



Industry Report of

Report Focus Industry: Infrastructure Engineering Solution
(With Focus on Structural Steel Fabrication Industry)

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Submitted for

Pioneer Fabricators Limited

Commercial in Confidence



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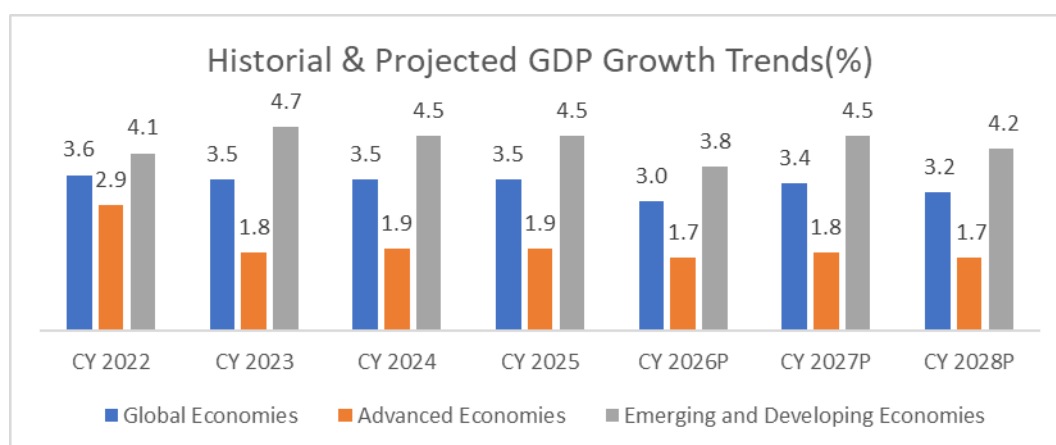
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Global Macroeconomic Analysis

Global Economic Overview

The global economy continues to demonstrate resilience despite ongoing geopolitical uncertainties, supply chain disruptions and evolving monetary policy conditions across major economies. According to the International Monetary Fund ("IMF"), global economic growth grew at 3.5% in CY2025. The global economy is navigating a period characterized by the interplay of geopolitical uncertainty and accelerating technological transformation. While ongoing geopolitical tensions continue to create challenges for global trade, energy markets, and supply chains, rapid advancements in artificial intelligence (AI), automation, cloud computing, advanced manufacturing, and digital infrastructure are supporting productivity gains and investment activity across major economies.

Despite the economic disruptions arising from regional conflicts, the impact on global growth has thus far been more contained than initially anticipated. Inflation expectations, financial conditions, and commodity markets have remained relatively resilient, allowing economic activity to continue expanding. Looking ahead, technological innovation, digitalization, and evolving supply-chain strategies are expected to remain key structural drivers shaping medium-term global growth prospects.



Source – IMF Global GDP Forecast Release, July 2026¹

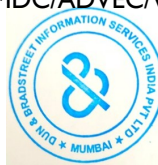
Note: Data till CY2027 are sourced from the IMF's July 2026 World Economic Outlook (WEO) Update. The CY2028 data are sourced from the IMF World Economic Outlook Database.²

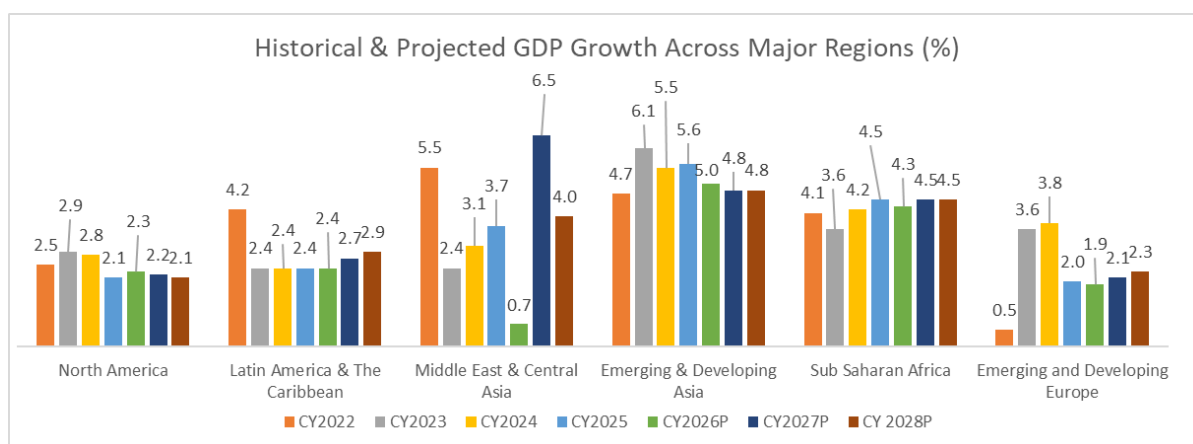
Regional GDP Growth

The chart highlights significant divergence in economic growth trajectories across major regions during CY2022-CY2028P. While Emerging & Developing Asia continues to lead global growth, regions such as the Middle East & Central Asia exhibit higher volatility due to geopolitical and commodity-related factors. Meanwhile, North America, Latin America, and Sub-Saharan Africa are expected to display relatively stable growth patterns over the forecast period.

¹ <https://www.imf.org/-/media/files/publications/weo/2026/update/july/english/text.pdf>

² https://www.imf.org/external/datamapper/NGDP_RPCH@WEO/OEMDC/ADVEC/WEOWORLD





Source – IMF Global GDP Forecast Release, July 2026³

Note: Data till CY2027 are sourced from the IMF's July 2026 World Economic Outlook (WEO) Update. The CY2028 data are sourced from the IMF World Economic Outlook Database.⁴

North America- Stable and Mature Growth Profile:

North America is expected to maintain a steady growth trajectory, with GDP growth moderating from 2.5% in CY2022 to around 2.1-2.3% during CY2024-CY2028 P. The region benefits from resilient consumer spending, strong labor markets, and ongoing investments in technology and digital infrastructure. Although growth is lower than emerging markets, the consistency reflects the maturity and resilience of its economic structure.

Latin America & Caribbean- Gradual Stabilization:

Growth in Latin America & the Caribbean is projected to normalize after a strong 4.2% expansion in CY2022, settling between 2.4% and 2.9% through CY2028P. The moderation reflects tighter monetary conditions and slower global demand; however, improving domestic consumption, easing inflationary pressures, and commodity sector support are expected to sustain moderate economic expansion across the region.

Middle East & Central Asia- Sharp Volatility Followed by Recovery:

The Middle East & Central Asia region displays the most pronounced fluctuations among all regions. Growth rises from 2.4% in CY2023 to 3.7% in CY2025, before plunging to 0.7% in CY2026F, reflecting geopolitical disruptions, energy market uncertainty, and trade route constraints. A strong rebound is expected thereafter, with growth surging to 6.5% in CY2027 before normalizing to 4.0% in CY2028P, supported by recovery in energy production, infrastructure investments, and normalization of regional trade.

Emerging & Developing Asia- Global Growth Engine

Emerging & Developing Asia continues to outperform all major regions, maintaining growth above 4.5% throughout the period. After peaking at 6.1% in CY2023, growth is projected to stabilize between 4.8% and

³ <https://www.imf.org/-/media/files/publications/weo/2026/update/july/english/text.pdf>

⁴ https://www.imf.org/external/datamapper/NGDP_RPCH@WEO/OEMDC/ADVEC/WEOWORLD

5.6% during CY2024-CY2028P. Strong domestic demand, expanding manufacturing capabilities, infrastructure investments, digital transformation initiatives, and favorable demographics continue to position the region as the primary contributor to global economic growth. India and Southeast Asian economies are expected to remain key growth drivers.

Sub-Saharan Africa-Consistent Growth Momentum:

Sub-Saharan Africa demonstrates a relatively stable growth outlook, improving from 3.6% in CY2023 to around 4.3-4.5% during CY2026-CY2028P. Economic activity is supported by urbanization, demographic growth, infrastructure development, and recovery in commodity-related sectors. Despite external risks and fiscal challenges in certain economies, the region is expected to maintain steady medium-term growth momentum.

Emerging & Developing Europe- Recovery After Sharp Slowdown:

Emerging & Developing Europe experienced a significant slowdown from 3.8% in CY2023 to just 0.5% in CY2022, reflecting the lingering impact of geopolitical tensions and energy market disruptions. Growth subsequently recovered to 3.6% in CY2023, before moderating and stabilizing around 2.0-2.3% during CY2025-CY2028P. Continued geopolitical uncertainty and energy dependency are expected to constrain growth, although improved trade activity and fiscal support measures provide some stabilization.

Trade and Commodity Market Trends

Commodity markets continue to operate in a high-price environment. Energy prices remain significantly above pre-conflict levels, with the IMF projecting average crude oil prices of approximately US 89 per barrel in CY2026, representing a year-on-year increase of around 32%, while natural gas prices are forecast to rise by roughly 22%. Elevated energy costs are also expected to push fertilizer prices up by approximately 26% and food prices by about 8%, reflecting higher transportation and production costs.

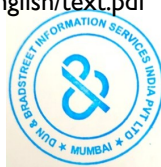
Global trade activity is expected to moderate in the near term, with world trade volume growth projected to decline from 5.0% in CY2025 to 3.5% in CY2026, before recovering to 4.3% in CY2027 as supply-chain conditions improve and demand stabilizes.

According to the IMF, global GDP growth is projected at **3.0% in CY2026** and **3.4% in CY2027**, compared with an average growth rate of approximately **3.5% during CY2024-CY2025**. Growth in advanced economies is projected at 1.7% in 2026 and 1.8% in 2027, with the overall impact of the Middle East conflict remaining relatively contained compared with emerging market and developing economies. Net energy exporters are partly cushioned by favorable terms-of-trade effects, while net energy importers face greater pressure from higher energy prices. In **the United States**, growth is projected at 2.3% in 2026 and 2.2% in 2027, supported by fiscal policy, accommodative financial conditions, continued technology-related investment and productivity strength. The impact of the Middle East conflict is expected to remain limited given the United States' position as a net energy exporter. In **the euro area**, growth is projected at 0.9% in 2026 and 1.2% in 2027, with higher energy prices, weak consumer confidence and soft underlying momentum weighing on activity.

In **emerging market and developing economies**, growth is projected to slow to 3.8% in 2026 before recovering to 4.5% in 2027. The outlook varies across economies, reflecting differences in commodity dependence, geographic exposure, remittances and tourism receipts, sensitivity to financial conditions, and positioning within the global technology value chain. China's growth is projected at 4.6% in 2026, as higher global oil prices, prolonged uncertainty and structural headwinds are expected to weigh on activity. India remains among the fastest-growing major economies, with growth projected at 6.4% in 2026, supported by strong momentum in private consumption and services activity. Malaysia's economy is projected to grow by 4.7% in 2026, benefiting from data center activity and an upturn in the global technology cycle. Thailand's growth forecast has been revised upward by 0.4 percentage point to 1.9%, supported by emergency fiscal measures, robust technology-related exports and investment. Vietnam's 2026 growth projection has also been revised upward by 0.4 percentage point to 7.5%, driven by stronger-than-expected technology exports and robust domestic demand. By contrast, small island developing states are expected to experience slower growth due to higher energy costs, weaker tourism and lower remittance inflows.

In the **Middle East and Central Asia**, growth is projected to drop sharply to 0.7% in 2026 before rebounding to 6.5% in 2027, representing a downward revision of 1.2 percentage points for 2026 and an upward revision of 1.9 percentage points for 2027. The outlook reflects a longer closure of the Strait of Hormuz than previously assumed and the resulting larger rebound. Iraq, Kuwait and Qatar, among the commodity producers most affected by disruptions to energy output and transportation, are projected to experience sharp economic contractions in 2026, followed by double-digit expansions in 2027. Saudi Arabia is expected to be relatively less affected due to its more diversified export routes, with growth projected at 1.7% in 2026 and 5.5% in 2027. Iran's 2026 growth forecast has been revised upward by 0.7 percentage point to -5.4%, reflecting stronger-than-expected oil exports and some relaxation of export restrictions, while its 2027 forecast has been revised downward by 0.3 percentage point. Commodity importers in the Middle East

⁵ <https://www.imf.org/-/media/files/publications/weo/2026/update/july/english/text.pdf>



and North Africa are expected to remain relatively resilient despite higher energy and food prices, while economies in the Caucasus and Central Asia continue to benefit from favorable economic conditions and growth prospects.

In **Emerging and Developing Europe**, growth is expected to remain restrained at around 2.0%, reflecting subdued economic activity and continued geopolitical and energy-related pressures. Russia's growth is projected at 1.1%, with stronger export revenues, partly driven by higher commodity prices, providing some support to the economy. However, the outlook remains challenging for energy-intensive economies and countries dependent on fossil fuel imports, as higher energy prices continue to weigh on economic activity. These pressures are partly offset by the positive impact of increased defense spending, which is supporting economic activity across parts of the region.

Key factors impacting Global Macroeconomic landscape

- **Geopolitical tensions** remain one of the most significant sources of macroeconomic uncertainty. Ongoing conflicts continue to influence commodity prices, transportation networks, and trade flows, contributing to elevated energy costs and inflationary pressures. While baseline projections assume a gradual normalization of global energy and logistics conditions, further disruptions remain a key downside risk.
- **Trade fragmentation and supply-chain diversification** are becoming increasingly important. Higher tariffs, geopolitical tensions and policy uncertainty are encouraging companies to diversify sourcing, regionalize production networks and strengthen supply-chain resilience. The resulting shift toward nearshoring, friend-shoring and multi-sourcing is increasing the strategic importance of supply-chain redundancy, even where this involves higher operating costs.
- In **Global Trade and Commodity Markets**, Commodity prices remain elevated, with energy prices around 25% above pre-war levels. The IMF projects the average petroleum spot price index at USD 89 per barrel in 2026 and natural gas prices at USD 15, corresponding to increases of 32% for crude oil and 22% for natural gas compared with 2025. Fertilizer prices are projected to rise by 26%, while food prices are expected to increase by 8%, reflecting higher energy, fertilizer and transportation costs. World trade volume growth is projected to slow from 5.0% in 2025 to 3.5% in 2026, before recovering to 4.3% in 2027.
- **Technology adoption and sustainability** are becoming core strategic priorities. Rapid advances in artificial intelligence, cloud computing, automation, data centres and digital infrastructure are supporting technology-related investment and productivity growth. At the same time, rising electricity demand from digital infrastructure is increasing the importance of energy efficiency, advanced cooling systems, grid reliability and renewable-energy integration. The IMF identifies continued technology-related business investment and productivity strength as an important support to US growth, while the IEA highlights the growing role of rare-earth-dependent technologies such as AI data centres, electric vehicles, wind turbines and advanced industrial equipment.

- **Critical-mineral supply concentration** is becoming a strategic economic risk. Rare-earth supply chains remain highly concentrated, particularly for magnet rare earths used in electric vehicles, wind turbines, industrial motors, AI data centres and defence applications. According to the IEA's latest 2026 assessment, China continues to dominate the global rare earth supply chain, accounting for around 60% of global mined production of magnet rare earths, more than 90% of refined output, and almost 95% of permanent magnet production⁶.

⁶ <https://www.iea.org/news/new-projects-partnerships-and-policies-are-needed-to-address-supply-chain-risks-for-rare-earth-elements>



India Macroeconomic Analysis

Against the backdrop of a moderating global growth environment, India continues to be one of the fastest-growing major economies globally. Supported by strong domestic demand, increasing investments, rising consumption expenditure and sustained policy reforms, the Indian economy has demonstrated robust growth momentum relative to most large economies. According to the IMF, India's GDP is projected to grow at 6.4% in CY2026 and 6.7% in CY2027, significantly higher than several advanced and emerging economies.

Country	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024	CY 2025	CY 2026 P	CY 2027 P	CY 2028P
India ⁷	-5.8%	9.7%	7.6%	9.2%	7.1%	7.7%	6.4%	6.7%	6.5%
China	2.3%	8.6%	3.1%	5.4%	5.0%	5.0%	4.6%	4.1%	4.0%
United States	-2.2%	6.1%	2.5%	2.9%	2.8%	2.1%	2.3%	2.2%	2.1%
Japan	-4.2%	2.7%	0.9%	1.4%	-0.2%	1.1%	0.6%	0.7%	0.6%
United Kingdom	-10.3%	8.6%	4.8%	0.4%	1.0%	1.4%	1.0%	1.3%	1.6%
Russia	-2.7%	5.9%	-1.4%	4.1%	4.9%	1.0%	1.1%	1.1%	1.0%
Germany	-4.1%	3.9%	1.8%	-0.9%	-0.5%	0.2%	0.7%	1.0%	1.2%

Source: World Economic Outlook, July 2026⁸

Note: The data presented till CY 2027P are taken from the IMF's July 2026 World Economic Outlook (WEO) and the CY2028 data are sourced from the IMF World Economic Outlook Database.⁹

Growth across major economies is expected to remain mixed. The United States is projected to grow by 2.3% in CY 2026 and 2.2% in CY 2027, while China is expected to expand by 4.6% in CY 2026 and 4.1% in CY 2027. Among other major economies, Germany is projected to grow by 0.7% in CY 2026 and 1.0% in CY 2027, while Japan is expected to expand by 0.6% and 0.7%, respectively. The United Kingdom is projected to grow by 1.0% in CY 2026 and 1.3% in CY 2027, while Russia is forecast to grow by 1.1% in both years. Against this backdrop, India continues to stand out as one of the fastest-growing major economies globally. The IMF projects India's growth at 7.7% in CY 2025, 6.4% in CY 2026, 6.7% in CY 2027 and 6.5% in CY 2028.

⁸ <https://www.imf.org/-/media/files/publications/weo/2026/update/july/english/text.pdf>

⁹ https://www.imf.org/external/datamapper/NGDP_RPCH@WEO/OEMDC/ADVEC/WEOWORLD

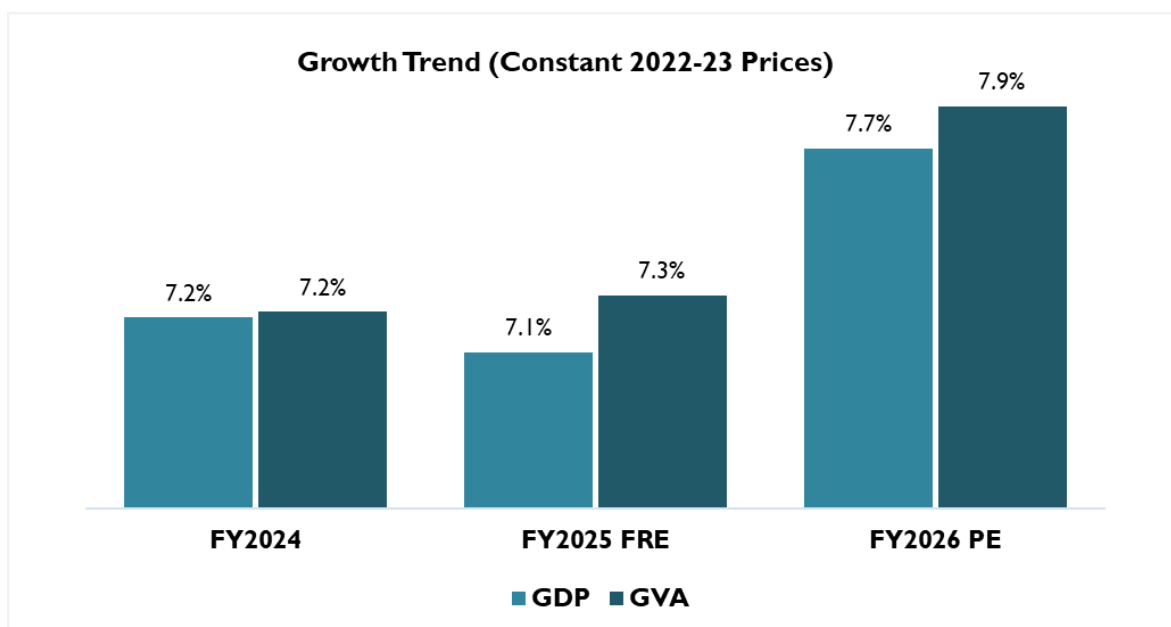


India's growth trajectory is underpinned by a broad-based expansion across key sectors of the economy. The country's large domestic market, favourable demographics, increasing urbanization, growing middle-income population and expanding industrial base continue to support economic activity. In addition, structural reforms, infrastructure development initiatives and efforts to strengthen domestic manufacturing capabilities have contributed to enhancing India's long-term growth potential.

Historical GDP and GVA Growth Trend

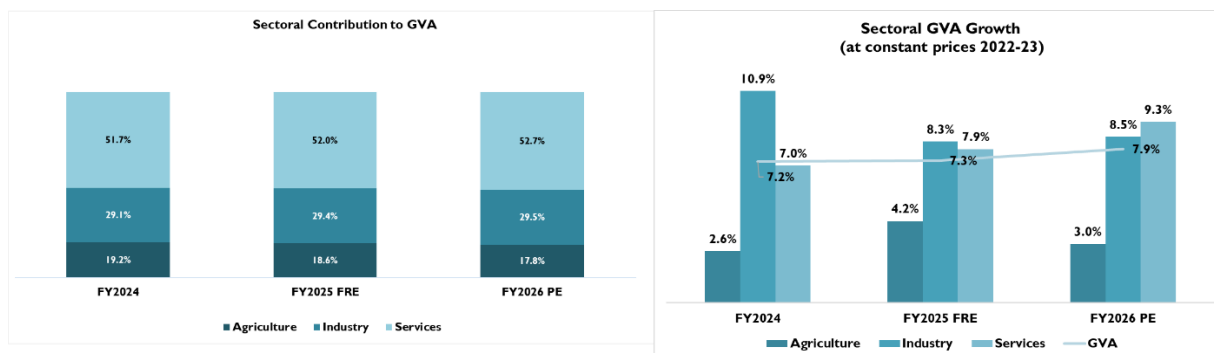
As per MOSPI's Provisional Estimates, India Real GDP (GDP at constant prices) for FY 2026 is estimated to reach INR 323.12 lakh crore, compared to the First Revised Estimate (FRE) of INR 299.89 lakh crore for FY 2025. This represents a growth rate of 7.7% in 2026, higher than the 7.1% growth recorded in 2025.

Similarly, Real GVA for FY 2026 is estimated to reach INR 294.91 lakh crore, up from INR 273.36 lakh crore in FY 2025. This indicates a growth rate of 7.9%, compared with the 7.3% growth achieved in the previous year.



Source: Ministry of Statistics & Programme Implementation (MOSPI), National Account Statistics: FY2025, FRE is First Revised Estimate; PE is Provisional Estimates

Sectoral Contribution to GVA and Annual Growth Trend



Source: Ministry of Statistics & Programme Implementation (MOSPI), CMIE Economics Outlook
FRE is First Revised Estimate; PE is Provisional Estimates

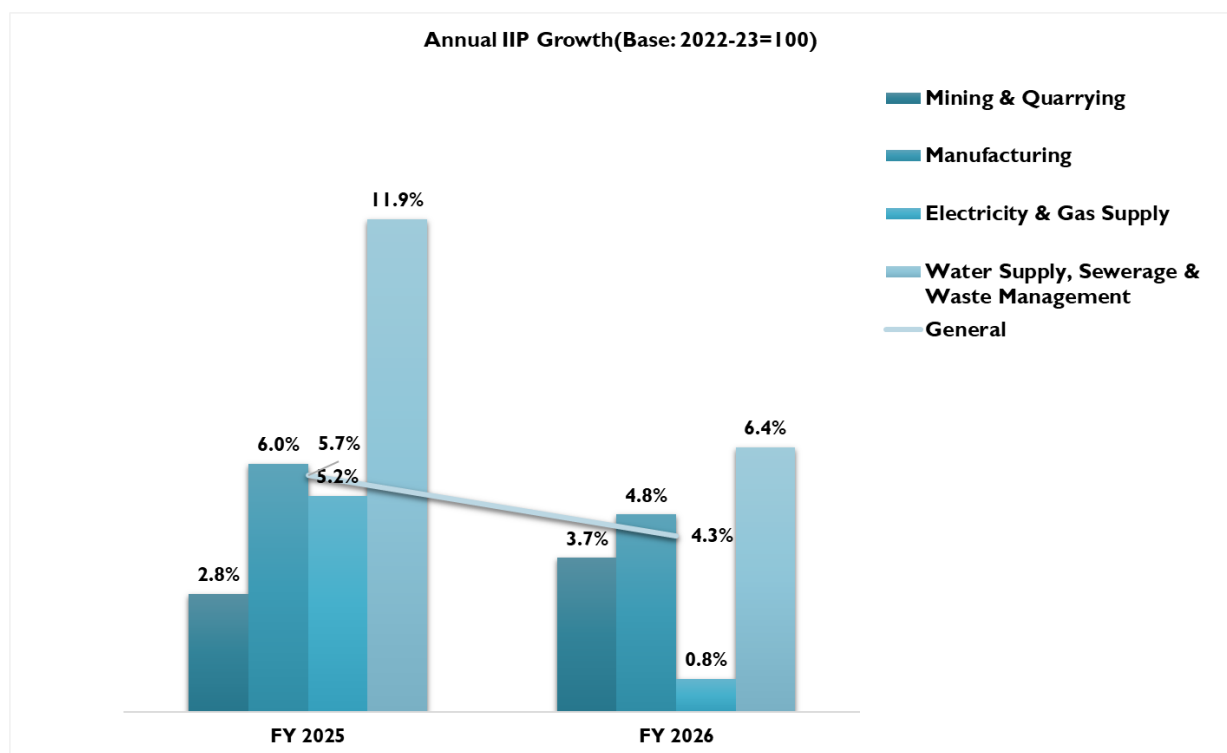
Sectoral analysis of GVA reveals that the industrial sector experienced steady growth momentum in FY 2026, recording a 7.9% y-o-y growth against 7.3% year-on-year growth in FY 2025. Within the industrial sector, growth moderated across sub-sectors with mining, and construction activities growing by 5.15%, and 7.36%, respectively in FY 2026, compared to 11.69%, and 7.30% in FY 2025. Growth in the utilities sector too moderated to 1.74% in FY 2026 from 2.87% in the previous year. The industrial sector's contribution to GVA increased marginally from 29.4% in FY 2025 to 29.5% in FY 2026.

The services sector continued to be the main driver of economic growth. It expanded by 9.3% in FY 2026 from 7.9% in FY 2025. The services sector retained its position as the largest contributor to GVA, rising from 51.7% in FY 2024 to 52.0% in FY 2025, with a further increase to 52.7% in FY 2026.

