Industry Report on Indian Petrochemical Industry

(With Focus on Polymers)

For Bhavik Enterprises Ltd

24th December 2024

Disclaimer

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Annexure for Abbreviation used

GDP	Gross Domestic Product
GVA	Gross Value Added
IIP	Index of Industrial Production
PFCE	Private Final Consumption Expenditure
GFCF	Gross fixed capital formation
WPI	Wholesale Price Index
CPI	Consumer Price Index
y-o-y	Year on Year
m-o-m	Month on Month
IMF	International Monetary Fund
RBI	Reserve Bank of India
MOSPI	The Ministry of Statistics and Programme Implementation
Est., Adv. Est	Estimated, Advance Estimates
P, F	Projected, Forecast
USD	US Dollar
INR	Indian Rupee
Mn, Bn, Tn, Cr	Million, Billion, Trillion, Crore
PLI	Production Linked Incentive
NSO	National Statistics Office
IT	Information Technology
GST	Goods and Service Tax
UPI	Unified Payments Interface
RBI	Reserve Bank of India
CAGR	Compound Annual Growth Rate
FDI	Foreign Direct Investment
EFTA	European Free Trade Association
NDA	National Democratic Alliance
MT	Metric Tons
PE	Polyethylene
PP	Polypropylene
PS	Polystyrene
IOC	Indian Oil Corporation
GSPC	Gujarat State Petrochemicals Corporation

NOCIL	National Organic Chemical Industries Limited
MRL	Madras Refineries Limited
HDPE	High-Density Polyethylene
LLDPE	Linear Low-Density Polyethylene
LDPE	Low-Density Polyethylene
MMT	Million Metric Tonnes
MS	Motor Spirit
HSD	High-Speed Diesel
ATF	Aviation Turbine Fuel
LDO	Light Diesel Oil
OIL	Oil India Limited
KG	Krishna Godavari
PV	Passenger Vehicles
DGFT	Directorate General of Foreign Trade
CBIC	Central Board of Indirect Taxes and Customs
BIS	Bureau of Indian Standards
PNGRB	Petroleum and Natural Gas Regulatory Board
BCD	Basic Customs Duty
CVD	Countervailing Duty
SAD	Special Additional Duty
PSUs	Public Sector Undertakings
RIL	Reliance Industries Limited

Global Macroeconomic Scenario

The global economy, which grew by 3.3% in 2023, is expected to record a sluggish growth of 3.2% in 2024 before rising modestly to 3.3% in 2025. Between 2021 – 2022, global banks were carrying a historically high debt burden after COVID-19. Central banks took tight monetary measures to control inflation and spike in commodity prices. Russia's war with Ukraine further affected the global supply chains and inflated the prices of energy and other food items. These factors coupled with war-related economic sanctions impacted the economic activities in Europe. Any further escalation in the war may further affect the rebound of the economy in Europe.

While China, the largest manufacturing hub of world, was facing a crisis in the real estate sector and prices of properties were declining between 2020 - 2023, with the reopening of the economy, consumer demand is picking up again. The Chinese authorities have taken a variety of measures, including additional monetary easing, tax relief for corporates, and new vaccination targets for the elderly. The Chinese Government took several steps to help the real estate sector including cracking down on debt-ridden developers, announcing stimulus for the sector and measures to encourage the completion and delivery of unfinished real estate projects. The sector is now witnessing investments from developers and demand from buyers.

Global headline inflation is set to fall from an estimated 6.8% in CY 2023 to 5.8% in CY 2024 and to 4.4% in CY 2025. This fall is swifter than anticipated across various areas, amid the resolution of supply-related problems and tight monetary policies. Reduced inflation mirrors the diminishing impact of price shocks, particularly in energy, and their subsequent influence on core inflation. This decrease also stems from a relaxation in labour market pressure, characterized by fewer job openings, a slight uptick in unemployment, and increased labour availability, occasionally due to a significant influx of immigrants.

Global GDP Growth Scenario

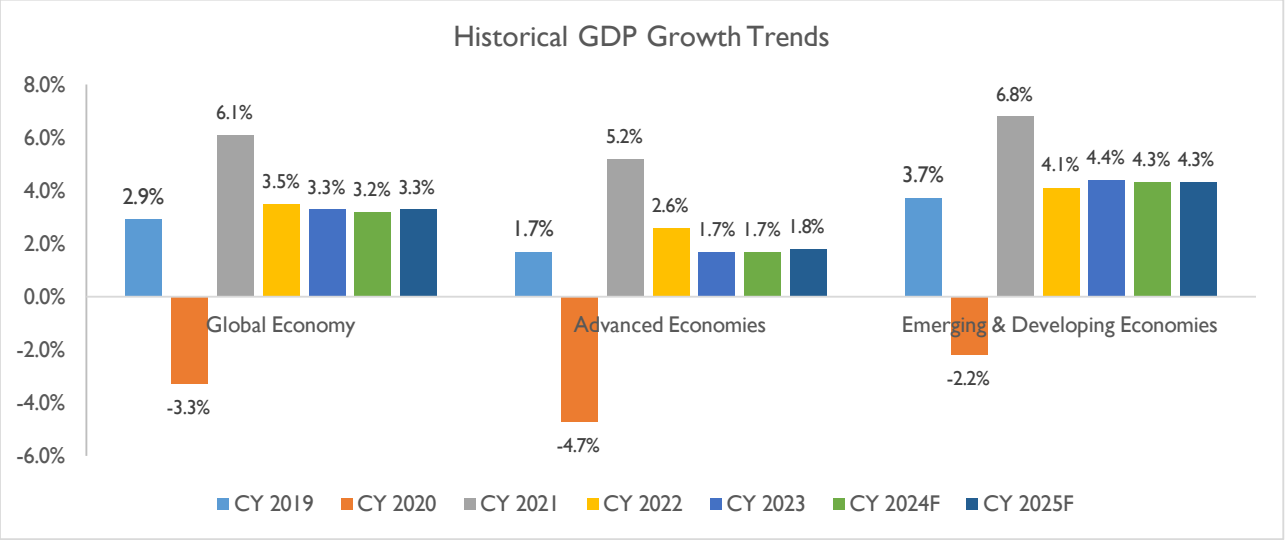
The global economy started to rise from its lowest levels after countries started to lift the lockdown in 2020 and 2021. The pandemic lockdown was a key factor as it affected economic activities resulting in a recession in the year CY 2020, as the GDP growth touched -3.3%.

In CY 2021 disruption in the supply chain affected most of the advanced economies as well as low-income developing economies. The rapid spread of Delta and the threat of new variants in mid of CY 2021 further increased uncertainty in the global economic environment.

Global economic activities experienced a sharper-than-expected slowdown in CY 2022. One of the highest inflations in decades, seen in 2022, forced most of the central banks to tighten their fiscal policies. Russia’s invasion of Ukraine affected the global food supply resulting in a further increment in the cost of living.

Further, despite initial resilience earlier in 2023, marked by a rebound in reopening and progress in curbing inflation from the previous year's highs, the situation remained precarious. Economic activity lagged behind its pre-pandemic trajectory, particularly in emerging markets and developing economies, leading to widening disparities among regions. Numerous factors are impeding the recovery, including the lasting impacts of the pandemic and geopolitical tensions, as well as cyclically driven factors such as tightening monetary policies to

combat inflation, the reduction of fiscal support amidst high debt levels, and the occurrence of extreme weather events. As a result, global growth declined from 3.5% in CY 2022 to 3.3% in CY 2023.

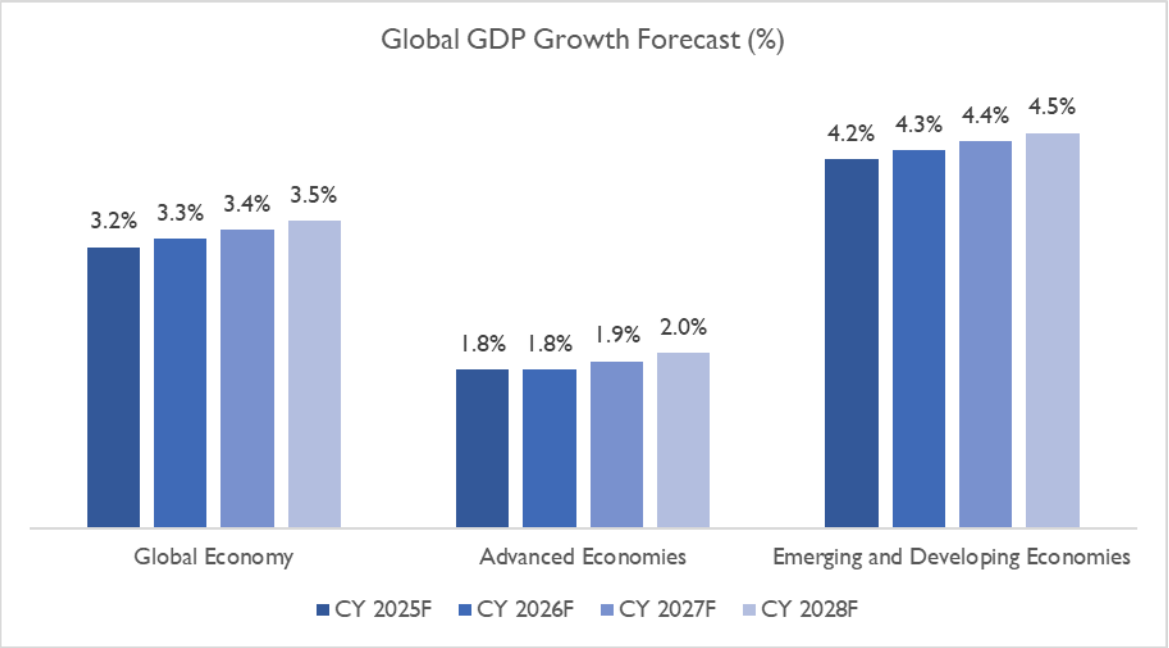


Source – IMF Global GDP Forecast Release July 2024

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

In the current scenario, global GDP growth is estimated to have recorded a moderate growth of 3.3% in CY 2023 as compared to 3.5% growth in CY 2022. While high inflation and rising borrowing costs are affecting private consumption, on the other hand, fiscal consolidation is affecting government consumption.

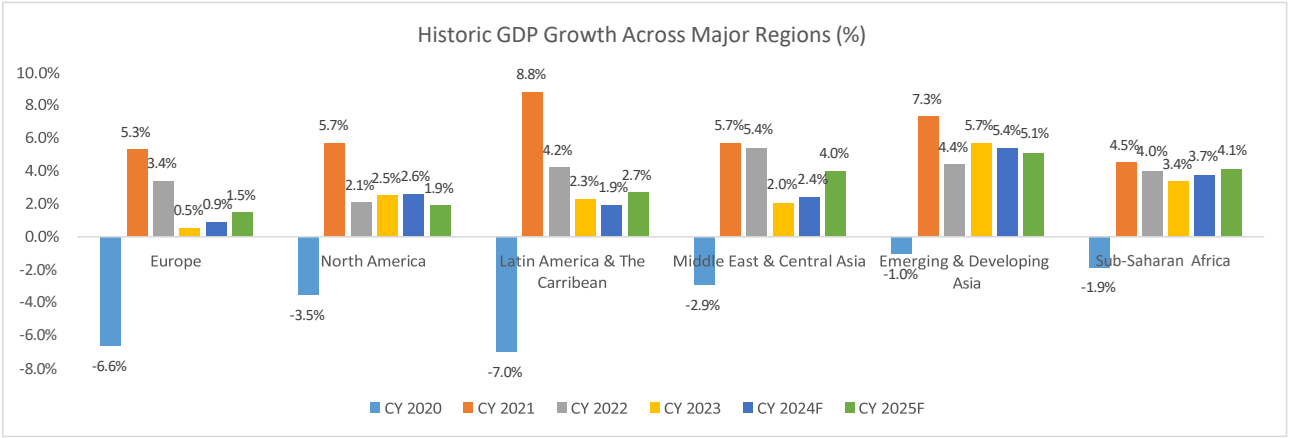
Slowed growth in developed economies will affect the GDP growth in CY 2024 and global GDP is expected to record a flat growth of 3.2% in CY 2024. The crisis in the housing sector, bank lending, and industrial sectors are affecting the growth of global GDP. Inflation forced central banks to adopt tight monetary policies. After touching the peak in 2022, inflationary pressures slowly eased out in 2023. This environment weighs in for interest rate cuts by many monetary authorities.



Source – IMF Global GDP Forecast Release 2024, D&B Estimates

GDP Growth Across Major Regions

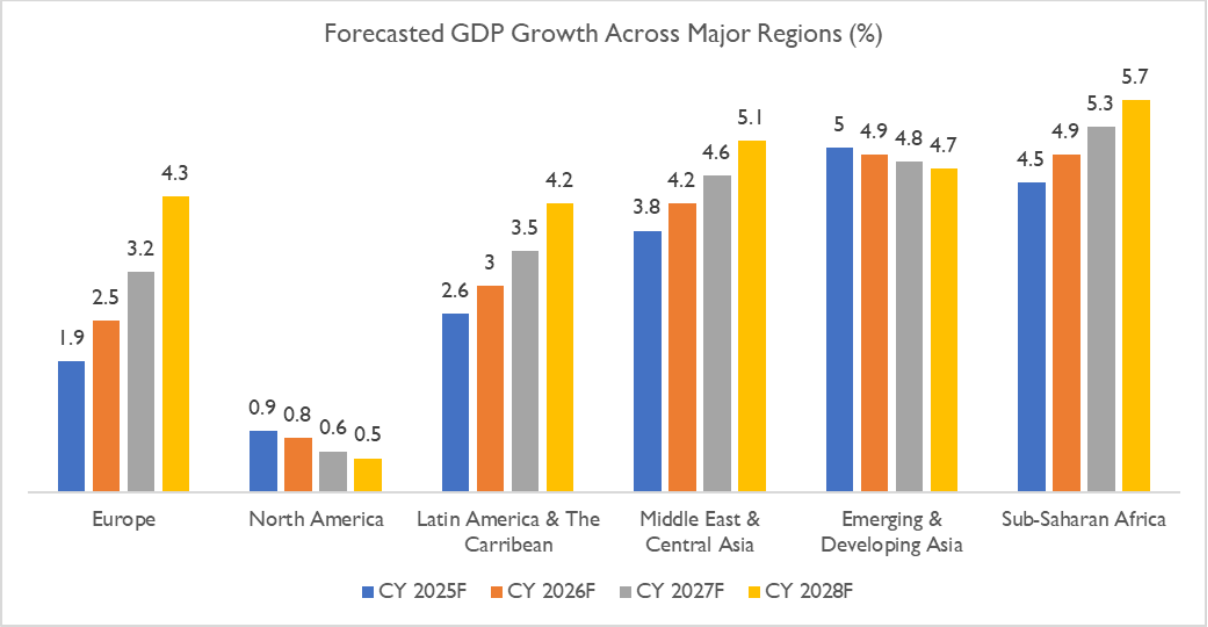
GDP growth of major regions including Europe, Latin America & The Caribbean, Middle East & Central Asia, and Sub-Saharan Africa, were showing signs of slow growth and recession between 2020 – 2023, but leaving Latin America & The Caribbean, 2024 is expected to show resilience and growth. Meanwhile, GDP growth in Emerging and Developing Asia (India, China, Indonesia, Malaysia etc.) is expected to decrease from 5.4% in CY 2023 to 5.2% in CY 2024, while in the United States, it is expected to decrease from 2.5% in CY 2023 to 2.1% in CY 2024.



Source-IMF World Economic Outlook July 2024 update

Except for Emerging and Developing Asia, Latin America & The Caribbean and the United States, all other regions are expected to record an increase in GDP growth rate in CY 2024 as compared to CY 2023. GDP growth in Latin America & The Caribbean is expected to decline due to negative growth in Argentina. Further, growth in the United States is expected to come down at 2.1% in CY 2024 due to lagged effects of monetary policy tightening, gradual fiscal tightening, and a softening in labour markets slowing aggregate demand.

Although Europe experienced a less robust performance in 2023, the recovery in 2024 is expected to be driven by increased household consumption as the impact of energy price shocks diminishes and inflation decreases, thereby bolstering real income growth. Meanwhile, India and China saw greater-than-anticipated growth in 2023 due to heightened government spending and robust domestic demand, respectively. Sub-Saharan Africa's expected growth in 2024 is attributed to the diminishing negative impacts of previous weather shocks and gradual improvements in supply issues.



Source-IMF, OECD, and World Bank, D&B Estimates

Global Economic Outlook

At the midpoint of the year, so far in 2024 we have seen divergence in outcomes and prospects around the world in terms of economic growth, inflation, and policy responses. On balance, global short-term economic prospects have improved over the course of the year. We expect this momentum to continue through the second half of 2024 and into 2025 as inflation eases further and monetary policy continues to loosen, supporting steady growth. Macroeconomic risks, in our view, have become more balanced.

The U.S. has performed better than other developed economies, particularly those in Europe where the consumer sentiment has been relatively weak – though the picture in Europe has been varied. A sustained recovery in tourism this year has boosted the economies of Greece and Spain, whereas Germany, France, and Italy have been held back by the slower recovery of manufacturing. Nonetheless, the European Central Bank (ECB) lowered the three key interest rates in June – for the first time since September 2019 – which will support stronger regional growth.

Growth in the Chinese Mainland has held up well so far this year despite challenges from the property market amid ongoing rebalancing, and the export cycle is supporting growth in the rest of Asia. In Latin America, larger economies, such as Brazil and Mexico, tend to be performing more moderately than smaller economies, such as Chile and Peru, indicating slower regional growth overall.

Globally, industrial production has been relatively sluggish because of restrictive trade policies, persistent supply chain disruptions, high interest rates, and anemic growth. We expect industrial production to gather steam later this year and into 2025 on the back of a gradual recovery in global trade, stimulated by stronger domestic demand for goods.

Policy responses have diverged so far this year and are set to remain so in the near term. Central banks have begun rate cutting cycles in several developed economies, including the Eurozone, Canada, Sweden, and Switzerland. However not every economy has followed suit. Disinflation has not been as predictable as it was in 2023, and underlying price pressures mean inflation is likely to remain bumpy this year – hence, policy will remain more restrictive than was anticipated at the start of the year. With relatively stronger economic growth and stickier inflation, the timing of the first interest rate cut by the U.S. Federal Reserve (the Fed) and the onward path of interest rates remains ambiguous.

