to efficiently meet domestic demand while maintaining production flexibility, cost competitiveness, and optimal resource utilization.

Sector Contribution in Crude Steel Production: Private vs Public



Source: *CMIE Outlook; Infomerics Analytics & Research*

India's crude steel production structure from FY2021 to FY2025 reflects a clear shift toward private sector dominance. Total output increased from 103.55 MT in FY2021 to 144.30 MT in FY2024, before moderating to 112.01 MT in FY2025 (Provisional; Apr–Dec 2024–25). The private sector's contribution rose from 84.03 MT to 94.46 MT over this period, with its share increasing from 81% to 84%, highlighting growing operational scale and efficiency across integrated and secondary producers. Public sector undertakings—primarily SAIL, RINL, and NMDC—maintained a 16–19% share, producing 17.55 MT in FY2025 (Provisional), and continue to play a strategic role in ensuring supply stability, supporting infrastructure demand, and sustaining export potential. Overall, the period underscores a market-driven production landscape, with private participation expanding capacity and efficiency, complemented by the public sector's stabilizing role in meeting domestic steel demand and long-term infrastructure priorities.

Production, Trade, and Consumption Trends

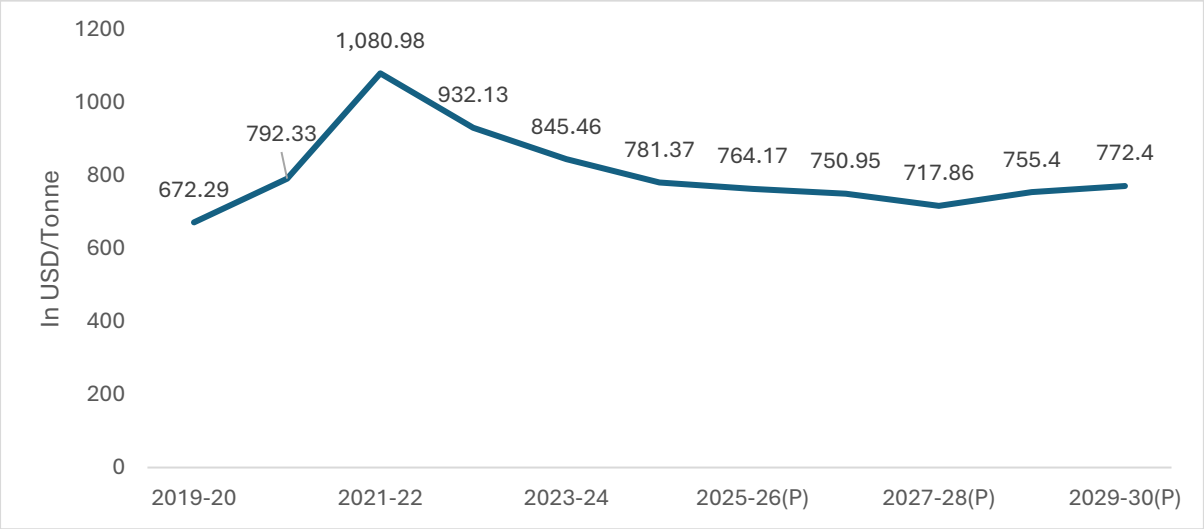
The table below presents key industry production and trade metrics for the steel sector, including crude steel production, finished steel production, imports and exports of finished steel, opening and closing stock levels, and apparent consumption, measured in million tonnes (MT), for the relevant fiscal years.

Fiscal Year	Crude Steel Production (MT)	Finished Steel Production (MT)	Imports Finished Steel (MT)	Exports Finished Steel (MT)	Finished Steel Opening Stock	Finished Steel Closing Stock	Apparent/Final Consumption (MT)
FY21	103.55	96.20	4.75	10.78	13.23	8.64	94.89
FY22	120.29	113.60	4.67	13.49	8.64	7.99	105.75
FY23	127.20	123.20	6.02	6.72	7.99	9.71	119.89
FY24	144.30	139.15	8.32	7.49	9.71	14.29	136.29
FY25	151.97	146.56	9.55	4.86	14.29	13.54	152.00

Source: *CMIE Outlook; Infomerics Analytics & Research*

The Indian finished steel industry recorded sustained expansion over FY2021–25, reflecting strengthening domestic demand and consistent capacity augmentation. Finished steel production increased from 96.20 MT in FY21 to 146.56 MT in FY25 (Provisional; Apr–Dec 2025), registering a CAGR of approximately 11.0%, supported by higher crude steel availability and operational efficiencies across integrated and secondary producers. Apparent domestic consumption rose from 94.89 MT to 152.00 MT during the same period, reflecting a CAGR of about 12.4%, underscoring robust demand growth across infrastructure, construction, engineering, and capital goods sectors. Imports increased from 4.75 MT to 9.55 MT, indicating greater inflow of specialized or value-added grades, while exports moderated from 10.78 MT to 4.86 MT, reflecting stronger domestic absorption. Inventory levels remained stable, with closing stock at 13.54 MT in FY25 (Provisional), indicating a balanced supply–demand structure. Overall, the sector exhibits stable growth, improved domestic market integration, and a resilient production-consumption equilibrium, supported by infrastructure investment, industrial expansion, and modernization of steelmaking capacity.

Indian Steel Prices Trend:



Source: *CMIE Outlook; Infomerics Analytics & Research*

Domestic finished steel prices in India have demonstrated cyclical movements over the past decade, rising sharply from USD 672.29 per tonne in FY 2019-20 to a peak of USD 1,080.98 per tonne in FY 2021-22 before moderating to USD 781.37 per tonne in FY 2024-25. Prices are projected to stabilize within the range of USD 717.86–772.40 per tonne through FY 2029-30, reflecting normalization in global supply chains, steady input cost trends, and sustained domestic demand from infrastructure and manufacturing sectors.

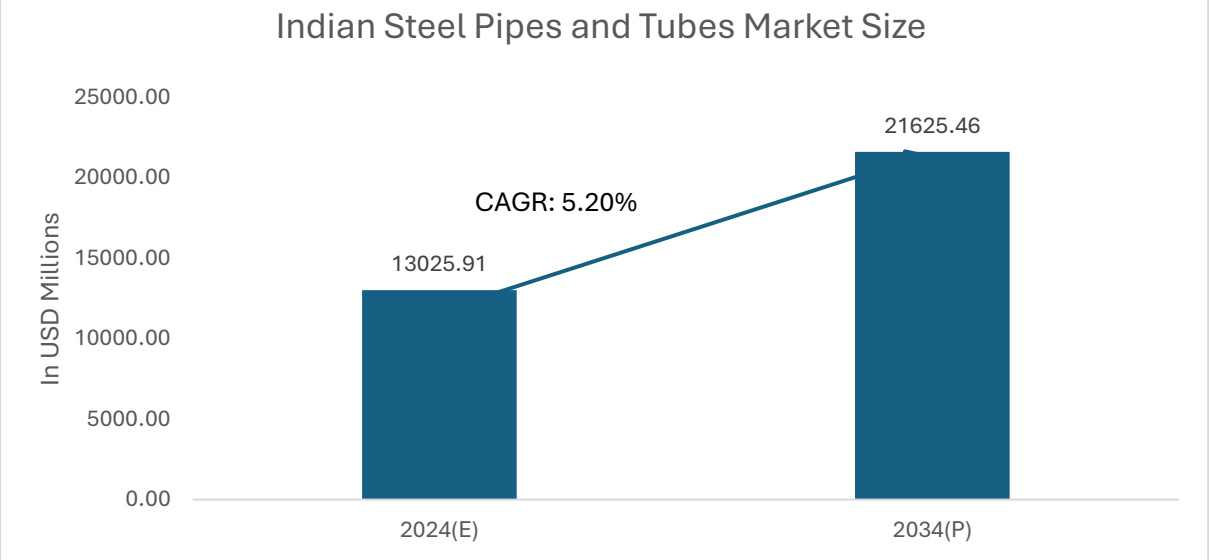
India's steel industry is poised for sustained growth, driven by infrastructure expansion across transport, industrial, and energy sectors and rising domestic consumption. Per-capita steel use is projected to reach 160 kg by 2030–31, highlighting significant latent demand. These structural drivers strengthen India's position as a leading global producer and support a growing downstream ecosystem—particularly in steel pipes and tubes vital to industrial, infrastructure, and urban development—providing the context for the following section on market dynamics and growth potential.

5.4. Indian Steel Pipe and Tubes Industry

The Indian steel pipes and tubes industry is a key downstream segment of the steel value chain, serving diverse sectors including infrastructure, oil & gas, automotive, power, water supply, and general engineering. The sector plays a strategic role, supporting core domestic industries while contributing to India's export basket. Steel pipes and tubes form the vital link between primary steel production and downstream industrial applications, reinforcing India's position as both a domestic infrastructure powerhouse and a growing global manufacturing hub.

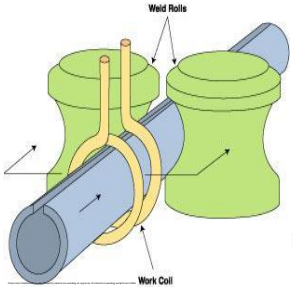
Indian Market Overview

The Indian steel pipes and tubes market was estimated at USD 13025.91 million in 2024 and is projected to reach approximately USD 21625.46 million by 2034, reflecting a compound annual growth rate (CAGR) of 5.20% over the period. This trajectory underscores sustained domestic demand momentum and increasing export integration.

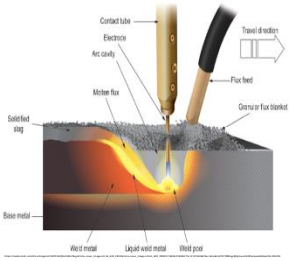


Source: Infomerics Analytics & Research

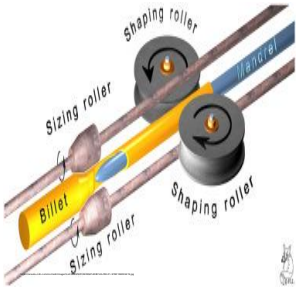
India ranks among the world's largest producers and consumers of steel pipes and tubes. Government infrastructure projects continue to drive demand, particularly in urban water supply, energy, and industrial sectors. Additional capacity expansions in domestic manufacturing units are underway to meet growing demand from core sectors and exports. Utility upgrades and modernization programs have accelerated the adoption of advanced ERW and SAW pipes across urban and rural regions. Rising export orders for premium steel tubes indicate increased competitiveness of Indian manufacturers in global markets. Aligned manufacturing initiatives focusing on product differentiation and value-added solutions are enhancing domestic and international market penetration. Vendor partnerships and consolidation strategies are improving supply chain efficiency, ensuring consistent quality and timely delivery.



