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Glass Industry

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1. Global Macroeconomic Scenario

1.1 Global GDP Growth Scenario

As per the IMF's World Economic Outlook (WEO) Update published in July 2026, global growth is projected to slow to 3.0% in CY 2026, down from an average of 3.5% in CY 2024–25, before recovering to 3.4% in CY 2027. This is broadly unchanged on a cumulative basis compared with the April 2026 WEO, though it conceals sharp divergence across countries. The moderation reflects the negative supply shock from the conflict in the Middle East and associated disruptions to energy flows through the Strait of Hormuz, which is being partly offset by an accelerating global technology cycle driven by artificial intelligence (AI)-related investment and adoption. Economies well integrated into the AI/technology value chain—including Taiwan, Korea, Thailand and Malaysia—have significantly outperformed expectations, while energy-importing economies with limited exposure to the technology upturn, including many low-income countries, continue to face a more pronounced drag.

Global headline inflation is projected to rise from 4.1% in CY 2025 to 4.7% in CY 2026, before easing to 3.9% in CY 2027, marking a stalling of the disinflation trend that had been in place since early 2024. The upward revision (0.3 percentage point higher than the April 2026 WEO for 2026) reflects higher energy and food prices, with crude oil prices projected to rise by approximately 32% and natural gas prices by about 22% in 2026 relative to 2025. World trade volume growth is projected to slow sharply from 5.0% in 2025 to 3.5% in 2026, before recovering to 4.3% in 2027, reflecting tariff-related drag and the gradual adjustment of global trade and production linkages.

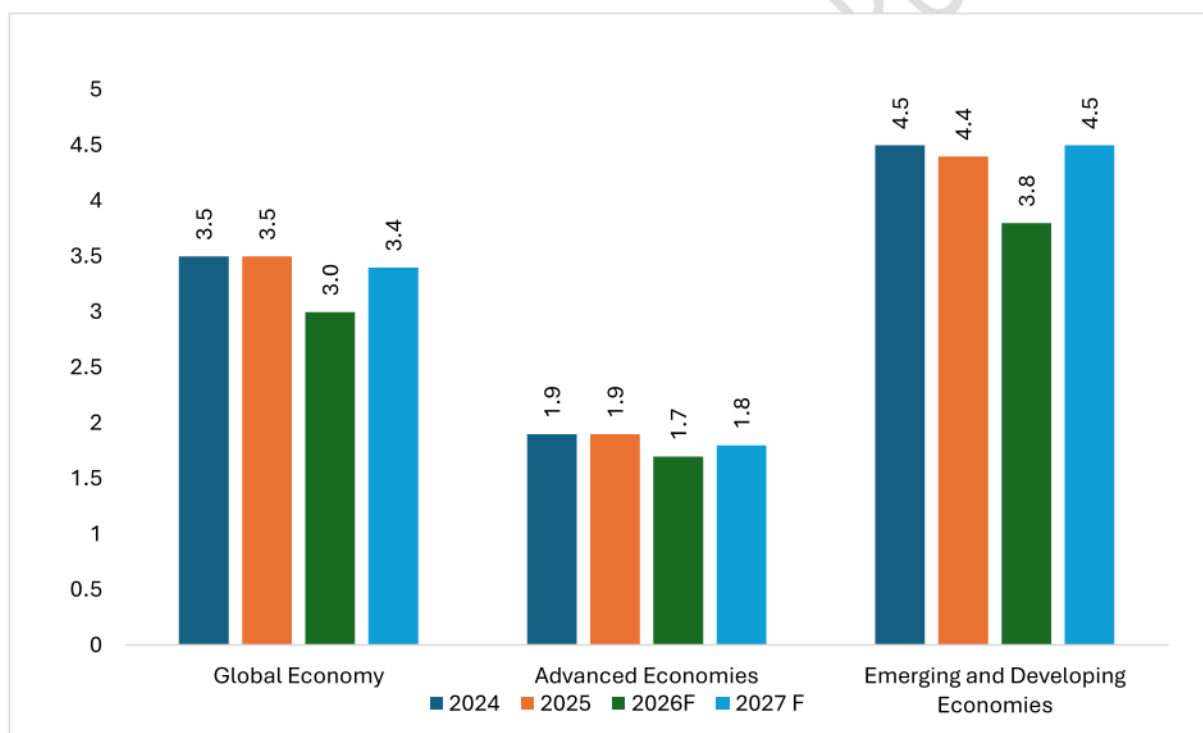
In China, growth is projected to slow to 4.6% in CY 2026 (down from 5.0% in CY 2025) and further to 4.1% in CY 2027, as elevated global oil prices, structural headwinds and continued property sector weakness weigh on activity, notwithstanding stronger-than-expected exports and high-tech manufacturing. In the Euro Area, growth is projected to slow to 0.9% in CY 2026 before improving to 1.2% in CY 2027, reflecting the drag from higher energy prices, a sizable negative carryover from the first quarter, and weak consumer confidence; Germany's growth is projected at 0.7% in CY 2026, improving to 1.0% in CY 2027, supported by net exports and fiscal measures.

Meanwhile, India is expected to remain among the fastest-growing major economies despite an increasingly uncertain global environment. According to the IMF, India's real GDP growth is projected at 6.4% in FY2026–27 and 6.7% in FY2027–28, supported by resilient private consumption, robust services activity and domestic demand. On a calendar-year basis, the IMF projects India's economy to expand by 7.0% in 2026 and 6.4% in 2027. Consumer price

inflation is expected to remain broadly contained, supporting macroeconomic stability even as global inflationary pressures persist.

Overall, while global growth in CY 2025 remained resilient, the outlook for CY 2026 reflects a genuine crosscurrent a war-driven supply shock pulling growth down, countered by an AI/technology-led investment boom pushing growth up in select economies. Risks to the outlook remain tilted to the downside, with renewed Middle East conflict, trade fragmentation, and a potential correction in AI-driven valuations as the key threats, while a swifter energy-market normalisation and stronger technology investment present the main upside. India's relative macroeconomic stability, resilient domestic demand, and continued investment momentum position it favourably amid these global crosscurrents.

1.2 Historical GDP Growth Trends



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

F – Forecast, Source – IMF World Economic Outlook July 2026

In CY 2024, global growth remained resilient at 3.5%, supported by easing inflation and improved supply chain conditions. Advanced economies expanded by 1.9%, while emerging and developing economies recorded stronger growth of 4.5%, reflecting continued resilience across developing markets.

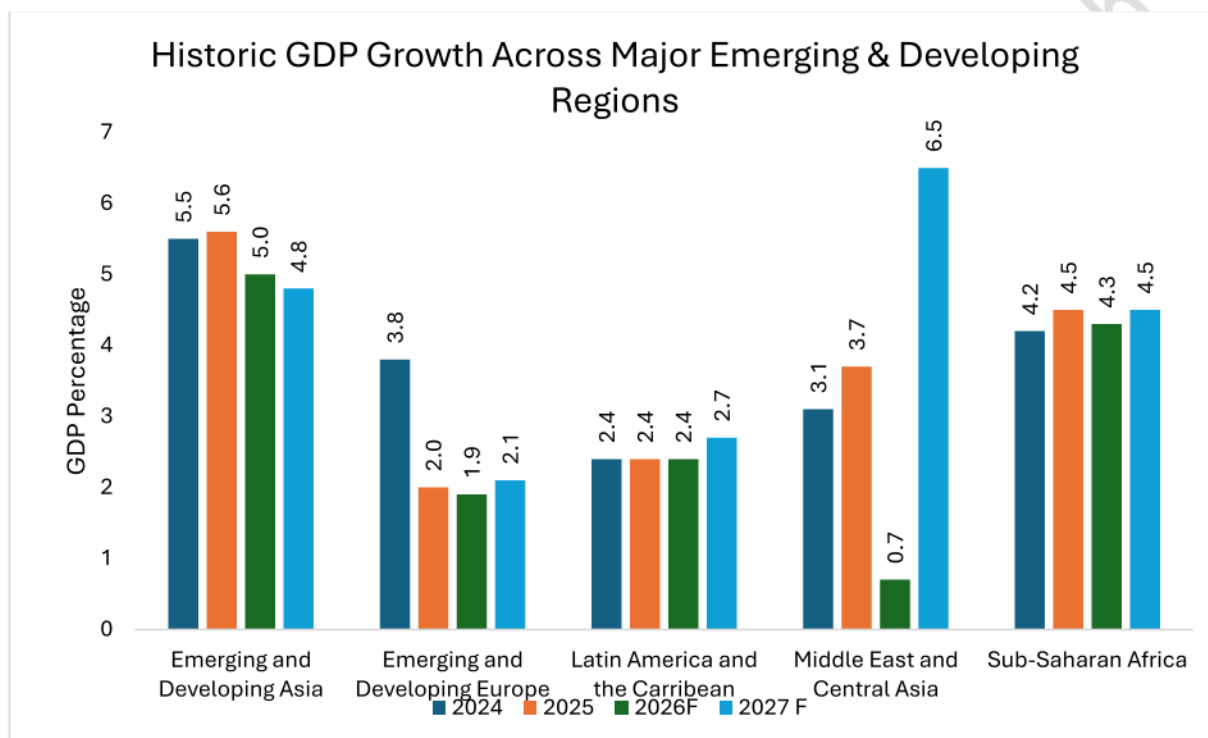
In CY 2025, global GDP growth remained stable at 3.5%, despite ongoing geopolitical tensions and structural challenges. Advanced economies-maintained growth at 1.9%, while emerging and developing economies continued to outperform with growth of 4.5%.

Global growth is projected to moderate to 3.0% in CY 2026, reflecting the impact of higher energy prices, geopolitical tensions, and trade-related headwinds. Advanced economies are expected to grow at 1.7%, while emerging and developing economies are projected to expand by 3.8%.

Growth is expected to recover to 3.4% in CY 2027, supported by improving global trade conditions and continued investment momentum. Advanced economies are forecast to grow at 1.8%, while emerging and developing economies are projected to expand by 4.5%, highlighting their continued resilience relative to advanced economies.

1.3 GDP Growth Across Major Regions

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



Source-IMF World Economic Outlook July 2026 update.

In Emerging and Developing Asia, growth stood at 5.5% in CY 2024 and increased to 5.6% in CY 2025. Growth is projected to moderate to 5.0% in CY 2026 and further to 4.8% in CY 2027. The moderation reflects weaker external demand, trade-related uncertainty, and spillovers from slower growth in China, partly offset by resilience in domestic demand across major economies, with India continuing to act as a key growth driver.

Emerging and Developing Europe recorded growth of 3.8% in CY 2024, moderating to 2.0% in CY 2025 and 1.9% in CY 2026, before improving to 2.1% in CY 2027. The region continues to face structural manufacturing weakness, geopolitical spillovers and subdued external demand, although gradual stabilization in trade and domestic demand is expected to support recovery.

For Latin America and the Caribbean, growth stood at 2.4% in CY 2024 and remained unchanged at 2.4% in CY 2025 and CY 2026, before improving to 2.7% in CY 2027. The modest outlook reflects weak productivity trends, fiscal constraints, and subdued external demand, partially supported by improving macroeconomic stability and policy credibility.

In the Middle East and Central Asia, growth stood at 3.1% in CY 2024 and improved to 3.7% in CY 2025, before declining sharply to 0.7% in CY 2026 and rebounding to 6.5% in CY 2027. This volatility reflects geopolitical disruptions, particularly conflicts affecting energy markets, alongside fluctuations in commodity prices and regional uncertainty.

Sub-Saharan Africa recorded growth of 4.2% in CY 2024, improving to 4.5% in CY 2025. Growth is projected to moderate slightly to 4.3% in CY 2026 before improving to 4.5% in CY 2027. Growth is supported by improving domestic demand and supply conditions, although structural constraints, high debt levels and commodity price volatility continue to pose risks.

Overall, while regional growth trajectories remain uneven, emerging and developing economies are expected to continue outperforming advanced economies, supported by relatively stronger domestic demand and favourable demographics. However, disparities persist due to structural challenges, geopolitical tensions, and commodity market volatility.

1.4 Global Economic Outlook

At the current juncture in CY 2026, the global economy continues to exhibit mixed performance, with divergence in outcomes across regions driven by differences in growth dynamics, inflation trends, geopolitical exposure, and policy responses. While the global economy had shown resilience through technology-led investment, accommodative financial conditions, and reduced tariff pressures, the broader outlook has weakened due to the outbreak of conflict in the Middle East, disruptions in energy markets, and elevated geopolitical risks. Structural headwinds, including tighter financial conditions, geoeconomic fragmentation, and subdued productivity growth, continue to keep global growth below historical averages.

The United States continues to demonstrate relative resilience among advanced economies, though growth is moderating as the economy absorbs the lagged effects of prior policy tightening and softer labour market conditions. Across advanced economies, growth is projected at 1.7% in CY 2026, constrained by weak industrial activity, lower productivity growth, and cautious business investment. In Europe, growth conditions remain subdued, with persistent manufacturing weakness, energy-related uncertainties, and weak external demand weighing on activity, although gradual monetary easing and fiscal support may provide some stabilization.

In China, growth prospects remain constrained by continued property sector stress, weak domestic demand, and changing trade dynamics, although export-oriented sectors and technology-linked investment continue to provide support. In contrast, India remains among the strongest-performing major economies, with GDP growth projected at 7.0% (calendar year basis) in CY 2026, supported by resilient domestic demand, sustained infrastructure investment, digitalisation, and structural reforms. Broader Emerging and Developing Asia continues to outperform other regions, although growth is moderating amid weaker global trade momentum.

In Latin America and the Caribbean, growth remains modest amid fiscal constraints, weak productivity trends, and subdued external demand, although improving macroeconomic management in some economies provides support. Sub-Saharan Africa is expected to see gradual strengthening supported by improving supply conditions and domestic demand recovery, while the Middle East and Central Asia face a more volatile outlook due to direct spillovers from conflict-related disruptions and uncertainty in commodity markets. The impact of energy supply risks, including disruptions related to the Strait of Hormuz, has increased downside risks for commodity-importing economies and vulnerable emerging markets.