The global economy is showing signs of stabilizing, yet growth will remain subdued this year before picking up pace in 2025. We forecast global growth of around 2.5% in 2024, half a percentage point softer than in the decade following the financial crisis. The weaker outlook reflects fiscal consolidation, lagged tight monetary policy, restrictive trade policies, and elevated levels of geopolitical uncertainty. Looking ahead to 2025, global growth is likely to pick up slightly to 2.8% as the impact of these factors declines and stronger growth becomes more entrenched.

Emerging economies look set for softer growth in general this year. On a regional basis, growth is likely to be markedly slower in Eastern Europe, but only slightly softer in Asia Pacific and Latin America, with growth only moderately slower in key economies such as the Chinese Mainland, India, and Brazil. Outcomes in developed economies are also mixed but largely remain subdued because of tight policy settings.

India Macroeconomic Analysis

GDP Growth Scenario

India's economy showed resilience with GDP growing at 8.2% in CY 2023. The GDP growth in CY 2023 represents a return to pre pandemic era growth path. Even amidst geopolitical uncertainties, particularly those affecting global energy and commodity markets, India continues to remain one of the fastest growing economies in the world.

Country	Real GDP Growth (CY 2023)	Projected GDP Growth (CY 2024)	Projected GDP Growth (CY 2025)
India	8.20%	7.00%	6.50%
China	5.20%	5.00%	4.50%
Russia	3.60%	3.20%	1.50%
Brazil	2.90%	2.10%	2.40%
United States	2.50%	2.60%	1.90%
Japan	1.90%	0.70%	1.00%
Canada	1.20%	1.30%	2.40%
Italy	0.90%	0.70%	0.90%
France	1.10%	0.90%	1.30%
South Africa	0.70%	0.90%	1.20%
United Kingdom	0.10%	0.70%	1.50%
Germany	-0.20%	0.20%	1.30%

Source: World Economic Outlook, July 2024

Countries considered include - Largest Developed Economies and BRICS (Brazil, Russia, India, China, and South)

Countries have been arranged in descending order of GDP growth in 2023).

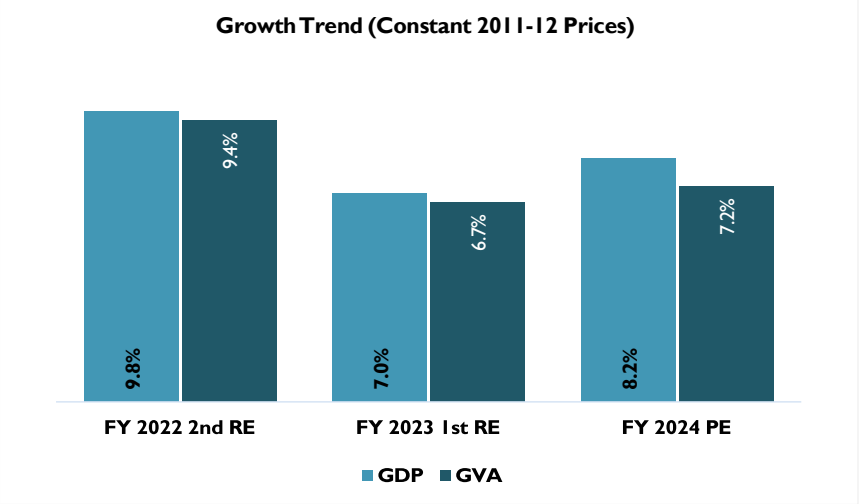
There are few factors aiding India's economic recovery – notably its resilience to external shocks and rebound in private consumption. This rebound in private consumption is bringing back the focus on improvements in domestic demand, which together with revival in export demand is a precursor to higher industrial activity. Already the capacity utilization rates in Indian manufacturing sector are recovering as industries have stepped up their production volumes. As this momentum sustains, the country may enter a new capex (capital expenditure) cycle. The universal vaccination program by the Government has played a big part in reinstating confidence among the population, in turn helped to revive private consumption.

Realizing the need to impart external stimuli, the Government stepped up its spending on infrastructure projects which in turn had a positive impact on economic growth. The capital expenditure of the central government increased by 37.4% increase in capital expenditure (budget estimates), to the tune of INR 10 trillion in the Union

Budget 2023-2024. The announcement also included a 30% increase in financial assistance to states at INR 1.3 trillion for capex. The improvement was accentuated further as the Budget 2024-2025 announced an 11.1% increase in the capital expenditure outlay at INR 11.11trillion, constituting 3.4% of the GDP. This has provided much-needed confidence to the private sector, and in turn, attracted private investment.

On the lending side, the financial health of major banks has witnessed an improvement which has helped in improving the credit supply. With capacity utilization improving, there would be demand for credit from the corporate sector to fund the next round of expansion plans. The banking industry is well poised to address that demand. Underlining the improving credit scenario is the credit growth to the micro, small, and medium enterprise (MSME) sector as the credit outstanding to the MSME sector by scheduled commercial banks in the fiscal year 2024 grew by 14% to INR 10.31 trillion compared to INR 9.02 trillion as on 24 March 2023. The extended Emergency Credit Linked Guarantee Scheme (ECLGS) by the Union Government has played a major role in improving this credit supply.

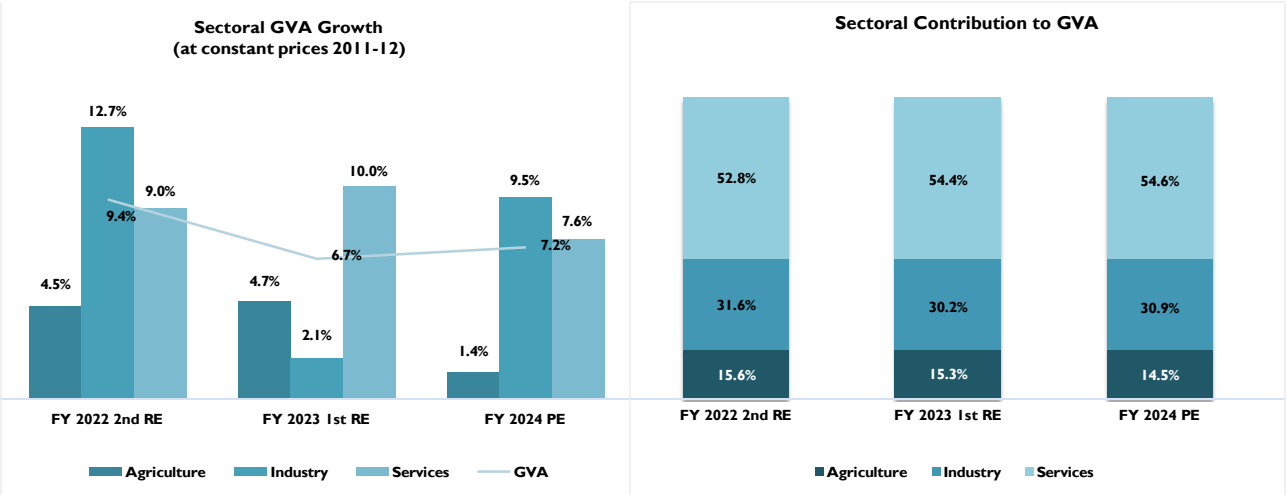
As per the provisional estimates 2023-24, India's GDP in FY 2024 grew by 8.2% compared to 7.0% in the previous fiscal on the back of solid performances in manufacturing, mining, and construction sectors. The year-on-year increase in growth rate is also partly due to by a strong growth in investment demand led by public capital expenditure.



Source: Ministry of Statistics & Programme Implementation (MOSPI), National Account Statistics, 2023-24

RE stands for Revised Estimates, SAE stands for Second Advance Estimates

Sectoral Contribution to GVA and annual growth trend



Source: Ministry of Statistics & Programme Implementation (MOSPI)

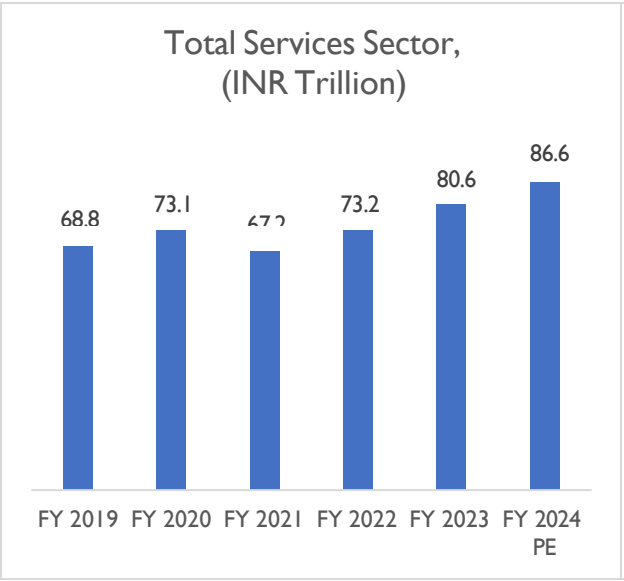
Sectoral analysis of GVA reveals industrial sector recovered sharply registering 9.5% y-o-y increase in FY 2024 against 2.1% in the previous fiscal. In the industrial sector, growth across major economic activity such as mining, manufacturing and construction sector rose significantly and it registered a growth of 7.1%, 9.9% and 9.9% in FY 2024 against a y-o-y change of 1.9%, -2.20%, and 9.44% in FY 2023, respectively. Utilities sector observed a marginal moderation in y-o-y growth to 7.5% against 9.44% in the previous years.

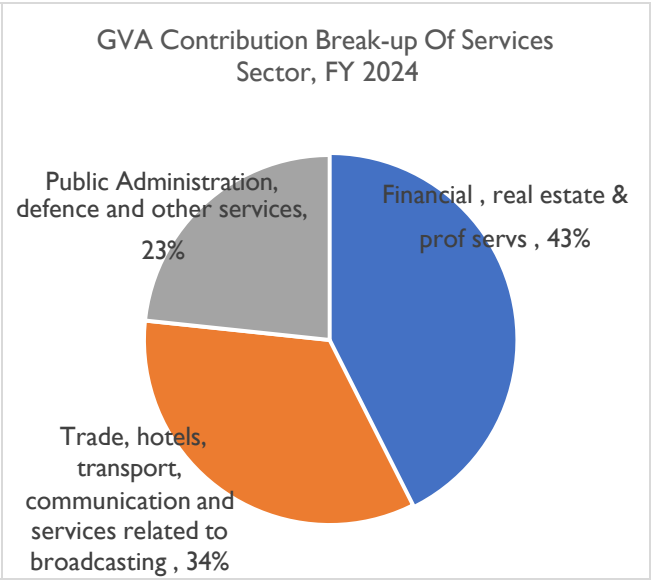
Talking about the services sector's performance, with major relaxation in covid restriction, progress on COVID-19 vaccination and living with virus attitude, business in the service sector gradually returned to normalcy in FY 2023. Economic recovery was supported by the service sector as individual mobility returned to the pre-pandemic level. The trade, hotel, transport, communication, and broadcasting segment continued to strengthen in FY 2023 and grow in FY 2024, although the growth hasn't shown substantial increases. In FY 2024, services sector grew by 7.6% against 10% y-o-y growth in the previous year.

Expansion in Service Sector

Services sector is a major contributor to the country's overall economic growth. In absolute terms, services sector GVA has increased from INR 68.78 trillion in FY 2019 to INR 86.6 trillion in FY 2024 (as per the provisional estimated), registering a CAGR of nearly 5%. Within Services sector, the GVA by financial, real estate and professional services-the largest contributing segment observed 6.3% CAGR while Public Administration, defence and other services[1] observed 4.5% CAGR and Trade, hotels, transport, communication, and services related to broadcasting witnessed 3.1% CAGR between FY 2019-24.

[1] Other services include Education, Health, Recreation, and other personal services.





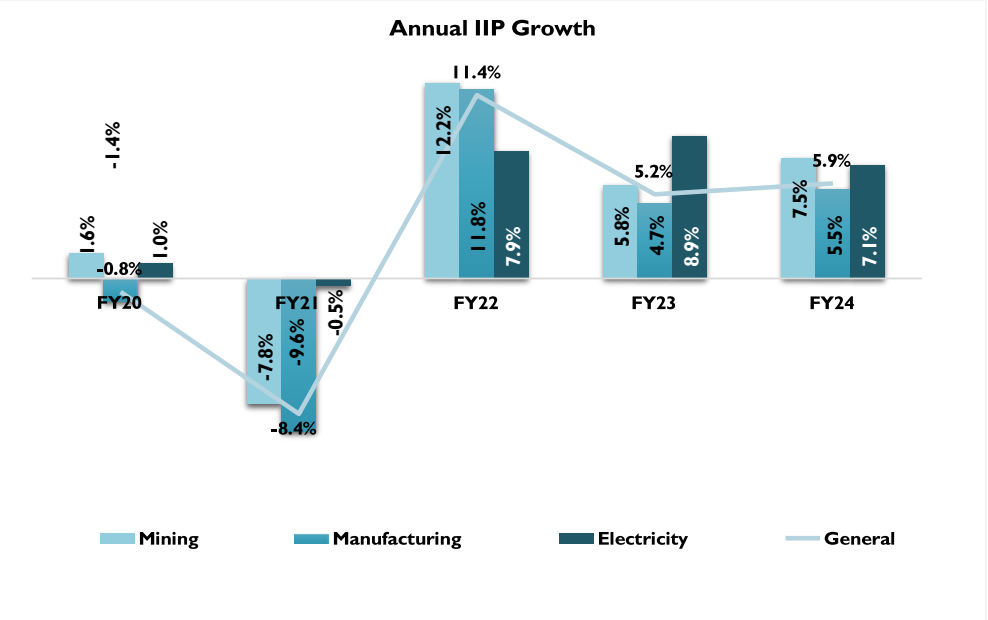
Sources: MOSPI, CMIE Economic Outlook and Dun & Bradstreet Research Estimates[2]

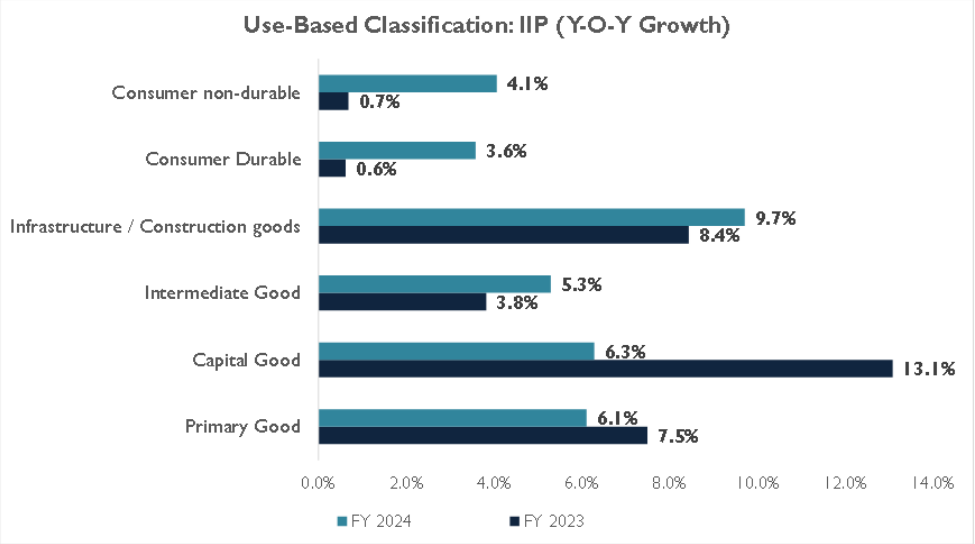
India's HSBC Services Purchasing Managers' Index**,** an important indicator to track service sector performance, measured 60.3 in July 2024 against 60.5 in the previous month. Since August 2021, the services sector has consistently remained above the threshold of 50, which distinguishes growth from contraction.

IIP Growth

Industrial sector performance as measured by IIP index; in FY 2024 it is growing at 5.9% (against 5.2% in FY 2023). Previously IIP index exhibited temporary recovery in FY 2022 from the low of Covid induced slowdown in industrial growth during FY 2020 and FY 2021. Manufacturing index, with 77.6% weightage in overall index, grew by 5.5% in FY 2023 against 4.7% y-o-y growth in FY 2022 while mining sector index too grew by 7.5% against 5.8% in the previous years. Mining & manufacturing both shown improvement according to previous except the Electricity sector Index, witnessed an improvement of 7.1% against 8.9% in the previous year.

[2] Projection as Based on CMIE Growth rate till FY 2029 and FY 2030 is based on Dun & Bradstreet assumption.