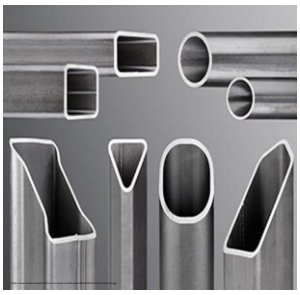
Electric Resistance Welded (ERW)



Submerged Arc Welded (SAW)



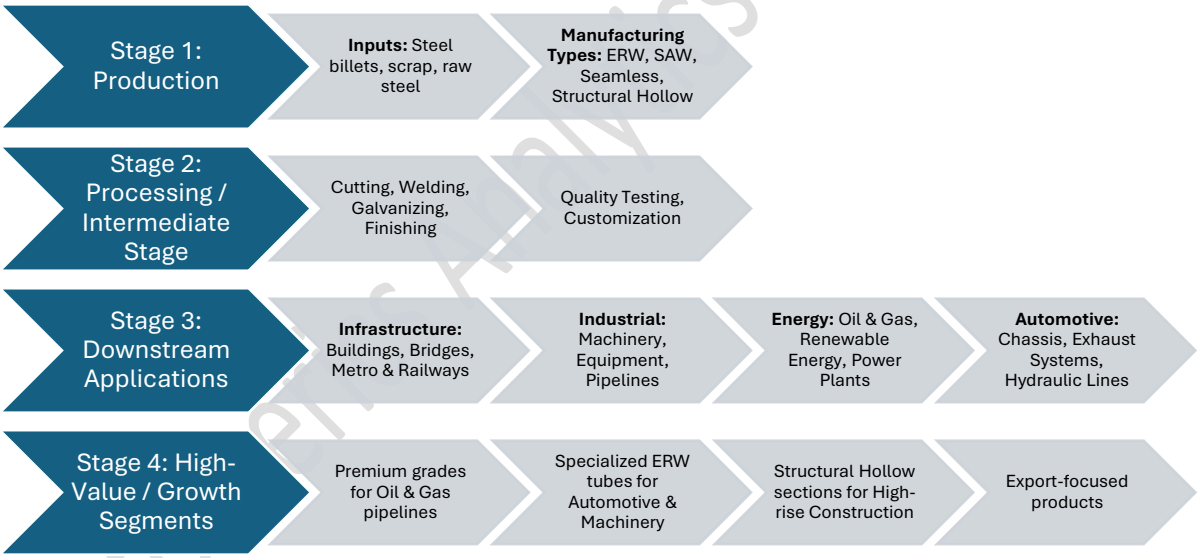
Seamless pipes



Structural Hollow Sections

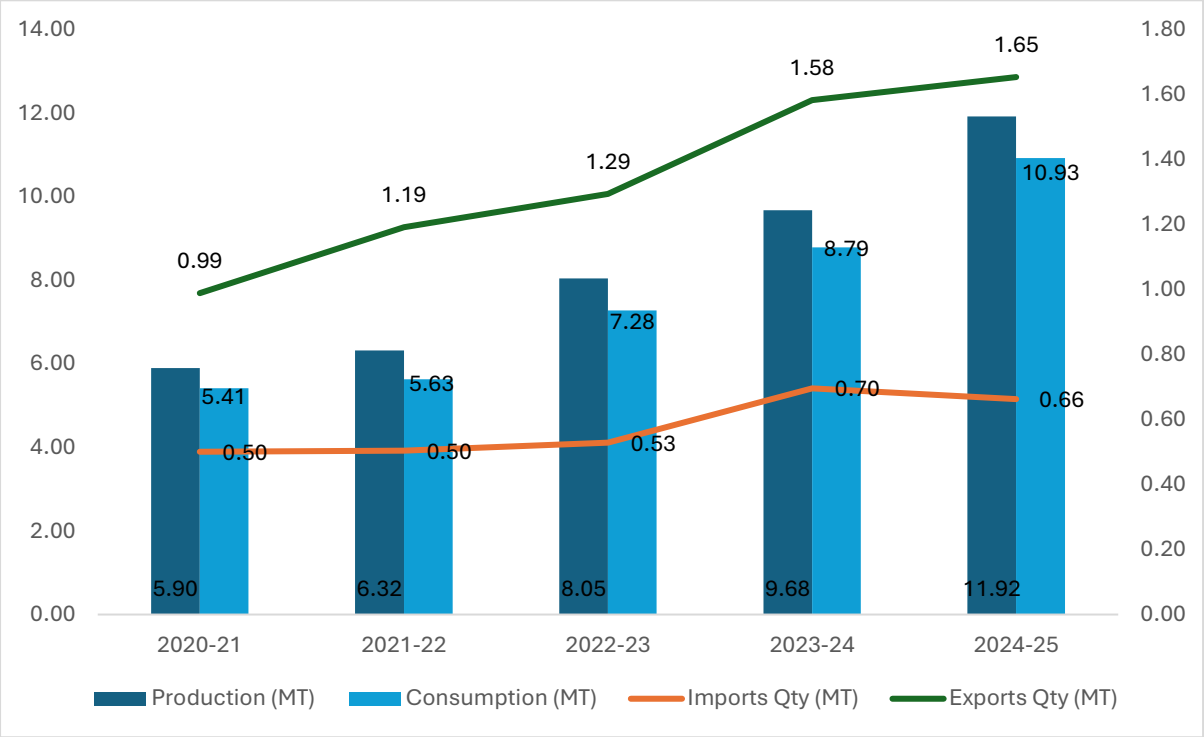
ERW pipes dominate in volume due to cost efficiency and extensive use in water supply, agriculture, and construction, reflecting their cost efficiency and scalability. SAW and seamless pipes, though lower in tonnage, cater to high-value, high-pressure applications in oil & gas, petrochemicals, and power generation. Structural hollow sections are increasingly adopted in modern construction and industrial frameworks, highlighting the sector's capability to serve both commodity-grade and specialized markets.

Value Chain Analysis- Steel Pipes and Industry:



The steel pipes and tubes industry value chain spans from raw material production to high-value, specialized applications. Steel billets, scrap, and raw steel are transformed into ERW, SAW, Seamless, and Structural Hollow pipes, forming the base material for further processing. Products then undergo cutting, welding, galvanizing, finishing, and quality testing, with customization and adherence to standards enhancing performance and durability. These pipes and tubes serve diverse downstream sectors including infrastructure, industrial machinery, energy, and automotive applications. The high-value segment focuses on premium oil and gas pipes, specialized ERW tubes, structural hollow sections for high-rise construction, and export-oriented products, reflecting the industry's move toward product differentiation and global markets.

Production And Consumption Trends of Steel Pipes & Tubes:



Source: *CMIE Outlook; Infomerics Analytics & Research*

The Indian steel pipes and tubes industry has exhibited strong growth over FY2020-21 to FY2024-25, with domestic production increasing from 5.90 MT to 11.92 MT, reflecting a CAGR of ~18.5%, driven by capacity expansion and scaling of manufacturing operations. Imports remained modest and stable, ranging between 0.50 MT and 0.70 MT, indicating growing self-reliance, while exports rose steadily from 0.99 MT to 1.65 MT, demonstrating gradual integration into global markets and competitiveness in quality and value-added products. Apparent domestic consumption increased from 5.41 MT to 10.93 MT over the same period, with a CAGR of ~18.4%, closely tracking production growth, supported by demand from construction, water supply, oil & gas, and industrial infrastructure sectors. The trends indicate a healthy supply-demand balance, with production consistently exceeding domestic consumption after accounting for trade, reflecting minimal reliance on imports and improving domestic market absorption. The industry is expected to sustain this growth trajectory, underpinned by infrastructure expansion, urbanization, industrial development, and increasing adoption of value-added and specialized steel pipes.

Top 5 Countries % Share of Imports & Exports:

Country	% Share of Total Exports	Country	% Share of Total Imports
UAE	15.4%	China	47.2%
USA	13.5%	Italy	7.0%
Saudi Arabia	10.5%	UAE	4.1%
Bangladesh	4.2%	Japan	4.1%
Qatar	3.6%	Vietnam	3.3%

Source: CMIE Outlook, Infomerics Analytics & Research

In FY '25, India's steel pipes and tubes exports rose modestly by 1.17% YoY to USD 2,324.0 million, led by shipments to the UAE (15.4%), USA (13.5%), and Saudi Arabia (10.5%), with smaller markets such as Bangladesh (4.2%) and Qatar (3.6%) supporting overall momentum, reflecting steady global demand across infrastructure, construction, energy, and industrial applications. Imports increased 4.47% YoY to USD 1,160.2 million, primarily from China (47.2%), Italy (7.0%), UAE (4.1%), Japan (4.1%), and Vietnam (3.3%), driven by the need for specialized grades and precision products that complement domestic manufacturing. Total trade reached USD 3,484.2 million, up 2.27% YoY, underscoring strong demand across industrial machinery, infrastructure, energy, and construction sectors. The trade composition highlights export diversification and imports substitution opportunities, positioning Indian manufacturers to capture greater market share both domestically and internationally, representing a strategic boon and growth catalyst for the steel pipes and tubes sector.

Supported by strong domestic manufacturing capabilities, policy-driven infrastructure programs, and increasing export integration, the Indian steel pipes and tubes industry is well-positioned for sustained growth. Its alignment with critical sectors—including automotive, construction, energy, and engineering—combined with rising adoption of high-value, specialized products, underscores India's emergence as a global hub for steel pipes and tubes, offering compelling long-term opportunities for investors.

6. Market Dynamics

6.1 Key Growth Drivers

The Steel Pipes and Tubes industry is positioned for sustained expansion, driven by rising infrastructure investment, industrial activity, and public utility modernization. The segment's evolution from commodity manufacturing toward value-added and application-specific products is reshaping its growth trajectory. Demand is being shaped by multiple structural and policy-linked enablers, spanning construction, energy, mobility, and exports.