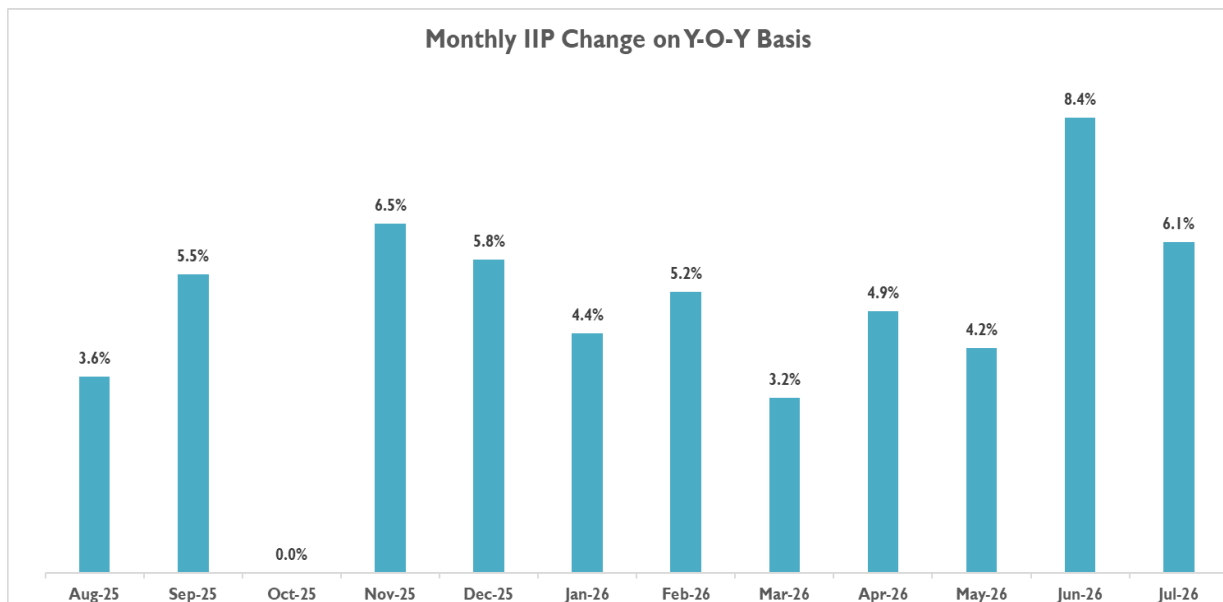
The agriculture sector saw an acceleration in growth, increasing from 2.66% in FY 2024 to 4.18% in FY 2025, before moderating to 3.0% in FY 2026. However, its contribution to GVA declined marginally from 19.2% in FY 2024 to 17.8% in FY 2026. Overall, Gross Value Added (GVA) growth rose to 7.9% in FY 2026 from 7.3% in FY 2025.

Annual & Monthly IIP Growth

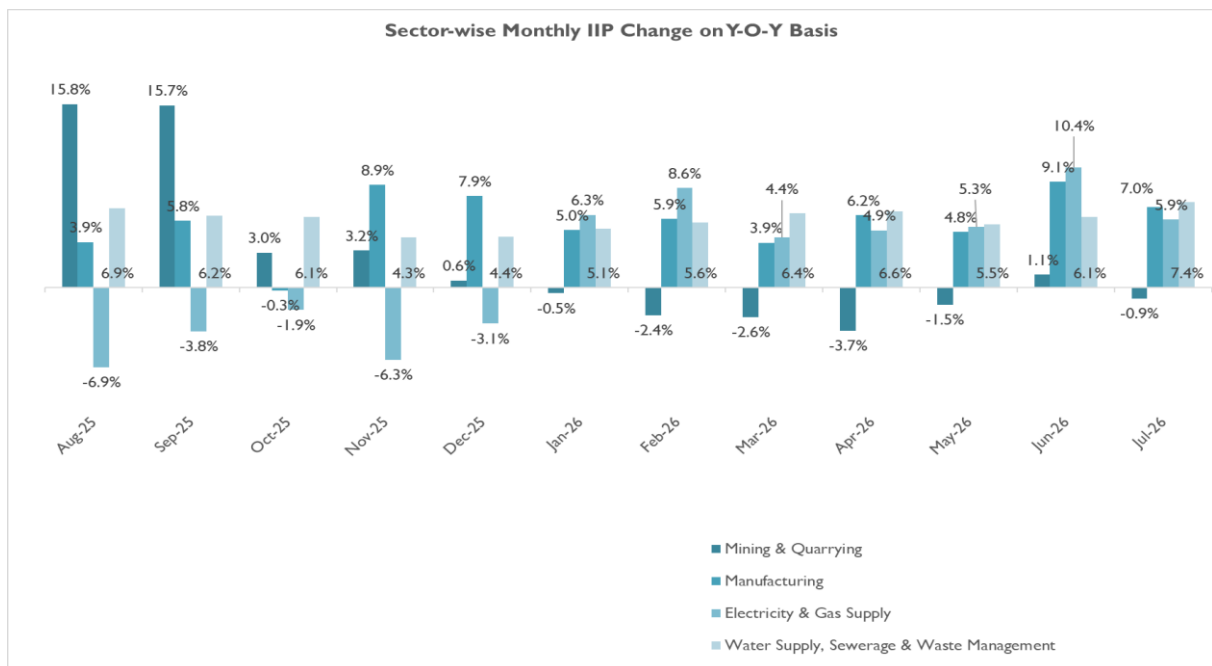
Industrial sector performance, as measured by the IIP, moderated in FY 2026, recording 4.3% y-o-y growth compared with 5.2% in FY 2025. The manufacturing sector grew by 4.8% in FY 2026, compared with 6.0% in FY 2025. The Electricity & Gas Supply sector recorded growth of 0.8%, compared with 5.7% in the previous year. Water Supply, Sewerage & Waste Management grew by 6.4% in FY 2026, compared with 11.9% in FY 2025. In contrast, Mining & Quarrying growth improved to 3.7% in FY 2026 from 2.8% in FY 2025.



Source: Ministry of Statistics & Programme Implementation (MOSPI)



Source: Ministry of Statistics & Programme Implementation (MOSPI)

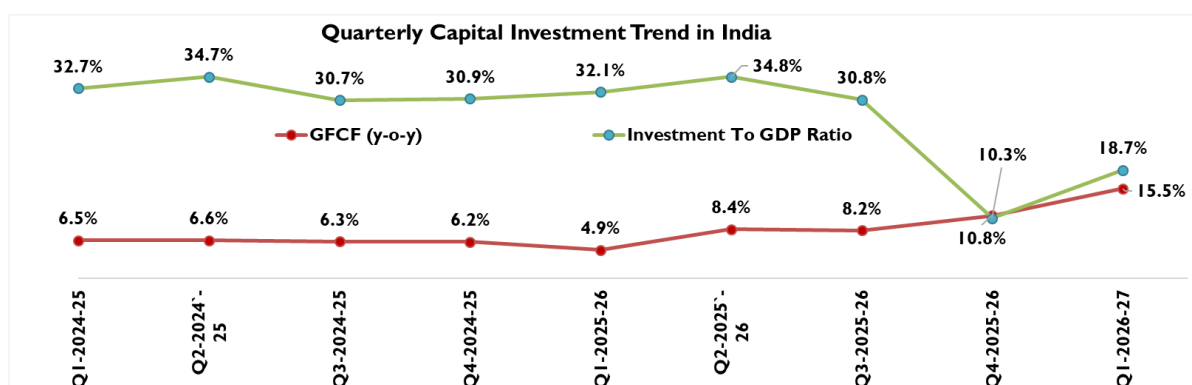
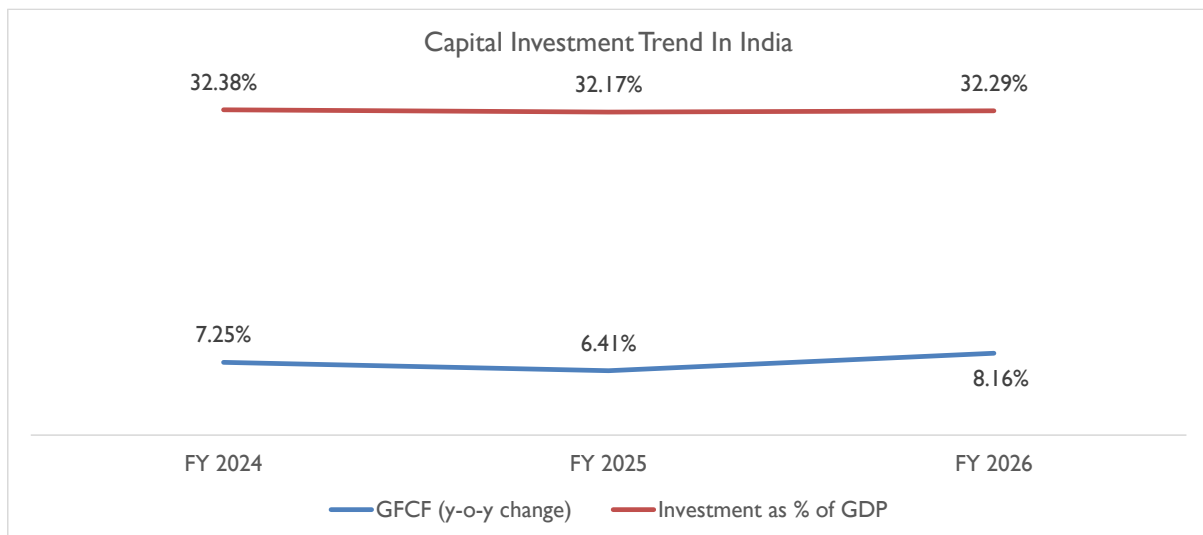


Source: Ministry of Statistics & Programme Implementation (MOSPI)

In the latest month shown, July 2026, IIP growth stood at 6.1% y-o-y, compared with 4.2% in May and 8.4% in June 2026. Sector-wise, Mining & Quarrying declined by 0.9%, while Manufacturing grew by 7.0%, Electricity & Gas Supply by 5.9%, and Water Supply, Sewerage & Waste Management by 7.4% in July 2026.

Annual and Quarterly: Investment & Consumption Scenario

Other major indicators, such as Gross Fixed Capital Formation (GFCF), a measure of investment, increased during FY 2026, registering 8.16% year-on-year growth compared with 6.41% in FY 2025, bringing the GFCF-to-GDP ratio to 32.29%.

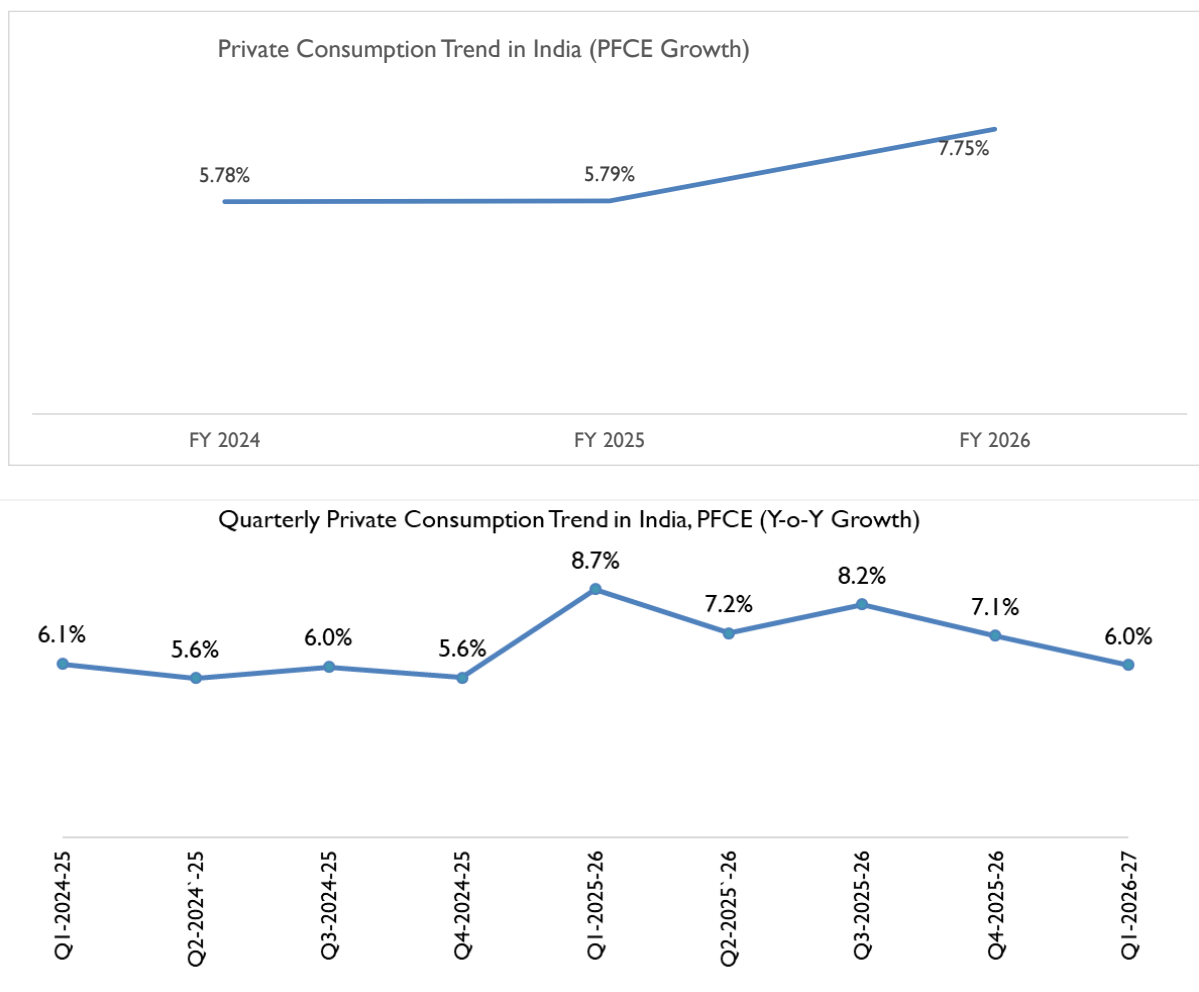


Source: Ministry of Statistics & Programme Implementation (MOSPI), CMIE Economics Outlook

India's capital investment activity remained broadly resilient during the period under review, with the **Investment-to-GDP ratio** consistently remaining above 30% across most quarters. After peaking at **34.8%** in **Q2 FY 2025-26**, the ratio moderated sharply to **10.3%** in **Q4 FY 2025-26**, before recovering to **18.7%** in **Q1 FY 2026-27**, indicating a temporary slowdown followed by an improvement in investment activity. The overall trend reflects continued emphasis on capital formation and infrastructure development as key drivers of economic growth.

Meanwhile, **Gross Fixed Capital Formation (GFCF) growth** exhibited a strong upward trajectory after a brief moderation in early FY 2025-26. GFCF growth increased from **4.9%** in **Q1 FY 2025-26** to **10.8%** in **Q4 FY 2025-26**, further accelerating to **15.5%** in **Q1 FY 2026-27**, the highest level during the period. The sustained improvement in GFCF growth highlights strengthening fixed asset creation, supported by higher public and private sector investments, reinforcing a positive outlook for India's infrastructure and industrial development landscape.

Private Consumption Scenario



Sources: MOSPI, CMIE Economics Outlook

Private Final Consumption Expenditure (PFCE), a key indicator of household consumption and domestic demand, maintained healthy year-on-year growth throughout the period, although momentum moderated in the latest quarter. PFCE growth stood at 6.1% in Q1 FY 2024-25, before moderating slightly to 5.6% in Q2, rising to 6.0% in Q3 and easing again to 5.6% in Q4. In FY 2025-26, consumption growth strengthened significantly to 8.7% in Q1, before moderating to 7.2% in Q2 and recovering to 8.2% in Q3. Growth then eased to 7.1% in Q4 FY 2025-26 and further moderated to 6.0% in Q1 FY 2026-27.

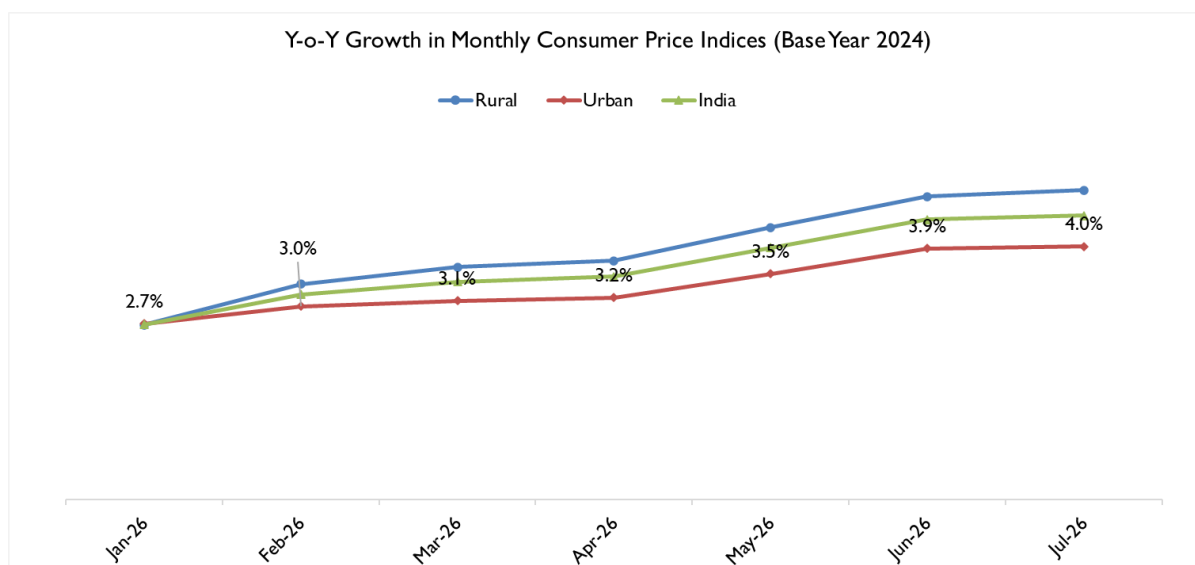
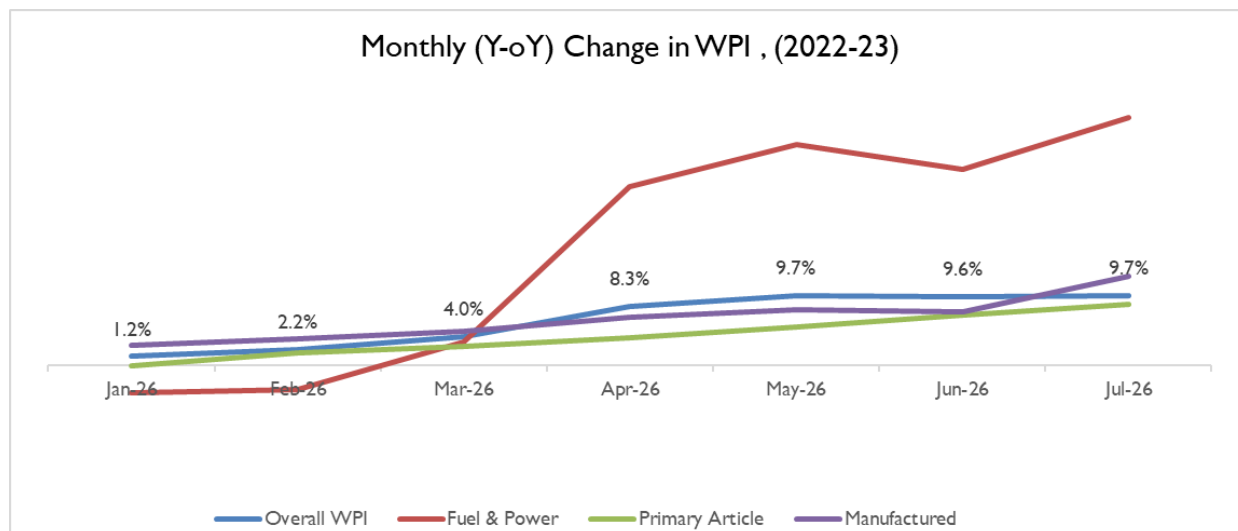
Overall, the data indicates that private consumption remained a key driver of domestic economic activity, with PFCE growth consistently above 5% and recording particularly strong momentum during FY 2025-26. However, the moderation to 6.0% in Q1 FY 2026-27 suggests some easing in household consumption momentum compared with the stronger growth recorded during the preceding quarters.

Inflation Scenario

All India Wholesale Price Index (WPI) inflation for July 2026 is 9.7 per cent on a year-on-year (YoY) basis, compared to 9.6 per cent in June 2026. The index for All Commodities for July 2026 stands at 109.7, whereas it was 109.6 in June 2026. Across Groups, 'Mineral Oils (containing Petroleum Products)', 'Crude Petroleum

and Natural Gas', 'Manufacture of Chemicals and Chemical Products', and 'Manufacture of Basic Metals' continued to be major drivers of WPI inflation in June and July 2026.

Across the regions, YoY inflation for Rural, Urban, and India stood at 1.03 per cent, 0.71 per cent, and 0.94 per cent, respectively, in July 2026, compared with 7.24 per cent, 6.69 per cent, and 7.00 per cent, respectively, in June 2026. The indices for Rural, Urban, and India were 108.34, 107.45, and 107.94, respectively, in July 2026, compared with 107.24, 106.69, and 107.00, respectively, in June 2026.

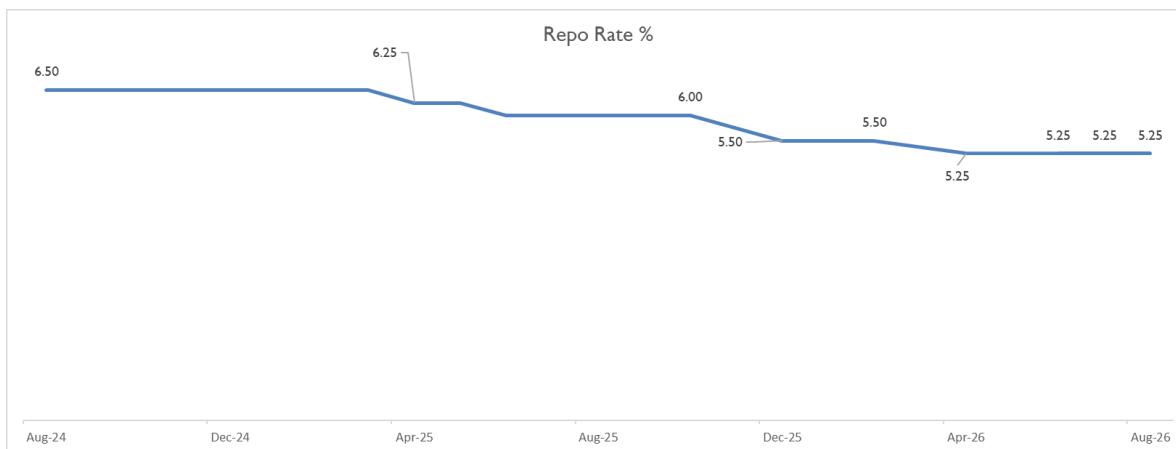


Source: MOSPI, Office of Economic Advisor

With effect from January 2026, the National Statistics Office (NSO) introduced a revised Consumer Price Index (CPI) series with base year 2024=100, incorporating revised item weights based on the Household Consumption Expenditure Survey (HCES) 2023-24. Under the revised series, All India CPI inflation increased gradually from 2.7% in January 2026 to 4.0% in July 2026. Inflation rose from 3.0% in February to 3.1% in March and 3.2% in April, before accelerating to 3.5% in May, 3.9% in June and 4.0% in July. The trend indicates



a steady pick-up in retail inflation during the first half of 2026, following relatively subdued price pressures at the beginning of the year. Rural inflation remained higher than urban inflation during the period, with the gap widening toward the latest months, indicating relatively stronger price pressures in rural areas.



Sources: CMIE Economic Outlook

On the monetary policy front, the RBI had cumulatively raised the repo rate by 250 basis points between May 2022 and February 2023, bringing it to 6.50%, where it was maintained through January 2025 to anchor inflationary expectations. With inflationary pressures moderating and the need to support economic activity, the RBI's Monetary Policy Committee (MPC) initiated an easing cycle in February 2025, delivering a cumulative 125 basis points of rate cuts through four reductions — 25 basis points each in February and April 2025, 50 basis points in June 2025, and 25 basis points in December 2025. The MPC subsequently maintained the repo rate at 5.25% through August 2026, reflecting a balanced approach between supporting growth and maintaining price stability. The policy repo rate currently stands at 5.25% as of August 2026.

Growth Outlook

The Union Budget 2026–27 sets out a quantitatively strong push to build resilient supply chains and develop next-generation industrial capacity. The INR 12.2 lakh crore public capital expenditure outlay is aimed at strengthening infrastructure, connectivity and economic competitiveness. The Budget proposes seven high-speed rail corridors, a new Dedicated Freight Corridor connecting Dankuni to Surat, and the operationalisation of 20 new National Waterways over the next five years. Employment and economic activity are also expected to be supported through infrastructure development, with a focus on Tier-2 and Tier-3 cities through the proposed City Economic Regions.

Employment measures extend across both urban and rural India in one sweep. In cities and large towns, capital expenditure is channelled into growth connectors such as the seven proposed high-speed rail corridors and improved infrastructure in Tier-2 and Tier-3 cities, supporting construction, logistics and related economic activity. In smaller towns and villages, employment generation is expected to be supported through initiatives covering textiles, khadi, handloom and handicrafts, as well as tourism-linked skilling. The Budget also proposes Samarth 2.0 to strengthen the textile skilling ecosystem and build employment-oriented capabilities.

This domestic push is complemented by targeted measures to strengthen strategic supply chains. Dedicated Rare Earth Corridors in Odisha, Kerala, Andhra Pradesh and Tamil Nadu; customs-duty exemptions for capital goods required for processing critical minerals and manufacturing lithium-ion cells for batteries; and India Semiconductor Mission 2.0 aim to deepen domestic capabilities in critical minerals, advanced materials, semiconductor equipment and electronics. The Government has also increased the proposed outlay for the Electronics Components Manufacturing Scheme to INR 40,000 crore. These measures are intended to strengthen domestic manufacturing capabilities, develop strategic industrial ecosystems and reduce import dependence in critical supply chains.¹⁰

Alongside these domestic measures, India is also seeking to strengthen its external trade architecture through major trade agreements. The conclusion of the India–EU FTA negotiations in January 2026 marks a major strategic milestone, providing preferential access across 97% of EU tariff lines covering 99.5% of trade value. Around 90.7% of India’s exports are covered by immediate duty elimination, particularly benefiting labour-intensive sectors such as textiles, leather and footwear, tea, coffee, spices, sports goods, toys, gems and jewellery and selected marine products. The agreement remains subject to the necessary subsequent processes before implementation and is therefore not yet an operational FTA.¹¹

In a similar vein, the India–Oman Comprehensive Economic Partnership Agreement (CEPA) has moved from negotiation to implementation, having entered into force on 1 June 2026. Bilateral trade between India and Oman reached USD 11.18 billion in FY 2025–26, compared with USD 10.61 billion in FY 2024–25. Under the CEPA, Oman provides duty-free access covering 98.08% of its tariff lines and 99.38% of India’s exports by value, strengthening market access for Indian products across engineering goods, pharmaceuticals, agriculture and processed food, electronics, textiles, plastics, gems and jewellery and other sectors.¹²

At the same time, India has adopted a calibrated liberalisation approach by offering tariff liberalisation on 77.79% of its tariff lines, covering 94.81% of imports from Oman by value, while retaining exclusions and safeguards for sensitive domestic sectors. The agreement also provides gains in services, with Oman undertaking commitments across 127 services subsectors and improving provisions for professional mobility. The ceiling for Intra-Corporate Transferees has been increased from 20% to 50%, supporting greater deployment of managerial and specialist personnel by Indian companies.¹³

However, these gains remain exposed to external geopolitical risks. The escalation of the West Asia crisis represents an external shock for India, transmitted primarily through energy markets, logistics and trade-linked business exposure. Heightened security concerns around the Strait of Hormuz have resulted in vessel diversions, longer sailing routes, congestion at transshipment hubs and higher freight, insurance and war-risk costs, creating operational uncertainty for export consignments moving to or through the region.

