Crisil
Intelligence

Assessment of Paper, Packaging & Packaged drinking water industry segments

June 2025

by S&P Global

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1. Global macroeconomic overview

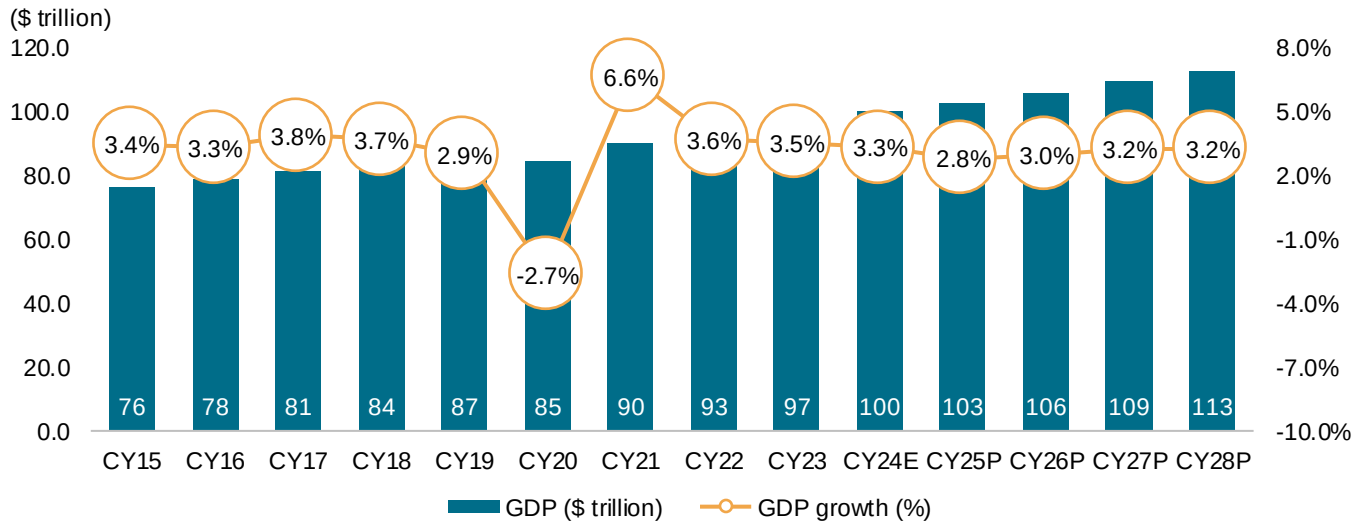
Global GDP is estimated to grow at 2.8% in CY25 and 3.0% in CY26 amid moderating inflation and steady growth in key economies

As per the International Monetary Fund's (IMF) April 2025 update, global gross domestic product (GDP) growth is projected at 2.8% in 2025 and 3.0% in 2026. This growth going forward is majorly propelled by the emerging and developing economies with regional differences on account of global economic tensions.

Signs of stabilization were emerging through much of 2024, after a prolonged and challenging period of unprecedented shocks. Inflation, down from multidecade highs, followed a gradual decline toward central bank targets, whereas labour markets normalized, with unemployment and vacancy rates returning to pre pandemic levels. Overall, the growth hovered around 3% in the past few years.

However, the swift escalation of trade tensions and extremely high levels of policy uncertainty are expected to have a significant impact on global economic activity. Overall, in the near term, the global growth is projected to grow at 2.8% in 2025, before recovering to 3% in 2026

Global GDP trend and outlook (CY18-28P, $ trillion)



Note: E: Estimated, P: Projection
Source: IMF economic database, Crisil Intelligence

India among fastest-growing major economies

India became the fifth largest in the world by fiscal 2023 and is expected to be the fourth largest economy by the end of 2025. It has grown at a faster growth rate compared to top key economies. Additionally, India's expanding economy along with growing per capita income, could positively impact the consumer purchasing power, which in turn will influence the demand for discretionary spends like entertainment, leisure, tourism, etc.

United States: For the United States, growth is projected to decrease in 2025 to 1.8%, 1% lower than the rate for 2024 as a result of greater policy uncertainty, trade tensions, and a softer demand outlook, given slower-than-anticipated consumption growth. Tariffs are also expected to weigh on growth in 2026, which is projected at 1.7% amid moderate private consumption.

Euro area: Growth in the euro area is expected to decline slightly to 0.8% in 2025, before picking up modestly to 1.2% in 2026. Rising uncertainty and tariffs are key drivers of the subdued growth in 2025. Offsetting forces that support the modest pickup in 2026 include stronger consumption on the back of rising real wages and a projected fiscal easing in Germany.

For advanced economies, growth under the reference forecast is projected to drop from an estimated 1.8% in 2024 to 1.4 percent in 2025 and 1.5 percent in 2026. The forecasts for 2025 include significant downward revisions for Canada, Japan, the United Kingdom, and the United States and an upward revision for Spain.

Emerging market and developing economies: For emerging market and developing economies, growth is projected to drop to 3.7% in 2025 and 3.9% in 2026, following an estimated 4.3% in 2024.

Real GDP growth comparison between India and advanced and emerging economies

Real GDP growth (annual percent change)	2019	2020	2021	2022	2023	2024E	2025P	2026P
Advanced economies	1.9	-4.0	6.0	2.9	1.7	1.8	1.4	1.5
Canada	1.9	-5.0	6.0	4.2	1.5	1.5	1.4	1.6
China	6.1	2.3	8.6	3.1	5.4	5.0	4.0	4.0
Japan	-0.4	-4.2	2.7	0.9	1.5	0.1	0.6	0.6
Emerging market and developing economies	3.7	-1.7	7.0	4.1	4.7	4.3	3.7	3.9
Euro area	1.6	-6.0	6.3	3.5	0.4	0.9	0.8	1.2
India*	3.9	-5.8	9.7	7.6	9.2	6.5	6.5**	6.3
United Kingdom	1.6	-10.3	8.6	4.8	0.4	1.1	1.1	1.4
United States	2.6	-2.2	6.1	2.5	2.9	2.8	1.8	1.7
World	**2.9**	**-2.7**	**6.6**	**3.6**	**3.5**	**3.3**	**2.8**	**3.0**

Notes: P- projected

** Historical numbers for India are for financial year from April to March (2020 is FY21 and so on) and as per MoSPI.*

***2025 Projection is as per the Crisil forecast for FY26, 2026 projection is as per IMF*

Source: IMF economic database, MoSPI, Crisil Intelligence

Growth drivers of global economy

Next-generation trade agreements: Ongoing uncertainty in global trade policies may lead to a renewed push for regional, multilateral, and plurilateral agreements, which could help reduce risks and increase policy stability. Comprehensive and non-discriminatory agreements that encompass a wide range of areas, including digital trade, services, and investment, could promote widespread benefits without creating new trade distortions. Furthermore, strengthening international cooperation and regional integration, such as the European Union's single market, could have a positive impact on investment, productivity, and economic growth, while also enhancing countries' ability to withstand external economic shocks by expanding their market reach and diversifying their trade relationships.

Structural reform momentum: A generalized acceleration of structural reforms, driven in part by peer benchmarking and challenging global economic conditions, could have a substantial impact on growth. Simplifying

regulatory frameworks and reducing bureaucratic hurdles would facilitate market access, increase competition, and foster a more dynamic business environment, leading to more efficient allocation of resources. Greater integration of financial, labour, and product markets could provide the necessary scale and depth to drive innovation and accelerate productivity growth. In Europe, addressing remaining internal barriers would enable companies to expand and grow. By accelerating European integration through the reduction of regulatory obstacles and strengthening the Capital Markets Union, investment could be increased, productivity lifted, and potential growth enhanced. This approach would also help to develop the European capital market, which is currently underdeveloped, and contribute to a reduction in global economic imbalances.

Growth engine powered by artificial intelligence: The growing enthusiasm for Artificial Intelligence (AI), combined with anticipated yearly reduction in AI implementation costs and future technological breakthroughs, could lead to considerable gains in productivity and consumption. As AI technologies become more widespread, they are likely to generate knowledge spillovers across various sectors and geographic regions, driving innovation and reducing costs on a global scale. These benefits can be realized without significant negative impacts on employment, provided that AI adoption is complemented by policies that modernize regulatory frameworks and facilitate the reallocation of labour. Furthermore, these gains can be achieved without leading to increased electricity prices and environmental costs, if policymakers and businesses collaborate to capitalize on the opportunity by promoting and incentivizing the use of renewable energy sources and innovative production methods.

Mitigation of conflicts: A peaceful resolution or reduction in ongoing conflicts could have a profound impact on the global economy, potentially leading to a decline in commodity prices and a more efficient allocation of resources. The end of hostilities, followed by reconstruction efforts, would not only stimulate economic growth in countries directly affected by conflicts but also have a positive ripple effect on neighbouring countries. For example, a ceasefire in Ukraine could lead to a surge in regional growth, driven by a resurgence in consumer confidence and a decrease in energy prices, particularly in Europe. However, countries that have invested in alternative infrastructure or energy sources as a response to conflict-related shortages may face temporary negative consequences if a reversal of circumstances prevents them from realizing the expected returns on their investments.

Challenges impacting global economy

Rising long-term interest rates: Additional upward pressure on already elevated US bond yields, combined with ongoing exchange rate fluctuations driven by further policy changes and uncertainty, could potentially trigger capital and foreign direct investment (FDI) outflows from emerging market and developing economies. The increasing concentration of capital in safe-haven countries and assets could worsen capital imbalances and misallocation, leading to a more unstable global financial environment. Furthermore, the structural pressure on long-term yields could limit the already constrained fiscal space needed to address the economic damage caused by the pandemic or meet new spending needs, and could also exacerbate concerns about fiscal sustainability, particularly in countries with high levels of debt. This could create a vicious cycle of debt, where borrowing costs rise as fiscal adjustments become increasingly difficult to achieve, ultimately leading to a debt spiral.

Rising social discontent: The ongoing cost-of-living crisis, coupled with diminished growth prospects, may intensify polarization and social unrest, ultimately hindering the implementation of necessary reforms to stimulate economic growth. Certain regions, such as Africa, are particularly vulnerable to instability due to the devastating impact of conflicts, soaring food and energy costs, and limited fiscal resources. Similarly, some Asian countries face challenges related to restricted democratic participation and rising inequality, which may exacerbate social tensions. While emerging and developing economies have shown remarkable resilience in recent years, their ability

to navigate domestic challenges, including high debt levels, may be tested in a deteriorating global economic landscape. A potential resurgence in food and energy price inflation, triggered by market disruptions or climate-related disasters, could further erode living standards and exacerbate food insecurity, particularly in low-income nations. A common thread among instances of social unrest is widespread discontent with governance and representation, which may undermine efforts to implement structural reforms and address the root causes of instability.

Labour supply gaps: The reliance on international labour has been a common strategy for many countries to mitigate workforce shortages, especially in the aftermath of the COVID-19 pandemic. However, a reduction in the influx of foreign workers to developed economies could have a double-edged effect. On one hand, it might alleviate pressure on local amenities and infrastructure and potentially lead to a modest increase in domestic incomes. On the other hand, the long-term consequences would likely be detrimental, with a decline in economic output both in the countries that receive these workers and globally. Furthermore, the subsequent decrease in the labour force could pose significant risks to fiscal stability and hinder economic growth, particularly in nations where immigrant workers are well-assimilated, and their skills meet and complement labour market needs.

Increasing challenges to international cooperation: The rising incidence and economic cost of natural disasters, as well as the escalating intensity of conflicts, necessitate sustained and collaborative global efforts. Reducing investments in climate adaptation and international assistance would not only render previous efforts ineffective but also hinder progress towards creating a more sustainable and robust economy, ultimately depleting human capital in regions where it is most crucial. A sudden withdrawal of financial support would have devastating consequences, including a decline in living standards and health outcomes in vulnerable countries, potentially leading to social instability and forcing these nations to rely on public funding, which would further exacerbate their debt burdens. The macroeconomic implications for countries reliant on aid would be significant, featuring deteriorating trade balances, depletion of foreign exchange reserves, pressure on exchange rates and prices, and decreased consumer and investment spending.

2. India’s macroeconomic overview

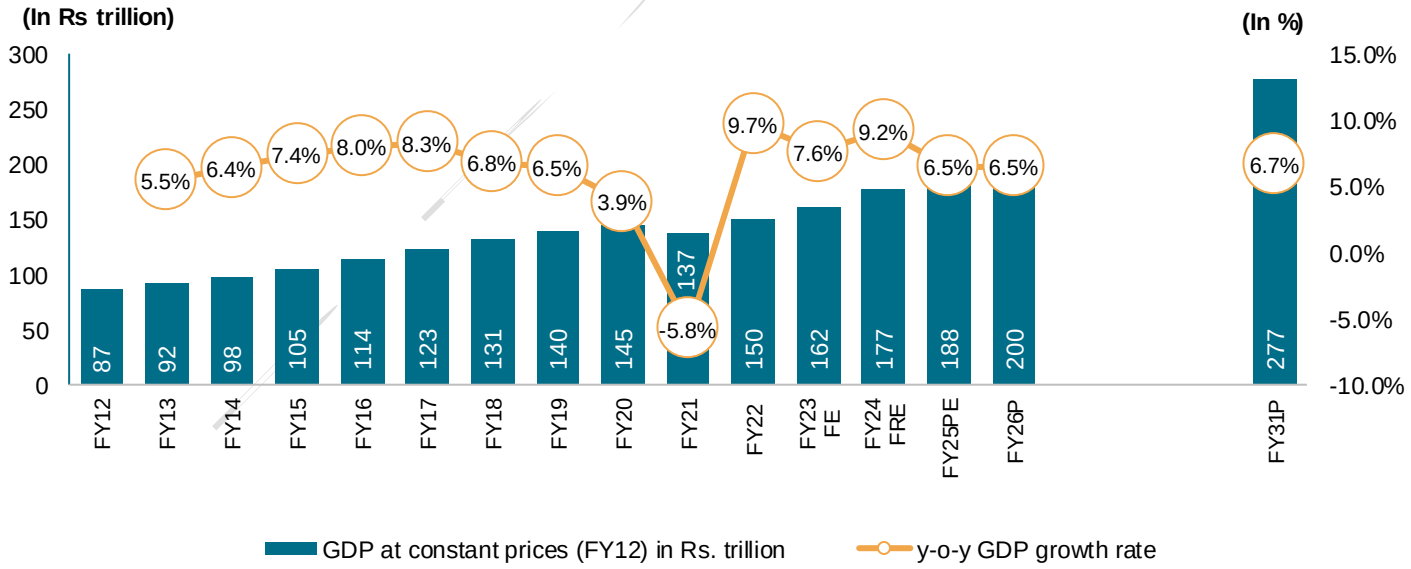
India GDP logged 6.1% CAGR between FY12 and FY25

India’s GDP grew at 6.1% compounded annual growth rate (CAGR) between FY12 and FY25 to Rs. 188 trillion in FY25 from Rs. 87 trillion in FY12. During this period, the surge in the non-agricultural economy has driven growth. The government’s investment push, along with easing input cost pressures for industry, has also played a major role in shoring up growth. However, services have been slowing owing to waning pent-up demand (post the pandemic), with the exception of financial, real estate and professional services, which have powered ahead on the back of a robust growth in banking and real estate sectors.

Additionally, as per the Provisional estimates of GDP for FY25, India’s GDP grew 6.5% in FY25 to Rs. 188 trillion. Moving forward, Crisil expects GDP growth to be steady in FY26 at 6.5% despite uncertainties stemming from geopolitical turns and trade-related issues led by US tariff actions. Additionally, cooling food inflation, the tax benefits announced in the Union Budget 2025-2026, and lower borrowing costs are expected to drive discretionary consumption. However, India’s current account deficit (CAD) is expected to rise mildly in fiscal 2026. Given the tariff related issues, and the subdued global growth environment, India’s goods exports are expected to face further headwinds in fiscal 2026. However, a healthy services trade balance and robust remittances growth will limit the widening. At an overall level, India’s real GDP is expected to be 6.5% in FY26.

Going forward, the US tariff hikes are a key risk to Crisil’s GDP growth forecast for fiscal 2026. Slower global growth, along with anticipated reciprocal tariffs on India, is likely to hit exports. Uncertainty about the duration and frequent changes in tariffs could hinder investments.

India real GDP growth at constant prices (new series)



Note: FE: Final Estimates, FRE: First Revised Estimates, PE: Provisional Estimates, P: Projected

These values are reported by the government under various stages of estimates

Only actuals and estimates of GDP are provided in the bar graph

Source: Provisional Estimates of annual GDP for 2024-25, Ministry of Statistics and Program Implementation (MoSPI), Crisil Intelligence

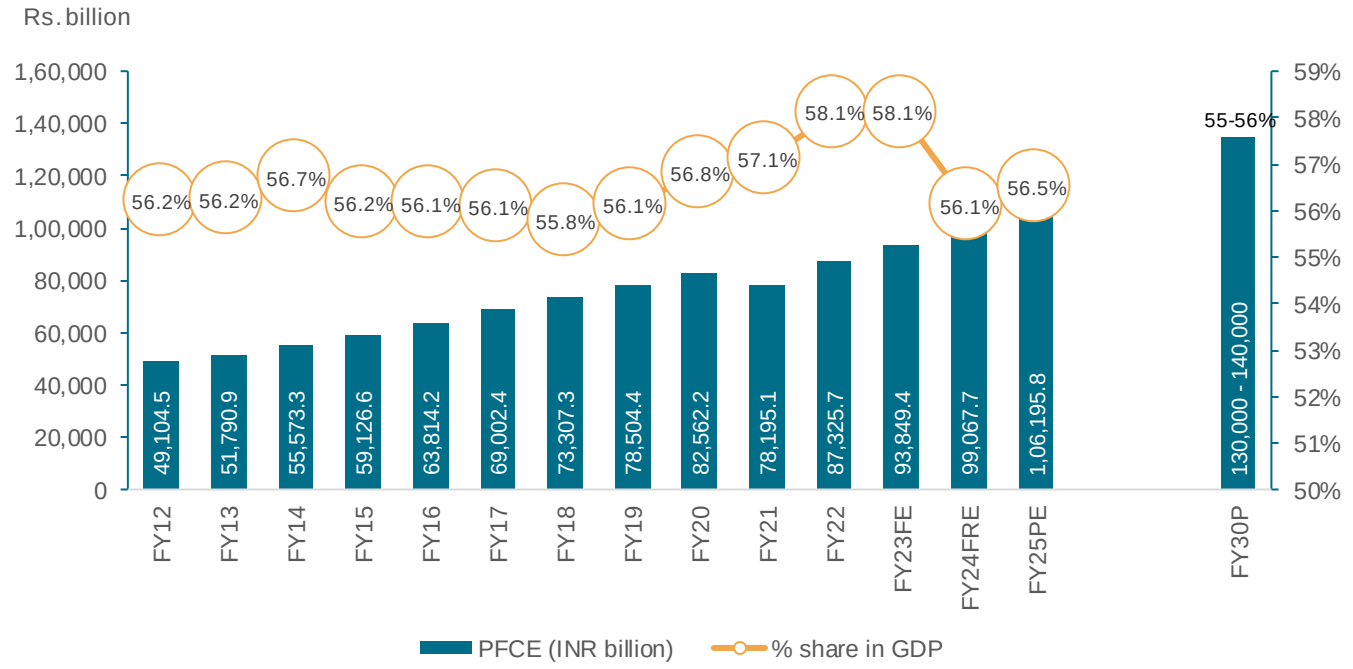
PFCE to maintain dominant share in GDP

Private Final Consumption Expenditure (PFCE) at constant prices clocked 6.1% CAGR between FY12-23, maintaining its dominant share of 58.1% in FY23 (Rs 93,849 billion in absolute terms, up 7.5% year-on-year). Growth was led by healthy monsoon, wage revisions due to the implementation of the Seventh Central Pay Commission's (CPC) recommendations, benign interest rates, growing middle age population and low inflation. As of FY24, PFCE is estimated to have further increased to Rs 99,067.7 billion, registering a y-o-y growth of 5.6% and forming 56.1% of India's GDP. The increasing share of discretionary spending from FY12 suggests rising disposable incomes and spending capacity of households.

The PFCE CAGR growth of approximately 6.1% has been in line with India's GDP CAGR growth of 6.1% from FY2012 to FY2025. As of FY25PE, PFCE is estimated to have further increased to Rs. 106,195.8 billion, registering a y-o-y growth of 7.2% and forming ~56.5% of India's GDP.

Crisil estimates the PFCE to grow at an average annual growth rate of 6-8% from FY2024 to FY2030, representing approximately 55-56% of GDP in FY2030.

PFCE (at constant prices)



Note: FE: Final Estimates; FRE: First Revised Estimates; PE: Provisional Estimates; P: Projection
Source: Provisional Estimates of Annual GDP for 2024-25, MoSPI, Crisil Intelligence

Healthy growth of gross value added in fiscal 2025 in line with GDP growth

As of FY25PE, GVA has reached to INR 171.9 trillion, up from INR 161.51 trillion, registering a y-o-y growth of ~6.41%. Financial, Real Estate & Professional Services had the highest contribution to GVA at ~23. 79%, whereas construction and Public Administration, Defence & Other Services GVA had the registered the highest annual growth at ~9.35% & ~8.86% respectively.

GVA at constant prices

INR trillion	FY12	FY19	FY20	FY21	FY22	FY23 FE	FY24 FRE	FY25 PE	Share in GVA FY25	Annual growth in FY25
Agriculture, forestry and fishing	15.02	18.79	19.94	20.74	21.70	23.06	23.67	24.77	14.41%	4.63%
Mining and quarrying	2.61	3.27	3.17	2.91	3.09	3.20	3.30	3.39	1.97%	2.69%
Manufacturing	14.10	23.29	22.60	23.29	25.61	25.16	28.26	29.54	17.18%	4.52%
Electricity, gas, water supply & other utility services	1.87	2.94	3.01	2.88	3.18	3.52	3.83	4.05	2.36%	5.88%
Construction	7.77	10.27	10.43	9.95	11.94	13.02	14.38	15.72	9.15%	9.35%
Trade, Hotels, Transport, Communication & Services related to Broadcasting	14.13	25.39	26.90	21.54	24.80	27.86	29.95	31.77	18.48%	6.09%
Financial, Real Estate & Professional Services	15.31	27.14	28.98	29.54	31.23	34.59	38.15	40.88	23.79%	7.17%
Public Administration, Defence & Other Services	10.26	16.25	17.32	16.01	17.22	18.36	19.99	21.76	12.66%	8.86%
Total GVA at constant prices	81.07	127.34	132.36	126.87	138.77	148.78	161.51	171.87	100.00%	6.41%

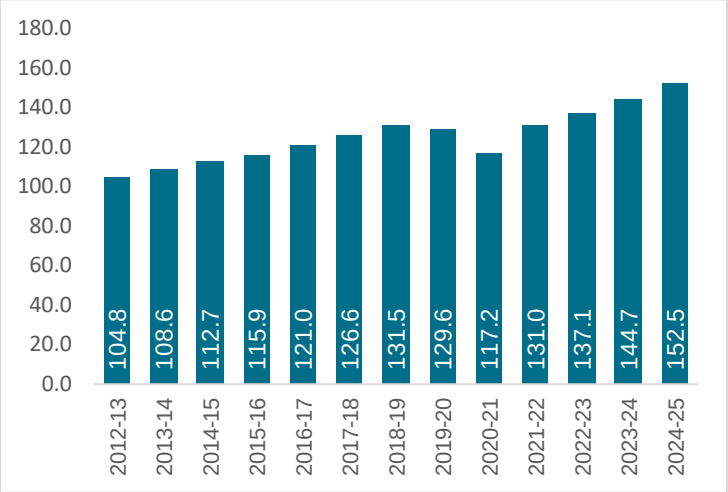
FE: Final Estimates, FRE: First Revised Estimates, PE: Provisional Estimates
Source: MoSPI, Crisil Intelligence

Manufacturing IIP increased to 152.5 in FY25

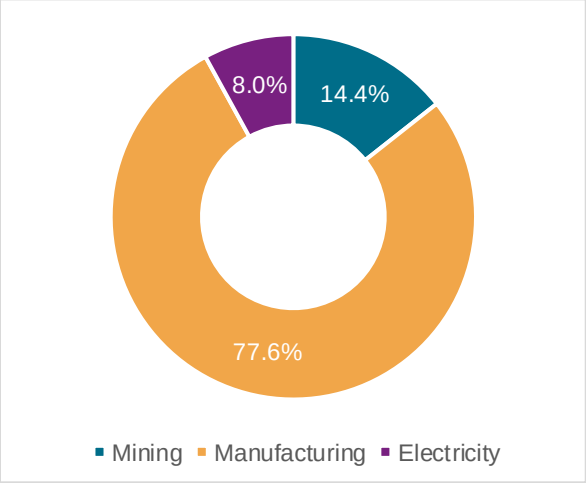
The Index of Industrial Production (IIP) for manufacturing rose to 152.5 in FY25 from 104.8 in FY13. The manufacturing sector is a significant contributor to the country's overall industrial growth, with 78% weightage in the overall IIP as of FY25.

Even though manufacturing IIP declined in FY20 to 129.6 and to 117.2 in FY21 owing to the pandemic, it recovered to 131.0 in FY22 on the back of easing of Covid-19 related restrictions, government stimulus measures, rising consumer demand and efforts to revitalise the manufacturing sector. Consequently, in FY25, manufacturing IIP stood at 152.5.