Market Drivers and Impact Assessment

(All values represent directional impact based on industry estimates and qualitative analysis)

Drivers	Impact		
	1-2 Years	3-4 Years	5-7 Years
1. Infrastructure expansion and urban development	High	High	High
2. Water supply, sanitation, and irrigation programs	High	High	High
3. Oil, gas, and energy transmission network expansion	Medium	High	High
4. Real estate, housing, and construction rebound	Medium	High	High
5. Industrial capex and manufacturing growth	Medium	High	High
6. Government initiatives – "Make in India," PLI, and localization	Medium	High	High
7. Shift toward galvanized and coated pipes for durability	Medium	High	High
8. Automotive, railways, and transport sector linkages	Medium	Medium	High
9. Rising exports and integration into global supply chains	Medium	High	High

10. Technological upgradation and capacity modernization	Medium	High	High

Source:Infomerics Analytics and Research

Detailed Commentary on Key Growth Drivers

1. **Infrastructure expansion and urban development**
   The National Infrastructure Pipeline (NIP), Smart Cities Mission, and state-level infrastructure programs continue to drive demand for structural and hollow-section steel pipes. Over the next 5–7 years, urban expansion and industrial corridor projects will sustain high consumption in bridges, flyovers, and public utilities.

2. **Water supply, sanitation, and irrigation programs**
   Flagship government programs such as Jal Jeevan Mission, AMRUT 2.0, and Pradhan Mantri Krishi Sinchayee Yojana have created consistent demand for galvanized and MS pipes for water distribution, rural pipelines, and irrigation. With targets extending beyond 2027, this segment remains one of the strongest structural demand anchors.

3. **Oil, gas, and energy transmission network expansion**
   Pipeline infrastructure for petroleum products, CNG, and natural gas transmission (under PNGRB and GAIL network expansions) continues to strengthen demand for ERW and seamless pipes. The ongoing shift toward cleaner energy and city gas distribution (CGD) networks is expected to sustain medium-to-high growth over the decade.

4. **Real estate, housing, and construction rebound**
   Affordable housing under PMAY (Urban & Gramin) and private sector housing revival are supporting medium-term demand for structural hollow sections, scaffolding, and pre-fabricated construction. As the real estate cycle strengthens, demand will accelerate across both residential and commercial projects.

5. **Industrial capex and manufacturing growth**
   Renewed industrial investments in cement, steel, power, and engineering sectors are pushing up demand for process pipes, conveyors, and mechanical tubing. India's manufacturing GVA growth and ongoing capex cycle will drive sustained usage in capital goods and industrial equipment.

6. **Government initiatives – "Make in India," PLI, and localization**
   Policy-led initiatives encouraging domestic manufacturing and import substitution are supporting capacity expansion in downstream steel processing. Localization of inputs and vendor ecosystem strengthening are expected to enhance cost competitiveness and support export-led growth.

7. **Shift toward galvanized and coated pipes for durability**

   Rising quality standards and the preference for long-lasting infrastructure have driven adoption of galvanized and coated pipes. Demand is particularly strong in water distribution, solar structures, and industrial cooling systems. Over time, the market is expected to transition from black ERW pipes to higher-margin coated variants**.**

8. **Automotive, railways, and transport sector linkages**

   Pipes and tubes are integral to automobile chassis, exhaust systems, railway wagons, and metro construction. As India invests in freight corridors, metro systems, and EV-compatible vehicles, the segment will benefit from increasing lightweight tubular applications.

9. **Rising exports and integration into global supply chains**

   Indian manufacturers are gaining share in global pipe exports, particularly in Asia, Africa, and the Middle East, due to cost competitiveness and product quality. Over the next 3–4 years, expansion of free trade agreements (FTAs) and logistics infrastructure will further support India's emergence as a regional supply hub.

10. **Technological upgradation and capacity modernization**

    Automation, online quality control systems, and energy-efficient galvanizing have improved yield and product consistency. Over 5–7 years, continued modernization and digitization will reduce waste, improve quality, and expand the market for specialized applications such as precision tubes and solar structures.

6.2 Market Restraints

While the Steel Pipes and Tubes industry benefits from a broad-based infrastructure and manufacturing upcycle, it remains exposed to structural constraints that may moderate profitability, competitiveness, and scalability. The sector's heavy dependence on steel coil prices, cyclical demand from core industries, and global pricing pressures can create volatility across both margins and cash flows. In addition, technological, financial, and regulatory bottlenecks continue to shape the pace of long-term expansion.

Market Restraints and Impact Assessment

(*All values represent directional impact based on industry estimates and qualitative analysis*)

Restraint	Impact		
	1–2 Years	3-4 Years	5-7 Years
1. Volatility in steel coil prices and input cost pass-through	High	High	Medium
2. Overcapacity and pricing pressure in commoditized pipe segments	High	High	Medium
3. High energy and logistics costs affecting competitiveness	Medium	High	High
4. Working capital intensity and margin compression	Medium	High	High
5. Dependence on government and infrastructure spending	High	High	Medium
6. Technological and quality gaps versus global benchmarks	Medium	Medium	High

Source:Infomerics Analytics and Research

Detailed Restraint Commentary

1. **Volatility in steel coil prices and input cost pass-through**

   Steel coils constitute nearly 65–75% of total raw material cost for ERW and galvanized pipe producers. Sharp movements in HRC and CRC prices—linked to global iron ore and coking coal cycles—directly affect profitability. Over the next 1–2 years, such volatility will continue to pressure margins and working capital. Although cost pass-through mechanisms exist, price adjustments often lag by one or two quarters. Over 5–7 years,

greater supply chain integration may smooth fluctuations, but raw material exposure will remain a persistent structural risk.

2. **Overcapacity and pricing pressure in commoditized pipe segments**
   The rapid capacity additions in small and mid-sized ERW pipe units have created supply overhangs in lower-value segments. In the short term, this drives aggressive price competition and erodes utilization rates. Over the medium term, market fragmentation and discount-based competition could restrict profitability. Overcapacity will gradually normalize as weaker units consolidate or exit, but commoditized products will continue to face medium-term price pressure.

3. **High energy and logistics costs affecting competitiveness**
   Pipe manufacturing and galvanizing are energy-intensive processes involving continuous welding and coating lines. Rising electricity and zinc costs, along with elevated freight expenses, weigh on cost competitiveness. Over 3–4 years, logistics bottlenecks—particularly for interstate movement and exports—may offset gains from scale efficiencies. Over 5–7 years, energy-efficient processes and multimodal logistics could reduce exposure, but the near-term impact remains high.

4. **Working capital intensity and margin compression**
   Prolonged receivable cycles in government and EPC projects, coupled with high inventory requirements due to fluctuating coil prices, strain liquidity. Smaller manufacturers face difficulty managing this cycle without increasing debt. Over 3–4 years, as project-based demand expands, cash flow mismatches will remain significant. Over the long term, improved payment discipline under digital procurement systems could reduce but not eliminate this constraint.

5. **Dependence on government and infrastructure spending**
   Nearly half of the domestic demand originates from government-funded projects in water supply, irrigation, and infrastructure. Any delay in tender execution, fund allocation, or policy change directly affects order inflows. Over the medium term, this dependence may limit sector resilience during fiscal tightening phases. Over 5–7 years, diversification toward exports and private infrastructure could reduce exposure, but dependency remains structurally embedded.

6. **Technological and quality gaps versus global benchmarks**
   While Indian manufacturers have achieved scale in ERW and galvanized pipes, adoption of advanced coating technologies, automated inspection, and seamless pipe manufacturing

remains limited. This restricts penetration into high-specification applications such as oil & gas transmission and precision engineering. Over the next 3–4 years, technological collaborations may narrow the gap, but long-term competitiveness will require sustained investment in automation and R&D.

7. Government Initiatives and Policy Support

The Government of India has implemented a range of industrial, infrastructure, and trade policies that directly and indirectly support the Steel Pipes and Tubes industry. These initiatives are aimed at expanding domestic manufacturing capacity, ensuring raw material security, stimulating infrastructure demand, and promoting exports. Together, they form an integrated framework that reinforces the sector's long-term growth, competitiveness, and alignment with national development goals.

1. **National Infrastructure Pipeline (NIP) and Public Capex Push**
   The ₹111 lakh crore National Infrastructure Pipeline (NIP), extended through FY2030, and the Union Budget's continued focus on high public capital expenditure (over 3.4% of GDP) have created structural demand for steel pipes and tubes in water supply, roads, bridges, metro systems, and urban infrastructure. These programs provide sustained project visibility for manufacturers supplying ERW, galvanized, and structural hollow sections to EPC contractors.

2. **Jal Jeevan Mission (JJM) and Water Distribution Programs**
   The Jal Jeevan Mission, with a cumulative outlay exceeding ₹3.6 lakh crore, aims to provide tap water to every rural household. The program, along with AMRUT 2.0 and Smart City Mission, generates steady offtake for galvanized and MS pipes used in potable water distribution, wastewater, and sanitation infrastructure. These long-duration projects form one of the most stable demand bases for the domestic pipes industry.

3. **Energy and Gas Infrastructure Expansion (PNGRB and CGD Networks)**
   The Petroleum and Natural Gas Regulatory Board (PNGRB) and public sector companies such as GAIL and IOCL are expanding city gas distribution (CGD) and national gas grid projects. This policy-backed expansion of oil and gas pipelines significantly boosts demand for ERW, HSAW, and seamless pipes. With more than 300 CGD geographical areas authorized, this segment remains a key long-term growth driver.

4. **Make in India, Atmanirbhar Bharat, and PLI Framework**
   Under Make in India and Atmanirbhar Bharat Abhiyan, the government encourages domestic production of steel products and downstream fabrication. While the current Production Linked Incentive (PLI) scheme covers specialty steel (with an outlay of ₹6,322 crore), it indirectly benefits pipe manufacturers through assured availability of high-

grade hot-rolled and galvanized coils. The emphasis on local value addition and technology adoption strengthens supply-chain resilience.

5. **Quality Control Orders (QCOs) and BIS Standardization**
   The Ministry of Steel and the Bureau of Indian Standards (BIS) have issued Quality Control Orders (QCOs) for steel and steel products, including pipes and tubes, to ensure consistent quality and curb substandard imports. Mandatory BIS certification has improved product reliability and industry reputation, promoting formalization of the sector and enhancing India's competitiveness in both domestic and export markets.

6. **Export Promotion and Trade Facilitation Measures**
   The government's export facilitation through the Remission of Duties and Taxes on Exported Products (RoDTEP) scheme, FTAs with the UAE and Australia, and concessional logistics corridors under PM Gati Shakti have expanded market access for Indian steel pipe exporters. Rationalization of import duties on key inputs like zinc and scrap has further strengthened cost competitiveness and global integration.