Globally, inflation dynamics have become more challenging. Global headline inflation is projected to rise to 4.7% in CY 2026 from 4.1% in CY 2025, reflecting the inflationary effects of higher energy prices, supply-side disruptions, and second-round pressures. Central banks

are therefore expected to remain vigilant, with policy responses remaining cautious and data dependent. While monetary easing had been expected to support demand, renewed inflation risks may delay or moderate the pace of policy normalization in several economies.

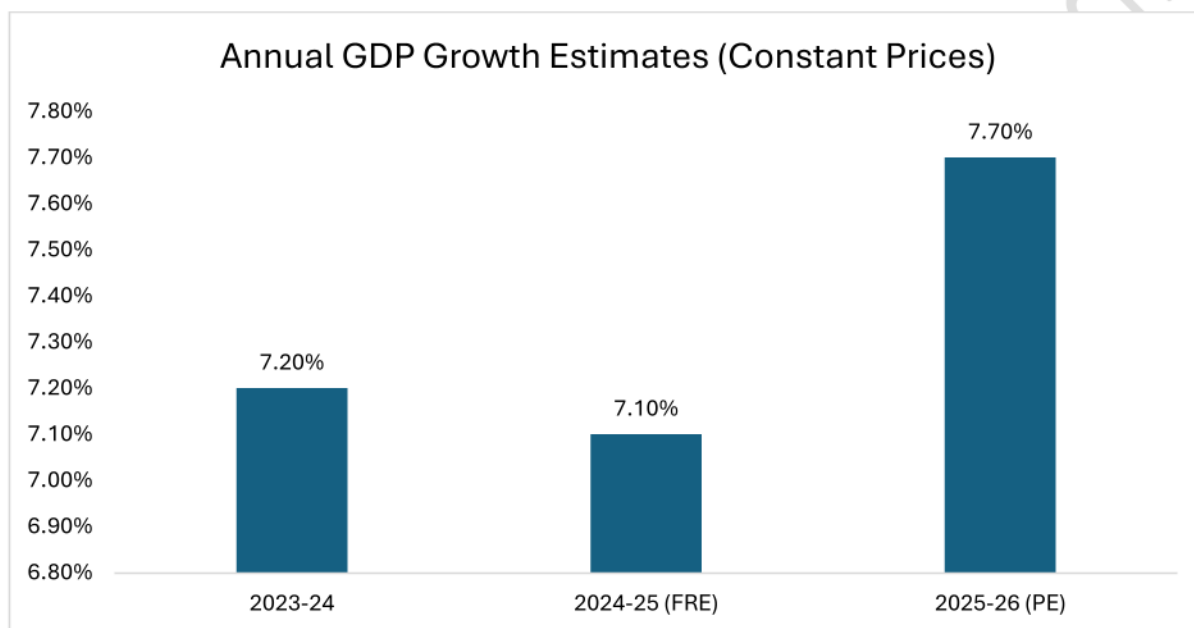
Looking ahead, the medium-term outlook remains one of slower but stable growth, with global GDP projected at 3.4% in CY 2027, following a moderation to 3.0% in CY 2026, below the long-term historical average. Advanced economies are expected to remain on a structurally lower growth path, while emerging and developing economies continue to provide the primary engine of global growth. Future prospects will depend significantly on the evolution of geopolitical tensions, the normalization of energy markets, progress in restoring trade stability, and the extent to which productivity gains from technological innovation, including artificial intelligence, translate into broader economic growth. The IMF also highlights that structural reforms, multilateral coordination, and strengthened macroeconomic resilience will be critical to sustaining growth momentum over the medium term.

Overall, while the global economy remains resilient, the outlook has become more fragile amid elevated downside risks. Growth in CY 2026 and beyond is expected to remain below historical averages, shaped by geopolitical uncertainty, tighter financial conditions, and structural constraints, although emerging economies—particularly India and broader Asia—continue to provide relative support to global growth.

2. INDIA'S MACROECONOMIC SCENARIO

2.1 Gross Domestic Product (GDP)

According to the latest Provisional Estimates by MOSPI, GOI (05 June 26), Real GDP has been estimated to grow by 7.7% in FY 2025-26. Nominal GDP has witnessed a growth of 8.9%. Real GDP or GDP at Constant Prices is estimated to attain a level of INR 323.12 lakh crore in the FY 2025-26, against the First Revised Estimate (FRE) of GDP for the year 2024-25 of INR 299.89 lakh crore.



Note: FRE - First Revised Estimates; PE – Provisional Estimate

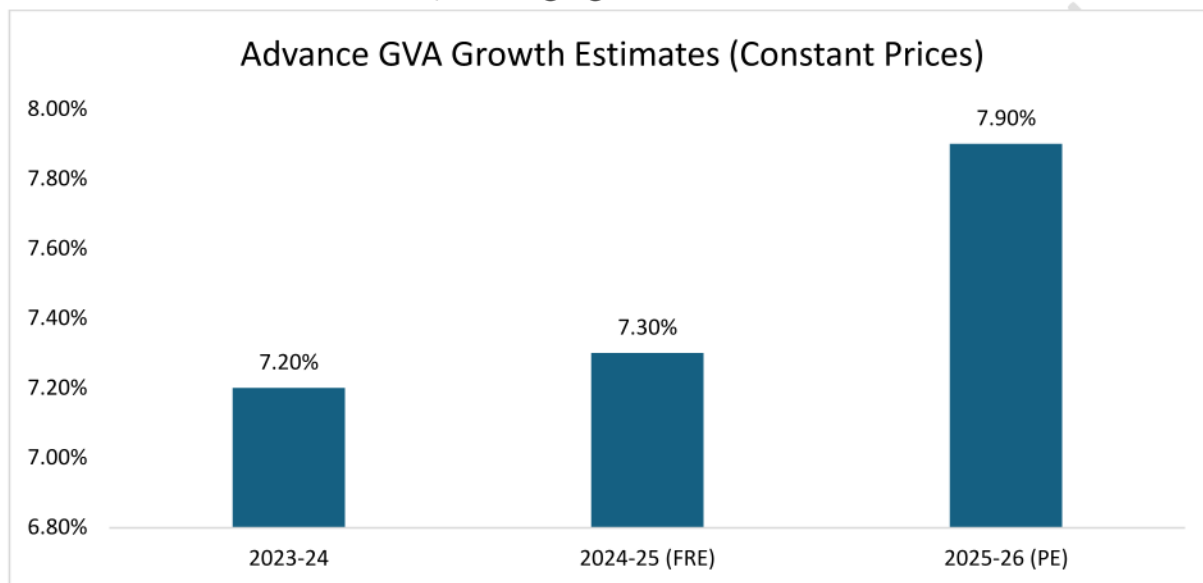
Source: New Series of Gross Domestic Product (GDP) Estimates with Base Year 2022-23 by MOSPI, PIB Press Release dated 05 June 2026).

According to the International Monetary Fund (IMF) World Economic Outlook Database (April 2026), India is estimated to be the sixth-largest economy in the world in 2026, with a Gross Domestic Product (GDP) of approximately USD 4.15 trillion at current prices. India's ranking reflects the latest national accounts data, including the revised GDP series released by the Government of India, which changed the base year from FY 2011-12 to FY 2022-23. India's position in the global ranking is influenced by the revised GDP estimates and the depreciation of the Indian Rupee against the U.S. Dollar.

The economies ranked ahead of India are the United States (USD 32.38 trillion), China (USD 20.85 trillion), Germany (USD 5.45 trillion), Japan (USD 4.38 trillion), and the United Kingdom (USD 4.26 trillion).

2.2 Gross Value Added (GVA)

According to the Provisional Estimate of GDP for 2025-26 by MOSPI, Govt. of India (GoI), Real GVA is estimated at INR 294.91 lakh crore in the year 2025-26, against INR 273.36 lakh crore in FY 2024-25, registering a growth rate of 7.9% as compared to 7.3% growth rate in 2024-25. Nominal GVA is estimated to attain a level of INR 314.87 lakh crore during FY 2025-26, against INR 288.54 lakh crore in 2024-25, showing a growth rate of 9.1%.

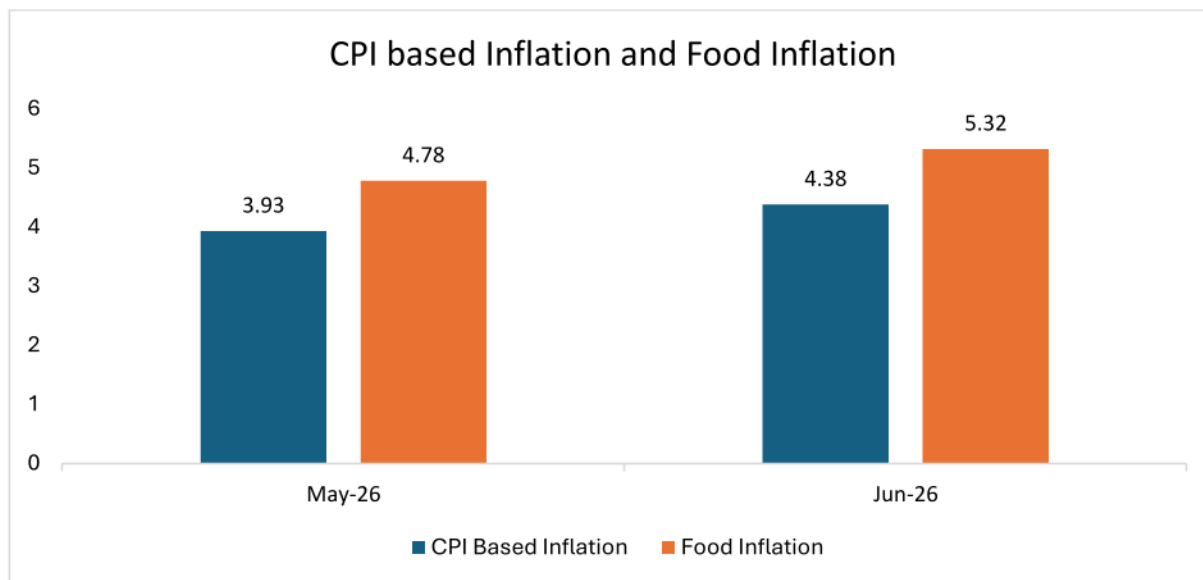


Note: FRE - First Revised Estimates; PE – Provisional Estimate

Source: New Series of Gross Domestic Product (GDP) Estimates with Base Year 2022-23 by MOSPI, PIB Press Release dated 05 June, 2026)

2.3 Consumer Price Index (CPI)

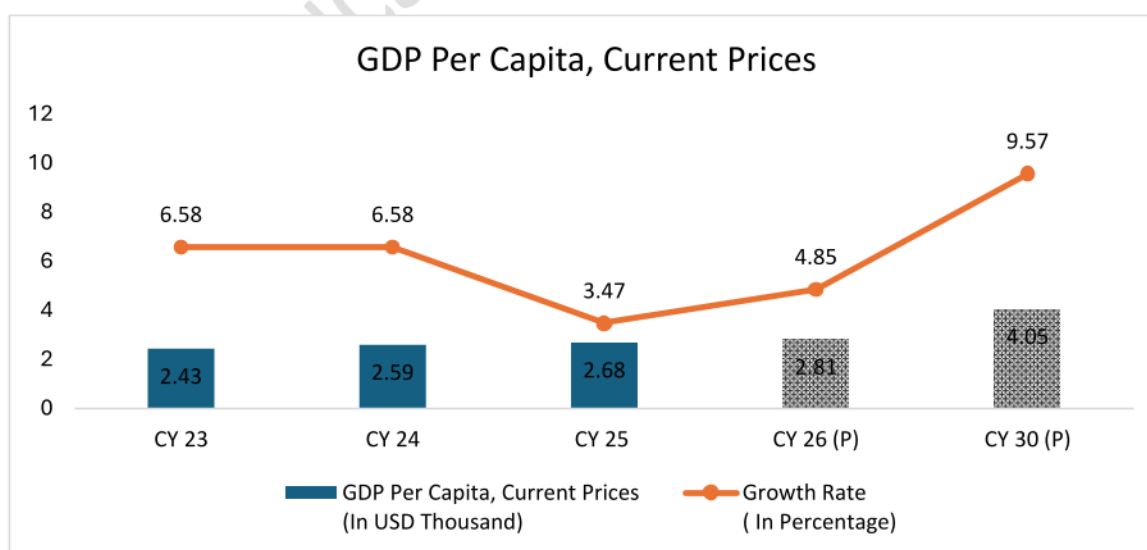
Year-on-year inflation rate based on All India Consumer Price Index (CPI) with base year 2024 for the month of June 2026 over June, 2025 is 4.38%(Provisional). Corresponding inflation rates for rural and urban are 4.74% and 3.92%, respectively.



Source: MOSPI, GOI, 13 July 2026

2.4 India Per Capita GDP Forecast

Per capita GDP growth for India is estimated at 9.57 % CAGR between FY 2026-FY 2030. Increased individual incomes are expected to create additional discretionary spending, which may be beneficial for the sector.