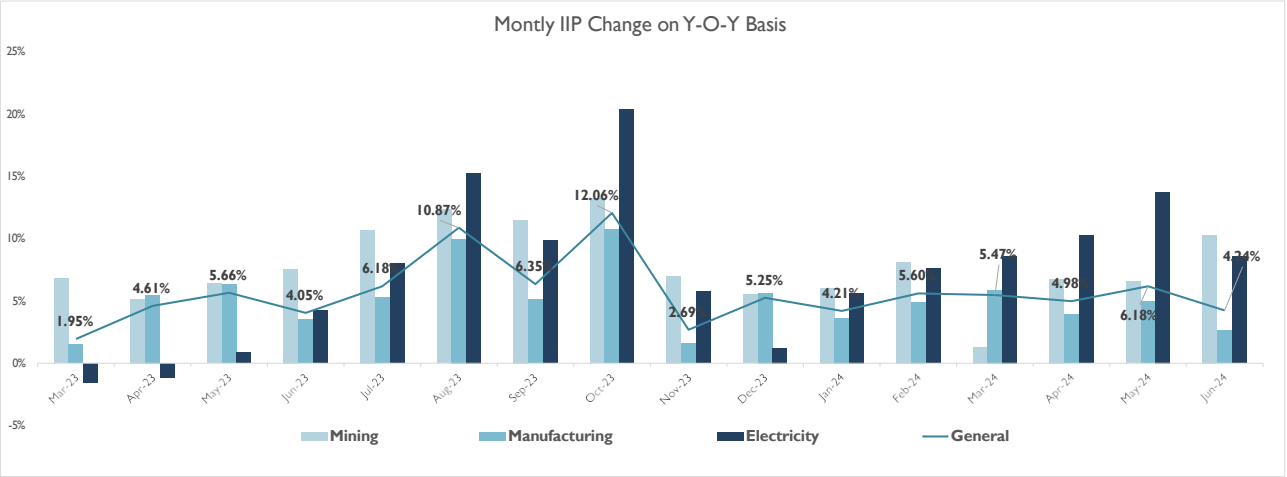




Source: Ministry of Statistics & Programme Implementation (MOSPI)

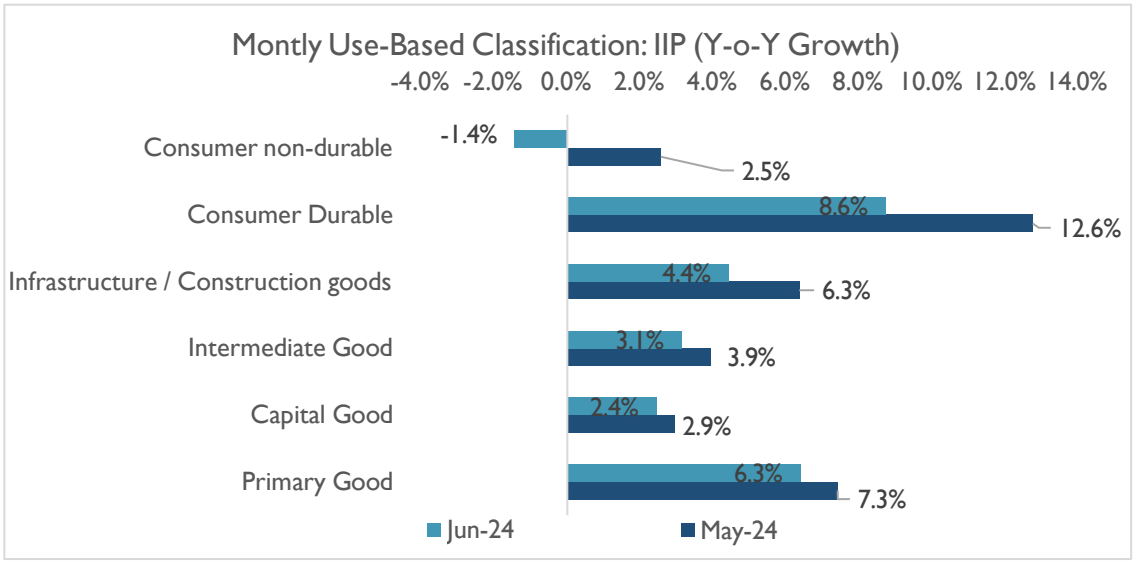
As per the use-based classification, most of the segments has shown growth for FY 2024 as compared to FY 2023. Capital good and primary goods were segments which faced less growth as compared to previous year. The contracting IIP data points towards adverse operating business climate as global headwinds, high inflation, and monetary tightening cumulatively impacted the broader industrial sector performance. In contrast all the segments except the above two have shown growth.

Monthly IIP Growth Trend



Source: Ministry of Statistics & Programme Implementation (MOSPI)

In the current fiscal FY 2025, the monthly IIP measured index has reported steady improvement over the last fiscal. However, the IIP index slowed to a 5-month low and just grew by 4.24% y-o-y in June against 6.18% in the previous month on the back of slowing growth in the manufacturing section. In June 2024, the manufacturing index growth slowed to 2.6% against 6.3% y-o-y growth in June 2023 and 5% in May 2023 while the electricity sector index and mining index exhibited substantial improvement and they grew by 8.6% and 10.3% in June 2024 against 0.9% and 6.4% growth in April 2023, respectively.

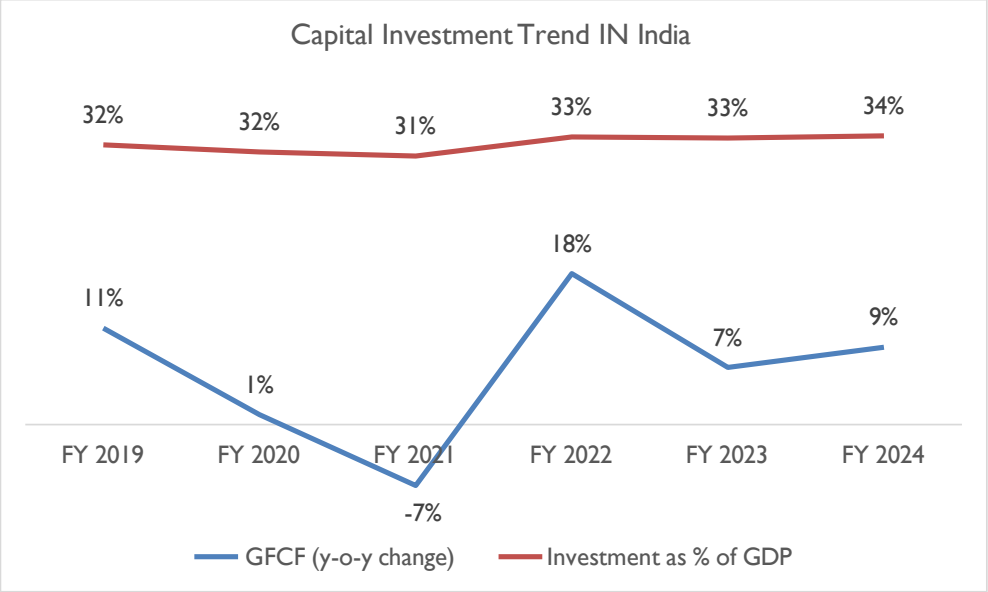


Sources: MOSPI

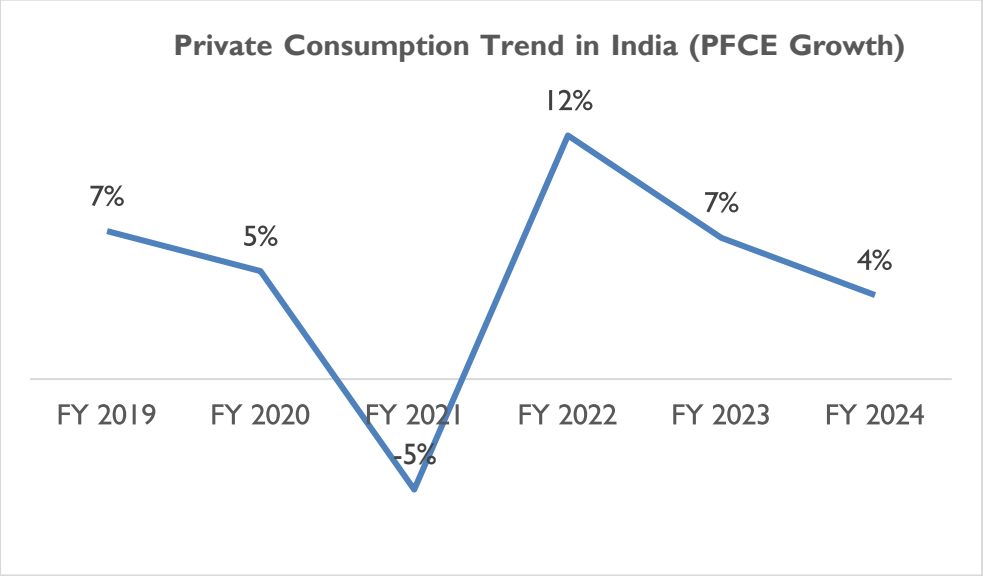
As per the use-based classification, growth in all segments slowed in June 2024 as compared to the previous month. Consumer non-durable declined by 1.4% in June 2024 against 2.5% increase in the previous month. In May 2024, all segments showed a substantial increase in growth.

Investment & Consumption Scenario

Other major indicators such as Gross fixed capital formation (GFCF), a measure of investments, gained strength during FY 2024 as it grew by 9% on a y-o-y basis against 7% yearly growth in the previous fiscal, while GFCF to GDP ratio measured an all-time high settled higher at 34%.



Sources: MOSPI



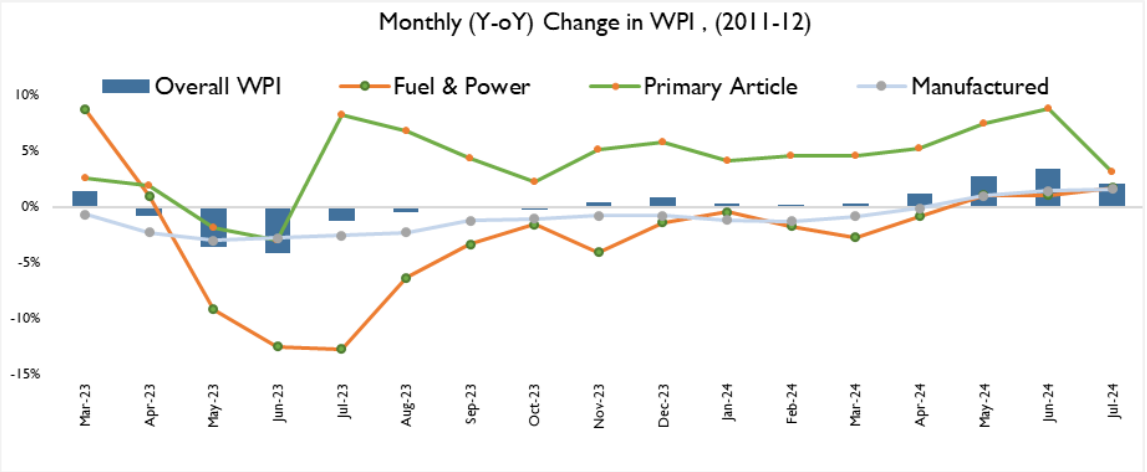
Sources: MOSPI

Private Final Expenditure (PFCE) a realistic proxy to gauge household spending, observed decelerated and registered 4% y-o-y growth in FY 2024 against 7% in FY 2023.

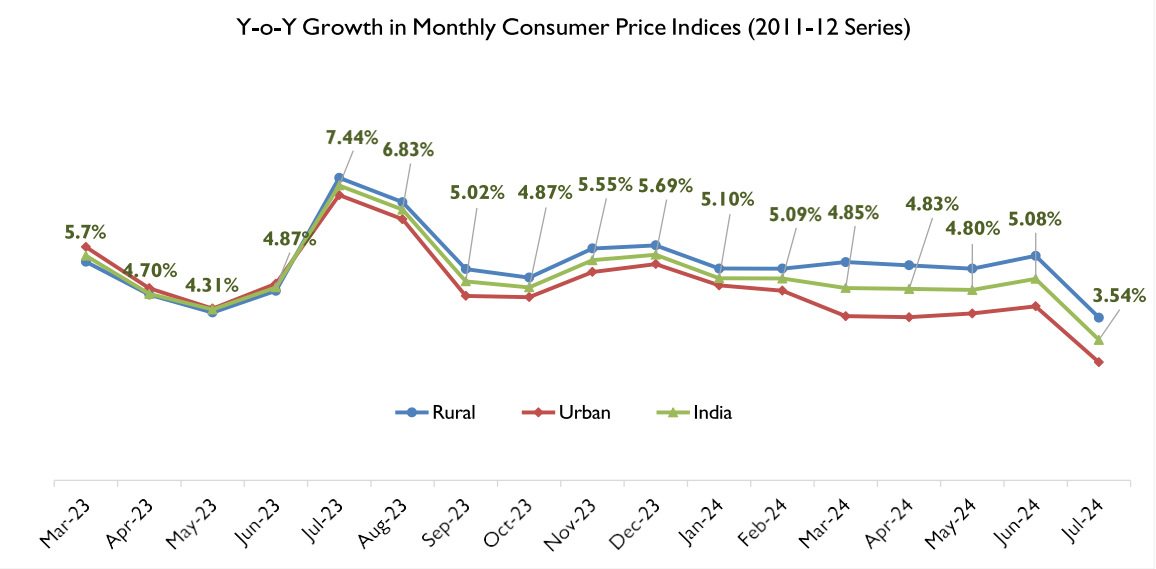
Inflation Scenario

The inflation rate based on India's Wholesale Price Index (WPI) exhibited significant fluctuations across different sectors from March 2023 to July 2024. Overall WPI saw a sharp decline to -1.2% in July 2023, primarily driven by steep drops in Fuel & Power and Manufactured Products, reflecting reduced global demand and falling input costs. However, a recovery was noted by June 2024, with WPI reaching 3.4%, supported by a strong rise in

Primary Articles and a rebound in Fuel & Power prices. By July 2024, while Primary Articles growth moderated to 3.1%, the WPI remained positive at 2.0%, indicating stabilization in the market after earlier volatility.



Source: MOSPI, Office of Economic Advisor.



Source: CMIE Economic Outlook

Retail inflation rate (as measured by the Consumer Price Index) in India showed notable fluctuations between March 2023 and July 2024. Rural CPI inflation peaked at 7.63% in July 2023, before declining to 4.10% in July 2024. Urban CPI inflation followed a similar trend, rising to 7.20% in July 2023 and then dropping to 2.98% in July 2024. Overall, the national CPI inflation rate increased to 7.44% in July 2023 but moderated to 3.54% by July 2024, indicating a gradual easing of inflationary pressures across both rural and urban areas over the period. CPI measured below 6% tolerance limit of the central bank since September 2023. As a part of an anti-inflationary measure, the RBI has hiked the repo rate by 250 bps since May 2022 to the current 6.5% while it has been holding the rate at 6.5% since 8 Feb 2023.

India's Growth Outlook

India's economy has exceeded expectations, registering an 8.2% growth in FY24. High-frequency indicators such as automobile sales, e-way bills, cargo traffic, and exports signal sustained growth momentum into Q2

FY25. However, the rural demand outlook is tied to the monsoon, where inconsistent rainfall could impact the agriculture sector and inflation. The government is proactively boosting grain storage capacity to mitigate these risks. On the credit front, the Reserve Bank of India (RBI) has kept the policy rate unchanged, with inflation expected to average around 5% in FY25. Despite stable policy rates, lending rates may rise due to the incomplete transmission of earlier hikes, while strong credit growth in the private sector suggests potential capacity expansion. Supply-side challenges persist, particularly in food storage infrastructure. The government has launched a massive initiative to enhance grain storage capacity by 70 million tonnes over the next five years. The recent long-term agreement for operating Iran's Chabahar Port is also set to bolster trade and supply chain resilience.

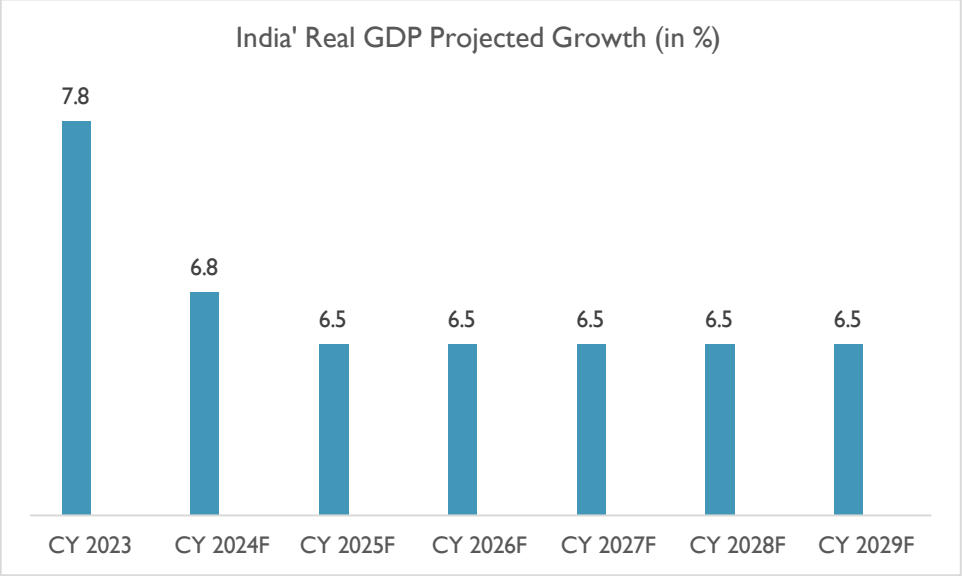
In terms of trade, India's recent agreements, particularly with the European Free Trade Association (EFTA) and Oman, are opening new markets and opportunities for exports. The proposed mega-distribution hub in the UAE by 2025 will further support India's global trade ambitions, particularly in Africa, Europe, and the US.

Politically, the continuation of the National Democratic Alliance (NDA) government signals sustained reforms, with optimism around labour and land reforms. The government is also taking steps to control retail inflation by managing food prices and import duties. The external environment remains cautious, with geopolitical tensions, particularly in Gaza, posing potential risks to global stability.

Overall, India's short-term growth outlook remains positive, underpinned by strong domestic demand, proactive government measures, and expanding global trade relationships, despite some challenges in the rural economy and supply chain infrastructure.

India’s Projected Economic Growth

Looking ahead to 2024, India's projected GDP growth of 6.8% in 2024 stands out as the fastest among major emerging markets, significantly outpacing China's 4.6%, and Brazil's 2.2%. This robust growth trajectory is expected to sustain at 6.5% annually from 2025 to 2029, reflecting strong economic fundamentals and continued momentum.



Source: IMF

This decent growth momentum in near term (CY 2024) is accompanied by a slowdown in inflation, as well as various other factors in the medium to long term that will support the economy. These include enhancements in physical infrastructure, advancements in digital and payment technology, improvements in the ease of doing business and a higher quality of fiscal expenditure to foster sustained growth.

On the demand side, improving employment conditions and moderating inflation are expected to stimulate household consumption. Further, the investment cycle is gaining traction, propelled by sustained government capital expenditure, increased capacity utilization and rising credit flow. Additionally, there are positive signs of improvement in net external demand, as reflected in the narrowing merchandise trade deficit. Despite the supply disruptions, exports clocked positive y-o-y growth in December 2023 and January 2024.

From uplifting the underprivileged to energizing the nation's infrastructure development, the Government has outlined its vision to propel India's advancement and achieve a 'Viksit Bharat' by 2047 in the interim budget announced on 1st Feb 2024. Noteworthy positives in the budget include achieving a lower-than- targeted fiscal deficit for FY2024 and setting a lower-than expected fiscal deficit target for FY2025, proposing dedicated commodity corridors and port connectivity corridors, providing long-term financing at low or nil interest rates to the private sector to step up R&D (Research & Development) in the sunrise sectors.

Achieving a reduced fiscal deficit of 5.8% in FY2024 and projecting a lower than-anticipated fiscal deficit of 4.9% as announced in the interim budget in July 2024 for the current fiscal year (FY 2025) are positive credit outcomes for India. This showcases the country's capability to pursue a high-growth trajectory while adhering to the fiscal glide path. There has been a significant boost to capital expenditure for two consecutive years; capital expenditure – which is budgeted at 3.4% of GDP (INR 11.1 trillion/USD 134 billion) for fiscal year 2024-25 – is at a 21-year high (3.3% of GDP in fiscal year 2023-24. The enhancement of port connectivity, coupled with the establishment of dedicated commodity corridors (energy, mineral and cement), is poised to enhance manufacturing competitiveness. This strategic move aims to fulfil India's export targets and reduce logistics costs.