7. **Green Steel and Sustainable Manufacturing Initiatives**
   In line with India's 2070 net-zero commitment, the government has launched the Green Steel policy framework promoting decarbonization in steelmaking and downstream fabrication. Adoption of energy-efficient galvanizing, waste heat recovery, and zinc recycling processes in the pipe industry aligns domestic production with global ESG standards and opens new opportunities in renewable, water, and sustainable infrastructure applications.

Taken together, these initiatives establish a coherent policy framework that simultaneously drives demand creation and strengthens the domestic manufacturing ecosystem. Infrastructure and water distribution programs ensure predictable, large-scale consumption, while industrial and energy policies promote capacity expansion and technological modernization. Quality control measures and export facilitation reforms enhance competitiveness, integrating Indian producers more deeply into global value chains. Complementing these, sustainability and green manufacturing mandates position the sector for future regulatory alignment and ESG-driven investment flows. Collectively, this convergence of policy thrust, capability building, and environmental stewardship positions the Indian Steel Pipes and Tubes industry for sustained medium- to long-term growth within a formalized, resilient, and globally competitive landscape.

8. Technology & Digital Transformation

The Steel Pipes and Tubes industry is experiencing a structural transformation driven by automation, digitalization, and advances in metallurgical engineering. These developments are enhancing precision, efficiency, and sustainability while preparing the industry for a more integrated role in global infrastructure, energy, and industrial ecosystems.

1. **Advanced Metallurgy and Material Engineering**
   Manufacturers are increasingly adopting thermo-mechanically controlled processing (TMCP) and micro-alloying technologies to enhance tensile strength, corrosion resistance, and weldability of steel pipes. High-strength low-alloy (HSLA) and duplex stainless steels are replacing conventional grades, enabling lighter yet more durable products suited for critical applications in oil & gas, construction, and water transmission.

2. **Process Automation and Smart Manufacturing**
   Digital process control systems, including Supervisory Control and Data Acquisition (SCADA) and Distributed Control Systems (DCS), are improving operational precision across rolling, welding, and finishing stages. Integration of IoT-enabled sensors allows real-time monitoring of pressure, temperature, and dimensional accuracy, minimizing wastage and ensuring consistent quality across large production runs.

3. **Industry 4.0 and Digital Twins**
   Leading players are deploying digital twin models to simulate pipe performance under various stress and corrosion conditions. These models enable predictive process adjustments and maintenance scheduling, thereby reducing downtime and optimizing yield. The use of machine learning algorithms for defect prediction and automated inspection is strengthening quality assurance in continuous manufacturing lines.

4. **Additive Manufacturing and Custom Fabrication**
   Emerging applications of additive manufacturing (3D printing) and automated bending technologies allow faster prototyping and production of customized pipe fittings, particularly for niche industrial and offshore projects. This flexibility supports just-in-time manufacturing, reducing lead times and inventory costs while catering to increasingly project-specific client requirements.

5. **Supply Chain Digitalization and Traceability**
   Digital platforms are being adopted to improve logistics coordination, inventory control, and supplier traceability. Blockchain-based systems are gaining traction for ensuring end-

to-end transparency in raw material sourcing and quality certification, critical for export compliance and infrastructure procurement under public contracts.

6. **Sustainability and Energy Efficiency Technologies**
   Energy-efficient electric arc furnaces (EAFs), waste heat recovery systems, and process water recycling are being integrated to reduce carbon intensity in production. Green hydrogen-based direct reduced iron (DRI) initiatives and carbon capture pilots are under exploration, positioning the industry to align with India's net-zero commitments and global ESG standards.

7. **Digital Customer and Service Platforms**
   Manufacturers are leveraging digital interfaces—such as e-marketplaces and configurator platforms—to provide clients with real-time inventory visibility, technical support, and order customization. This digital engagement enhances responsiveness and builds stronger OEM and EPC customer relationships across domestic and export markets.

The technological evolution of the Steel Pipes and Tubes industry reflects a dual imperative: achieving operational excellence through automation and digital integration, and meeting sustainability objectives through advanced material science and cleaner production systems. Collectively, these innovations are driving the industry toward higher productivity, global competitiveness, and long-term resilience in a decarbonizing and digitally interconnected economy.

9. PESTLE Analysis of the Industry

A comprehensive PESTLE (Political, Economic, Social, Technological, Legal, and Environmental) analysis helps evaluate the external macro-environmental factors influencing the Steel Pipes and Tubes Industry. These dimensions collectively shape demand outlook, policy direction, investment flows, and competitive positioning in the medium to long term.

Factor	Description	Impact on Steel Pipes and Tubes Industry
Political	• Large-scale government infrastructure programs such as the National Infrastructure Pipeline (NIP), Jal Jeevan Mission, and PM Gati Shakti are generating stable, long-term demand for steel pipes in water supply, sanitation, and logistics. • Production Linked Incentive (PLI) and Atmanirbhar Bharat initiatives promote localization of inputs and downstream manufacturing. • Public investment in oil & gas transmission networks (e.g., Pradhan Mantri Urja Ganga) and city gas distribution (CGD) boosts demand for API-grade and ERW pipes. • Geopolitical trade alignments (e.g., tariff barriers and anti-dumping measures) influence import and export competitiveness. • Steel sector policy reforms, including scrap recycling policy and raw material security, enhance supply stability.	• Strengthens long-term domestic demand visibility through public infrastructure and utilities spending. • Encourages capacity expansion and backward integration. • Reduces import dependence via policy-driven localization. • Geopolitical factors and trade protectionism influence export pricing and market access. • Sustains policy-led demand resilience even amid cyclical downturns.
Economic	• India's GDP growth and industrial capex recovery underpin steady demand from construction, energy, and manufacturing sectors. • Expanding oil & gas exploration, refinery modernization, and renewable energy projects increase usage of seamless and galvanized pipes.	• Multi-sector growth drivers create sustained consumption base. • Input price volatility remains a near-term profitability risk. • Export diversification supports capacity utilization but requires financial resilience.

	• Volatility in steel prices and coking coal costs affects profitability and working capital cycles. • Export potential supported by India's cost competitiveness in mild steel and galvanized pipes. • MSMEs contribute significantly but face liquidity and technology adoption constraints. • Exchange rate fluctuations and global demand cycles impact export realization.	• MSMEs' viability depends on credit access and process modernization. • Long-term economic reforms and infra-led investments favor structural growth.
Social	• Rapid urbanization, housing development, and sanitation programs are increasing water and sewage infrastructure needs. • Rising public awareness on quality and safety drives demand for BIS-certified, corrosion-resistant pipes. • Expansion of city gas networks supports urban household connectivity. • Workforce upskilling programs and industrial training schemes (e.g., Skill India) are improving labor productivity. • Growing ESG awareness among institutional investors and EPC clients is pushing firms toward sustainable production practices.	• Drives organized sector expansion due to compliance and certification demand. • Strengthens preference for durable, high-quality steel pipe solutions. • Enhances productivity and product reliability through skilled workforce participation. • Aligns business practices with evolving stakeholder and consumer expectations
Techno-logical	• Integration of automation, robotics, and real-time process monitoring in rolling, welding, and finishing lines is improving quality and throughput. • Adoption of Industry 4.0 tools, including digital twins and predictive analytics, optimizes plant utilization and reduces defect rates. • Advances in metallurgy (e.g., high-strength low-alloy steels, corrosion-resistant coatings, and fusion-bonded epoxy linings) enhance product lifespan. • Development of hydrogen-ready and carbon steel composite pipelines for emerging energy sectors.	• Improves production efficiency, consistency, and competitiveness. • Supports entry into higher-value segments like oil & gas, renewables, and city gas. • Reduces maintenance costs and quality variability. Enables data-driven process control and customer integration. • Raises entry barriers for smaller players without automation capabilities.

	• Supply chain digitalization enhances logistics traceability and inventory control. • Increasing need for cybersecurity and IP protection in automated manufacturing setups.	
Legal	• Enforcement of Bureau of Indian Standards (BIS) norms for pipes and tubes under the Steel and Steel Products (Quality Control) Orders. • Implementation of anti-dumping duties on imports from select countries to protect domestic industry. • Environmental, Health, and Safety (EHS) norms mandating pollution control, waste disposal, and workplace safety compliance. • Labor codes consolidation under India's new Industrial Relations and Occupational Safety framework. • Trade-related compliance with ISO, ASTM, and API certifications for export eligibility. • Legal scrutiny over project quality in public infrastructure contracts.	• Enforces standardized quality, reducing counterfeit and substandard supply. • Protects domestic players from dumping and unfair competition. • Adds compliance costs but enhances global credibility and export readiness. • Promotes ethical labor and environmental practices. • Increases procurement confidence among institutional and government buyers
Environ-mental	• Steelmaking and pipe fabrication are under rising pressure to decarbonize in line with India's Net Zero 2070 target. • Adoption of energy-efficient furnaces, waste heat recovery, and water recycling systems to lower emissions. • Transition toward green steel production and use of scrap-based EAFs. • Growing emphasis on Life Cycle Assessment (LCA) and carbon disclosure in procurement by EPC and PSU clients. • Environmental clearances and ESG reporting now central to capacity expansion projects. • Circular economy practices such as metal recovery and recycling gaining traction.	• Drives industry shift toward sustainable, low-carbon manufacturing. • Increases capital requirements for compliance but enhances long-term viability. • Positions ESG-compliant firms favourably in financing and export markets. • Encourages innovation in recycling and waste reduction. • Aligns the sector with global green procurement standards and investor expectations.

India's Steel Pipes and Tubes industry operates within a progressively structured policy and regulatory ecosystem. Political and economic factors provide sustained infrastructure-led demand and domestic capacity expansion. Social and environmental dimensions are accelerating the transition toward formalization and sustainability, while technological and legal forces are redefining competitiveness through automation, compliance, and quality assurance. Together, these PESTLE factors create a medium- to long-term outlook characterized by policy stability, technological modernization, and an evolving emphasis on green manufacturing and global market integration.

10. Competitive Landscape

The Indian Steel Pipes and Tubes industry operates in a highly competitive environment influenced by domestic production capabilities, global supply dynamics, regulatory compliance, and technological differentiation. Competition is shaped by cost efficiency, quality standards, distribution reach, process innovation, and alignment with government infrastructure and energy programs. Demand spans construction, water supply and sanitation, oil & gas, industrial machinery, automotive, and renewable energy sectors.