Note: E = Estimated, P = Projected

Source: IMF Data Mapper, World Economic Outlook April 2026, India, GDP Per Capita

2.5 Private Final Consumption Expenditure (PFCE)

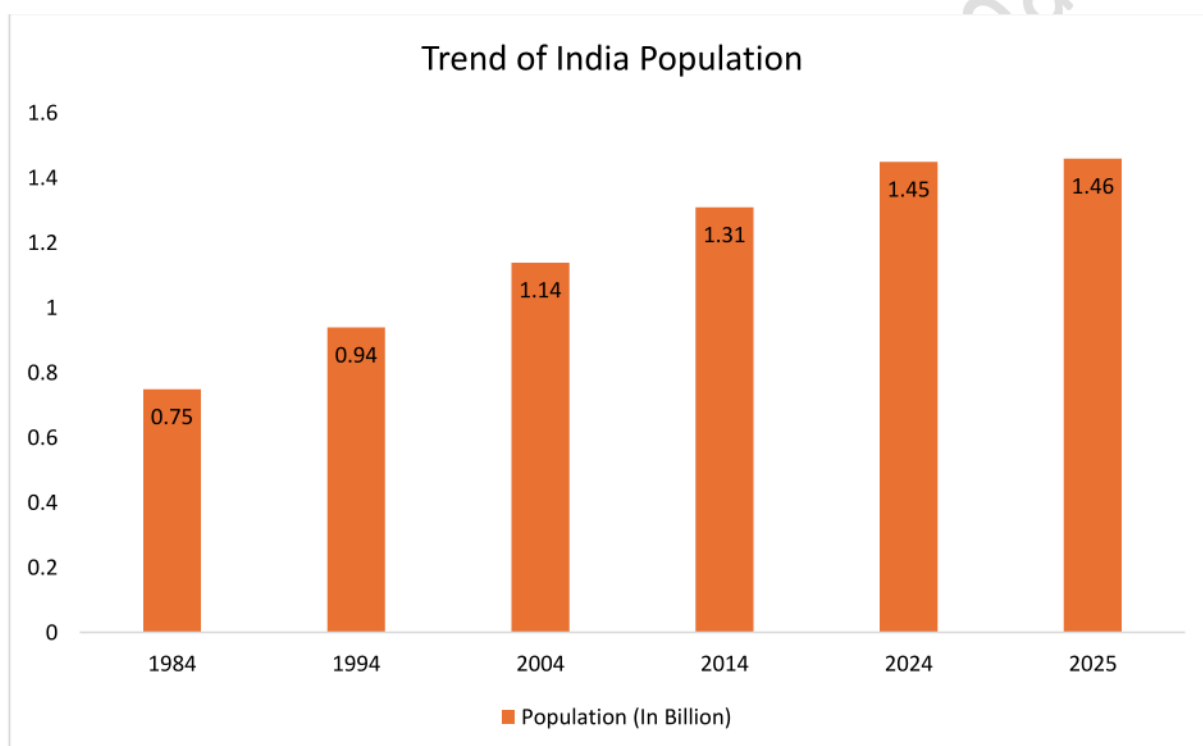
Private Final Consumption Expenditure (PFCE) represents the total spending by resident households on final consumption of goods and services, serving as a key indicator of consumer demand and overall economic well-being. It reflects the extent of household consumption and plays a crucial role in driving GDP growth. PFCE, at constant prices, accounted for 55.7% of GDP in FY2026 (same as FY2025). This marks a gradual moderation from 56.4% in FY2024 and 57.1% in FY2023, indicating a relative shift in the composition of economic growth. The decline is primarily attributable to higher changes in stocks (inventory build-up), which increased the share of investment components in GDP, even as household consumption continues to remain a key driver of the economy.

Source: - MOSPI, Press Note on New Series of GDP Estimates with Base Year 2022-23, Provisional Estimates of Annual Gross Domestic Product For 2025-26 released on June 05th, 2026.

2.6 Overview on Key Demographic Parameters

2.6.1 Population growth

India's economic trajectory and consumption dynamics are closely tied to its demographic shifts. India's population expanded from approximately 0.75 billion in 1984 to 1.45 billion in 2024 and is further reached around 1.47 billion in 2025, consolidating its position as the world's most populous nation. This sustained growth underlines the emergence of a vast labour force and consumer base, which is essential for driving long-term economic growth, supporting rising consumption demand and strengthening the country's overall economic potential.



Source: World Bank Database. Population Data 2025 , Infomerics Analytics & Research

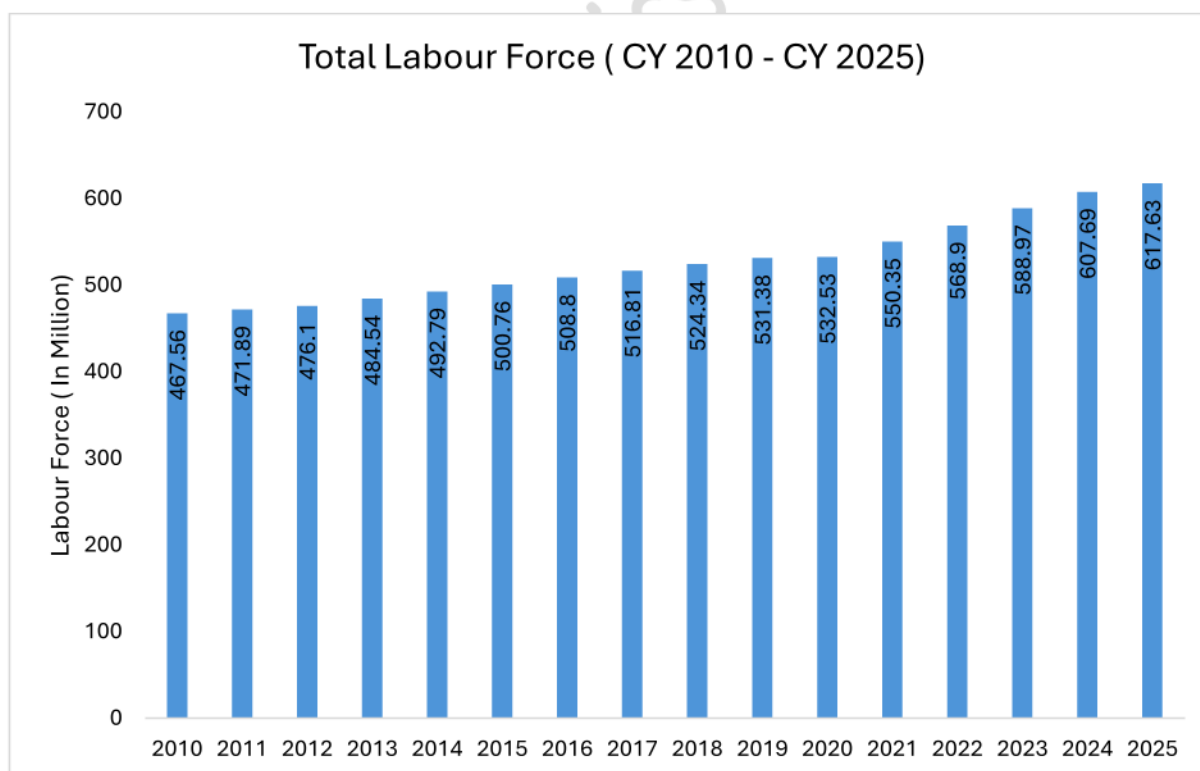
2.6.2 Labour Force in India

India's labour force has experienced steady growth over the past decade. In 2010, the total labour force was approximately 467.56 million. By 2025, this number had increased to 617.63 million.

This upward trend underscores the expanding working-age population, improving labour force participation and gradual recovery in employment post the pandemic period. The sharp increase observed after 2020 highlights the rebound in economic activity and rising workforce engagement across sectors. However, it also emphasizes the need for sustained job creation to effectively absorb the growing labour pool.

The labour force participation rate (LFPR) has also witnessed variations over time due to changing socio-economic conditions, including urbanization, education levels and sectoral employment shifts.

These trends highlight the importance of implementing policies that not only generate employment opportunities but also improve job quality, productivity and inclusivity across key sectors of the economy.



Source: World Bank Database

2.6.3 Labour Laws in India

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

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

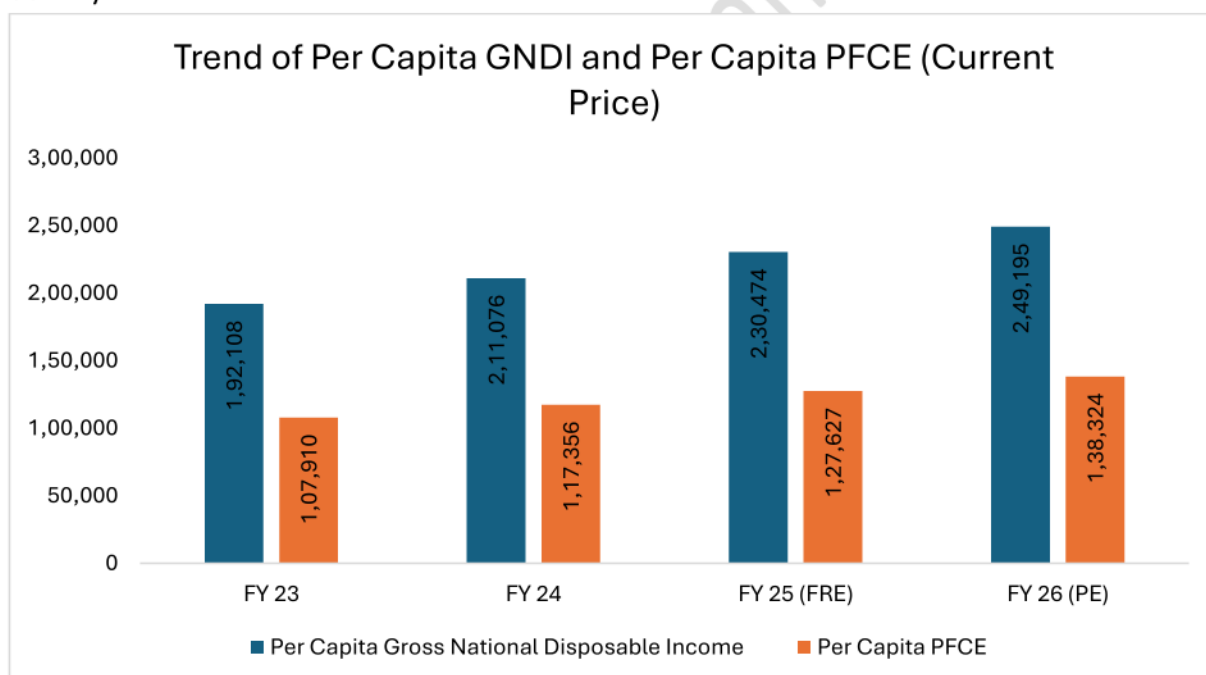
As of 31st December 2024, the Central Government and most States/Union Territories had pre-published draft rules under all four Labour Codes. Regional consultations were held to align state-level rules with the central framework. Once fully implemented, these Codes are expected to harmonize the needs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

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

2.6.4 Disposable Income and Consumer Spending

Gross National Disposable Income (GNDI) represents the total income available to a nation's residents for consumption and saving after accounting for income transfers with the rest of the world. Per Capita GNDI has exhibited a steady upward trend over the recent years, increasing from approximately INR1,92,108 in FY23 to INR 2,11,076 in FY24 and further to INR 2,49,195 in FY26 (PE). It reflects the continued growth in income available to households and businesses, supporting consumption and savings activities within the economy.

The rise in disposable income has been accompanied by higher consumer spending, as reflected in the growth of Private Final Consumption Expenditure (PFCE), which measures the total value of goods and services consumed by households. Per Capita PFCE increased from approximately INR 1,07,910 in FY23 to INR 1,38,324 in FY26 (PE). The growth of approximately 8.0% in FY26 over FY25 indicates sustained consumer demand and continued expansion in household consumption expenditure, supported by rising income levels and economic activity.



Note: Data mentioned is in INR, FRE – First Revised Estimates, PE – Provisional Estimates.

Source: PIB, New Series of Gross Domestic Product (GDP) release date on 5th June 2026. Estimates with Base Year 2022-23

2.7 Union Budget FY26-27 Highlights

The Union Budget FY 2026–27, presented by Finance Minister Nirmala Sitharaman, introduces a comprehensive set of measures aimed at stimulating economic growth, enhancing infrastructure and fostering inclusive development. With a focus on sectors such as agriculture, MSMEs, infrastructure, innovation and exports, the budget seeks to create a conducive environment for sustained economic expansion.

- **Capital Expenditure and Infrastructure Development**

In FY2026-27, the Union Budget has increased the public capex towards to INR 12.2 lakh crore from the previous INR 11.21 lakh crore (3.1% of GDP) which was earmarked in FY 2025–26. To strengthen the confidence of private developers regarding risks during infrastructure development and construction phase, the budget proposed to set up an Infrastructure Risk Guarantee Fund to provide prudently calibrated partial credit guarantees to lenders.

- **Support for MSMEs**

Recognizing the pivotal role of Micro, Small and Medium Enterprises (MSMEs) in India's economic landscape, the budget introduced a three-pronged approach to support the sector. The budget introduced a dedicated INR 10,000 crore SME Growth Fund as well as proposed to top up the Self-Reliant India Fund set up in 2021, with INR 2,000 crore to continue support to micro enterprises and maintain their access to risk capital. With TReDS, more than INR 7 lakh crore has been made available to MSMEs. To leverage its full potential, the budget further proposed four measures: (i) mandate TReDS as the transaction settlement platform for all purchases from MSMEs by CPSEs, serving as a benchmark for other corporates; (ii) introduce a credit guarantee support mechanism through CGTMSE for invoice discounting on TReDS platform; (iii) link GeM with TReDS for sharing information with financiers about government purchases from MSMEs, encouraging cheaper and quicker financing; (iv) introduce TReDS receivables as asset-backed securities, helping develop a secondary market, enhancing liquidity and settlement of transactions. Moreover, Government will facilitate Professional Institutions such as ICAI, ICSI, ICMAI to design short-term, modular courses and practical tools to develop a cadre of 'Corporate Mitras', especially in Tier-II and Tier-III towns, which will help MSMEs meet compliance requirements at affordable costs.

- **Establishment of dedicated Rare Earth Corridors**

A Scheme for Rare Earth Permanent Magnets was launched in November 2025. In line with that, the budget proposed to support the mineral-rich States of Odisha, Kerala andhra Pradesh and Tamil Nadu to establish dedicated Rare Earth Corridors to promote mining, processing, research and manufacturing.