Manufacturing IIP (FY13 to FY25)



Weight of manufacturing in IIP (FY25)



Source: MoSPI, Crisil Intelligence

Key government initiatives to boost manufacturing sector in India

Growth driver	Description and reasoning
Make in India	Launched on September 25, 2014, by the Prime Minister. The 'Make in India' initiative was designed to transform India into a global hub for design and manufacturing. Its core objectives were to facilitate investment, encourage innovation, and develop world-class infrastructure. As one of the pioneering 'Vocal for Local' initiatives, it sought not only to boost India's manufacturing capabilities but also to showcase its industrial potential on a global stage.
National Industrial Corridor Development Programme (NICDP)	The National Industrial Corridor Development Programme (NICDP) is a transformative initiative launched to develop world-class industrial infrastructure and promote planned urbanisation across India. By integrating smart technologies and multi-modal connectivity, the programme aims to create globally competitive manufacturing hubs while fostering economic growth and employment opportunities. These industrial corridors are being developed in collaboration with State Governments to ensure efficient planning and execution. In August 2024, the Cabinet Committee on Economic Affairs approved 12 new industrial areas across 10 states under NICDP with an investment of Rs. 28,602 crore. These industrial nodes, planned along six major corridors, is expected to strengthen India's manufacturing ecosystem and boost its global competitiveness.
PM Gati Shakti	In 2021, the Prime Minister launched PM Gati Shakti - National Master Plan for Multi-modal Connectivity, essentially a digital platform to bring 16 Ministries including Railways and Roadways together for integrated planning and coordinated implementation of infrastructure connectivity projects. It will incorporate the infrastructure schemes of various Ministries and State Governments like Bharatmala, Sagarmala, inland waterways, dry/land ports, UDAN etc. Economic Zones like textile clusters, pharmaceutical clusters, defence corridors, electronic parks, industrial corridors, fishing clusters, Agri zones will be covered, and technology will be leveraged including spatial planning tools with ISRO (Indian Space Research Organisation) imagery developed by BiSAG-N (Bhaskaracharya National Institute for Space Applications and Geoinformatics).

Growth driver	Description and reasoning
	This multi-modal connectivity will provide integrated and seamless connectivity for movement of people, goods and services from one mode of transport to another. It will facilitate the last mile connectivity of infrastructure and also reduce travel time for people. As of March 13, 2025, 115 National Highway and road projects covering approximately 13,500 km, with an investment of Rs. 6.38 lakh crore, have been evaluated under the initiative, leading to more efficient infrastructure development.
Production linked incentive (PLI) scheme	Production Linked Incentive Scheme was announced in Union Budget 2021-22, with the capital outlay of Rs 1.97 trillion, the PLI Schemes focus on 14 critical sectors, each strategically chosen to enhance the country's manufacturing prowess, foster technological advancements, and elevate India's position in global markets. As of Aug 2024, investments under the PLI stand at approximately Rs 1.5 trillion, with projections to reach Rs 2 trillion soon. This is anticipated to generate around ₹12.5 trillion in production and sales, creating about 9.5 lakhs jobs. Additionally, exports have also surpassed Rs 4 trillion, especially in electronics, pharmaceuticals, and food processing.

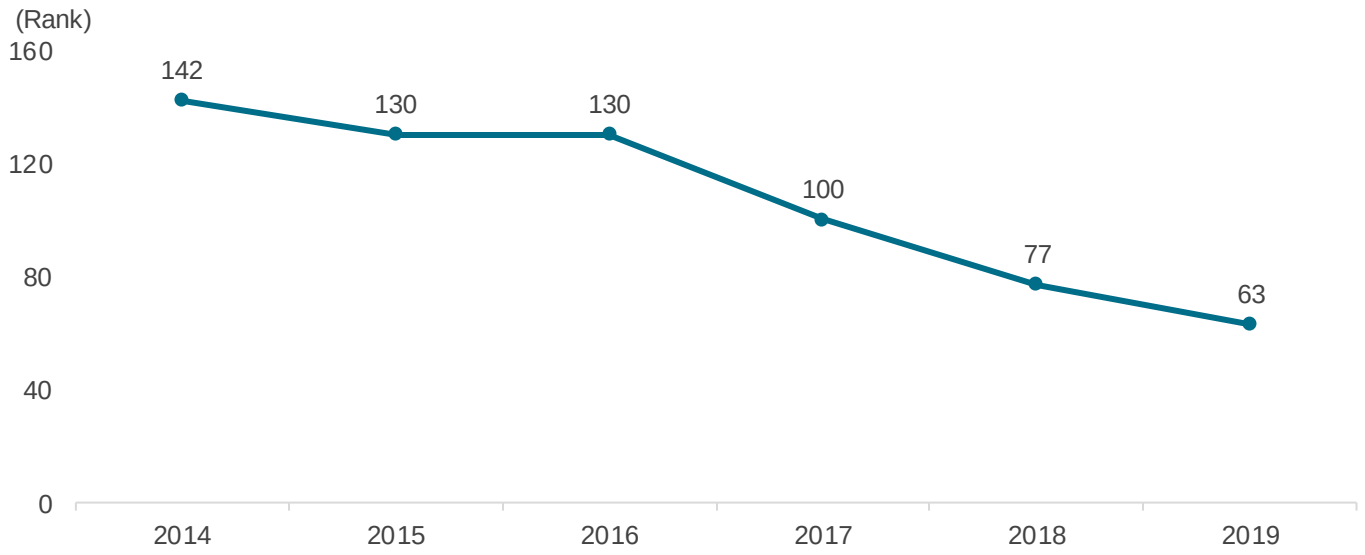
Source: PIB, Crisil Intelligence

India's Ease of Doing Business ranking improves

Systematic and targeted efforts to reduce the number of processes and rationalise costs have improved India's rank to 63 in Doing Business Report 2020 (published in October 2019) from 142 in Doing Business Report 2015 (published in October 2014). The key facilitators were decrease in the number of procedures and time taken for obtaining construction permits in India (184 in 2014 to 27 in 2019) and shorter duration to get electricity connection (137 in 2014 to 22 in 2019).

Consequently, India improved its rank by 79 positions over 2014-2019, and it continues to be first among South Asian countries compared with 6th position in 2014.

India's ranking in World Bank's Ease of Doing Business



Source: World Bank, PIB, Crisil Intelligence

India saw robust growth in per capita income between FY12 and FY25

India's per capita income, a broad indicator of living standards, rose from Rs. 63,462 in FY12 to Rs. 114,710 in FY25, logging 4.7% CAGR. Growth was led by better job opportunities, propped up by overall GDP growth. Moreover, population growth remained stable at ~1% CAGR.

With per capita income rising to upper middle-income category by FY31, the share of PFCE is expected to be dominant in India's GDP growth.

Per capita net national income at constant (2011-12) prices

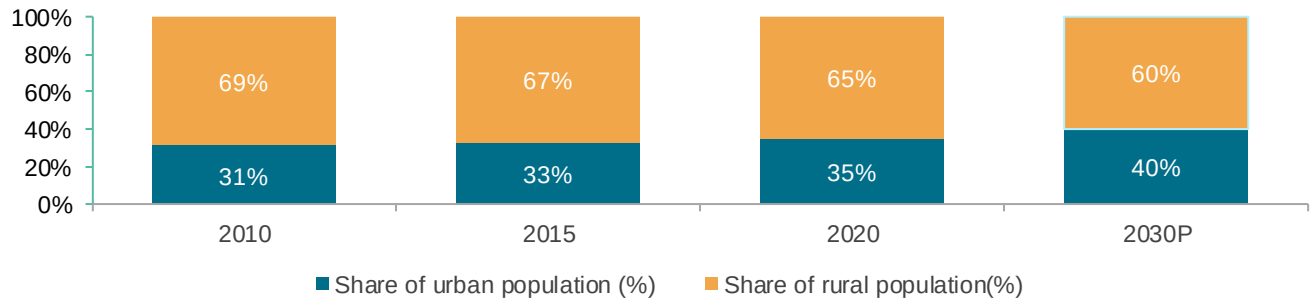
	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23FE	FY24FRE	FY25PE
Per-capita NNI (Rs.)	63,462	65,538	68,572	72,805	77,659	83,003	87,586	92,133	94,420	86,034	94,054	100,163	108,786	114,710
Y-o-Y growth (%)		3.3%	4.6%	6.2%	6.7%	6.9%	5.5%	5.2%	2.5%	-8.9%	9.3%	6.5%	8.6%	5.4%

Note: FE: Final Estimates; FRE: First Revised Estimates; PE: Provisional Estimates
Source: Provisional Estimates of Annual GDP for 2024-25, MoSPI, Crisil Intelligence

Urbanisation likely to reach 40% by CY30

India's urban population has been increasing over the years. The trend is expected to continue as economic growth increases. From ~31% of the total population in CY10, the country's urban population is projected to reach nearly 40% by CY30, according to a UN report on urbanisation. People from rural areas move to cities for better job opportunities, education and quality of life. Typically, migration can be of the entire family or a few individuals (generally an earning member or students).

India's urban population versus rural

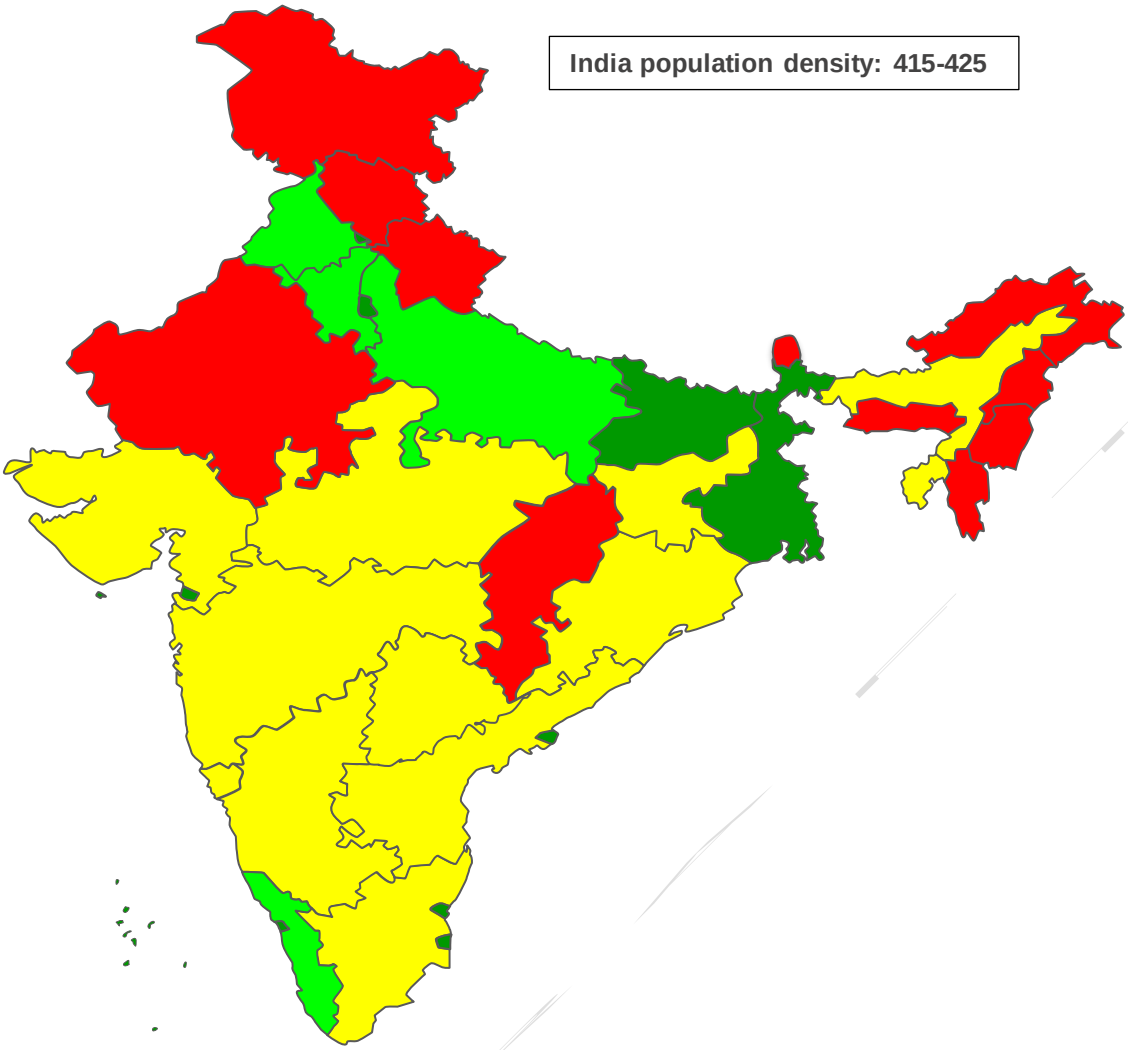


Note: P: Projected
Source: World Urbanization Prospects: The 2018 Revision, UN, Crisil Intelligence

Delhi, Bihar, West Bengal are among the most densely populated states in the country

Delhi, Bihar and West Bengal are among the most densely populated states in India. Select states in North India, including Uttar Pradesh, Haryana, Punjab and Delhi exhibit high population densities, exceeding 600 individuals per square kilometer, which surpasses the national average of approximately 418 people per square kilometer. Notably, these states are also characterized by high consumption patterns, as evidenced by the total consumption estimates derived from the Monthly Per Capita Consumption Expenditure (MPCE) data from the Household Consumption Expenditure Survey (2023-24).

State-wise population density



Note:
Note: <250 low population density (red)
>250 and <600 medium population density (yellow)
>600 and <1,000 high population density (light green)
>1,000 very high population density (dark green)
Source: State government websites, UIDAI, Crisil Intelligence

3. Assessment of Global packaging and paper industry

Overview of global packaging industry

The global packaging industry has emerged as a vital component of modern commerce, playing a crucial role in protecting products from damage and contamination during transportation, while also preserving perishable goods and extending shelf life. Beyond its functional purpose, packaging serves as a key medium for communication, conveying essential information to consumers about product ingredients, usage, and expiration dates. As a result, packaging has become an indispensable process for businesses, influencing both product safety and branding, with a significant impact on marketing and customer attraction.

The industry's growth is driven by the expansion of retail and e-commerce sectors, which rely heavily on packaging. Packaging sector growth is dependent global goods production and on consumer demand across various industries, including food and beverages, pharmaceuticals, and personal care. The market is witnessing a shift towards sustainable packaging solutions, driven by growing concerns about the environmental impact of single-use plastics, with paper and paperboard materials gaining popularity as alternatives. As the industry continues to evolve, key players are investing in the development of eco-friendly materials, such as recyclable bioplastics, to cater to changing consumer preferences and lifestyles, ultimately driving the global packaging market towards growth, fuelled by advancements in packaging technologies and the escalating demand for packaged goods.

Overview of key global markets

The global packaging market is a diverse and dynamic industry, with various regions and countries contributing to its growth and development. In Asia, the rapid expansion of wealthier middle-class populations in developing countries such as China and India are driving the demand for packaging solutions.

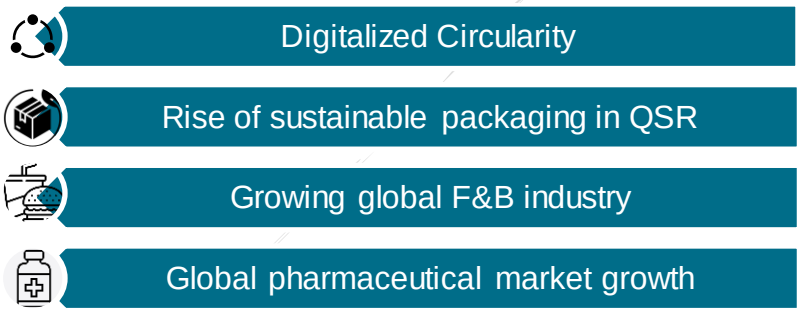
Overview of key global markets

Country	Overview
India	In India, the packaging industry is experiencing considerable growth, solidifying its position as a key player in the global packaging landscape. The country's packaging industry has demonstrated consistent growth in recent years, with significant potential for further expansion, especially in exports. India’s exports are majorly in the polymer packaging material segment. The exports have grown 13% y-o-y from 389 tonnes in FY23 to 439 tonnes in FY24. India's abundant skilled labour force and favourable government policies are expected to drive the growth of the packaging industry in the country. For example, the Indian government has introduced initiatives such as the "Make in India" program, which aims to promote the growth of the manufacturing sector, which in turn is expected to drive the packaging industry.
China	China is a significant consumer of packaging materials, with a growing demand for sustainable and eco-friendly packaging solutions. The country's packaging industry is heavily influenced by factors such as rising per capita income, changing demographics, including the enforcement of bans on plastics to minimize its plastic footprint. For instance, the Chinese government has implemented policies to reduce plastic waste, leading to an increase in the use of biodegradable packaging materials. As a result, the packaging market in China is expected to experience significant growth, driven by the increasing demand for food and beverages, as well as the growth of e-commerce. In 2024, China was the largest exporter of Paper and Paperboard; articles of paper pulp, of paper or of paperboard, by value accounting for ~16% of the exports.

Country	Overview
Japan	Japan's packaging industry is driven by growing environmental awareness and government initiatives, leading to a shift towards recyclable materials. The aging population is also driving demand for convenient packaging, such as stand-up pouches and flexible formats. Manufacturers are adopting eco-friendly materials and designs, including biodegradable and compostable options, to create a more sustainable future with a focus on reducing packaging weight and simplifying materials.
United States	The US packaging industry is driven by the demand for sustainable and innovative solutions. To reduce environmental impact, companies are investing in cutting-edge technologies to produce eco-friendly materials. The growth of e-commerce and retail has led to a need for packaging that balances protection with minimal material use, prompting the adoption of smart technologies like RFID and NFC to enhance supply chain visibility and consumer engagement. The industry is also witnessing significant consolidation, with major players expanding their capabilities through strategic acquisitions such as Smurfit Kappa' acquisition WestRock to form Smurfit WestRock, International Paper's acquisition of DS Smith along with investments in advanced manufacturing technologies, underscoring the sector's commitment to environmental sustainability and innovation.
Europe	The region's packaging market is expected to experience robust growth, fuelled by demand from key industries such as food, beverages, and pharmaceuticals. As governments implement stricter regulations and consumers increasingly prioritize eco-friendliness, companies are responding by developing innovative, lightweight packaging solutions that minimize environmental impact. From Spain's emphasis on paper, plastic and cardboard recycling to France's ban on single-use plastics, European nations are setting a high standard for sustainability, with the goal of creating a circular economy that balances economic growth with environmental protection.

Source: Crisil Intelligence

Key trends and drivers in the global packaging industry



Digitalized circularity

The packaging industry is leveraging digitalization to drive circularity, using connected technologies to enhance traceability, compliance, and sustainability. Consumers are seeking transparency, and brands are responding with innovative solutions like QR codes and digital deposit schemes. Emerging technologies like digital watermarking are also being explored to improve recycling and create a more circular economy, enabling companies to meet consumer demands and gain valuable insights into their products' lifecycle.

Rise of sustainable packaging in QSR

The quick service restaurant (QSR) sector is transforming in response to growing demand for eco-friendly packaging, with many establishments transitioning away from single-use formats. Consumers are driving this shift, with many reducing their use of single-use plastic, opting for reusable packaging, and willing to pay a premium for sustainable options. Industry leaders like Starbucks are offering discounts for reusable cups, while others are

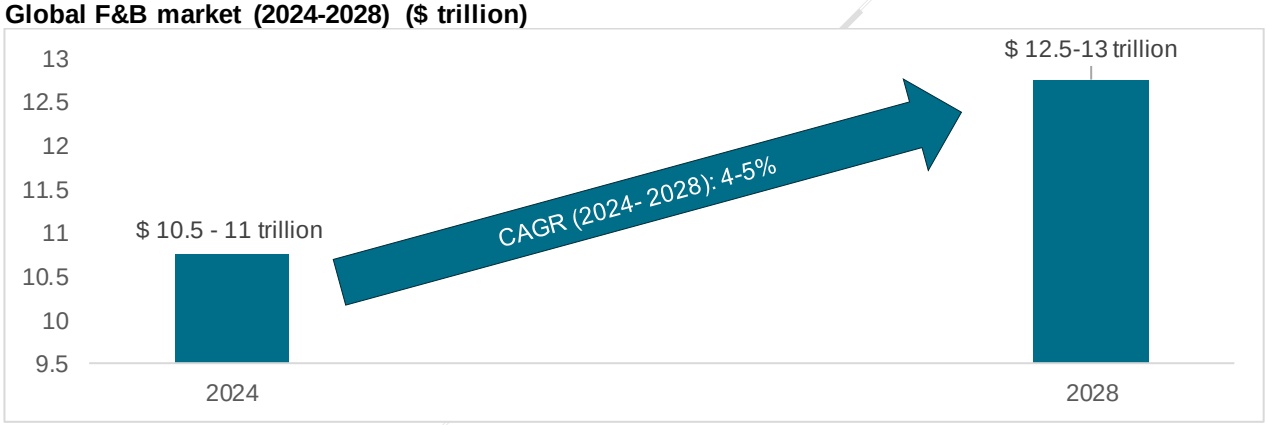
pioneering creative approaches, such as upcycling natural materials like palm leaves into biodegradable containers, using seaweed-based foodservice packs, and introducing fibre-based packaging solutions like moulded fibre takeaway lids. As demand for sustainable packaging grows, QSRs are likely to explore novel methods to reduce their carbon footprint, driving innovation in the packaging industry.

Growing global food & beverage (F&B) industry

The global F&B industry is estimated to have reached a value of $10.5 trillion - $11 trillion in 2024. The market is expected to further reach $12.5 trillion - $13 trillion growing at a CAGR of 4% - 5% by 2028 backed by key factors including increasing urbanization and disposable income in developing countries, rising demand for convenient and healthy food options, and growing popularity of e-commerce for food and beverage purchases. The Asian Pacific region is a key market for F&B. This is due to the large and growing population, rising disposable incomes and growing demand for processed, convenient, and healthy foods.

As the global F&B industry continues to expand, it is likely to have a ripple effect on the packaging industry, driving growth and innovation in the sector. The increasing demand for convenient, healthy, and processed foods will require more packaging solutions that are not only functional and safe but also sustainable and environmentally friendly. Furthermore, the rise of e-commerce in the F&B industry will also fuel the need for packaging that is designed for delivery and takeaway, creating new opportunities for packaging manufacturers to develop innovative and specialized solutions.

Global F&B market (2024-2028) ($ trillion)



Source: CRISIL Intelligence

Global pharmaceutical market growth

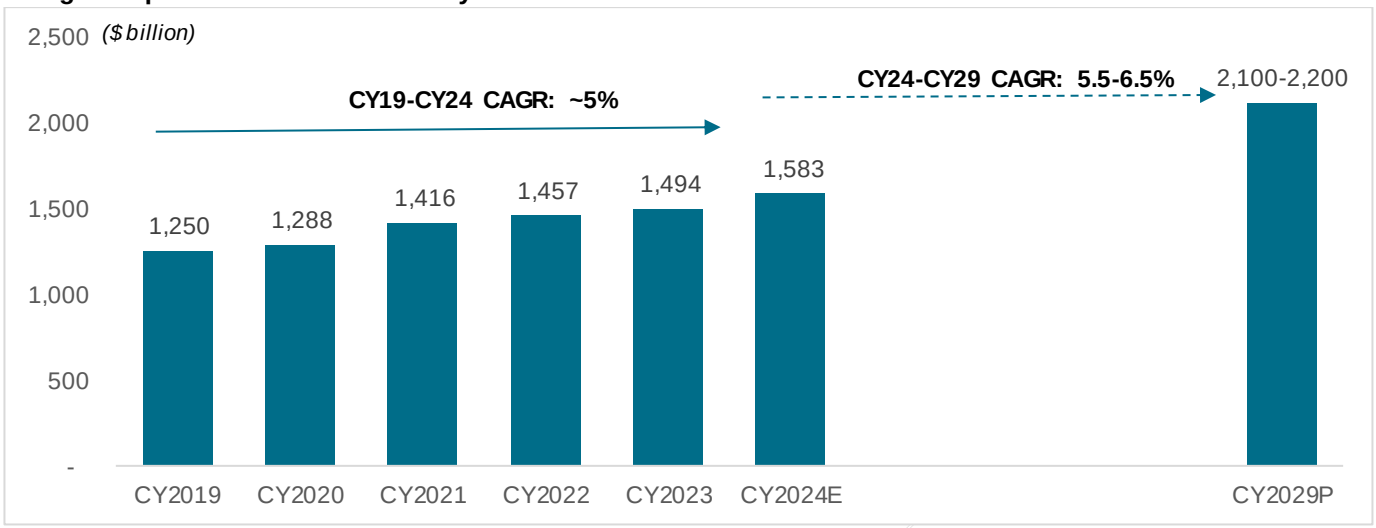
The global pharmaceuticals market has clocked ~5% CAGR, from ~$1,250 billion in 2019 to ~$1,583 billion in 2024. After clocking strong growth in 2021 and 2022 on account of pent-up demand, the market is estimated to have moderated in 2023. The global market continued healthy expansion in CY 2024, aided by growth in key regulated and semi-regulated markets.

We estimate the pharmaceutical market to grow at a healthy pace, aided by volume growth in some of the key pharmerging markets and new product introductions in developed markets. Further, the global pharmaceutical market is expected to sustain 5.5-6.5% CAGR from 2024 to 2028 to reach $2,100 to $2,200 billion by 2029.

As the global pharmaceutical industry continues to expand, it is likely to create a significant demand for specialized packaging solutions, driving growth and innovation in the packaging industry. The pharmaceutical industry's reliance on high-quality packaging materials, such as glass vials, ampoules, and bottles, as well as plastic containers, blister packs, and pouches, is expected to drive the demand for these packaging types. Additionally, the need for tamper-resistant, child-resistant, and senior-friendly packaging will continue to drive the demand for

advanced packaging materials and designs, including cartons, labels, and closures. The growing trend of serialization and track-and-trace in the pharmaceutical industry will also require packaging solutions that can accommodate unique identifiers and coding, further driving the demand for sophisticated packaging technologies.