10.1 Key Factors Shaping Competition

- **Cost Efficiency:**
  Players leverage scale-driven production, lean manufacturing, and strategic localization of raw material sourcing to optimize costs. For tender-driven procurement by government agencies (e.g., NHAI, Jal Jeevan Mission) and large EPC contractors, cost competitiveness is a critical differentiator. Economies of scale also benefit larger manufacturers in pricing long-length ERW, GI, and seamless pipes.

- **Product Quality and Reliability:**
  Compliance with BIS, API, ASTM, and ISO certifications is increasingly a precondition for participating in public infrastructure, industrial, and energy contracts. Quality assurance through advanced metallurgical processes, precision welding, and galvanizing ensures long-term durability, corrosion resistance, and operational safety, providing a competitive edge.

- **Technology and Process Innovation:**
  Investment in high-frequency welding, galvanizing lines, automatic coating systems, and digital process monitoring enables operational efficiency and consistency. Advanced metallurgical techniques, such as high-strength low-alloy (HSLA) steel and corrosion-resistant coatings, allow differentiation in niche applications like oil & gas pipelines, renewable energy, and urban infrastructure.

- **Distribution Network and Market Reach:**
  Robust dealer networks, regional warehouses, and logistics partnerships improve market penetration, particularly in Tier II and Tier III cities. Integration with EPC contractors and government supply chains enhances visibility and order conversion, while rapid delivery capability strengthens relationships in time-sensitive projects.

- **Government Policy Alignment:**
  Manufacturers compliant with PLI schemes, Make in India initiatives, and BIS standards are positioned to access large-scale projects in water supply, urban gas distribution, highways, and industrial corridors. Policy alignment not only ensures preferential participation but also reduces risk exposure in regulated procurement processes.

- **Brand Reputation and Customer Trust:**
  Established players with a history of delivering on public and industrial contracts benefit from enhanced credibility. Proven track records in safety, quality, and project delivery reduce reliance on price competition and enable premium positioning in specialized segments.

- **Export and Global Market Access:**
  Competitive Indian manufacturers are increasingly exporting ERW, GI, and seamless pipes to Middle East, Southeast Asia, and African markets. Cost advantages, quality compliance, and adherence to international standards drive export competitiveness, while government incentives facilitate trade expansion.

10.2 Competitive Strategies

- **Vertical Integration**
  Major manufacturers are investing across the value chain—from upstream sourcing of scrap-based steel or billets to downstream galvanizing, coating, and finishing processes. This integration ensures stable raw material availability, cost optimization, and uniform product quality, particularly for specialized or high-specification pipes used in industrial, energy, and infrastructure applications.

- **Strategic Partnerships and Joint Ventures**
  Collaborations with global technology providers facilitate adoption of advanced pipe manufacturing techniques and API-standard designs. These partnerships allow Indian firms to enter high-margin sectors such as oil & gas, renewable energy, chemical transport, and urban infrastructure, while accelerating technology transfer and localization of specialized processes.

- **Capacity Expansion**
  Both greenfield and brownfield expansions in ERW, GI, and seamless pipe production lines enable incumbents to scale operations rapidly, enhance cost competitiveness, and fulfill large-volume contracts. Capacity augmentation also positions firms to respond effectively to rising domestic infrastructure demand and export opportunities in global markets.

- **Digitalization and Process Optimization**
  Adoption of ERP systems, automated production lines, IoT-enabled process monitoring, and predictive maintenance improves operational efficiency, reduces downtime, and ensures quality consistency. Digital traceability and real-time monitoring enhance customer confidence, enable timely delivery, and provide a foundation for future Industry 4.0 adoption across manufacturing operations.

- **Aftermarket and Service Differentiation**
  Firms are increasingly offering value-added lifecycle support services, including corrosion monitoring, scheduled replacements, and technical guidance for pipeline installation and maintenance. These initiatives strengthen long-term client relationships, create recurring revenue streams, and differentiate manufacturers in a competitive market where project reliability and service quality are critical.

10.3 Barriers to Entry

- **Capital-Intensive Infrastructure**
  Establishing manufacturing facilities requires substantial investment in ERW mills, seamless pipelines, galvanizing plants, finishing equipment, and quality control laboratories. Beyond machinery costs, significant working capital is needed to maintain raw material inventories and meet project timelines. High fixed costs and long payback periods limit the ability of new entrants to compete effectively in a price-sensitive and tender-driven environment.

- **Technological Expertise**
  Production of industrial and API-grade pipes demands specialized knowledge in metallurgy, welding techniques, corrosion-resistant coatings, and process automation. Mastery of advanced processes such as hot-dip galvanizing, cold rolling, and precision ERW or seamless fabrication is essential to meet quality and safety standards. Lack of technical expertise can result in defective products, reduced reliability, and potential regulatory non-compliance.

- **Regulatory Compliance**
  New entrants must navigate multiple certification and regulatory requirements, including BIS, API, ASTM standards, environmental clearances, and labor laws. Compliance involves rigorous testing, documentation, and audits, which require both time and investment. Delays in obtaining certifications or approvals can slow market entry and limit participation in large-scale government and industrial contracts.

- **Raw Material and Supply Chain Dependencies**
  Steel billets, hot-rolled coils, and high-purity zinc for galvanizing form the backbone of production. Volatile steel and zinc prices, geopolitical uncertainties, and transportation challenges can disproportionately affect new entrants without long-term supply agreements. Established players benefit from secured procurement contracts and integrated supply chains that stabilize costs and ensure uninterrupted production.

- **ESG and Sustainability Compliance**
  Energy-efficient processes, waste management protocols, carbon footprint reduction, and adoption of green steel technologies are increasingly required by major infrastructure projects and export markets. Compliance with these environmental, social, and governance (ESG) standards imposes significant costs on new players, creating a competitive edge for well-capitalized firms with established sustainability practices.

- **Market Access and Brand Trust**
  Government tenders, EPC contracts, and large industrial clients prioritize reliability, proven delivery track records, and post-installation service capabilities. New entrants face credibility gaps and must demonstrate both product quality and project execution capability. Building brand recognition and trust requires substantial time, marketing investment, and successful project completion, which can delay scale-up and profitability.

10.4 Consolidation Trend

- **Mergers, Acquisitions, and Strategic Alliances**
  Leading manufacturers are actively acquiring smaller regional or niche players to expand production capacity, diversify product portfolios, and achieve economies of scale. Such mergers and acquisitions facilitate integration of complementary technologies—for example, combining ERW, seamless, and galvanizing capabilities under a single entity. This allows firms to optimize resource utilization, reduce per-unit production costs, and enhance operational efficiency while ensuring consistent quality across product lines.

- **Global-Domestic Collaborations**
  Joint ventures and strategic partnerships with international pipe manufacturers provide access to advanced manufacturing technologies, global best practices, and high-specification product designs. These collaborations accelerate adoption of API, ASTM, and other international standards, ensuring that Indian firms can compete in export markets and specialized domestic sectors, such as oil & gas, renewable energy, and infrastructure pipelines. Technology transfer through such partnerships reduces R&D lead times and supports faster market penetration.

- **Market Consolidation Impact**
  As larger firms consolidate market share, they increasingly dominate government infrastructure projects, EPC contracts, and high-volume industrial orders. Consolidation enhances bargaining power with suppliers, enabling favorable raw material pricing and better inventory management. It also strengthens risk management by diversifying exposure across products, geographies, and customer segments. In volatile steel and zinc markets, consolidated players are better positioned to maintain margin stability and consistent delivery timelines.

- **Focused Specialization**
  Consolidation enables the emergence of niche, high-value product segments, such as corrosion-resistant pipes, API-standard pipelines, hydrogen-ready tubing, and high-pressure industrial pipes. By investing in specialized production lines and quality certifications, consolidated players achieve product differentiation and command premium pricing. This focus on high-margin, technically demanding segments also reduces competitive pressures from commoditized products and strengthens long-term sustainability.

- **Technological and Operational Integration**
  Integrated entities leverage combined R&D, process automation, and digital tools such as ERP, IoT-enabled monitoring, and predictive maintenance across production lines. This ensures standardization of quality, enhances productivity, and reduces operational downtime. Integrated operations also support better customer service through reliable delivery schedules, technical support, and lifecycle management solutions.

- **Investor and Financial Implications**
  Consolidation improves financial robustness, with larger firms able to attract investment for greenfield expansions, technological upgrades, and ESG compliance initiatives. Enhanced balance sheet strength provides flexibility to pursue government tenders, international contracts, and large-scale industrial projects. Investors and lenders view consolidated players as lower-risk partners due to operational scale, diversified product lines, and consistent performance history.

The competitive landscape of the Indian Steel Pipes and Tubes Industry is defined by cost leadership, technological capability, regulatory compliance, and strategic market positioning. Firms investing in vertical integration, process automation, advanced metallurgy, global partnerships, and ESG compliance are best positioned to secure OEM and government contracts, participate in high-value infrastructure and energy projects, and expand into export-driven growth markets. Consolidation and technological adoption are key to maintaining long-term competitiveness in this capital-intensive and quality-sensitive industry.

10.5 Key Industry Players

The Indian Steel Pipes and Tubes industry is led by a combination of large-scale, technologically advanced manufacturers with strong backward integration, diversified product portfolios, and extensive domestic and export networks. The following companies represent the leading players driving the sector's growth:

1. **APL Apollo Tubes Limited**

   APL Apollo Tubes Limited, incorporated in 1986 and headquartered in Noida, Uttar Pradesh, is one of India's leading manufacturers of structural steel tubes, specializing in Electric Resistance Welded (ERW) pipes, hollow sections, and value-added steel profiles. The company serves a broad spectrum of end-use industries, including construction, infrastructure, agriculture, industrial fabrication, and utility applications, while also establishing a strong international presence by exporting products to multiple countries, reflecting its capability to meet global quality and compliance standards.

   The company operates multiple state-of-the-art manufacturing facilities across strategic industrial regions in India, equipped with advanced ERW and galvanizing lines, automated finishing units, and in-house quality laboratories. Its production approach emphasizes process standardization, energy efficiency, and continuous modernization, ensuring high throughput, product consistency, and cost optimization. APL Apollo has developed significant backward integration, sourcing billets and semi-finished steel internally or via preferred suppliers to secure raw material quality and manage volatility in steel prices.

   The product portfolio spans over 1,500 SKUs, including MS Black pipes, pre-galvanized tubes, structural sections, and specialized profiles such as Apollo DFT, Apollo Bheem, and Apollo Elliptical. These products cater to applications such as scaffolding, plumbing, furniture, electrical conduits, barricades, greenhouses, and infrastructure frameworks. The company also focuses on high-strength, corrosion-resistant variants to meet industrial and export-oriented demands, demonstrating adaptability to sector-specific performance requirements.