- **Integrated Programme for the Textile Sector**

The following Schemes have been announced:

- (a) The National Fibre Scheme for self-reliance in natural fibres such as silk, wool and jute, man-made fibres and new-age fibres.
- (b) Textile Expansion and Employment Scheme to modernise traditional clusters with capital support for machinery, technology upgradation and common testing and certification centres.
- (c) A National Handloom and Handicraft programme to integrate and strengthen existing schemes and ensure targeted support for weavers and artisans.
- (d) Tex-Eco Initiative to promote globally competitive and sustainable textiles and apparels.
- (e) Samarth 2.0 to modernize and upgrade the textile skilling ecosystem through collaboration with industry and academic institutions.

- **Carbon Capture Utilization and Storage (CCUS)**

Aligning with the roadmap launched in December 2025, CCUS technologies at scale will achieve higher readiness levels in end-use applications across five industrial sectors, including, power, steel, cement, refineries and chemicals. An outlay of INR 20,000 crore is proposed over the next 5 years.

- **Municipal Bonds**

To encourage the issuance of municipal bonds of higher value by large cities, the budget proposed an incentive of INR 100 crore for a single bond issuance 10 of more than INR 1000 crore. The current scheme under AMRUT which incentivises issuances up to INR 200 crore, will also continue to support smaller and medium towns.

- **Ease of Doing Business**

Individual Persons Resident Outside India (PROI) will be permitted to invest in equity instruments of listed Indian companies through the Portfolio Investment Scheme. It is also proposed to increase the investment limit for an individual PROI under this scheme from 5% to 10%, with an overall investment limit for all individual PROIs to 24%, from the current 10%.

- **Hubs for Medical Value Tourism**

To promote India as a hub for medical tourism services, the budget proposed to launch a Scheme to support States in establishing five Regional Medical Hubs, in partnership with the private sector. These Hubs will serve as integrated healthcare complexes that combine medical, educational and research facilities. They will have AYUSH Centres, Medical Value Tourism Facilitation Centres and infrastructure for diagnostics, post-care and rehabilitation. These Hubs will provide diverse job opportunities for health professionals including doctors and AHPs.

- **Agriculture Related Schemes**

To diversify farm outputs, increase productivity, enhance farmers' incomes and create new employment opportunities, the budget announced support schemes related to high value crops such as coconut, sandalwood, cocoa and cashew in coastal areas. Agar trees in Northeast and nuts such as, almonds, walnuts and pine nuts in hilly regions will also be supported. India is the world's largest producer of coconuts.

About 30 million people, including nearly 10 million farmers, depend on coconuts for their livelihood. To further enhance competitiveness in coconut production, the Budget proposed a Coconut Promotion Scheme to increase production and enhance productivity through various interventions including replacing old and non-productive trees with new saplings/plants/varieties in major coconut growing States. A dedicated programme is proposed for Indian cashew and cocoa to make India self-reliant in raw cashew and cocoa production and processing, enhance export competitiveness and transform Indian Cashew and Indian Cocoa into premium global brands by 2030.

Further, the Central Government will partner with State Governments to promote focused cultivation and post-harvest processing to restore the glory of the Indian Sandalwood ecosystem. To rejuvenate old, low-yielding orchards and expand high-density cultivation of walnuts, almonds and pine nuts, the budget announced to support a dedicated programme to enhance farmer incomes and in bringing value addition by engaging youth.

The Union Budget FY 2026–27 presents a balanced approach to economic growth by addressing immediate consumption needs and laying the foundation for long-term sustainability. Through targeted investments in infrastructure, support for MSMEs and sector-specific initiatives, the budget aims to foster an inclusive and resilient economy. These measures are expected to create new opportunities for financial institutions, as the growing demand for investment products will provide avenues for expansion and innovation in the financial services sector.

2.8 Concluding Remarks about Macroeconomic Scenario

The major headwinds to global economic growth remain significant, including escalating geopolitical tensions, volatility in global energy and commodity markets, persistent inflationary pressures, tighter financial conditions, geoeconomic fragmentation, rising public debt, climate-related disruptions, and uncertainty surrounding the pace and impact of technological transformation. In particular, the ongoing Middle East conflict and associated risks to energy supply chains have heightened downside risks to the global outlook, while weaker trade momentum and structural productivity challenges continue to weigh on medium-term growth prospects.

Despite these challenges, India's economy remains relatively well-positioned compared to other major emerging markets. According to the IMF's April 2026 WEO, India's GDP growth is projected at 6.5% in CY 2026, maintaining its position as one of the fastest-growing major economies globally and significantly above the global growth projection of 3.1%. Key positive factors supporting India's growth include resilient domestic demand, sustained public infrastructure spending, a strengthening investment cycle, expanding digital infrastructure, and continued progress in structural reforms. Inflation, as measured by the Consumer Price Index (CPI), remained contained at 3.4% in March 2026 under the revised base year, supporting household purchasing power, although rising global oil prices and supply disruptions may pose upside risks.

India's strategic position as a manufacturing and investment destination continues to strengthen, supported by government initiatives, supply chain diversification trends, a skilled labour force, and a dynamic innovation ecosystem. Public investment is expected to remain a critical growth driver, with the Union Budget FY 2026–27 increasing capital expenditure to INR 12.21 lakh crore from INR 11.21 lakh crore in the previous year, reinforcing the government's investment-led growth strategy. In addition, the proposed Infrastructure Risk Guarantee Fund is aimed at improving private sector participation in infrastructure by mitigating project-related risks, which is expected to crowd in private investment, enhance infrastructure capacity, and support long-term productivity growth.

Private sector investment intentions are also expected to strengthen alongside public capex, while rising disposable incomes, improving rural demand, and continued policy support are likely to reinforce consumption momentum. Strengthening supply chains, expanding infrastructure capacity, and sustaining inflation stability will be critical in supporting resilience against external shocks. These factors are expected to support India's medium-term growth momentum and strengthen its ability to navigate global uncertainties.

3. Industry Overview – Glass industry

3.1 Introduction

Some envision modern skylines defined by expansive glass façades and seamless architectural designs, while others recognize the quiet strength of safety glass in vehicles, appliances, and infrastructure. In reality, it is the processed or value-added glass manufacturing industry that bridges the gap between raw material production and real-world application, transforming basic glass into high-performance, application-specific solutions. Serving as the critical downstream segment of the glass value chain, this industry enhances the functional, structural, and aesthetic attributes of primary glass products, enabling their use across safety-sensitive, energy-efficient, and design-oriented environments. As construction standards tighten and performance expectations rise, the demand for engineered glass solutions continues to expand, positioning this sector as an indispensable component of modern industrial and urban development.

The processed glass manufacturing industry encompasses a range of secondary operations including precision cutting, tempering (toughening), laminating, insulating, coating, and other specialized treatments. Unlike upstream float glass production—which is capital intensive, standardized, and volume-driven—downstream processing is characterized by customization, technical expertise, and application-specific engineering. Through controlled heat treatment, advanced lamination techniques, and quality assurance protocols, processors enhance mechanical strength, impact resistance, thermal insulation, acoustic performance, and safety compliance. This transformation converts standardized float glass into finished or semi-finished products tailored to precise dimensional, structural, and regulatory requirements.

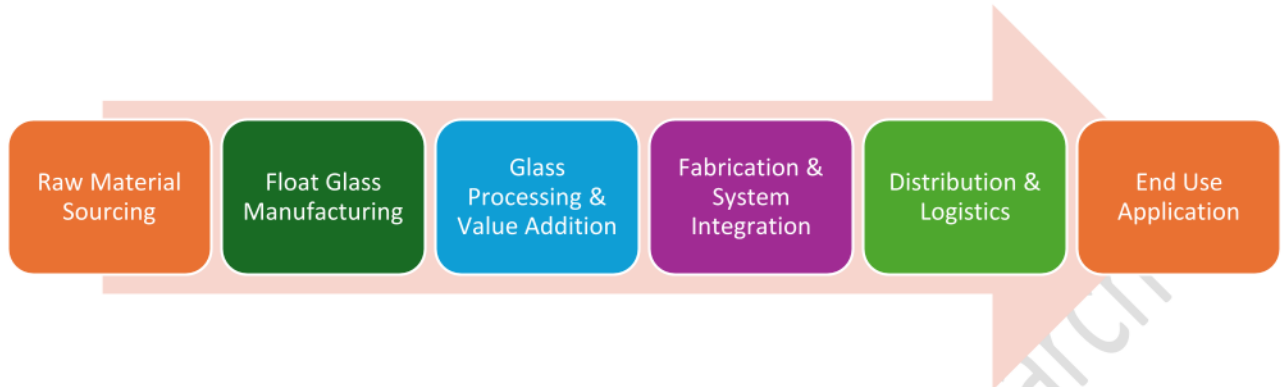
Beyond individual processes, the industry operates as a vital interface between large-scale float glass manufacturers and diverse end-use sectors. In construction and infrastructure, processed glass is widely used in façades, windows, doors, partitions, skylights, and structural glazing systems, reflecting evolving architectural trends and increasing emphasis on energy efficiency and safety. In the automotive and transportation segment, toughened and laminated glass serve as critical safety components, manufactured in accordance with stringent regulatory and certification standards. The industry also caters to appliances, refrigeration and cold storage equipment, modular structures, industrial machinery, specialized vehicles, and various commercial and industrial applications, thereby reinforcing multiple downstream value chains.

3.2 Market Segmentation

Segmentation Type	Segments	Description
By Product Type	Toughened (Tempered) Glass	Heat-treated safety glass with enhanced strength and impact resistance, widely used in architectural, automotive, and industrial applications where safety compliance is required.
	Laminated Glass	Multi-layer glass bonded with interlayers to improve safety, acoustic insulation, and security, commonly used in façades, automotive windshields, and institutional buildings.
	Insulated Glass Units (IGU / DGU)	Multi-pane glass units designed to provide thermal and acoustic insulation, primarily used in energy-efficient buildings and modern architectural structures.
	Value-Added / Specialty Glass	Includes ceramic-printed, coated, reflective, or customized glass products developed for specific functional or aesthetic requirements.
By Processing Type	Cutting & Edge Processing	Precision cutting, drilling, edge grinding, and finishing processes that prepare float glass for further treatments and final applications.
	Heat Treatment (Toughening/Tempering)	Controlled furnace-based processing to enhance strength and safety performance.
	Laminating & Assembly	Bonding of multiple glass layers or assembly of IGUs to meet safety and insulation standards.
	Decorative & Functional Treatments	Processes such as ceramic printing, logo application, and surface treatments to meet customer-specific design or branding needs.
By End-Use Industry	Construction & Infrastructure	Use of processed glass in façades, windows, doors, partitions, interiors, and structural glazing for residential, commercial, and institutional buildings.
	Automotive & Transportation	Supply of safety-compliant glass for passenger vehicles, buses, specialized vehicles, and transportation infrastructure.

	Industrial & Commercial Applications	Use in refrigeration equipment, industrial enclosures, modular structures, and machinery where durability and performance are required.
	Specialized & Emerging Applications	Applications in marine, modular housing, caravans, and other niche segments requiring customized processed glass solutions.
By Customer Type	Architects & Fabricators	Customers specifying glass for architectural design and fabrication in construction projects.
	OEMs & Industrial Manufacturers	Original equipment manufacturers requiring processed glass as a component in vehicles, appliances, or equipment.
	Institutional & Government Clients	Public sector and institutional customers procuring glass through tenders or regulated procurement processes.
	Distributors / Project Contractors	Intermediaries involved in large-scale projects or regional distribution of processed glass products.
By Specification & Customization Level	Standardized Processed Glass	Products manufactured to common industry specifications with limited customization.
	Customized / Project-Specific Glass	Glass processed to unique dimensions, treatments, and performance requirements for specific projects or applications.

3.3 Value Chain Analysis



The glass industry operates within the downstream segment of the broader flat glass ecosystem, with value addition occurring primarily through transformation of base float glass into high-performance, application-specific products. The industry value chain is characterized by capital-intensive primary manufacturing, followed by technology-driven processing, fabrication and project integration stages that generate relatively higher margins and differentiation.

1. Raw Material Sourcing

The value chain commences with procurement of key raw materials including silica sand, soda ash, limestone and dolomite for float glass production, along with significant energy inputs such as natural gas and electricity. Raw material purity, supply stability and energy efficiency are critical determinants of cost structure and product quality. Energy costs constitute a substantial portion of total production expenditure, making operational optimization essential.

2. Float Glass Manufacturing (Primary Stage)

At this stage, raw materials are melted in furnaces operating at high temperatures and converted into flat glass sheets through the float process. The output, commonly referred to as annealed float glass, forms the base substrate for downstream processing. This segment is highly capital-intensive and scale-driven, with competitive advantage derived from furnace capacity, yield optimization, energy efficiency and geographic proximity to demand centers.

3. Glass Processing and Value Addition (Core Segment)

The principal value creation in the processed glass industry occurs at the secondary processing stage. Float glass is transformed into specialized products through processes such as cutting, edging, drilling, tempering, heat strengthening, laminating, insulating (IGUs), bending and coating.

- **Tempered / Toughened Glass:** Enhances mechanical strength and safety compliance.
- **Laminated Glass:** Provides impact resistance, safety and acoustic insulation.

- **Insulated Glass Units (IGUs):** Improve thermal performance and energy efficiency in buildings.
- **Coated and Low-E Glass:** Offer solar control and energy-saving properties. This stage is technology-driven and precision-oriented, with margins influenced by customization capabilities, machinery infrastructure, quality standards and compliance requirements.

4. Fabrication and System Integration

Processed glass products are integrated into façades, windows, doors, partitions, skylights, automotive assemblies and interior solutions. Collaboration with architects, developers, OEMs and contractors enables project-specific customization. Engineering expertise, design compatibility and adherence to regulatory codes enhance value realization at this stage.