The global pharmaceutical market by value



Note: E-estimates, P-projections, CY-calendar year
Source: Pharma company reports, Crisil Intelligence

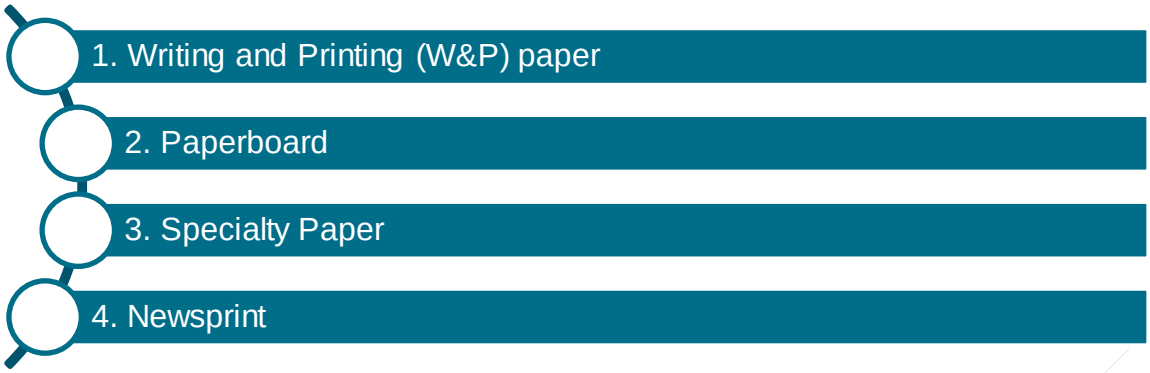
Growth of packaging industry to aid paper industry

The global paper industry is a vast sector that plays a vital role in the world economy, catering to the needs of over 7 billion people worldwide. With a rich history that has evolved from labour-intensive processes to capital-driven machinery, the industry has transformed significantly over the years. Today, it encompasses a wide range of products, including office paper, tissue, and packaging materials, utilizing a substantial portion of the world's industrial wood supply. As of CY24, pulp, paper and paperboards trade (HS code: 47 and 48) amounted to $498.8 billion with imports making up 51% and exports the remaining 49%. Trade was led by countries like China, United states and Germany which made up 12%, 10% and 9% of trade respectively, while India made up just 2% of this trade in CY24.

As a major contributor to employment, trade, and innovation, the paper industry continues to adapt to emerging trends and demands, such as the growing need for sustainable packaging solutions. As the industry continues to evolve, it is witnessing a significant shift in production and consumption patterns, with certain types of paper experiencing a decline in demand, while others, such as packaging papers and tissue products, seeing a surge in popularity. This shift is largely driven by changes in consumer behaviour, technological advancements, and the growing need for eco-friendly products.

Segments of paper

Paper industry is broadly divided into four segments:



1. Writing and printing (W&P) paper:

The writing and printing (W&P) paper segment encompasses a range of paper types, typically with a grammage of less than 120 grammage per square metre (GSM), used for writing, printing, and publishing purposes. This category includes creamwove, maplitho, copier, and coated paper, among others. Although high-end papers like copier and coated paper are gaining popularity, lower-grade papers like creamwove still dominate the market due to their larger existing market share. The demand for W&P paper is influenced by factors such as population growth, literacy rates, education expenditure, business activity, and the growth of the printing industry. However, the increasing adoption of digital media has led to a slowdown in the growth of demand for paper in this seg ment.

2. Paperboard:

Kraft paper, recycled board and virgin board come under this category. This paper is used for various industrial purposes like packaging, printing and other applications and its consumption is closely linked to growth in the packaging industry, Industrial production, development in packaging technology and substitution by other materials

Varieties of paperboard include coated/uncoated duplex, chromo and triplex boards. Kraft paper is available in numerous varieties, differentiated by properties of strength and grammage, among other criteria.

3. Specialty paper:

Paper with specific applications such as tissue paper, decor paper, electrical grade paper, fine printing paper, business card paper, photo paper and greeting card paper is called speciality paper. It contributes to a very small percentage of total paper demand. Consumption of speciality papers is linked to the general standard of living in the country.

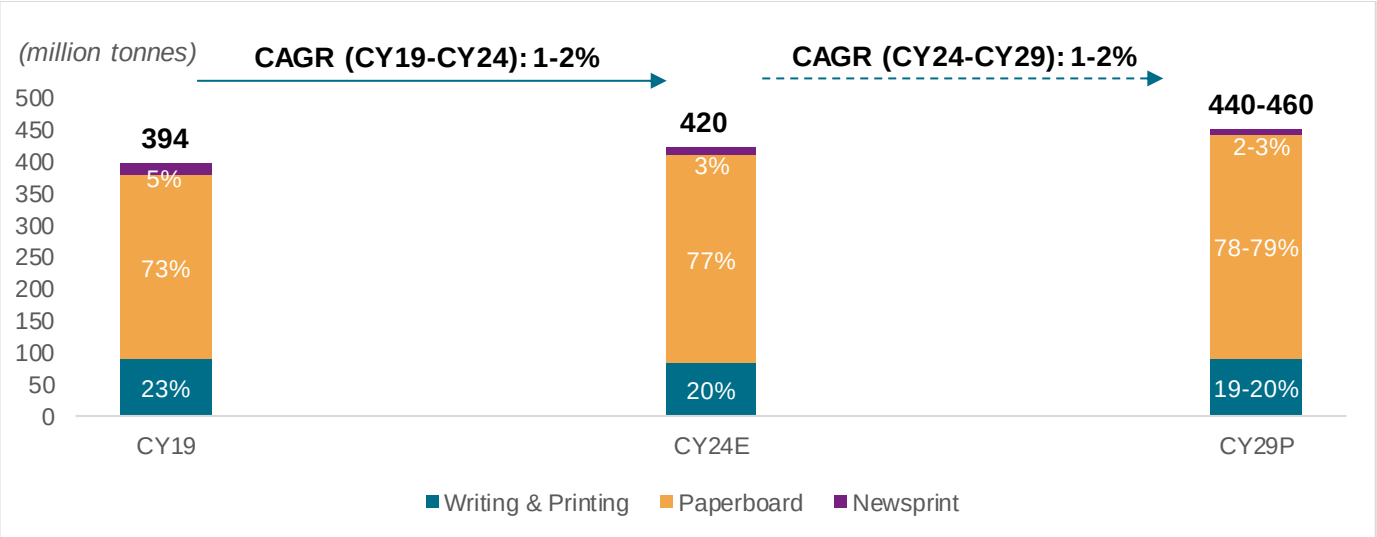
4. Newsprint:

Newsprint is mainly used in printing of newspapers and magazines. Although used for printing purposes, newsprint is considered a separate end-use category because of the difference in its usage as compared to other W&P varieties. Besides, newsprint is consumed in very large volumes vis-a -vis other varieties.

The global paper industry has grown at a CAGR of 1.3% from CY19 to CY24

The global paper industry has grown from 394 million tonnes in CY19 to 420 million tonnes in CY24, achieving a Compounded Annual Growth Rate (CAGR) of 1-2% from CY19 to CY24. This growth has been primarily driven by the paperboard segment, which has seen its share increase from 73% in CY19 to 77% in CY24. The rising demand for sustainable and eco-friendly packaging solutions, particularly in the e-commerce and food industries, has been a significant factor contributing to the growth of the paperboard segment. Additionally, the increasing focus on reducing plastic waste and promoting circular economy practices has led to a shift towards paper-based packaging, further boosting the demand for paperboards. On the other hand, the newsprint segment and the writing and printing segment have seen their shares decrease from 5% to 3% and 23% to 20%, respectively, mainly due to digitization and the subsequent decline in print media consumption. The widespread adoption of digital platforms for news, entertainment, and communication has reduced the demand for printed materials, leading to a decline in the newsprint segment. Furthermore, the shift towards digital documentation and online communication has also contributed to the decline of the writing and printing segment. Going forward, the global paper industry is expected to grow at a CAGR of 1-2% from CY24-CY29 with the paperboard segment emerging as a key driver of growth.

Global paper industry (CY19-CY29) (in million tonnes)



Source: Crisil Intelligence

Overview of key drivers and trends in the global paper industry

Key trends and drivers	Description
Increased focus on sustainability	The paper industry is heavily dependent on water, the estimated consumption of water in the paper industry very from 30 cubic meter per ton to 60 cubic metre per ton with the usage varying as per type and the raw materials used. In order to reduce the water consumption further, the industry is expected to prioritize water conservation, with a focus on efficient irrigation systems and wastewater treatment technologies. The use of renewable energy sources, such as biomass and solar power, is also expected to gain traction, reducing the sector's reliance on fossil fuels. Furthermore, the rise of circular economy practices, including upcycling and downcycling, will minimize waste and maximize resource utilization.
Rise of E-Commerce and the subsequent packaging needs	The proliferation of online shopping has revolutionized the paper industry, as consumers' expectations for safe and secure delivery have fuelled a substantial increase in demand for paper-based packaging solutions. The production of cardboard boxes, shipping labels, corrugated

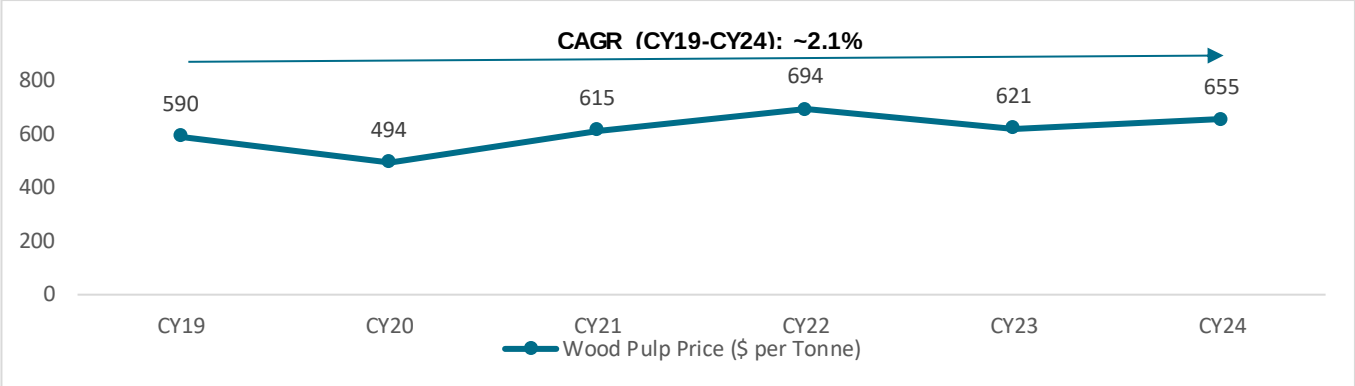
	packaging, and protective materials has increased, creating a domino effect throughout the paper supply chain, from manufacturers of packaging materials to logistics providers handling shipments. Furthermore, the e-commerce phenomenon has also had an impact on the industry beyond packaging, driving the demand for printed promotional materials, such as product catalogues, promotional brochures, and insert cards, as companies strive to capture the attention of online shoppers and build brand awareness.
Circular economy and waste reduction	The paper industry is under increasing pressure to reduce waste and adopt circular economy practices, with companies seeking to minimize their environmental impact while maintaining profitability. This trend is driven by regulatory pressures, consumer demand for sustainable products, and the need to reduce costs associated with waste disposal. Paper manufacturers are responding by implementing recycling programs, reducing packaging waste, and developing new products made from recycled fibres. Additionally, companies are exploring new business models, such as product-as-a-service, where products are designed to be recycled or reused, reducing waste and the demand for virgin raw materials.
Technological advancements and innovation	The paper industry is experiencing advancements in digital printing, nanotechnology, and biotechnology driving innovation and investment. Digital printing technologies, such as inkjet and toner-based printing, are enabling paper manufacturers to produce high-quality, customized products with shorter lead times and lower minimum order quantities. Nanotechnology is being used to develop new paper products with enhanced strength, durability, and functionality, while biotechnology is being used to develop new biomaterials and bio-based products. Additionally, the use of artificial intelligence, machine learning, and data analytics is improving manufacturing efficiency, reducing costs, and enabling paper manufacturers to respond quickly to changing market trends.

Source: Crisil Intelligence

Overview of raw materials used in the paper industry

The paper industry relies heavily on raw materials, particularly pulp and wastepaper, to produce a wide range of paper products, with the prices of these materials having a significant impact on the industry's profitability and competitiveness. The global pulp market is influenced by factors such as supply and demand, production costs, and trade policies, with prices varying depending on the type, quality, and location. Wood pulp prices have grown from $590 per tonne in CY19 to $655 per tonne in CY24 growing at a CAGR 2.1% from CY19 to CY24, driven by factors such as increased demand from emerging markets, supply chain disruptions, and reduced supply. Similarly, wastepaper prices, also known as recovered paper, vary depending on the grade, quality, and location. The global wastepaper prices have grown from $180 per tonne in CY19 to $224 per tonne in CY24 growing at a CAGR 4.5% from CY19 to CY24, driven by factors such as higher freight costs, reduced production in the European mills affecting the generation of wastepaper, increasing cost of energy and labour etc. Additionally, trade policies, such as tariffs and quotas, have also played a significant role in shaping the global pulp and wastepaper markets, with the ongoing trade tensions between major economies affecting the prices and availability of these critical raw materials.

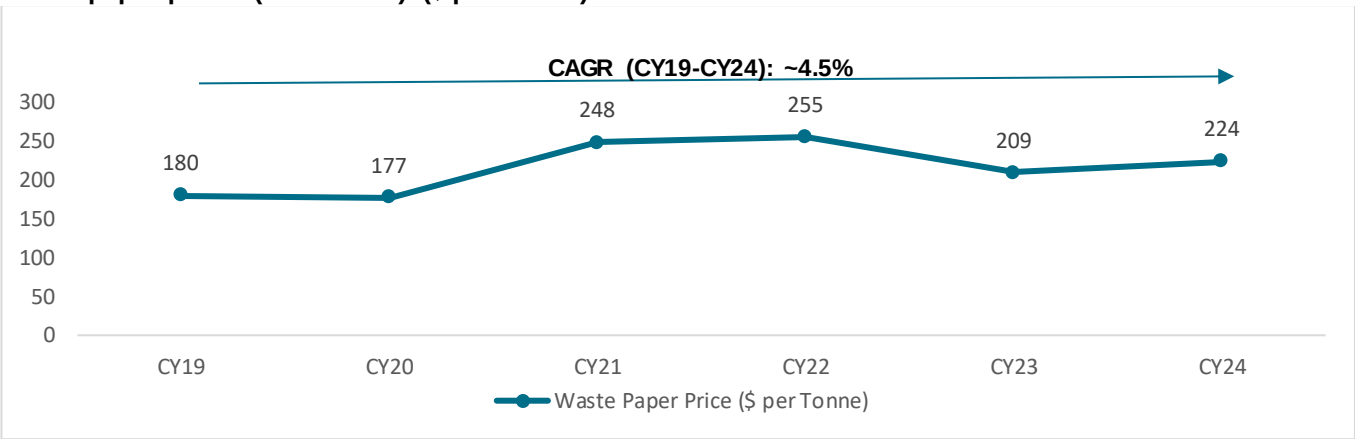
Wood pulp prices (CY19-CY24) ($ per Tonne)



Note: The above chart denotes the global export prices of wood pulp which corresponds to HS Codes: 4701, 4702 , 4703, 4704 and 4705

Source: Trade map, Crisil Intelligence

Waste paper prices (CY19-CY24) ($ per Tonne)



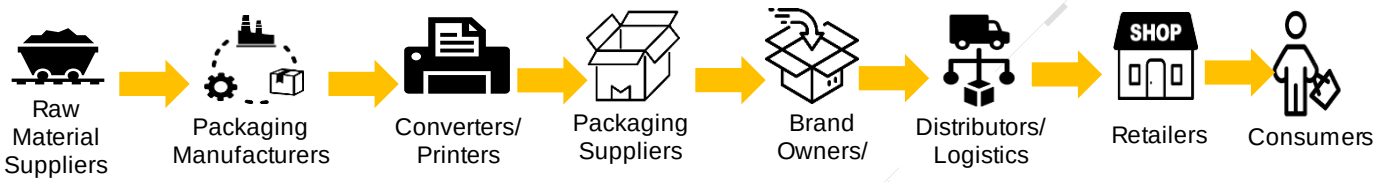
Note: The above chart denotes the global export prices of wastepaper which corresponds to HS Codes: 4706 and 4707

Source: Trade map, Crisil Intelligence

4. Assessment of Indian packaging industry

The packaging industry in India is an ever-evolving sector, driven by the country's growing economy, increasing consumerism, and rising demand for packaged goods. The industry has witnessed significant transformations in recent years, with advancements in technology, changing consumer preferences, and the emergence of new packaging formats. The sector encompasses a wide range of packaging materials, including paper, plastic, glass, and metal, which are used across various industries such as food, beverages, pharmaceuticals, and cosmetics. With a strong focus on innovation, sustainability, and regulatory compliance, the Indian packaging industry is poised to play a critical role in supporting the country's growth story, while also addressing environmental concerns and meeting the evolving needs of consumers.

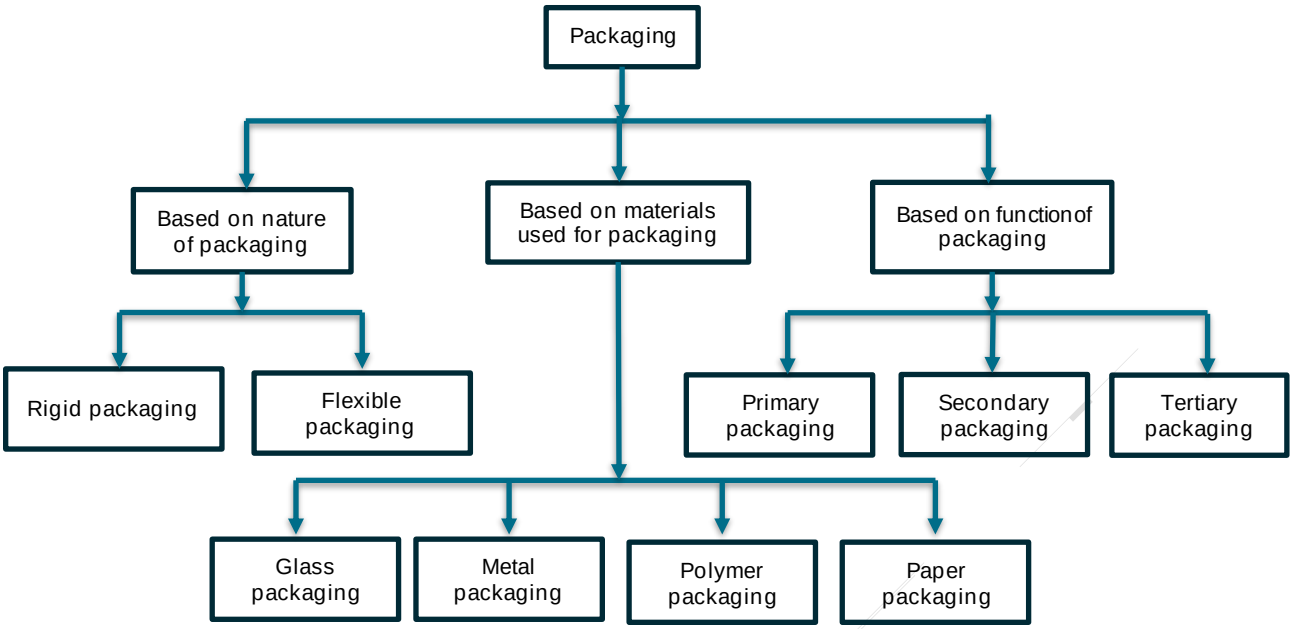
Value chain of the packaging industry



Source: Crisil Intelligence

The packaging industry's value chain is a complex network of interconnected stages that work together to deliver packaged products to consumers. It begins with Raw Material Suppliers, who provide the basic materials needed for packaging, such as paper, plastic, and glass. These materials are then processed by Packaging Manufacturers, who produce a wide range of packaging products, including containers, labels, and closures. The next stage involves Converters and Printers, who add value to the packaging through design, printing, and finishing. The packaged products are then supplied to Packaging Suppliers, who act as intermediaries between manufacturers and brand owners, providing a range of packaging solutions. The packaged products are then supplied to Brand Owners and Manufacturers, who fill and distribute them to Retailers through Distributors and Logistics. Finally, the packaged products reach Consumers through various retail channels, including online platforms, supermarkets, and traditional stores. Throughout this value chain, each stage builds on the previous one, ensuring that packaged products are delivered efficiently, safely, and sustainably, while meeting the evolving needs of consumers.

Classification of packaging



Source: Crisil Intelligence

Classification based on nature of packaging

Rigid packaging

Rigid packaging involves the use of materials such as glass, tin, aluminium, and plastic to create containers that maintain their shape and provide protection to products. Rigid packaging offers several benefits, including protection, durability, and convenience, making it ideal for shipping, storage, and display. It is widely used in various industries, including food and beverages, pharmaceuticals, household and personal care, and cosmetics, and is often customized with unique shapes, sizes, and designs to differentiate brands and products.

Flexible packaging

Flexible packaging utilizes lightweight, durable, and flexible materials such as paper, plastic films, and aluminium foils to create packaging solutions that are both functional and convenient. Materials like BOPP (Biaxially Oriented Poly Propylene), PP (Poly Propylene), and HDPE (High Density Polyethylene) are commonly used to create packs, bags, and pouches that are ideal for packaging a wide range of products, including food, beverages, and personal care items.

Classification based on materials used for packaging

Glass packaging

Glass packaging is a popular choice for various products, including food, beverages, and pharmaceuticals, due to its non-porous and non-toxic nature. Glass containers are 100% recyclable, sustainable, and can be reused, making them an environmentally friendly option. They also provide excellent barrier protection, preserving the flavour, aroma, and quality of the products inside.

Metal packaging

Metal packaging primarily uses aluminium and tin/steel metals. The metal packaging industry comprises raw material manufacturers, convertors and integrated players. Competition in the industry is moderate to high; imports have a significant share. Metal packaging offers excellent barrier protection, preserving the quality and freshness of the products inside, and is also resistant to corrosion and damage.

Polymer packaging

Polymer packaging can be broadly categorised into four based on the type of material used - Polypropylene (PP), High Density Polyethylene (HDPE), Bi-axially Oriented Polypropylene (BOPP) and Polyethylene Terephthalate (PET). The material to be used for packaging is decided based on the chemical inertness, aesthetics, utility, weight and cost of the product being packed. These polymer materials offer a range of benefits, including flexibility, transparency, and resistance to moisture and chemicals, making them ideal for packaging a wide range of products, from food and beverages to pharmaceuticals and personal care items.

Paper packaging

Paper packaging is a sustainable and eco-friendly option that is gaining popularity due to its biodegradable and recyclable nature. Made from natural fibres such as wood pulp, paper packaging is a versatile material that can be used for a wide range of products, including food, beverages, and consumer goods. Paper packaging comes in various forms, including paper bags, cardboard boxes, and paperboard cartons, and can be customized with coatings, laminations, and printing to enhance its functionality and appearance. With its low carbon footprint, minimal waste generation, and ability to be composted, paper packaging is an attractive alternative to traditional packaging materials, making it an ideal choice for companies looking to reduce their environmental impact and appeal to environmentally conscious consumers

Classification based on function of packaging

Primary packaging

Primary packaging is the first layer that comes into direct contact with the product. It is primarily used for products like ready-to-eat foods, chocolates, and snacks, where paper or aluminium foil is laminated or metalised for packaging purposes. This type of packaging is designed to preserve the freshness, quality, and safety of the product, while also providing a convenient and appealing way to consume it.

Secondary packaging

Secondary packaging is the outer layer of primary packaging. Apart from protecting the product, it also acts as a mode of marketing and branding. Examples of secondary packaging are carton board boxes used in packing food products, personal care products, and pharmaceutical products like creams and ointments. This type of packaging provides additional protection during transportation and storage, preventing damage and ensuring that the products arrive at their destination in good condition.

Tertiary packaging

Tertiary packaging is used for bulk packaging, commonly used for storing and transporting products, such as industrial chemicals, consumer durables, fruits and vegetables. Examples of tertiary packaging are corrugated boxes, steel drums, HDPE barrels and containers, etc. This type of packaging is designed to provide maximum protection and support during long-distance transportation, warehousing, and storage, and is often used for products that are shipped in large quantities.

End-use sector wise key products

End-use sector and its estimated share in FY25E	Overview
 **Food (54%)**	Products such as bottles, cans, cartons, and flexible packaging are used to package a wide range of food items, including snacks, beverages, and ready-to-eat meals. Packaging solutions for the food sector must ensure freshness, safety, and convenience, while also meeting regulatory requirements and consumer demands for sustainability.
 **Beverages (10%*)**	Packaging solutions such as bottles, cans, and cartons are used to package soft drinks, juice, water, and other beverages. Packaging for the beverages sector must be durable, leak-proof, and able to withstand various temperatures and handling conditions.
 **Healthcare (4%^)**	The healthcare sector requires specialized packaging solutions that ensure the safety, sterility, and efficacy of pharmaceuticals and medical devices, with products such as blister packs, vials, and syringes being used to package medications and medical supplies. Packaging for the healthcare sector must meet strict regulatory requirements and ensure the integrity of the product throughout the supply chain.
 **Personal Care (5%)**	Products such as tubes, bottles, and jars are used to package a wide range of personal care products, including skincare, haircare, and cosmetics. Packaging for the personal care sector must be functional, attractive, and able to protect the product from contamination and degradation.
 **Industry Chemicals (8%)**	The industry chemicals sector requires packaging solutions that are designed to handle hazardous and non-hazardous materials, with products such as drums, containers, and tanks being used to package and transport chemicals, solvents, and other industrial substances. Packaging for the chemicals sector must be durable, leak-proof, and able to withstand various temperatures and handling conditions, while also meeting regulatory requirements for safety and environmental protection.
 **Others (19%)**	The "others" sector includes a diverse range of end-use industries, such as industrial goods, agricultural products, and electronics, which require specialized packaging solutions to protect and transport their products. Packaging solutions for these industries must be designed to meet specific requirements, such as durability, security, and environmental sustainability, and may include products such as drums, crates, and pallets.