   Quality assurance and compliance are central to APL Apollo's operations. The company holds multiple domestic and international certifications, including BIS, ISO 9001, ISO 14001, and OHSAS 18001, and has received CE and SGS accreditations, underscoring its credibility for high-integrity applications. Its adherence to environmental and occupational safety standards positions the company as a responsible and sustainable manufacturer.

   APL Apollo operates a robust distribution network with warehouses and branch offices in key Indian cities, supported by over 800 dealer partners, facilitating timely supply to urban and semi-urban markets and enabling the execution of large-scale infrastructure and industrial projects. The company's international presence through export channels further strengthens its market reach and brand recognition globally.

Strategically, APL Apollo differentiates itself through integrated manufacturing capabilities, a diverse product portfolio, backward integration, and a focus on innovation and quality. Its capacity to offer customized solutions enhances appeal across institutional and retail segments. Continuous investments in technology, capacity expansion, and process optimization reinforce its market leadership and ability to navigate demand fluctuations, raw material volatility, and competitive pressures.

APL Apollo Tubes is focused on scaling production capacities, expanding value-added products, increasing export penetration, and leveraging digital tools for supply chain efficiency. By aligning operations with sustainability practices and global quality standards, the company is well-positioned to capitalize on long-term growth opportunities in construction, infrastructure, and industrial sectors while maintaining operational resilience and competitive advantage.

2. Hariom Pipe Industries Limited

Hariom Pipe Industries Limited, headquartered in Hyderabad, Telangana, is a key player in India's steel pipes and tubes sector, tracing its legacy to 1962 under the guidance of the late Shri Hariom Gupta and formally incorporated in 2007. Leveraging decades of industry experience, the company has established a strong reputation for producing a comprehensive range of steel pipes and coils, supported by backward-integrated operations that enhance quality control, cost efficiency, and supply reliability.

The company operates multiple advanced manufacturing facilities in Telangana and Tamil Nadu, encompassing integrated capabilities across sponge iron production, hot-rolled (HR) coils, tube mills, and scaffolding tube lines. This vertical integration enables Hariom Pipe Industries to internally manage critical raw materials while maintaining stringent quality standards, optimizing production costs, and ensuring operational efficiency. The facilities employ modern rolling, welding, and galvanizing technologies, producing precision-engineered pipes and tubes that comply with domestic and international specifications.

Hariom Pipe Industries offers a wide-ranging product portfolio, including HR pipes, pre-galvanized (GP) pipes, galvanized (GI) pipes, MS billets, HR/CR coils, and scaffolding tubes. It also manufactures hollow sections in square (12×12 mm to 150×150 mm), rectangular (25×12 mm to 200×100 mm), and circular profiles (12 NB to 175 NB), catering to diverse construction, industrial, and agricultural applications. The company emphasizes high-strength, corrosion-resistant, and value-added steel products to meet evolving market requirements. Quality and compliance are central to operations, with products conforming to ISI and British Standards (BS), and maintaining BIS certification. Stringent raw material inspection, process monitoring, and final product testing ensure durability, performance, and operational sustainability, supported by resource optimization, waste reduction, and recycling initiatives.

Hariom Pipe Industries has a pan-India presence, with particular strength in South and West India, supported by a distribution network combining direct sales, dealer channels, and partnerships with construction and industrial contractors. This enables timely delivery, responsive service, and market reach across diverse sectors. Its export-oriented strategy has begun to gain recognition for meeting technical and quality requirements in international markets.

Strategically, the company's competitive advantages stem from its backward integration, operational efficiency, and diverse product range, allowing it to provide both standardized and customized steel solutions for industrial, infrastructure, and construction clients. Forward-looking initiatives include capacity expansion, development of value-added products, enhancement of distribution networks, and strengthening export capabilities. By investing in technological upgrades, quality compliance, and sustainable manufacturing practices, Hariom Pipe Industries aims to capture long-term growth opportunities while maintaining operational resilience and leadership within India's steel pipes and tubes industry.

3. Hi-Tech Pipes Limited

Hi-Tech Pipes Limited, incorporated in 1985, is a leading Indian manufacturer of steel pipes and tubes, recognized for its extensive range of Electric Resistance Welded (ERW) pipes, hollow sections, and value-added steel products. The company has established a strong presence across infrastructure, construction, automotive, defense, solar, and industrial sectors, serving both domestic demand and export markets. Hi-Tech Pipes operates six strategically located manufacturing facilities across Uttar Pradesh, Gujarat, Andhra Pradesh, and Maharashtra, equipped with modern ERW, galvanizing, and finishing lines. These plants support production of black, galvanized, and pre-galvanized steel pipes, structural hollow sections, and solar torque tubes, utilizing advanced rolling, welding, and finishing technologies to ensure dimensional accuracy, mechanical strength, and surface quality that meet the specifications of diverse industrial and construction applications.

The company's product portfolio is comprehensive, encompassing ERW steel round and section pipes, cold-rolled strips, galvanized coils, and structural metal beams. Products are marketed under recognized brands such as JalShakti, Organic Pipes, FireFighter, and Bahubali, catering to sectors including construction, water supply, agriculture, defense, energy, and telecom. Hi-Tech Pipes also manufactures crash barriers, solar mounting structures, and other specialized sections, reflecting its capability to provide both standard and customized solutions. Quality assurance is central to operations, with stringent protocols applied across raw material sourcing, in-process manufacturing, and finished product stages. Compliance with domestic standards and international best practices ensures durability, corrosion resistance, and structural integrity, reinforcing customer confidence and supporting export-grade specifications.

Hi-Tech Pipes maintains a broad market footprint across India, serving both organized and unorganized sectors through an extensive dealer and distributor network. Its export operations extend to multiple countries, targeting markets with high-quality ERW and galvanized pipe requirements. The company's competitive advantages include manufacturing scale, product diversity, technological adoption, backward integration for quality steel sourcing, and efficient supply chain management, enabling cost competitiveness, operational efficiency, and reliable delivery. Engineering excellence, process optimization, and the ability to produce customized solutions have helped Hi-Tech Pipes sustain its leadership among Indian ERW pipe manufacturers.

Hi-Tech Pipes aims to expand production capacity, introduce higher-value products, and strengthen its domestic and international market presence. Strategic priorities include adopting energy-efficient manufacturing practices, enhancing digitalization across production and logistics, and developing products tailored for infrastructure, renewable energy, and industrial applications. Through continued investment in technology, quality standards, and customer-centric solutions, Hi-Tech Pipes is positioned to reinforce its market leadership and capitalize on long-term growth opportunities within India's steel pipes and tubes industry.

4. **JTL Industries Limited**

JTL Industries Limited, originally founded as Jagan Tubes in 1991 and rebranded in 2022, is a leading Indian manufacturer of steel pipes and tubes, headquartered in Chandigarh. As the flagship steel tube company of the Jagan Group, JTL combines decades of industry experience with modern manufacturing practices to serve a wide range of sectors, including construction, infrastructure, energy, agriculture, and heavy vehicles, catering to both domestic and international markets. The company operates four state-of-the-art manufacturing facilities equipped with advanced Electric Resistance Welded (ERW) and galvanized pipe production lines, designed to deliver scalable output with consistent quality and dimensional precision. Emphasizing backward integration, JTL manages key raw materials such as billets and hot-rolled coils in-house, ensuring supply reliability, cost control, and superior product quality. The production lines also incorporate finishing processes, including galvanization and coating, enhancing corrosion resistance and durability for diverse industrial applications.

JTL Industries maintains an extensive product portfolio comprising ERW black pipes, galvanized tubes, large-diameter section pipes, solar mounting structures, and crash barriers. This diversified range addresses both standardized and customized client requirements, providing flexibility across various project scales and industrial sectors. The company adheres to rigorous quality standards, holding ISO 9001:2015 certification and Star Export House status, with in-house quality control systems monitoring every stage of production from raw material intake to finished product delivery, ensuring reliability, safety, and durability for critical applications.

JTL leverages a robust domestic distribution network and a presence across multiple Indian states, alongside exports across five continents. This global reach strengthens the company's brand recognition and enhances its competitive positioning in the international steel pipe market. Key competitive advantages include full backward integration, technological adoption, a diversified product portfolio, and efficient inventory and working-capital management, allowing JTL to manage raw material price fluctuations, maintain supply continuity, and ensure timely project delivery. Its high export orientation, focusing on value-added products, positions the company as a cost-competitive yet quality-focused player in domestic and global markets.

JTL Industries aims to scale production capacity to 1,000,000 MTPA by FY26, leveraging Double Flow Technology (DFT) and other process innovations to improve product quality and operational efficiency. The company is focused on expanding its export footprint, introducing higher-value products, and strengthening sustainability and energy-efficiency practices across manufacturing operations. Through targeted investments in technology, capacity expansion, and customer-centric solutions, JTL Industries is strategically positioned to consolidate its leadership in the Indian steel pipes and tubes sector while capitalizing on long-term growth opportunities in both domestic and international markets.

5. Sambhv Steel Tubes Limited

Sambhv Steel Tubes Limited, founded in 2017 and headquartered in Raipur, Chhattisgarh, is a backward-integrated manufacturer of Electric Resistance Welded (ERW) steel pipes and tubes, which has rapidly established itself as a key player in central India. Leveraging a fully integrated production model that spans from raw material processing to finished pipe manufacturing, the company serves industrial, construction, infrastructure, and agricultural sectors across domestic and pan-India markets. Its single-location Raipur facility encompasses the complete value chain—sponge iron, blooms/slabs, hot-rolled coils, ERW pipes and tubes, and galvanized pipes—enabling strict quality control, operational efficiency, and cost optimization. Recent expansions in sponge iron, power, HR coils, and structural tubes have further enhanced production flexibility and scalability, allowing the company to meet diverse project requirements and large-scale orders reliably.

Sambhv's product portfolio includes ERW black and pre-galvanized pipes, structural hollow sections, CRFH pipes, and steel door frames, designed to meet the dimensional accuracy, corrosion resistance, and durability standards demanded by critical infrastructure, residential and commercial construction, industrial installations, and agricultural pipelines. The company adheres to domestic and international quality benchmarks, aligning its processes with BIS guidelines and industry best practices, while its integrated facilities and in-house testing capabilities allow rigorous monitoring throughout production, ensuring consistent output and reliability.