5. Distribution and Logistics

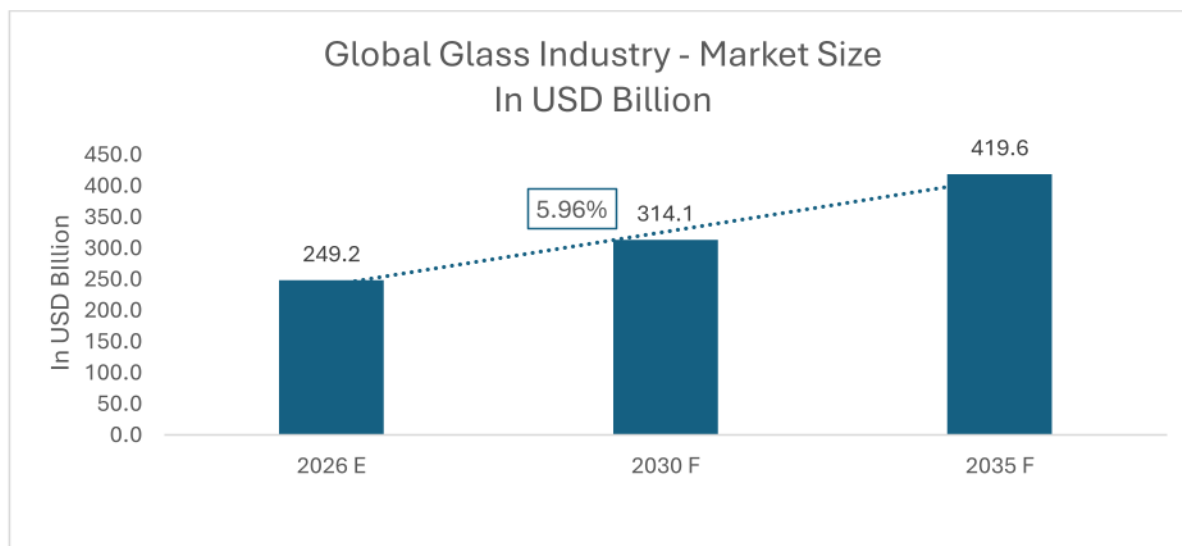
The industry caters to customers through project-based contracts, institutional sales, dealer networks and exports. Efficient logistics management is essential due to the fragile and high-value nature of glass products. Packaging standards, handling protocols and timely delivery directly impact customer satisfaction and operational efficiency.

6. End-Use Applications

Processed glass finds applications across residential and commercial real estate, infrastructure projects, automotive manufacturing, solar installations and interior décor. Growth in urbanization, infrastructure spending, green building norms, safety regulations and automotive production drives sustained demand for value-added glass products.

3.4 Global Market Size and Growth

The Global Glass Industry is estimated at USD 249.2 Billion in 2026. The market is projected to reach USD 314.1 Billion by 2030 and USD 419.6 Billion by 2035 reflecting a CAGR of 5.96 % over the forecast period (2026 – 2035).

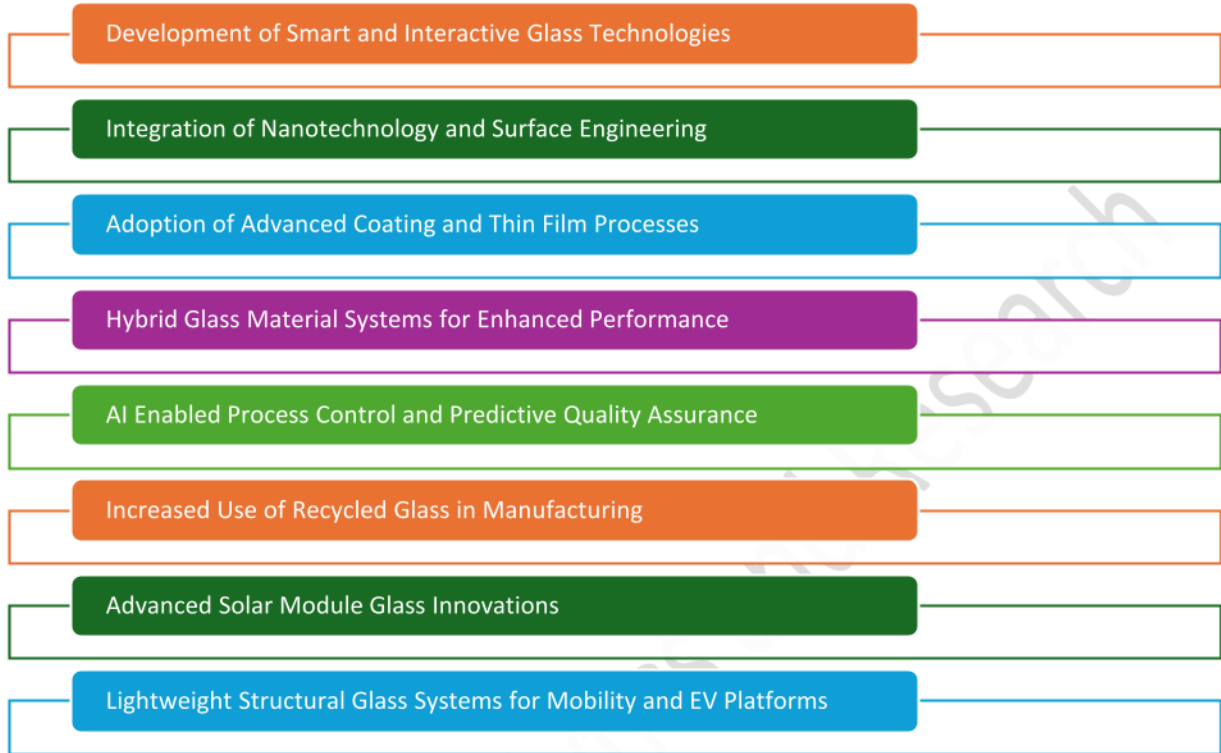


Source: Infomerics Analytics & Research, E: Estimated F: Forecasted

The growth is underpinned by infrastructure modernisation and rising investments in residential and commercial construction globally. Growing adoption of energy-efficient building materials, including insulated and solar control glass, is supporting incremental consumption in facade and glazing applications. In parallel, the automotive sector continues to drive demand for safety and lightweight glass solutions, while renewable energy installations, particularly solar panels, contribute to specialised glass usage.

Technological advancements in glass processing, automation and product innovation, enabling enhanced strength, thermal performance and sustainability characteristics. Increasing regulatory emphasis on energy efficiency and carbon reduction is accelerating the shift toward high-performance glazing solutions. Collectively, these structural drivers are expected to support stable and sustainable growth in the global glass industry over the forecast period, reflecting progressive value addition, diversification of applications and strengthening end-market fundamentals.

3.5 Global Market Trends in Processed Glass Manufacturing Industry



1. Development of Smart and Interactive Glass Technologies

Recent advancements include electrochromic, thermochromic and photochromic glass that dynamically modulates light and heat transmission. These *smart glazing solutions* enable buildings to optimize natural daylight, reduce HVAC loads and enhance occupant comfort creating opportunities in intelligent building design and energy management.

2. Integration of Nanotechnology and Surface Engineering

Nanocoatings and engineered surface treatments are being used to impart self-cleaning, anti-fog, anti-reflective and antimicrobial properties to glass products. These functional enhancements extend lifecycle performance, reduce maintenance costs, and support health-centric architectural trends.

3. Adoption of Advanced Coating and Thin-Film Processes

Innovative vacuum deposition and magnetron sputtering techniques are enabling ultra-thin, multi-layer coatings with precise control over optical and solar properties. These coatings further improve thermal insulation, UV rejection and aesthetic customization while maintaining high transparency.

4. Hybrid Glass-Material Systems for Enhanced Performance

Development of composite glass systems integrated with polymers, metals and advanced interlayers is driving improved impact resistance, blast mitigation and vibration control.

Such hybrid assemblies expand glass applicability in critical infrastructure, safety-sensitive and high-impact environments.

5. AI-Enabled Process Control and Predictive Quality Assurance

Advanced machine learning models and real-time data analytics are being incorporated into glass processing systems to predict defects, optimize furnace cycles and improve yield. Integration of AI empowers manufacturers to reduce scrap, improve throughput and enhance product uniformity.

6. Use of Recycled Glass (Cullet) in Manufacturing

Technological improvements in cullet handling, sorting and melting systems have enabled higher proportions of recycled glass usage without compromising product integrity. This contributes to lower energy consumption, reduced carbon footprint and strengthened circular economy practices.

7. Advanced Solar Module Glass Innovations

Next-generation solar glass featuring ultra-high transmission, textured surfaces and embedded PV functionalities is enhancing photovoltaic module efficiency. These product innovations support accelerated adoption of solar energy infrastructure and align with global renewable energy targets.

8. Lightweight Structural Glass Systems for Mobility and EV Platforms

Tailored, lightweight glass solutions are being developed specifically for the electric vehicle (EV) and advanced mobility markets, balancing safety, weight reduction and energy efficiency key drivers for improved range and performance.

3.6 Regional Insights

Asia Pacific

The Asia Pacific glass manufacturing market dominated the global market. This growth is attributed to the rapid industrialization and robust infrastructure development in countries such as China and India. In addition, the increasing urban population drives demand for various glass products, particularly in construction and automotive sectors. Furthermore, rising disposable incomes lead to a preference for high-quality glass items, enhancing consumption across multiple applications, including consumer electronics and home appliances, thereby solidifying the region's position as a leader in glass manufacturing.

China, one of the largest producers of flat glass globally, benefits from abundant raw materials and advanced manufacturing technologies. Furthermore, the government's focus on sustainable construction practices and energy-efficient buildings further propels demand for glass products, particularly in the construction and automotive industries, ensuring continued growth in this sector.

Middle East & Africa

The demand for container glass is rising as the region's food and beverage industry expands. Furthermore, growing awareness of environmental sustainability is driving a shift towards recyclable glass packaging solutions. Moreover, the construction sector's expansion also fuels demand for architectural glass products, enhancing the overall market landscape in this region.

North America

The rise in demand for eco-friendly packaging solutions is also significant, as consumers become more aware of their environmental impact. Furthermore, major manufacturers are expanding production capacities to meet this demand, particularly in the food and beverage sectors, while innovations in smart glass technology are opening new avenues for growth across various applications.

U.S.

The construction sector's recovery post-pandemic is contributing to increased spending on glass products for residential and commercial buildings. Furthermore, the growing trend towards environmentally friendly materials encourages manufacturers to invest in advanced production techniques that minimize waste and enhance recyclability, supporting overall market expansion.

Europe

Stringent regulations promoting sustainability and recycling initiatives. In addition, the increasing demand for high-quality packaging solutions in the food and beverage industry significantly boosts container glass production. Furthermore, advancements in technology are leading to innovations in flat and specialty glass products, catering to diverse applications such as automotive and construction.

The growth of the Germany glass manufacturing market is expected to be driven by strong technological advancements and a commitment to sustainability. Furthermore, the country's emphasis on energy-efficient building practices drives demand for high-performance architectural glass products. Moreover, Germany's robust automotive industry relies heavily on specialized glass components.

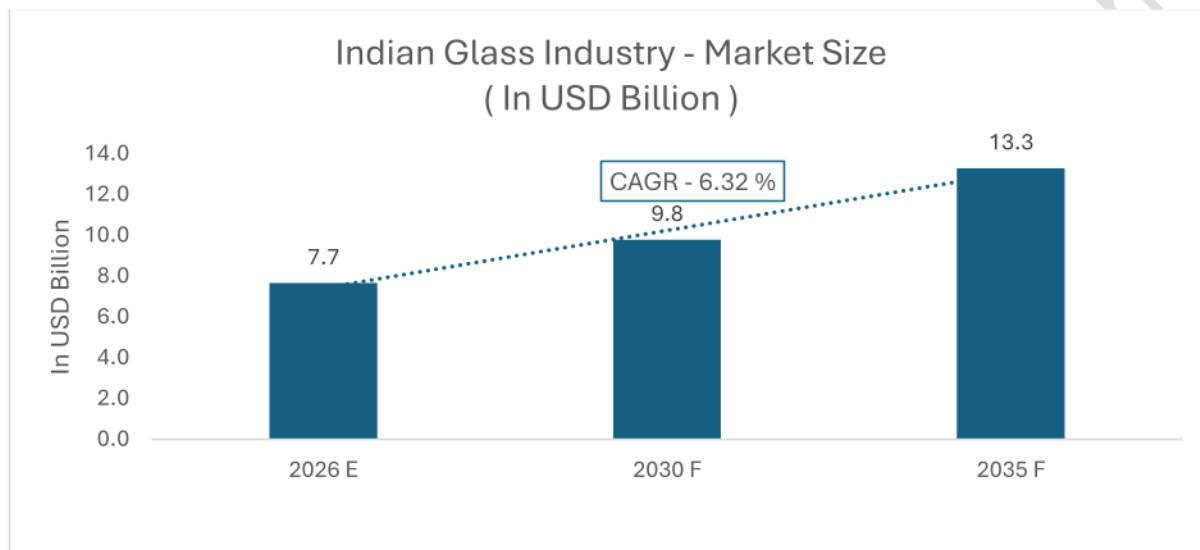
Top Players in Global Glass Industry

Manufacturer	Global Presence	Product Range	Innovation Focus	Sustainability Practices
AGC Inc.	Asia, Europe, America	Architectural, Automotive, Display Glass	Low-E coatings, smart glass	Waste reduction & energy-efficient furnaces
Saint-Gobain	Global (70+ countries)	Construction glass, thin glass, solar glass	Vacuum insulated glass, photovoltaic glass	High cullet use & carbon footprint reductions
NSG Group (Nippon Sheet Glass)	Asia, Europe, America	Automotive, architectural, specialty glass	Self-cleaning glass, solar control coatings	Water recycling & emission controls

4. Indian Glass Industry

4.1 Indian Glass Market Size

The Indian Glass Market is estimated at USD 7.7 Billion in 2026. The market is projected to reach USD 9.8 Billion by 2030 and USD 13.3 Billion by 2035 reflecting a CAGR of 6.32 % over the forecast period (2026 – 2035).