¹⁰ <https://www.pib.gov.in/PressReleasePage.aspx>

¹¹ <https://www.pib.gov.in/PressReleasePage.aspx>

¹² <https://www.pib.gov.in/PressReleaselframePage.aspx>

¹³ <https://www.pib.gov.in/PressReleaselframePage.aspx>



The early trade response following implementation has also been positive. The number of tariff lines exported to Oman increased from 2,879 in May 2026 to 3,371 in June 2026, while exports across these tariff lines increased to USD 622.8 million in June 2026 from USD 402.7 million in May 2026. These developments indicate an initial expansion in export diversification and utilisation of the preferential market-access framework, although the longer-term impact of the CEPA will depend on sustained exporter participation and trade flows.¹⁴

At the same time, perishable agricultural exporters and other import- and export-dependent businesses remain exposed to shipping delays and logistics disruptions. Diversions and longer sailing routes can increase transit times and logistics costs, while disruptions to maritime trade can create working-capital and delivery pressures for exporters. For import-dependent industries, delays in critical inputs can increase the risk of production disruptions, while sustained increases in freight, insurance and energy-related costs can place pressure on manufacturing and services margins. The Government's response, including RELIEF and measures to facilitate alternate routing and cargo movement, is intended to mitigate these extraordinary logistics and insurance pressures.

Key Growth/Demographic Drivers for Economic Growth

Government focus on infrastructure development

The infrastructure sector has received a strong boost in Budget FY'27, marked by a record INR 12.2 trn¹⁵ public capital expenditure allocation, reinforcing the government's focus on making assets more efficient and sustainable. The introduction of the landmark Infrastructure Risk Guarantee Fund aims to provide partial credit guarantees to lenders and revitalise private sector participation in large-scale projects. By lowering project risk premiums and easing borrowing costs, this mechanism is likely to help crowd in private capital and accelerate construction phase financing across the sector. The transport and logistics sector, in particular, will buoy infrastructure growth. Railways have received a substantial boost in allocation, which will help support the planned development of seven new high-speed rail corridors and a Dankuni-Surat DFC, which aims to cut logistics costs and improve national connectivity. Moreover, the rollout of 20 new National Waterways, new ship repair hubs and a scheme to double the share of coastal and inland water transport from 6.0% to 12.0% by 2047¹⁶ will together build a greener, more efficient multimodal freight network. Urban transformation continues through targeted development of Tier-2 and Tier-3 cities – with populations over 0.5mn – alongside the creation of City Economic Regions, each supported by multi-year, challenge-based financing to establish new growth hubs and reduce pressure on metros. A broader ecosystem of reforms strengthens medium-term sector prospects. The government aims to scale domestic construction and infrastructure equipment manufacturing, reducing import dependence and improving execution capability in tunnelling, metro construction and road building machinery. The monetisation of CPSE assets will be

¹⁴ <https://www.pib.gov.in/PressReleasePage.aspx>

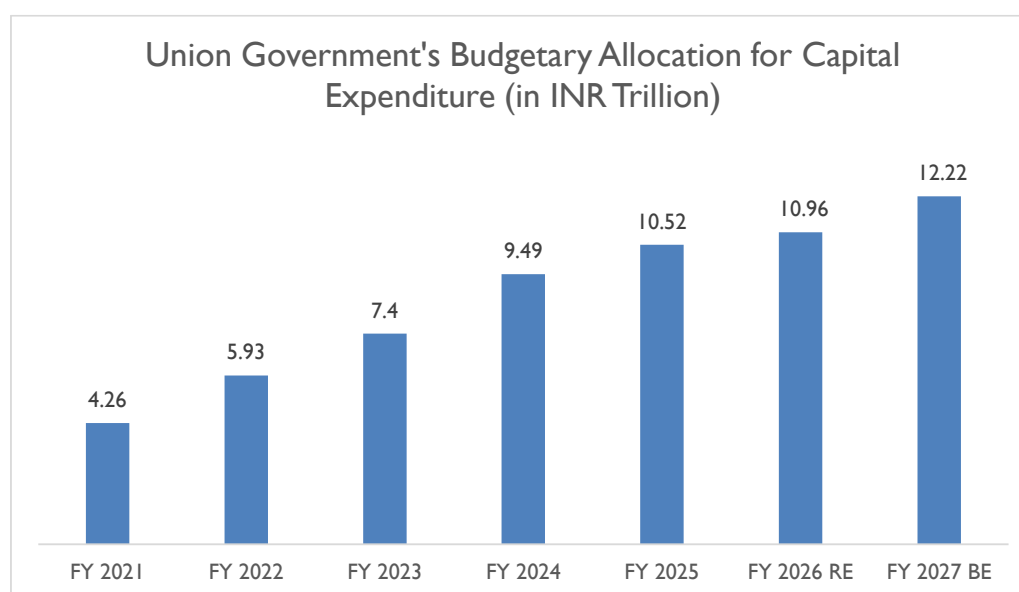
¹⁵ <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2222521®=3&lang=1#:~:text=Reinforcing%20the%20role%20of%20public,productive%20capacity%20across%20the%20economy.>

¹⁶ https://www.indiabudget.gov.in/doc/budget_speech.pdf



accelerated through dedicated REIT¹⁷ structures, helping unlock liquidity for redevelopment and new project pipelines. Additional support flows through region-specific initiatives, such as industrial corridor expansion, and tourism development in cultural and Buddhist heritage zones will further reinforce construction demand.

Together, these measures will strengthen India's infrastructure ecosystem through higher public investment, improved risk mitigation tools and wider multimodal connectivity – creating a constructive environment for sustained growth in construction, logistics and urban development.



Union Budget, Government of India

Note: BE (Budget Estimates) and RE (Revised Estimates)

Development of Domestic Manufacturing Capability

The Government launched the Production Linked Incentive (PLI) scheme in early 2020, initially aimed at improving domestic manufacturing capability in large-scale electronic manufacturing and gradually extended to other sectors. At present it covers 14 sectors, ranging from medical devices to solar PV modules. The PLI scheme provides incentives to companies on incremental sales of products manufactured in India. This incentive structure is aimed at attracting private investment into setting up manufacturing units and thereby strengthening domestic production capabilities. The overall incentive outlay earmarked for the PLI scheme is estimated to be INR 2 trillion. If fully realised, the PLI scheme could add nearly 4% to annual GDP growth, by way of incremental revenue generated from the newly formed manufacturing units.

Strong Domestic Demand

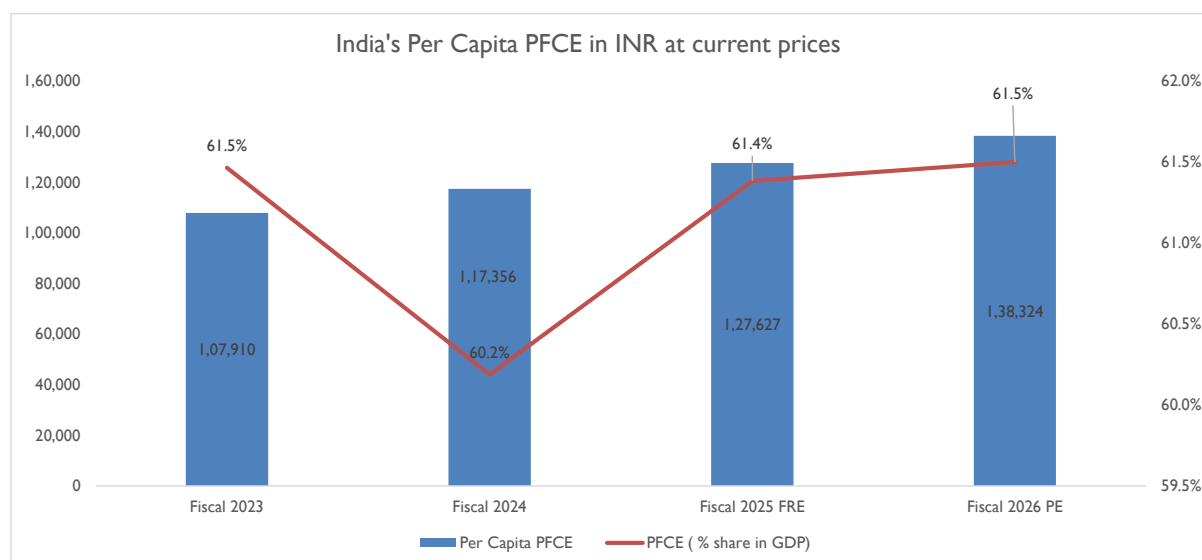
Domestic demand has traditionally been one of the key drivers of the Indian economy. After a brief lull caused by the Covid-19, domestic demand is recovering. Consumer Confidence surveys by the Reserve Bank and other institutions point to an improvement in the Consumer Confidence Index, which is a precursor of improving demand. India has a strong middle-class segment, which has been the major driver of domestic demand. Factors like fast paced urbanization and improving income scenario in rural markets are expected

¹⁷<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2221817®=3&lang=1>

to accelerate domestic demand further. This revival is reflecting in the private final consumption expenditure (PFCE) metric.

India's per capita Private Final Consumption Expenditure (PFCE) at current prices has shown a consistent upward trend, indicating steady improvement in household consumption levels over the years. Per capita PFCE increased from INR 1,07,910 in Fiscal 2023 to INR 1,17,356 in Fiscal 2024, and further rose to INR 1,27,627 in Fiscal 2025 FRE. It is estimated to increase further to INR 1,38,324 in Fiscal 2026 FE, reflecting continued growth in consumer spending and improving consumption capacity.

PFCE as a share of GDP also remained healthy during the period, broadly staying above 60%. The share stood at 61.5% in Fiscal 2023, moderated to 60.2% in Fiscal 2024, before recovering to 61.4% in Fiscal 2025 FRE and further improving to 61.5% in Fiscal 2026 FE. This indicates that private consumption continues to remain a key driver of India's economic growth. Overall, the steady increase in per capita PFCE, along with a stable PFCE share in GDP, reflects resilient household demand and sustained consumption momentum in the economy.



Source: Ministry of Statistics & Programme Implementation (MOSPI)

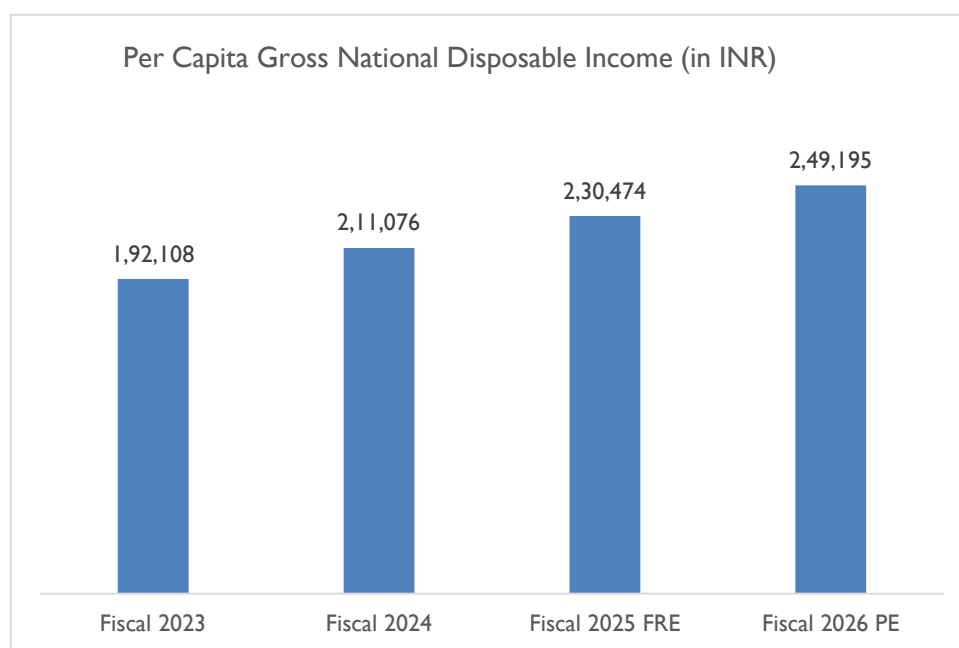
FRE is First Revised Estimate; PE is Provisional Estimates

There are two factors driving this domestic demand: first, the large pool of consumers; and second, the improvement in purchasing power.

- The share of middle class increased from nearly 14% in 2005 to nearly 30% in 2021 and is expected to cross 60% by 2047¹⁸. This expanding middle class household segment is fuelling India's growth story and would continue to play a key role in propelling India's economic growth.
- Consumer-driven domestic demand is majorly fuelled by this growth in per capita income. As per National Statistics Office (NSO), India's per capita Gross National Disposable Income (GNDI) has shown a steady upward trend, reflecting improvement in overall income levels and disposable income

¹⁸ As per the survey conducted by People Research on India's Consumer Economy. Households with annual income in the range of INR 5 – 30 lakhs are considered as middle-class households.

capacity. Per capita GNDI increased from INR 1,92,108 in Fiscal 2023 to INR 2,11,076 in Fiscal 2024 and further rose to INR 2,30,474 in Fiscal 2025 FRE. It is estimated to increase further to INR 2,49,195 in Fiscal 2026 PE, indicating continued growth in income levels across the economy. The consistent rise in per capita GNDI highlights strengthening purchasing power and improving household income conditions, which can support consumption demand going forward. Overall, the trend reflects a positive income environment, with rising disposable income expected to contribute to sustained private consumption and broader economic growth.



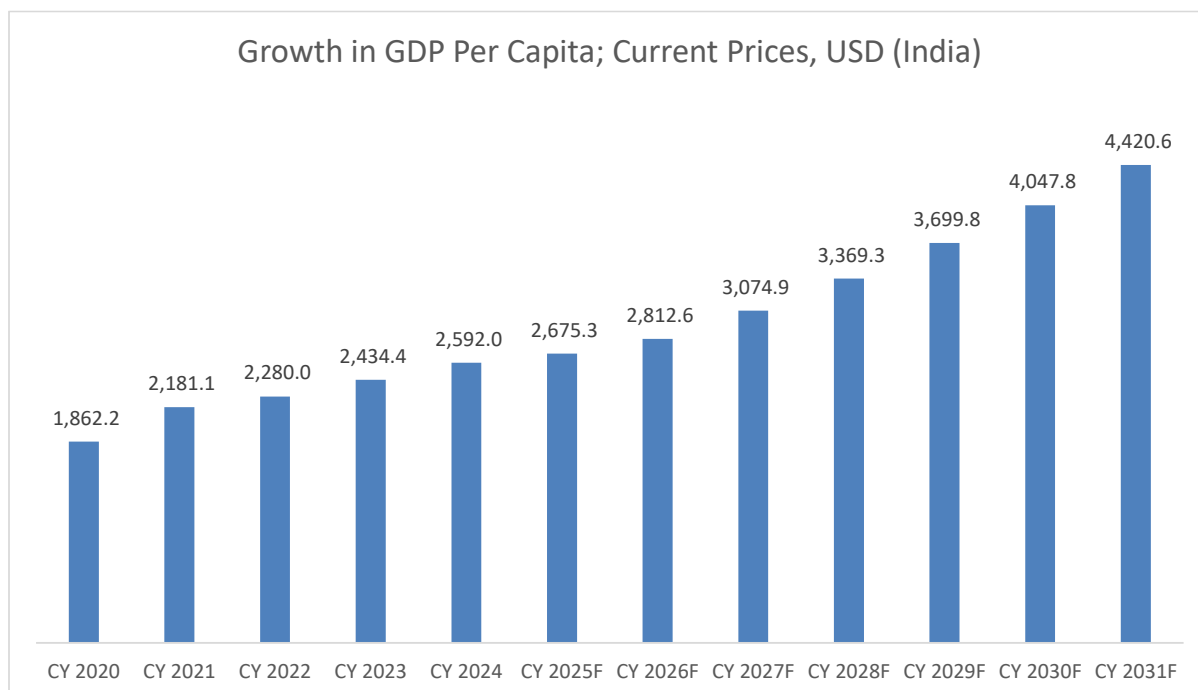
Source: Ministry of Statistics & Programme Implementation (MOSPI)

FRE is First Revised Estimate; PE is Provisional Estimates

India's Per Capita GDP Trends

India is poised to become the world's third-largest economy with a projected GDP of USD 5 trillion within the next three years, driven by ongoing reforms. As one of the fastest-growing major economies, India currently holds the position of the fifth-largest economy globally, following the US, China, Japan, and Germany. By 2027-28, it is anticipated that India will surpass both Germany and Japan, reaching the third-largest spot. This growth is bolstered by a surge in foreign investments and a wave of new trade agreements with India's burgeoning market of 1.4 billion people. The aviation industry is witnessing unprecedented orders, global electronics manufacturers are expanding their production capabilities, and suppliers traditionally concentrated in southern China's manufacturing hubs are now shifting towards India.

To achieve its vision of becoming the world's third-largest economy by 2027-28, India will need to implement transformative industrial and governmental policies. These policies will be crucial for sustaining the consistent growth of the nation's per capita GDP over the long term.

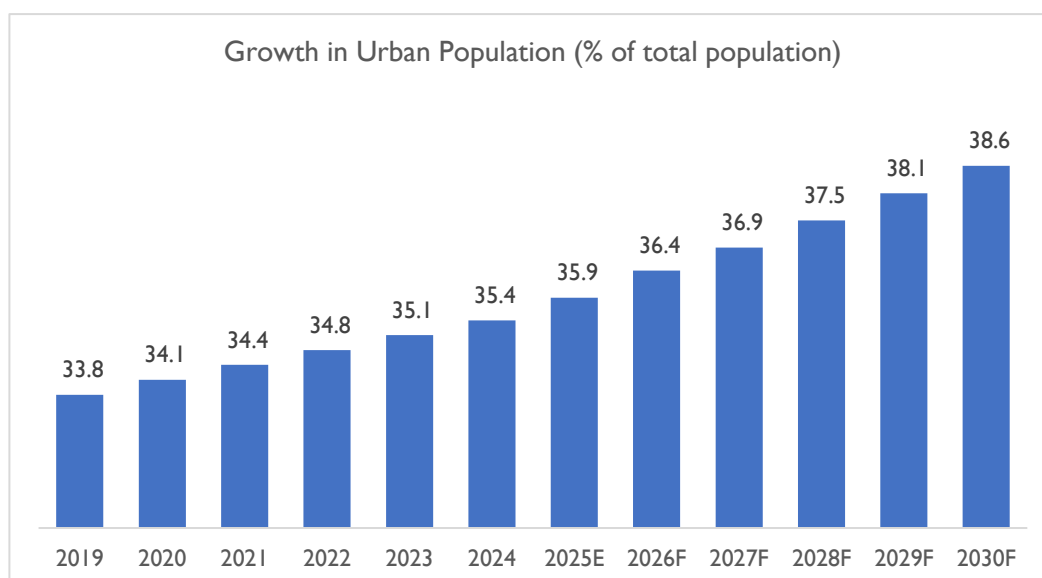


Source: IMF

From CY 2024 to CY 2031, India's per capita GDP is projected to grow at a compound annual growth rate of 7.9%. This growth will be driven by the service sector, which now accounts for over 50% of India's GDP, marking a significant shift from agriculture to services.

Increasing Urbanization

As per the Handbook of Urban Statistics 2022, India's urban population has been on a steady rise. Urban dwellers accounted for over 469 million in 2021 and are projected to rise to over 558 million by 2031 and further exceed 600 million by 2036.



Source: World Bank,¹⁹ Dun & Bradstreet Research and Estimates

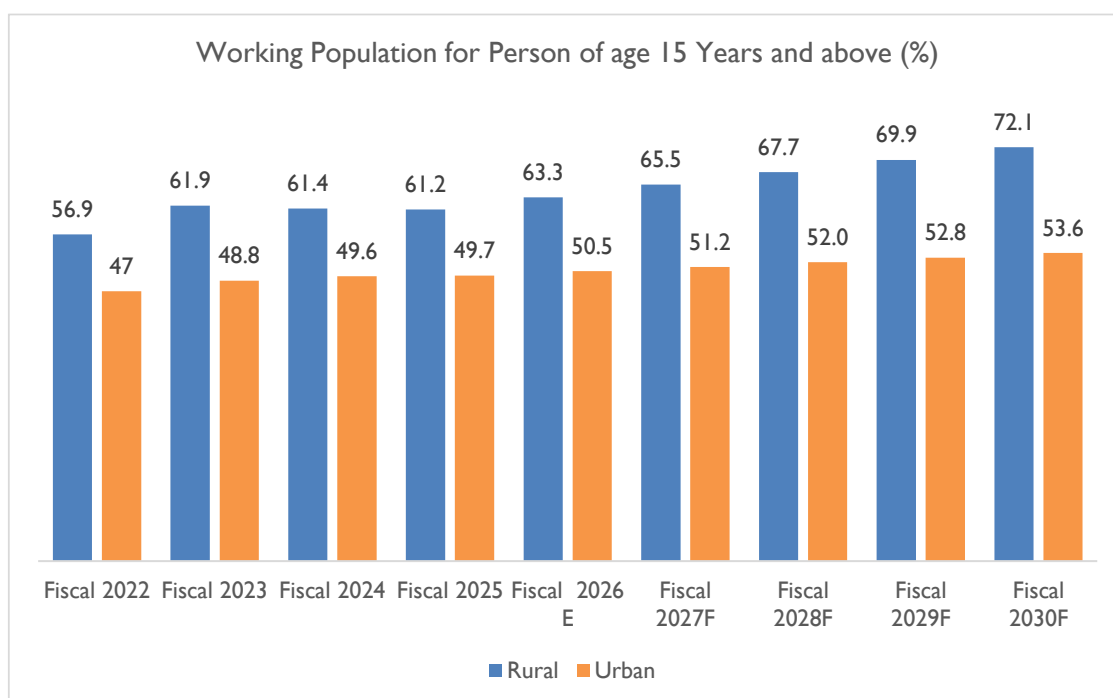
¹⁹ <https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?end=2022&locations=IN&skipRedirection=true&start=1960&view=chart>

The share of urban population in total population has been rising steadily. In 2019, 33.81% of the total population was urban. By 2025, it had reached 35.9%, showing an increase over a span of five years of about 2.10%. The share of urban population is further forecasted to cross 38.6% by 2030. This increase in urban population is set to demand drastic changes in infrastructure development. Cities are a major driver for the construction industry. With cities expanding rapidly, there will be an increased need for improved housing, water supply, sewage systems, and electricity. Urban planning will need to account for higher population densities, necessitating the development of smart cities with integrated technology for efficient management of resources and services. The Smart Cities Mission targeted at 100 cities is aimed at improving the quality of life through modernised, technology-driven urban planning. This transformation will also require significant investment in public health, education, and recreational facilities to enhance the quality of urban living. The surge in urban population will also propel demand for improvement in multimodal transport infrastructure for freight and passenger travel requirements.

Rural vs. Urban Working Population by Age Group

As India continues to experience economic growth and development, the working population in both rural and urban areas is increasing. In the case of the urban population, this growth is reflected in the increase from a share of 47% in FY22 to 49.7% in FY25, whereas in rural areas, it grew from 56.9% in FY22 to 61.2% in FY25.

This growth is driven by a combination of factors, including demographic changes, economic policies, and the expansion of various industries. The rise in employment opportunities across sectors such as agriculture, manufacturing, services, and information technology has contributed to the overall increase in the working population, thereby fostering economic stability and enhancing the standard of living for many Indians.



Source: Periodic Labour Force Survey (PLFS) Annual Report, Dun & Bradstreet Research and Estimates

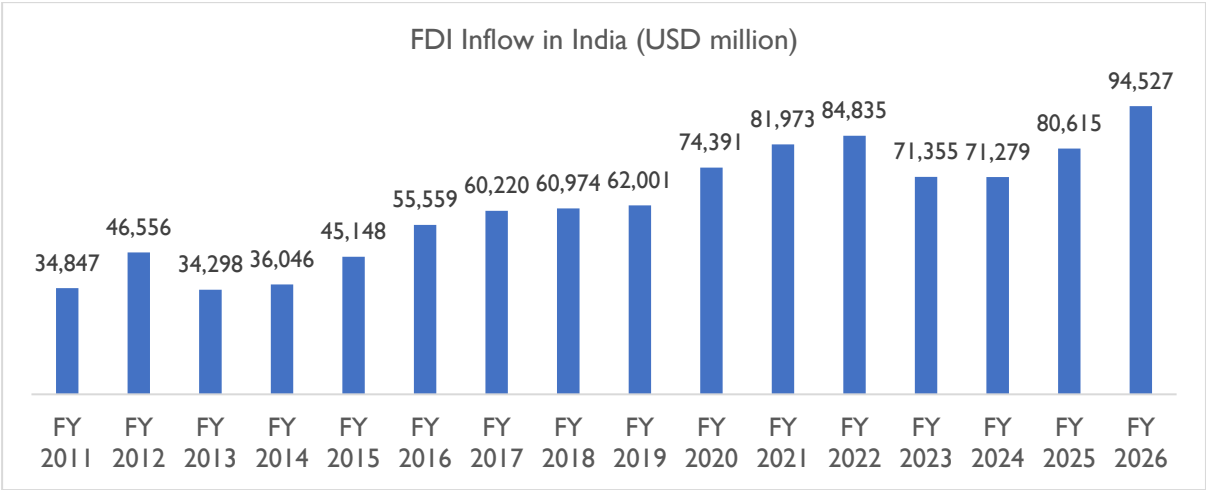
Note: 2025 refers to the period January 2025 – December 2025 and likewise for 2024, 2023 and 2022

In urban areas, the working population is growing rapidly due to the proliferation of jobs in sectors like IT, finance, retail, and healthcare. Additionally, the development of infrastructure, such as improved transportation networks and housing, has made urban centers more accessible and desirable for the working population. In rural areas, the working population remains substantial, primarily due to the dominance of the agricultural sector. Government initiatives aimed at rural development, such as improved access to education and skill development programs, have also played a crucial role in enhancing employment prospects in these regions.

The dominance of the rural working population over its urban counterpart can be attributed to the labour-intensive nature of the agricultural sector, which ensures a consistent demand for human labor despite advancements in mechanization, sustaining employment rates in rural areas.

Foreign Direct Investment Trend in India

FDI inflows in India observed a steady increase from FY 2013 to FY 2022 while it witnessed a decline of 15% in FY 2023 and a decline of 0.1% in FY 2024 due to several factors, including the ongoing conflict between Russia and Ukraine, changes in US monetary policy, and other global uncertainties. However, the country has received substantial FDI inflows from April 2000 to March 2026. This increasing FDI can be attributed to the new investment facilitation measures like the National Single-Window System (NSWS), which streamlines the approval and clearance process for investors, entrepreneurs, and businesses, along with sectoral measures and PLI schemes, supporting growth prospects in tier-2 and tier-3 cities. Further, tax compliance for startups and foreign investors has been simplified and the Income Tax Act, 1961, was amended in 2024 to abolish angel tax and to reduce income tax rate chargeable on income of a foreign company.



Sources: Department for Promotion of Industry and Internal Trade



Industry Overview

Infrastructure Engineering Solutions (IES) refer to the comprehensive set of engineering, design, planning, project management, procurement, construction supervision, technology integration, and asset lifecycle management services required for developing, operating, and maintaining physical infrastructure assets. These solutions transform project concepts into fully functional infrastructure that supports economic growth, industrialization, urbanization, and public welfare. **Infrastructure Engineering Solutions (IES) providers** functions as the backbone of India's infrastructure ecosystem by connecting project owners, designers, manufacturers, fabricators and construction contractors into an integrated execution framework.

It combines principles of civil, structural, environmental, and geotechnical engineering to ensure that infrastructure is not only functional but also durable, safe, and efficient. Engineers assess terrain conditions, select appropriate materials, and plan for both technical performance and social utility.

In the contemporary context, infrastructure engineering extends beyond physical construction to incorporate sustainability, resilience, and technology integration. Digital tools such as Building Information Modeling (BIM) and Geographic Information Systems (GIS) support smarter planning and coordination, while IoT-enabled monitoring systems enable real-time asset management. Concepts like green construction, modular execution, and low-carbon materials are increasingly mainstream as infrastructure projects aim to meet climate goals and reduce environmental footprints.