Note:
** Alcoholic and Non-alcoholic beverages share*
^ refers to pharma share
Source: Crisil Intelligence

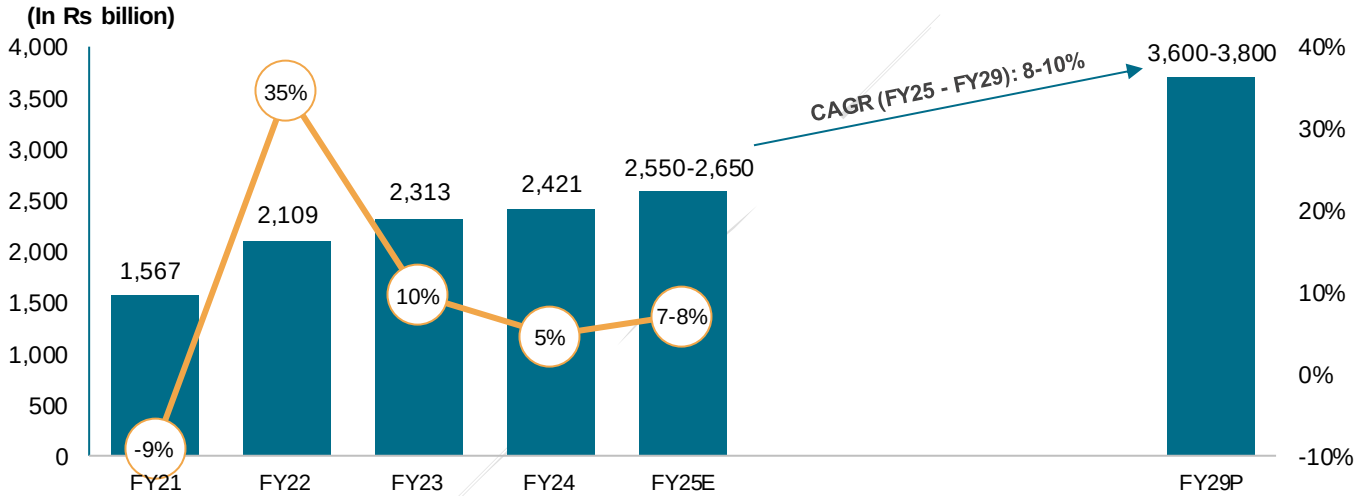
Review of overall packaging industry in India

Packaging industry estimated to reach Rs. 2,550- 2,650 billion in FY25 with Food products driving the industry growth in FY25

The packaging industry in India grew at a CAGR of 15.6% from Rs. 1,567 billion in FY21 to Rs. 2,421 billion in FY24 The industry witnessed a decent volume growth in polymer and paper segments due to high demand from food products, pharma and e-commerce segments in FY25E. Food products and beverages led the growth majorly in FY25E. The industry is expected to witness a strong CAGR of 8-10% from FY25 to FY29 to reach Rs. 3,600-3,800 billion in FY29 on the back of continuous demand across all segments.

India is a net exporter of packaging materials. India's exports are majorly in the polymer packaging material segment. The exports have grown 13% y-o-y from 389 tonnes in FY23 to 439 tonnes in FY24. The share of Indian exports in global export of packaging materials is significantly low, however India has emerged as a leading market in a few sub-segments of packaging like FIBC (Flexible Intermediate Bulk Container) and BOPET (Biaxially-oriented polyethylene terephthalate).

Packaging industry market in India (FY21-FY29P) (Rs. Billion)

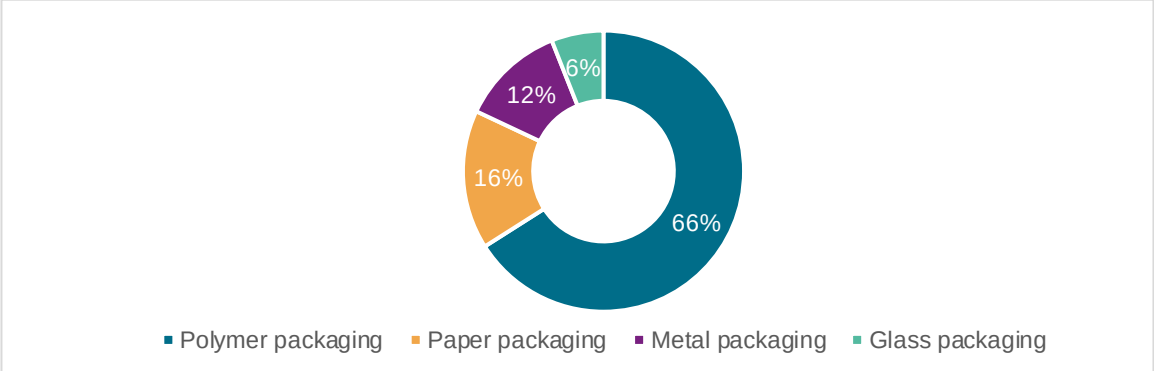


Source: Crisil Intelligence

Paper packaging makes up 16% of the packaging market as of FY25

Paper packaging makes up 16% of the packaging market as of FY25, with key materials including kraft paper (used in bags, boxes and wraps), corrugated board (used in boxes and cases), and paperboard (used in folding cartons and containers). There have been significant substitutions in the past from plastic and foam packaging to paper, mainly for food products, e-commerce, and luxury goods. This is owing to its favourable properties such as its sustainability, biodegradability, and versatility of use, as well as its ability to be recycled and composted, making it an attractive option for environmentally conscious consumers and brands.

Segmentation of the packaging industry in India in terms of packaging material revenue (FY25E)



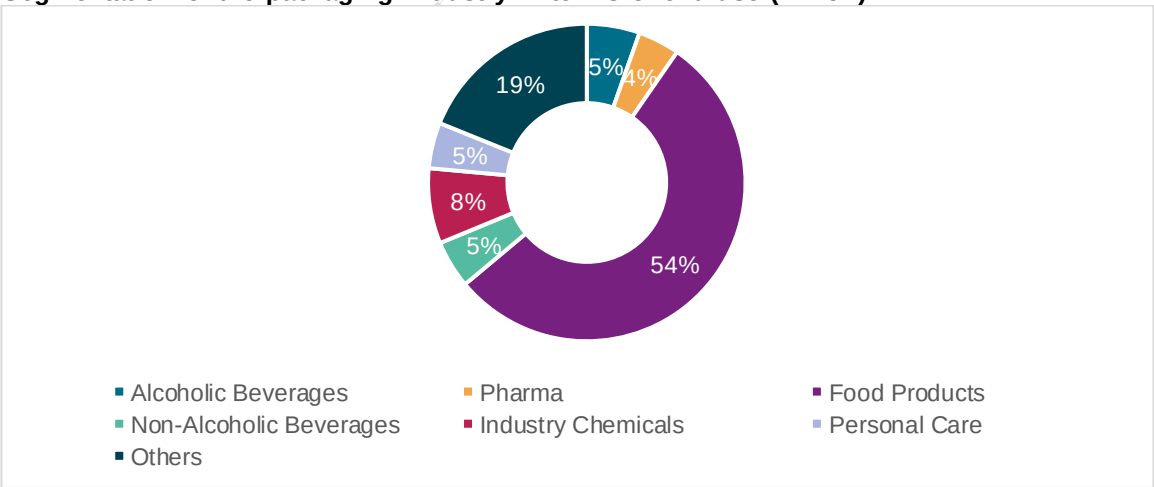
Source: Crisil Intelligence

Food products and beverages to lead the various segments in fiscal 2025

Crisil Intelligence expects the revenue share of all end-users to remain static over the medium term. Polymer is expected to see a marginal shift to paper packaging (mainly in the non-alcoholic beverages segment where tetra packs are preferred). Moreover, consumers are inclining towards paper packaging since it is more eco-friendly and easily recyclable. The share of metal packaging is expected to remain unchanged over the next three years. This is on account of continuous healthy demand from the pharma industry, where there is no major substitution towards other packaging materials owing to the absence of cheaper substitutes for aluminium foil, primarily used in strips, blisters, and pilfer-proof caps. Moreover, aluminium foil has special properties such as protection from light, moisture, oxygen, odour, and most importantly, bacteria. These features make it almost irreplaceable.

In the paper packaging segment, Crisil Intelligence expect the segment's share to increase marginally on account of marginal substitution from the polymer segment. In case of glass, PET bottles have already replaced glass bottles in the non-alcoholic beverages segment, especially for bulk volume packaging. However, Crisil Intelligence do not expect much substitution of glass in the smaller volume segment (200 ml and 300 ml bottles). Further, in the alcoholic beverages segment, glass is expected to remain the primary packaging material, resulting in steady share over the medium term.

Segmentation of the packaging industry in terms of end use (FY25E)



Source: Crisil Intelligence

Technological advancements in the packaging industry

Intelligence packaging

Intelligent packaging utilizes sensors, indicators, and microsensors to track factors like temperature, microbial growth, and physical shock, providing real-time information to consumers and stakeholders. This cutting-edge technology integrates various disciplines to monitor and maintain product quality, ensuring consumer safety and satisfaction. Its unique features, such as sensing, detecting, and communicating, extend shelf life, enhance quality and safety, and educate consumers on proper handling. For example, it can monitor temperature changes, detect microbial growth, protect products from light damage, and indicate physical shock or leakage, enabling stakeholders to take corrective action and reduce costs

Active packaging

Active packaging refers to packaging systems that have an active role in maintaining or extending the shelf life of a product. It involves the use of active compounds or materials that interact with the product or its environment to achieve a specific effect.

Active packaging is designed either as an active layer incorporated onto traditional packaging material or as sachets containing active compounds, that are included inside the packaging. These are used to release beneficial compounds, remove undesirable ones, control temperature, or prevent microbial growth. For example, active packaging can absorb ethylene, a plant hormone that initiates fruit ripening, to reduce spoilage and increase shelf life. By controlling ethylene levels, active packaging can prevent premature ripening and spoilage, thereby reducing food waste and increasing the shelf life of fruits.

Flexible packaging

Flexible packaging refers to a type of packaging that utilizes non-rigid materials, allowing for adaptable and customizable packaging solutions. It is characterized by its ability to change shape when filled or during use, and can be produced from a variety of materials, including paper, plastic, film, aluminum foil, or any combination of these. This innovative approach has revolutionized the packaging industry, offering a highly efficient and cost-effective solution, particularly in industries such as food and beverage, personal care, and pharmaceuticals, where versatility is key.

Radio Frequency Identification (RFID) Packaging

Radio Frequency Identification (RFID) packaging is a technology that uses radio waves to communicate between a tag or label attached to a package and a reader device. This technology enables real-time tracking and monitoring of packages, allowing for improved supply chain management, inventory control, and product authentication. RFID packaging can be used to track packages throughout the entire supply chain, from manufacturing to delivery, and can provide valuable insights into package location, temperature, and handling. This technology is particularly useful for high-value or sensitive products, such as pharmaceuticals, electronics, and luxury goods, where tracking and authentication are critical. Additionally, RFID packaging can also be used to enhance consumer engagement, by providing product information, instructions, and promotions through mobile devices.

3D printing

3D printing technology enables the creation of complex packaging designs and customized packaging solutions with unprecedented precision and speed. This technology uses digital files to create three-dimensional objects, layer by layer, from a variety of materials, including plastics, metals, and paper. In the context of packaging, 3D printing allows for the creation of customized packaging designs, such as unique shapes, sizes, and structures, that can be tailored to specific products, brands, and target audiences. This technology is particularly useful for

creating complex packaging designs, such as bespoke packaging for luxury goods, or customized packaging for products with unique shapes or sizes.

Key government regulations and initiatives in the packaging industry

Key government regulations and initiatives	Description
Plastic Waste Management (Second amendment) Rules, 2022	• The Plastic Waste Management (Second Amendment) Rules, 2022, introduced a new clause defining "biodegradable plastics" and substitutes a new sub-rule for Extended Producer Responsibility for plastic packaging, emphasizing the need for producers, importers, and brand owners to fulfill their obligations in accordance with guidelines specified in Schedule-II. • The amendment introduces the concept of environmental compensation, which will be levied on persons not complying with the provisions of the rules, based on the polluter pays principle. • The rules also provide guidelines for the registration of producers, importers, and brand owners, as well as requirements for waste management, including the disposal of solid waste and the provision of information to the Central Pollution Control Board. • The amendment includes provisions for the use of plastic waste for generation of energy, co-processing, and waste to oil, and inserts new clauses for "End of Life disposal" and "compostable plastic", aiming to promote a more sustainable and environmentally friendly approach to plastic use and disposal.
Food safety and Standards (Packaging) Regulations, 2018	• The Food Safety and Standards (Packaging) Regulations, 2018, aim to ensure the safety and quality of food products by regulating the packaging materials used in the food industry. The regulations, which came into force on July 1, 2019, outline the general and specific requirements for packaging materials, including paper, plastic, metal, and glass. • The salient features of the regulations include the requirement for packaging materials to be safe and suitable for their intended use, not endanger human health, and not result in unacceptable changes to the composition of food. • The regulations require food business operators to obtain a certificate of conformity from a NABL-accredited laboratory for packaging materials that come into direct contact with food. • The regulations provide a list of suggested packaging materials for various food products, including milk, beverages, and fruits and vegetables, and allow for the use of Indian Standards or relevant International Standards where Indian Standards are not available.

Key government regulations and initiatives	Description

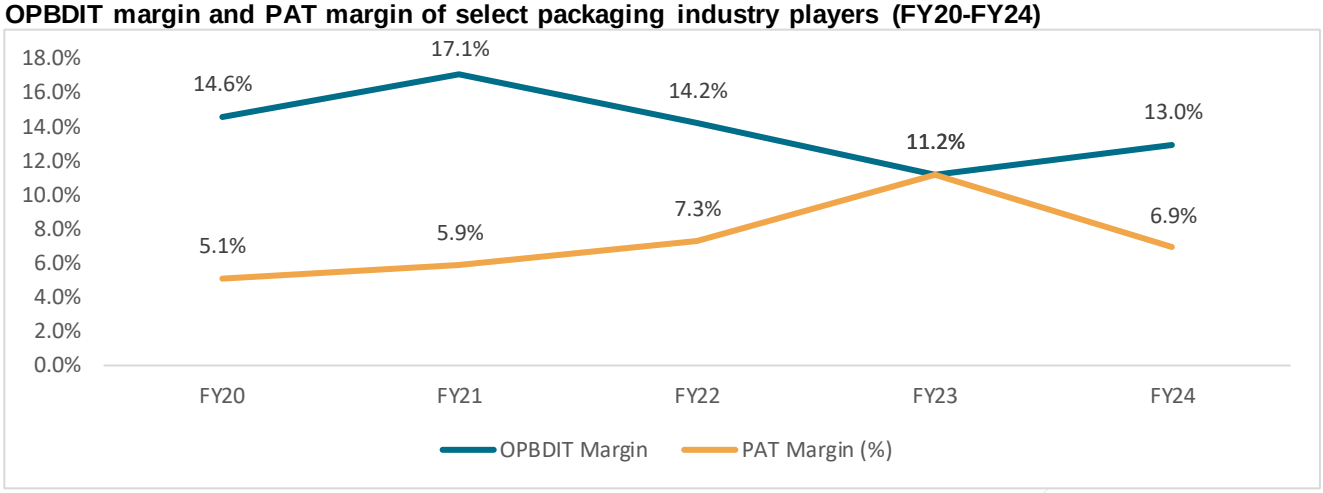
Environment Protection Rules, 2024	• The Environment Protection (Extended Producer Responsibility for Packaging made from paper, glass and metal as well as sanitary products) Rules, was introduced in 2024. The packaging rules apply to producers, importers, and brand owners who introduce packaging or sanitary products into the market, with certain exemptions for micro and small enterprises.
	• The regulation aims to promote extended producer responsibility (EPR) for the environmentally sound management of post-consumer packaging.
	• It also aims to promote a circular economy, reduce waste, conserve resources, and improve environmental quality. In terms of the packaging industry, the features of this regulation include promoting sustainable packaging, designing packages to reduce material use, designing packages for recyclability, and using recycled content in packaging materials.
	• It also introduces a Plastic Credit Mechanism as a key component of the Extended Producer Responsibility (EPR) framework, aiming to promote the collection and recycling of plastic waste, particularly single-use plastics. Some of the key features of Plastic credit mechanisms are:
	  ○ This market-based instrument allows companies to generate plastic credits for every ton of plastic waste collected and recycled, which can be traded on a platform to meet their EPR obligations.
	  ○ The mechanism has two types of credits: Collection Credits and Recycling Credits, with prices determined by market forces, and companies can bank their credits for future use.
	  ○ The Plastic Credit Mechanism is expected to increase plastic collection and recycling, reduce the amount of plastic waste in landfills and oceans, and create new job opportunities in the waste management and recycling sectors.
	  ○ By providing a cost-effective way for companies to meet their EPR obligations, the mechanism can also drive innovation in plastic waste management and recycling technologies, leading to more efficient and effective solutions.

Standard Weights and Measure Act	Often there are malpractices in product packaging. A common instance is the mismatch between the weight printed on the pack and the actual weight. There are also instances where the quantities and measure are not mentioned on the pack, but the pack is declared as a 'family pack', 'economy size', 'full size', pack etc. To protect consumers from malpractices, the act specifies units and measures to be followed and displayed on product packs. Any product pack has to mention the following: • Name of the manufacturer, packer and distributor • Identity of the commodity in the package • Net quantity of the product • The per unit sale price and sale price of the pack
Prevention of food adulteration Act	This Act specifies that manufacturers of food products are responsible for proper packaging of food items and their safety. The Act terms a food product as adulterated if: • The packaging material is inappropriate and makes food injurious to health • The product has been packed or preserved under unhygienic conditions, which contaminates the food. • The Act also makes it mandatory to mention the expiry date of the product on the pack.

Source: Crisil Intelligence

Overview of industry operating margins and net margins

OPBDIT margin and PAT margin of select packaging industry players (FY20-FY24)



Note: Financials of the following companies have been considered PG Foils Ltd., Hindustan Tin Works Ltd., Haldyn Glass Ltd., Hindusthan National Glass & Industries Ltd., AGI Greenpac Ltd. Jindal Poly Films Ltd., Uflex Ltd., Time Technoplast Ltd., NR Agarwal Industries Ltd., Shree Ajit Pulp and Paper Ltd., The South India Paper Mills Ltd., B and A Packaging India Ltd. And Star Paper Mills Ltd.

OPBDIT Margin = Total OPBDIT / Total Operating Income

PAT Margin = Total PAT / Total Operating Income

Source: Annual Reports, Crisil Intelligence

Key growth drivers of packaging industry

Growth prospects of end-user sectors

Growth prospects of end-use segments, such as beverages (alcoholic and non-alcoholic), FMCG, pharmaceuticals and industrial products, act as key demand drivers for the packaging industry. Growth in end-user sectors will augur well for packaging companies, given the potential for growth in demand for glass, aluminium, HDPE and PET, carton boards, etc.

Growing ecommerce and quick commerce sector

The emergence of e-commerce and quick commerce has been a significant growth driver for the Indian packaging industry, unlocking new opportunities and fuelling innovation. As online shopping continues to gain momentum, the demand for packaging solutions that are tailored to the unique needs of e-commerce has skyrocketed. This has led to a surge in demand for specialized packaging materials, such as corrugated boxes, bubble wraps, and tape, as well as innovative solutions like eco-friendly packaging, smart packaging, and customized packaging. As a result, the packaging industry is witnessing a period of rapid growth, with e-commerce and quick commerce emerging as key catalysts, driving investments, and expansion in the sector. The growth of e-commerce is expected to continue to propel the packaging industry forward, with the Indian packaging market projected to experience significant growth in the coming years, driven by the increasing demand for innovative, sustainable, and customized packaging solutions.

Increasing rural demand for small-sized packaged goods

With a view to attracting rural consumers, FMCG companies market their products, largely food items and personal care products, in smaller-sized packets. As a result, ready-to-eat foods, biscuits, shampoo and other FMCG categories, have witnessed growing demand from rural areas and smaller cities, which has further driven up demand for packaging materials. FMCG companies such as Hindustan Unilever have initiated projects such as 'Telecalling' and 'Columbus' to increase penetration in rural markets, which are expected to drive the demand for packaging.

Expected growth in organised retail

While overall retail is estimated to clock 14-16% CAGR over fiscals 2019-2024, organised retail is estimated to register a faster CAGR of 23-25%. In addition, penetration of organised retail is estimated to reach 11-13% in fiscal 2024 from around 8-10% in fiscal 2019. Consequently, urbanisation and growth of the organised retail segment are expected to boost demand for packaging.

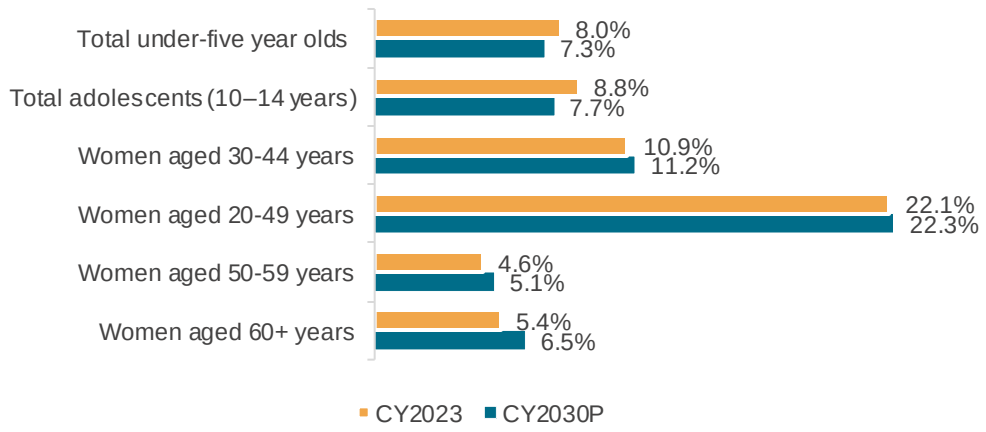
Better affordability levels, health-conscious nature of consumers

Over the last few years, per capita disposable incomes of Indian consumers have grown at a healthy rate improving their affordability. Consumers are also becoming more health conscious. As a result, they increasingly prefer packaged and branded food/ non-food items over unpacked, non-branded items. This also increases demand for packaging.

Growing population of working women, changing lifestyles a key component

The population of working women in India has risen steadily in recent times. Working women have lesser time to devote for household chores in general and cooking in particular, which has increased demand for ready-to-eat foods. Also, the launch of food items such as pasta, soups, and noodles, which are easier and faster to cook, are fuelling demand for polymer packaging, as these products are usually packed in HDPE or BOPP packs.

Share (%) of select demographic segments within total Indian population



Note: P: Projected

Source: UN Department of Economic and Social Affairs, World Population Prospects 2024, Crisil Intelligence

Key challenges and risks for Indian packaging industry

Key Challenges and Risk	Description
Fluctuation in raw material prices	Raw material prices hold a major share (70 to 80%) in operating costs for packaging players. Any fluctuation in raw material prices squeezes the margins of players since they are unable to fully pass on the increase to customers
Availability of power	Cost of power and fuel is the second major component of operating costs (15 to 20%) for packaging players. Power deficit is a key issue. While larger players have captive power plants, smaller players have to depend on diesel gensets. This inflates power costs and further affects margins.
Working capital cycle	Poor bargaining power increases the player' debtor and inventory cycles, which drives up working capital requirements, thus hampering companies' credit profile.
Buyer concentration risk	Packaging companies face the risk of depending excessively on a single or small number of buyers. Companies can overcome this risk by diversifying their client portfolio, both across companies and sectors.
Risk of substitution	Introducing a new packaging material may reduce costs for end-users but replace existing technologies or products. For example, PET (polyethylene terephthalate) bottles have replaced glass bottles in the 500 ml, 1 litre and 1.5 litre non-alcoholic beverage categories since PET bottles are more cost-effective and convenient to transport. Following this substitution, glass packaging companies needed to redefine their strategies and adapt to newer technologies. Also, paper packaging is being preferred over polymer packaging in some end-use sectors because the former is more eco-friendly and easily recyclable.
Technological upgradation	Packaging companies have to constantly upgrade their technologies to reduce costs and introduce innovative material, so they stay ahead of competition. Such exercises require huge capital investments, which only larger players are able to raise. Smaller players find it difficult to stay ahead of the curve, due to paucity of funds.
Environmental concerns	Recycling plastics and using them in secondary packaging is an area of major concern. There is a tendency to use most plastics for only 'one trip' (i.e., without recycling). At the same time, the Ministry of Environment and Forests has raised concerns over polymer-based packaging by putting a ban on single-use plastic, which acts as a threat to the polymer packaging companies. One other such instance from the recent past is the government ban on packaging of 'gutka' in BOPP (biaxially oriented polypropylene) packs.

Source: Crisil Intelligence

5. Assessment of Indian paper industry

The Indian paper industry is categorised into writing and printing (W&P), paperboard, Specialty paper and newsprint, of which, paperboard accounts for the largest share of market in volume terms, while the W&P is the largest in value terms. Demand for paper is closely linked to economic activity with a strong economic growth boosting demand for paper, while a downturn in the economy affecting demand for paper.