Source: Infomerics Analytics & Research

The growth is underpinned by sustained growth across construction, infrastructure, automotive and value-added architectural applications. This growth trajectory is indicative of increasing demand for processed, energy-efficient and performance-oriented glass products across commercial, residential and industrial segments. Growth in real estate development, façade modernisation and increasing adoption of insulated and safety glass solutions. Infrastructure investments in smart cities, transportation hubs, institutional buildings and industrial corridors are expected to drive consistent demand for architectural and specialised glass. Simultaneously, the automotive and specialised vehicle segments are contributing to incremental consumption of toughened and laminated glass, further broadening the demand base.

The gradual shift toward value-added and energy-efficient glazing solutions, including insulated glass units and solar control glass, aligned with evolving building codes and sustainability standards. Advancements in processing technologies, automation in manufacturing and improved supply chain efficiencies are enhancing scalability and quality consistency within the industry. Collectively, these structural drivers are expected to support

stable and sustainable growth in the Indian glass industry over the forecast period, reflecting improving depth, diversification and value addition within the sector.

4.2 Indian Regional Insights

The Indian glass industry exhibits geographically differentiated growth patterns, underpinned by regional demand drivers, manufacturing capabilities, raw material availability, and end-use consumption characteristics. Across regions, structural demand is shaped by investment in infrastructure, urbanisation, industrial clusters, automotive hubs and real estate development, contributing to varied but sustained demand for architectural, automotive and value-added glass products.

Western India

Western India, led by Gujarat and Maharashtra, stands out as the principal manufacturing and consumption hub for both basic and processed glass products. Access to high-quality silica sand and other raw materials, proximity to major ports (such as Kandla, Mundra and Mumbai), and developed industrial infrastructure have collectively positioned the region as a competitive base for float glass production and downstream processing.

The region's strong real estate and commercial construction activity, particularly in urban centres such as Ahmedabad, Surat, Pune and Mumbai, drives robust demand for architectural glass solutions, including toughened, laminated and insulated glass. Furthermore, Maharashtra's automotive manufacturing clusters contribute to elevated consumption of safety glass for automotive applications. Western India's export linkages and integrated supply chain network further enhance its strategic role in domestic and outbound glass markets.

Northern India

Northern India represents one of the largest regional demand centres for processed and architectural glass, driven by rapid urbanisation, infrastructure expansion and commercial real estate growth across the National Capital Region (NCR), Haryana, Rajasthan and Uttar Pradesh. The NCR in particular supports significant consumption of value-added glass products owing to large-scale office complexes, mixed-use developments, institutional buildings and retail complexes.

The region also benefits from ongoing investments in transport infrastructure, including metro systems, airports and highway corridors, which bolster demand for architectural glazing and safety glass solutions. Proximity to large end-user markets and a dense distribution network enhances market access and reduces logistics costs for processors and distributors serving Northern India.

Southern India

The Southern region, encompassing Tamil Nadu, Karnataka and Telangana, reflects diversified demand dynamics supported by strong industrial bases, automotive manufacturing hubs, and rapidly expanding commercial and residential construction. Chennai, Bengaluru and Hyderabad have emerged as key consumption centres for both architectural and automotive glass owing to robust investment in IT/ITeS office space, integrated townships and industrial parks.

Automotive clusters in Tamil Nadu and Karnataka drive consistent demand for laminated and toughened glass, while the growing emphasis on energy-efficient building envelopes supports uptake of insulated and solar control glass products. Producers and distributors in Southern India benefit from strong logistical connectivity and a skilled labour pool, facilitating efficient delivery and customisation services.

Eastern India

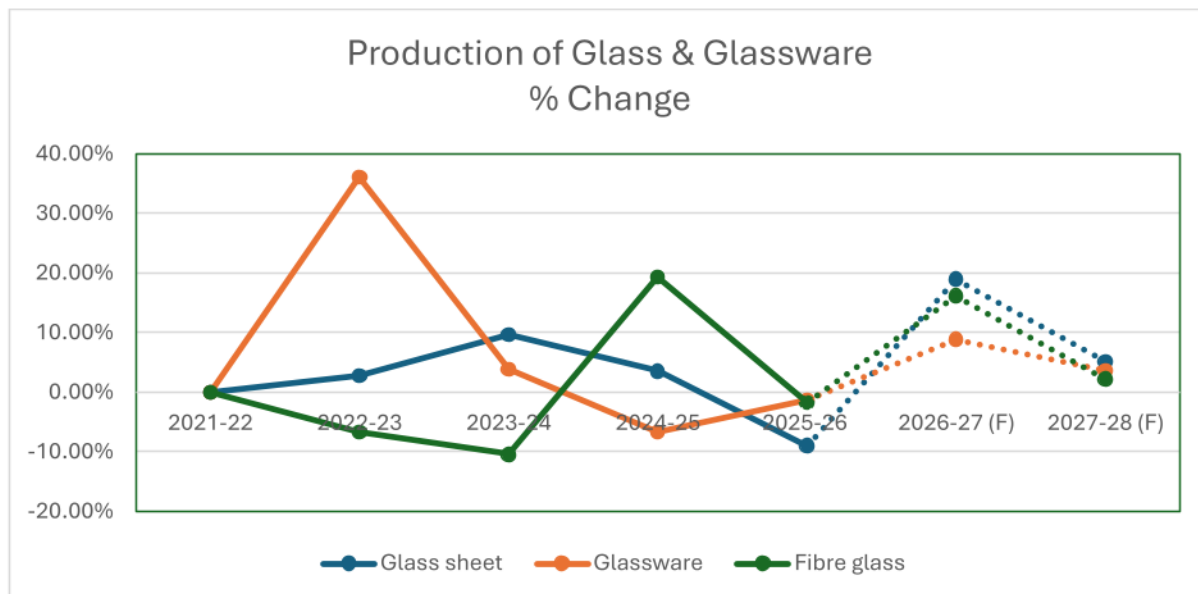
Eastern India, including West Bengal, Odisha and Bihar, represents a developing regional market with steadily rising demand for glass products, driven by expanding urban centres, public infrastructure projects and regional construction activity. While the region's manufacturing base remains less developed compared to Western and Northern India, growing commercial real estate and institutional building programmes in cities such as Kolkata, Bhubaneswar and Patna are increasing demand for processed glass solutions.

Government-led infrastructure initiatives and targeted investment in urban renewal programmes are expected to further catalyse regional consumption, particularly for value-added glass products in architectural and industrial applications.

Central India

Central India, covering states such as Madhya Pradesh and Chhattisgarh, exhibits nascent but growing demand for glass products as new industrial corridors, affordable housing projects and urban infrastructure programmes gain momentum. While current consumption levels are comparatively lower, improving regional connectivity, state-level policy support and rising commercial construction activity indicate potential for future expansion of glass consumption.

4.3 Production of Glass and Glassware



Source: CMIE Industry Outlook, Infomerics Analytics and Research.

The production trend of the Glass & Glassware industry over FY2022 to FY2028 (F) reflects a period of moderate growth, intermittent contraction and subsequent recovery across key segments, namely glass sheets, glassware and fibre glass. The overall trend indicates resilience in the industry, with production expected to recover across segments over the forecast period, supported by improving end-use demand and capacity utilisation.

The glass sheet segment recorded moderate growth of 2.81% in FY2023, which accelerated to 9.73% in FY2024, supported by sustained demand from construction, real estate, infrastructure and automotive applications. Growth moderated to 3.56% in FY2025 before contracting by approximately 8.8% in FY2026, indicating temporary demand and production adjustments. However, the segment is projected to witness a strong recovery of approximately 18.8% in FY2027 (F), followed by growth of around 5.5% in FY2028 (F), reflecting improving demand conditions and capacity utilisation.

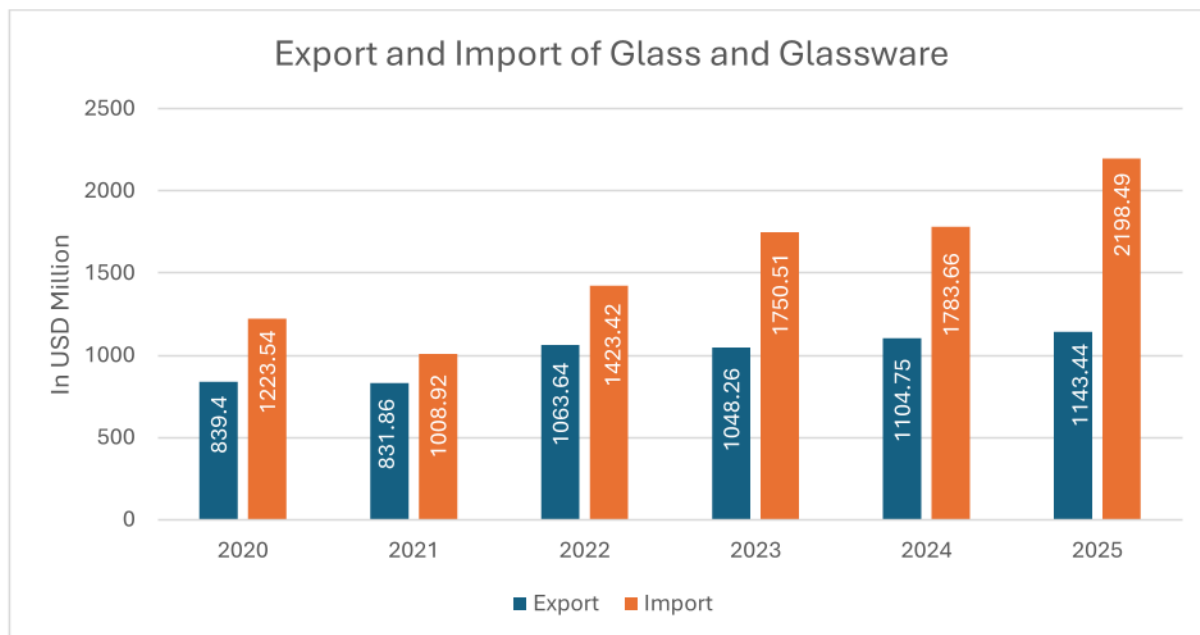
The glassware segment witnessed a sharp rebound in FY2023, with production growth of 36.11%, supported by recovery in consumer demand, hospitality and related end-use industries. Growth subsequently moderated to 3.92% in FY2024 and contracted by 6.63% in FY2025, reflecting cyclical adjustments and a high base effect. The segment remained subdued in FY2026, before recovering with growth of approximately 8.8% in FY2027 (F). Growth is expected to moderate to around 3.0% in FY2028 (F), indicating a gradual stabilisation in production supported by steady domestic consumption and replacement demand.

Fibre glass production experienced a decline of 6.68% in FY2023 and further contracted by 10.41% in FY2024, reflecting temporary weakness and demand recalibration across end-use sectors. The segment witnessed a strong recovery in FY2025, registering growth of 19.43%,

supported by increasing applications in infrastructure, renewable energy, automotive components and industrial applications. Production moderated marginally in FY2026, while growth is projected to rebound to approximately 16.7% in FY2027 (F), followed by around 2.8% in FY2028 (F), reflecting sustained long-term adoption of fibre glass across diversified industrial applications.

Overall, the production dynamics of the Glass & Glassware industry indicate a cyclical yet resilient growth pattern, with periods of contraction followed by strong recovery across major segments. The projected recovery in FY2027 (F), particularly across glass sheets and fibre glass, along with continued positive growth in FY2028 (F), indicates improving demand conditions, capacity utilisation and a constructive medium-term outlook for the Glass & Glassware industry.

4.4 Trade Dynamics



Source: MEIDB, Infomerics Analytics & Research

The trade performance of the Glass and Glassware industry during FY2020 to FY2025 reflects a phase of resilience and steady expansion, supported by improving domestic demand and strengthening global linkages. Exports increased from USD 839.40 million in FY2020 to USD 1,143.44 million in FY2025, demonstrating consistent growth momentum despite interim global disruptions. Key export destinations such as the *United States, United Arab Emirates and Spain* underline India's diversified geographic reach and growing acceptance across developed and emerging markets.

Imports, while moderating in FY2021, witnessed a strong upward trajectory thereafter, rising from USD 1,223.54 million in FY2020 to USD 2,198.49 million in FY2025. The import basket remains concentrated with *China, Malaysia and Vietnam* emerging as key sourcing partners, reflecting reliance on established Asian manufacturing hubs for cost efficiencies and specialized product requirements.

Overall, the sequential rise in trade volumes highlights structural expansion in the industry, driven by growth in construction, automotive, infrastructure and consumer-facing sectors. While imports have grown at a relatively faster pace, the sustained increase in exports indicates strengthening competitiveness and deeper integration into global value chains, positioning the industry for continued long-term growth.

Export Import Destinations in Float Glass Category

Top Export Destinations			Top Import Destinations		
					
UAE USD 21.55 Million (33.1%)	Nepal USD 10.30 Million (15.8%)	New Zealand USD 7.07 Million (10.9%)	Malaysia USD 88.09 Million (29.2%)	Vietnam USD 78.68 Million (26.1%)	Indonesia USD 45.89 Million (15.2%)

Export Import Destinations in Fibre Glass Category

Top Export Destinations			Top Import Destinations		
					
USA USD 48.19 Million (27.1 %)	Belgium USD 20.45 Million (11.5%)	Spain USD 18.90 Million (10.6%)	China USD 252.10 Million (61.5%)	Thailand USD 25.69 Million (6.3%)	USA USD 17.51 Million (4.3%)

Export Import Destinations in Toughened Glass Category

Top Export Destinations			Top Import Destinations		
					
China USD 2.16 Million (33.8%)	Vietnam USD 1.73 Million (27.0%)	Pakistan USD 0.29 Million (4.5%)	China USD 2.63 Million (30.2%)	USA USD 2.31 Million (25.5%)	Japan USD 1.39 Million (16.0%)

Source: MEIDB, Infomerics Analytics & Research

5. Market Dynamics

5.1 Growth Drivers

The growth of the processed and value-added glass industry in India is primarily driven by structural demand arising from expanding construction and infrastructure activity, increasing adoption of energy-efficient building materials, and growing emphasis on safety and quality standards. These factors, coupled with gradual formalisation of the construction sector, are expected to support sustained demand for processed glass solutions over the medium to long term. The table below highlights the directional impact of key growth drivers across the short term (1–2 years), medium term (3–4 years), and long term (5–7 years).