A Snapshot Infrastructure Engineering Solutions

Particulars	Summary
Scope	Covers the entire infrastructure lifecycle from concept, planning and design to construction, commissioning and maintenance.
Primary Objective	To transform infrastructure investments into safe, efficient, sustainable and economically viable physical assets.
Key Infrastructure Segments Served	Transportation, railways, roads, airports, ports, urban infrastructure, water, power, renewable energy, industrial facilities, logistics parks and social infrastructure.
Core Stakeholders	Government agencies, developers, engineering consultants, EPC contractors, structural steel fabricators, equipment manufacturers, financial institutions and end users.
Linkage with Structural Steel Fabrication	Engineering firms design and specify steel structures, while fabricators manufacture and erect these structures for bridges, industrial sheds, airports, metro stations, warehouses and power projects.
Value Creation	Improves project quality, reduces cost overruns, accelerates completion timelines, enhances safety and increases asset longevity.



Role in India's Growth	Acts as a critical enabler for programs such as National Infrastructure Pipeline (NIP), PM Gati Shakti, Industrial Corridors, Smart Cities, Renewable Energy Parks and Logistics Infrastructure development.
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Scope of Services Of Infrastructure Solution Provider	Key Activities	Output / Deliverables	Importance to Infrastructure Projects
Project Conceptualization & Feasibility	Market assessment, demand forecasting, site selection, feasibility studies, techno-economic analysis, risk assessment	Feasibility reports, project viability assessment, investment cases	Ensures projects are economically, technically, and environmentally viable before investment decisions
Surveying & Investigation	Topographical surveys, geotechnical investigations, soil testing, utility mapping, hydrological studies	Survey reports, soil investigation reports, site data	Provides critical inputs for safe and cost-effective infrastructure design
Planning & Master Planning	Infrastructure master planning, corridor planning, urban planning, logistics planning, traffic studies	Master plans, development roadmaps	Aligns projects with regional development goals and future demand requirements
Engineering Design & Consultancy	Civil, structural, mechanical, electrical, instrumentation, architectural and BIM-based design	Conceptual, FEED and detailed engineering drawings	Converts project concepts into executable engineering specifications
Structural Engineering	Structural analysis, load calculations, steel structure design, bridge and industrial structure engineering	Structural drawings, steel detailing, design calculations	Forms the foundation for structural steel fabrication and erection activities
Digital Engineering & BIM	Building Information Modeling (BIM), 3D modeling, digital twins, clash detection, simulation	Integrated digital project models	Improves design accuracy and reduces construction rework



Procurement & Supply Chain Management	Vendor identification, tendering, procurement planning, contract management, logistics planning	Procurement packages, vendor contracts	Ensures timely availability of materials and equipment
Project Management & EPC Support	Cost estimation, scheduling, project controls, resource planning, contract administration	Project execution plans and monitoring systems	Enables on-time and within-budget project execution
Construction Engineering & Supervision	Site management, quality control, safety management, inspection, construction supervision	Site progress reports, quality certifications	Ensures design compliance and construction quality
Structural Steel Detailing & Fabrication Support	Shop drawings, connection design, fabrication planning, erection sequencing	Fabrication drawings and erection plans	Directly supports structural steel fabrication companies and improves project execution efficiency
Testing, Commissioning & Handover	Equipment testing, system integration, performance validation, commissioning support	Completion certificates and operational readiness reports	Facilitates smooth transition from construction to operation
Operations & Maintenance Engineering	Asset management, predictive maintenance, condition monitoring, reliability engineering	O&M plans and asset performance systems	Maximizes infrastructure asset life and operational efficiency
Rehabilitation & Modernization	Retrofitting, capacity expansion, structural strengthening, modernization programs	Upgraded infrastructure assets	Extends useful life and enhances performance of existing assets
Sustainability & Environmental Engineering	Green design, ESG compliance, carbon reduction, waste management, energy efficiency	Sustainable infrastructure solutions	Supports India's net-zero and sustainable development goals
Smart Infrastructure & Technology Integration	IoT integration, SCADA systems, intelligent transportation systems, smart utility networks	Digitally enabled infrastructure assets	Enhances operational efficiency and real-time monitoring capabilities



Key Stakeholder and Ecosystem in Infrastructure Engineering Solutions

The **Infrastructure Engineering Solutions (IES) ecosystem** comprises a diverse set of stakeholders that collaborate throughout the infrastructure asset lifecycle, from project conceptualization and planning to construction, commissioning, and long-term operations. The effectiveness of infrastructure development depends on the seamless integration and coordination among these participants.

Government and Regulatory Authorities

Government agencies serve as the primary drivers of infrastructure development through policy formulation, project identification, funding allocation, and regulatory oversight. At the central level, organizations such as the Ministry of Road Transport & Highways (MoRTH), National Highways Authority of India (NHAI), Ministry of Railways, Ministry of Power, and various urban development authorities play a critical role in shaping India's infrastructure roadmap. State governments, development authorities, and municipal bodies are responsible for implementing regional infrastructure initiatives and ensuring compliance with statutory requirements.

Project Owners and Developers

Project owners are responsible for initiating, financing, and ultimately owning infrastructure assets. These include central and state government agencies, public sector enterprises, infrastructure developers, industrial park developers, logistics operators, airport operators, and utility companies. They define project objectives, investment plans, technical requirements, and operational expectations. Their demand for modern infrastructure acts as the catalyst for the entire engineering and construction value chain.

Infrastructure Engineering Consultants

Engineering consultants form the intellectual backbone of the infrastructure ecosystem. They provide feasibility studies, master planning, detailed engineering, structural design, project management, digital engineering, and technical advisory services. These firms transform project concepts into executable designs while ensuring compliance with safety, operational, and sustainability standards. Their expertise directly influences project quality, cost efficiency, and delivery timelines.

EPC Contractors and Construction Companies

Engineering, Procurement, and Construction (EPC) contractors are responsible for converting engineering designs into physical infrastructure assets. Their scope typically includes procurement of materials and equipment, construction management, installation, testing, and commissioning. EPC contractors coordinate multiple subcontractors and suppliers to ensure project execution within approved budgets and timelines. They act as the key link between design and on-site implementation.

Structural Steel Fabricators

Structural steel fabricators occupy a critical position within the infrastructure engineering ecosystem, particularly for steel-intensive projects such as airports, railway stations, industrial facilities, logistics parks, warehouses, bridges, power plants, and metro systems. Based on engineering specifications and design



drawings, fabricators manufacture structural components, trusses, girders, columns, beams, and modular structures that form the physical framework of infrastructure assets. Their capabilities significantly influence construction speed, project quality, and overall cost efficiency.

Material and Equipment Suppliers

A robust supply chain is fundamental to successful infrastructure execution. Material suppliers provide essential inputs such as steel, cement, aggregates, electrical equipment, mechanical systems, pipes, valves, and specialized infrastructure components. Equipment manufacturers supply heavy machinery, power systems, industrial equipment, and automation solutions. Their ability to maintain quality, availability, and timely delivery directly impacts project schedules and performance.

Technology and Digital Solution Providers

As infrastructure projects become increasingly sophisticated, technology providers play an expanding role in enabling digital transformation. Services include Building Information Modeling (BIM), Digital Twin technologies, Geographic Information Systems (GIS), Internet of Things (IoT) platforms, intelligent transportation systems, and project management software. These technologies improve planning accuracy, enable real-time project monitoring, reduce construction risks, and enhance lifecycle asset management.

Financial Institutions and Investors

Infrastructure projects are capital intensive and require significant long-term financing. Banks, infrastructure financing institutions, private equity funds, sovereign wealth funds, insurance companies, and multilateral agencies provide debt and equity capital to support project development. These stakeholders evaluate project viability, risk profiles, expected returns, and long-term sustainability before committing funds.

Operations and Maintenance Service Providers

Following project completion, specialized operations and maintenance (O&M) companies ensure that infrastructure assets continue to function efficiently throughout their lifecycle. Their responsibilities include preventive maintenance, asset monitoring, repairs, equipment upgrades, reliability management, and operational optimization. Effective O&M practices improve asset longevity and maximize returns on infrastructure investments.

End Users and Beneficiaries

The ultimate beneficiaries of infrastructure engineering solutions are industries, businesses, logistics operators, utility consumers, and citizens. Efficient transportation networks, power infrastructure, industrial facilities, water systems, and urban infrastructure enhance economic productivity, improve quality of life, reduce logistics costs, and support national competitiveness.



Ecosystem Interlinkage

The **infrastructure engineering ecosystem functions as an integrated value chain** where each **stakeholder is dependent upon the others**. Government policies and infrastructure investments create demand for projects; project owners engage engineering consultants to develop designs; consultants specify technical requirements that drive procurement and fabrication activities; **structural steel fabricators and suppliers provide critical components**; EPC contractors execute the projects; and O&M providers ensure long-term asset performance. This interconnected framework enables the successful delivery of infrastructure assets that support India's economic growth, industrialization, urbanization, and logistics modernization. In essence, Infrastructure Engineering Solutions act as the "brain" of infrastructure development, while the **Structural Steel Fabrication industry serves as one of the key execution arms** that transforms engineering designs into physical infrastructure assets.

Major Operating Models

Infrastructure Engineering Solutions companies operate through multiple business models depending on their capabilities, project scope, risk appetite, and position within the infrastructure value chain. These models range from pure engineering consulting to turnkey project execution and long-term asset management.

1. Engineering Consulting Model

Under the Engineering Consulting model, companies primarily provide technical expertise across planning, design, engineering, feasibility assessment, and project advisory services without directly participating in construction activities. These firms support clients throughout the project development phase by conducting feasibility studies, preparing conceptual and detailed designs, performing structural and civil engineering analysis, and offering project management consultancy services. The model is **highly knowledge-driven and asset-light, generating revenues through consultancy and design fees**. Engineering consulting firms play a critical role in defining **project specifications, technical standards, and execution frameworks** that guide downstream stakeholders such as EPC contractors and structural steel fabricators. **Examples include Tata Consulting Engineers, AECOM, Jacobs, and WSP.**

2. Engineering, Procurement and Construction (EPC) Model

The EPC model is one of the most prevalent operating models in India's infrastructure sector. Under this arrangement, a single contractor assumes responsibility for engineering, procurement of materials and equipment, construction, testing, and commissioning of a project. The EPC contractor serves as the single point of accountability for project delivery and assumes substantial execution and performance risk. This model is widely used across transportation infrastructure, power projects, industrial facilities, urban infrastructure, and renewable energy projects. EPC companies typically possess strong project management capabilities and extensive supply chain networks, allowing them to deliver large-scale infrastructure projects on a turnkey basis.



3. Design-Build Model

The Design-Build model integrates design and construction activities under a single contract, enabling closer coordination between engineering and execution teams. Unlike traditional project structures where design and construction responsibilities are separated, this model allows contractors to optimize engineering solutions based on constructability considerations. Early collaboration between designers, fabricators, and construction teams often results in reduced project timelines, improved cost efficiency, fewer design changes, and enhanced resource utilization. The model is increasingly adopted for industrial buildings, logistics parks, manufacturing facilities, airports, and transportation infrastructure where project speed is a critical consideration.

4. Engineering, Procurement and Construction Management (EPCM) Model

Under the EPCM model, companies provide engineering, procurement support, and overall project management services while actual construction activities are carried out by multiple specialized contractors. The EPCM company acts as the client's representative, overseeing project execution, contractor coordination, procurement activities, quality management, and schedule control. This model is particularly common in large industrial facilities, process plants, energy infrastructure, and complex engineering projects where owners seek greater flexibility and control over project execution. Since EPCM providers do not typically undertake construction risk, the model offers a relatively asset-light and lower-risk business structure.

5. Project Management Consultancy (PMC) Model

The PMC model focuses on managing and supervising infrastructure projects on behalf of the project owner. PMC firms are responsible for coordinating stakeholders, monitoring project schedules, controlling budgets, ensuring quality compliance, and mitigating execution risks. They act as independent advisors throughout the project lifecycle and provide oversight across engineering, procurement, and construction phases. As infrastructure projects become increasingly complex and capital intensive, the use of specialized PMC firms has become more common across highways, airports, railways, urban infrastructure, and industrial development projects. Their involvement helps enhance governance, transparency, and project delivery efficiency.

6. Build-Operate-Maintain (BOM) Model

The Build-Operate-Maintain model extends beyond project construction by incorporating long-term operations and maintenance responsibilities. Companies operating under this model design and construct infrastructure assets and subsequently manage their day-to-day operations for a specified duration. Typical applications include water treatment plants, renewable energy facilities, urban utilities, airports, and transportation infrastructure. Since the service provider remains involved throughout the asset lifecycle, there is a strong emphasis on durability, operational efficiency, and lifecycle cost optimization. This model provides companies with recurring revenue streams while ensuring better asset performance for project owners.



7. Public-Private Partnership (PPP) Model

The PPP model involves collaboration between public authorities and private sector participants to finance, design, construct, operate, and maintain infrastructure assets. Depending on the project structure, private operators may receive user charges, annuity payments, or concession revenues over an extended operating period. Popular PPP formats include Build-Operate-Transfer (BOT), Design-Build-Finance-Operate-Transfer (DBFOT), Build-Own-Operate-Transfer (BOOT), and Hybrid Annuity Model (HAM). The model is extensively used in highways, airports, ports, metro systems, and urban infrastructure projects. PPP arrangements help governments leverage private sector expertise and capital while accelerating infrastructure development.

8. Operations and Maintenance (O&M) Model

Under the O&M model, companies specialize in managing completed infrastructure assets rather than participating in their construction. Their responsibilities include preventive maintenance, equipment inspections, asset monitoring, repair activities, rehabilitation, and performance optimization. As India continues to expand its infrastructure base, demand for professional O&M services is increasing across power transmission networks, transportation infrastructure, industrial facilities, airports, and municipal utilities. These companies generate recurring revenues through long-term maintenance contracts and play a significant role in maximizing asset life and operational reliability.

9. Integrated Infrastructure Solutions Model

The Integrated Infrastructure Solutions model represents the most comprehensive operating structure within the industry. Companies operating under this model offer end-to-end services covering project planning, engineering design, structural detailing, procurement, fabrication, construction, commissioning, and maintenance. Many large infrastructure groups have adopted this approach to capture value across multiple stages of the project lifecycle and improve coordination between stakeholders. Integrated players often possess in-house engineering teams, manufacturing facilities, structural steel fabrication units, and construction capabilities. This model is particularly beneficial for large-scale industrial, transportation, energy, and logistics infrastructure projects where seamless execution and schedule certainty are critical.

Role of Structural Steel Fabrication Across Operating Models

Operating Model	Role of Structural Steel Fabrication
Engineering Consulting	Provides structural designs and fabrication specifications
EPC	Procures, fabricates, and erects steel structures
Design-Build	Optimizes steel design for efficient construction
EPCM	Manages steel procurement and fabrication contractors
PMC	Supervises fabrication quality and erection activities
PPP/BOT	Supports development of long-life infrastructure assets
Integrated Solutions	Fabrication is often performed in-house to improve cost and schedule control
O&M	Supports retrofitting, maintenance, and capacity expansion activities



*The Infrastructure Engineering Solutions industry in India is characterized by a gradual shift toward integrated and turnkey delivery models as project scale and complexity increase. While engineering consulting and PMC firms continue to play a crucial role in project planning and oversight, EPC, Design-Build, and Integrated Infrastructure Solutions models have become increasingly dominant due to their ability to provide single-point accountability and faster execution. Across all operating models, **structural steel fabrication** remains a vital component, serving as the physical link that transforms engineering designs into infrastructure assets such as airports, industrial facilities, warehouses, bridges, railway stations, power plants, and logistics hubs.*

Role of Infrastructure Engineering Solution Providers in India's Infrastructure Development

Infrastructure Engineering Solution Providers play a pivotal role in transforming infrastructure investments into functional physical assets that support economic growth, industrial development, urbanization, and improved quality of life. **Acting as the critical link between project conception and execution**, these companies provide end-to-end services encompassing planning, design, engineering, project management, procurement support, construction supervision, and lifecycle asset management.

Infrastructure solution providers also act as **project integrators**, coordinating multiple stakeholders including government bodies, developers, EPC contractors, equipment suppliers, structural steel fabricators, financiers, and regulatory agencies. By ensuring alignment across engineering, procurement, and execution stages, they help reduce project delays, cost overruns, and execution inefficiencies. Their project management expertise is particularly critical in large and complex developments such as highways, airports, metro rail systems, industrial corridors, logistics parks, power projects, and urban infrastructure developments.

A key contribution of these companies is their role in **accelerating infrastructure delivery and improving asset quality**. Through value engineering, construction planning, quality assurance, safety management, and commissioning support, infrastructure engineering providers help deliver projects faster while maintaining adherence to technical and regulatory standards. Their involvement enhances the durability, reliability, and operational performance of infrastructure assets, thereby reducing lifecycle costs and improving long-term economic returns.

Infrastructure Engineering Solution Providers are also major enablers of **industrialization and manufacturing growth**. By supporting the development of industrial parks, manufacturing facilities, warehouses, logistics hubs, renewable energy projects, and economic corridors, they create the backbone infrastructure required for industrial expansion. Their engineering specifications and structural designs generate substantial demand for allied industries such as structural steel fabrication, construction materials, heavy engineering equipment, and industrial machinery, thereby creating multiplier effects across the economy.

The sector further contributes to **enhancing logistics efficiency and connectivity**, which are critical for India's global competitiveness. Engineering firms design and support the development of transportation networks including highways, railways, airports, ports, freight corridors, and multimodal logistics infrastructure. These projects lower transportation costs, reduce transit times, improve supply chain



efficiency, and facilitate movement of goods and people across the country. PM Gati Shakti specifically emphasizes integrated multimodal infrastructure planning to improve logistics performance and economic productivity

Another increasingly important role is the promotion of **sustainable and technology-driven infrastructure development**. Infrastructure solution providers integrate energy-efficient designs, green construction practices, renewable energy systems, smart utilities, intelligent transportation systems, and digital monitoring solutions into modern infrastructure projects. These capabilities support India's sustainability objectives while improving operational efficiency and resilience of infrastructure assets.

Furthermore, infrastructure engineering companies play a crucial role in **asset lifecycle management**, extending beyond project execution to include operations, maintenance, modernization, rehabilitation, and capacity expansion. Through predictive maintenance, structural health monitoring, and asset performance management systems, they help maximize infrastructure lifespan and optimize operational efficiency over the long term.

India's infrastructure engineering solution and steel fabrication value chain is anchored by one of the world's most rapidly expanding primary steel industries, whose construction- and infrastructure-skewed demand base creates a large and structurally growing market for downstream fabricators. In India, infrastructure engineering solutions support sectors such as transportation, power, water, urban infrastructure, industrial facilities, logistics, renewable energy, oil & gas, telecommunications, and social infrastructure. The government's National Infrastructure Pipeline (NIP) identified infrastructure investments exceeding ₹111 lakh crore across key sectors, highlighting the scale of engineering solutions required to support India's development agenda.

Structural Steel Fabrication Industry

Structural steel fabrication serves as a particularly important link within infrastructure engineering solutions ecosystem, translating engineering designs into large-scale physical structures that underpin transportation, industrial, energy, and urban infrastructure development. The value chain is simultaneously moving beyond commodity conversion: vendor qualification, traceability requirements, domestic-content mandates, and green-steel certification are systematically raising the compliance and capability bar that separates organised fabricators from commodity steel traders and erection-only contractors.

The structural steel fabrication industry represents a critical downstream segment of the steel value chain, wherein raw steel is transformed into engineered, load-bearing structural components and assemblies used in infrastructure, railways, power plants, and industrial construction projects. Unlike general fabrication or light engineering, **structural steel fabrication focuses on heavy, precision-engineered components** designed to meet **stringent strength, safety, and regulatory requirements**.



The fabrication process typically begins with the procurement of structural-grade steel materials, including plates, beams, channels, and sections manufactured to applicable Indian and international standards. These materials undergo precision cutting using CNC plasma, oxy-fuel, or laser cutting systems to achieve exact profiles and dimensions. Subsequent forming and bending operations are carried out using press brakes and rolling machines to meet project-specific design requirements.

Cut and formed components are then assembled into sub-assemblies and final structures through certified welding and bolting processes. For **infrastructure and railway applications**, fabrication involves strict control over welding quality, dimensional tolerances, and load-bearing integrity. Machining, drilling, and fit-up activities are carried out to facilitate on-site erection, alignment, and integration with civil structures or mechanical systems. **Post-fabrication**, components undergo surface preparation and protective treatment, including shot blasting, industrial painting, galvanising, or specialised coatings to ensure **corrosion resistance** and **long-term durability**, particularly for **outdoor, high-load, and high-temperature operating environments**. Comprehensive quality inspection and testing are conducted to ensure compliance with project specifications and customer standards prior to dispatch.

Materials Used:



Hollow Sections and Pipes



Steel Plates



Steel Beams



Channels & angles

- **Structural Steel Plates and Heavy Sections:** Structural steel plates and heavy rolled sections form the core raw materials used in fabrication. These are extensively deployed in **bridge girders, locomotive chassis, power plant structures, and industrial frameworks**, where high load-bearing capacity and structural integrity are critical.
- **Hot-Rolled Steel Beams, Channels, and Angles:** Hot-rolled sections such as I-beams, H-beams, channels, and angles are widely used for **primary structural members** in bridges, industrial sheds,

power plant auxiliaries, and heavy equipment foundations. Their robustness and weldability make them suitable for heavy-duty applications.

- **Hollow Sections and Pipes:** Square, rectangular, and circular hollow sections are used in **secondary structural members, equipment frames, and modular assemblies**, offering high strength-to-weight ratios and ease of fabrication. These materials are commonly used in industrial structures and prefabricated building systems.
- **High-Strength and Alloy Steel Grades:** High-strength and alloy steels are used in applications involving **dynamic loads, vibration, and thermal stress**, such as **locomotive underframes, turbine auxiliaries, and specialized power plant equipment**. These grades enhance durability, fatigue resistance, and operational reliability.
- **Surface-Treated and Coated Steel:** Galvanized and coated steel materials are used where **corrosion resistance and extended service life** are essential, particularly for bridge structures, outdoor installations, and industrial environments exposed to moisture, chemicals, or temperature variations.

Types of Steel Used in Fabrication

1. Mild Steel

Mild steel is the most commonly used material in fabrication due to its low carbon content, easy weldability, flexibility, and cost-effectiveness. It is widely used in industrial sheds, machinery frames, warehouse structures, pipes, support structures, and general engineering applications. The material can be easily cut, bent, drilled, and welded, making it suitable for customised fabrication work across multiple industries.

2. Stainless Steel

Stainless steel is used in fabrication applications where corrosion resistance, hygiene, and long operational life are important. It is widely utilised in food processing plants, pharmaceutical industries, kitchen equipment, railways, chemical plants, and architectural structures. Stainless steel offers high resistance against rust, moisture, heat, and chemicals, making it ideal for harsh operating environments.

3. Alloy Steel

Alloy steel contains additional elements such as chromium, nickel, and molybdenum to improve hardness, strength, and wear resistance. It is commonly used in fabrication of heavy machinery, automotive components, industrial tools, oil & gas equipment, and power plant components. Alloy steel performs well under high pressure, temperature, and mechanical stress conditions.

4. Galvanised Steel

Galvanised steel is coated with zinc to provide protection against corrosion and environmental damage. It is extensively used in outdoor fabrication applications such as roofing systems, transmission towers,

warehouses, fencing systems, and infrastructure projects. The zinc coating increases durability and reduces maintenance requirements in moisture-prone environments.

5. Reinforcement Steel (TMT Steel)

Reinforcement steel, commonly known as TMT steel, is widely used in construction and infrastructure fabrication works. It provides high tensile strength, flexibility, and earthquake resistance in reinforced concrete structures. TMT bars are extensively used in bridges, buildings, metro projects, industrial foundations, and heavy infrastructure applications.

Key Features of Fabricated Steel

- **High Strength & Load-Bearing Capacity**

Fabricated steel structures offer excellent strength and high load-bearing capability, making them suitable for heavy industrial, commercial, and infrastructure applications. They can withstand high pressure, heavy loads, and harsh environmental conditions while maintaining structural stability and durability over long operational periods.

- **Durability & Long Service Life**

Fabricated steel products are highly durable and capable of performing efficiently for many years with minimal structural degradation. Steel structures are resistant to cracking, warping, and impact damage, making them suitable for industrial plants, warehouses, bridges, railway infrastructure, and power projects requiring long-term reliability.

- **Faster Construction & Installation**

One of the major advantages of fabricated steel is faster project execution compared to conventional construction materials. Steel components are manufactured off-site and assembled quickly at project locations, reducing construction timelines, labour requirements, and project delays. This feature is highly beneficial for industrial sheds, PEBs, warehouses, and infrastructure projects.

- **Design Flexibility & Customisation**

Fabricated steel allows high flexibility in design, size, and structural configuration based on project requirements. Steel can be cut, welded, bent, and assembled into customised shapes and complex structures for industrial, commercial, and engineering applications. This flexibility supports modern architectural and infrastructure developments.

- **Corrosion Resistance & Low Maintenance**

Fabricated steel structures, especially galvanised and stainless-steel products, provide strong resistance against corrosion, moisture, chemicals, and environmental damage. Protective coatings and surface treatments increase operational life and reduce maintenance requirements, making fabricated steel suitable for outdoor and industrial applications.

- **Cost Efficiency & Material Recyclability**

Fabricated steel offers cost advantages through reduced construction time, lower labour costs, and efficient material utilisation. Additionally, steel is highly recyclable and reusable, supporting sustainable construction practices and reducing material wastage. The recyclability of steel also contributes to environmentally friendly industrial development.

Types of Structural Steel and Their Applications

1. Beams (I-Beams & H-Beams)

Steel beams are one of the most important structural steel components used in construction and fabrication projects. They are specifically designed to resist bending forces and support heavy loads across horizontal spans. Beams provide structural stability and are widely used in commercial buildings, bridges, warehouses, industrial sheds, and infrastructure projects. I-beams and H-beams are commonly preferred due to their high load-bearing capacity and strength.

2. Columns

Columns are vertical structural members used to transfer the weight of a structure safely to the foundation. They play a critical role in maintaining structural stability and supporting floors, roofs, and heavy frameworks. Steel columns are widely used in high-rise buildings, industrial plants, warehouses, factories, and large infrastructure projects because of their strength and durability.

3. Channels (C-Channels)

Steel channels are commonly used for framing, bracing, and supporting medium and lightweight structural loads. They are extensively utilised in staircases, machinery frames, industrial platforms, roofing systems, and support structures. Channels provide good structural efficiency while maintaining relatively lower weight, making them suitable for fabrication and engineering applications.

4. Angles (L-Shapes)

Steel angles are L-shaped structural sections widely used for connecting structural members, reinforcing corners, and providing support in trusses, frames, towers, and industrial structures. They are commonly used in fabrication works, transmission towers, racks, supports, and infrastructure applications where strong corner reinforcement and stability are required.