India's optimistic economic outlook is underpinned by its demographic dividend, which brings a substantial workforce that boosts labor participation and productivity. The burgeoning middle class and urbanization contribute to increased domestic consumption, driven by rising incomes and purchasing power. Extensive investments in infrastructure, encompassing roads, railways, ports, and digital connectivity, are enhancing productivity and efficiency, with government initiatives like the Smart Cities Mission and PM Gati Shakti creating a conducive growth environment. This digital transformation, catalyzed by initiatives such as Digital India, is fostering a tech-driven economy marked by enhanced internet penetration, digital payments, and e-governance, thereby fueling growth in sectors like fintech, e-commerce, and digital services. The push to position India as a global manufacturing hub through Make in India and PLI (Production Linked Incentive) schemes is further boosting industrial output, exports, and domestic production capabilities. Compared to other major emerging markets facing demographic and economic challenges, India's combination of demographic strengths, policy

reforms, and strategic initiatives positions it as a standout performer and a significant driver of global economic growth in the foreseeable future.

Some of the key factors that would propel India's economic growth.

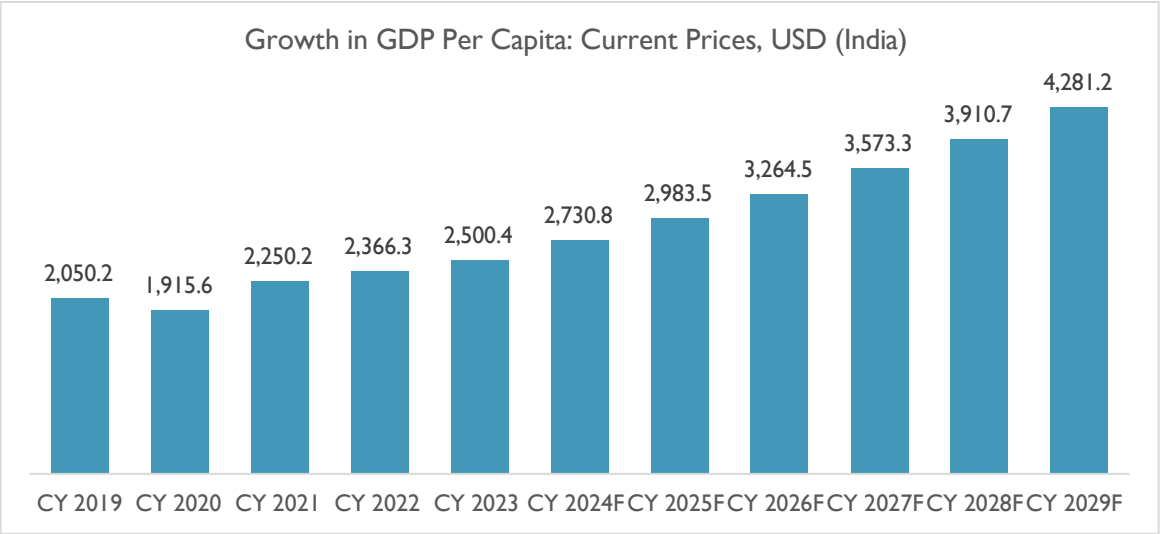
Strong Domestic Demand

Domestic demand has traditionally been one of the strong drivers of Indian economy. After a brief lull caused by Covid-19 pandemic, the domestic demand is recovering. Consumer confidence surveys by Reserve Bank / other institutions points to an improvement in consumer confidence index, which is a precursor of improving demand. India has a strong middle-class segment which has been the major driver of domestic demand. Factors like fast paced urbanization and improving income scenario in rural markets are expected to accelerate domestic demand further. PFCE as a percentage of GDP increased to 58% during FY 2022 and FY 2023 while in FY 2024 it settled at 56%. There are two factors that are driving this domestic demand: One the large pool of consumers and second the improvement in purchasing power. As per National Statistics Office (NSO), India's per capita net national income (at constant prices) stood at INR 1.06 lakhs in FY 2024 against 99,404 in FY 2023 and 87,623 in FY 2018. This increase in per capita income has impacted the purchasing pattern as well as disposable spending pattern in the country. Consumer driven domestic demand is majorly fueled by this growth in per capita income.

India's Per capita GDP trends

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

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



Source: IMF

From CY 2024-29, India's per capita GDP is projected to grow at a compound annual growth rate of 9.4%. This growth will be driven by the service sector, which now accounts for over 50% of India's GDP, marking a significant shift from agriculture to services.

Digitization Reforms

Ongoing digitization reforms and the resultant efficiency gains accrued would be a key economic growth driver in India in the medium to long term. Development of digital platforms has helped in the seamless roll out of initiatives like UPI (Unified Payments Interface), Aadhaar based benefit transfer programs, and streamlining of GST (Goods and Services Tax) collections. All of these have contributed to improving the economic output in the country. Some of the key factors that have supported the digitization reforms include – the growth in internet penetration in India together with drop in data tariffs, growth in smartphone penetration, favorable demographic pattern (with higher percentage of tech savvy youth population) and India's strong IT (Information Technology) sector which was leveraged to put in place the digital ecosystem. All these factors are expected to remain supportive and continue to propel the digitization reforms in India.

Increased adoption of digital technology and innovation, inclusive and sustainable practices, business-friendly and transparent regulations, and heightened corporate research and development (R&D) investments will further bolster the country's growth. These factors will collectively support employment growth across both private and public sectors, including micro, small, and medium enterprises (MSMEs).

An Overview: Petrochemical industry

Petrochemicals are a vast and essential group of chemicals derived from petroleum (crude oil) and natural gas. These "fossil fuels" are primarily composed of hydrocarbons, molecules containing just hydrogen and carbon atoms. Through various refining and processing techniques, these hydrocarbons are transformed into a diverse range of petrochemical products that underpin countless aspects of human life.

Indian chemical sector continues to grow at a rate of 1.2-1.5 times the GDP. India's chemical and petrochemical industry is currently valued at around USD 178 billion and is expected to reach USD 300 billion by 2025[3]. The Ministry of Petroleum estimates that demand for petrochemicals will triple by 2040, reaching a value of USD 1 trillion. India ranks as the sixth largest player in the global petrochemical market. The industry boasts a strong production base with three gas-based and three naphtha-based cracker complexes for producing key products like ethylene and xylene. Petrochemical products are the essential building blocks for a vast array of downstream industries in India and impact them significantly:

- Textiles: Petrochemical-derived fibers like polyester and nylon are cost-effective, durable, and

[3] Ministry of Petroleum & Natural Gas

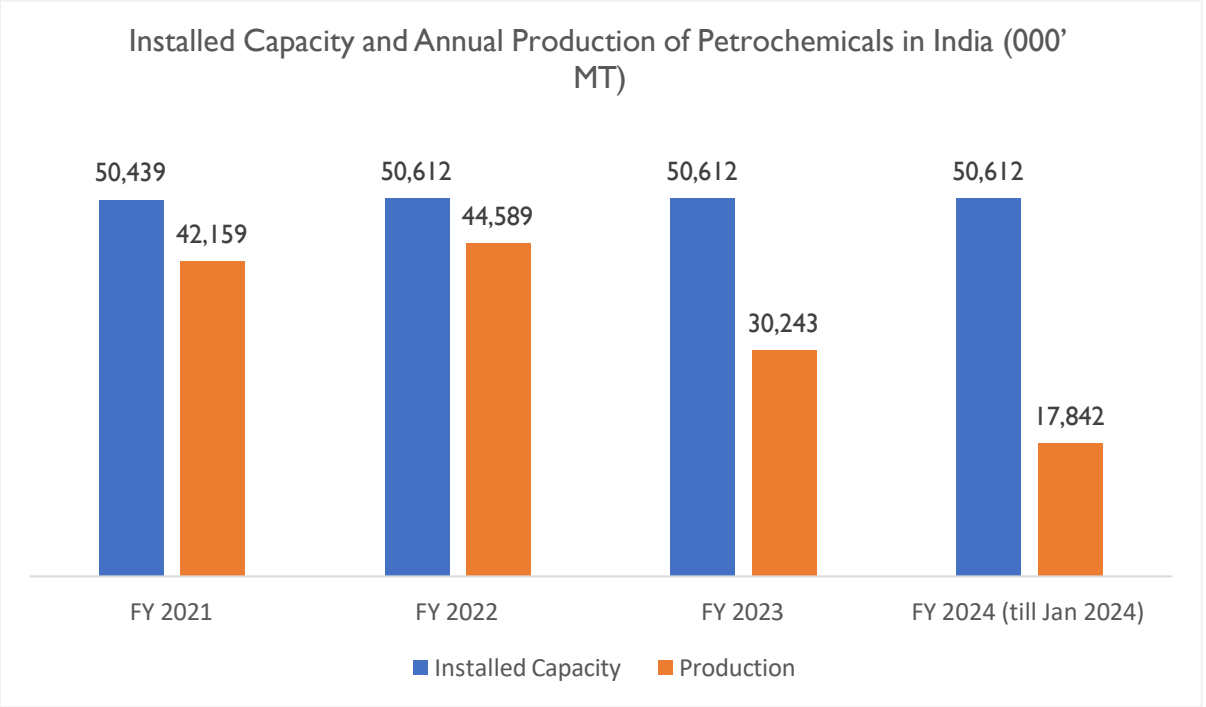
versatile, revolutionizing the textile industry. They are used in clothing, furnishings, and industrial applications.

- Construction: Petrochemicals play a crucial role in construction materials. PVC pipes are lightweight, corrosion-resistant, and used in plumbing and drainage. Polyurethanes provide insulation for buildings, and epoxies are used in adhesives and coatings.
- Packaging: Plastics dominate the packaging industry due to their affordability, lightweight nature, and ability to protect contents. Flexible films, bottles, and containers made from polyethylene, polypropylene, and PET are ubiquitous.
- Pharmaceuticals: The industry relies on various petrochemical products for packaging (blister packs, vials), medical devices (syringes, catheters), and even drug delivery systems.
- Agriculture: Petrochemicals play a vital role in agricultural development. Fertilizers derived from petrochemicals improve crop yields. Additionally, plastic films for greenhouses, irrigation pipes, and weed control fabrics contribute significantly.

As living standards improve, the demand for consumer goods like packaged food, clothing, electronics, and automobiles rises, all of which rely heavily on petrochemical products. The rapid growth of urban areas creates a demand for better infrastructure, housing, and sanitation, all of which involve the use of petrochemicals in construction and waste management. With a growing population, the demand for healthcare products and pharmaceuticals increases, leading to a higher requirement for petrochemical-based packaging and medical devices.

Production Scenario

Annual production of basic petrochemicals in India is estimated to be 17.8 million metric tons in FY 2023 (till January 2024) while production is estimated to be nearly 44.6 million metric tons in FY 2022. Between FY 2020 and 2022, the production of petrochemicals has increased by a CAGR of 1.2%.



Source: Department of Chemicals and Petrochemicals, D&B estimates

Note: Installed capacity figures for FY 2022, FY 2023, and FY 2024 are held constant due to the absence of official data releases from the Department of Chemicals and Petrochemicals for FY 2023 and FY 2024.

Installed Capacity

A steady rise in installed capacity from 48.9 million metric tons (MT) in FY 2020 to 50.6 million MT by FY 2022, with a rise of 1679 thousand metric tons (MT) from FY 2020 to FY 2022. This indicates an expansion in the petrochemical industry, anticipating future growth in demand.

Production

Production levels haven't kept pace with the increase in installed capacity. They show a decline from 43,524.13 thousand MT in FY 2020 to 42,159.38 thousand MT in FY 2021, followed by a partial recovery to 44,588.52 thousand MT in FY 2022, which futher declined to 30,243 thousand MT in FY 2023.

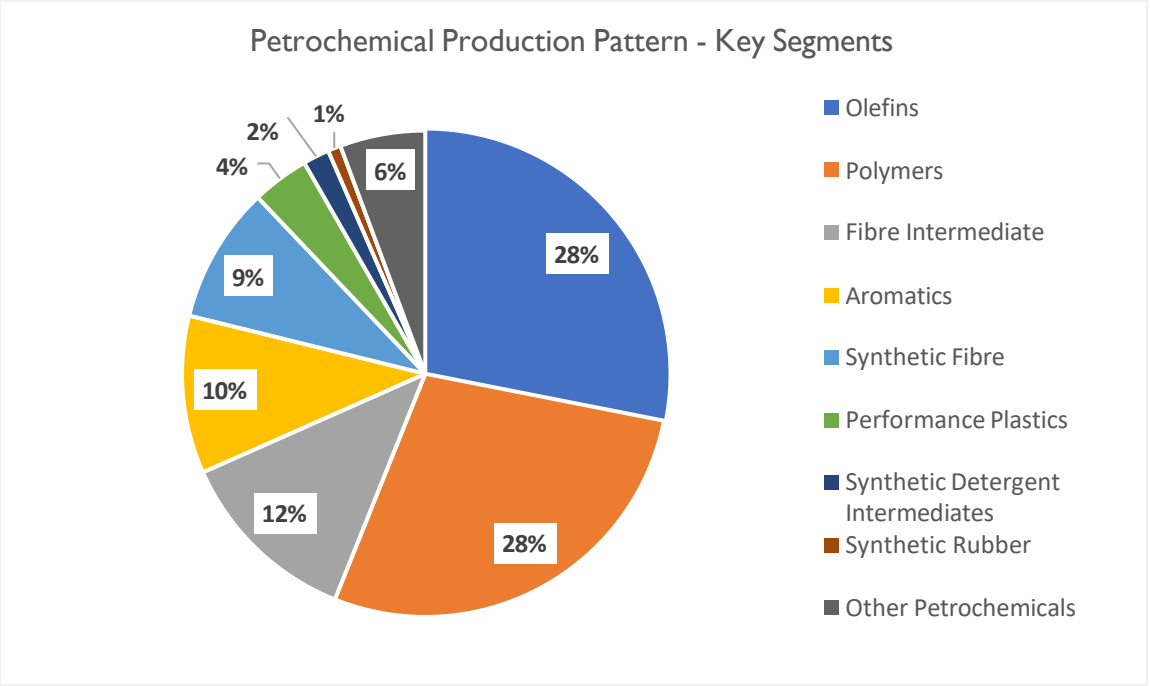
Capacity Utilization Rate

Year	***Production***	***Installed Capacity***	***Capacity Utilization Rate***
FY2020	43524.13	48933.31	89%
FY2021	42159.38	50438.76	84%
FY2022	44588.52	50612.4	88%
FY 2023	30243.39	50612.4	60%

The capacity utilization rate in all four years (2020-2023) falls below 100%, indicating that the industry is not operating at its full potential. Underutilization of production capacity across all three fiscal years (2020-2022) is seen ranging from 84% to 89% which further declined to 60% in FY 2023.

Key product segments

Olefins & Polymers segments together, with a combined contribution of 56%, represent the backbone of the Indian petrochemical industry. Olefins, like ethylene and propylene, are the fundamental building blocks for various polymers, including polyethylene (PE), polypropylene (PP), and PVC. These polymers are widely used in packaging, construction, textiles, and numerous other applications.



Source: Department of Chemicals and Petrochemicals

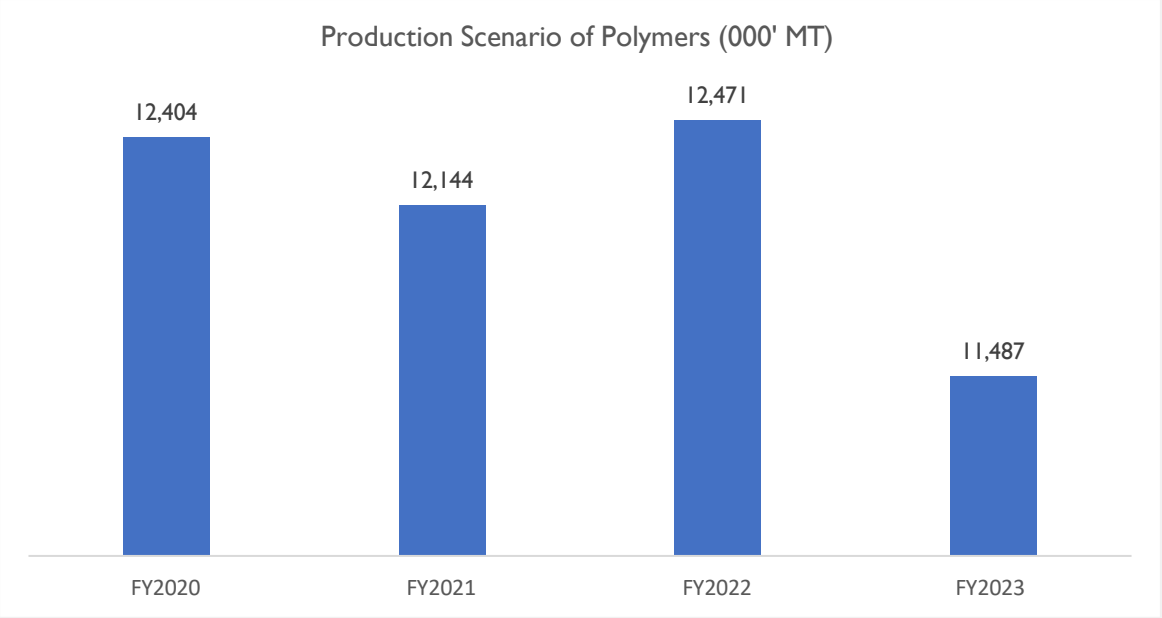
Fibre Intermediates (12%) & Synthetic Fibres (9%) together, these segments account for 21%, highlighting the importance of polyester and other synthetic fibers in the Indian textile industry. These fibers offer affordability, durability, and versatility, making them popular choices for clothing, home textiles, and industrial applications.

Aromatics accounts for 10% of the production in FY 2023., this segment encompasses benzene, toluene, and xylene, used in various applications like plastics, synthetic rubber, and solvents. Whereas Performance Plastics contributes 4%, these specialized plastics offer superior properties like high heat resistance, chemical resistance, and flame retardancy, finding applications in electronics, automotive parts, and aerospace. Synthetic Detergent Intermediates (2%) & Synthetic Rubber (1%), these segments cater to specific needs in the cleaning products and automotive industries, respectively. Other Petrochemicals accounts for 6%, this category encompasses a diverse range of chemicals used in various sectors like pharmaceuticals, paints, and adhesives.