Market Drivers and Impact Assessment

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

Growth Driver	(1–2 yrs)	(3–4 yrs)	(5–7 yrs)
1. Infrastructure & Construction Activity	High	High	High
2. Automotive Sector Expansion	Moderate	High	High
3. Focus on Energy-Efficient & Green Buildings	Moderate	High	High
4. Regulatory & Safety Standards (Automotive & Building Codes)	Moderate	High	High
5. Technological Adoption & Process Automation	Low	Moderate	Moderate
6. Integration into Global Supply Chains	Low	Moderate	Moderate
7. Rising Disposable Income & Consumer Preferences	Moderate	Moderate	Moderate
8. Circular Economy Initiatives	Low	Moderate	High

Source: Infomerics Analytics & Research

Detailed Driver Commentary

1. Infrastructure & Construction Activity

Sustained government initiatives such as smart cities, affordable housing, and large-scale infrastructure projects continue to support demand for processed glass in façades, partitions, and building interiors. This is expected to remain a high-impact driver across all time horizons, consistent with national development priorities.

2. Automotive Sector Expansion

The automotive industry, especially passenger vehicles and commercial segments, increasingly requires safety-certified glass products. In the short term, this driver is moderate as volumes recover post cycles. Over the medium and long term, with steady vehicle production growth and safety compliance, it becomes high.

3. Focus on Energy-Efficient & Green Buildings

Building codes and energy standards (e.g., ECBC) are progressively influencing construction specifications. In the short term, adoption may be moderate, but as compliance and sustainability focus strengthen, this becomes a high driver in the medium and long term.

4. Regulatory & Safety Standards

Strengthening regulatory requirements in automotive (e.g., BIS/IS standards) and construction safety norms supports demand for high-performance processed glass. This trend gains momentum through long-term compliance cycles and certification needs.

5. Technological Adoption & Process Automation

Investment in automation and advanced processing equipment can improve precision and quality. However, cost sensitivities and capital expenditure cycles imply a low impact in the short term, rising to moderate as firms scale operations and differentiate through technology.

6. Integration into Global Supply Chains

Processed glass exports are influenced by global economic conditions and competitive positioning. In the short term, this remains low given focus on domestic demand. Over medium and long term, as capabilities mature, this driver becomes moderate.

7. Rising Disposable Income & Consumer Preferences

Increasing purchasing power and lifestyle changes support demand for premium architectural finishes and automotive features. This remains a moderate driver across timeframes.

8. Circular Economy Initiatives

Environmental policies and emphasis on circular economy principles are gaining traction. Although early stage in India, these policies will gradually increase as building standards, energy policies, and recycling infrastructure evolve.

5.2 Market Restraints

This sector operates within a challenging environment shaped by regulatory complexity, cost pressures, and a highly fragmented housing ecosystem. Market participants must navigate operational and structural constraints while balancing affordability, service quality, and scalability. These challenges influence the pace of expansion and require a measured and disciplined approach to long-term growth.

Market Challenges and Impact Assessment

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

Challenge	(1–2 yrs)	(3–4 yrs)	(5–7 yrs)
1. Volatility in Raw Material Prices (Float Glass)	High	Moderate	Low
2. Energy Cost Sensitivity & Power Availability	High	Moderate	Moderate
3. Fragmentation & Price Competition in Downstream Segment	High	Moderate	Moderate
4. Dependence on Construction & Automotive Cycles	Moderate	Moderate	Moderate
5. Customer Concentration & Project-Based Demand Variability	Moderate	Moderate	Low

Source: Infomerics Analytics & Research

Detailed Overview

1. Volatility in Raw Material Prices

Processed glass manufacturers depend on float glass supplied by a limited number of large producers. In the short term, price volatility can materially impact margins, making this a high restraint. Over the medium to long term, diversification of sourcing and contractual arrangements may reduce the intensity of this risk.

2. Energy Cost Sensitivity & Power Availability

Glass processing activities such as tempering and laminating are energy intensive. Fluctuations in power and fuel costs pose short-term challenges to cost structures. Over time, efficiency improvements and alternative energy adoption may partially mitigate this restraint, though sensitivity remains moderate.

3. Fragmentation & Price Competition

The downstream processed glass segment in India is relatively fragmented, leading to pricing pressure and margin competition, especially in standardized products. While consolidation and differentiation may moderate this challenge over time, competitive intensity remains a key industry restraint.

4. Dependence on Construction & Automotive Cycles

Demand for processed glass is closely linked to construction activity and automotive production. Cyclical slowdowns in these sectors can affect order inflows. Given the structural linkage, this remains a moderate restraint across all time horizons.

5. Customer Concentration & Project-Based Demand Variability

A portion of demand is project-based, particularly in construction and institutional segments, leading to variability in order flows. Diversification across customer segments can mitigate this over time, reducing long-term impact.

Infomerics Analytics and Research

6. Government Initiatives and Policy Support

The glass industry in India operates within a policy and regulatory framework that is increasingly oriented towards strengthening domestic manufacturing, improving product quality, enhancing energy efficiency, and promoting safety in construction. Various initiatives and regulations introduced by the Government of India and its statutory authorities which are as follows:

1. Imposition of Anti-Dumping Duties on Cheaper Imports

The Government of India has, from time to time, imposed anti-dumping duties on imports of glass products originating from certain countries, including China, Thailand, Malaysia, and select Middle Eastern countries. These measures are aimed at protecting the domestic glass industry from injury caused by low-priced imports.

From the perspective of the processed glass industry, anti-dumping duties help mitigate pricing distortions arising from dumped imports of base glass and processed glass products. By curbing the influx of under-priced imports, such measures support domestic manufacturers and processors by improving price stability and enabling fair competition within the domestic market.

2. Quality Control Order (QCO) and BIS Certification Requirements

The Government of India, in coordination with the Bureau of Indian Standards (BIS), has notified Quality Control Orders (QCOs) prescribing mandatory quality standards for transparent float glass, flat transparent sheet glass, and safety glass. These requirements came into force for transparent float glass and flat transparent sheet glass from April 1, 2022, while the implementation for safety glass standards has been extended to April 1, 2023.

Under the QCO framework, both domestically manufactured and imported glass products are required to comply with BIS standards and bear the BIS certification mark before being sold in India. This regulatory measure is expected to curb the entry of sub-standard glass products into the domestic market. For the processed glass industry, the QCO framework contributes to quality standardisation of input materials, enhances consumer confidence, and creates a more level playing field for organised domestic processors.

3. Energy Conservation Building Code (ECBC)

The Energy Conservation Building Code (ECBC) Rules, 2018, introduced by the Bureau of Energy Efficiency (BEE) under the Ministry of Power, prescribe minimum energy performance standards for commercial buildings with a connected load of 100 kilowatt (kW) or more. These rules focus on reducing energy consumption through improved building design, material selection, and construction practices.

Compliance with ECBC norms has increased the adoption of energy-efficient building materials, including reflective, coated, and high-performance glass products. For the

processed glass industry, ECBC acts as a structural demand driver by encouraging the use of value-added glass solutions that contribute to thermal insulation, solar control, and overall energy efficiency in commercial buildings.

4. Inclusion of Glass and Glazing Provisions in the National Building Code (NBC) 2016

The National Building Code (NBC) 2016, issued by the Bureau of Indian Standards, introduced a dedicated section on glass and glazing, providing detailed guidelines on the selection and use of glass in buildings. These guidelines cover aspects such as glass thickness, safety requirements, energy and lighting considerations, and provisions related to rescue and firefighting operations.

The inclusion of glass and glazing provisions in the NBC has formalised the role of glass as a critical construction material in building design and safety. For the processed glass industry, this inclusion supports wider adoption of certified and application-specific glass products, particularly in institutional, commercial, and high-rise residential projects.

7. PESTEL Analysis

The PESTEL framework provides a structured assessment of the external macro environmental factors that influence the industry's operating landscape. It examines the political, economic, social, technological, environmental, and legal dimensions that collectively shape industry performance, regulatory evolution, and strategic direction. This analysis enables a comprehensive understanding of the opportunities and challenges impacting market stability, investment potential, and long-term sectoral growth.

Factor	Key Insights and Implications
Political	- Supportive domestic manufacturing environment through trade protection measures such as anti-dumping duties on low-priced glass imports. - Policy emphasis on infrastructure development, housing, and urbanisation, indirectly supporting demand for architectural and processed glass. - Alignment with national initiatives promoting domestic manufacturing and quality compliance across building materials. - Stable policy framework for construction and infrastructure sectors, which are key end-use markets for processed glass.
Economic	- Demand for processed glass is closely linked to economic growth, construction activity, infrastructure spending, and real estate development. - Capital expenditure cycles in commercial and institutional construction influence short- to medium-term demand. - Exposure to input cost fluctuations, particularly base float glass prices, energy costs, and logistics expenses. - Increasing formalisation of construction practices supports gradual shift towards higher-quality, value-added glass products.
Social	- Growing urbanisation and rising preference for modern, aesthetically appealing, and safe building materials. - Increased awareness of safety standards and energy efficiency among developers, architects, and end users. - Expansion of institutional and commercial buildings, including educational and healthcare facilities, driving demand for compliant glass solutions. - Preference for certified and standardised products over unorganised or sub-standard alternatives.
Technological	Adoption of advanced processing technologies such as toughening, lamination, coating, and insulating glass units (IGUs).

	- Increasing focus on precision, automation, and quality control in downstream processing to meet regulatory and customer specifications. - Technological upgrades enable product differentiation but require continuous capital investment. - Integration of design and performance requirements (thermal, acoustic, safety) into glass processing solutions.
Environmental	- Rising emphasis on energy-efficient buildings and reduced carbon footprint supports demand for high-performance glass products. - Regulatory encouragement for materials that improve thermal insulation and reduce energy consumption in buildings. - Environmental compliance requirements related to waste management, energy usage, and emissions impact operational practices. - Growing relevance of sustainable construction norms enhances long-term relevance of value-added glass solutions.
Legal	- Mandatory compliance with Quality Control Orders (QCOs) and BIS certification requirements for specified glass products. - Implementation of Energy Conservation Building Code (ECBC) and National Building Code (NBC) provisions governing glass usage. - Periodic changes in trade policies, import duties, and regulatory standards may impact cost structures and market dynamics. - Regulatory oversight encourages standardisation and quality assurance, benefiting organised industry participants.

8. Technology and the Digital Transformation

The processed and value-added glass industry is undergoing gradual technological and digital transformation driven by the following factors:

1. Increased Adoption of Automated Processing Equipment

The industry has witnessed increased use of automated cutting, edge-working, tempering, and lamination lines to improve dimensional accuracy, reduce manual intervention, and enhance consistency in output quality. Automation supports compliance with stringent quality and safety standards applicable to processed glass products.

2. Use of Optimisation Software in Cutting and Material Utilisation

Digital optimiser software is increasingly deployed to generate efficient cutting layouts, minimise wastage of float glass, and improve raw material yield. This contributes to cost optimisation and better inventory management in a raw-material-intensive industry.

3. Precision Pre-Processing and CNC-Based Fabrication

CNC-enabled equipment for drilling, notching, cut-outs, and edge profiling enables manufacturers to meet customised architectural and industrial specifications. This technological capability supports product differentiation and alignment with application-specific requirements.

4. Digitally Integrated Production Planning and Scheduling

Digital tools are used for production planning, capacity scheduling, and coordination between sales, inventory, and manufacturing functions. This improves turnaround times, delivery predictability, and order execution efficiency, particularly for multi-specification orders.

5. Technology-Driven Quality Control and Inspection Systems

The adoption of inspection technologies such as polariscope stress testing, dimensional verification tools, and structured quality checkpoints enhances traceability and consistency. Digital documentation of quality checks supports audit readiness and compliance with certification requirements.

6. Advanced Heat Treatment and Process Control Systems

Modern tempering and toughening furnaces incorporate digitally controlled temperature and process parameters to ensure uniform stress distribution and product reliability. Such systems reduce rejection rates and support scalability of operations.

7. Digitisation of Sales, Order Management, and Documentation

The industry is increasingly using digital platforms for customer enquiry handling, quotation management, order confirmation, invoicing, and statutory documentation (including e-way bills), leading to improved operational transparency and reduced administrative turnaround time.

9. Competitive Landscape

The glass industry in India operates in a competitive and fragmented market structure, comprising a mix of large integrated manufacturers, regional organised processors, and a sizeable unorganised segment. Key factors are as follows:

9.1 Key factor Shaping Competition

Competition in the glass industry is shaped by a combination of factors:

1. Processing Capabilities and Product Range

Competitive positioning is influenced by the breadth and sophistication of processing capabilities, including toughening, lamination, insulating glass units (IGUs), coating, and precision fabrication. Players offering a wider range of value-added products are better placed to address diverse end-use requirements.

2. Quality Compliance and Certifications

Adherence to regulatory standards and possession of relevant certifications (including BIS and project-specific approvals) are increasingly critical, particularly for institutional, commercial, and infrastructure projects. Compliance capability acts as a barrier to entry for unorganised participants.

3. Cost Structure and Input Sourcing

Access to competitively priced base float glass, energy, and logistics efficiencies materially impact pricing and margins. Scale, procurement relationships, and operational efficiency influence cost competitiveness in a price-sensitive market.

4. Technology Adoption and Operational Efficiency

Use of automated processing equipment, digital optimisation tools, and quality control systems supports consistency, lower wastage, and faster turnaround times, contributing to competitive advantage among organised players.

5. Geographic Presence and Market Proximity

Proximity to end-use markets and construction hubs reduces logistics costs and delivery timelines. Cluster-based operations enable local scale advantages and improved service responsiveness.

6. Customer Relationships and Project Execution Capability

Long-standing relationships with developers, OEMs, fabricators, and institutional clients, along with the ability to execute customised orders within specified timelines, influence repeat business and market positioning.