Strategically located in central India, Sambhv leverages logistical advantages for pan-India distribution through an established dealer network, serving multiple industrial and construction hubs with timely delivery and project continuity. Its competitive strengths lie in full backward integration, centralized operational efficiency, and a diversified product portfolio, which collectively ensure consistent quality, cost management, and reliable supply. Modernized production lines and scalable operations position the company to respond effectively to evolving market demands.

Sambhv Steel Tubes aims to consolidate its central India position while expanding nationally, focusing on scaling production capacity, diversifying product offerings, and enhancing energy efficiency and sustainability in its manufacturing processes. By integrating technological upgrades, strengthening distribution networks, and targeting high-value industrial and infrastructure applications, the company is strategically positioned for sustained growth, improved operational margins, and strengthened brand presence across domestic and industrial markets.

Comparative Analysis of Products Offered

Product / Capability	Jindal Supreme India Ltd	Hariom Pipe Industries Ltd	Sambhv Steel Tubes Ltd	JTL Industries Ltd	Hi-Tech Pipes Ltd	APL Apollo Tubes Ltd
ERW Black Pipes	–	✓	✓	✓	✓	✓
Pre-Galvanized Pipes	–	✓	–	✓	✓	✓
Galvanized Pipes	✓	✓	✓	✓	✓	✓
Structural Hollow Sections	✓	✓	✓	✓	✓	✓
Crash Barriers / Road Safety Products	✓	✓	–	✓	✓	–
Solar Mounting Structures / Torque Tubes	–	–	–	✓	–	✓
Large-Diameter Section Tubes	–	–	–	✓	✓	–
Swaged Tubular Poles	–	–	–	✓	–	–
Scaffolding / Construction Tubes	–	✓	–	–	–	–
Custom / Value-Added Profiles	–	–	–	✓	✓	–

10.6 Company Positioning – Jindal Supreme India Limited

Jindal Supreme India Limited ("Jindal Supreme" or "the Company"), founded in 1974 by M.L. Jindal, has evolved over five decades from a modest bucket-manufacturing unit into a diversified steel manufacturing enterprise. Headquartered in Hisar, Haryana, the Company operates on a 16-acre integrated facility, specializing in MS Black and Galvanized Pipes and Tubes ranging from 0.5 inch to 10 inch.

The Company operates a fully backward-integrated production model encompassing raw material sourcing, tube forming, ERW welding, galvanization, and finishing. Its production processes begin with stringent selection of mild steel coils and strips, followed by precision slitting, cold forming, and high-frequency ERW welding. Galvanized pipe production incorporates advanced surface preparation, hot-dip zinc coating, and passivation treatments to ensure corrosion resistance and compliance with IS 4736, ASTM A123, and IRC/MoRTH standards. Comprehensive in-house quality control systems, including hydrostatic and non-destructive testing, spectrometer analysis, and mechanical property evaluation, enable consistent dimensional accuracy and structural integrity across product categories.

Over the years, Jindal Supreme has progressively expanded its manufacturing base to an installed capacity of 90,000 MTPA for MS Black Pipes/Tubes, 45,000 MTPA for Galvanized Pipes/Tubes, 24,000 MTPA for Metal Beam Crash Barriers, and 12,000 MTPA for GI Tubular Poles, reflecting steady capacity expansion and diversification into value-added products.

Capacity and Production Performance

During Fiscal 2023–2025, Jindal Supreme demonstrated progressive operational scaling across key product segments:

- **MS Black Pipes/Tubes:** Installed capacity increased from 70,000 MT in Fiscal 2023 to 90,000 MT in Fiscal 2024. Production rose from 41,821 MT to 58,726 MT, with capacity utilisation improving from 59.74% in Fiscal 2023 to 65.25% in Fiscal 2024, and maintaining 64.47% in Fiscal 2025. For the period ended June 2025, utilisation stood at 70.44%, reflecting improved throughput.
- **Galvanized Pipes/Tubes:** Installed capacity increased from 40,000 MT in Fiscal 2023 to 45,000 MT in Fiscal 2024. Production peaked at 42,521 MT in Fiscal 2024, reflecting 94.49% utilisation, before normalising to 32,368 MT in Fiscal 2025 (71.93% utilisation). For the period ended June 2025, utilisation stood at 61.92%.
- **Metal Beam Crash Barriers:** Commercial production commenced in April 2024 with an installed capacity of 24,000 MT. Fiscal 2025 production reached 8,587 MT (utilisation: 35.78%), and for the period ended June 2025, 4,030 MT (utilisation: 67.17%), indicating rapid ramp-up of new capacity.

- **GI Tubular Poles:** Production commenced in April 2025 with an installed capacity of 12,000 MT (of which 3,000 MT pertains to the April–June 2025 period). During the period ended June 2025, production stood at 106 MT (utilisation: 3.53%), reflecting initial commissioning phase operations.

Operational and Strategic Strength

Jindal Supreme's competitive edge stems from its integrated operations, advanced manufacturing infrastructure, and diversified product mix:

- **Technological Leadership:** Adoption of German ERW and galvanizing technology, coupled with automated crash barrier and tubular pole fabrication lines.
- **Operational Efficiency:** Backward integration ensures consistent input quality, cost control, and supply reliability; ongoing modernization supports project-based scalability.
- **Quality Assurance:** Compliance with IS, ASTM, and BIS standards, supported by multi-stage in-house testing and certification protocols.
- **Market Positioning:** Presence across infrastructure, industrial, and government sectors with strong pan-India distribution, particularly in North India and Tier-II/III expansion markets.
- **Leadership Continuity:** Multi-generational promoter involvement combining legacy expertise and strategic modernization under the leadership of Abhishek Jindal (COO).
- The Company has also commissioned a 5 MW solar power plant, advancing its environmental, social, and governance (ESG) objectives. Its sustainability framework emphasizes renewable energy integration, waste minimization, and process efficiency.

Jindal Supreme plans to further expand tube mill capacity over the medium term, double crash barrier output to meet highway and industrial corridor demand and enhance galvanization throughput. Future focus areas include process automation, Industry 4.0 adoption, and expansion of the distributor network.

Through sustained investments in technology, capacity expansion, and ESG compliance, Jindal Supreme is positioned to strengthen its leadership in the Indian steel pipe and infrastructure solutions market, combining scale, efficiency, and product diversification for long-term growth. With consistent capacity growth, quality focus, and ESG-aligned initiatives, the Company remains well positioned to capture emerging opportunities across India's infrastructure and industrial sectors.

10.7 SWOT Analysis

Strengths	Weaknesses
• **Diversified Product Portfolio** – Wide range of ERW, seamless, galvanized, and pre-galvanized pipes serving construction, industrial, agricultural, energy, and infrastructure sectors. • **Backward Integration** – Many leading players control raw material sourcing (billets, HR/CR coils) ensuring cost control and quality reliability. • **Technological Capability** – Adoption of advanced ERW, galvanizing, and finishing lines, including automation and process optimization. • **Regulatory Compliance Expertise** – Compliance with BIS, ASTM, API standards enable access to both domestic and export markets. • **Strategic Distribution Network** – Extensive dealer and distributor networks enable pan-India and global reach. • **Strong Brand Recognition** – Established players enjoy high credibility in industrial and infrastructure projects. • **Operational Efficiency** – Use of modern ERP systems, predictive maintenance, and supply chain optimization improves throughput and reduces downtime. • **Financial Stability of Key Players** – Well-capitalized firms can invest in capacity expansions and technological upgrades. • **High Export Potential** – Indian steel pipes and tubes meet global standards, creating significant export opportunities. • **Alignment with National Infrastructure Initiatives** – Direct participation in government programs like PMAY, Ghar Ghar Jal, and highway development increases demand visibility.	• **High Capital Intensity** – Entry barriers and expansion require significant investment in ERW mills, galvanizing plants, and modern equipment. • **Raw Material Price Volatility** – Dependence on steel prices and zinc for galvanizing impacts margins. • **Energy-Intensive Processes** – Manufacturing requires significant power consumption, affecting costs and sustainability targets. • **Fragmented Market for Smaller Players** – Many unorganized units limit industry consolidation benefits and efficiency improvements. • **Skilled Labor Dependence** – Technological adoption demands trained workforce; shortages can hinder process efficiency.

Opportunities	Threats
• **Rising Urban Infrastructure Projects** – Growth in metros, expressways, industrial corridors, and smart city initiatives drives demand. • **Renewable Energy Expansion** – Solar, wind, and hydrogen-ready infrastructure increases need for specialized pipes and tubes. • **Oil & Gas and Chemical Sector Growth** – Pipeline infrastructure, refineries, and chemical transport create demand for API and corrosion-resistant pipes. • **Government Housing Initiatives** – PMAY, Ghar Ghar Jal, and rural electrification projects require large-scale pipe deployment. • **Export Market Penetration** – Demand from Middle East, Africa, and Southeast Asia offers growth beyond domestic markets. • **Technological Upgradation** – Adoption of Industry 4.0, digitalization, and automation enhances production quality and efficiency. • **Aftermarket Services** – Corrosion monitoring, maintenance, and lifecycle support present recurring revenue potential. • **Steel Sector Policies & Incentives** – PLI schemes, Make in India, and import-substitution policies favour local manufacturers. • **Green Construction Trend** – Sustainable construction projects encourage the use of high-quality, long-lasting steel tubes. • **Public-Private Partnerships (PPP)** – Infrastructure development through PPP projects ensures long-term volume demand.	• **Global Steel Price Fluctuations** – Import/export price volatility can compress margins. • **Competition from Imports** – Cheap imports from China and Southeast Asia can undercut domestic players. • **Environmental Regulations** – Compliance costs for emissions, waste management, and energy efficiency can increase operational expenditure. • **Infrastructure Project Delays** – Policy delays or funding gaps can temporarily reduce steel pipe demand. • **Geopolitical Risks Affecting Supply Chain** – Disruption in raw material imports (zinc, billets) can affect production continuity.

8.7 Financial Performance Analysis

The table below presents a comparative analysis of Jindal Supreme India Ltd ("the Company") in the steel manufacturing and pipe industry, based on key financial and operational parameters for FY2025

All financials are consolidated unless stated otherwise. Figures are in ₹ lakhs.