Historical Growth Trend in Production of Polymers

Polymers (overall)

The Indian polymers industry has witnessed a dynamic growth trajectory in recent years. Production peaked at 12,471 thousand metric tons in FY2022, followed by a decline to 11,487 thousand metric tons in FY2023. This fluctuation can be attributed to various factors, including global economic conditions, fluctuations in raw material prices, and changes in consumer demand.



Source: Department of Chemicals and Petrochemicals

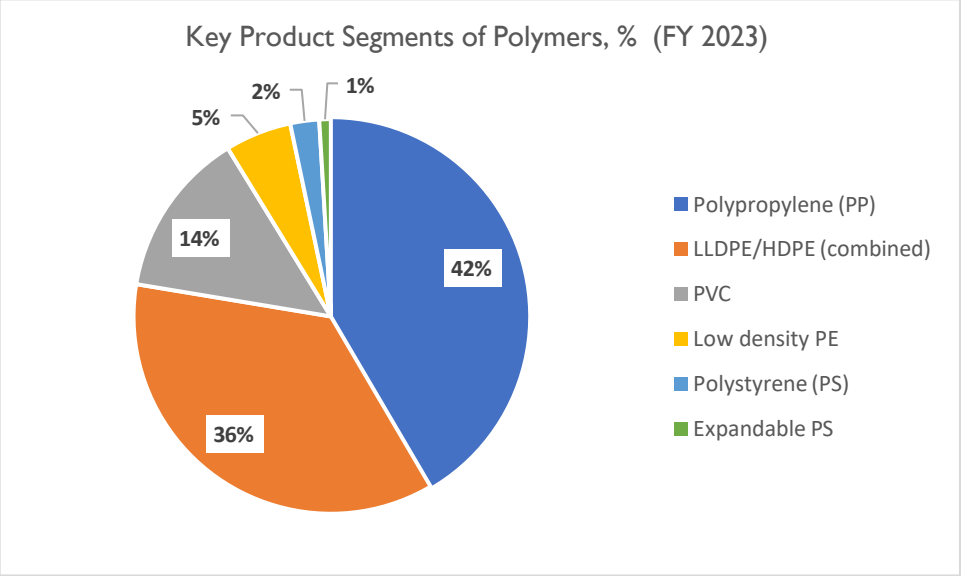
The polymers industry plays a pivotal role in India's economic landscape, contributing significantly to various sectors such as packaging, construction, automotive, and consumer goods. The industry has been characterized by continuous innovation and technological advancements, driving the development of new and improved polymer materials with enhanced properties and functionalities.

Looking ahead, the Indian polymers industry is poised for further growth, driven by factors such as increasing urbanization, rising disposable incomes, and growing demand for lightweight and durable materials. The industry is also expected to benefit from government initiatives aimed at promoting the use of plastics in infrastructure development and other key sectors.

However, the industry also faces challenges such as environmental concerns related to plastic waste management and the need for sustainable and eco-friendly solutions. Addressing these challenges will be crucial for the long-term growth and sustainability of the Indian polymers industry.

Key Product Segments of Polymers

Polypropylene (PP) emerges as the leading polymer, accounting for a substantial 42% of total production at 4,773.5 thousand metric tons. This dominance can be attributed to PP's versatility and wide-ranging applications across sectors like automotive, packaging, and consumer goods. Its lightweight nature, good chemical resistance, and ease of processing make it a preferred choice for various manufacturing processes.



Source: Department of Chemicals and Petrochemicals

LLDPE/HDPE (combined) occupies the second position with a 36% share at 4,142.32 thousand metric tons. These polyethylenes find extensive use in packaging applications, particularly in the form of films, bags, and containers. Their robust nature, flexibility, and cost-effectiveness contribute to their widespread adoption.

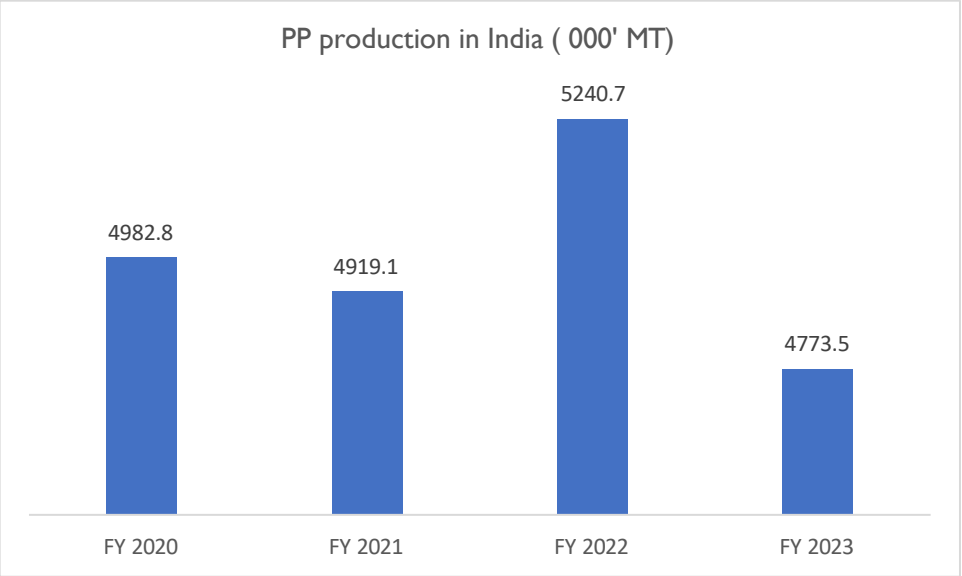
PVC follows with a 14% share at 1,565.59 thousand metric tons. PVC's versatility is evident in its applications across construction, piping, and other industrial sectors. Its durability, resistance to chemicals, and ease of processing make it a suitable material for various applications.

Other polymers, while constituting smaller shares, also play significant roles in the Indian market. Polystyrene (PS), at 2%, finds applications in packaging, electronics, and construction. Expandable PS (1%) is primarily used in packaging and insulation.

Historical Growth Trend in Production of Key Polymers (PE & PP)

Polypropylene (PP)

The Indian Polypropylene (PP) industry has witnessed notable production fluctuations in recent years. Total PP production peaked at 5,240.7 thousand metric tons in FY2022, followed by a decline to 4,773.5 thousand metric tons in FY2023. This fluctuation can be attributed to various factors, including global economic conditions, fluctuations in raw material prices, and changes in consumer demand.



Source: Department of Chemicals and Petrochemicals

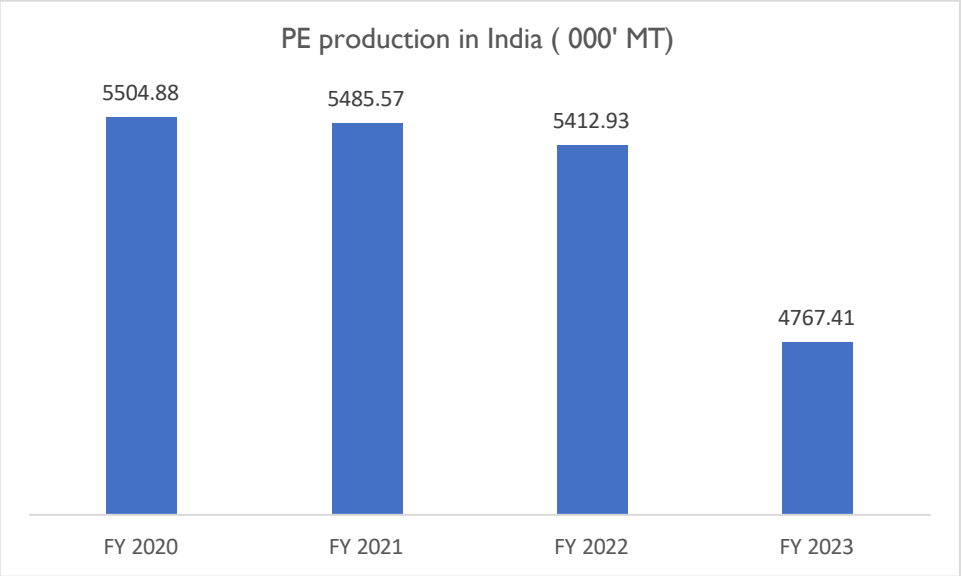
PP plays a crucial role in the Indian economy, finding applications in diverse sectors such as automotive, packaging, textiles, and consumer goods. Its lightweight nature, good chemical resistance, and ease of processing make it a preferred choice for various manufacturing processes.

The decline in PP production from FY2022 to FY2023 indicates potential challenges within the industry. These challenges could include factors like increased competition, changing consumer preferences, and the need to adapt to evolving market demands.

The future of the Indian PP industry hinges on its ability to address these challenges and capitalize on emerging opportunities. This may involve investments in research and development to develop innovative PP-based products, exploring new applications for PP, and adopting sustainable manufacturing practices to minimize environmental impact.

Polyethylene's (PE)

The Indian polyethylene (PE) industry has witnessed a notable production trend in recent years. Total PE production, encompassing both LLDPE/HDPE and low-density PE, peaked at 5,504.88 thousand metric tons in FY2020 and subsequently declined to 4,767.41 thousand metric tons in FY2023. This decline can be attributed to various factors, including global economic fluctuations, shifts in consumer demand, and potential challenges within the industry.



Source: Department of Chemicals and Petrochemicals

LLDPE/HDPE consistently constitutes the largest segment within total PE production, highlighting their significance in the Indian market. These materials find extensive applications in packaging, construction, and other crucial sectors. The decline in LLDPE/HDPE production from 4,891.59 thousand metric tons in FY2020 to 4,142.32 thousand metric tons in FY2023 mirrors the overall trend in total PE production.

Low-density PE, while constituting a smaller portion, also plays a vital role in the Indian polymer landscape. Its applications range from packaging films and bags to consumer goods. Production of low-density PE exhibited a slight increase from 613.29 thousand metric tons in FY2020 to 625.09 thousand metric tons in FY2023, despite the overall decline in total PE production.

Major petrochemical product hubs in India

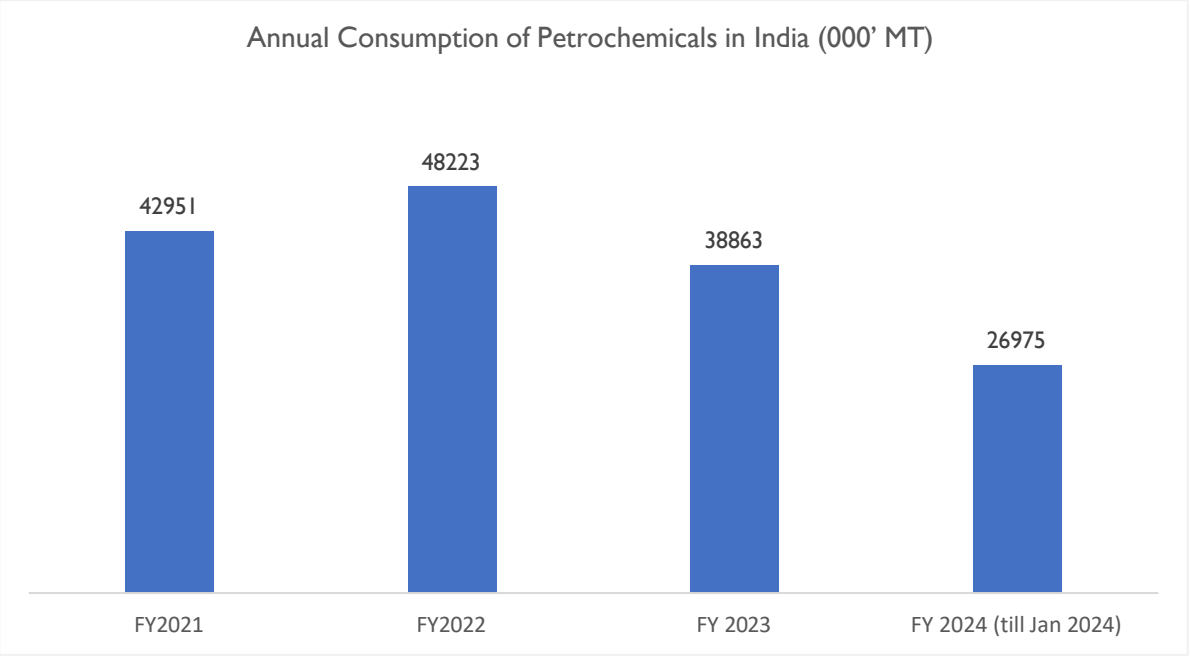
India's petrochemical industry boasts several key production hubs playing a crucial role in its growth. These hubs benefit from strategic locations, access to raw materials, and a well-developed infrastructure, making them centres of excellence for petrochemical production.

Gujarat			
Undisputed Leader	**Favourable Location**	**Strong Infrastructure**	**Key Players**
Gujarat stands as the undisputed leader in Indian petrochemicals, accounting for a significant share of the national production.	Its proximity to major ports like Mundra and Pipavav facilitates easy import of crude oil and export of finished products.	A well-developed network of pipelines, refineries, and petrochemical complexes creates a robust ecosystem.	Reliance Industries, Indian Oil Corporation (IOC), and Gujarat State Petrochemicals Corporation (GSPC) are major players with large-scale facilities in Gujarat.
Maharashtra			
Established Hub	**Strong Infrastructure**	**Diversified Production**	**Key Players**
Maharashtra boasts a well-established petrochemical industry, particularly concentrated around Mumbai and Pune.	Industrial areas like Navi Mumbai, Pimpri-Chinchwad, and Pune are prominent centres for petrochemical production.	The state has a diverse production base, encompassing olefins, polymers, polyester, and specialty chemicals.	Companies like National Organic Chemical Industries Limited (NOCIL), Reliance Industries, and BASF India have significant presences in Maharashtra

Tamil Nadu			
Emerging Hub	**Focus on Polymers**	**Government Support**	**Key Players**
Tamil Nadu is a rapidly growing petrochemical hub, attracting significant investments due to its strategic location and government initiatives.	The state has a strong focus on polymer production, with companies like Chevron Phillips Chemical and Reliance Industries setting up major facilities.	The Tamil Nadu government actively promotes the development of the petrochemical sector through dedicated industrial parks and incentives.	Petrochemical companies like Madras Refineries Limited (MRL) and Chevron have their refineries and petrochemical complexes in Tamil Nadu.

Consumption scenario

An increase in petrochemical consumption from 42,951 thousand MT in FY 2021 to 48,223 thousand MT in FY 2022. This indicates a growth of approximately 12.3%, indicating a growing demand for these chemicals in various sectors. However, a significant decline is estimated for FY 2023 (38,863 thousand MT).

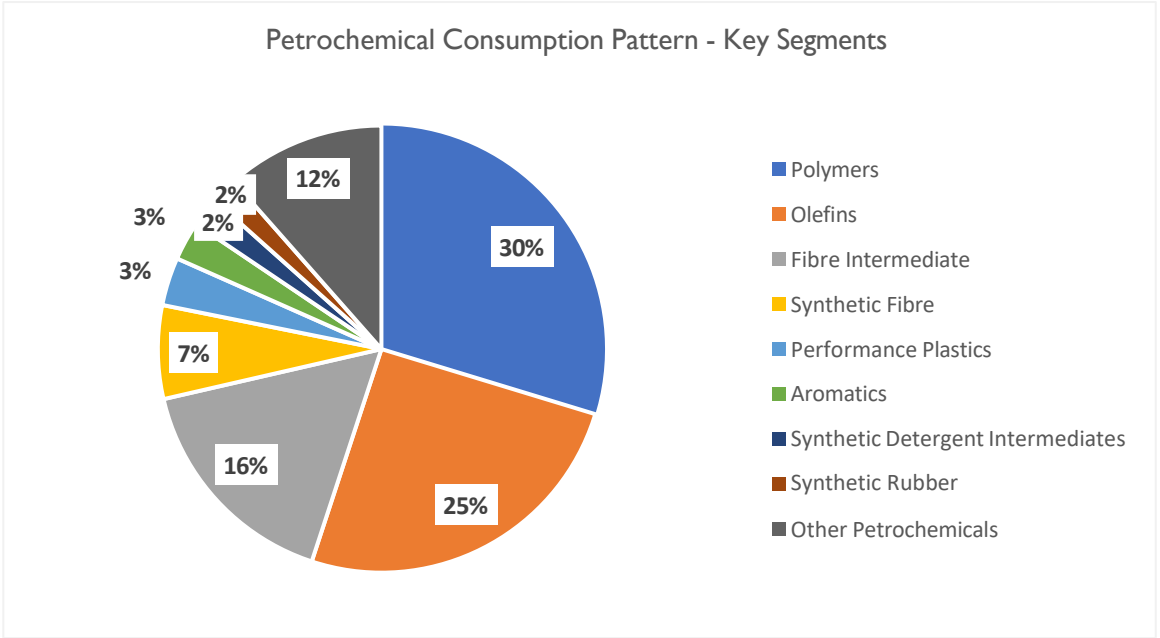


Source: Department of Chemicals and Petrochemicals, D&B Estimates

Several factors contribute to the growth in FY 2021 and FY 2022, India's economic recovery post-pandemic might have led to increased demand for petrochemical products used in various sectors like construction, packaging, and automobiles. Increased investments in infrastructure projects like roads, buildings, and transportation significantly boost demand for petrochemicals used in construction materials like pipes, insulation, and coating. Rapid urbanization trends lead to a rise in housing construction and related demand for petrochemical products used in building materials, paints, and furniture. The burgeoning Indian automotive sector is a major consumer of petrochemicals for components like tires, hoses, and various plastic parts.

Key product segments

Polymers (30%) and Olefins (25%) form the backbone of petrochemical consumption in India, accounting for over half (55%) of the total consumption. Polymers, including polyethylene, polypropylene, and PVC, are the most widely consumed petrochemicals in India. Their versatility makes them essential for various applications in packaging, construction, textiles, and consumer durables. Olefins like ethylene and propylene are the building blocks for many polymers. Their high demand reflects the strong consumption of downstream polymer products.



Source: Department of Chemicals and Petrochemicals

Fibre Intermediates and Synthetic Fibres accounts for 16% & 7% respectively, this segment, totalling 23%, signifies a growing market for synthetic textiles. These segments cater to the textile industry, a major consumer of petrochemical-based fibers like polyester and nylon. Rising demand for clothing and technical textiles is likely driving growth in this segment.

Performance Plastics and Aromatics each accounts 3% of the total production. Performance plastics offer superior properties like high strength, heat resistance, and flame retardancy. Their applications is increasing in automotive components, electronics, and aerospace segment.