7. Pricing Discipline and Competitive Intensity

The presence of multiple regional and local players contributes to pricing pressure, particularly in commoditised product segments, while differentiated and specialised glass solutions allow relatively better pricing power.

Infomerics Analytics and Research

9.2 Key Competitive Strategies

Participants in the glass adopt a combination of factors to strengthen their market positioning and enhance long-term growth prospects. The Key factors are as follows:

1. Expansion of Value-Added Product Portfolio

Companies increasingly diversify into high-performance products such as tempered glass, laminated safety glass, insulated glass units and energy-efficient coated glass. Expansion into premium and specialized offerings enables higher value realization and reduces dependence on commoditized segments.

2. Customization and Project-Based Solutions

The ability to deliver customized glass solutions tailored to architectural, structural and regulatory requirements is a key differentiator. Close coordination with architects, developers and contractors enhances client retention and strengthens participation in large-scale commercial and infrastructure projects.

3. Operational Efficiency and Cost Optimization

Given the energy-intensive nature of processing activities, industry players emphasize yield management, energy efficiency measures and process optimization. Efficient procurement, reduced breakage rates and streamlined production cycles contribute to improved cost competitiveness.

4. Strategic Supplier Relationships

Maintaining stable sourcing arrangements with primary float glass manufacturers ensures quality consistency and supply security. Long-term vendor relationships mitigate input price volatility and enhance operational continuity.

5. Geographic Diversification and Market Penetration

Expanding presence across multiple regions and strengthening distribution networks enable companies to mitigate regional demand fluctuations. Export orientation and penetration into high-growth urban markets support revenue diversification.

6. Focus on Quality and Regulatory Compliance

Adherence to safety standards, building codes and energy efficiency norms is critical in the processed glass segment. Companies that maintain stringent quality control systems and certifications enhance brand credibility and gain access to institutional and government projects.

7. Sustainability and Energy Efficiency Initiatives

Industry participants are increasingly aligning operations with environmental standards through waste reduction, energy-efficient machinery and adoption of eco-friendly practices.

8. Strong Customer Relationships and After-Sales Support

Building long-term relationships with developers, OEMs and fabricators, supported by reliable delivery schedules and technical assistance, enhances repeat business and project continuity.

9.3 Barriers to Entry

Entry into the processed and value-added glass industry is moderated by various factors. The following factors are as follows:

1. Capital Intensity of Processing Infrastructure

Establishing a processed glass facility requires significant upfront investment in specialised machinery such as tempering furnaces, lamination lines, CNC cutting equipment, and quality testing systems, which acts as an entry barrier for new participants.

2. Regulatory Compliance and Certification Requirements

Mandatory compliance with Quality Control Orders (QCOs), BIS standards, and project-specific certifications increases the cost and complexity of entry, particularly for participants seeking to supply institutional, commercial, and infrastructure projects.

3. Technical Expertise and Process Know-How

Processed glass manufacturing requires skilled manpower and technical expertise to ensure product safety, consistency, and adherence to specifications, creating operational barriers for inexperienced entrants.

4. Access to Consistent Quality Raw Materials

Reliable sourcing of base float glass with consistent quality and specifications is critical. Limited supplier options, pricing volatility, and dependency on external manufacturers can constrain new entrants.

5. Customer Qualification and Relationship Requirements

Institutional clients, developers, and OEMs typically require vendor pre-qualification, performance track records, and compliance history, limiting immediate market access for new players.

6. Economies of Scale and Cost Competitiveness

Established players benefit from scale advantages in procurement, energy usage, logistics, and overhead absorption, making it difficult for new entrants to compete on pricing in a cost-sensitive market.

9.4 Consolidation Trends

The glass industry is witnessing gradual consolidation, primarily driven by multiple factors. Consolidation has largely occurred through selective capacity expansion and absorption of regional players, rather than large-scale mergers. The key trends as follows:

1. Regulatory-Led Formalisation and Consolidation

Mandatory compliance with BIS and Quality Control Orders (QCOs) is accelerating consolidation, as smaller and non-compliant processors either exit the market or are absorbed by organised players with established compliance capabilities.

2. Downstream Integration by Large Glass Manufacturers

Integrated and upstream glass manufacturers are strengthening their downstream processing capabilities through internal expansion or selective acquisitions to improve value realisation and offer end-to-end glass solutions.

3. Capacity Expansion by Organised Players

Established processors are expanding capacities and broadening product portfolios in value-added segments, resulting in gradual market share consolidation in favour of organised participants.

4. Selective Acquisition of Regional Players

Consolidation is occurring through selective acquisition or leasing of regional processing units in high-demand construction and infrastructure markets, rather than large-scale mergers.

5. Customer-Driven Consolidation of Demand

Institutional clients, infrastructure developers, and OEMs increasingly prefer suppliers with scale, certifications, and execution capability, leading to demand consolidation towards organised processors.

9.5 About the Company

Geeta Glass India Limited is a processor of raw float glass in India. The Company offers a wide range of toughened glass products in various thicknesses, sizes and specifications to cater to the requirements of the Automotive and Architectural



Industries. Incorporated on May 31, 2011, as a private limited company under the Companies Act, 1956, with its registered office in Indore, Madhya Pradesh, and manufacturing operations in the Pithampur Industrial Area, the Company benefits from a strong legacy in the glass sector under the established 'Geeta' brand. It sources premium raw materials from leading suppliers such as Saint Gobain, Sisecam Flat Glass India Private Limited, Gujarat Guardian Limited, and Badshah Glass Corner, enabling consistent delivery of high-quality processed products. It's primary focus lies in transforming float glass into specialized solutions for architectural facades, building interiors, and automotive applications. Its flagship product offerings include Toughened Glass (providing enhanced strength, safety, and thermal resistance), Laminated Glass (delivering superior impact resistance, sound insulation, and UV protection), and Double Glazed Units/Insulated Glass Units (DGU/IGU) engineered for optimal energy efficiency and thermal performance. Complementing these core products, it provides comprehensive value-added services encompassing precision cutting, edge grinding and polishing, hole drilling, notch creation, sandblasting, ceramic logo printing, automated washing and drying, rigorous pre- and post-processing inspections, heat treatment adhering to precise temperature and thickness protocols, stress analysis via polariscope, fragmentation testing, and secure packaging tailored for local and long-distance transit. A hallmark of the Company's excellence is its commitment to superior quality standards, reinforced by essential accreditations and certifications that affirm its automated, precise, and reliable production capabilities in a dynamic and competitive industry landscape. It serves Automotive and Architectural Sector. Client acquisition is pursued through a balanced, multi-faceted strategy that harnesses strong organic reputation alongside proactive initiatives, including word-of-mouth referrals, active participation in industry exhibitions and B2B commercial directories, targeted digital campaigns on social media and Google Ads directed at professionals such as architects and procurement managers, direct engagement with original equipment manufacturers (OEMs) for high-volume requirements, outreach to major residential and commercial project sites and architectural firms, proactive prospecting and cold calling by the dedicated sales team, and participation in tender processes via government and institutional platforms.

9.6 Key Industry Players

Agarwal Toughened Glass India Limited

Agarwal Toughened Glass India Limited was incorporated in the year 2009 as a public limited company and is engaged in the processing and manufacturing of value-added glass products catering to architectural, residential, commercial and industrial applications. It operates in the toughened and processed glass segment and has established itself as a quality-focused manufacturer within the organised glass processing industry. The Company's registered office and manufacturing facility are strategically located to cater to customers across multiple regions, enabling efficient distribution and timely execution of orders.



Its key product portfolio includes toughened (tempered) glass, laminated glass, insulated glass units (IGUs), heat strengthened glass and other processed architectural glass solutions. These products are primarily used in façades, doors, windows, partitions, railings, shower enclosures and structural glazing applications and offers customised glass solutions based on client specifications relating to thickness, size, design, safety and thermal performance requirements. Its services encompass glass processing, cutting, tempering, lamination, insulating and finishing, supported by quality testing and timely delivery mechanisms.

Sejal Glass Limited

Sejal Glass Limited is one of India's established players in the architectural and value-added glass segment, engaged in the processing and distribution of specialised glass solutions catering to commercial, residential and infrastructure applications. It was originally incorporated as



Sejal Architectural Glass Private Limited in the year 1998 and was subsequently converted into a public limited company as Sejal Glass Limited. It has focused on manufacturing and processing high-performance and energy-efficient glass products, positioning itself as a value-added processor within the industrial glass segment.

Primarily engaged in the processing of value-added glass products, including tempered (toughened) glass, laminated glass, insulated glass units (IGUs), heat-strengthened glass, ceramic fritted glass, and other architectural and specialised glass solutions. It offers solar control glass, reflective glass and energy-efficient glazing solutions designed to meet modern building requirements for safety, aesthetics and thermal performance. Its products are widely used in façades, windows, partitions, skylights, curtain walls and other structural and architectural applications across commercial complexes, residential projects, malls, airports and institutional buildings.

9.7 Company Positioning

Geeta Glass India Limited operates as an integrated value-added glass processor within the architectural and specialised glass segment, with a focused presence across façade, building interior and automotive applications. Quality-centric and technically capable processor of float glass, tinted and reflective variants, catering to diverse end-use industries including architects, fabricators, automotive OEM-linked applications, specialised vehicles, modular housing and refrigeration display segments. GG IPL's core product portfolio comprises Toughened Glass, Laminated Glass and Insulated Glass Units (DGU/IGU), enabling it to address safety, structural and energy-efficiency requirements across applications.

Differentiates itself through its accredited and process-driven manufacturing framework, supported by certifications such as ARAI, ISI, IATF and ISO 9000, which reinforce its positioning as a compliant and quality-assured processor in a competitive and largely fragmented industry. Its automated production processes, structured quality checkpoints, dimensional precision controls and stress-testing protocols enhance end-product reliability and customer confidence, particularly in performance-critical and automotive-linked applications.

GG IPL's positioning is further strengthened by its structured business processes encompassing feasibility evaluation, optimised cutting through software-driven planning, controlled heat treatment schedules and rigorous final quality inspections. It's ability to offer customised specifications, value-added treatments such as ceramic printing and application-specific configurations enables it to move beyond commoditised supply toward solution-oriented engagement.

With a diversified customer acquisition model spanning OEM targeting, architects and project sites, institutional tendering, digital outreach and referral-driven relationships, It has developed a balanced client mix across commercial, residential, industrial and automotive segments. Overall, GG IPL is positioned as a technically competent, certification-backed and application-focused glass processor with a strong emphasis on quality assurance, operational discipline and customised project execution within the Indian processed glass industry.

9.8 Swot Analysis

Strengths (Internal / Competitive Advantages)	Weaknesses (Internal / Limitations)
✓ Integrated glass processing capabilities across toughened, laminated and IGU/DGU products catering to diversified end-use applications. ✓ Strong quality assurance framework supported by ARAI, ISI, IATF and ISO certifications, enhancing credibility with OEM and institutional clients. ✓ Automated and optimised production processes reducing wastage and improving consistency in output quality. ✓ Diversified customer base across architectural, automotive, industrial and institutional segments. ✓ Established sourcing relationships with leading float glass manufacturers ensuring consistent raw material quality.	✗ Dependence on third-party suppliers for float glass, exposing operations to supply disruptions and price volatility ✗ Capital-intensive operations with high fixed costs related to machinery, furnaces and quality compliance ✗ Limited brand visibility at a pan-India level compared to larger, listed glass processing peers ✗ Sensitivity of margins to energy costs due to power-intensive tempering and processing operations

Opportunities (External / Market Realities)	Threats (External / Sector Challenges)
🌱 Rising demand for processed and value-added glass driven by growth in real estate, infrastructure and façade applications 🌱 Increasing adoption of IGU/DGU products supported by energy-efficiency norms and green building standards 🌱 Expansion potential in OEM, automotive and specialized industrial applications requiring certified glass 🌱 Scope for geographic expansion and capacity utilisation through penetration into new regional markets 🌱 Growing preference for organised and certified players over unorganised processors	⚠️ Intense competition from regional and national glass processors leading to pricing pressure ⚠️ Volatility in raw material, fuel and power costs impacting profitability ⚠️ Technological obsolescence risk requiring continuous capital expenditure for upgrades ⚠️ Cyclicity in construction and automotive sectors affecting order inflows ⚠️ Regulatory and compliance risks associated with safety, quality and environmental norms

10.Future Outlook

The Glass Industry for the medium term remains constructive, supported by diversified end-use demand, policy support and capacity expansion initiatives. Industry output driven by sustained demand from real estate, automobiles, solar energy, pharmaceuticals, food and beverages, and chemicals. The anticipated growth in automobile production, expansion in solar power capacity additions and higher project completions in the real estate sector are expected to generate steady demand for glass sheets and fibre glass. In addition, increasing preference for sustainable and recyclable packaging solutions is likely to support growth in container glass and glassware, particularly for pharmaceuticals and premium food and beverage segments.

Government initiatives aimed at strengthening domestic manufacturing, including enhanced credit support for MSMEs, deployment of energy-efficient technologies and anti-dumping measures on select glass imports, are expected to provide structural support to domestic producers. Import restrictions on specific categories of glass products are likely to encourage local capacity utilization and promote investments in value-added manufacturing. Furthermore, India's progress towards self-reliance in solar cell and module manufacturing is expected to create incremental demand for solar glass and related products.

While near-term revenue growth may witness temporary moderation due to seasonal factors, export market uncertainties and input cost pressures, the industry's diversified demand base is expected to mitigate downside risks. Energy costs remain a key sensitivity given the energy-intensive nature of glass manufacturing; however, manufacturers are increasingly focusing on operational efficiencies, cost optimization and export market diversification.

Over the medium term, the industry is projected to witness stable growth across glass sheets, fibre glass and glassware segments, supported by infrastructure development, renewable energy expansion, rising urbanization and premiumization trends in packaging. The combination of expanding domestic demand, policy support, improving technological adoption and ongoing capacity additions positions the Glass and Glassware industry for sustainable and broad-based growth.

Yours Faithfully,



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