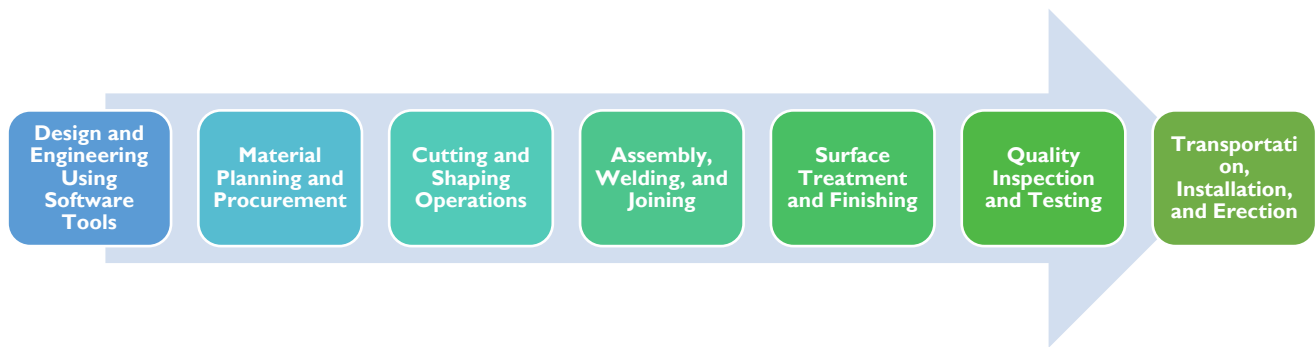
5. Plates

Steel plates are flat structural steel products used for joining beams, columns, and heavy structural components together. They are also used as base plates, foundation supports, machine platforms, and reinforcement sections in industrial and infrastructure projects. Steel plates provide high strength and durability for heavy-duty fabrication applications.

6. Hollow Structural Sections (HSS)

Hollow structural sections, including square, rectangular, and circular tubes, are widely used in modern construction and fabrication due to their uniform strength, lightweight properties, and aesthetic appearance. They are commonly used in pre-engineered buildings (PEBs), warehouses, architectural structures, bridges, and industrial frameworks. HSS structures provide efficient load distribution and improved design flexibility.

Steel fabrication process: from software-based design to final installation



➤ Design and Engineering Using Software Tools:

The steel fabrication process begins with detailed design and engineering using advanced software tools such as CAD, CAM, and Building Information Modeling (BIM). These tools are used to develop structural drawings, component detailing, and fabrication-ready designs with defined dimensions, tolerances, and load parameters. Software-based engineering enables optimization of material usage, early detection of design clashes, and compliance with applicable structural standards prior to fabrication.

➤ Material Planning and Procurement:

Based on approved designs, required steel grades, thicknesses, and quantities are finalized and procured from approved suppliers. Effective material planning ensures timely availability of structural steel inputs such as plates, sections, and pipes, while maintaining cost control and minimizing material wastage. Material traceability is maintained throughout the process, particularly for infrastructure, railway, and industrial applications.

➤ Cutting and Shaping Operations:

Procured steel undergoes precision cutting using CNC-controlled flame, plasma, laser, or shearing machines to achieve specified profiles and dimensions. This is followed by forming operations such as bending, rolling, and pressing to produce components with the required geometry. Accuracy at this stage is critical to ensure proper fit-up during assembly and ease of site erection.

➤ Assembly, Welding, and Joining:

Cut and formed components are assembled into sub-assemblies or complete structural units through certified welding and bolting processes. Welding methods are selected based on material thickness, joint design, and

load requirements, while bolted connections are often adopted to facilitate on-site installation. Controlled assembly ensures structural integrity, alignment, and dimensional accuracy.

➤ **Surface Treatment and Finishing:**

Fabricated components undergo surface preparation, including shot blasting, followed by protective treatments such as painting, galvanizing, or specialized coatings. These processes enhance corrosion resistance and service life, particularly for outdoor, industrial, and infrastructure applications.

➤ **Quality Inspection and Testing:**

Quality inspections are conducted at multiple stages of fabrication, including dimensional checks, visual inspection, and non-destructive testing of welds. These checks ensure compliance with engineering specifications, customer requirements, and applicable safety and quality standards prior to dispatch.

➤ **Transportation, Installation, and Erection:**

The final stage involves transportation of fabricated components to the project site, followed by installation or erection. For large structural and infrastructure projects, components are assembled on-site under controlled conditions, while for industrial applications, fabricated assemblies are integrated into equipment or systems. Effective coordination during this phase is essential to ensure timely project completion and functional performance.

Major End-Use Industries in India Steel Fabrication Market

The structural steel fabrication industry is a critical enabler of India's infrastructure, industrialization, and defense modernization efforts. Fabricated steel structures offer advantages such as high strength, design flexibility, faster construction timelines, modularity, and sustainability, making them the preferred construction solution across transportation, industrial, and strategic sectors.

Among the various end-use segments, *Railway Infrastructure*, *Industrial Infrastructure*, and *Defense Infrastructure* represent three major consumers of fabricated steel structures in India.

Railway Infrastructure Solutions

Indian Railways, metro rail systems, high-speed rail projects, dedicated freight corridors, and station redevelopment programs generate significant demand for structural steel fabrication solutions. Steel structures are increasingly preferred due to faster installation, reduced site disruption, and the ability to span large distances without intermediate support. Structural steel enables faster station modernization, construction of large-span roof systems, passenger circulation infrastructure, and grade separation projects. The government's station redevelopment initiatives, metro expansion programs, and freight corridor projects continue to drive demand for fabricated steel structures.

Application	Description
Foot Over Bridges (FOBs)	Fabricated steel pedestrian bridges connecting railway platforms and station complexes.
Road Over Bridges (ROBs)	Steel bridge structures are constructed over railway tracks to eliminate level crossings and improve traffic movement.
Railway Station Buildings	Structural steel frameworks used in station redevelopment projects and modern passenger terminals.
Platform Shelters & Roofing Structures	Long-span fabricated steel roofs and canopies for passenger protection.
Metro Station Structures	Elevated metro station buildings, concourses and platform structures.
Pedestrian Skywalks	Steel walkways linking stations, commercial areas, and transit hubs.
Railway Sheds & Maintenance Depots	Industrial-scale steel buildings are used for locomotive and wagon maintenance.
Dedicated Freight Corridor Structures	Logistics terminals, freight handling facilities, and operational buildings.
Gantry Structures & Signaling Supports	Fabricated steel portals supporting signaling and electrification infrastructure.
Railway Workshops & Warehouses	PEB and structural steel facilities supporting railway operations.

Industrial Sector Solutions

The industrial sector is one of the largest consumers of fabricated steel owing to rapid investments in manufacturing facilities, warehouses, logistics parks, power plants, process industries, and industrial corridors. Demand is particularly strong in the **Pressure Vessel** and **Pre-Engineered Building (PEB)** segments. **Pressure vessels** are highly engineered steel structures designed to store or process liquids and gases under controlled pressure conditions.

Key Pressure Vessel Applications

Industry	Fabricated Solution
Oil & Gas	Storage vessels, separators, reactors, columns
Refineries	Distillation columns, heat exchangers, pressure tanks
Petrochemicals	Reactors, process vessels
Fertilizers	High-pressure ammonia and urea vessels
Pharmaceuticals	Stainless steel process vessels and reactors
Food & Beverage	Processing tanks and pressure containers

Power Plants	Boiler components, drums and heat recovery systems
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Pre-Engineered Building (PEB) Solutions

PEBs are factory-fabricated steel building systems designed, manufactured, and assembled to meet specific industrial requirements. Their faster erection timelines and cost efficiencies have made them the preferred choice for industrial and logistics infrastructure. The rapid growth of manufacturing under initiatives such as "Make in India," coupled with increasing investments in warehousing and logistics infrastructure, has significantly boosted demand for PEB and pressure vessel fabrication solutions.

Major PEB Applications

Application	Usage
Manufacturing Plants	Production facilities and assembly plants
Warehouses	Storage and distribution centers
Logistics Parks	Freight handling and logistics hubs
Industrial Sheds	Engineering and fabrication workshops
Automobile Facilities	Vehicle manufacturing and assembly units
Data Centers	Large-span technology infrastructure
Cold Storage Facilities	Food and pharmaceutical storage
E-commerce Fulfilment Centers	Distribution and inventory management hubs

Role in Defense Modernization

India's defense modernization initiatives and emphasis on indigenous manufacturing are creating growing opportunities for specialized structural steel fabrication. Defense applications typically require high-precision engineering, superior quality standards, and customized fabrication capabilities.

Steel Fabrication Solution	Defense Application
Aircraft Hangars	Storage, maintenance and servicing of military aircraft.
Naval Dockyard Structures	Shipbuilding facilities, dry docks and naval infrastructure.
Defense Manufacturing Facilities	Missile, aerospace and defense equipment production plants.
Military Logistics Warehouses	Storage and distribution of defense supplies and equipment.
Border Infrastructure	Steel bridges, observation towers and forward operating facilities.
Command & Control Centers	Strategic operations and communication facilities.
Radar & Communication Towers	Surveillance, communication and air defense systems.
Modular Military Buildings	Rapidly deployable shelters and operational facilities.
Defense Research Facilities	Laboratories, testing centers and R&D infrastructure.



Major Contracting Model for above end user industries

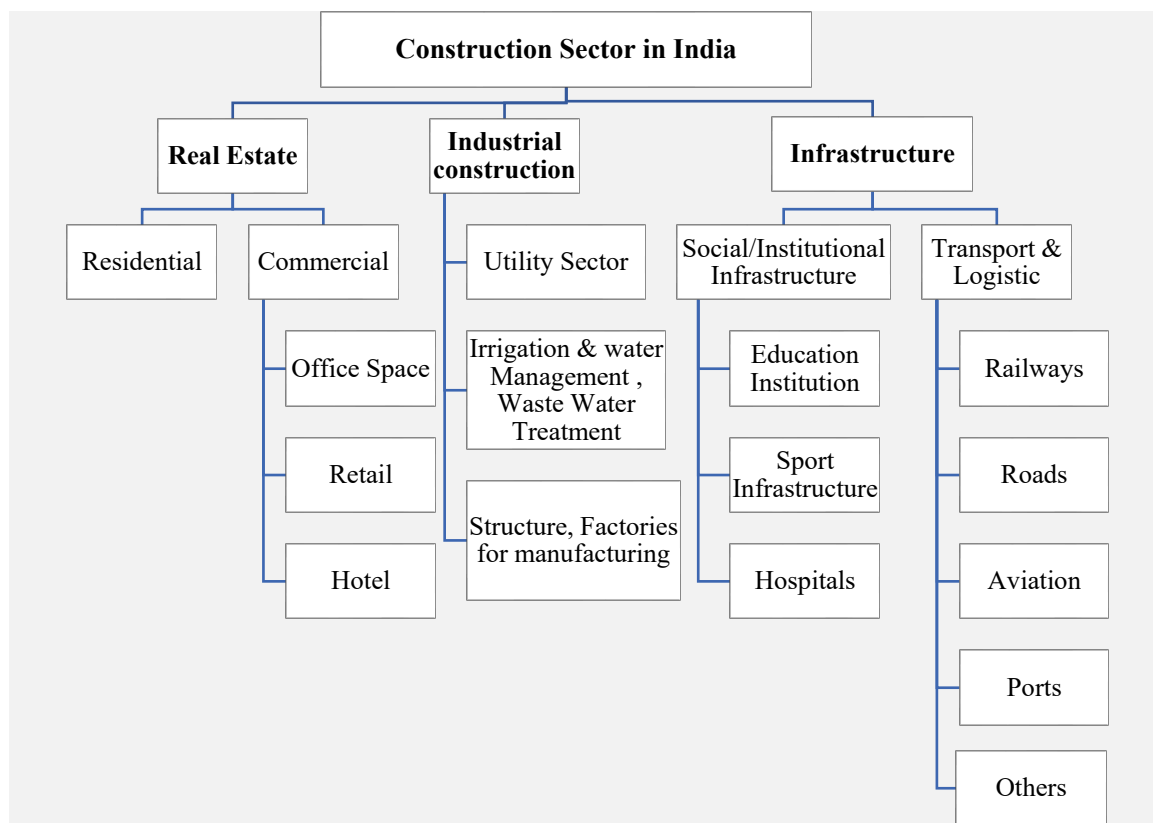
Sector	Dominant Contracting Model	Scope of Work	Revenue Model	Key Decision Drivers
Railway Infrastructure	Design-Fabricate-Supply-Erect (DFSE) and EPC Subcontracting Model	Structural detailing, shop drawings, material procurement, fabrication, surface treatment, transportation, site erection, installation and commissioning of FOBs, ROBs, station roofing structures, skywalks, maintenance sheds, platform shelters, gantries and railway support structures.	Fixed-price contracts, tonnage-based contracts, milestone-linked payments, EPC subcontract packages.	Quality compliance with railway standards, execution capability, fabrication capacity, erection expertise, project timeline adherence, geographical reach, safety performance and cost competitiveness.
Industrial Infrastructure (Pressure Vessel Segment)	Design-Manufacture-Supply (DMS) and EPC Package Model	Detailed engineering, pressure vessel design support, heavy plate fabrication, rolling, forming, welding, NDT testing, ASME-certified manufacturing, surface treatment, transportation and installation support for reactors, separators, storage tanks, columns and process equipment.	Fixed-price manufacturing contracts, project-based engineering contracts, EPC package subcontracting, value-added fabrication charges.	Engineering capability, ASME certifications, welding expertise, quality assurance systems, pressure vessel manufacturing experience, compliance requirements, delivery schedules and technical complexity.
Industrial Infrastructure (PEB Segment)	Turnkey Design-Build and Design-Supply-Erect Model	Design optimization, structural engineering, fabrication of primary and secondary steel members, roofing systems, cladding systems, supply, transportation and erection of factories, warehouses, logistics parks, industrial sheds, cold storages and data centers.	Lump-sum turnkey contracts, design-build contracts, tonnage-based pricing, supply and erection contracts.	Speed of construction, cost competitiveness, design efficiency, single-point accountability, project execution capability, scalability and lifecycle economics.
Defense Infrastructure	Government Tender, Approved Vendor and Strategic Partnership Model	Design assistance, fabrication, testing, supply and erection of aircraft hangars, naval dockyard structures, border infrastructure, military warehouses, radar towers, communication structures, command centers, ammunition storage facilities and specialized defense structures.	Government tender contracts, framework agreements, approved vendor supply contracts, strategic EPC partnerships, long-term rate contracts.	Security clearance, defense qualification standards, reliability, precision engineering capabilities, quality certifications, traceability requirements, customization capability and long-term performance reliability.



Market Scenario

An Overview of Indian Construction Sector

Construction sector is one of the major segments that drives an economy. Construction projects are often categorized based on their scale, the types of structures being built, and the purpose of the project. The sector is broadly divided into real estate construction, Industrial, and Civil & infrastructure construction.



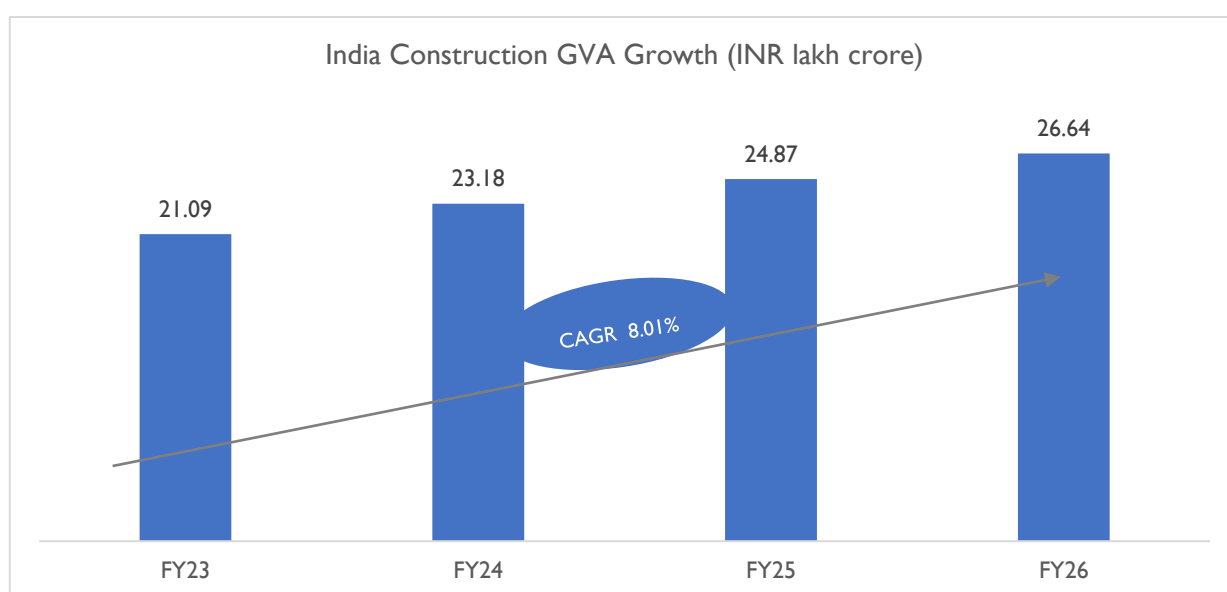
Source: Dun & Bradstreet Desk Research

Growth in the number of construction projects creates the demand for a myriad range of products and services. These include project management services, infrastructure engineering and architecture consulting services, to name a few. The construction sector encompasses a broad range of activities involved in the planning, design, development, and maintenance of buildings and infrastructure. This includes residential, commercial, and industrial structures, as well as roads, bridges, railways, ports, airports, water supply systems, and energy facilities. It plays a foundational role in national development by creating the physical framework necessary for economic activity, public services, and improved quality of life. The sector is supported by a wide network of industries providing raw materials, equipment, and services, making it one of the most interconnected and influential components of the economy.

Current Market Growth

The Indian construction industry has exhibited strong growth during FY23-FY26, with Gross Value Added ("GVA") increasing from ₹21.09 lakh crore in FY21 to ₹26.64 lakh crore in FY26, representing a CAGR of approximately 8.01%. The sector's expansion was driven by the post-pandemic recovery in construction activity, increasing public and private capital expenditure, accelerated infrastructure execution, rising real estate development and growing investments across manufacturing, logistics and urban infrastructure.

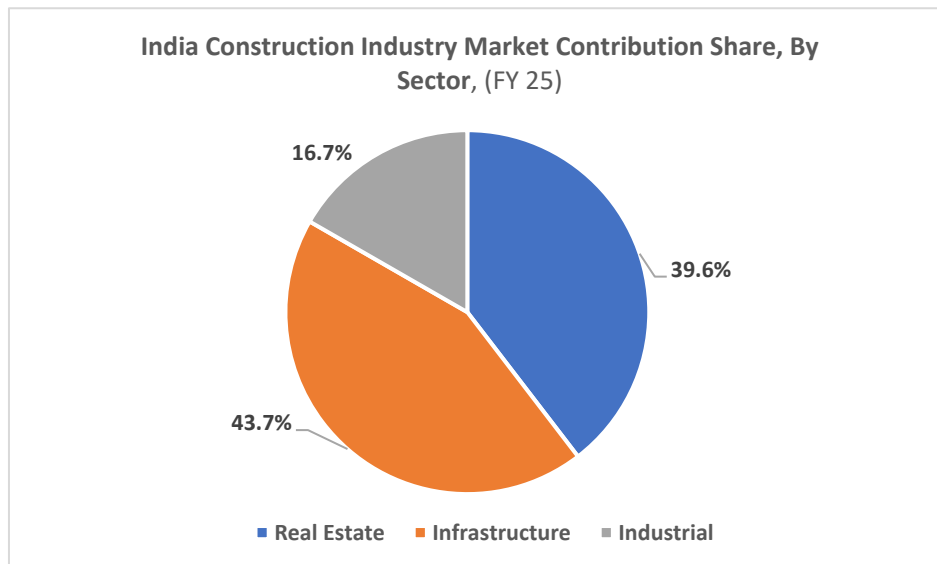
Growth momentum remained supported by government-led infrastructure programmes, including investments in transportation, housing, industrial corridors and urban development, alongside increasing demand for residential, commercial and industrial construction. While growth moderated in FY26 compared to the strong recovery phase witnessed during FY24, the sector continued to benefit from robust infrastructure spending and ongoing construction activity across key end-use segments.



Source: Ministry of Statistics & Programme Implementation, D&B Estimates

Indian Construction Industry: Market Segmentation

The Indian construction industry is characterized by a diversified mix of infrastructure, real estate and industrial construction activities, each supported by distinct economic and policy drivers. Infrastructure continues to account for the largest share of construction activity in India, reflecting the Government's sustained focus on transportation networks, urban development and public infrastructure creation.



Source: Dun & Bradstreet Research

The **Infrastructure Segment is expected to remain the largest contributor** to the construction industry, accounting for 43.7% share in FY25. The segment's growth is propelled by continued investments in roads and highways, railways, metro rail systems, airports, ports, energy infrastructure, urban infrastructure and water-related projects. Growth is further supported by the Government of India's emphasis on infrastructure-led economic development through initiatives such as PM Gati Shakti, the National Infrastructure Pipeline ("NIP"), dedicated freight corridors, metro rail expansion and increasing budgetary allocations towards capital expenditure. The segment also benefits from rising demand for logistics and transport infrastructure aimed at improving connectivity, supply chain efficiency and overall economic competitiveness.

With 39.6% share, the **real estate segments** remained the second largest contributor to the Construction GVA. Growth in this segment is supported by favourable demographic trends, increasing urbanisation, rising disposable incomes and continued demand for residential, commercial and mixed-use developments. Demand is also expected to benefit from affordable housing initiatives, expansion of office and retail spaces, redevelopment projects in urban centres, and increasing construction activity across Tier II and Tier III cities.

The **industrial construction** segment contributed for balance **16.7%** share. Growth within this segment is driven by increasing investments in domestic manufacturing, industrial corridors, warehousing and logistics infrastructure, data centres, electronics manufacturing facilities and other industrial projects. Government initiatives such as the Production Linked Incentive ("PLI") schemes, Make in India, the National Logistics Policy and the development of industrial parks and manufacturing clusters are expected to support capacity expansion and industrial infrastructure development. In addition, growing demand for organized warehousing, e-commerce logistics infrastructure and data centre facilities is further contributing to the segment's growth.

Overall Lifecycle Services in Infrastructure Engineering Solutions

Infrastructure engineering solutions can extend across the complete project lifecycle, beginning with design and engineering and continuing through material procurement, fabrication, transportation, erection, completion and commissioning, and post-commissioning support. The extent of services provided by an infrastructure engineering solution provider varies depending on project requirements, technical capabilities and the contractual arrangement. The key stages of the lifecycle and the stakeholders involved are outlined below.

The scale of public investment in infrastructure provides an important demand environment for such engineering and project-execution capabilities. In FY 2026–27, the Government of India has budgeted **INR 12.22 lakh crore towards capital expenditure**, including **INR 2 lakh crore of capital support to states for capital expenditure**.²⁰ This sustained public investment supports the development of transportation networks, industrial and public infrastructure and other large-scale assets, creating requirements for specialised engineering, fabrication, construction and project-support capabilities across different stages of infrastructure development.

Within this environment, infrastructure engineering solution providers can support project owners, EPC contractors and other stakeholders by undertaking specialised activities based on the scope awarded to them. Their involvement can range from engineering and fabrication to logistics coordination, site execution and technical support after project completion. The integration of these capabilities can help coordinate project interfaces, manage technically complex requirements and facilitate the transition of engineered designs into completed physical assets. The lifecycle therefore involves close coordination among project owners, engineering consultants, EPC contractors, solution providers, material suppliers, logistics providers, erection contractors and inspection agencies, with their respective responsibilities determined by the project's execution and contracting structure.

Design and Engineering

The lifecycle begins with understanding the project requirements and developing the engineering designs and technical specifications required for execution. Activities may include conceptual and detailed engineering, structural analysis, preparation of drawings, fabrication detailing, design reviews and coordination with other engineering disciplines. The designs and specifications established at this stage provide the basis for subsequent procurement, fabrication and site execution.

- **Key stakeholders and roles:** The **project owner/developer** defines project objectives, technical requirements and performance expectations; **engineering consultants** undertake design and engineering activities and prepare technical specifications; **EPC contractors** coordinate engineering with procurement and construction requirements; and **infrastructure engineering solution**

²⁰ <https://www.pib.gov.in/FactsheetDetails.aspx>



providers may undertake detailed engineering, fabrication detailing and other specialised engineering activities within their contractual scope.

Material Procurement and Fabrication

Following approval of the designs and specifications, the required materials and components are identified and procured. For structural steel solutions, this may include plates, beams, sections, pipes and other steel products. Fabrication activities may include cutting, forming, drilling, machining, welding, bolting, assembly and surface treatment. Inspection and testing are undertaken at relevant stages to verify compliance with specified technical and quality requirements.

- **Key stakeholders and roles: Infrastructure engineering solution providers** may undertake material planning, procurement and fabrication; **steel and material suppliers** provide the required raw materials and components; **EPC contractors and project owners** provide specifications and monitor execution against project requirements; and **inspection and testing agencies** may verify material quality, fabrication quality and compliance with specified standards.

Transportation and Logistics

Following fabrication and quality inspection, completed structures and components are prepared for transportation to the project site. Logistics planning may consider the size and weight of components, transportation routes, handling requirements, delivery schedules and site-access conditions. Coordination between the fabrication facility, logistics providers and project teams is required to align deliveries with the site execution programme.

- **Key stakeholders and roles: Infrastructure engineering solution providers and fabricators** coordinate dispatch and delivery requirements; **logistics and transportation providers** arrange movement of fabricated components to the project site; and **EPC contractors and project/site management teams** coordinate delivery schedules, site readiness and material receipt.

Erection and Installation

At the project site, fabricated components are unloaded, assembled, aligned and erected in accordance with approved drawings and project execution plans. Depending on the project, activities may include lifting, positioning, bolting, welding, alignment and integration with civil, mechanical, electrical or other infrastructure systems. Site execution requires coordination between erection teams and other contractors involved in the project.

- **Key stakeholders and roles: Erection and installation contractors** undertake site assembly and erection activities; **infrastructure engineering solution providers** may provide technical support, supervision or undertake erection where included within their scope; **EPC contractors** coordinate site execution and interfaces between different work packages; and **civil and other**

specialist contractors undertake related works required for integration of the structures into the overall project.

Completion and Commissioning

Following erection and installation, the completed structures and associated systems undergo final inspection, testing and verification against project specifications and contractual requirements. Any identified deficiencies, incomplete works or required modifications are addressed before project completion. Where the infrastructure forms part of an integrated facility, commissioning involves coordination across structural, mechanical, electrical and other relevant systems to establish readiness for intended operation.

- **Key stakeholders and roles:** The **project owner/operator** verifies completion against project requirements and takes responsibility for the completed asset; **EPC contractors** coordinate completion and commissioning activities; **infrastructure engineering solution providers** address fabrication- or installation-related requirements within their scope; **engineering consultants** may support technical verification; and **inspection/testing agencies and specialist contractors** undertake relevant testing, inspection and certification activities.

Post-Commissioning Support

Following completion and commissioning, infrastructure engineering solution providers may provide technical and lifecycle support depending on their capabilities and contractual scope. Such services may include inspection, maintenance, repair, modification, refurbishment and other engineering support required during the operating life of the asset. The nature and extent of post-commissioning support depend on the type of infrastructure, operating conditions and requirements of the asset owner.

- **Key stakeholders and roles:** **Asset owners/operators** identify maintenance and service requirements and oversee asset performance; **infrastructure engineering solution providers** may provide inspection, repair, modification, refurbishment and other technical services; **maintenance and service providers** undertake specialised maintenance activities; and **specialist contractors** may be engaged for specific technical requirements.

Stakeholder Interlinkages Across the Lifecycle

The infrastructure engineering lifecycle involves continuous interaction among project owners, engineering consultants, EPC contractors, infrastructure engineering solution providers, material suppliers, logistics providers, erection contractors, inspection agencies and other specialised contractors. Requirements established by the project owner are translated into engineering designs and specifications, which subsequently guide procurement and fabrication. Fabricated structures are transported to the project site and erected in coordination with civil and other project activities, followed by inspection, completion and commissioning. After commissioning, the asset owner may continue to engage infrastructure engineering solution providers and other specialised service providers for maintenance, repair, modification and refurbishment requirements.