Key Indicators (in INR Lakhs)	Jindal Supreme India Limited		
	FY 2023	FY 2024	FY 2025
Revenue from operations	50,612.00	64,543.98	58,639.93
Total Income	50,657.43	65,038.45	60,473.63
EBITDA	903.73	2,088.08	2,562.40
EBITDA Margin	1.79	3.24	4.37
PAT	258.55	1,344.81	2,437.27
PAT Margin	0.51	2.07	4.03
Current Ratio	1.59	1.18	1.52
Tangible Net worth	4,366.23	5,271.82	7,471.69
Total Debt	6,820.76	9,634.23	8,583.58
Debt Equity Ratio	0.74	0.86	0.54
Return on Capital Employed (%)	11.48	12.92	14.10
Return on Net Worth (%)	11.84	27.91	38.25

Note: Data as per company's Audited Financials. Key financial ratios and their formulas used in this report are as follows:

- ***EBITDA** (Earnings Before Interest, Taxes, Depreciation and Amortisation): Total Operating Income - Operating Expenses (excluding Depreciation & Amortisation, Interest, and Taxes)*
- ***EBITDA Margin:** (EBITDA/ Total Operating Income) *100*
- ***PAT Margin:** (Profit after Tax/Total Income) *100*
- ***Current Ratio:** Current Assets /Current Liabilities*
- ***Tangible Net Worth:** Share Capital + Reserve & Surplus – Intangible Assets -Deferred Tax Assets – Misc Expenditure not written off – Revaluation Reserves*
- ***Return on Net Worth (RONW):** (Profit After Tax /Average Tangible Net Worth) *100*
- ***Total Capital Employed:** Fixed Assets + Intangible Assets +Net Working Capital*

- ***Return on Capital Employed (ROCE):*** *(Earnings before Interest & Taxes/Average Capital Employed) *100*

Revenue and Scale: Jindal Supreme India Limited reported revenue from operations of ₹58,639.93 lakhs in FY2025, following a growth from ₹50,612.00 lakhs in FY2023 and ₹64,543.98 lakhs in FY2024. While the Company's scale is moderate relative to larger peers in the steel pipes and tubes sector, it has demonstrated resilience in revenue generation. Total income stood at ₹60,473.63 lakhs in FY2025, indicating limited but consistent diversification of revenue streams.

Profitability: The Company recorded an EBITDA of ₹2,562.40 lakhs and a PAT of ₹2,437.27 lakhs in FY2025, resulting in an EBITDA margin of 4.37% and PAT margin of 4.03%. The upward trend in profitability from FY2023, where EBITDA and PAT margins were 1.79% and 0.51% respectively, reflects improved operational efficiency and effective cost management. While margins remain lower than some larger peers, the Company maintains a resilient profitability profile relative to mid-sized industry participants.

Liquidity Position: The current ratio of the Company stood at 1.52 in FY2025, indicating a comfortable short-term liquidity position and adequate ability to meet immediate obligations. This ratio is in line with typical industry practices, suggesting neither over-investment nor under-utilization of current assets, and reflects prudent working capital management.

Capital Structure and Leverage: As of FY2025, tangible net worth of the Company was ₹7,471.69 lakhs, with total debt of ₹8,583.58 lakhs, resulting in a debt-equity ratio of 0.54. This reflects a moderate leverage position, highlighting a balanced approach between equity and debt financing. Compared to peers, the Company's leverage is neither overly aggressive nor conservative, supporting sustainable capital deployment while maintaining financial flexibility.

Returns and Capital Efficiency: The Company reported a return on capital employed (ROCE) of 14.10% and return on net worth (RONW) of 38.25% in FY2025. These figures demonstrate efficient utilization of capital, with ROCE reflecting operational efficiency and RONW indicating strong shareholder returns. The upward trajectory from FY2023 metrics (ROCE 11.48%, RONW 11.84%) highlights effective capital management and profitability growth.

Jindal Supreme India Limited maintains a competitive position in the mid-sized segment of the steel pipes and tubes industry. The Company is well-positioned to leverage growth opportunities in the expanding steel tubes sector, with potential to enhance market share and financial performance through targeted investments and operational enhancements.

8.8 Peer Benchmarking Table (FY2024–25)

The table below presents a comparative analysis of Jindal Supreme India Ltd ("the Company") against select peers in the steel manufacturing and pipe industry, based on key financial and operational parameters for FY2025.

All financials are consolidated unless stated otherwise. Figures are in ₹ lakhs.

Key Indicators (in INR Lakhs)	Jindal Supreme India Ltd	Hariom Pipe Industries Ltd	Sambhv Steel Tubes Ltd	JTL Industries Ltd	Hi-Tech Pipes Ltd	APL Apollo Tubes Ltd
Revenue from operations	58,639.93	1,35,704.88	1,51,135.50	1,91,631.11	3,06,763.62	20,68,954.00
Total Income	60,473.63	1,35,994.35	1,51,670.10	1,93,875.93	3,06,952.49	20,78,560.00
EBITDA	2,562.40	17,542.60	15,448.20	12,295.58	16,003.24	1,19,898.00
EBITDA Margin	4.37	12.93	10.22	6.42	5.22	5.80
PAT	2,437.27	6,172.60	5,726.50	9,882.52	7,294.91	75,706.00
PAT Margin	4.03	4.54	3.78	5.10	2.38	3.64
Current Ratio	1.52	1.45	0.96	9.47	2.38	1.21
Tangible Net Worth	7,471.69	57,258.63	49,476.10	1,21,830.69	1,25,705.56	4,06,885.00
Total Debt	8,583.58	41,127.70	53,047.00	8,494.87	19,544.72	64,404.00
Debt Equity Ratio	0.54	0.16	0.67	0.01	0.02	0.10
ROCE (%)	14.10	25.12	22.66	17.39	18.75	38.37
RONW (%)	38.25	21.56	23.15	16.22	11.61	37.21

Source: *FY25 Financials submitted on BSE*

Revenue and Scale: The Company reported revenue from operations of ₹58,639.93 lakhs in FY2025. While this is lower than larger peers such as Hariom Pipe Industries Ltd, Sambhv Steel Tubes Ltd, JTL Industries Ltd, Hi-Tech Pipes Ltd and significantly lower than APL Apollo Tubes Ltd, the Company has maintained a steady growth trajectory over the years. The total income of the Company stood at ₹60,473.63 lakhs, reflecting a moderate diversification of revenue streams.

Profitability: The Company reported EBITDA of ₹2,562.40 lakhs and a PAT of ₹2,437.27 lakhs, translating into an EBITDA margin of 4.37% and PAT margin of 4.03% in FY2025. While EBITDA margins are below some peers, the Company's profitability remains resilient due to efficient cost management and focused operations. The PAT margin is in line with industry averages, reflecting a balanced approach to operating and financial efficiency.

Liquidity Position: The Company's current ratio of 1.52 indicates a comfortable short-term liquidity position and the ability to meet its immediate obligations. Comparatively, most peers maintain a current ratio close to 1, except JTL Industries Ltd, which demonstrates an unusually high current ratio of 9.47, possibly indicating higher working capital investments or other operational considerations.

Capital Structure and Leverage: As of FY2025, the Company's tangible net worth stood at ₹7,471.69 lakhs, with total debt of ₹8,583.58 lakhs, resulting in a debt-equity ratio of 0.54. This reflects a moderate leverage position, indicating a balanced approach between equity and debt financing. Peers such as Hariom Pipe Industries Ltd and Sambhv Steel Tubes Ltd operate at lower and higher leverage respectively, suggesting varied capital structure strategies across the industry.

Returns and Capital Efficiency: The Company reported a return on capital employed (ROCE) of 14.10% and return on net worth (RONW) of 38.25%. These metrics indicate effective utilization of capital, with ROCE reflecting operational efficiency and RONW demonstrating robust shareholder returns. Peers such as APL Apollo Tubes Ltd exhibit higher ROCE and RONW, reflecting larger scale operations and higher capital efficiency.

In comparison to peers, Jindal Supreme India Ltd maintains a competitive position within the mid-sized segment of the steel pipe and tube industry. The Company's moderate scale, sustainable profitability, healthy liquidity, and balanced leverage provide a solid foundation for future growth. There is potential to enhance operational efficiency, optimize working capital, and explore strategic expansions to improve market share and financial performance.

11. Future Outlook

The Indian steel pipes and tubes industry is positioned for steady growth over the medium to long term, supported by domestic infrastructure development, industrial expansion, and export integration. Government-led initiatives—such as metro networks, Smart Cities, Dedicated Freight Corridors (DFC), Jal Jeevan Mission, and energy pipeline expansion—are expected to drive demand across both commodity-grade and high-value pipe segments. Rapid industrialization, manufacturing growth, and energy transition projects, including city gas distribution and renewable energy infrastructure, provide additional impetus for specialized, durable pipes.

Segment-Specific Outlook: ERW pipes are expected to maintain volume dominance due to cost efficiency and extensive use in water supply, agriculture, and construction. SAW and seamless pipes will see incremental growth in high-pressure applications for oil & gas, refineries, petrochemicals, and power generation, with domestic and export demand supporting expansion. Structural hollow sections and value-added pipes are increasingly adopted in modern construction, industrial frameworks, bridges, and renewable energy projects, reflecting a shift toward higher-margin, specialized products.

Material and Technology Trends: The industry is likely to favour corrosion-resistant, high-strength, and alloyed steel grades for energy, petrochemical, and high-rise construction applications. Technological advancements—including automated production lines, high-frequency welding, advanced coatings, and precision cold-forming—are enhancing operational efficiency, product quality, and global competitiveness. Sustainability measures, targeting reduced carbon intensity, energy consumption, and material waste, are increasingly integrated across production processes.

Trade and Export Potential: India's position as a leading producer and exporter of steel pipes supports growth in global markets, particularly the Middle East, Southeast Asia, the USA, and Africa. Export volumes are expected to benefit from adherence to international standards (ASTM, API, EN) and improved logistics, while selective import substitution will strengthen domestic capabilities.

Growth Projections: Domestic demand for steel pipes is projected to grow at a CAGR of ~5.5% from FY2024–25 to FY2029–30, underpinned by infrastructure, urbanization, and industrial projects. Rising per-capita steel consumption, projected to reach 160 kg by FY2030–31, highlights significant untapped potential for both standard and value-added pipes.

Investment in capacity expansion, technological upgrades, and product diversification will reinforce India's position as a global hub, enabling a competitive, resilient, and export-oriented industry ecosystem.

The sector is expected to focus on dual objectives: meeting domestic infrastructure demand through cost-efficient, high-volume products such as ERW and structural hollow sections, while expanding high-margin, high-specification segments like SAW, seamless, and alloyed pipes for industrial and international markets. Policy support, raw material availability, and technological adoption collectively position the Indian steel pipes and tubes industry for sustainable long-term growth.

For Infomerics Analytics & Research Pvt Ltd

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