Paper has also enjoyed relatively healthy demand due to the following factors:

- Lifecycle of a paper product from manufacture to consumption and disposal is short (paper is used more in the nature of a consumption good and not as a durable)
- Widely used, right from an individual to a company
- No real low-cost substitute for paper

Players operate either in the paper, paperboard or newsprint business. Most mills in India are small; a few mills have integrated manufacturing operations or the facility for manufacturing paper from pulp. This, along with government policies, has resulted in the industry becoming highly fragmented, with a large number of companies having small capacities. While India accounts for nearly ~18% of the world population, it consumes only 4% of the global paper production. At about 16-17 kgs, the country's per capita paper consumption is low as compared to the global average of 57 kg and about around 200 kgs in developed economies.

The paper industry' value chain involves multiple stakeholders right from forest to customer

Raw material sourcing

Paper industry's production relies heavily on three primary raw materials: wood-based pulp, wastepaper, and agricultural residues like bagasse, rice husk, wheat and rice straw. However, inadequate availability of these raw materials has been a consistent constraint. Wood remains the critical raw material for manufacturing writing and printing (W&P) paper, especially for high-end varieties like maplitho and coated paper. Although about 80–90% of the wood requirement is met through domestic sources, the growing demand for paper has increasingly led to imports. Wastepaper, accounting for nearly 47% of the total raw material mix, serves as a key input, especially for the packaging paper and paperboard segments. However, India's domestic wastepaper recovery system is underdeveloped, leading to a heavy dependence on imports to meet industrial needs. As of FY24, India imported Rs. 259.71 billion worth of raw materials (Corresponding to HS codes: 4701, 4702, 4703, 4704, 4705, 4706, 4707). out of which wastepaper comprised 41% (HS Codes: 4706, 4707) of the raw materials imports.

Agricultural residues, such as bagasse, are also used, particularly for lower-quality papers. However, the availability of bagasse has declined because of its increasing use for power generation by sugar mills, and other

agri-residues are seasonal and less efficient in pulp yield. The scarcity of raw materials, therefore, poses a significant challenge at the very beginning of the value chain.

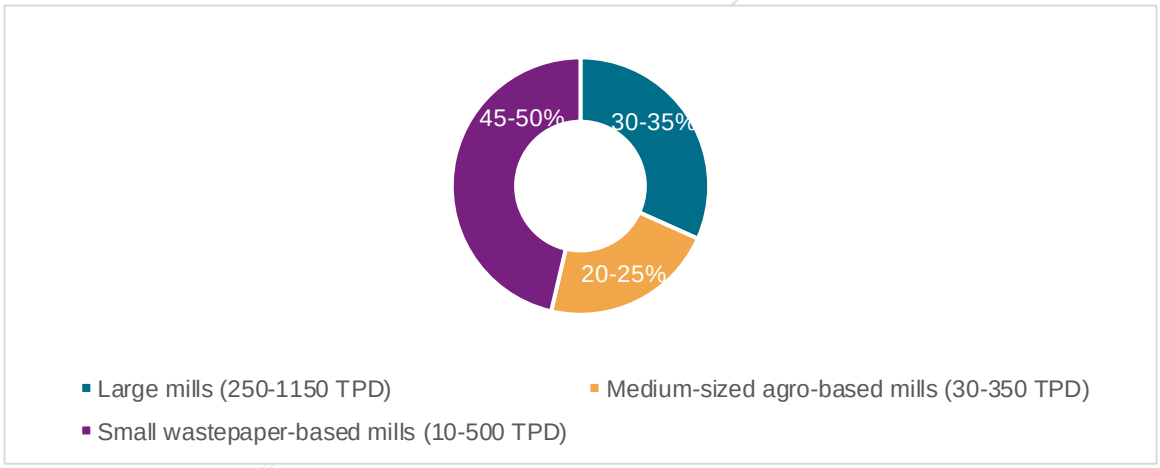
Pulping process

The pulping process in India varies based on the type of raw material used. Mills dependent on wood generally produce pulp internally, especially those targeting the higher-end W&P paper market. Wastepaper recycling is extensively used for manufacturing paperboard and industrial paper varieties. Agro-based pulping is typically undertaken by mills located close to regions with a high concentration of sugar mills, where bagasse availability is relatively higher. The location of pulp mills is critical due to the high freight costs associated with transporting wood and pulp. As a result, paper mills are often established near forests, agricultural regions, or major river systems to ensure both raw material and water availability. In case of wood-based units, location also influences cost competitiveness, as state-specific royalty rates on wood and bamboo impact overall raw material costs.

Paper manufacturing

Paper manufacturing in India is highly fragmented, with approximately 800–900 mills, of which around 550–600 is operational. The industry is divided into four major categories: writing and printing (W&P) paper, industrial paper (paperboard and kraft paper), newsprint, and specialty papers. High capital requirements, coupled with a history of government policies favouring small units (such as excise concessions in the 1970s), have led to a landscape dominated by small-scale producers. Only the top 15 producers together account for just 10–20% of the overall installed capacity, underscoring the industry's fragmented nature.

Production basis size of the mills



Source: Crisil Intelligence

Distribution & sales

Distribution and sales of paper products in India are geographically distributed. The Western region (comprising Maharashtra, Gujarat, and Madhya Pradesh) and the Northern region (including Uttar Pradesh, Rajasthan, Punjab, and Uttarakhand) are the largest consumption centers. The Southern region (Tamil Nadu, Karnataka, Kerala, and Andhra Pradesh) is also comparable in size, whereas the Eastern region (West Bengal, Bihar, Odisha, Assam, etc.) lags due to weaker industrial development and less efficient distribution networks. Demand for paper is closely tied to economic activity: strong growth in GDP positively affects demand for W&P paper, industrial paper, and

newsprint, whereas downturns depress it. Factors such as literacy rates, educational spending, industrial production, and packaging industry growth also influence demand patterns. However, there is a gradual impact of digitization on the W&P paper segment, slightly slowing down its growth, while packaging-related demand continues to grow robustly.

Recycling & disposal

The lifecycle of paper products is relatively short as paper is predominantly a consumption good rather than a durable product. Despite the heavy reliance on wastepaper for manufacturing packaging and paperboard, India faces a challenge due to its low domestic wastepaper recovery rate. This results in greater reliance on imports of wastepaper. Recycling infrastructure remains underdeveloped, limiting the potential to close the loop fully within the domestic value chain. Consequently, while paper remains widely used across individuals and industries, the industry's sustainability depends significantly on improving recycling mechanisms and increasing domestic wastepaper recovery to reduce import dependency.

Product wise description and applications

The following table provides an overview of the various types of paper products, their descriptions, and applications. It categorizes paper products into four main segments: Writing and Printing Paper, Specialty Paper, Paperboard, and Newsprint.

Segment	Product	Description	Applications
Writing and printing paper	White Paper Rolls	These are long rolls of paper that are typically bleached to a white or off-white color. These rolls are used for various purposes depending on the thickness and quality of the paper.	• Large-scale printing • Packaging, or as a base material for further processing (e.g., thermal paper rolls for receipts).
	High Bright Paper	High bright paper that is treated to have an enhanced white appearance and brightness. It is commonly made with a higher degree of chemical treatment during the production process.	• Commercial printing • Premium catalogs, brochures
	Billing Paper Rolls	These are rolls of paper that are specially manufactured for printing receipts, bills, and invoices. They are typically coated with a chemical that allows thermal printing without the need for ink.	• Point-of-sale (POS) systems such as cash registers, and ATMs
	Printed Paper	Paper that has been printed either by digital or traditional printing methods. The paper can be coated or uncoated, depending on the printing requirements.	• Advertising materials and brochures • Books and magazines, • Posters • Packaging
	Copier grade paper	Paper that is cut into sheets, often for use in printers or writing. Paper sheets are available in various sizes and weights depending on the intended use.	• General office printing • Copying, note-taking, and drawing

	Paper for Notebook	Used for making notebooks. It is typically lightweight, durable, and smooth, often made from recycled or virgin pulp and has a varied texture depending on the manufacturer and type of notebook.	• Notebook production, such as for school notebooks, office notebooks, and journals.
	White Copy Paper	White copy paper is a standard, versatile paper used for copying and printing. It is often available in 75-90 GSM (grams per square meter) and is designed for high-quality printing.	• Copying, • Printing documents, • Reports, presentations, and other office tasks.
Specialty paper	Carry Bag Paper	It is a strong, durable type of paper used specifically for making paper bags. It can be made from kraft or recycled paper, and it may be coated for additional strength and appearance.	• Eco-friendly carry bags in retail stores, shopping malls, and packaging for products.
	Cupstock	It is a high-quality, food-grade paper coated for waterproofing & durability that is specifically used for paper cups/containers. They come in Virgin brown, bleached and unbleached type depending on applications	• Food containers • Hot & cold beverage cups • Ice cream cups • Paper bowls
	Packing Paper	It is a soft, lightweight paper that provides cushioning and protection for items during shipping and handling.	• Protective material in packaging to wrap items like glassware, electronics, and other fragile products.
	Special Grade Paper	This is high-quality paper that is manufactured using premium raw materials and processes to ensure superior properties like smoothness, durability, and consistency.	• Printing of high-end magazines, brochures, or legal and official documents.
	GSM Coated One Side (C1S) Paper*	A high-quality paper or paperboard that is coated on one side to provide a smooth, glossy surface for printing, while the other side remains uncoated for flexibility or bonding.	• Packaging (cartons, labels, posters) • Magazine covers • Greeting cards • Food-grade packaging where only one printed surface is needed.
Paperboard	Kraft Paper (unbleached)	Kraft paper is a strong, durable, and usually brown or beige in color. It is made using the kraft process, which imparts strength to the paper.	• Packaging • Paper bags • Protective wrapping for industrial products. • Crafting of eco-friendly products, and food packaging
	Bleach Kraft Paper	Kraft paper that has been bleached to produce a whiter, brighter color and cleaner appearance. It retains much of the strength of traditional kraft paper.	• Premium packaging • Food and grocery packaging • Shopping bags • Specialty wrapping materials, where white and clean paper is needed
	White Top Kraft Liners	A type of Kraft liner which features a top layer that has been bleached to a crisp white finish, providing a smooth and clean surface that is ideal for printing and branding.	• Packing fruits, vegetables and brewery boxes

	Virgin Top Liners	It is is a high-quality material used as the outer layer in corrugated cardboard. It is made from fresh, unbleached wood pulp. It offers a robust, durable, making it a preferred choice for a wide range of packaging needs.	• Specialised boxes for consumer electronics, durables and auto parts
	Virgin grade absorbent kraft paper	A type of kraft paper made from virgin wood pulp and designed to be highly absorbent	• Cooling pads in coolers and AC ducts
	Interleaving Kraft paper	It is type of kraft paper that is used to package and protect precious metals, engraved plates and integrated circuits	• Foil laminates • Precious metals packaging
	Paper Carry Box	A type of paperboard box made from thick paper or cardboard and designed to carry goods and items. These boxes are sturdy and often feature handles for easy transport.	• Packaging for transporting items like gifts, food, and small goods
Newsprint	Standard Newsprint Paper	Lightweight, inexpensive, non-archival paper typically made from mechanical pulp with high recycled content.	• Daily newspapers • Advertising inserts • Promotional flyers
	Improved Newsprint (INP)	A slightly brighter and stronger version of standard newsprint, often with better runnability and appearance.	• High-quality newspapers • Colorful advertising sections • Educational books
	Groundwood Paper	Made mainly from groundwood pulp, this paper has higher opacity and bulk but retains a newsprint-like character.	• Telephone directories • Low-cost magazines • Comic books
	Bulky Newsprint	A thicker variant of newsprint that gives more "feel" and volume without much increase in weight.	• Weekend editions of newspapers • Special supplements • Budget catalogs.

Note:

**The categorization of GSM C1S depends on the GSM, if it is below ~ 170-200 GSM it is considered Specialty paper product (used for labels, posters, etc.) and if above ~200-230GSM then Paperboard Product (used for folding cartons, packaging boxes, etc.).*

Source: Crisil Intelligence

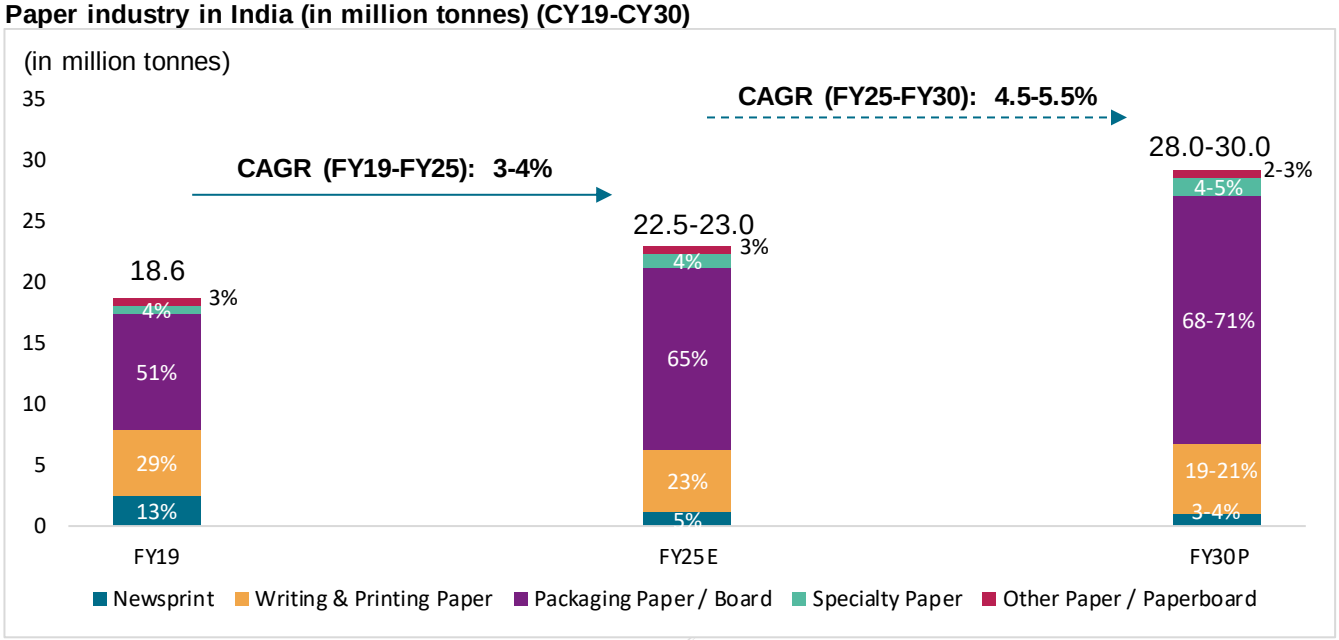
Review and outlook of Indian paper industry

Indian paper industry expected to grow at 4.5-5.5% CAGR to reach 28.0-30.0 million tonnes in volume by FY30

The Indian paper industry has grown from 18.6 million tonnes in FY19 to 22.5-23.0 million tonnes in FY25. During this period, it has grown at a CAGR of 3-4%, with the paperboard segment being the main contributor to this growth fuelled by increasing demand from E-commerce, food and beverage industries, as well as the need for sustainable packaging solutions. In addition to this, growth can be attributed to India's growing economy, rising consumer spending, and government initiatives promoting paper and paper products such as the ban on single-use-plastics. From FY25 to FY30, the Indian paper industry is expected to grow at a CAGR of 4.5-5.5% and thereby reach a size of 28.0 -30.0 million tonnes in FY30. Demand will be led by healthy growth in paperboard volume, which is expected to clock 6-8% CAGR over FY25 to FY30. This growth would be driven by increased volumes in end-user

segments such as household appliances, fast-moving consumer goods (FMCG), ready-made garments, pharmaceuticals, e-commerce, etc. W&P demand is expected to increase at a modest 1-3% CAGR over FY25 to FY30. Specialty paper is expected to log a 6-8% CAGR over FY25 to FY30. All in all, the packaging paper / board segment is expected to see its share rise from 65% in FY25 to 68-71% in FY30. While Newsprint and writing and printing paper is expected to see its share diminish from 5% to 3-4% and 23% to 19-21% respectively during the same period.

Paper industry in India (in million tonnes) (CY19-CY30)



Source: IPMA, Crisil Intelligence

Writing and Printing (W&P) paper:

Uncoated paper expected to maintain its estimated share of 84% in volume terms in the W&P segment till FY30

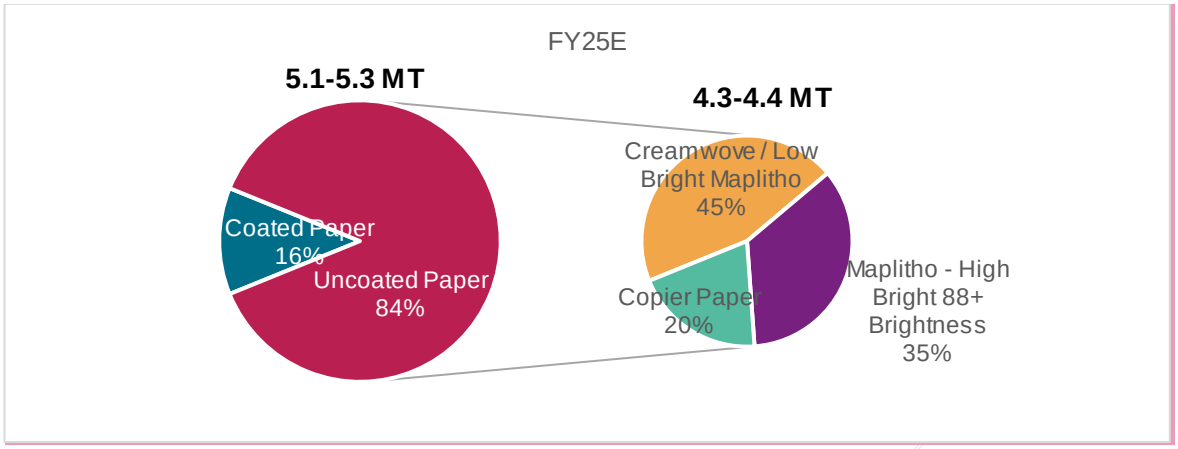
In the Writing and Printing segment, uncoated paper dominated the market with an estimated share of 84% in FY25, while coated paper accounted for the remaining 16%. Looking ahead, the share of both types of W&P paper is expected to remain relatively stable at 84-85% and 15-16% respectively, although uncoated paper is anticipated to grow at a faster pace due to increasing demand from the education and office supplies sectors, as well as its relatively lower cost compared to coated paper.

Within the uncoated paper segment, Creamwove/low bright maplitho held a significant share of 45% in terms of volume in FY25. However, its share is expected to decline marginally to 44-45% in FY30 due to the decreased use in business stationery including letterheads, envelops etc. Maplitho paper with high brightness (88+ brightness) saw its share decrease from 35% in FY25 to 34-35% in FY30, largely attributed to the rising competition from digital media and the subsequent decline in demand for high-end printing papers. Having said that, with new education policy coming to effect and a gradual rise in education spend by the government (~20% higher spend between fiscals 2020 and 2023 compared with the previous three fiscals) and increased thrust on education (through

initiatives such as Sarva Shiksha Abhiyaan/Education for All) are likely to support demand for creamwove and maplitho paper.

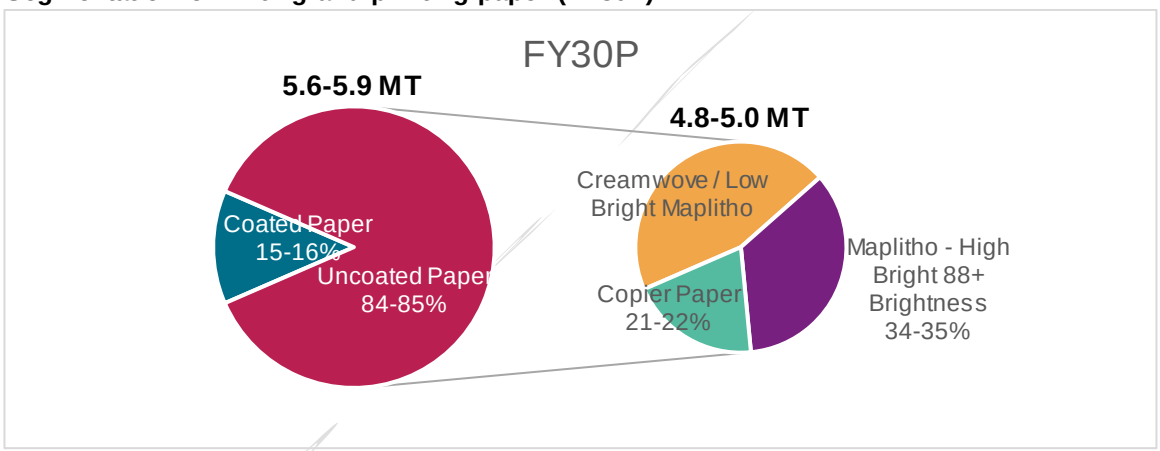
On the other hand, copier paper is expected to experience a slight increase in its share, rising from 20% in FY25 to 21-22% in FY30, driven by the ongoing demand for everyday printing and copying needs in educational institutions.

Segmentation of writing and printing paper (FY25E)



Note: MT: Million Tonnes
Percentages are rounded off to the nearest value and may not add upto 100%
Source: IPMA, Crisil Intelligence

Segmentation of writing and printing paper (FY30P)



Note: MT: Million Tonnes
Percentages are rounded off to the nearest value and may not add upto 100%
Source: IPMA, Crisil Intelligence

Packaging paper / board:

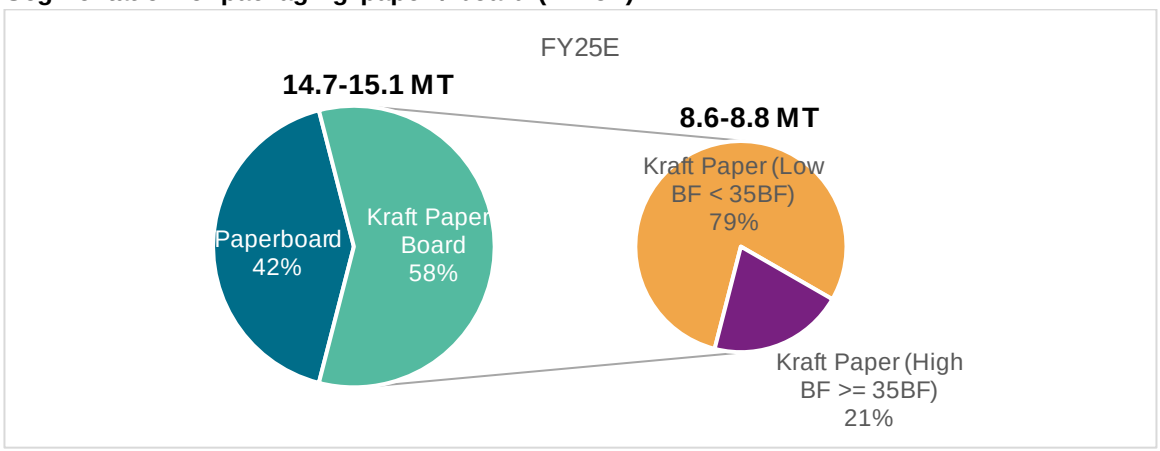
Packaging paper / board segment expected to grow from 14.7-15.1 MT in FY25 to 20.1-20.6 MT in FY30

The packaging paper/board segment, which grew at a CAGR of ~8% from FY19 to FY25, is expected to grow at a CAGR of ~6-7% from FY25 to FY30 on the back of growth in the paperboard sub-segment, which is expected to

see its share in the packaging paper/board segment rise from 42% in FY25 to 42-44% in FY30. This growth is driven by increasing demand for premium and sustainable packaging solutions, particularly in the e-commerce and food packaging industries, where paperboard is preferred for its durability, printability, and eco-friendliness.

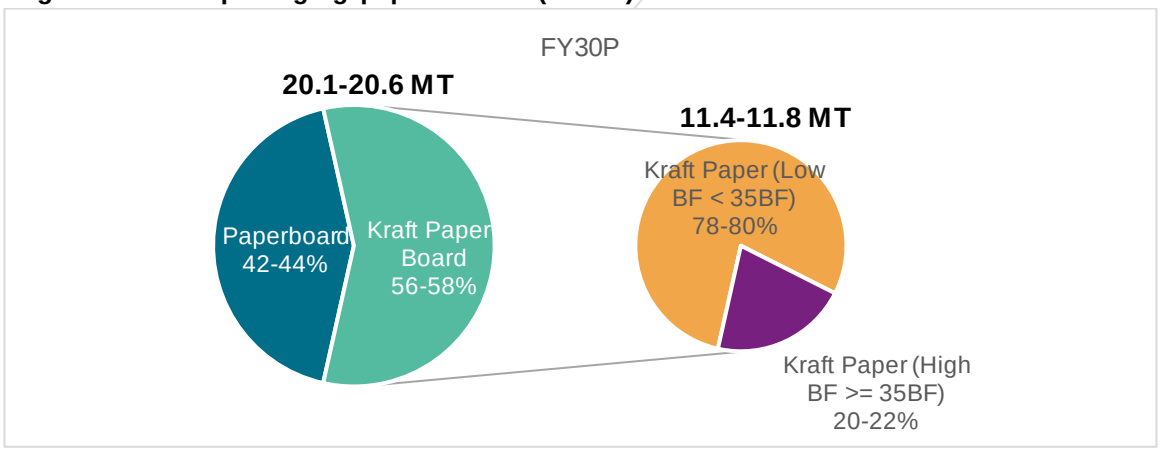
Meanwhile, the kraft paper/board sub-segment, though expected to see its share decrease from ~58% in FY25 to 56-58% in FY30, is expected to see growth in volume of ~5-7% from 8.6-8.6 MT in FY25 to 11.4-11.8 MT in FY30. The growth is being led by flexible packaging used in the E-commerce industry and the usage of sustainable packaging solutions, such as biodegradable and compostable packaging.