The infrastructure engineering solution provider can therefore participate at multiple stages of the project lifecycle, with the extent of involvement determined by its capabilities and contractual scope. In structural steel applications, this involvement may extend from detailed engineering and fabrication through transportation, erection and installation, with post-commissioning services provided where included within the overall service offering.

Qualitative commentary on Structural Steel Fabrication Market in India

In the absence of a consolidated fabrication-turnover series, finished steel consumption provides the most reliable broad proxy for addressable fabrication demand, given that construction and infrastructure account for approximately 68% of total steel consumed in India. Organised fabricators with integrated engineering, certification, and execution capabilities are increasingly positioned to capture the higher-complexity, higher-value end of this market as quality, traceability, and sustainability requirements raise institutional procurement standards.

Consumption Growth Landscape

According to the World Stainless Association, steel demand in India is expected to continue charging ahead, with growth of around 9% over 2025 and 2026, driven by broad-based expansion across all major steel-consuming sectors. **Finished steel consumption reached 163.7 million tonnes in FY 2026**, supported by government capital expenditure that rose from INR 3.07 lakh crore in FY 2018-19 to INR 11.21 lakh crore in FY 2026, with the Union Budget proposing a further step-up to INR 12.2 lakh crore in FY 2027.

This sustained growth trajectory reflects structurally strong demand fundamentals, underpinned by ongoing capital expenditure, urbanisation, and manufacturing-led growth. Over the medium term, the cumulative impact of this expansion is expected to be significant, with steel demand in India projected to be nearly 75 million tonnes higher by 2026 compared to 2020 levels, highlighting the scale and durability of demand growth. This reinforces India's position as one of the fastest-growing steel markets globally and underscores the critical role of infrastructure development and industrial activity in driving long-term steel consumption.

The growth momentum of the steel sector is expected to remain healthy in the near term, with steel demand projected to grow at a comfortable rate of around **8% in FY 2026**. This outlook reflects sustained activity across construction, infrastructure, industrial projects, railways, energy, and real estate sectors, which also represent key end-use industries for fabricated steel structures and components. Continued policy support for the sector is evident from the **Union Budget FY 2026–27**, under which the Government of India allocated **INR 443.18 crore** to the Ministry of Steel. The allocation highlights the strategic importance of the steel industry within the country's broader industrial development and infrastructure expansion agenda, indirectly supporting demand growth for steel fabrication services and engineered steel products.

Against this broader steel industry backdrop, the steel fabrication market in India continues to benefit from rising steel availability and expanding downstream applications.

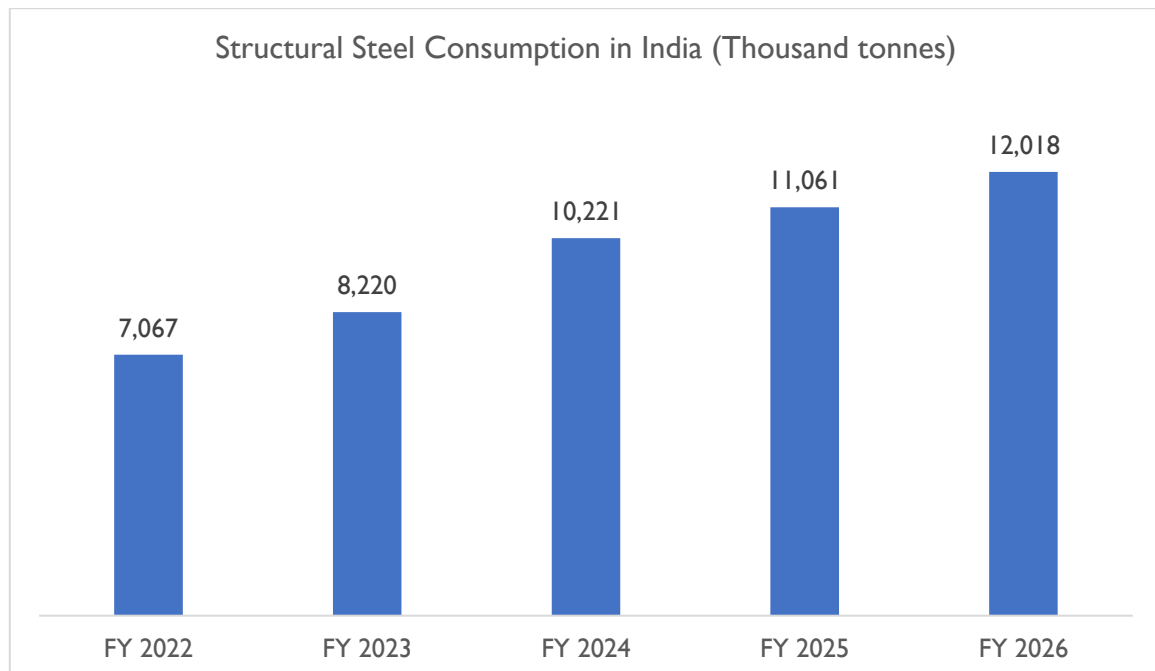
The strength of domestic steel production is evident from **crude steel production** of **168.4 million tonnes** during **FY 2026** , ensuring a stable raw material base for fabrication activities.

Year	Crude Steel Production (MT)	Finished Steel Production (MT)
FY 2022	120.3	113.6
FY 2023	127.2	123.2
FY 2024	144.3	139.2
FY 2025	152.2	146.
FY 2026	168.4	160.9
CAGR	8.8%	9.1%

Sources: Ministry Of Steel

Finished steel production stood at 160.9 MT in FY 2025-26, reflecting a CAGR of 9.1% while crude steel production recorded a compound annual growth rate (CAGR) of approximately 8.8% between FY 2022 and FY 2026. As fabrication serves as a critical downstream link between primary steel production and end-use sectors such as construction, infrastructure, industrial facilities, power, and logistics, growth in steel demand and production directly translates into higher fabrication requirements.

As per CMIE data, India's structural steel consumption has witnessed steady growth between FY 2022-26 increasing at CAGR of 14.2%, highlighting favourable market growth scenario for steel fabrication sector and supporting the overall broader Infrastructure engineering solution industry.



Overall, the steel fabrication market in India is positioned to grow in line with the country's robust steel demand outlook and expanding industrial base. Rising domestic steel consumption, healthy production trends, and continued government emphasis on infrastructure development collectively support a positive operating environment for steel fabricators.

As India continues to accelerate investments in industrialization, urban infrastructure, renewable energy, transportation networks, and large-scale construction projects, steel fabrication is expected to remain a structurally important downstream segment within the broader steel value chain, supported by increasing demand for customised, precision-engineered, and large-scale fabricated steel solutions.

Industrial Construction Landscape in India

India's industrial landscape is undergoing a transformative journey, fueled by ambitious government initiatives like "Make in India" and rapid t growth. Amidst this transformation, the industrial construction segment stands as a key driver, laying the foundation for factories, power plants, logistics hubs, and other crucial infrastructure. Government spending on infrastructure development, rising automation in manufacturing, and expansion of sectors like chemicals, pharmaceuticals, and electronics fuel the demand for state-of-the-art industrial facilities. The China Plus One strategy is an approach adopted by companies and countries to diversify their supply chains away from excessive reliance on China as a manufacturing and sourcing hub. The strategy emerged as a response to various factors, including rising labour costs in China, geopolitical tensions, trade uncertainties, and the need to mitigate risks associated with being overly dependent on a single country for production and sourcing.

Mapping The IIP Growth and Index of Eight Core Industries Trend in India

The IIP and the Index of Eight Core Industries (ICI) are useful official indicators for this market because they capture production momentum in sectors that either directly commission industrial construction or supply critical inputs to it.

IIP Index Trend in India (Base 2022-23)				Y-o-Y Growth		
Segment	Sector Weight	FY 2024	FY 2025	FY 2026	FY 2025	FY 2026
Mining & Quarrying	11.1	102.2	105.1	109.0	2.8%	3.7%
Manufacturing	76.1	107.1	113.8	119.4	6.3%	4.9%
Electricity & Gas Supply	10.9	106.2	116.3	117.6	9.5%	1.1%
Water Supply, Sewerage & Waste Management	2.0	117.8	131.8	140.2	11.9%	6.4%
General	100.0	106.7	113.5	118.4	6.4%	4.3%

Sources: MOSPI

India's IIP data indicates a strong recovery momentum in FY2025, driven by manufacturing and electricity, which supported overall industrial expansion. However, in FY2026, growth moderated across most segments, bringing the overall IIP growth down from 6.4% to 4.3%, suggesting a normalization after a high base effect and easing demand conditions. Manufacturing, which holds the largest weight, continued to anchor the index but witnessed a slowdown, significantly influencing the overall trend.

The **index of eight-core series**²¹ include coal, crude oil, natural gas, refinery products, fertilisers, steel, cement and electricity, which together form the backbone of industrial and infrastructure activity. Their combined growth over FY2021-FY2026 provides a defensible official proxy for the direction of industrial

²¹ https://eaindustry.nic.in/eight_core_infra/Eight_Infra.pdf



construction demand. The eight-core data shows that steel and cement were the strongest construction-linked indicators over the anchor period. Steel's index increased from 139.4 in FY2020-21 to 234.5 in FY2025-26, while cement increased from 130.0 to 214.6 over the same period. Electricity also rose from 157.6 to 210.7. This pattern indicates continuing demand for industrial buildings, structures, utilities, transport infrastructure, power systems and capital works.

Core industry index	FY2020-21 index	FY2025-26 index	CAGR FY21-FY26
Coal	131.1	191.1	7.8%
Crude oil	80.1	73.3	Negative
Natural gas	59.8	73.8	4.3%
Refinery products	114.9	139.6	4.0%
Fertilisers	111.6	133.4	3.6%
Steel	139.4	234.5	11.0%
Cement	130.0	214.6	10.5%
Electricity	157.6	210.7	6.0%
Overall ICI	123.2	169.4	6.6%

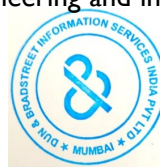
Sources: Office of the Economic Adviser

Indian industrial sector Capex growth trend and its impact on Industrial Engineering

India is witnessing a public capex-led investment cycle, with strong spillover into industrial construction, including roads, railways, power, industrial parks and logistics infrastructure. India's industrial construction capex has witnessed a strong upcycle over the past five years, driven primarily by an aggressive public infrastructure push. Capital expenditure grew sharply to a record **INR 12.2 trillion, representing 11.5% year-on-year growth**. The elevated level of capital expenditure indicates sustained government commitment towards infrastructure development. While the investment cycle is gradually transitioning from rapid expansion towards consolidation, increasing emphasis on project execution and completion is expected to sustain demand for engineering, construction and project execution capabilities. Importantly, public capex is also beginning to crowd in private investment, supporting a more broad-based investment cycle.

Simultaneously, private investment continues to play an important role in driving industrial construction activity. As per the RBI's August 2025 Bulletin, the pipeline of upcoming projects shows a steady scaling-up of investments, with expected capex rising to **₹2.67 lakh crore in FY2025-26 from ₹2.20 lakh crore in FY2024-25**. This indicates that a growing number of projects are progressing towards execution, translating into higher spending on industrial facilities, machinery, utilities and supporting infrastructure. The trend reflects improving investor confidence and strengthening momentum in the private investment cycle.

Overall, PLI-led manufacturing growth, rising industrial investment intentions and expansion in the construction sector are strengthening demand for industrial engineering and infrastructure solutions in India.



New manufacturing plants, industrial parks, production facilities, warehouses and supporting infrastructure require integrated capabilities spanning engineering and design, structural systems, fabrication, construction, installation and project execution. As manufacturing clusters expand and new facilities are commissioned, demand is expected to remain strong for quality-compliant and schedule-driven engineering solutions, supporting order inflows and long-term growth opportunities for companies serving India's evolving industrial ecosystem.

Government Capital Expenditure Supporting Infrastructure Development²²

Financial Year	Ministry of Railways (in INR Cr)	Ministry of Road Transport and Highways (in INR Cr)	Metro Projects (in INR Cr)
2020-21	1,09,323.7	89,194.8	8,572.6
2021-22	1,17,270.5	1,13,311.6	23,262.0
2022-23	1,59,100.0	2,05,985.9	18,831.4
2023-24	2,42,578.6	2,63,912.0	19,449.8
2024-25	2,51,946.6	2,85,344.4	24,601.9
2025-26	2,52,000.0	2,72,051.5	27,309.6
2026-27	2,77,830.0	2,94,167.5	28,695.0

Source: The Union Budget from Ministry of Finance

Government capital expenditure on transportation infrastructure has more than doubled across railways, roads and highways, and metro projects over the last several years, highlighting the sustained investment momentum in India's infrastructure sector. Capital allocation towards railways increased from INR 1.09 lakh crore in FY2021 to INR 2.78 lakh crore in FY2027, while expenditure on roads and highways rose from INR 0.89 lakh crore to INR 2.94 lakh crore during the same period. Metro project expenditure also expanded substantially from INR 8,573 crore to INR 28,695 crore, reflecting the continued expansion and modernization of urban transportation infrastructure across the country. The scale of railway investment is further supported by the record INR 2.78 lakh crore allocation for FY2026–27.

The sustained increase in transportation infrastructure spending is expected to generate significant demand for integrated engineering, fabrication, construction and project execution capabilities. Railway station redevelopment, dedicated freight corridors, maintenance depots, foot-over bridges, road overbridges,

²² <https://www.indiabudget.gov.in/doc/eb/vol1.pdf>
<https://www.indiabudget.gov.in/budget2025-26/doc/eb/vol1.pdf>
<https://www.indiabudget.gov.in/budget2024-25/doc/eb/vol1.pdf>
<https://www.indiabudget.gov.in/budget2023-24/doc/eb/vol1.pdf>
<https://www.indiabudget.gov.in/budget2022-23/doc/eb/vol1.pdf>



highway bridges, elevated corridors, metro stations and associated infrastructure require a combination of structural systems, fabricated components, construction works, installation and site execution. Accordingly, continued government investment across railways, roads, highways and metro infrastructure is expected to remain a key demand driver for infrastructure engineering solutions in India, creating opportunities across the project lifecycle from engineering and fabrication to construction, erection and installation.



Key Demand Drivers

Assessment of infrastructure engineering solutions demand arising from the following market segments:

Railway, Metro & Station Redevelopment Infrastructure

Growing Demand for Integrated Infrastructure Engineering Solutions ²³

India's continued investment in railway modernization, metro rail expansion, and station redevelopment is emerging as a significant demand driver for the infrastructure engineering solutions industry. The country's metro network has expanded from **248 km in 2014 to 1,095 km in 2025**, while metro coverage has increased from 5 cities to 26 cities during the same period. Further, 38 metro rail projects covering **1,051 km** have been sanctioned since 2014 with an estimated investment of approximately **INR 3.44 lakh crore**. The development of elevated corridors, metro stations, depots, pedestrian bridges, roofing structures, and supporting infrastructure requires integrated engineering, design, fabrication, construction, installation and project execution capabilities, thereby generating sustained demand for infrastructure engineering solutions.

In parallel, Indian Railways is undertaking large-scale infrastructure development and capacity augmentation initiatives. Under the **Amrit Bharat Station Scheme**, **1,337 railway stations** have been identified for redevelopment, with 180 stations already redeveloped. India has also emerged as the world's second-largest freight carrier and is targeting annual freight loading of **3,000 million tonnes by FY2030**. Additionally, Indian Railways is targeting the deployment of approximately 400 Vande Bharat trains by March 2027 as part of its broader modernization agenda. The sector has achieved near-complete electrification of its broad-gauge network and aims to become a net-zero carbon emitter by 2030.

Ongoing investments in dedicated freight corridors, station redevelopment projects, high-speed and semi-high-speed rail networks, Vande Bharat expansion, and rail electrification are expected to drive demand for integrated infrastructure engineering solutions covering engineering and design, structural systems, fabrication, construction, erection and commissioning. These investments will require solutions for bridges, station frameworks, maintenance depots, workshops, gantries, terminals, roofing systems, and other supporting infrastructure. Dedicated freight corridor projects are also expected to improve logistics efficiency while reducing transportation-related emissions and fuel consumption, further supporting long-term infrastructure investments and demand for engineering-led infrastructure solutions.

²³ <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2240324&lang=2®=3>
<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2238954&lang=1®=3>
<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2209199®=48&lang=2>



Key Impact Areas

Railway Infrastructure Initiative	Impact on Infrastructure Engineering Solutions Demand
Metro Rail Expansion	Elevated viaducts, metro stations, depot structures, pedestrian bridges, roofing systems, support structures, and associated engineering and project execution requirements.
Station Redevelopment (Amrit Bharat Station Scheme)	Station buildings, structural frameworks, roofing systems, foot over bridges, concourses, passenger amenities, and integrated construction and engineering requirements.
Dedicated Freight Corridors	Steel bridges, freight terminals, logistics hubs, warehouses, gantries, and supporting infrastructure requiring engineering, fabrication, construction and installation.
High-Speed & Semi-High-Speed Rail Projects	Station buildings, maintenance depots, platform structures, and associated engineering, structural and infrastructure execution requirements.
Rail Electrification	Gantries, transmission support structures, overhead equipment support systems, and related engineering, fabrication and installation requirements

Looking ahead, continued investments in railway and urban transit infrastructure are expected to support sustained demand for integrated infrastructure engineering solutions. Indian Railways is targeting the deployment of approximately **400 Vande Bharat trains by March 2027** and aims to increase annual freight loading to **3,000 million tonnes by FY2030**, reflecting its focus on capacity expansion and network modernization. Additionally, ongoing investment in metro rail projects, station redevelopment, dedicated freight corridors, and rail electrification are expected to drive the development of stations, depots, bridges, logistics terminals, workshops, and other transportation-related infrastructure. These initiatives are likely to create long-term opportunities for companies providing engineering, fabrication, construction, erection, installation and turnkey infrastructure solutions.

Emerging Opportunities in PEB

The application scope of pre-engineered buildings (PEBs) and integrated infrastructure engineering solutions is expanding beyond traditional industrial and commercial segments. Increasing investments in strategic infrastructure, renewable energy, digital infrastructure, and advanced manufacturing are creating new avenues of demand for engineering, steel structures, PEBs and related project execution services. Defence infrastructure, solar energy projects, and data centre development are emerging as key growth areas, supported by government initiatives, rising capital expenditure, and long-term infrastructure expansion plans.



➤ **Defence Infrastructure:** ²⁴

India's growing focus on defence modernization, self-reliance and indigenous manufacturing is creating new opportunities for Infrastructure Engineering Solutions providers in defence sector. Bailey bridges are prefabricated steel bridge systems that provide a rapid and flexible solution for establishing or restoring connectivity in difficult and remote terrain. Their modular construction enables faster assembly and deployment compared with conventional bridge structures, making them relevant for strategic roads, border areas and emergency restoration of connectivity. The Border Roads Organisation (BRO) has deployed Bailey bridges extensively in forward areas; for instance, BRO has constructed 860 feet of Bailey bridges in its Hirak project area to support continuous connectivity to forward locations. ²⁵

The continued use of Class-70 Bailey bridges for defence and disaster-response applications creates opportunities across steel fabrication, modular component manufacturing, structural engineering, transportation, erection and bridge-launching services. In 2021, BRO restored connectivity at Reini in Uttarakhand through a 200-foot²⁶ Bailey bridge following the Rishiganga floods, demonstrating the suitability of such systems for rapid restoration of critical connectivity. India's focus on indigenous defence equipment is also supporting domestic manufacturing of Bailey-type bridge systems. The Ministry of Defence has identified Bailey Bridge components, including a 5.3-metre carriageway single-lane modular steel bridge and a 1.8-metre-wide pedestrian bridge, for indigenisation.²⁷

The development and adoption of indigenous modular steel bridge systems is creating an additional opportunity within India's defence infrastructure ecosystem. These systems are designed using prefabricated steel components that can be transported, assembled and launched at strategic locations, enabling faster construction and reducing the time required to establish connectivity in challenging terrain. In 2022, BRO entered into an agreement with Garden Reach Shipbuilders and Engineers (GRSE) for the fabrication, supply, erection and launching of 27 double-lane Modular Steel Bridges of IRC Load Class 70 for strategic roads along the Northern and North-Eastern borders. The indigenous 140-foot double-lane modular bridge developed by GRSE was successfully trial-evaluated and commissioned on the Flag Hill-Dokala Road in Sikkim. ²⁸

The requirement for modular steel bridges is extending beyond BRO projects. In February 2025, GRSE signed an MoU with the Indian Army for a 130-foot Single Lane Modular Steel Bridge (70R) in Arunachal Pradesh and reported that it had supplied 44 modular bridges to BRO. In March 2025, GRSE also signed an MoU with the Nagaland Public Works Department for eight sets of double-lane Modular Steel Bridges. GRSE has

²⁴ [Defence in Union Budget 2026-27](https://www.pib.gov.in/PressReleasePage.aspx?PRID=2273854®=3&lang=1)
<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2273854®=3&lang=1>
[India integrates national infrastructure initiatives to enhance military logistics at borders. ETSup...](https://www.investindia.gov.in/sector/defence-manufacturing)
<https://www.investindia.gov.in/sector/defence-manufacturing>

²⁵ <https://bro.gov.in/hirak>

²⁶ <https://www.pib.gov.in/PressReleaselframePage.aspx>

²⁷ <https://www.pib.gov.in/Pressreleaseshare.aspx>

²⁸ <https://www.pib.gov.in/newsite/PrintRelease.aspx?lang=2®>



reported supplying more than 5,800 modular bridges to date, highlighting the established domestic manufacturing ecosystem for such systems.²⁹

In FY2027 union budget, the Ministry of Defence received a record allocation of INR 7.85 lakh crore, including INR 2.19 lakh crore under the capital head, while capital allocation to the Border Roads Organisation (BRO) increased to INR 7,394 crore³⁰. The BRO allocation is expected to support strategically important projects such as tunnels, bridges and airfields, creating demand for engineering, fabrication, construction and project execution capabilities across defence infrastructure.

The expansion of India's domestic defence manufacturing ecosystem is further strengthening the addressable opportunity for infrastructure engineering companies. Defence production reached a record INR 1.78 lakh crore in FY2025-26, with 76% contributed by public-sector entities and 24% by the private sector. Defence exports also increased more than 56-fold, from INR 686 crore in FY2013-14 to INR 38,424 crore in FY2025-26, with Indian defence products reaching 80+ countries. The private sector accounted for INR 17,353 crore or 45.16% of defence exports, while DPSUs contributed INR 21,071 crore or 54.84%³¹.

The Government's target of INR 3 lakh crore in annual defence production and INR 50,000 crore in defence exports by 2029 is expected to encourage further investments across the defence industrial ecosystem. Expansion of defence manufacturing facilities, testing centres, warehouses, logistics infrastructure and ancillary industrial facilities is likely to generate demand for engineering and design, PEBs and structural systems, fabrication, construction, installation and turnkey project execution. The availability of testing facilities across 24 DRDO laboratories and continued development of defence industrial corridors in Uttar Pradesh and Tamil Nadu are also expected to support private-sector participation and long-term infrastructure development.

➤ **Solar Infrastructure³²:**

India's rapid expansion of solar power capacity is creating new opportunities for Infrastructure Engineering Solutions providers across utility-scale, rooftop and hybrid renewable energy projects. India's cumulative solar power capacity reached 164.59 GW as of 31 July 2026, comprising 122.57 GW of ground-mounted solar plants, 30.74 GW of grid-connected rooftop systems, 4.77 GW of the solar component of hybrid projects, and 6.51 GW of off-grid solar capacity. The continued addition of large-scale solar capacity is increasing demand for engineering, structural systems, fabrication, installation and project execution capabilities across renewable energy infrastructure.

The expansion of ground-mounted solar projects is particularly relevant for infrastructure engineering companies, as large-scale installations require supporting structures, equipment foundations, access infrastructure, electrical and mechanical systems, and associated civil and structural works. At the same time,

²⁹ <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2106868&lang=2®>

³⁰ <https://www.pib.gov.in/FactsheetDetails.aspx?Id=150909®=6&lang=1>

³¹ <https://www.pib.gov.in/FactsheetDetails.aspx?Id=150909®=6&lang=1>

³² <https://mnre.gov.in/en/physical-progress/>



growth in rooftop, hybrid and off-grid projects is widening the application base for customized engineering and installation solutions. Increasing investments in renewable energy infrastructure are therefore expected to create sustained opportunities for companies offering integrated engineering, fabrication, construction, installation and turnkey project execution services.

The continued growth of India's solar ecosystem, supported by government initiatives and rising renewable energy investments, is expected to further expand the addressable market for infrastructure engineering solution providers. Beyond core solar installations, opportunities are emerging across solar manufacturing facilities, warehouses, substations, transmission infrastructure, module storage facilities and other supporting infrastructure, creating a broader demand base for engineering-led infrastructure solutions.

Data Centres

India's rapidly expanding digital economy, increasing adoption of cloud computing and artificial intelligence (AI), data localisation requirements and growing internet penetration are driving significant investments in data centre infrastructure. As organisations scale their digital operations and AI capabilities, the requirement for reliable, high-capacity data storage and processing facilities is expected to increase substantially. This expansion is creating opportunities for infrastructure engineering solution providers across the design, fabrication, construction, installation and project execution stages of data centre development.

According to the Council on Energy, Environment and Water (CEEW), India's data centre capacity increased from approximately **520 MW in 2020 to around 1.5 GW in 2025**, and is projected to reach **4.5–6.5 GW by 2030**³³. In addition, committed investments in India's data centre sector reached approximately USD 95 billion between 2019 and 2025, highlighting the scale and capital intensity of upcoming infrastructure development.

The development of hyperscale data centres, colocation facilities, AI computing infrastructure and supporting utility facilities is expected to generate demand for large-span structural systems, Pre-Engineered Buildings (PEBs), equipment support structures, warehouses, utility buildings and associated civil and infrastructure works. As investments continue to increase, the data centre sector is expected to provide a growing opportunity for companies offering integrated engineering, fabrication, construction, installation and turnkey infrastructure solutions.

Oil & Gas Infrastructure Expansion

Demand for Oil & Gas Infrastructure Engineering & Fabrication Solutions

India's ongoing investments in refinery expansion, petrochemical manufacturing, gas transmission, petroleum-product logistics and strategic energy infrastructure are creating opportunities for integrated infrastructure engineering solution providers. Large-scale projects across the oil and gas value chain require a combination of engineering and design, structural systems, equipment support infrastructure, fabrication, construction, installation and project execution. India's installed refining capacity stood at approximately **258.1 MMTPA**

³³ <https://www.ceew.in/publications/how-is-data-centre-infrastructure-in-india-shaping-power-and-water-use>



as of **01 April 2025**, across PSU/JV and private refineries, highlighting the scale of the country's downstream energy infrastructure.

Expansion of the gas and petroleum pipeline network is further supporting infrastructure development. PNGRB's latest public pipeline dataset as of **June 2026 reported 34,803 km** of authorised natural gas pipelines, of which **27,905 km** were operational, while approximately 8,551 km were under construction or partially commissioned as of March 2026. For petroleum and petroleum-product pipelines, **PNGRB reported 15,198 km authorised, 10,662 km operational, and 4,114 km** partially commissioned or under construction as of March 2026. Continued development of refineries, gas pipelines, CGD networks, CNG/CBG infrastructure, petroleum-product pipelines and terminal facilities is expected to generate demand for structural systems, process and utility infrastructure, equipment support structures, storage facilities, pipe-rack structures, fabricated components and associated engineering and construction services.