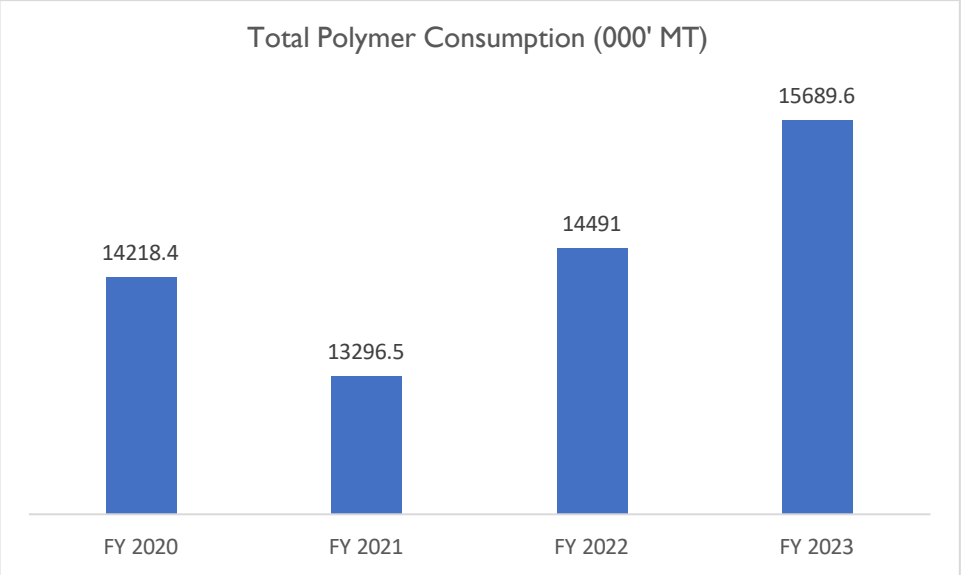
Synthetic Detergent Intermediates and Synthetic Rubber each contributes 2% to the total production. These segments cater to specific applications like detergents and tire production.

Other Petrochemicals accounts for 12% of the production, encompass a diverse range of chemicals used in various applications. It includes products like plasticizers, solvents, adhesives, and specialty chemicals catering to specific industrial needs.

Historical Growth Trend in Consumption of Polymers

Polymers (overall)

The Indian polymers market has witnessed a significant growth trajectory in recent years, driven by robust economic growth, increasing urbanization, and rising disposable incomes. Total polymers consumption surged from 14,218.4 thousand metric tons in FY2020 to 15,689.6 thousand metric tons in FY2023, reflecting a consistent upward trend. This substantial increase underscores the growing demand for polymers across various sectors within the Indian economy.



Source: Department of Chemicals and Petrochemicals

Several factors contribute to this burgeoning consumption. The construction sector, fueled by infrastructure development initiatives and rapid urbanization, is a major driver of polymer demand, particularly for PVC, PE, and PP. The automotive industry, with its focus on lightweighting and fuel efficiency, increasingly utilizes polymers like PP and engineering plastics. The packaging industry, driven by e-commerce growth and changing consumer preferences, heavily relies on polymers such as PE and PET. Furthermore, the consumer goods sector, encompassing electronics, appliances, and other consumer durables, significantly contributes to polymer consumption.

This sustained growth in polymers consumption presents both opportunities and challenges. While it signifies a thriving economy and expanding industrial base, it also necessitates a focus on sustainable practices. The industry must prioritize the development and adoption of eco-friendly polymers, improve

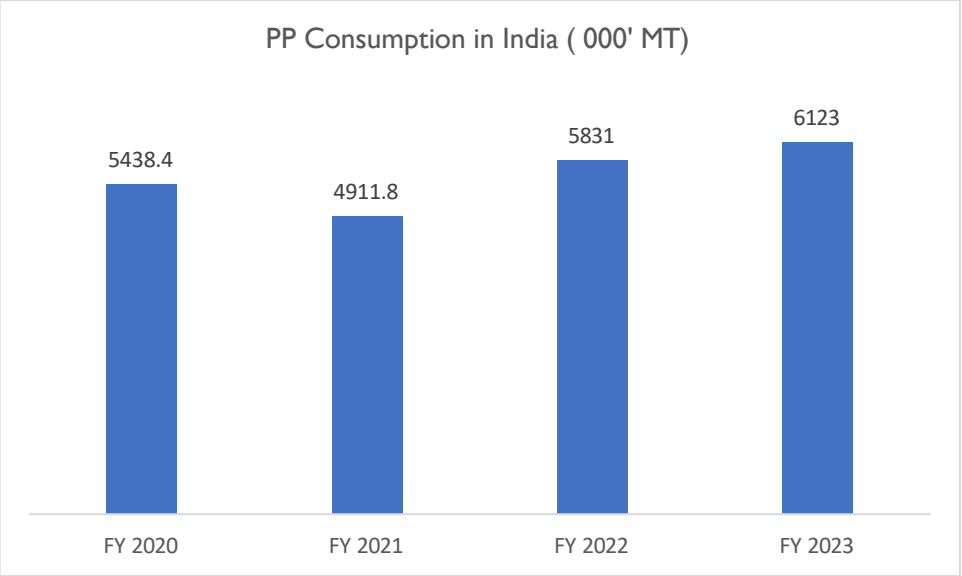
recycling infrastructure, and minimize environmental impact. Additionally, addressing concerns related to plastic waste management and promoting circular economy principles will be crucial for the long-term sustainability of the Indian polymers market.

The Indian polymers market is poised for further growth, driven by technological advancements, evolving consumer preferences, and government initiatives aimed at promoting sustainable development. Continued innovation in polymer technology, coupled with a focus on sustainability and circular economy principles, will be key to ensuring the long-term growth and success of the Indian polymers industry.

Historical Growth Trend in Production of Key Polymers (PE & PP)

Polypropylene (PP)

Polypropylene (PP) consumption in India has witnessed a significant growth trajectory in recent years, with total consumption steadily increasing from 5,438.4 thousand metric tons in FY2020 to 6,123 thousand metric tons in FY2023. This robust growth underscores the increasing demand for PP across various sectors within the Indian economy.



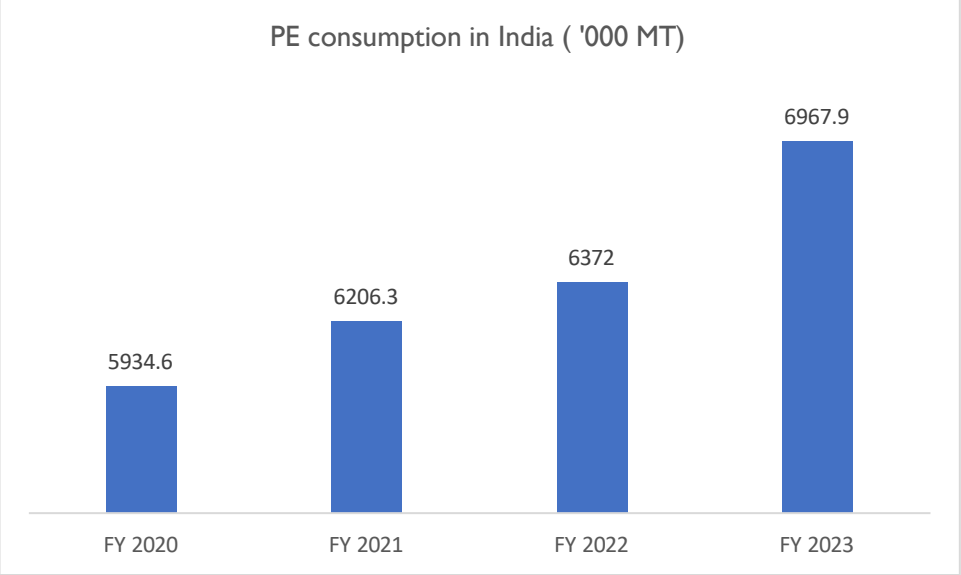
Source: Department of Chemicals and Petrochemicals

This surge in PP consumption can be attributed to several factors. The automotive industry, with its focus on lightweighting and fuel efficiency, increasingly utilizes PP in various components. The packaging industry, driven by e-commerce growth and changing consumer preferences, heavily relies on PP for packaging films, containers, and other applications. The construction sector, fueled by infrastructure development and urbanization, also contributes significantly to PP demand, particularly for pipes, fittings, and other construction materials.

Polyethylene's (PE)

Polyethylene consumption has witnessed a significant growth trajectory in recent years, with total consumption steadily increasing from 5,934.6 thousand metric tons in FY2020 to 6,967.9 thousand

metric tons in FY2023. This robust growth underscores the increasing demand for PE across various sectors within the Indian economy.



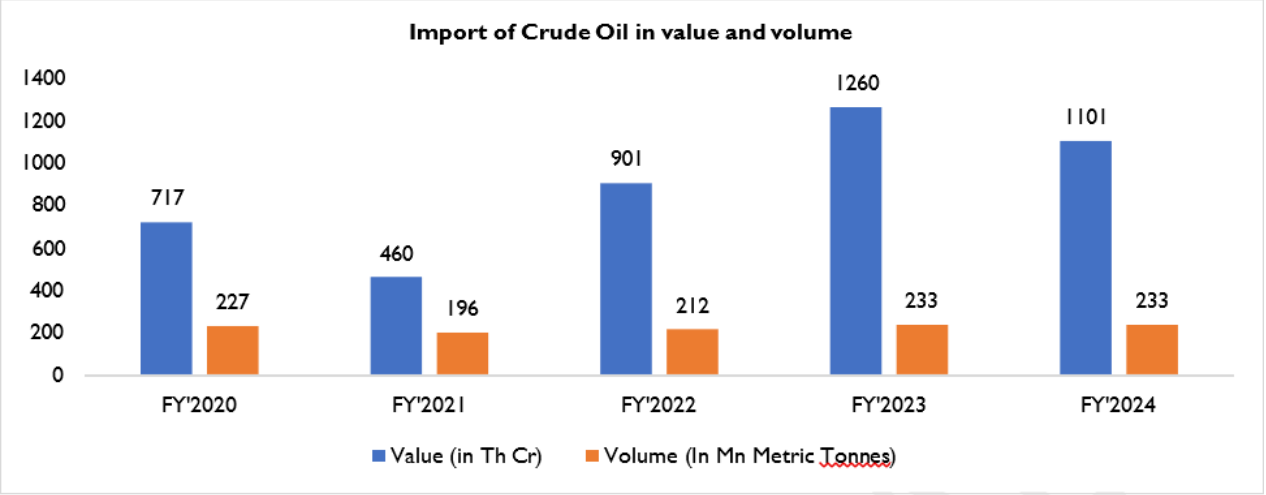
Source: Department of Chemicals and Petrochemicals

Within the PE segment, High-Density Polyethylene (HDPE) has emerged as the dominant player, experiencing substantial growth from 2,198.6 thousand metric tons in FY2020 to 3,276.3 thousand metric tons in FY2023. This significant increase can be attributed to the growing demand for HDPE in sectors such as packaging (bottles, containers, films), construction (pipes, fittings), and agriculture (mulch films).

Linear Low-Density Polyethylene (LLDPE) also constitutes a significant portion of the PE market. While its consumption experienced a slight decline from 3,050.9 thousand metric tons in FY2021 to 2,860.7 thousand metric tons in FY2023, it remains a crucial material for applications like flexible packaging, film extrusion, and agricultural films.

Low-Density Polyethylene (LDPE), though constituting a smaller share, has also witnessed growth. Its consumption increased from 825.6 thousand metric tons in FY2020 to 830.9 thousand metric tons in FY2023. LDPE finds applications in various sectors, including packaging (films, bags), consumer goods, and wire and cable insulation.

Feedstock Scenario



Source: Ministry of Petroleum and Natural Gas

India's crude oil imports decreased by 0.2% in FY 2024, yet import dependency remains high, with over 85% of crude oil being imported and refined into fuels like petrol and diesel. Despite importing a similar quantity of crude oil as compared to last year, India spent Rs 1,101 thousand crores in FY 2024 due to falling international crude oil prices. Petroleum products consumption in India increased by 4.6% to 233.3 million metric tonnes (MMT) in FY 2024, while domestic production remained steady.

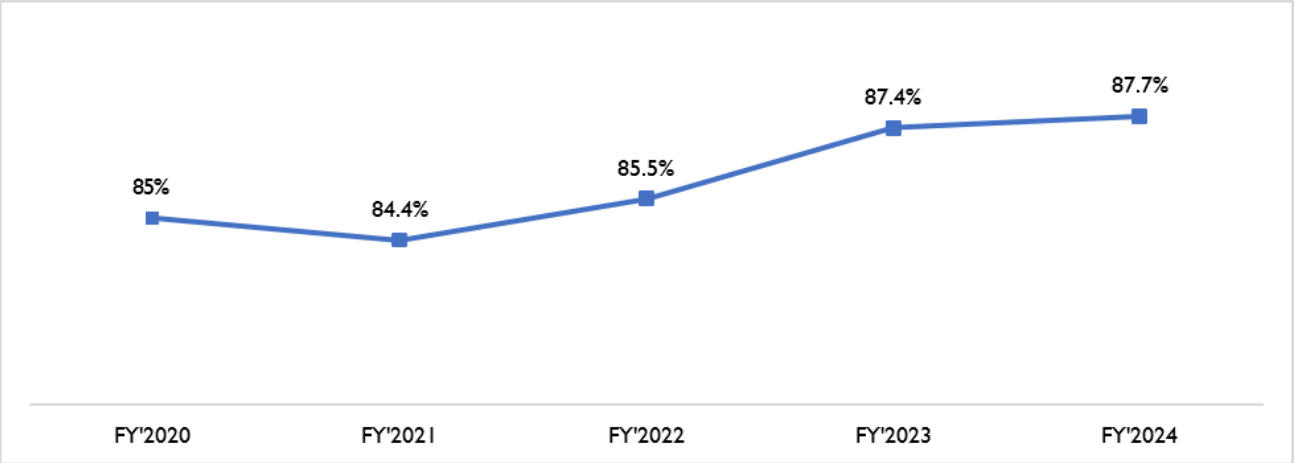
A report from the oil ministry indicates that the growth in petroleum product consumption—an indicator of oil demand—in FY 2024 was driven by a 6.4% increase in motor spirit (MS) or petrol, 4.4% in high-speed diesel (HSD), 11.8% in aviation turbine fuel (ATF), and 14.3% in naphtha consumption, alongside increases in LPG, lubes, bitumen, petcoke, and light diesel oil (LDO). In comparison, product consumption in the previous year was 223 MMT. Domestic crude oil production in FY 2024 was 29.4 MMT, nearly unchanged from 29.2 MMT in the previous year. Consequently, India's crude oil imports were at their highest, meeting 87.7% of its oil requirements from foreign supplies. This dependency was 87.4% in FY 2023 and 85.5% in FY 2022.

India's high import dependency poses challenges amid rising oil prices due to geopolitical tensions in the Middle East and controlled supply from OPEC+. To mitigate the impact of rising oil prices, the Indian government has urged oil explorers ONGC and Oil India Limited (OIL) to boost production. ONGC aims to reverse years of declining production by FY 2025, targeting new output from its Krishna Godavari (KG) basin to gradually raise overall oil production by 11% and gas production by 15%.

On the trade front, India has diversified its sources of crude oil, now purchasing from 37 countries, up from 29 countries previously. This strategy ensures energy availability at affordable prices.

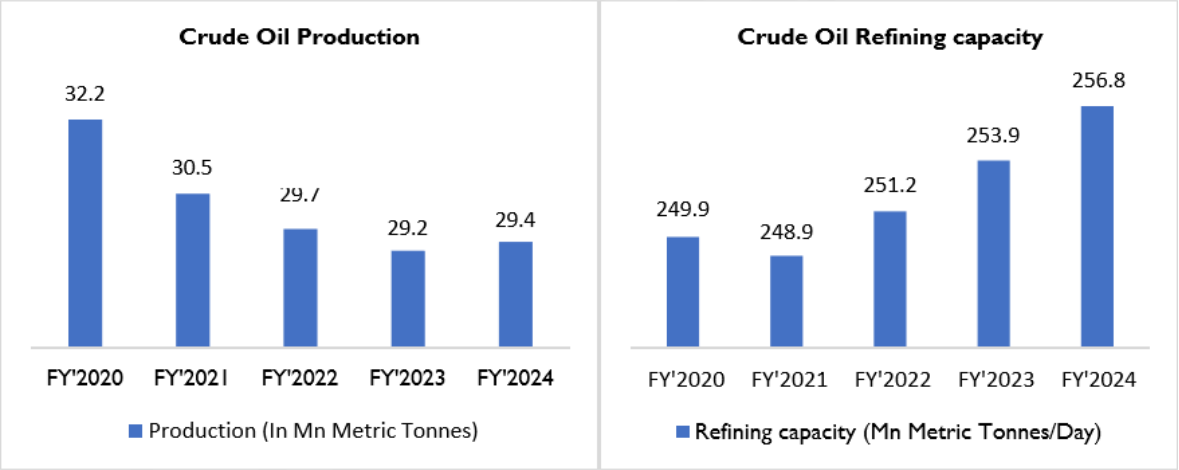
Notably, Russia, which accounted for only 0.2% of India's total crude requirements before 2022,now supplies around 30% of total crude imports.

Import dependency on crude oil



Source: Ministry of Petroleum and Natural Gas

Crude oil production and refining capacity



Source: Ministry of Petroleum and Natural Gas

Crude oil production has seen negligible growth, with an increase of only 0.7%, while refining capacity has grown by 1% in both FY 2023 and FY 2024. The decline in oil production can be attributed to several factors:

- ***Maturing Oil Fields:*** A significant portion of India's crude oil is sourced from wells that have been in operation for a long time. As these fields age, their productivity naturally declines, leading to a reduction in overall output.

- ***Extracting Difficult Reserves:*** The remaining oil reserves in India are often located in challenging environments, such as deepwater areas. Extracting oil from these locations requires more advanced and costly technologies compared to onshore or shallow water

drilling.

- ***Infrastructure Bottlenecks:*** India's current oil and gas infrastructure, including pipelines and transportation facilities, may not be sufficient to efficiently manage increased production from new fields. Upgrading this infrastructure demands significant investment.
- ***Focus on Imports***: Historically, India has heavily relied on importing crude oil to meet its demands. This established import infrastructure can discourage substantial investment in domestic exploration.