Segmentation of packaging paper / board (FY25E)



Note: MT: Million Tonnes
Source: IPMA, Crisil Intelligence

Segmentation of packaging paper / board (FY30E)



Note: MT: Million Tonnes
Source: IPMA, Crisil Intelligence

Low BF(<35) Kraft paper estimated to have a share of 79% in the kraft paper sub segment in FY25

The Kraft paper sub-segment is estimated to have been dominated by low Bursting Factor (BF) (<35BF) Kraft paper at 79% in FY25, which is primarily used for applications such as packaging, wrapping, and bagging of products like food, groceries, and other consumer goods. Low BF Kraft paper is preferred for these applications

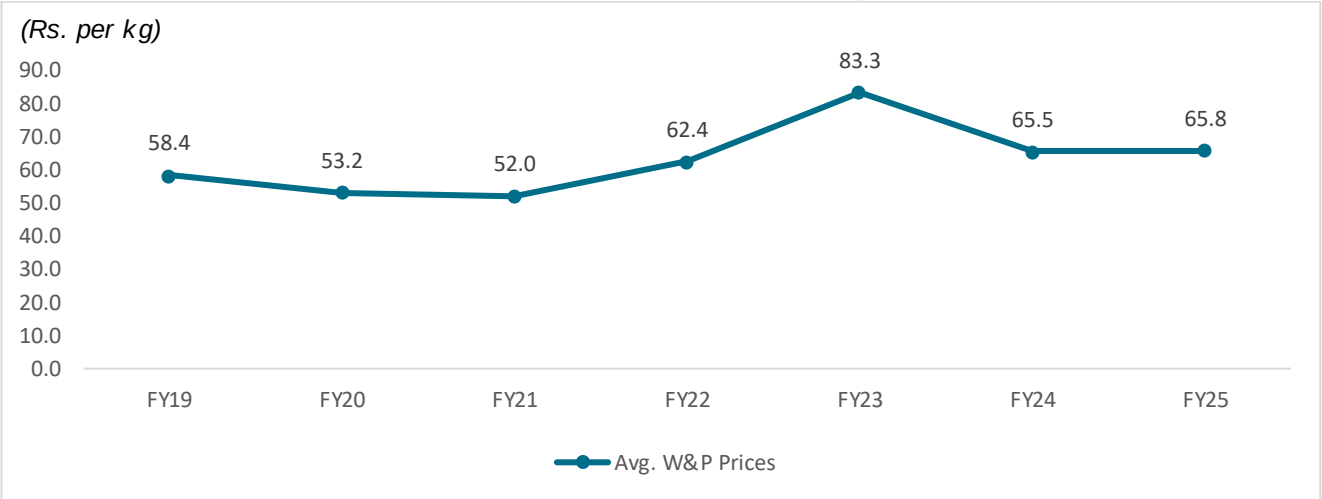
due to its good printability and affordability, making it an ideal material for packaging products that require a balance of cost and performance. On the other hand, High Bursting Factor (>=35BF) Kraft paper had an estimated share of 21% in FY25 and is typically used for more demanding applications such as heavy-duty packaging, industrial packaging, and shipping sacks, where its higher bursting strength provides improved resistance to punctures and tears.

Going forward, the share of both the sub segments of kraft paper is expected to remain more or less same with the Low BF kraft paper expected to have a share of 78-80% in FY30 while the high BF kraft paper is expected to have a share of 20-22% in FY30.

Domestic W&P average prices grew from Rs. 58.4 per kg in FY19 to Rs. 65.8 per kg in FY25

Domestic W&P prices (average price of import and export prices of coated and uncoated paper) are estimated to have corrected by ~21% on-year in fiscal 2024 from the highs of fiscal 2023 in movement with the falling trend of pulp prices. The excess supply in the market amidst tepid demand is likely to keep prices in moderation for fiscal 2025. Overall, the W&P prices have grown from Rs. 58.4 per kg in FY19 to Rs. 65.8 per kg in FY25 growing at a CAGR of 2% from FY19 to FY25.

W&P prices (FY19-FY25) (Rs. per Kg)



Note: The W&P prices are arrived at by using the average import and export prices of HS codes such as 4802 and 4810 which corresponds to uncoated and coated paper
Source: DGCIS, Crisil Intelligence

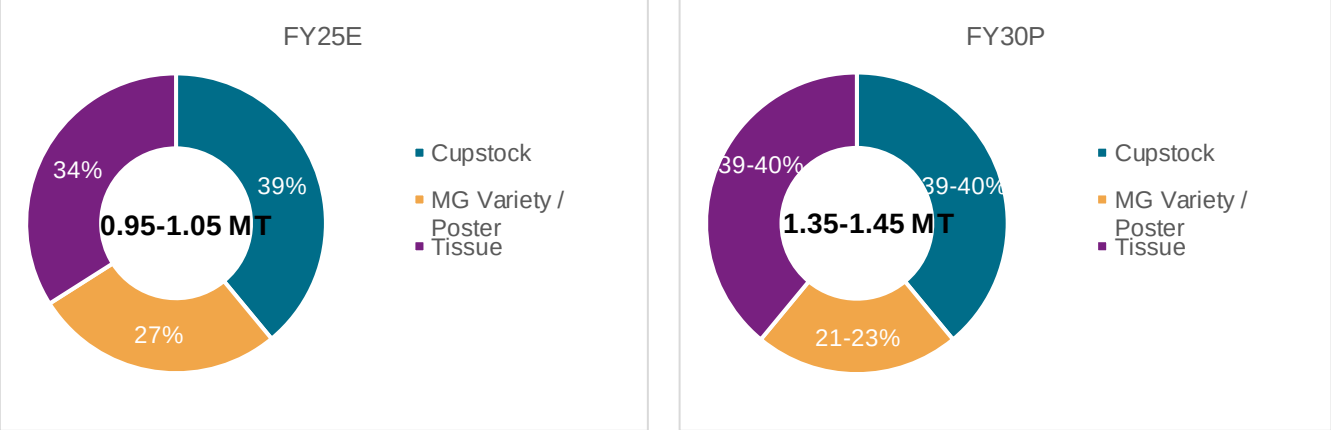
Specialty paper:

Cupstock paper had the highest share in the speciality paper segment at 39% in FY25E

Cupstock paper, a type of specialty paper designed specifically for manufacturing paper cups, is a crucial component in the packaging industry. It is typically made from a combination of wood pulp and other materials, and is characterized by its high strength, water resistance, and printability. As a key segment in the specialty paper market, cup stock paper accounted for 39% of the market share, followed by MG Variety/Poster at 27%, and Tissue at 34% in FY25. Going forward, the tissue paper segment is expected to grow the fastest within the specialty paper segment at 8-10% on account of increased focus on hygiene and health and reach a share of 39-40% in FY30. The

Cupstock segment is expected to grow at 6-8% from FY25 to FY30 on account of increasing consumer preference for sustainable and eco-friendly packaging solutions, particularly in the food and beverage industry, and expected to maintain its share of ~39-40% in FY30. While the MG Variety / Poster paper segment is expected to see its share fall from 27% in FY25 to 21-23% in FY30. Overall, the specialty paper segment is expected to exhibit a growth of 6-7% from 0.95-1.05 MT in FY25 to 1.35-1.45 MT in FY30 mainly attributed to the increasing demand for sustainable and eco-friendly packaging solutions, and rising awareness about the environmental impact of single-use plastics.

Segmentation of specialty paper (FY25E, FY30P)



Source: IPMA, Crisil Intelligence

Growth drivers of cupstock paper

Growing food and beverages industry

The expansion of India's food and beverage sector is fuelling the growth of the paper cup market, driven by a rising demand for eco-friendly and convenient packaging solutions. The proliferation of online food delivery platforms, which dominate the market with millions of active users, has created a surge in demand for paper cups for both hot and cold beverages. The increasing popularity of dining at home, coupled with the growing presence of restaurants, cafes, and food chains, has further boosted the adoption of paper cups. Moreover, innovations in paper cup manufacturing, including the use of biodegradable and compostable materials, have aligned with the industry's sustainability objectives, making paper cups an attractive option. As a result, the Indian paper cup market is poised for significant growth, driven by the convergence of convenience, sustainability, and a thriving food and beverage industry.

Increasing health consciousness among consumers

The increasing health consciousness among Indian consumers is driving the growth of the cup stock industry. With the rising awareness about the importance of hygiene and health, consumers are opting for packaging solutions that are safe and clean. Paper cups are perceived as a healthier alternative to plastic cups, which are often associated with health risks. Moreover, paper cups are also seen as a more hygienic option, as they are disposable and reduce the risk of contamination. As consumers become more health-conscious, they are willing to pay a premium for products that are packaged in a safe and healthy manner, thereby driving the demand for paper cups in India.

Government initiatives and regulations

The government's initiatives and regulations aimed at reducing plastic waste and promoting sustainable practices are driving the growth of the cup stock industry in India. The government's ban on single-use plastics, coupled with initiatives such as the Swachh Bharat Abhiyan, has led to an increase in demand for sustainable packaging solutions. Paper cups, being a biodegradable and compostable alternative to plastic cups, are gaining popularity. Moreover, the government's emphasis on promoting eco-friendly practices has led to an increase in investment in research and development, driving innovation in the cup stock industry. Additionally, under the MSME schemes, the government also provides subsidies and loans for establishing paper cup manufacturing units.

Growing demand for convenience

The growing demand for convenience and on-the-go packaging solutions is a significant driver of the cup stock industry in India. With the increasing pace of life, consumers are seeking out products that are easy to use and convenient to carry. Paper cups, being lightweight and disposable, are an ideal solution for hot and cold beverages on-the-go. Moreover, the rise of coffee culture and the increasing popularity of specialty coffee drinks have led to an increase in demand for paper cups. As consumers continue to seek out convenient and portable packaging solutions, the demand for paper cups is expected to rise, driving the growth.

Light GSM C1S paper well suited for pouch packaging, cooling pad and interleaving kraft paper applications

Light GSM C1S paper is a specialized type of paper that offers a unique combination of properties, making it an excellent choice for various applications. The "C1S" designation is an important aspect of this paper, as it signifies that the paper is "Coated on one side". It's ideal for uses such as folding cartons, for example, in which only one side will be printed and the other left blank for gluing. At the same weight, C1S is more rigid and robust than standard coated paper, which is another quality which makes it ideal for packaging products. This characteristic allows for improved durability and resistance to wear and tear, ensuring that the packaging remains intact and protects the contents effectively. The light weight of the paper, denoted by the GSM (grams per square meter) measurement, also contributes to its versatility, as it can be easily handled and processed without compromising on performance.

Light GSM C1S paper is particularly well-suited for applications such as pouch packaging, where its coated surface and light weight make it an ideal choice for packaging products such as food, cosmetics, and pharmaceuticals. Additionally, it is also used for interleaving kraft paper, where its coated surface helps to prevent moisture and other substances from penetrating the paper. Furthermore, Light GSM C1S paper is also used as a cooling pad paper, where its coated surface helps to dissipate heat and maintain a consistent temperature. This makes it an essential component in various industrial and commercial applications, including refrigeration and air conditioning systems.

Overall, Light GSM C1S paper is a popular choice among manufacturers and designers who require a reliable and efficient material for their packaging needs, offering a perfect balance of printability, strength, and cost-effectiveness. Its unique characteristics, such as its coated surface and light weight, make it an ideal choice for various packaging applications. As a result, it has become a widely used material in the packaging industry, and its versatility and range of options make it a popular choice for a wide range of applications.

Overview of exports of select type of paper

The following table provides an overview of India's exports of paper and paper products, categorised by (HS) codes, for FY24 and FY25. The table also highlights the top 3 countries if export for particular HS codes. Among the select HS codes, the top 3 countries to which India exported the most paper products in FY25 were USA, UAE and Sri Lanka which made up a share of 19.3%, 12.3% and 6.6% respectively.

HS Code	Description	Total export value (Rs. Million)		Top export destination by percentage share (%)	
		FY24	FY25	FY24	FY25
4802	Uncoated paper or paperboard products	26,009.50	27,303.30	UAE: 13.1% Nigeria: 12.6% Sri Lanka: 12.4%	Sri Lanka: 12.9% UAE: 12.2% Kenya: 12.2%
4805	Fluting paper, testliner, sulphite wrapping paper, filter paper and paperboard, felt paper and paperboard, and other uncoated paper and paperboard	12,693.20	9,837.50	China: 32.4% UAE: 18.8% Sri Lanka: 13.7%	UAE: 29.9% Sri Lanka: 13.7% Bangladesh: 10.0%
4810	Paper or paperboard products coated with kaolin or other inorganic material	30,814.50	33,337.50	UAE: 19.6% Sri Lanka: 10.6% Bangladesh: 9.2%	UAE: 21.0% Bangladesh: 11.0% Sri Lanka: 10.6%
4811	Paper, paperboard, cellulose wadding, or webs of cellulose fibres; key attribute: plated surface	21,853.10	27,193.20	UAE: 10.2% Iraq: 7.9% USA: 7.4%	UAE: 8.9% USA: 8.7% South Africa: 5.5%
4819	Products for packing or storing	23,661.00	28,147.30	USA: 31.0% UAE: 8.5% UK: 7.6%	USA:42.8% UK: 7.1% UAE: 6.4%
4820	Products for writing; products for organizing; blotting papers	21,513.00	19,890.60	USA: 33.7% UK: 9.5% Tanzania: 8.0%	USA: 40.0% UK: 11.2% Tanzania: 5.6%
	Total	136,544.30	145,709.40	USA: 14.8% UAE:12.0% Sri Lanka: 6.6%	USA: 19.3% UAE: 12.3% Sri Lanks: 6.6%

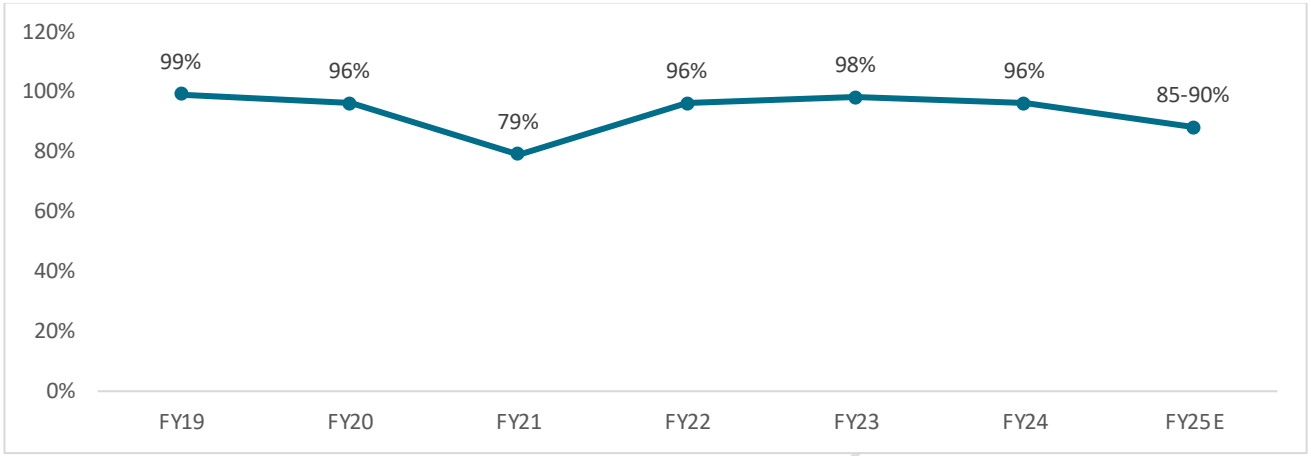
Note: the above list is not exhaustive and only an indicative list of HS codes
Source: DGCIS, Crisil Intelligence

India’s liquid packaging market heavily dependent on paper and paperboard materials

The liquid packaging industry in India is experiencing significant growth, closely intertwined with the paper and paperboard sector. India's liquid packaging market is heavily reliant on paper and paperboard materials, particularly in the form of aseptic cartons (widely used for Ultra-high temperature (UHT) milk and juices, leveraging paperboard as the primary material) and laminated paper-based pouches. These eco-friendly materials offer several benefits, including biodegradability, recyclability, and compatibility with high-speed filling lines. The paper industry's emphasis on producing high-quality, food-grade paperboard has enabled the creation of packaging solutions that meet rigorous safety and hygiene standards, which is crucial for packaging liquid consumables.

The beverage sector, encompassing dairy products and fruit juices, is expected to be the fastest-growing segment in India's paper packaging market, with a projected growth rate of around 21% between 2024 and 2029. This rapid growth is largely driven by the increasing demand for paper-based packaging solutions in the dairy industry, as well as the rising popularity of fruit juices and ready-to-drink beverages. As a result, paper packaging is becoming an increasingly vital component of the Indian beverage industry, offering a sustainable and safe alternative to traditional packaging materials.

Capacity utilization of the industry (FY19-FY25E)

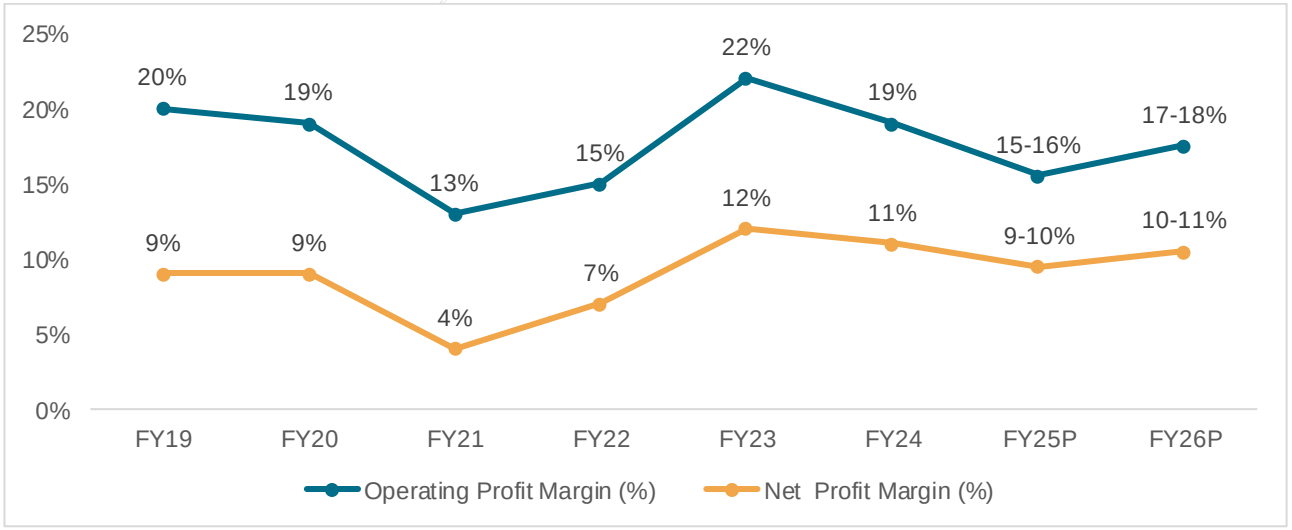


Note: Average capacity utilization of JK Paper Ltd., Emami Paper Mills Ltd., Andhra Paper Ltd., West Coast Paper Mills Ltd, Seshasayee Paper and Boards Ltd and Shreyans Industries Ltd are considered
Source: Crisil Intelligence

Profitability of paper and board players (set) marginally reduced in FY24

Margins have declined in fiscal 2024 owing to lower realizations. Declining trend is expected in fiscal 2025 as well with moderating demand and realization in the market. In fiscal 2023, operating margin increased by over 800 bps on-year to reach 22% owing to improved realizations. Higher energy costs are expected to have been passed on to the consumers.

Operating margin and net margins of the players operating in the paper industry



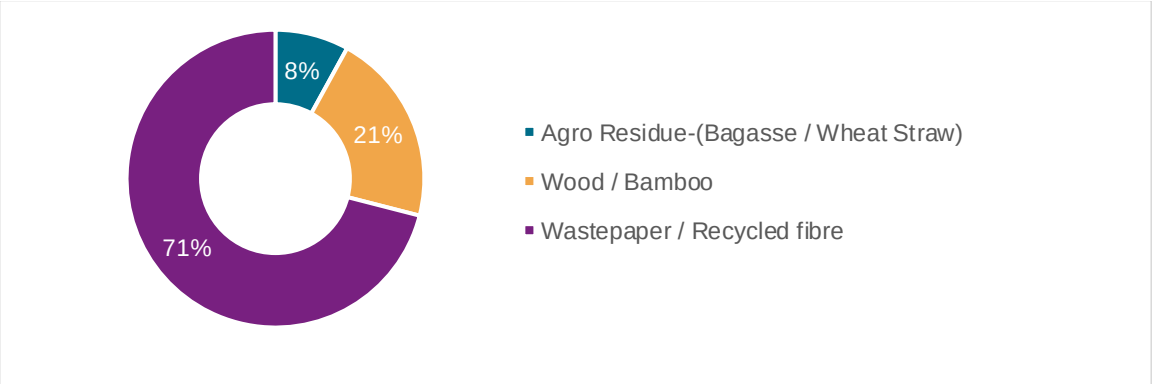
Note: P: Projected

The set includes 16 W&P players and Paperboard players such as Andhra Paper Ltd., Emami Paper Mills Ltd., Genus Paper & Boards Ltd., JK Paper Ltd. Kuantum Papers Ltd., NR Agarwal Industries Ltd., Orient Paper and Industries Ltd., Pakka Ltd., Pudumjee Paper Products Ltd., Ruchira Papers Ltd., Satia Industries Ltd., Seshasayee Paper and Boards Ltd., Shreyans Industries Ltd., Star Paper Mills Ltd., Tamil Nadu Newsprint and Papers Ltd. and West Coast Paper Mills Ltd.
Source: Company reports, Crisil Intelligence

Overview of key raw material used in the industry

The Indian paper industry is heavily reliant on three key raw materials — wood and wood-based pulp, wastepaper (recycled paper), and agricultural residues. The availability, pricing, and procurement dynamics of these inputs play a critical role in determining the industry's competitiveness and profitability.

Typical raw material mix

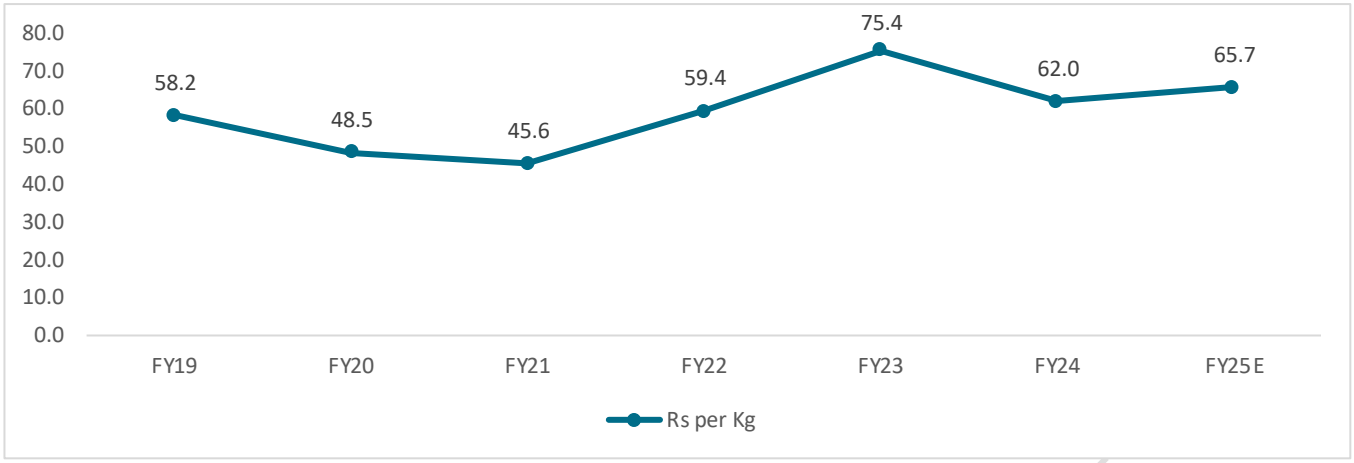


Source: IPMA, Crisil Intelligence

Wood and wood-based Pulp

Wood-based pulp is the primary raw material for manufacturing higher-quality Writing and Printing (W&P) paper, particularly in the maplitho, copier, and coated paper segments. The domestic wood prices fell in fiscal 2024, in line with global prices. Currently, India has 10 lakh hectares of farm forests spread across Odisha, Andhra Pradesh, Gujarat, Karnataka, Kerala, Tamil Nadu, and Maharashtra. Though domestic land under cultivation is expanding by 10% every year, it is still insufficient to cater to the industry's requirement resulting in import dependency. As of FY24, India imported 2.46 million tonnes of wood pulp (Corresponding to HS codes: 4701, 4702, 4703, 4704 and 4705). Out of these, imports from South Africa comprised 24.7%, Indonesia made up 16.2% and Canada 12.4%.