Key Developments Supporting Demand for Infrastructure Engineering Solutions

- **HPCL³⁴ Rajasthan Refinery & Petrochemical Complex (HRRL):** The project cost was revised from INR 43,129 crore to INR 79,459 crore for the development of a 9 MMTPA integrated refinery and petrochemical complex. The scale of the project is expected to support demand across engineering and design, structural fabrication, process and utility infrastructure, storage systems, equipment support structures and project execution.
- **Paradip Petrochemical Complex:** Indian Oil is developing the project with an estimated investment of approximately INR 61,077 crore to strengthen downstream petrochemical manufacturing capabilities. The development is expected to require extensive engineering, structural systems, process infrastructure, utility facilities, storage infrastructure and associated fabrication, construction and installation services.
- **Strategic Petroleum Reserve (SPR) Phase-II:** New storage facilities at Chandikhol (4 MMT) and Padur Phase-II (2.5 MMT) are expected to add approximately 6.5 MMT of crude oil storage capacity. The expansion of strategic storage infrastructure is expected to create opportunities for large-scale storage systems, terminal facilities, structural infrastructure, utility systems and associated engineering, fabrication and construction activities.

The continued expansion of refinery, petrochemical, pipeline and strategic energy infrastructure is expected to create sustained opportunities for infrastructure engineering solution providers. Large-scale investments in capacity augmentation and infrastructure modernisation are likely to drive demand across engineering and design, structural fabrication, equipment support systems, construction, installation and turnkey project execution. Consequently, the oil and gas sector represents a potential growth avenue for companies with integrated capabilities spanning multiple stages of infrastructure development.

³⁴ <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2250055®=48&lang=2>
<https://iocl.com/NewsDetails/59409>
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<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2189126®=48&lang=2>



Growing Demand for Bridges, Over Bridges and Foot Over Bridges³⁵

India's continued investment in road and transportation infrastructure is creating significant opportunities for infrastructure engineering solution providers. Expansion of highways, expressways, road over bridges (ROBs), rail over bridges (RUBs), flyovers, foot over bridges (FOBs), and passenger mobility infrastructure is increasing the requirement for engineering, fabrication, construction and installation of bridges, elevated corridors, roofing systems, pedestrian crossings, and supporting infrastructure .

- **National Highway network expanded from 91,287 km in 2014 to 146,572 km in 2025**, representing growth of nearly 61% over the period. In addition, the Government has approved development of **1,511 km of National Highway projects** involving an investment of approximately **INR 84,815 crore**. These projects are expected to support demand for infrastructure engineering solutions across bridges, flyovers, interchanges, elevated corridors, and supporting structures.
- Under the **Amrit Bharat Station Scheme**, **1,337 railway stations** have been identified for redevelopment, with **155 stations modernized as of December 2025**. Redevelopment works include expanded foot over bridges, concourse areas, platform shelters, and passenger circulation infrastructure, creating demand for integrated engineering, structural systems, fabrication, construction and installation services.
- Redevelopment plans across major railway stations include the construction of new foot over bridges, wider passenger access infrastructure, platform sheds, and supporting facilities to accommodate future traffic growth. Such projects require engineering and execution capabilities for pedestrian bridges, staircases, canopies, and structural support system.
- Indian Railways eliminated 268 manned level crossings and rehabilitated or upgraded 1,799 bridges during FY2025-26 (up to November), reflecting continued investments in bridge infrastructure and grade-separation projects that support demand for engineering, fabrication, construction and installation capabilities.

Going forward, continued investments in highways, expressways, bridges, station redevelopment projects, and passenger mobility infrastructure are expected to support sustained demand for integrated infrastructure engineering solutions. The increasing development of road over bridges (ROBs), rail over bridges (RUBs), foot over bridges (FOBs), flyovers, interchanges, and station infrastructure is likely to create long-term opportunities across engineering and design, structural fabrication, construction, erection and installation. Additionally, the growing adoption of steel-intensive designs and prefabricated construction techniques is

³⁵ <https://www.indiabudget.gov.in/doc/eb/vol1.pdf>
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expected to further strengthen demand for integrated engineering and infrastructure solutions across India's transportation infrastructure sector.

Demand from the warehousing sector³⁶

India's warehousing sector is emerging as a significant and structurally growing demand driver for infrastructure engineering solutions, supported by expansion across both regulated storage infrastructure and modern logistics and industrial warehousing. On the regulated side, the scale of formalized warehousing has increased steadily, with the latest available data from the Warehousing Development and Regulatory Authority (WDRA) indicating 7,586 registered warehouses across the country, reflecting broader adoption of standardized storage infrastructure under the Warehousing (Development and Regulation) framework. In parallel, private-sector investments and supply-chain modernization initiatives continue to drive demand for large-format logistics and industrial facilities, creating opportunities across engineering, structural systems, fabrication, construction and installation.

India's warehousing sector continues to witness strong structural growth, supporting sustained demand for modern logistics and industrial infrastructure. According to the **CREDAI-CRE Matrix Grade A** India Warehousing Report (July 2026), Grade A/A+ warehousing leasing reached **16.9 million square feet in Q1 CY2026**, exceeding 13.8 million square feet of new supply and resulting in an absorption-to-supply ratio of 1.2x, indicating that occupier demand continues to outpace fresh capacity addition. **Pan-India Grade A/A+ warehousing stock expanded to 416.2 million square feet**, while vacancy levels declined to 8.0%, reflecting strengthening market fundamentals. Pune and Bengaluru together accounted for 46% of total leasing activity and **44% of new supply** additions, while third-party logistics (3PL), manufacturing and automotive occupiers collectively contributed approximately 74% of total leasing activity. The continued expansion of modern Grade A warehousing infrastructure is expected to support demand for integrated engineering solutions covering warehouse structures, roofing systems, material-handling infrastructure and related industrial facilities.

Warehousing facilities require integrated engineering solutions due to their large clear-span designs, fast construction timelines and modular layout requirements. Demand arises across PEB columns, rafters, purlins and bracing systems, as well as mezzanine floors, staircases, catwalks, access platforms and other structural components. In addition, warehouses generate requirements for material-handling infrastructure, including racking frames, shelving systems, safety barriers, handrails, dock canopies and equipment support structures, particularly in high-throughput logistics and e-commerce facilities. This creates opportunities for companies capable of providing engineering, fabrication, construction, installation and project execution across different components of warehousing infrastructure.

³⁶<https://wdra.gov.in/>

https://sansad.in/getFile/lsscommittee/Consumer%20Affairs%2C%20Food%20and%20Public%20Distribution/18_Consumer_Affairs_Food_and_Public_Distribution_2.pdf?source=loksabhadocs

<https://www.dpiit.gov.in/offering/schemes-and-services/details/pm-gati-shakti-kjNyATMtQWa>



India's logistics cost is estimated at around 7.97% of GDP (FY 2024), with transportation and warehousing accounting for over 63% of this cost. This structural inefficiency is driving sustained investments in modern warehousing infrastructure aimed at improving storage efficiency, throughput and supply-chain responsiveness. As companies continue to upgrade from fragmented storage to centralized, technology-enabled warehouses, demand for standardized, scalable and repeatable infrastructure engineering solutions is expected to remain strong.

Overall, the expanding base of regulated warehouses, combined with strong private-sector leasing activity and the strategic push to reduce logistics costs, positions the warehousing sector as a long-term and repeatable source of demand for infrastructure engineering solutions in India. Continuous capacity addition and upgrades of existing facilities are expected to support requirements across engineering and design, PEB and structural systems, fabricated components, material-handling infrastructure, construction and installation, providing sustained growth opportunities for engineering solution providers serving the logistics and industrial ecosystem.

Demand from industrial sector³⁷

India's industrial infrastructure landscape is undergoing a structural transformation, driven by large-scale manufacturing investments, policy-led capacity creation and sustained growth in industrial construction activity. This transformation is creating increasing demand for infrastructure engineering solutions as new manufacturing facilities, industrial parks and supporting ecosystems are developed across the country. The development of these facilities requires integrated capabilities spanning engineering and design, structural systems, fabrication, construction, installation and project execution.

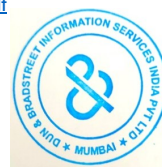
- **Production Linked Incentive (PLI) scheme:**

The Production Linked Incentive (PLI) scheme has emerged as a key catalyst in India's transition from import dependence towards becoming a competitive global manufacturing base. With investments exceeding INR 1.76 lakh crore, the PLI framework has generated gains in output, exports and employment. These investments are materializing through greenfield plants, brownfield expansions and integrated industrial clusters, creating opportunities for infrastructure engineering providers involved in the development of manufacturing facilities and associated industrial infrastructure..

- **PLI-led manufacturing expansion driving industrial steel fabrication demand:**

PLI-driven capacity creation across manufacturing clusters is resulting in the construction of factories, production sheds, utility buildings and ancillary infrastructure. These facilities require integrated engineering solutions covering primary structural frames, equipment support structures, pipe racks, mezzanine floors, platforms, staircases and access systems. Given the scale and timelines of PLI-linked

³⁷ <https://www.pib.gov.in/PressNoteDetails.aspx?ModuleId=3&NotelId=155082®=3&lang=2>
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projects, factory-fabricated and modular solutions are increasingly relevant for enabling faster project execution while meeting industrial safety and quality requirements..

- **Investment intentions indicating a sustained project pipeline:**

Investment intentions captured through Industrial Entrepreneur Memorandums (IEMs) point to a large and ongoing pipeline of industrial projects. When combined with PLI-driven investments, these signals indicate sustained industrial construction activity rather than one-off capacity additions. Such projects typically require engineering and design, structural fabrication, construction, shop fabrication and site erection, favouring organized infrastructure engineering providers with proven execution capabilities, quality systems and compliance readiness.

Regulatory Landscape

The Infrastructure Engineering Solutions and Structural Steel Fabrication industry operates within a multi-layered regulatory framework covering quality standards, project execution, occupational safety,



environmental compliance, labour welfare, industrial operations, and sector-specific engineering codes. Compliance with these regulations is critical for participation in government infrastructure projects, railways, defense manufacturing, industrial facilities, power plants, and urban infrastructure development

Regulatory Area	Key Regulations / Authorities	Relevance for Infrastructure Engineering & Steel Fabrication
Quality & Product Standards	Bureau of Indian Standards (BIS), Steel Quality Control Orders (QCO)	Mandatory quality certification of notified steel products and structural steel components.
Structural Design & Construction	National Building Code (NBC), IS Codes, CPWD Standards	Governs design, fabrication, erection, inspection and safety of steel structures.
Occupational Health & Safety	Occupational Safety, Health & Working Conditions Code, 2020 (OSH Code), Factories Act, BOCW Act provisions	Ensures worker safety, accident prevention, training and welfare.
Environmental Compliance	Environment Protection Act, Air Act, Water Act, EIA Notification	Controls emissions, waste disposal, pollution management and environmental clearances.
Labour & Workforce Regulations	Labour Codes, Social Security Code, Contract Labour provisions	Governs wages, social security, contract labour and workforce welfare.
Industrial Operations	Factories Act / State Factory Rules	Regulates manufacturing facilities, fabrication workshops and plant operations.
Sector-Specific Approvals	Railways, Defence, Power, Oil & Gas, NHAI, Metro Authorities	Additional certifications required for infrastructure project participation.
Contracting & Procurement	General Financial Rules (GFR), Public Procurement Policies, EPC Contracts	Governs government infrastructure project awards and execution.

Steel Quality & Product Compliance Regulations

The Ministry of Steel, through Quality Control Orders (QCOs), has progressively mandated BIS certification for a wide range of carbon steel, alloy steel and stainless-steel products used in infrastructure and engineering



applications. More than 150 steel standards have been brought under mandatory quality compliance to ensure structural integrity and public safety.

Key Requirements

BIS certification and ISI marking for notified steel products.

Compliance with applicable Indian Standards (IS).

Test certificates from approved manufacturers.

Traceability and quality documentation throughout the fabrication cycle.

Relevant Standards

Standard	Application
IS 2062	Structural Steel
IS 800	General Construction in Steel
IS 15911	Structural Steel (Ordinary Quality)
IS 4923	Hollow Steel Sections
IS 817	Welding Practices
IS 875	Design Loads for Structures

Compliance with BIS-certified steel has become a prerequisite for most government, railway, metro, industrial and power sector projects.

Structural Design & Engineering Codes

Infrastructure engineering and steel fabrication companies must comply with engineering standards governing structural design, fabrication, erection and inspection.

Key Regulatory Framework include National Building Code (NBC) of India, Indian Standards (IS Codes), CPWD Specifications **and** State Building Regulations

Major Areas Covered

- Structural analysis and design
- Wind and seismic load resistance
- Fabrication tolerances
- Welding quality
- Corrosion protection
- Fire safety requirements
- Inspection and testing procedures

These standards ensure structural reliability across bridges, industrial complexes, railway infrastructure, airports, power plants and defense installations.

Occupational Safety & Worker Welfare Regulations



Infrastructure construction and fabrication activities involve high-risk operations such as heavy lifting, welding, working at heights, confined-space operations and crane handling.

Major Regulations

Regulation	Coverage
Occupational Safety, Health & Working Conditions Code, 2020	Workplace safety and welfare
Building and Other Construction Workers Act (BOCW) framework	Construction worker protections
Factories Act / State Rules	Fabrication factories and workshops
Contract Labour Regulations	Labour deployment and welfare

Key Compliance Requirements

Site safety management systems, Safety officers for large projects, PPE usage, Accident reporting, Welfare facilities, Emergency response plans, Working-at-height controls, Welding and lifting safety procedures

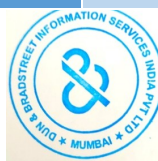
Construction contractors are also required to register establishments under applicable BOCW provisions and comply with worker welfare obligations.

Environmental Compliance Framework

Steel fabrication facilities and infrastructure projects must comply with environmental regulations governing pollution control and resource utilization.

Major Regulations

Regulation	Governing Authority
Environment Protection Act, 1986	MoEFCC
Air (Prevention & Control of Pollution) Act	CPCB/SPCB
Water (Prevention & Control of Pollution) Act	CPCB/SPCB
Hazardous Waste Management Rules	Pollution Control Boards
EIA Notification	MoEFCC



Companies operating in the infrastructure engineering solutions and structural steel fabrication industry are required to comply with a comprehensive environmental compliance framework aimed at minimizing the environmental impact of their operations. Key obligations include obtaining Consent to Establish (CTE) prior to project development and Consent to Operate (CTO) before commencing commercial operations, as mandated by the respective State Pollution Control Boards. Regulatory compliance further extends to continuous air emission monitoring, effective wastewater treatment and discharge management, scientifically approved hazardous waste handling and disposal, and implementation of adequate dust and noise control measures at manufacturing and project sites. For large-scale infrastructure and industrial projects, organizations may also be required to undertake Environmental Impact Assessments (EIA) to evaluate, mitigate, and manage potential environmental risks. Adherence to these requirements is critical for obtaining regulatory approvals, ensuring sustainable operations, and maintaining environmental stewardship.

Labour & Social Security Regulations

The infrastructure engineering solutions and structural steel fabrication industry relies extensively on a contractual and project-based workforce, making adherence to labour and social security regulations a critical compliance requirement. The regulatory framework is primarily governed by the **Code on Wages, 2019**, **Code on Social Security, 2020**, **Industrial Relations Code, 2020**, and the **Occupational Safety, Health and Working Conditions Code, 2020**, which collectively seek to ensure fair wages, worker welfare, social security coverage, and safe working conditions. Key compliance obligations include payment of statutory minimum wages, timely remittance of **EPF** and **ESI** contributions, contractor licensing and registration, maintenance of digitized wage and employment records, provision of gratuity and other social security benefits, and adherence to welfare measures for migrant and contract workers. Compliance with these requirements has become increasingly significant for project qualification, ESG assessments, operational continuity, and mitigation of labour-related risks.

ESG & Sustainability Compliance

Infrastructure engineering and structural steel fabrication companies are increasingly required to align with **Environmental, Social and Governance (ESG)** standards as infrastructure owners, public sector undertakings, and multinational EPC contractors incorporate sustainability criteria into tendering and contractor qualification processes. Key emerging compliance areas include **carbon footprint monitoring**, adoption of **green steel and sustainable materials**, implementation of **energy-efficient fabrication processes**, utilization of **renewable energy sources**, **waste recycling and circular economy practices**, **water conservation measures**, and **responsible procurement policies** across the supply chain. As sustainability becomes a strategic priority across the infrastructure sector, compliance with these ESG requirements is increasingly essential for securing large-scale infrastructure projects, enhancing stakeholder confidence, and maintaining long-term competitiveness.

Sector-Specific Regulatory Approvals



Sector-specific infrastructure projects require compliance with industry-specific technical standards, approval mechanisms and certification frameworks. Obtaining these approvals is critical for vendor eligibility, project execution, safety compliance, and participation in government and large-scale infrastructure tenders.

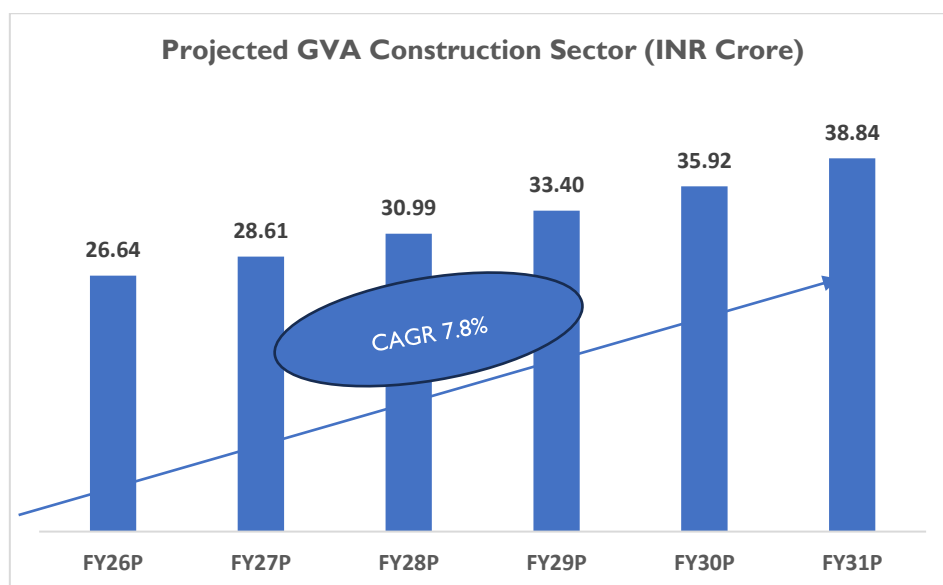
Sector	Key Regulatory Approvals / Standards	Purpose / Compliance Requirement
Railway Infrastructure	RDSO Approvals	Certification of products, components and manufacturing processes for use in railway projects.
	Indian Railways Specifications	Compliance with technical, quality, safety and design standards prescribed by Indian Railways.
	Vendor Registration	Registration as an approved supplier/vendor for participation in railway tenders and contracts.
	Welding Certifications	Qualification of welders and welding procedures for railway structures, bridges and rolling stock components.
	Bridge & Station Construction Standards	Adherence to railway engineering, structural safety and construction norms for stations and bridges.
Defence Infrastructure	Defence Procurement Procedure (DPP/DAP) Compliance	Conformity with procurement rules governing defence contracts and manufacturing.
	DGQA Approvals	Quality assurance and inspection approvals from the Directorate General of Quality Assurance.
	Security Clearances	Mandatory security and background clearances for facilities, personnel and projects handling sensitive defence work.
	Military Engineering Standards	Compliance with defence-specific design, performance, safety and durability requirements.
Power & Oil & Gas Infrastructure	ASME Certifications	Certification for design and fabrication of boilers, pressure vessels, piping systems and related equipment.
	IBR Compliance	Compliance with Indian Boiler Regulations for manufacture and operation of boilers and associated systems.
	PESO Approvals	Approvals from the Petroleum and Explosives Safety Organisation for handling, storage and transportation of petroleum and hazardous substances.



	Pressure Vessel Certifications	Certification and testing of pressure-containing equipment to ensure operational safety and reliability.
Metro & Urban Infrastructure	Metro Rail Safety Standards	Compliance with safety, operational and engineering standards applicable to metro rail projects.
	Urban Development Authority Approvals	Project approvals, permits and clearances from municipal and urban planning authorities.
	Smart City Procurement Specifications	Adherence to technical and procurement requirements prescribed under Smart Cities and urban infrastructure programs.

Growth Scenario

The Indian construction industry is expected to continue expanding over the forecast period, supported by sustained infrastructure investments, increasing urbanisation, industrial development and continued public capital expenditure. The industry's Gross Value Added ("GVA") is projected to increase from approximately **₹26.64 lakh crore in FY26 to ₹38.84 lakh crore in FY31**, representing a CAGR of approximately **7.8%** during FY26-FY31.



Sources D&B research estimates

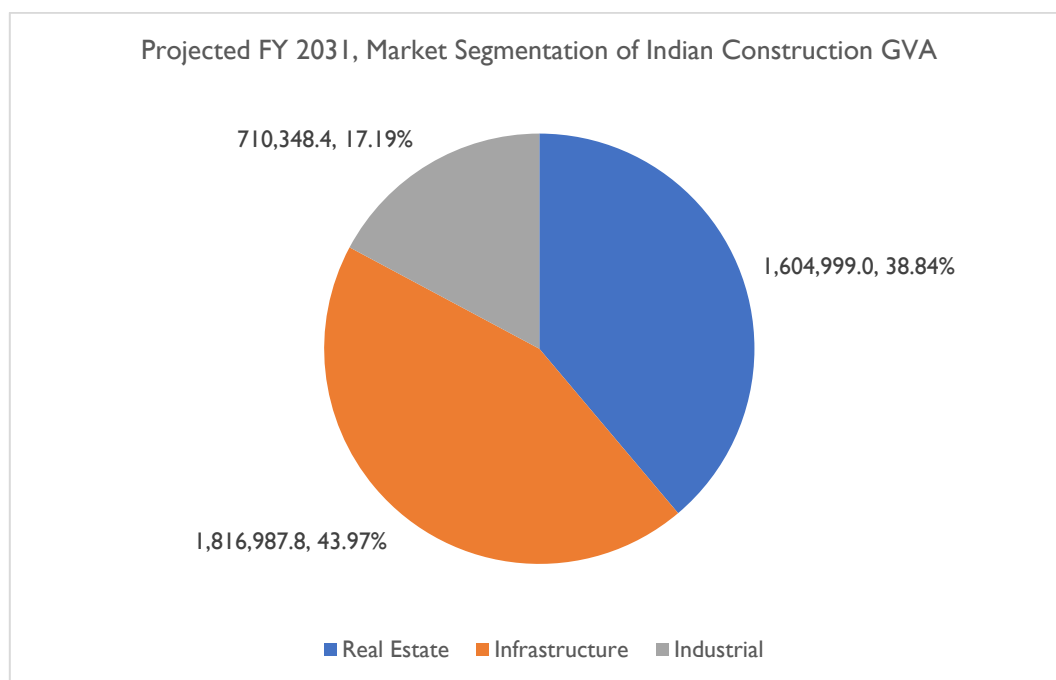
Growth is expected to be driven by continued investments in transportation infrastructure, urban infrastructure, affordable housing, manufacturing facilities, logistics parks, industrial corridors and social infrastructure projects. Government initiatives such as PM Gati Shakti, Bharatmala Pariyojana, National Infrastructure Pipeline ("NIP"), Dedicated Freight Corridors and industrial corridor development programmes are expected to support project execution and infrastructure creation across the country.

In addition, increasing private sector participation, expansion of domestic manufacturing, growth in warehousing and logistics infrastructure and rising investments in data centres are expected to contribute to sustained growth in construction activity over the forecast period which is expected to fuel the Infrastructure engineering solution demand growth during the coming years.

The Indian infrastructure engineering solutions industry is expected to benefit from continued expansion across major sectors such as construction, transportation infrastructure and overall industrial development. As investments continue to flow into buildings, transportation networks, energy projects, industrial facilities and other physical assets, the need for engineering design, structural solutions, fabrication, project management and execution services is expected to increase.

Market Segmentation Scenario (FY31)

The Indian construction industry is expected to remain predominantly driven by infrastructure development, with infrastructure accounting for the largest share of construction activity by FY31.



Sources D&B research estimates

The **infrastructure segment** is projected to reach approximately **₹18.16 lakh crore by FY31**, supported by continued investments in roads and highways, railways, metro systems, airports, ports, logistics infrastructure, energy infrastructure and water-related projects. The segment is expected to continue benefiting from the Government's focus on improving connectivity, logistics efficiency and economic competitiveness.

The **real estate segment** is expected to reach approximately **₹16.04 lakh crore by FY31**, driven by increasing urbanisation, rising household incomes, growing demand for residential housing and continued expansion of commercial, retail and mixed-use developments. Demand is also expected to be supported by affordable housing initiatives and the development of Tier II and Tier III cities.

The **industrial construction segment** is projected to reach approximately **₹7.10 lakh crore by FY31**, supported by increasing investments in domestic manufacturing, industrial parks, industrial corridors, warehousing and logistics facilities, electronics manufacturing units and data centres. Government programmes such as Production Linked Incentive ("PLI") schemes, make in India and the National Logistics Policy are expected to remain key enablers of growth within the segment.

Expected Growth prospects in Steel Fabrication Industry in India

The growth trajectory of the steel fabrication market in India is intrinsically linked to expansion across its key end-use industries, most notably construction, infrastructure, power & energy, and oil & gas. These sectors are experiencing sustained growth driven by accelerating urbanisation, rising industrial activity, and policy-led capital expenditure across public and private domains. As investment in physical assets such as buildings, transportation networks, energy facilities, and industrial plants increases, the requirement for fabricated structural steel components used in load-bearing frameworks, industrial sheds, platforms, pipe racks, and heavy support structures rises in tandem.

Steel fabrication serves as a critical downstream bridge between primary steel production and final asset creation, converting steel into application-ready structures tailored to project-specific requirements. As end-use industries scale in size, complexity, and execution timelines, the demand for precision-fabricated, engineered steel structures also increases. This linkage ensures that growth in construction activity, infrastructure rollout, energy capacity addition, and hydrocarbon sector investments directly translates into higher and more sustained demand for steel fabrication services.



Major Developments

India's Infrastructure Engineering Solutions (IES) industry is evolving from conventional fabrication and project-specific contracting towards integrated, higher-specification and technology-enabled engineering solutions. Infrastructure expansion across railways, roads, bridges, defence, industrial facilities and other strategic assets is increasing demand for engineering, structural fabrication, specialised infrastructure components, installation and project execution capabilities. At the same time, greater emphasis on indigenous manufacturing, technical standards, digital quality systems and sustainability is raising the qualification and execution requirements for IES providers.

Increasing Demand for Integrated Engineering and Project Execution

The expansion of India's infrastructure pipeline is increasing the requirement for companies capable of providing multiple stages of project execution, including engineering and design, structural fabrication, pre-engineered buildings (PEBs), bridge structures, installation, erection and turnkey project execution. Large infrastructure projects are increasingly characterised by technically complex structures, challenging site conditions and stringent quality and delivery requirements, increasing the relevance of IES providers with integrated engineering and execution capabilities.