India is the fourth largest refiner in the world, driven by the government's efforts to boost refining capacity due to the country's rising crude oil consumption. This increase in consumption is attributed to the expansion of its industrial, construction, and manufacturing sectors. In the aftermath of the Russia-Ukraine war, Indian refiners have become key players in the global refining landscape. The government's refining push aims to enhance energy security by reducing reliance on imported crude oil, which is subject to price fluctuations and geopolitical risks. By increasing refining capacity, India can process more of its own crude oil and produce finished products, thereby reducing dependence on foreign sources. Additionally, expanding refineries is crucial to meet the growing domestic demand for fuel, driven by economic growth and rising vehicle ownership. This ensures that there is sufficient capacity to cater to the increasing need for petroleum products. Furthermore, increased refining capacity opens up the potential for India to export refined products, creating additional revenue streams. A strong refining industry also positions India as a significant player in the global oil market, providing more leverage in negotiations and enabling diversification of crude oil sources.

Key Demand Drivers

Polyethylene (PE) and Polypropylene (PP) are two of the most consumed thermoplastic components in the world.

PE is the most commonly produced and consumed polymer compound globally. If finds application in a wide range of products, ranging from every day usage products to niche products. Some of the uses of PE include usage in manufacture of PET bottles, bags & food containers, pipes & pipe fittings. Flexible packaging films, and medical implants, to name a few

The popularity of polypropylene stems from its unique blend of properties including flexibility, moisture resistance, superior impact strength, insulation properties, and the smallest impact[4] on environment amongst all popular thermoplastics. These unique properties & attributes has led to its usage as mouldings, fibers, tape, foam, and film. In these separate forms PP is used across a wide range of industries including automotive, plastic

[4] PP is considered to produce less solid waste by weight and less carbon dioxide equivalent when compared to other plastics like PET, PS, PVC

packaging, technical textiles, and plastic parts used in machinery/equipments. This widespread usage pattern of PP in its various forms across multiple industries has given the commodity a strong and varied demand base.

Polyethylene and Polypropylene Application in Packaging Sector

PE is one of the most widely used packaging material where its multiple variants – low density polyethylene (LDPE), high density polyethylene (HDPE) and linear low-density polyethylene (LLDPE) – are used for packaging applications in food & beverage industry, medical & pharmaceutical sector, and consumer good packaging.

Superior barrier properties, excellent resistance to moisture, good surface finish along with low cost of the commodity has made PP a preferred packaging material. In packaging sector, it is used in blow moulded and sheet thermoformed form across both rigid and flexible packaging. In rigid packaging PP is used to manufacture crates, bottles, and pots. Thin-walled PP containers are also used in rigid food packaging applications. In flexible packaging, PP is used to manufacture cast film / bi-axially oriented PP films (BOPP) which find widespread applications.

Indian Packaging Industry

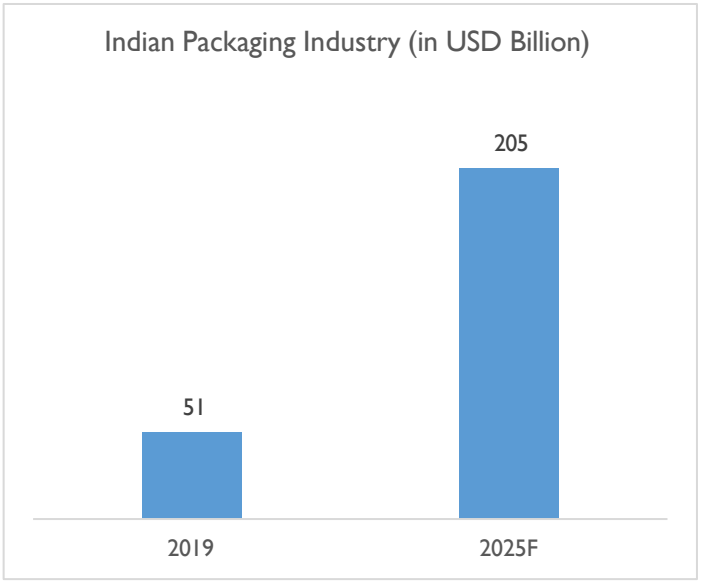
Packaging is the fifth largest economic sector in India, and the overall turnover in Indian packaging industry is estimated to reach USD 204 Billion by 2025[5]. The domestic packaging industry is growing by 20 – 22% per annum, and the country is fast becoming a global packaging hub. The lower cost of packaging material compared to Europe and America combined with the cheaper production cost in India has helped the country's packaging sector compete effectively in the global landscape.

Plastic packaging material demand in India is estimated to be nearly 20 million, which is met through a mix of virgin plastics & recycled plastic[6]. Packaging is the largest consumer of plastic products in India, and the sector is estimated to account for more than half of the total plastic consumption in India.

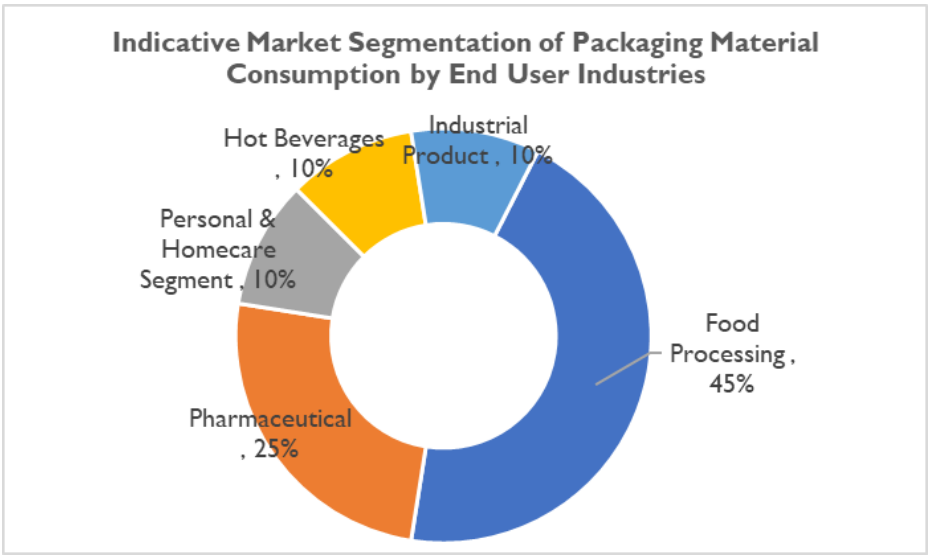
Demand for plastic packaging primarily comes from sectors like Processed food packaging(including Alcoholic & Non Alcoholic beverages), Personal Care products packaging, Pharma packaging, FMCG, Tobacco, and others. Pharmaceuticals, Processed food, and Personal Care products. Based on end user industries, the packaging material consumption is highest in food processing followed by pharma, personal and home care product, hot beverages segment and industrial products.

[5] Packaging Industry Association of India

[6] TERI Study Findings, D&B Research



Source: Packaging Industry Association of India



D&B Research

The Indian economy is experiencing robust growth, fuelled by increasing consumption patterns across various sectors. Supported by rising income level and changing lifestyle, there is noticeable uptick in consumer spending that is significantly contributing to the country's economic expansion. Against this backdrop, key industries are experiencing remarkable growth.

The e-commerce sector, boasting a Gross Merchandise Value surpassing approximately USD 55 billion in 2022, is projected to achieve an annual Gross Merchandise Value of USD 350 billion by 2030. Simultaneously, the food and beverage industry, constituting approximately 3% of India's GDP, is on a trajectory to reach USD 505 billion by 2027 from USD 322 Bn in the year 2022. Further, other key user segments such as FMCG and Pharma are also expected to benefit from the growth in the economy. The expansive growth in these industries inherently leads to an increased demand for packaging. E-commerce relies heavily on efficient packaging for the safe delivery of products.

This strong growth in end user industries, and simultaneous demand for plastic packaging products is expected to directly benefit the demand for PE and PP, which are two of the most used plastic packaging materials.

Polypropylene Application in Automotive Sector

Polypropylene finds widespread application in automotive sector, where it is used in a wide range of exterior and interior applications. These include bumper facias, instrument panels, door trims, wheel covers, gas insulation and tanks. It is estimated that PP accounts for nearly half of all the plastic components that goes into an automobile.

Super chemical & moisture resistance together with strong impact and heat resistance are some of the attributes that has made PP the preferred plastic material by the automotive industry. Moreover, the high recyclability rate of the compound is also emerging as an attribute feature, given the rise in the sustainability initiatives across the globe.

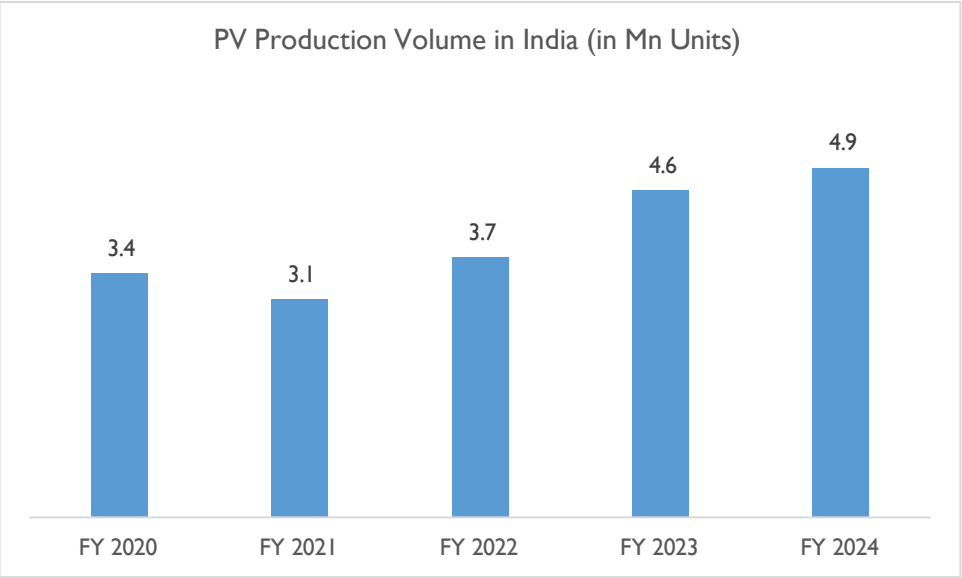
According to a report by European Plastic Recycling Branch (part of European Union Recyclers Association), plastic components accounts for nearly 10-15% of the mass of a car. Considering the average weight of a car at nearly 1,300 kgs, this translates into 150 to 200 kgs of plastic per automobile. Considering that PP accounts for nearly half of total plastic used, the average PP consumption by automotive industry is estimated to be nearly 75 – 100 kgs per car. As the global automotive industry is focusing on producing light weight fuel efficient cars, the percentage of light weight materials like plastics used in cars is expected to go up. Consequently the volume of PP consumed by the automotive industry is expected to increase in the coming years.

Approximately 4.9 million passenger vehicles were manufactured in India in FY 2024[7]. Considering nearly 7100 kgs of PP consumer per vehicle (global average), this translates into a consumption of nearly half a million tons of PP by the Indian automotive industry on an annual basis.

Indian Automotive Industry

Post covid, signs of recovery began to emerge in FY 2022 with production reaching 23.0 million units, and this upward trend continued through FY 2024 with production rising to 28.4 million units. However, production levels have not yet surpassed the pre-pandemic peak of 30.9 million units recorded in FY 2019. Annual production of passenger vehicles (PV) reached approximately 4.9 million units in FY 2024. Between FY 2020 and 24 the annual production of PV in India have increased by a CAGR of 9%.

[7] Society of Indian Automobile Manufacturers (SIAM)



Source: Society of Indian Automobile Manufacturers

Indian automotive space has witnessed strong growth in the recent years, as factors like rapid urbanization, increasing income levels, aspirational changes, and flexible financial products have all helped in increasing car ownership. Currently the country is ranked as the third largest car market in the world (in terms of volume sales), and the annual volume sales is expected to reach nearly 6 million units by end of this decade (from the current level of nearly 4.2 million units)[8]. This strong growth in PV sales together with increasing focus on developing light weight and efficient vehicles is expected to augur well for plastic consumption. Volume of PP consumed by automotive industry is thus widely expected to surge in the coming years.

Regulatory framework surrounding petrochemical product import in India

Authorities Involved

The import of petrochemical products into India is regulated by several key authorities. The Directorate General of Foreign Trade (DGFT) under the Ministry of Commerce and Industry plays a pivotal role in formulating and implementing import policies. DGFT issues Import Policy notifications, Export Policy, and Control Orders that govern the importation of goods, including petrochemical products. Importers must adhere to these policies and obtain necessary licenses or permissions as per the Import Policy.

Customs authorities oversee the physical movement of goods into the country and enforce tariff classifications and duty payments. They operate under the Central Board of Indirect Taxes and Customs (CBIC), which administers the Customs Tariff Act to determine duties applicable to petrochemical imports. Compliance with customs regulations is essential for proper clearance and entry into India.

The Ministry of Environment, Forest and Climate Change regulates environmental aspects related to the importation and handling of petrochemical products. Importers must comply with environmental norms

[8] Industry Sources, SIAM

to ensure the safe storage, handling, and transport of hazardous chemicals, thereby mitigating environmental risks and ensuring public safety.

Standards and Compliance Requirements

Bureau of Indian Standards (BIS) sets forth standards for petrochemical products to ensure quality, safety, and reliability. Compliance with BIS standards is mandatory for imported petrochemicals to ensure they meet Indian regulatory requirements. This includes specifications for product quality, packaging, labeling, and conformity assessment procedures.

Petroleum and Natural Gas Regulatory Board (PNGRB) regulates downstream activities in the petroleum sector, including refining and distribution. While primarily focused on petroleum products, its regulations may also impact certain petrochemical imports, especially those closely related to the petroleum industry.

Taxation and Duties

Currently, the customs duties on these products are approximately 7.5%. Imported petrochemical products are subject to multiple taxes and duties. The Goods and Services Tax (GST) applies to the value of imported goods, while Customs Duties—including Basic Customs Duty (BCD), Countervailing Duty (CVD), and Special Additional Duty (SAD)—are imposed based on the classification and value of the products. Importers must accurately declare the value and classification of their goods to ensure correct assessment and payment of these duties.

Trade Agreements and Preferences

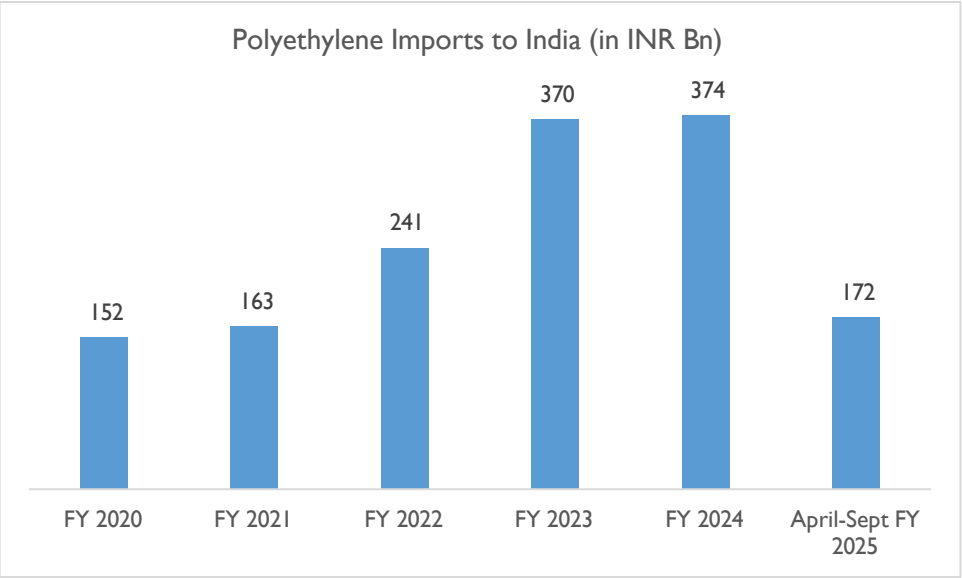
India participates in several bilateral and multilateral trade agreements that may offer preferential tariff rates or exemptions for certain petrochemical products. Importers can benefit from these agreements by meeting specific rules of origin and compliance criteria outlined in each agreement. Leveraging these agreements can reduce import costs and facilitate smoother trade relations with partner countries.

Trade Analysis

Import & Export of Polyethylene[9]

India is a net importer of polyethylene with value of annual imports touching INR 374 Bn in FY 2024 against an annual export value of approximately INR 43 Bn in the same year. Strong imports of polyethylene is on account of a combination of insufficient domestic production as well as competitive cost of imported products as against domestic supply.

[9] HS code 3901 is considered



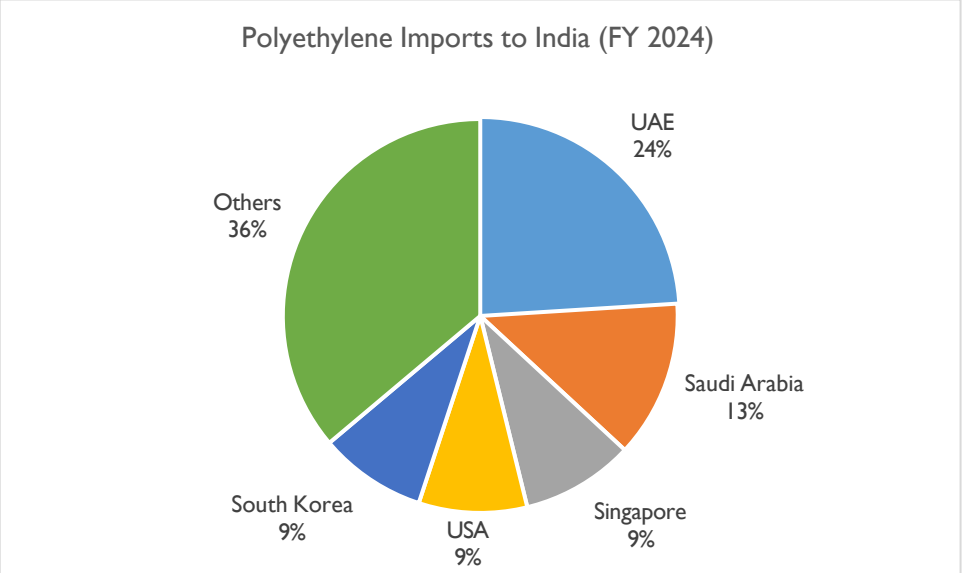
Source: Ministry of Commerce

Commodity (in INR Billion)	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Apr - Sep FY 2025
Polyethylene with gravity of <0.94[10]	28	21	27	33	31	23
Polyethylene with gravity of 0.94 or More[11]	41	48	63	140	164	64
Linear Low-Density Polyethylene[12]	-	9	15	21	21	13
Linear Low-Density Polyethylene[13]	22	15	21	44	36	12
Low Density Polyethylene[14]	-	14	27	24	29	23

[10] HS code 39011090
[11] Hs code 39012000
[12] HS code 39014010
[13] HS code 39011010
[14] HS Code 39011020

India's import trends for polyethylene highlight varying patterns across categories, driven by domestic demand and application-specific requirements. Polyethylene with a specific gravity of less than 0.94 saw fluctuations, declining from INR 28 billion in FY 2020 to INR 21 billion in FY 2021, rebounding to INR 33 billion in FY 2023, and then moderating to INR 23 billion during April–September FY 2025, possibly due to increasing domestic supply or reduced demand. In contrast, imports of polyethylene with a specific gravity of 0.94 or more surged from INR 41 billion in FY 2020 to INR 164 billion in FY 2024, reflecting robust demand for high-strength applications, though FY 2025 imports (April–September) showed signs of moderation at INR 64 billion. Linear low-density polyethylene (LLDPE) imports varied across sub-categories, with one segment growing from INR 9 billion in FY 2021 to INR 21 billion in FY 2024, while another peaked at INR 44 billion in FY 2023 before declining to INR 12 billion in FY 2025. Low-density polyethylene (LDPE) imports have steadily risen, from INR 14 billion in FY 2021 to INR 29 billion in FY 2024, maintaining strong demand at INR 23 billion during the first half of FY 2025, driven by its extensive use in packaging and films. These trends underscore the growing reliance on imports for high-gravity polyethylene and LDPE, while lower-gravity polyethylene and some LLDPE segments show signs of reduced import dependency or shifting market dynamics.