Wood pulp prices (FY19-FY25) (Rs. per Kg)



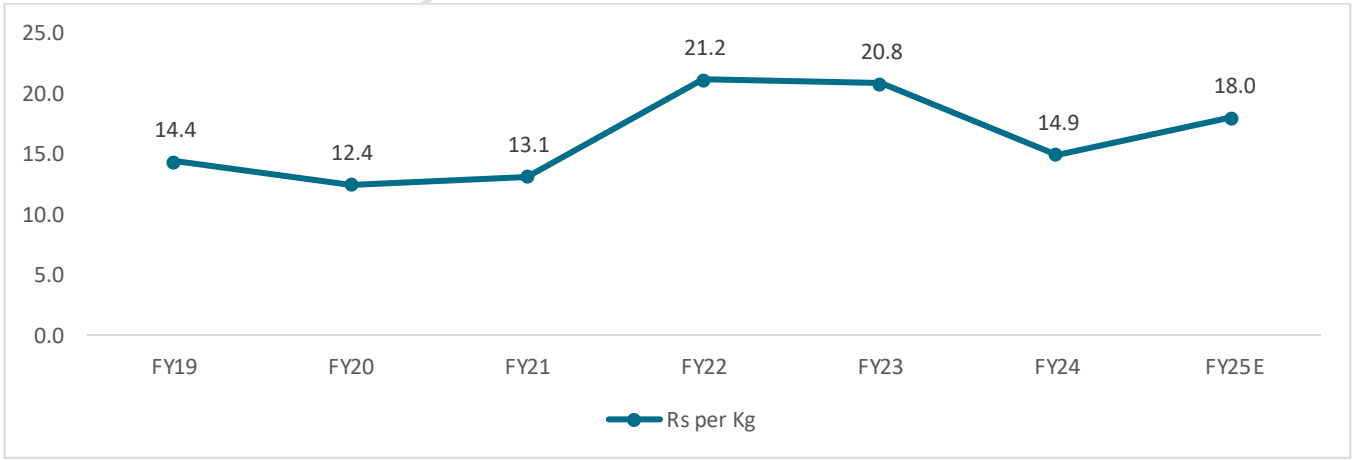
Note: Prices have been calculated basis import quantities and import value of select HS codes such as 4701, 4702, 4703, 4704 and 4705
Source: DGCIS, Crisil Intelligence

Wastepaper (recycled paper)

The collection activity and recovery rate of wastepaper/OCC is robust in some parts of India. However, to make up for the loss of material as fines after many rounds of recycling or blending of domestic wastepaper, imported wastepaper is added to increase the fiber content and achieve the required parameters for higher-grade industrial paper.

In fiscal 2024, wastepaper prices declined further by ~28% with lower demand and existence of balanced demand-supply in the market. In fiscal 2025, domestic prices are expected to have increased on account of supply disruption caused due to the red sea disruption and higher freight in the long run prices are expected to near pre-pandemic levels. As of fiscal 2025, the prices have further increased to Rs. 18 per kg on account of decline in wastepaper availability.

Wastepaper prices (FY19-FY26P) (Rs. per Kg)



Note: Prices have been calculated basis import quantities and import value of select HS codes such as 4706 and 4707
Source: DGCIS, Crisil Intelligence

Overview of use of Refused Derived Fuel (RDF) as raw material in paper Industry

The use of Refuse Derived Fuel (RDF) as a raw material in the paper industry is gaining attention as a sustainable alternative to fossil fuels, particularly in energy-intensive segments such as pulp processing and paper drying. RDF is produced by treating municipal solid waste (MSW) through mechanical and/or biological processes to remove non-combustible materials like metals, glass, and inert matter, followed by shredding and drying to improve its calorific value. The resulting fuel, comprising primarily plastics, textiles, paper residues, and organic materials, has a relatively high energy content, often ranging between 15–25 MJ/kg, making it suitable for co-firing or full substitution in biomass or coal-fired boilers commonly used in paper mills.

The primary benefit of RDF in the paper industry lies in its ability to reduce energy costs and support decarbonization goals. Paper manufacturing is one of the most energy-intensive industries globally, and switching to RDF helps mitigate the volatility and environmental impact associated with fossil fuel consumption. For example, RDF combustion can significantly lower CO_2 emissions per megajoule of energy produced, especially when replacing coal. Furthermore, integrating RDF contributes to circular economy principles by diverting waste from landfills and reducing the need for virgin raw materials in fuel generation. Countries like Germany, Sweden, and the Netherlands have successfully integrated RDF in industrial settings, and similar trends are emerging in developing economies as waste management infrastructure improves.

However, the adoption of RDF in the paper industry is not without its challenges. One of the primary issues is fuel consistency. RDF is heterogeneous by nature, with variable moisture content, ash composition, and calorific value, which can complicate combustion control and reduce boiler efficiency. These inconsistencies can lead to higher maintenance costs, increased slagging and fouling in boilers, and the need for robust emission control systems to manage pollutants like Nitric Oxide, Nitric Dioxide, Sulphur Dioxide, dioxins, and furans. Compliance with increasingly stringent environmental regulations—especially in regions governed by the EU Industrial Emissions Directive (IED) or similar standards—demands the installation of advanced flue gas treatment technologies such as selective catalytic reduction (SCR) and electrostatic precipitators (ESP). Another barrier is logistical and economic. Sourcing, preprocessing, transporting, and storing RDF in a form that meets the mill's combustion and environmental requirements involves significant capital and operational expenditures.

Despite these obstacles, RDF holds substantial promise if implemented with careful planning and the right technological interventions. Co-firing RDF with biomass or natural gas, for instance, helps maintain combustion stability while reducing emissions. Partnerships with municipalities or waste management firms can ensure a reliable supply chain and enable vertical integration of waste valorization strategies. Moreover, automation solutions tailored for RDF boilers, such as advanced control systems for combustion air and feed, can help mitigate fuel variability and improve efficiency in paper mills. Ultimately, the use of RDF in the paper industry aligns with broader sustainability goals, including reduced landfill dependence, lower greenhouse gas emissions, and enhanced energy security.

Overview of key government regulations and initiatives in the sector

Key Government Regulations	Description
Forest (Conservation) Act, 1980	Regulates diversion of forest land for non-forest use, including paper industry projects. Paper manufacturers must source raw material responsibly, often through agroforestry or captive plantations to reduce dependence on natural forests.
Environment (Protection) Act, 1986	Serves as an umbrella legislation for environmental protection in India. Sets stringent norms for discharge of pollutants into air, water, and soil from pulp and paper mills, ensuring sustainable and eco-conscious industrial operations.
Water (Prevention and Control of Pollution) Act, 1974	Controls water pollution by regulating the discharge of effluents from industrial units, including paper mills, into natural water bodies. Encourages adoption of advanced effluent treatment technologies to comply with legal standards.
Air (Prevention and Control of Pollution) Act, 1981	Regulates emissions from industrial processes such as chemical pulping and boiler operations in paper mills. Mills must install pollution control equipment like scrubbers and electrostatic precipitators to reduce air pollution.
Extended Producer Responsibility (EPR) under Plastic Waste Management Rules, 2016 (Amended 2022)	While mainly for plastics, paper companies using composite or plastic-laminated packaging must register and comply with waste collection and recycling targets, promoting circular economy practices.
Key Government Initiatives	**Description**
National Forest Policy	Encourages the paper industry to participate in afforestation and agroforestry on degraded land. Aims to ensure sustainable raw material supply through captive plantations, thereby reducing pressure on natural forests.
Bureau of Indian Standards (BIS)	Issues product-specific standards for various grades of paper such as writing, printing, and packaging papers. Ensures quality control, safety, and suitability for specific uses in both domestic and export markets.
National Agroforestry Policy (2014)	Facilitates the integration of trees with agriculture to ensure availability of wood-based raw materials for the paper industry. Incentivizes farmers to grow pulpwood and supports industry-farmer partnerships.
Paper Import Monitoring System (PIMS) – 2022	Requires importers to register paper imports in advance through a dedicated platform. Helps monitor and regulate the import of specific paper grades to prevent market flooding and protect domestic manufacturers.
Make in India Initiative	Promotes domestic manufacturing of paper and pulp products. Encourages investment in advanced, eco-friendly technologies and infrastructure, enhancing global competitiveness and reducing import dependence.
Ban on Single-Use Plastics (India)	Drives demand for biodegradable alternatives like paper-based packaging products. Paper industry benefits by innovating in packaging solutions that replace plastic in FMCG and retail sectors.

Source: Crisil Intelligence

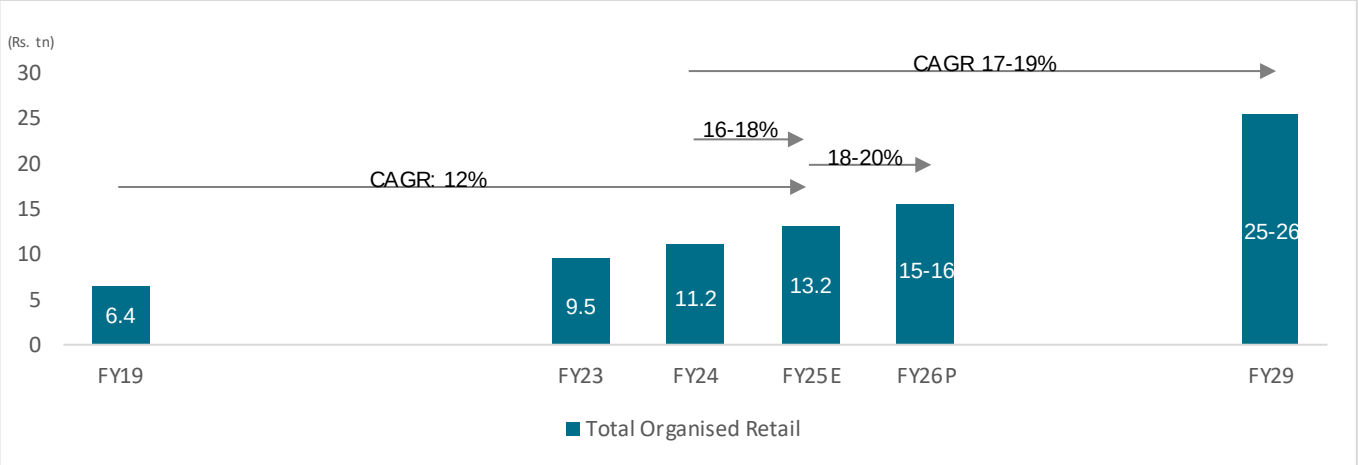
Review of key growth & investment drivers & trends for paper industry

The Indian paper industry is at a pivotal juncture of structural evolution, underpinned by macroeconomic transformation, shifting consumption patterns, and regulatory momentum. While traditionally characterized by fragmentation and raw material constraints, the industry is now witnessing renewed interest and investment in response to robust growth prospects across packaging, hygiene, and education-linked segments.

Rising demand from E-commerce and packaging Industries

A significant long-term growth driver for the Indian paper industry is the surging demand from e-commerce and packaging sectors. The increasing penetration of e-retailing platforms has catalysed a sharp rise in shipments, with daily volumes estimated at 1.2 to 1.5 million shipments per day. This demand has translated into robust growth in paperboard consumption, which is projected to witness a 6–8% CAGR between FY2025 and FY2027, reaching ~17–18 million tonnes by the end of FY2027. Packaging demand is further reinforced by the expansion in organized retail, which is estimated to have grown by 16–18% in FY2025, and is expected to grow at a 17-19% CAGR over fiscals 2024 to 2029 to Rs 25-26 trillion, indicating increased product movement and packaging needs across FMCG, pharmaceuticals, consumer durables, and apparel industries. Paperboard, particularly folding box board (FBB), has also gained preference over traditional art boards for applications such as book covers and consumer packaging.

Organised retail to clock a 17-19% CAGR in the long term



Note: E: estimated, P: projected
Source: Crisil Intelligence

Ban on single-use plastics and sustainability push

India's regulatory ban on single-use plastics, effective from July 2022, has emerged as a key structural tailwind for the paper industry, particularly in packaging applications. The shift toward eco-friendly, recyclable, and biodegradable alternatives has led businesses across sectors—FMCG, food & beverage, cosmetics, and apparel—to increase adoption of paper-based packaging solutions. This regulatory push aligns with consumer trends favouring sustainability and is expected to enhance long-term demand for paperboard and specialty paper, especially for food-grade packaging and carry solutions.

The ban has been a pivotal regulatory change driving demand for paper-based alternatives, as businesses seek substitutes for plastic bags, straws, and packaging films, with paper products such as bags, cups, and trays gaining

significant traction. This legislative push aligns with a broader sustainability movement globally, positioning India's paper industry for further capacity expansion and innovation.

Urbanization, changing lifestyles, and hygiene awareness

India's urban population is expected to continue increasing on the back of economic growth. The share of the urban population is projected to increase to nearly 40% by 2030, according to a UN report on urbanisation. The rise in urban population, coupled with improving living standards and evolving consumer preferences, has spurred demand for specialty paper, especially tissues, decor, and thermal papers. These products cater to lifestyle and hygiene-conscious consumers in urban India. With increased government focus on hygiene and cleanliness under schemes such as Swachh Bharat Abhiyan, demand for tissue paper (napkins, toilet rolls, kitchen towels) is on the rise. This is reflected in the robust 11–13% CAGR projected for the specialty paper segment through FY2027, growing from ~1.9 million tonnes in FY2025 to ~2.3–2.5 million tonnes. Increasing penetration of international tissue brands and higher usage in hospitality and healthcare sectors further support this trend

Supportive government policies and education spending

To foster growth in the broader paper industry—including both packaging and writing & printing (W&P) segments—the Indian government has launched several targeted initiatives. One such effort is the National Packaging Initiative, which promotes sustainable packaging practices and encourages the replacement of plastic with biodegradable materials. In parallel, the government's policy thrust on education, exemplified by the rollout of the National Education Policy (NEP), has become a moderate yet stable growth lever for the W&P paper segment. Between FY2020 and FY2026, government budget allocation on education rose by 29%, boosting demand for paper used in textbooks, notebooks, and stationery. This demand is expected to grow steadily, particularly as student enrollments rise and textbook printing expands — including in regional languages and Braille for the visually impaired.

Though the W&P segment faces long-term pressure from digitalization, it is still projected to grow at a modest CAGR of 1-3% through FY2030 and reach ~5.6-5.9 million tonne. Creamwove and maplitho papers, which account for 65-70% of W&P demand, are expected to benefit most from these developments. Furthermore, tax incentives and subsidies for setting up paper mills and packaging units, particularly in underserved regions, have created a favorable investment climate. This is reflected in the substantial Foreign Direct Investment (FDI) inflows into the paper and pulp industry, which totalled approximately ₹15,121 crores between April 2000 and September 2024, underscoring growing investor confidence in the sector.

Technological advancements and innovation

Technological modernization has significantly improved the productivity and environmental efficiency of Indian paper mills. The adoption of automation, artificial intelligence (AI), and data analytics in manufacturing processes has enabled paper companies to reduce operational costs, improve paper quality, and ensure environmental compliance.

Consolidation and capacity expansion trends

With stronger players acquiring stressed assets under the Insolvency and Bankruptcy Code (IBC) and undertaking capacity expansions, consolidation in the sector is expected to enhance operational efficiency and raw material security. Between FY2024 and FY2027, total industry capacity is projected to increase by 0.5-1.5 million tonnes,

with new capacities focused largely on paperboard and specialty papers due to their favorable demand outlook, better margins, and lower technical entry barriers.

At the same time, many W&P and newsprint mills are being converted to paperboard capacities to align with evolving demand dynamics. The operating rate of the paperboard segment is expected to remain elevated at 88–91% in the medium term, in contrast to the rangebound 65–70% utilization rate projected for the W&P segment by FY2026, indicating a structural shift in production priorities across the industry.

Review of risk factors and challenges

Risk Factor	Description	Segments Affected
Inadequate and volatile raw material supply	The industry faces persistent shortages of key raw materials like wood and quality wastepaper. Forest cover in India is limited, and while farm forestry initiatives have expanded, they are not enough to meet growing demand. Wastepaper collection systems are poorly developed, leading to import dependence and exposure to global price and freight volatility.	Writing & Printing (W&P), paperboard, specialty paper
High logistics and freight costs	Paper manufacturing is inherently freight-intensive due to the bulkiness of raw materials and finished products. Mills located far from ports or raw material sources face elevated transport costs. Imported raw materials like pulp and wastepaper are sensitive to global freight rates, which have spiked due to events like the Red Sea crisis.	All segments
Stringent environmental regulations and ESG pressures	The sector is water- and energy-intensive and faces increasing scrutiny from pollution control authorities. Rising expectations from regulators, global buyers, and investors around ESG compliance compel investment in clean technologies and recovery systems. Smaller players may struggle to meet these standards.	Small and medium mills, integrated players
Digitization and substitution of W&P paper and newspaper	The increasing adoption of digital platforms for education, office communication, and media is structurally reducing the demand for physical W&P paper. While education policies may offer short-term support, global trends and corporate digitalization are driving long-term substitution, particularly in urban and developed areas. Furthermore, Digital alternatives, particularly e-newspapers are becoming an increasingly popular substitute for traditional print newspapers. As technology advances and more people turn to digital platforms for news and information, the demand for newsprint paper is expected to decrease, creating stress in the paper industry	Writing & Printing (W&P) and newsprint
Import competition and price undercutting	Imported newsprint and coated papers, often priced lower and of superior quality, account for a significant share of domestic consumption. With weak demand globally, foreign producers may dump excess stock in India. Domestic players, particularly smaller mills, struggle to match prices due to higher input and compliance costs.	Newsprint, W&P
Fragmentation of industry structure	The paper industry in India comprises 800-900 mills, of which only ~550–600 is operational. Most are small or medium-sized, lacking integration, efficiency, or the ability to invest in modern processes. The top 15 producers account for only 10-20% of the total paper capacity (including newsprint) in the country. This fragmentation hinders economies of scale and leads to uneven quality, pricing, and compliance across the sector.	Entire industry, particularly unorganized players
High capital intensity and long gestation periods	Establishing a new integrated paper mill can require investments upwards of ₹80,000-₹100,000 per tonne, limiting new entrants and technological upgrades. Even brownfield expansions are capital-intensive. Smaller firms often lack access to institutional finance, delaying modernization and expansion.	All capex-driven firms, new entrants

Source: Crisil Intelligence

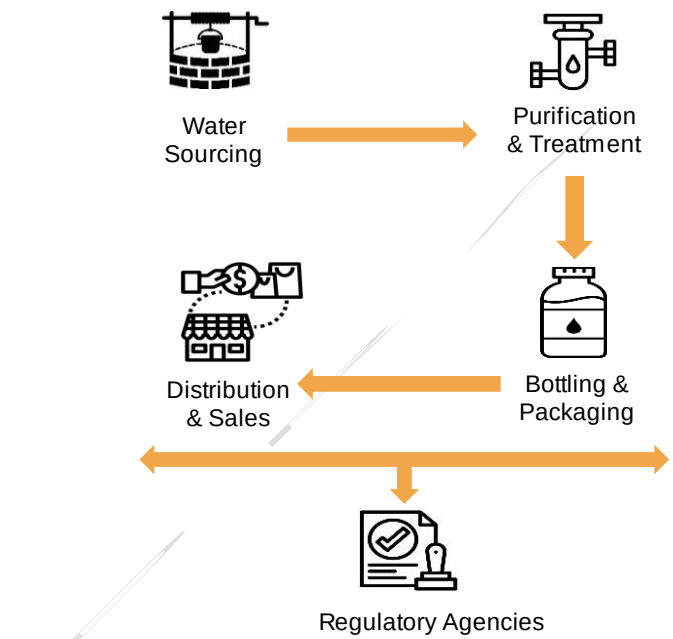
6. Assessment of Indian packaged drinking water industry

The packaged drinking water industry in India has experienced considerable growth, driven by such as rising disposable incomes, a growing preference for convenient and safe drinking water solutions, and inadequate water infrastructure in many regions. Urban areas, in particular, have seen a surge in demand due to challenges with inconsistent tap water supply and increasing health consciousness among consumers. Moreover, the booming tourism sector amplifies this trend, with tourists prioritizing their safety and often opting for bottled water

The market is characterized by a mix of organized and unorganized players. While major brands like Bisleri, Kinley, Aquafina, and Rail Neer dominate the organized sector, the unorganized segment still accounts for a significant portion of the market. However, post-COVID-19, there has been a shift towards trusted brands, with consumers prioritizing health and safety, leading to a decline in the unorganized sector's share.

Regulatory frameworks have also played a crucial role in shaping the industry. The Bureau of Indian Standards (BIS) mandates compliance with specific quality standards for packaged drinking water, ensuring product safety and quality. Additionally, the Food Safety and Standards Authority of India (FSSAI) enforces regulations to maintain hygiene and safety standards across the industry.

Value chain of Indian packaged drinking water industry



- Bureau of Indian Standards (BIS)
- Food Safety and Standards Authority of India

1. Water sourcing

Producers obtain water from owned/leased wells, springs or municipal sources. This involves costs for land, drilling and pump equipment, and sometimes water rights/fees. In some cases companies locate plants near major railway lines to supply specific routes. Water quality at source often requires adjustment (e.g. blending or TDS control)

.

2. Purification & treatment

Water is treated in stages: filtration (sand/carbon), reverse osmosis (RO), ultraviolet or ozone disinfection, and mineral adjustment. Modern bottling plants use automated RO/UV systems with continuous monitoring. Capital and operating costs here are significant (electricity, membrane replacements, maintenance). Quality testing (lab analysis) is done routinely to meet FSSAI norms.

3. Bottling & packaging

Purified water is bottled on high-speed machines. Many companies use in-house PET bottle blow-moulding; others source bottles externally. Bottles are capped, labelled, and often shrink-wrapped or packed in cardboard cartons for bulk handling. Packaging costs are a large part of COGS: besides the PET resin there are caps, labels, cartons, and transportation of empty bottles. Tamper-evident seals and attractive labels add to brand and compliance costs.

4. Distribution & sales

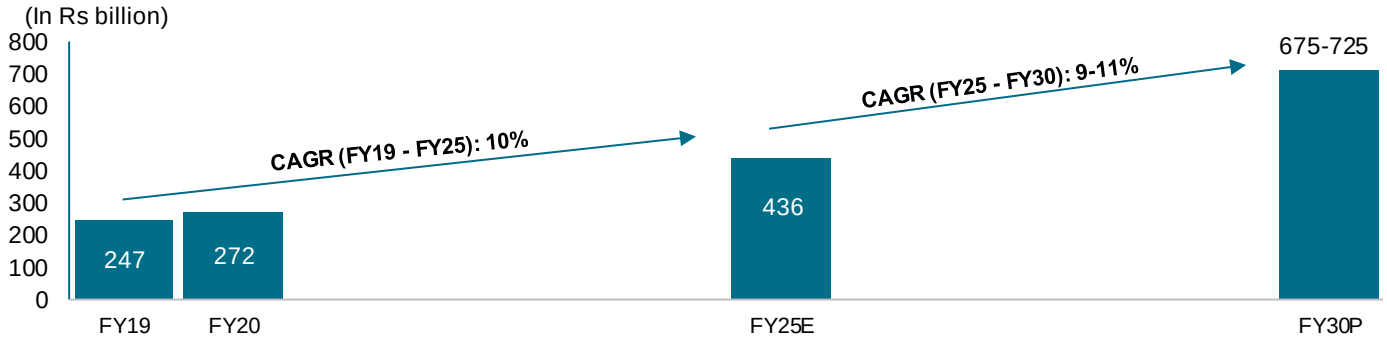
Filled bottles are palletized and trucked to distribution centers or wholesalers. Since water does not require refrigeration, cold chain is not needed (saving cost). However, timely delivery is crucial to avoid stockouts in retail outlets. Warehousing and handling costs (rent, labour) are additional factors. The industry uses a multi-tier distribution network. Distributors/wholesalers buy in bulk from producers and supply to retailers (kiranas, grocery chains, etc.), restaurants and institutions. Many large brands also supply directly to hotels, offices and event caterers. E-commerce (online retail) is a growing channel; brands sell via apps and tie up with grocery delivery platforms. Institutional channels like railways (IRCTC), airlines, hospitals and schools are supplied at negotiated bulk rates. Retailers apply a final markup: for example, if ex-factory price is ₹10/Litre, a distributor might add ₹1–2/L and a retailer another ₹2–3/L before the product sells for ~₹15–20/L.

Review of Indian packaged drinking water industry in India

Packaged drinking water industry estimated to be valued at Rs. 436 billion in FY25

The packaged drinking water industry in India grew at a CAGR of 10% from Rs. 272 billion in FY19 to Rs. 436 billion in FY25. The growth was led by factors such as rising health consciousness, increasing urbanization, and a growing preference for convenience, as well as higher disposable income and expanding distribution networks, which have made packaged drinking water more accessible to a wider population. Furthermore, concerns over water quality and safety, coupled with government initiatives to promote hygiene and sanitation, have also contributed to the industry's growth. Going forward, the industry is expected to witness a strong CAGR of 9-11% from FY25 to FY30 to reach Rs. 675-725 billion in FY30 on the back of continuous demand.

Packaged drinking water industry market in India (FY19-FY30P) (Rs. Billion)



Source: Crisil Intelligence

Key growth drivers of packaged drinking water industry

Urbanization and lifestyle changes

With a population that has swelled to over 1.4 billion, the demand for safe and potable drinking water is always on the rise. India's swift urbanization has further exacerbated this demand, as a significant migration of populations to metropolitan and tier-two cities has strained existing water infrastructure and altered consumption patterns. The urban middle class, characterized by rising disposable incomes and hectic lifestyles, is increasingly opting for the convenience and perceived safety of packaged drinking water. As a result, this demographic shift has been instrumental in driving market growth, as consumers prioritize quality and reliability in their daily hydration choices, fuelling the need for safe and reliable drinking water solutions.

Health and hygiene awareness

Growing concerns over waterborne diseases and contaminants in tap water have heightened consumer awareness about the importance of safe drinking water. Bottled water, often marketed as purified or mineral-rich, provides reassurance to consumers seeking a reliable alternative to tap water. The perception of bottled water as a healthier choice, free from harmful pollutants and microbes, contributes to its increasing popularity across demographics.