The railway sector provides a significant example of this trend. The Udhampur-Srinagar-Baramulla Rail Link (USBRL), completed in 2025, comprises 36 major tunnels and 943 bridges, including the 1,315-metre Chenab Bridge, a steel arch structure located 359 metres above the river. The New Pamban Bridge, inaugurated in April 2025, is India's first vertical-lift railway sea bridge and spans 2.08 kilometres in a marine environment. These projects demonstrate the increasing engineering complexity of India's infrastructure assets and the requirement for specialised structural design, fabrication, corrosion protection, quality control and installation capabilities.

The scale of the infrastructure pipeline also supports sustained demand for IES capabilities. Indian Railways has identified 434 projects under three economic corridors with a total cost outlay of INR 11.17 lakh crore. Of these, 121 projects costing INR 2,02,551 crore have been sanctioned, while 162 projects estimated at INR 3,30,545 crore are under appraisal or inter-ministerial consultation. The pipeline provides opportunities for IES providers across structural engineering, fabrication, bridge structures and associated project execution.

Shift Towards Higher-Specification and Specialised Infrastructure Solutions

Infrastructure projects are increasingly requiring higher-performance structural systems rather than conventional commodity fabrication. Requirements relating to structural strength, seismic performance, corrosion resistance, durability, dimensional accuracy, traceability and quality certification are becoming more important, particularly for railways, bridges, defence infrastructure and other strategic assets.

The use of specialised structural steel and advanced protection systems in projects such as the Chenab Bridge and New Pamban Bridge illustrates this transition towards higher-specification infrastructure components.



For IES providers, this increases the importance of capabilities across structural engineering, material selection, welding and inspection, surface treatment, quality documentation and site erection.

The development of Bailey bridges and modular steel bridge systems for strategic roads and border infrastructure is another example of the shift towards engineered and application-specific infrastructure solutions. Such systems require modular structural design, precision fabrication, transportation, erection and launching capabilities, creating opportunities beyond conventional steel fabrication.

Indigenous Manufacturing and Domestic Supply-Chain Development

The Government's focus on self-reliance and domestic manufacturing is strengthening the role of Indian engineering companies across infrastructure and strategic sectors. Greater emphasis on domestically manufactured inputs, quality certification and localisation is encouraging IES providers to develop stronger domestic supply chains and manufacturing capabilities.

The Production Linked Incentive (PLI) scheme for specialty steel, launched in 2021 with a financial outlay of INR 6,322 crore, is supporting investment in domestic production of higher-value steel grades. The latest PLI 1.2 round covers 85 projects of 55 companies, involving committed investment of INR 11,887 crore and committed capacity of 8.7 million tonnes. The scheme covers strategic-sector steel grades, commercial grades and coated and wire products, with incentive rates ranging from 4% to 15% for five years commencing FY2025-26³⁸.

For IES providers, the development of domestic specialty-steel capacity can improve access to higher-specification inputs and support the execution of projects requiring specialised structural steel and other engineered materials. The DMI&SP framework and quality-control requirements further increase the importance of compliant and traceable material sourcing for institutional projects.

Technology-Enabled Engineering and Digital Fabrication

Technology adoption is becoming an increasingly important component of IES delivery, with digital engineering, simulation, automated fabrication, precision measurement, testing, digital quality documentation and other Industry 4.0 applications supporting greater accuracy and process control.

For engineering and fabrication companies, these technologies can support design validation, production planning, dimensional accuracy, inspection and documentation while reducing rework and improving project coordination. In February 2026, the first Ball Screw Lead Error Testing and Certification System in India was inaugurated at CMTI, Bengaluru, under the Capital Goods Scheme of the Ministry of Heavy Industries. The same consultation also focused on CNC machine tools, testing and metrology, robotics and advanced additive manufacturing, indicating continued institutional emphasis on advanced manufacturing capabilities.

³⁸ <https://www.pib.gov.in/PressReleasePage.aspx>



The adoption of digital manufacturing and quality systems is therefore becoming relevant to IES providers seeking to participate in technically demanding institutional projects, where engineering accuracy, traceability, inspection and documentation are increasingly important.

Sustainability and Green Engineering

Sustainability is emerging as a broader consideration across Infrastructure Engineering Solutions, extending beyond steel production to material sourcing, fabrication processes, energy consumption, waste management and project-level environmental performance. Institutional customers are increasingly placing greater emphasis on material provenance, emissions and environmental performance, particularly for large infrastructure projects and export-oriented supply chains.

India's Green Steel Taxonomy, introduced in 2024, provides a formal framework for classifying steel based on its carbon-dioxide-equivalent emission intensity. Green steel is defined as steel produced with emission intensity below 2.2 tonnes of CO₂e per tonne of finished steel, with progressively higher star ratings assigned to lower-emission production. **As of 31 March 2026, green steel certification had been awarded to steel units covering approximately 12.34 MT of production.**³⁹

For IES providers, the emergence of green-steel certification is relevant because structural steel represents a significant material input in many engineering projects. The ability to source lower-emission materials and maintain supporting documentation can therefore become increasingly relevant in institutional procurement and export-oriented supply chains.

The broader decarbonisation agenda is also encouraging greater use of scrap-based production, renewable energy and emerging technologies such as green hydrogen and carbon capture. These developments are likely to progressively influence material selection and environmental-performance requirements across the infrastructure engineering value chain.

³⁹ <https://www.pib.gov.in/PressNoteDetails.aspx>



Threat & Challenges

Complexity of project commissioning and system integration

Infrastructure engineering projects increasingly require the integration of civil, mechanical, electrical, instrumentation, automation and other specialised systems. Achieving commissioning readiness can be challenging where multiple contractors, equipment suppliers and client-side systems have to work in a prescribed sequence. Testing failures, interface mismatches, design modifications and incomplete site infrastructure can extend commissioning periods and increase rework, manpower and project overheads.

Lengthy and fragmented clearance and approval processes

Infrastructure projects remain dependent on multiple statutory and project-specific clearances covering land, environment, construction, utilities, fire and safety, pollution control and other requirements. The sequencing of these approvals can constrain construction and commissioning schedules, particularly where clearances are issued with additional conditions or require coordination across multiple authorities. This can prolong project execution and delay the transition from construction to commercial operation.

Increasing lifecycle and performance obligations

Customers are increasingly evaluating engineering solutions on lifecycle performance rather than only initial project completion. Contractors may therefore face extended warranty, defect-liability, maintenance, availability, efficiency, performance-guarantee and after-sales obligations. Maintaining performance over the operating life of an asset can require continued technical support, replacement of ageing components and upgrades to meet evolving standards, increasing the long-term cost and resource requirements of project delivery.

Uncertainty arising from site conditions and brownfield integration

Engineering solutions deployed in existing infrastructure or constrained sites face challenges from incomplete drawings, unidentified utilities, ageing structures, restricted access and unforeseen ground or structural conditions. Such conditions can require changes to engineering designs and construction methodology after work has commenced. Brownfield projects are particularly challenging because construction and installation often have to be undertaken without disrupting existing operations, increasing coordination requirements and limiting available working windows.

Pressure to deliver technically demanding projects within fixed commercial parameters

Infrastructure clients increasingly expect shorter execution timelines, higher technical specifications and stronger performance guarantees while maintaining cost competitiveness. This creates pressure to balance engineering quality, procurement lead times, specialised manpower, subcontractor capabilities and commissioning requirements within contracted budgets and milestones. The challenge becomes more pronounced for projects involving imported or specialised equipment, where supply-chain delays, vendor dependency and limited availability of technically skilled personnel can affect overall project delivery.

SWOT Analysis

Strengths:

- ❖ **Integrated engineering and project execution capabilities:** Ability to undertake engineering, fabrication, assembly, installation and related project activities provides greater control over project delivery and coordination.
- ❖ **Steel fabrication capability:** In-house or established fabrication capabilities enable the execution of customised structural components and support timely integration of fabricated steel into infrastructure projects.
- ❖ **Technical and project-management expertise:** Experience across engineering, fabrication, erection and site execution supports the delivery of technically demanding infrastructure projects.
- ❖ **Ability to deliver customised solutions:** Engineering-led execution allows the business to adapt designs, fabrication requirements and installation methods to project-specific technical and site conditions.
- ❖ **Quality and execution capabilities:** Compliance with technical specifications, quality standards and safety requirements can strengthen the company's ability to participate in larger and more complex projects.

Weaknesses:

- ❖ **Project execution complexity:** Infrastructure projects involve multiple disciplines, contractors, suppliers and approval stages, increasing the risk of coordination issues, rework and delays.
- ❖ **Dependence on key project inputs:** Availability and pricing of steel, specialised equipment, subcontractors and skilled manpower can influence project costs and execution schedules.
- ❖ **Working-capital requirements:** Procurement of materials and mobilisation of manpower and equipment generally precede project collections, creating working-capital pressure.
- ❖ **Dependence on project and customer schedules:** Delays in client approvals, civil works, site handover or related contractors can affect the utilisation of manpower, equipment and fabrication capacity.
- ❖ **Skilled manpower dependency:** Engineering, fabrication, welding, quality inspection and site erection require specialised personnel, making manpower availability important for execution.

Opportunities:

- ❖ **Infrastructure investment:** Continued development of highways, railways, metros, airports, ports, urban infrastructure and public utilities can support demand for engineering and project-execution services.
- ❖ **Industrial and manufacturing expansion:** New manufacturing facilities, warehouses, logistics infrastructure, data centres and industrial projects can generate demand for integrated engineering, fabrication and installation solutions.



- ❖ **Growth in power and renewable infrastructure:** Expansion of transmission, substations, renewable-energy and related infrastructure creates opportunities for engineering, structural fabrication and installation services.
- ❖ **Increasing demand for integrated solutions:** Customers' preference for single-point or coordinated execution creates opportunities for companies capable of combining engineering, fabrication and site installation.
- ❖ **Technology and productivity enhancement:** Adoption of digital engineering, BIM, automated fabrication, improved project monitoring and quality-control systems can enhance productivity, precision and execution efficiency.

Threats:

- ❖ **Intense competition:** Competition from EPC contractors, engineering companies and specialised fabricators can place pressure on order pricing and margins.
- ❖ **Raw-material and input-cost volatility:** Fluctuations in steel, other construction materials, labour and logistics costs can affect project profitability, particularly under fixed-price contracts.
- ❖ **Project delays and cost overruns:** Delays in approvals, design changes, material procurement, site readiness or commissioning can increase execution costs and extend project timelines.
- ❖ **Payment and receivable risks:** Delayed certification or payments from project owners and EPC contractors can increase working-capital requirements and liquidity pressure.
- ❖ **Logistics and site-access constraints:** Transportation of fabricated components, difficult site conditions and coordination between fabrication and erection activities can disrupt project schedules and increase costs.

Competitive Landscape

India's infrastructure engineering and steel fabrication market operates as a tiered competitive structure, not a uniformly fragmented one. At the commodity end, several thousand small workshops and regional fabricators compete primarily on price for unqualified work while at the institutional end, approved-vendor registers, BIS compulsory certification, domestic-content mandates, and material traceability requirements concentrate participation among a much smaller qualified pool. The rising specification of public infrastructure contracts — illustrated by complex railway electrification structures, high-specification bridges, and renewable energy towers — has converted technical compliance, financial strength, and integrated execution capability into durable gatekeeping conditions. Construction and infrastructure accounted for majority share in steel consumption, establishing the sector as the dominant demand base and making institutional access, rather than capacity alone, the decisive competitive variable.

Competition varies across end-use segments such as railways and metro infrastructure, power, industrial facilities, data centres, oil & gas, and commercial and institutional infrastructure. While large players have the scale and financial strength to undertake complex, multi-location projects, mid-sized and specialized players compete through technical expertise, execution capabilities, fabrication capacity, project responsiveness and sector-specific experience.

Integrated infrastructure engineering players increasingly offer capabilities across engineering and design, fabrication and manufacturing, construction, erection, installation, commissioning and turnkey project execution. Their ability to manage multiple stages of a project provides an advantage in large and technically demanding assignments where quality compliance, documentation, coordination and delivery schedules are critical. At the same time, specialized and regional players continue to participate in specific project packages, structural works, PEBs, equipment support structures, fabrication and subcontracting activities. The increasing complexity of infrastructure projects and emphasis on execution reliability are gradually favouring organized players with established technical capabilities, quality systems and financial capacity.

Competition is influenced by pricing pressure, input-cost volatility, project execution capability, working capital requirements and the ability to secure and execute large orders. Infrastructure projects typically involve milestone-based payments, performance guarantees and extended execution cycles, increasing the importance of balance-sheet strength and cash-flow management. Diversified EPC players with broader sector exposure and healthy order books are generally better positioned to manage segment-specific fluctuations, while specialized players can differentiate through technical expertise and faster execution. ICRA has also highlighted stronger resilience among diversified EPC companies compared with road-focused players, supported by broader order inflows across railways, metros, water supply and urban infrastructure.

Over the medium term, the competitive landscape is expected to increasingly favour technically capable, financially resilient and execution-oriented companies. Growth in railways, metros, power, renewable energy, data centres, defence and industrial infrastructure is creating opportunities across multiple project categories. At the same time, increasing project complexity, quality requirements and working-capital intensity are likely

to encourage greater differentiation between organized infrastructure engineering providers and smaller contractors.

Key Factors Influencing Competition

Technical Capability and Engineering Expertise:

The ability to undertake engineering and design, structural engineering, fabrication, manufacturing and specialized infrastructure applications is a key competitive differentiator. Advanced manufacturing and engineering capabilities enable companies to address technically complex and customized project requirements.

Project Execution and Delivery Reliability:

Timely execution, effective project management and coordination across engineering, procurement, fabrication, construction, erection and commissioning are critical for securing repeat orders and participating in large infrastructure projects. Execution capability becomes particularly important for projects involving multiple locations, contractors and stakeholders.

Integrated Infrastructure Capabilities:

Companies offering multiple services across the project lifecycle can provide more comprehensive solutions and reduce dependence on external subcontractors. Integrated capabilities spanning design, fabrication, construction, installation and turnkey execution can strengthen competitiveness in large and complex projects.

Quality Compliance and Technical Standards:

Infrastructure projects increasingly require adherence to technical specifications, quality standards, material traceability, safety requirements and client-specific certifications. Established quality systems and compliance capabilities can create an advantage in projects awarded by government agencies, railways, EPC contractors and large industrial customers.

Pricing and Cost Management:

Competitive bidding remains an important factor, particularly in infrastructure and EPC contracts. Efficient procurement, manufacturing productivity, project planning and effective management of steel and other input costs are important for maintaining project margins. Commodity-price volatility can exert pressure on profitability where cost escalation cannot be fully passed through.

Working Capital and Financial Strength:

Large infrastructure projects often involve milestone-based payments, performance guarantees and extended project cycles, resulting in significant working-capital requirements. Companies with stronger balance sheets, financing access and disciplined cash-flow management are better positioned to undertake larger contracts and sustain execution during prolonged project cycles.



Order Book and Sector Diversification:

A strong and diversified order book improves revenue visibility and reduces dependence on a single infrastructure segment. Exposure across railways, metros, power, industrial infrastructure, renewable energy, data centres and other sectors can help companies offset fluctuations in individual end markets. Diversified EPC players have demonstrated greater resilience through broader order inflows across infrastructure segments.

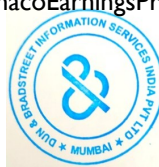
Specialization and Project Track Record:

Proven experience in specific infrastructure applications such as railway structures, metro stations, power equipment, PEBs, industrial facilities or specialized fabrication can provide an advantage during technical qualification and project bidding. A strong execution track record also supports client confidence and repeat business.

Key Players Profiling

Company Name	Overview
Texmaco Rail & Engineering Limited	Texmaco Rail & Engineering Limited was incorporated in 1998, with its plant operations dating back to 1939 under Texmaco Limited, and is headquartered in Kolkata, West Bengal, India. The company operates across railway and infrastructure engineering, with capabilities spanning rolling stock, steel foundry, heavy engineering, bridges and structural systems, and railway EPC. Its portfolio includes freight wagons and components, hydro-mechanical equipment, railway bridges, steel structures, steel castings, rail electrification, track laying, signalling and telecommunication systems. Following the acquisition of Jindal Rail & Infrastructure Limited, renamed Texmaco West Rail Limited, the business has been consolidated with Texmaco Rail & Engineering Limited from 1 April 2024, expanding its freight car manufacturing capabilities and presence in western India⁴⁰. Texmaco's manufacturing infrastructure comprises seven manufacturing facilities across West Bengal, Gujarat and Chhattisgarh, covering freight car manufacturing, steel foundry and component manufacturing. The facilities have a combined footprint of approximately 309 acres, with connectivity to major highways and ports. Its steel foundry facilities at Belgharia and Raipur have a combined capacity of approximately 48,000 MTPA, including 33,000 MTPA at Belgharia and 15,000 MTPA at Raipur. The company undertakes engineering, manufacturing and project execution for railway and

⁴⁰ <https://www.texmaco.in/wp-content/uploads/2025/05/Q4-FY25-TexmacoEarningsPresentation.pdf>



	infrastructure applications, serving Indian Railways, metro organisations, government agencies and industrial customers.
Interarch Building Products Limited	Interarch Building Solutions Limited was established in 1983 and is headquartered in Noida, Uttar Pradesh, India, with a nationwide presence supported by five manufacturing facilities and five dedicated design and engineering centres. The company is one of India's leading turnkey providers of Pre-Engineered Steel Building (PEB) solutions, with integrated capabilities covering design and engineering, manufacturing, on-site project management, installation and erection. Its portfolio includes Pre-Engineered Metal Building Systems, roofing and cladding systems, non-industrial building solutions and suspended ceiling systems. With over 40 years of experience and more than 3,000 PEBs constructed in India and overseas, Interarch serves a diverse customer base ranging from multinational corporations to micro, small and medium enterprises.
ATMASTCO Limited	ATMASTCO Limited was founded in 1987 and is headquartered in Bhilai, Chhattisgarh, India, with operations focused on engineering, EPC and structural solutions for industrial and infrastructure projects. The company provides integrated engineering, procurement and construction solutions covering engineering and design, procurement, fabrication, supply, erection, installation and project execution. Its portfolio includes steel, railway, infrastructure, power and energy, cement and aluminium sectors, with capabilities spanning heavy and precision structural fabrication, industrial equipment, structural manufacturing and integrated MEP solutions. ATMASTCO also undertakes turnkey EPC projects and equipment supply, supported by in-house manufacturing and fabrication facilities. The company serves industrial clients across domestic and international markets, undertaking complex projects requiring coordinated engineering, fabrication, procurement and construction capabilities.

Company Profiling: Pioneer Fabricators Limited

Company Overview:

Pioneer Fabricators Limited, established in 1988 having its manufacturing facility in Meerut, Uttar Pradesh, has evolved from a fabrication unit into an engineering and infrastructure solutions provider with capabilities spanning engineering, steel fabrication, design-build services, and turnkey project execution.

Pioneer Fabricators Limited is an infrastructure engineering company engaged in the planning, engineering, designing, procurement, fabrication, construction, erection and execution of infrastructure and structural projects. The Company's principal business activities are undertaken across the railway, metro, road and highways, industrial and other infrastructure sectors. The Company undertake projects involving the development and execution of infrastructure structures and facilities, including bridges, foot over bridges (FOBs), road over bridges (ROBs), railway and station structures, skywalks, metro stations and station redevelopment works, as well as other structural and infrastructure works forming part of transportation, public and industrial infrastructure projects.

The Company combines engineering expertise, manufacturing and fabrication capabilities, and project execution to provide integrated solutions for infrastructure and industrial projects. Its capabilities encompass structural steel fabrication, steel structures, pressure vessels, prefabricated buildings and turnkey projects, serving sectors including railways, power and energy, infrastructure development, construction and government projects.

Products and Services Offered:

- **Infrastructure Engineering Solutions:** Pioneer Fabricators Ltd. provides integrated infrastructure engineering solutions covering railway and transportation infrastructure, structural engineering and steel fabrication, industrial and power engineering, and design-build and turnkey project execution. The company combines engineering expertise, specialized fabrication capabilities and project execution services to address the requirements of infrastructure and industrial projects.
- **Railway & Transportation Infrastructure Solutions:** The company provides engineering and fabrication solutions for railway and transportation infrastructure, including steel bridge girders, locomotive chassis and other railway infrastructure components. Its capabilities support the development and modernization of transportation networks by delivering engineered components designed to meet the technical and operational requirements of railway projects.
- **Structural Engineering & Steel Fabrication:** Structural engineering and fabrication represent an important technical capability within the company's broader infrastructure solutions portfolio. Pioneer Fabricators undertakes the design and fabrication of structural steel structures, steel components and prefabricated buildings, supporting infrastructure, industrial and construction projects. These capabilities enable the company to provide engineered steel solutions tailored to project-specific requirements.



- **Industrial & Power Engineering Solutions:** Pioneer Fabricators also provides specialized engineering and manufacturing solutions for the industrial and power sectors, including turbine auxiliaries, power plant equipment and pressure vessels. These products and equipment support power-generation and industrial applications and are manufactured in accordance with applicable technical, performance and safety requirements.
- **Design, Build & Turnkey Project Execution:** The company offers integrated design, engineering, construction and turnkey project execution services, providing clients with a single point of coordination across different stages of project development. Its capabilities include design, engineering, fabrication, construction, installation, commissioning and final project delivery, enabling execution of steel structures, prefabricated buildings, gas-supply systems and other infrastructure-related projects.

Key Customer Segments Served:

- **Railways & Metro Infrastructure:** Pioneer Fabricators serves the railway and metro infrastructure sector through engineering, fabrication and turnkey execution solutions for critical transportation infrastructure. Its experience includes steel bridge girders, foot over bridges, road/rail over bridges, pre-engineered metro station buildings, station redevelopment and locomotive chassis components. The company has executed projects for Indian Railways and metro-related organizations, supporting the development and modernization of India's rail transportation network.
- **Power Generation:** Pioneer Fabricators caters to the power generation sector through the engineering and fabrication of equipment and structural components used in thermal and hydro power projects. Its capabilities include turbine auxiliaries and power plant equipment, with experience supplying components to major power-sector organizations. These solutions support the construction and operation of large-scale power infrastructure.
- **Construction & Industrial Infrastructure:** The company serves construction and industrial customers through integrated engineering and project execution capabilities. Its experience spans pre-engineered buildings, steel structures, prefabricated buildings and turnkey civil construction, including facilities such as metro stations, factories and other industrial structures. This enables Pioneer Fabricators to address infrastructure and industrial projects requiring a combination of engineering, fabrication and on-site execution.
- **Oil & Gas / Petroleum Infrastructure:** Pioneer Fabricators also has experience serving the oil and gas and petroleum infrastructure sector through specialized fabrication and project execution. Its historical portfolio includes oil depot construction, gas supply systems and related engineering works, supported by its capabilities in steel fabrication and pressure-vessel-related applications. The company's experience in this segment demonstrates its ability to execute technically demanding infrastructure projects under stringent operational requirements.
- **Road Infrastructure & Safety:** The company has also served road infrastructure projects through fabricated safety and structural solutions, including guardrails and crash barriers. This represents a



supporting customer segment within its broader infrastructure portfolio, complementing its core railway, metro, power and construction-related activities.

Key Strengths:

- **Extensive Industry Experience:** Pioneer Fabricators brings over three decades of experience across engineering, steel fabrication and turnkey infrastructure projects. This experience enables the company to understand complex project requirements and execute technically demanding infrastructure projects efficiently.
- **Integrated Engineering Capabilities:** The company combines engineering and design, fabrication, construction, erection and commissioning capabilities, allowing it to provide integrated solutions across different stages of an infrastructure project.
- **Strong Technical Expertise:** Pioneer has established expertise in railway and metro structures, power plant equipment, PEBs and specialized steel engineering applications. Its experienced technical teams support the execution of customized solutions for diverse infrastructure requirements.
- **Diversified Infrastructure Exposure:** The company has experience across railways and metro, power generation, construction and other infrastructure applications, enabling it to serve multiple end-use sectors through its common engineering and project execution capabilities.



Financial KPI

	Pioneer Fabricators Limited			Interarch Building Solutions Limited			Texmaco Rail & Engineering Ltd.			Atmastco Limited		
All Values in Lakhs	FY 2026	FY 2025	FY 2024	FY 2026	FY 2025	FY 2024	FY 2026	FY 2025	FY 2024	FY 2026	FY 2025	FY 2024
Revenue from Operations	18627.65	14241.49	8259.69	189800.10	145382.54	129330.16	437726.64	510657.19	350287.01	29261.91	28957.04	22400.57
Growth in Revenue from Operations (%)	30.80%	72.42%	NA	30.55%	12.41%	15.07%	-14.28%	45.78%	56.15%	1.05%	29.27%	-7.42%
EBITDA (INR in Lakhs)	3803.23	2442.21	1126.82	17310.40	13624.13	11301.49	40991.02	49063.39	26351.87	3927.36	4286.53	3845.90
Growth in EBITDA (%)	55.73%	116.73%	NA	27.06%	20.55%	6.24%	-16.45%	86.19%	81.23%	-8.38%	11.46%	24.11%
EBITDA Margin (%)	20.42%	17.15%	13.64%	9.12%	9.37%	8.74%	9.36%	9.61%	7.52%	13.42%	14.80%	17.17%
PAT Margin (%)	13.70%	11.87%	7.35%	6.98%	7.31%	6.60%	4.39%	4.82%	3.16%	6.45%	6.64%	7.26%
Return on Equity / RoNW (%)	20.33%	20.27%	10.77%	15.27%	14.35%	19.40%	8.03%	8.79%	4.46%	13.02%	15.15%	15.14%
Debt to Equity Ratio	0.21	0.32	0.48	0.02	0.02	0.02	0.36	0.33	0.25	0.71	0.58	0.66
Return on Capital Employed (ROCE) (%)	29.93%	32.44%	20.87%	21.26%	19.31%	26.51%	14.65%	15.85%	10.62%	21.77%	26.06%	26.46%
Current Ratio	1.75	1.41	1.21	1.95	2.16	1.71	1.64	2.29	2.61	1.86	1.95	2.13
Fixed Asset Turnover Ratio	3.45	2.61	1.99	8.65	9.73	12.16	4.82	5.78	8.18	8.65	11.65	8.46
Net Working Capital Days	240	163	172	73	71	54	133	117	98	270	308	308

Financial are considered on Consolidated Basis.



Formulas

Parameter	Formula
Revenue from Operations	Revenue from Operations as appearing in the Restated Standalone Financial Information ⁴¹ and for Peers from audited financial statement
Growth in Revenue	$(\text{Current year Revenue from Operations} - \text{Previous year Revenue from Operations}) / \text{Previous year Revenue from Operations} \times 100.$
EBITDA	PBT + Finance Costs + Depreciation & Amortisation – Other Income.
Growth in EBITDA	$(\text{Current year EBITDA} - \text{Previous year EBITDA}) / \text{Previous year EBITDA} \times 100.$
EBITDA Margin	EBITDA / Revenue from Operations.
PAT Margin	PAT / Total Income.
Return on Equity / RoNW	PAT / Total Equity at end of relevant fiscal/period.
Debt to Equity Ratio	Total Debt (long-term + short-term, including current maturity of long-term debt) / (Equity Share Capital + Other Equity).
ROCE	EBIT (PBT + Finance Costs) / Capital Employed; Capital Employed = Total Shareholders' Equity + Long-Term Borrowings.
Current Ratio	Total Current Assets / Total Current Liabilities.
Fixed Asset Turnover Ratio	Revenue from Operations / Net Block of PPE at period end, excluding RoU assets and intangible assets.
Net Working Capital Days	Inventory Days + Trade Receivable Days – Trade Payable Days. Days are based on $365 / \text{turnover ratio}$; COGS = Cost of Materials Consumed + Changes in Inventories of FG & WIP.

⁴¹ The Company has reported revenue only on standalone basis.