Approximately 64% of the total value of polyethylene imported to India comes from five countries – namely UAE, Saudi Arabia, Singapore, USA and South Korea. Of this, UAE is the largest exporter of polyethylene to India, accounting for nearly one fourth of the total value of polyethylene imports to India in FY 2024.



Source: Ministry of Commerce

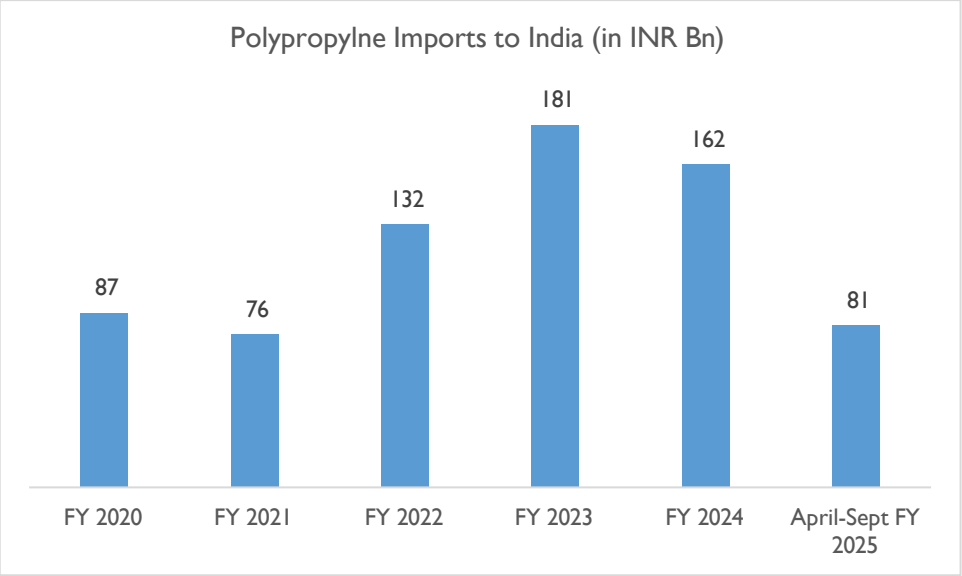
Meanwhile, annual export of polyethylene from India is estimated to be nearly INR 43 Bn in FY 2024. The value of polyethylene imported to India has been declining steadily, falling from INR 66.4 Bn in FY 2020 to the current value of INR 43 Bn. Domestic production capacity of polyethylene have improved over the years, however the rising domestic demand is expected to have slowed down exports.

China was the largest export market for Indian PE industry in FY 2024. Approximately one fourth of total value of PE exports in FY 2024 came from exports to China. Other notable export destinations include Nepal, Vietnam, Egypt and Bangladesh.

Import & Export of Polypropylene[15]

Just like polyethylene, India is also a net importer of polypropylene. Annual value of polypropylene imported to India reached INR 162 Bn in FY 2024, as against an annual export value of INR 35 Bn in the same year.

During the time period FY 2020 – 24, the annual import value of polypropylene has almost doubled, increasing from INR 87 Bn in FY 2020 to the current value of INR 162 Bn (in FY 2024). This translates into a CAGR of nearly 17% during the time period. During the first six months of FY 2025 (April – September), the value of PP imports reached INR 81 Bn.



Source: Ministry of Commerce

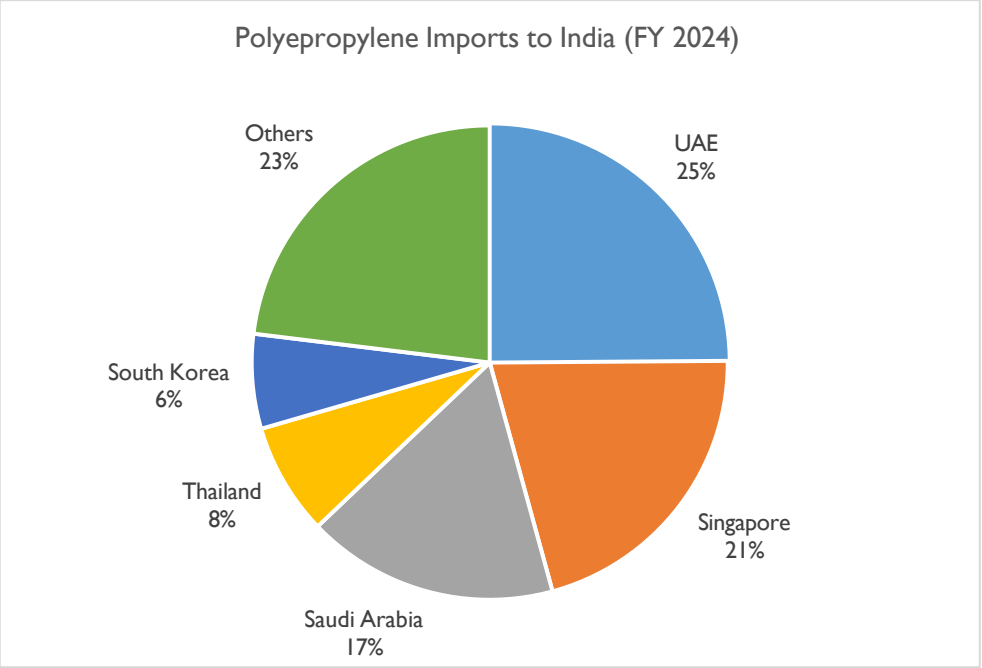
Commodity (in INR Billion)	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Apr - Sep FY 2025
Polypropylene[16]	56	48	85	125	106	59
Polypropylene Copolymers[17]	24	22	37	44	44	29

India's imports of polypropylene and its copolymers have demonstrated distinct patterns in recent years, reflecting changes in industrial demand. Polypropylene imports increased from INR 56 billion in FY 2020 to INR 85 billion in FY 2022, followed by a rise to INR 125 billion in FY 2023. Subsequently, imports declined to INR 106 billion in FY 2024 and recorded INR 59 billion during the first half of FY 2025. Polypropylene copolymers showed consistent growth, with imports increasing from INR 24 billion in FY 2020 to INR 37 billion in FY 2022 and remaining stable at INR 44 billion in both FY 2023 and FY 2024. During April–September FY 2025, imports were reported at INR 29 billion, indicating steady demand from key sectors such as automotive, packaging, and

[15] HS code 3902 considered
[16] HS code 39021000
[17] HS code 39023000

consumer goods. There has been stable growth in the polypropylene copolymer segment, while polypropylene imports reflect fluctuations influenced by market conditions and production capabilities.

Bulk of India's import of polyethylene comes from UAE, Singapore, Saudi Arabia, South Korea and Thailand. These are the same countries who are the major exporters of polyethylene to India. In FY 2024, UAE the largest exporter of polypropylene to India accounted for nearly 24% of the total value of PP imports to India during the year.



Source: Ministry of Commerce

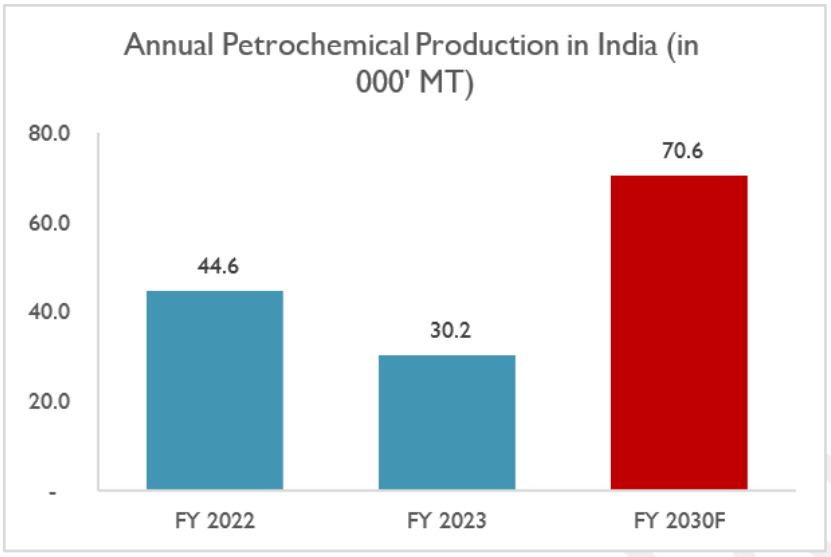
On the other hand, the overall export of polypropylene from India in FY 2024 yielded an export revenue of approximately INR 34.6 Bn. PP exports from India has been steadily declining for the past couple of years, falling from INR 57 Bn in FY 2021 to the current level.

Growth Forecast

While the historical performance of Indian chemical industry has been exemplary, the future holds even better growth opportunities. Domestic chemical consumption is rising steadily, and the country is expected to account for more than 20% of the incremental global consumption of chemicals that would happen globally in near future. The steady growth in industrial production is a key demand enabler.

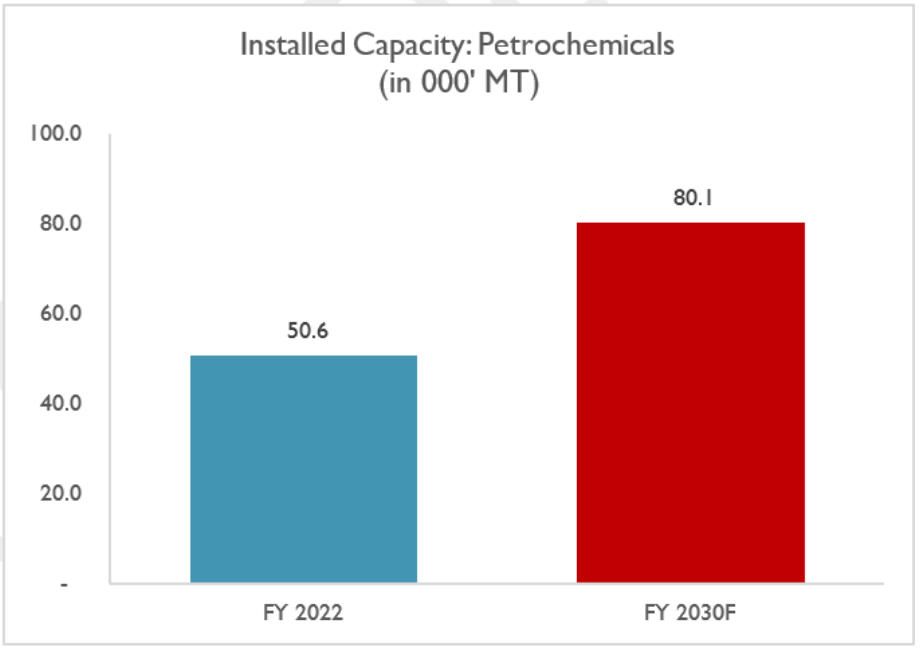
In addition, India is also positioning itself as a global chemical manufacturing hub, to meet the growing global demand. The evolving geopolitical scenario (the impact of events like Covid-19 pandemic and Russia – Ukraine conflict on global supply chain) has raised the question to relook the existing manufacturing landscape. Developed economies are looking at options beyond China to source products. This geopolitical scenario is expected to benefit India, which already has a very strong chemical manufacturing infrastructure.

The strong domestic demand, and the ascendence of India as a global chemical manufacturing hub are expected to accelerate the growth in chemical & petrochemical production in India. By the end of this decade, the annual production of petrochemicals is expected to reach nearly 70.6 thousand MT.



Source: Ministry of Chemicals, D&B Estimates

The petrochemical industry will have to gear up to meet the expected demand that would materialize over the course of this decade. For that to happen, the industry will have to massively upgrade its installed production capacity. At present, India has the capability to produce nearly 51 million tons of petrochemicals per annum. To support the anticipated growth in demand & production, India will have to scale up its installed petrochemical production capability to 80 mtpa by FY2030.



Source: Ministry of Chemicals. D&B Estimates

The above scenario envisages an addition of nearly 29.5 million tons of additional capacity in chemical and manufacturing space within the next six to seven years (FY 2023-30 period). The capex cycle in chemical manufacturing for this decade would be focused primarily on building up that capacity.

Competitive Landscape

The Indian polymer trading industry is a dynamic and complex, shaped by a mix of domestic leaders and international players. A key driver of competition is integration, as companies aim to manage the entire value chain, from raw material sourcing and production to distribution and marketing. This integrated approach enhances cost control and product quality. Access to resources also plays a pivotal role in defining competitive advantage, with firms having secure supplies of petrochemical feedstocks or partnerships with resource-abundant nations standing out.

The industry is broadly divided into two segments: upstream (production of polymers and feedstocks) and downstream (distribution, trading, and end-user applications). In the upstream segment, public sector undertakings (PSUs) like Indian Oil Corporation (IOC) and GAIL dominate, contributing significantly to India's polymer production. Meanwhile, the downstream trading sector sees a more diverse set of participants. Here, IOC continues to leverage its extensive distribution network, while private enterprises like Reliance Industries Limited (RIL) also hold a significant position supported by their robust manufacturing capacities. Global players such as BASF and Dow are also increasingly active in the market, offering specialized products and expanding their footprint in India.

This combination of established PSUs, agile private firms, and influential multinational corporations fosters a competitive environment where innovation, efficiency, and market responsiveness are critical for success.

Profiling of Key Players

Company Profile - TEGRA

- The TEGRA Group specializes in the development and distribution of construction chemical products. By adhering to high operational standards and fostering customer trust, the group has expanded its reach from Western Europe to the Far East.
- Headquarters: Lithuania
- Year Founded: 1995

Services

- **Development and Distribution:** Specializes in developing and distributing construction chemical products, including adhesives, sealants, mounting foams, spray paints, and tapes.
- **Customized Solutions:** Provides tailored product development services, from identifying market demands to launching products in collaboration with customers.
- **Product Demonstrations:** Offers product presentations and hands-on trials to help customers understand and evaluate the quality and applications of its offerings.

Strengths

- **Geographic Reach:** Expanded operations from Western Europe to Asia, with active markets in countries like Poland, Sweden, Germany, and Mongolia.
- **High Standards:** Products manufactured in EU-based factories adhering to stringent quality controls, ensuring reliability and international standards compliance.
- **Innovative Work Culture:** Encourages creativity and personal development within its team, supported by initiatives like the 'inTegra House' workshop and a 4+1 work week model to enhance skills and innovation.

Company Profile - Ramniklal Gosalia & Co.

- Ramniklal S. Gosalia & Co., a chemical importer and distributor in India, focuses on providing innovative solutions, quality products, and exceptional services to enhance customer competitiveness.
- Headquarters: Maharashtra, Mumbai
- Year Founded: 1954

Services

- **Import Sourcing:** R.S.G., with over seven decades of experience, supports overseas associates through market intelligence, product development, import expertise, and seamless collaboration. It addresses sourcing challenges in India, ensuring reliable partnerships and effective market penetration.
- **Overseas Market:** Sourcing from India involves challenges like supplier selection, performance standards, and navigating market complexities. With over seven decades of experience, R.S.G. effectively addresses these issues, ensuring reliable and efficient sourcing solutions.

Strengths

- **Wide Product Range**: RSG offers a diverse portfolio of chemicals, including solvents, specialty fine chemicals, and polymers, catering to a variety of industries like paints & coatings, pharmaceuticals, and plastics.
- **Extensive Network**: With multiple regional and branch offices, along with 9 warehouses covering significant areas, RSG ensures efficient distribution and close interaction with both bulk and retail end-users.
- **National Presence**: The company has a robust pan-India presence, enabling it to serve a wide range of customers across the country.

Company Profile - Tricon Polymers Private Limited

- Tricon Group, manufacturer and service provider of high-quality engineering products for infrastructure projects. With state-of-the-art facilities and a focus on innovation.
- Headquarters: Maharashtra, Navi Mumbai
- Year Founded: 1978

Services

- **Installation & Supervision:** Professional installation and on-site supervision to ensure proper setup and adherence to specifications.
- **Inspection, Maintenance, & Repair:** Regular inspections, maintenance, and repair services to ensure long-term performance and reliability.
- **In-house Designing & Customer Support:** Customized design solutions tailored to client needs, along with ongoing customer support for seamless product usage.

Strengths

- **Comprehensive Product Range & Customized Solutions:** Tricon Group offers a wide array of high-quality products like structural bearings and expansion joints, along with customized solutions and services such as installation, maintenance, and in-house design to ensure optimal performance. For example, they supplied Neoprene and Pot Bearings for the Mumbai Metro project.
- **Infrastructure with Quality and Innovation:** With extensive experience in delivering critical infrastructure projects, Tricon Group supports large-scale ventures like metro rail systems, highways, and bridges with high-quality, innovative solutions.
- **Strong Market Presence:** Tricon Group has a significant share in Indian infrastructure projects and has built a robust export and joint venture network with reputed international manufacturers, ensuring global reach and reliability.