Tourism and travel

India's status as a global tourist destination significantly contributes to the demand for packaged drinking water. Tourists, both domestic and international, often prefer bottled water due to concerns about tap water quality. The hospitality sector, including hotels, restaurants, and cafes, relies heavily on bottled water to meet hygiene standards and ensure consistent quality for their patrons.

Inadequate water infrastructure

In many regions of India, inadequate water infrastructure remains a significant challenge, contributing to the rising demand for bottled water. Scarcity of clean, safe drinking water in rural and semi-urban areas pushes consumers to rely on bottled alternatives. Moreover, government initiatives aimed at improving water quality and accessibility have highlighted the need for reliable sources of drinking water, reinforcing the role of bottled water as a critical solution to meet these needs.

Product diversification and marketing strategies

The bottled water industry in India has witnessed significant product diversification, catering to evolving consumer preferences. Brands are introducing flavoured and functional waters enriched with vitamins and electrolytes to appeal to health-conscious consumers. Additionally, innovative marketing strategies, including digital campaigns and celebrity endorsements, have enhanced brand visibility and consumer engagement. The expansion of e-commerce platforms has further facilitated direct-to-consumer models, offering convenience and broadening market reach.

Growing economy

India's growing economy and rising incomes have driven demand for premium bottled water, with consumers increasingly willing to pay for quality and convenience. As a result, the market has become more accessible to a wider audience, beyond just urban centers. Competitive pricing strategies and economies of scale have enabled manufacturers to offer safe and reliable drinking water at affordable prices, further fuelling market growth and expansion into previously untapped regional markets.

Rise of single-serve households

The increasing trend of small bachelor households opting for 20-litre cans of packaged drinking water over regular house water for daily consumption is a significant growth driver for the industry. This shift is driven by convenience, perceived purity, and affordability, making packaged drinking water a preferred choice for single-person households.

Key challenges and risks for the industry

Environmental Concerns

- **Plastic pollution**

The bottled water industry contributes heavily to India's plastic waste crisis. Most bottled water is packaged in polyethylene terephthalate (PET) bottles, which are not biodegradable. While India claims to recycle over 70% of PET, a significant portion still ends up in landfills or water bodies due to improper segregation and collection.

- **Carbon footprint**

The production, bottling, and transportation of packaged water demand significant energy, emitting greenhouse gases. Water is often transported over long distances from bottling plants to urban centers, increasing its carbon footprint. As climate change mitigation becomes a national and global priority, the industry faces pressure to adopt greener alternatives, such as reusable or biodegradable packaging and localized bottling strategies.

Water scarcity and resource depletion

Many water bottling plants are located in water-stressed regions of India. These companies draw large volumes of groundwater, often exceeding local availability, leading to groundwater depletion. Communities near bottling units frequently report reduced access to potable water, and in some cases, local protests have forced closures (e.g., Coca-Cola’s plant in Kerala).

Regulatory and compliance challenges

The industry is regulated by the Bureau of Indian Standards (BIS) and the Food Safety and Standards Authority of India (FSSAI). While these agencies mandate detailed testing and certifications (e.g., IS 14543 for packaged

drinking water, IS 13428 for natural mineral water), compliance demands substantial investment. For small-scale players, maintaining this quality standard can be economically challenging, risking product integrity and consumer health.

Market and economic pressures

- **Highly fragmented industry**

India's packaged drinking water market consists of a few dominant national brands (e.g., Bisleri, Aquafina, Kinley) and thousands of regional and local brands. This fragmentation results in price wars and inconsistent quality. Local players often undercut prices, which discourages premium brands from investing in sustainable practices.

- **Price sensitivity**

The market is extremely price-sensitive, especially in rural and semi-urban areas. Consumers often opt for cheaper, unbranded options, affecting the viability of investments in R&D, eco-friendly packaging, or advanced purification systems. Also, any rise in input costs (e.g., fuel, plastic, energy) directly impacts margins.

Health and safety risks

- **Mineral depletion via RO**

RO (reverse osmosis) is a commonly used purification method, but it removes not just contaminants, but also essential minerals like calcium and magnesium. Long-term consumption of demineralized water may contribute to nutritional deficiencies or bone-related health issues. Health experts are increasingly cautioning against excessive dependence on RO-purified water without mineral rebalancing.

- **Microplastics in bottled water**

A growing body of research points to the presence of microplastics - tiny plastic particles smaller than 5mm- in bottled water. A study conducted by Orb Media and researchers from the State University of New York found that over 90% of popular bottled water brands globally (including those sold in India) contained microplastic particles. These particles may originate from bottle caps, packaging materials, or during the bottling process itself. Although the long-term health impact of ingesting microplastics is still being studied, preliminary findings suggest potential risks such as insulin resistance, weight gain, endocrine disruption, lowered reproductive health and even cancer. India currently lacks specific regulations on acceptable levels of microplastics in drinking water, making this a critical regulatory and public health gap.

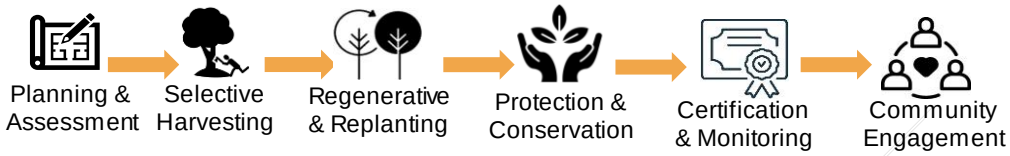
Sustainability and consumer perception risks

As public awareness around environmental issues grow, consumers are increasingly questioning the sustainability of bottled water. There's rising demand for eco-friendly alternatives, such as glass bottles, plant-based plastics, or refill stations. Brands failing to adapt may risk losing consumer loyalty, especially among the youth and urban consumers who prioritize sustainability.

7. Sustainability practices followed across paper manufacturing industries

The paper manufacturing industry has been increasingly focusing on adopting sustainable practices to minimize its environmental footprint and ensure an eco-friendlier production process. As the industry continues to evolve, companies are prioritizing sustainability initiatives that promote responsible forestry management, reduce waste, and conserve natural resources. Sustainable forestry, utilization of recycled fibres, water conservation, and waste management are just a few of the key areas where paper manufacturers are making significant strides. The adoption of renewable energy sources, innovative waste reduction and recycling methods, and waste-to-energy technologies are also gaining traction, as companies explore new ways to reduce their environmental impact. Overall, the industry's shift towards sustainability is driven by a growing recognition of the need to balance economic growth with environmental stewardship, and to create a more sustainable future for generations to come.

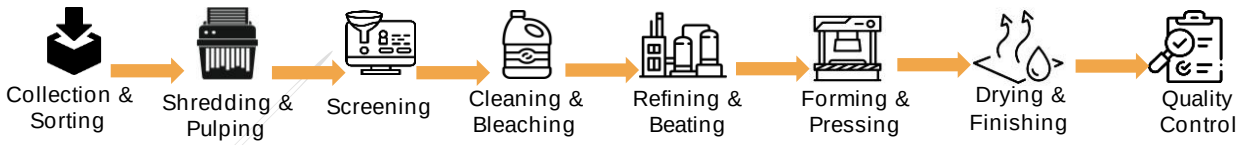
Sustainable forestry



Source: Crisil Intelligence

Sustainable forestry is a method of managing forest resources to ensure their long-term health and availability. The process begins with careful planning and assessment of forest ecosystems, including the types and health of trees and the presence of wildlife. Selective harvesting is practiced to minimize environmental impact, using reduced-impact logging methods. After trees are harvested, forests are regenerated either naturally or through replanting with native species. Conservation practices such as maintaining buffer zones and wildlife corridors help protect biodiversity. Regular monitoring ensures that forest growth keeps pace with harvesting. Third-party certifications like FSC or PEFC verify adherence to sustainability standards. Local communities are often involved in forest management, benefiting through employment and participation in decision-making.

Utilization of recycled fibers



Source: Crisil Intelligence

The process of utilizing recycled fibers in paper manufacturing involves collecting and sorting used paper and cardboard, followed by mechanical and chemical pulping to break down the fibers. The pulp is then cleaned and bleached to remove impurities and improve its brightness. The fibers are refined and beaten to improve their strength and texture and then formed into a sheet using a fourdrinier machine. The sheet is pressed to remove excess water and then dried using hot air blowers. The paper is then finished by cutting, folding, and packaging it for distribution. Quality control measures are taken to test the paper's strength, brightness, and other parameters. The use of recycled fibers helps conserve natural resources, reduces energy consumption, and lowers greenhouse

gas emissions. Overall, the process of utilizing recycled fibers in paper manufacturing is a sustainable and environmentally friendly approach.

Water conservation initiatives

The paper manufacturing industry in India has been taking various water conservation initiatives to reduce its water footprint and minimize its impact on the environment. Many paper mills have implemented water recycling systems to reuse water from various processes, such as pulp washing, bleaching, and coating. Additionally, some paper mills have installed rainwater harvesting systems to collect and store rainwater for non-potable purposes. Water-efficient technologies, such as membrane bioreactors and ultrafiltration systems, are also being adopted to reduce water consumption and improve wastewater treatment.

Wastewater treatment systems adopted by the paper industry to enhance circular economy

The pulp and paper industry employs various water and wastewater treatment technologies to minimize environmental impact. These include primary, secondary, and advanced treatment processes, such as sedimentation, anaerobic treatment, and aerobic treatment etc. The industry also utilizes ozonation, UV treatment, and advanced oxidation processes to enhance treatment efficiency and ensure water reuse. Overall, the goal of these methods is to produce high-quality effluent while minimizing waste and recovering valuable resources.

Waste water treatment systems

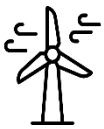
Waste water treatment systems	Description
Sedimentation technology	• Sedimentation Technology is a cost-effective and straightforward approach to separating solids from liquids is through sedimentation. • This process involves allowing suspended solids to settle in a tank, resulting in a more efficient subsequent treatment process. • To enhance the settling process, specialized equipment featuring lamella-shaped passages is often utilized, particularly for effluents with high fibre content, to maximize the removal of solid substances and produce a clearer liquid phase.
Anaerobic treatment	• It is particularly effective for treating effluents from recycled paper mills, as well as those generated during the production of containerboard. • Additionally, anaerobic treatment can be applied to wastewater from various pulping processes, including mechanical, semi-chemical, and chemical pulping, making it a versatile solution for the industry's diverse wastewater management needs.
Aerobic treatment	• Aerobic technology utilizes microorganisms that thrive in oxygen-rich environments to break down organic matter. • By introducing air into the treatment process through specialized aeration systems, these microorganisms can efficiently degrade pollutants, resulting in a more comprehensive and stable treatment outcome. • This approach enables paper mills to achieve improved plant performance, increased resilience to process fluctuations, and a higher degree of effluent quality consistency.

Source: Crisil Intelligence

Transition towards renewable energy sources

The paper industry is transitioning towards renewable energy sources to reduce its environmental footprint. Companies are adopting these sources to reduce dependence on external energy sources, lower greenhouse gas emissions, and promote sustainability.

Adoption of renewable energy sources

Key energy sources	Description
 Biomass	Biomass is the most widely used renewable energy source in the paper industry, with many mills using biomass-based power plants to generate electricity and steam. Paper mills use black liquor (a byproduct of the pulping process) and agricultural waste to produce biomass energy. Due to benefits such as waste reduction and being a source of green energy companies have started adopting it.
 Wind Power	Wind energy usage in the industry is limited compared to biomass or solar energy, primarily due to location-specific wind availability and high initial investment costs. Most paper mills are not situated in regions with strong wind potential, making on-site wind energy generation less viable..
 Hydro Power	Hydropower is not directly used by most paper mills due to the need for proximity to water sources and the complexity of hydroelectric projects. However, as some companies procure electricity from the grid, there is a possibility of the power being generated by hydroelectric means especially in regions like Himachal Pradesh and Uttarakhand.
 Solar Power	Solar energy is especially for powering administrative offices, lighting, and low-heat processes. Many paper companies have installed rooftop solar panels or use solar water heating systems to reduce reliance on grid electricity. Its modular setup and declining costs make it attractive, particularly in states with high solar irradiance. However, its intermittent nature and limited utility for high-temperature industrial processes mean it often complements, rather than replaces, other energy sources.
 Waste to Energy (WtE)	The paper industry has adopted various Waste to Energy (WtE) technologies to manage waste and reduce its environmental footprint. These technologies include incineration, pyrolysis, anaerobic digestion, biodiesel production, gasification, and catalytic conversion, which convert wastepaper and organic materials into energy and value-added products. Many Companies have implemented these technologies thereby reducing waste disposal costs, greenhouse gas emissions, and dependence on external energy sources, while improving environmental sustainability.

Source: Crisil Intelligence

Paper industry' increased focus on waste reduction and recycling methods

The paper industry has adopted various innovative methods to reduce waste and promote recycling, minimizing its environmental footprint. The following table outlines key strategies that are being implemented to achieve sustainability and reduce waste in the paper manufacturing process.

Waste reduction and recycling methods

Key waste reduction & recycling Methods	Description
Use of recycled fiber	A major portion of paper produced in India is made from recycled fiber, primarily recovered from used paper and cardboard. Many paper mills have set up their own waste paper collection systems and also import waste paper. Modern deinking plants are used to clean and process printed wastepaper, allowing it to be reused efficiently in the production of new paper.
Closed-loop water systems	To tackle water wastage and pollution, many paper mills have implemented closed-loop water systems. Effluent Treatment Plants (ETPs) are used to treat the water used in manufacturing so it can be reused within the plant. Some environmentally advanced mills even adopt Zero Liquid Discharge (ZLD) systems, ensuring that no wastewater is released into the environment.
Energy recovery from waste	Energy recovery from manufacturing waste is another key strategy. In wood-based paper mills, a byproduct called black liquor is burned in recovery boilers to generate steam and electricity. Additionally, some mills treat wastewater sludge using anaerobic digestion to produce biogas, which can then be used as a source of energy.
Efficient pulping and bleaching technologies	To reduce the use of harmful chemicals, mills are adopting modern pulping and bleaching methods such as oxygen delignification and enzyme-based treatments. These processes help in reducing the demand for chlorine, which is traditionally used in bleaching, and instead promote Elemental Chlorine-Free (ECF) or Totally Chlorine-Free (TCF) bleaching, both of which are more environmentally friendly.

Key waste reduction & recycling Methods	Description
Solid waste utilization	Solid waste generated during the papermaking process, such as fly ash and sludge, is being repurposed effectively. These byproducts are often used in making construction materials like bricks and cement or are converted into compost for agricultural use. Lime recovery kilns are also employed to reclaim lime from chemical waste for reuse in the pulping process.
Raw material optimization	Many Indian mills, especially in rural areas, utilize agricultural residues such as bagasse (from sugarcane), wheat straw, and rice husk as raw materials. This not only reduces dependency on forest-based wood pulp but also minimizes agro-waste. Additionally, paper plants implement waste minimization strategies like regular audits, lean manufacturing techniques, and the 5S workplace organization method to reduce raw material losses.

Source: Crisil Intelligence

8. Competitive landscape assessment of key players in the Indian paper packaging industry

Comparative analysis of players in the Indian paper packaging industry

In this section, Crisil Intelligence has compared the key players in the Indian paper packaging industry. Data in this section has been obtained from publicly available sources, including annual reports and investor presentations of listed players, regulatory filings, rating rationales, and/or company websites, as relevant. Financial numbers have been reclassified as per CRISIL standards unless otherwise stated

For this assessment, we have considered the following key players: Andhra Paper Ltd., ITC Ltd., JK Paper Ltd., Kuantum Papers Ltd., NR Agarwal Industries Ltd., Ruchira Papers Ltd., Satia Industries Ltd., Seshasayee Paper & Boards Ltd., Sillverton Industries Ltd., West Coast Paper Mills Ltd.

Vintage and business of the players

Company	Year of Incorporation	Brief profile
Andhra Paper Ltd.	1964	Andhra Paper Ltd. was established in 1964 and was formerly known as International Paper Limited. The company produces writing, printing and copier papers for foreign and domestic markets
ITC Ltd.	1910	ITC Ltd was established in the year 1910 and was incorporated under the name Imperial Tobacco Company of India Limited. The company businesses span industries such as FMCG, personal care, cigarettes and cigars, education & stationery products, incense sticks and safety matches, hotels, paperboards & packaging, agri business and IT.
JK Paper Ltd.	1960	JK Paper Ltd was established in 1938 and commenced the manufacturing of straw boards. Currently the company is into the manufacturing of Office papers, coated papers, writing and printing papers and packaging boards
Kuantum Papers Ltd.	1997	Kuantum Papers Ltd was founded in the year 1980 in Punjab, India. The company is into the manufacturing of products like Maplitho, Creamwove, Specialty Paper etc
NR Agarwal Industries Ltd.	1993	NR Agarwal industries Ltd was established in the year 1993 and is engaged in the business of manufacturing of finished paper products. The company serves both the domestic and international markets
Ruchira Papers Ltd.	1980	Ruchira Papers Ltd was established in the year 1980. The company started out as manufacturer of Kraft papers and currently manufactures products such as Kraft Paper, Writing and Printing paper, Specialty papers etc.
Satia Industries Ltd.	1980	Satia Industries Ltd, started operations in the year 1984 as Satia Paper Mills Ltd. The company is into manufacturing of writing and printing paper and various types of specialty paper
Seshasayee Paper & Boards Ltd.	1960	Seshasayee Paper & Boards Ltd. commenced operations in 1962. The company belongs to the SPB-Esvin Group and is into manufacturing of paper and paperboards, while the other group companies are engaged in other diverse businesses that include: sugar-manufacturing, battery-manufacturing, consulting, and research

Sillverton Industries Ltd.	1995	Incorporated in the year 1995, the company manufactures paper for food and grocery packaging, liquid packaging, flexible packaging, secondary packaging, pharmaceutical packaging, and premium printed stationery. It has a Care Certification Pvt Ltd (CCPL) registration for its Environment Management System (ISO 14001:2015) and adopts environment friendly manufacturing practices such as responsible sourcing from Forest Stewardship Council (FSC) certified vendors, usage of waste paper as key raw material, usage of waste-to-energy boiler for electricity generation, installation of an anaerobic digester to treat organic waste generated during production
West Coast Paper Mills Ltd.	1955	West Coast Paper Mills Ltd. was established in the year 1955. The company has two divisions. Its paper and paperboard division manufactures writing & printing paper, cup stock paper board and pulp, while its cable division manufactures optical fibre cable

Source: Annual reports, Company websites, Crisil Intelligence

Key operational parameters of players in the paper packaging industry

Segment wise presence of players in the paper packaging industry

Company	Newsprint	W&P	Packaging Paper / Board	Specialty Paper (Excluding Cupstock)	Cupstock Paper
Andhra Paper Ltd.	✗	✓	✓	✓	✓
ITC Ltd.	N.A.	✓	✓	✓	✓
JK Paper Ltd.	N.A.	✓	✓	✓	✓
Kuantum Papers Ltd.	✓	✓	✓	✓	✓
NR Agarwal Industries Ltd.	✓	✓	✓	✓	✓
Ruchira Papers Ltd.	✗	✓	✓	✓	✓
Satia Industries Ltd.	✗	✓	✓	✓	✓
Seshasayee Paper & Boards Ltd.	N.A.	✓	✓	✓	✓
Sillverton Industries Ltd.	✗	✓	✓	✓	✓
West Coast Paper Mills Ltd.	N.A.	✓	✓	✓	✓

Note: N.A.: Not Available
Source: Annual reports, Crisil Intelligence

Product portfolio of the players in the paper packaging industry

Company	Product Portfolio
Andhra Paper Ltd.	Writing and Printing: Notebook papers, multicolour printing, publishing paper
	Copier: 65 GSM, 70 GSM, 75 GSM, 80 GSM, 100 GSM, carton & wrapper 3D etc
	Specialty Papers: cupstock, carry bag, pharma print, thermal base paper, colour poster paper, plain kraft natural shade, straw paper, cartridge paper
ITC Ltd.	Paperboards: coated virgin boards, coated recycled boards, cigarette boards, folding box boards, solid bleached sulphate board, greyback board, whiteback board
	Specialty and Graphic Boards: PE coated barrier boards, graphic boards, cupstock base, liner boards, liquid packaging boards, anti-fungal boards, solid boards
	Papers: Printing paper, anti-rust tissue, anti-fungal soap wrap, food grade paper, overlay tissue, insulating paper, flameproof paper, base paper, print base décor paper, surfacing décor paper, barrier paper

	Plastic Substitution products: Paper board, virgin fibre-based board, indobowl board, solid paperboard, anti-fungal soap wrap paper, cyber xlpac anti-fungal paperboard, lollipop/candy sticks, earbud sticks
JK Paper Ltd.	Office paper, JK bond, OGR paper in lower GSM, Ecosip paper, coated cup stock in lower GSM, MICR paper, liquid packaging board, anti- coated board, aqueous coated board, ledger paper, absorbent kraft and greeting cards, easy draw, carry bag, copier paper
Kuantum Papers Ltd.	Maplitho paper, copier paper, creamwove paper, cartridge paper, parchment paper, stiffner paper, envelopes, scrap book paper, ledger paper, cupstock, thermal paper, straw paper, bond paper, wedding card paper, colour paper, board paper, railway bond paper, board colour paper etc.
NR Agarwal Industries Ltd.	Duplex board paper, writing and printing paper, copier paper
Ruchira Papers Ltd.	Cupstock paper, wedding card paper, kraft paper, bleached kraft paper, copier paper, multicolour printing paper, office paper, notebook paper, envelope paper, corrugated fibreboard
Satia Industries Ltd.	Super snow-white paper, maplitho paper, coloured paper, cartridge paper, bond paper, duplicating paper, ledger paper, copier paper, virgin-based fibre cups
Seshasayee Paper & Boards Ltd.	Copier paper, office paper, examination paper, parchment paper, ledger paper, cartridge paper, ribbed kraft paper, poster paper, cream laid paper, printer paper, ivory soft paper, carry paper, maplitho paper, bristol paper, pulp board, manila board, fibreboard, stiffner paper etc.
Sillverton Industries Ltd.	Kraft Paper: Regular high BF kraft papers ranging from 22 to 40 BF, virgin top liners, White top kraft liners, virgin grade absorbent kraft paper
	Writing and printing paper: recycled and virgin grades from 80 brightness to 94 brightness having GSM range 48 to 148 GSM, copier grade
	Cup stocks: virgin brown cup stock paper, bleached cup stock paper, unbleached cup stock paper
	Specialty paper: Lighter grammage coated 1 side paper, lighter grammage coated 2 side paper, super calendar kraft paper, clay coated kraft paper, wet strength paper label, oil and grease proof paper, medical insert paper, Bible print paper, steel mill kraft paper, inter leaving kraft paper, bleach kraft paper
West Coast Paper Mills Ltd.	Writing and Printing paper, Cup stock, paper board, pulp, optic fibre cable etc

Note: The above list of products is indicative and not an exhaustive list
Source: Annual reports, Crisil Intelligence

- There are select players in the industry offering Interleaving kraft and steel mill kraft types of specialty papers (a type of high-strength paper designed to serve as a separator between stainless steel coils and sheets) and Sillverton Industries Ltd. is one of the players offering these varieties of specialty papers.

Revenue split (domestic/exports) (FY24) and overseas presence

Company	Domestic	Export	Presence (No. of countries
Andhra Paper Ltd.*	93.71%	6.29%	29
ITC Ltd.*	90.89%	9.11%	105
JK Paper Ltd.*	94.40%	5.60%	52
Kuantum Papers Ltd.*	94.50%	5.50%	32
NR Agarwal Industries Ltd.^	88.53%	11.47%	33
Ruchira Papers Ltd.^^	98.56%	1.44%	N.A.

Satia Industries Ltd.**	95.53%	4.47%	3
Seshasayee Paper & Boards Ltd.*	88.00%	12.00%	37
Sillverton Industries Ltd.	97.35%	2.65%	18
West Coast Paper Mills Ltd.*	99.00%	1.00%	15

Note: N.A.: Not Available

For all the companies except NR Agarwal Industries Ltd., International markets served by the companies are considered as overseas presence

**For Andhra Paper Ltd., ITC Ltd., JK Paper Ltd., Kuantum Papers Ltd., Seshasayee Paper & Boards Ltd., and West Coast Paper Mills Ltd., Export percentage is calculated as a percentage of total turnover and is as reported by the respective companies*

^ For NR Agarwal Industries Ltd., Export sale and export incentives are added to arrive at total exports which is then calculated as a percentage of revenue from operations to arrive at export percentage. Export opportunity has been considered as the overseas presence of the company

^^ For Ruchira Papers Ltd., Overseas revenue has been considered as exports which is then calculated as a percentage of revenue from operations to arrive at export percentage

*** For Satia Industries Ltd., Export revenue has been considered as exports which is then calculated as a percentage of revenue from operations to arrive at export percentage*

For ITC Ltd., the international presence of the entire group has been considered

Source: Annual reports, Crisil Intelligence

Manufacturing capabilities (FY24)

Company	No. of manufacturing facilities	Capacity (FY22)	Capacity (FY23)	Capacity (FY24)
Andhra Paper Ltd.	2	Rajahmundry, AP: Capacity of finished products – 506 TPD / ~184,690 TPA	Rajahmundry, AP: Capacity of finished products – 512 TPD / ~186,880 TPA	Rajahmundry, AP: Capacity of finished products – 512 TPD / ~186,880 TPA
		Kadiyam, AP: Capacity of finished products – 257 TPD / ~73,000TPA	Kadiyam, AP: Capacity of finished products – 200 TPD / ~73,000 TPA	Kadiyam, AP: Capacity of finished products – 200 TPD / ~73,000 TPA
ITC Ltd.*	8	N.A.	N.A.	Bhadrachalam, AP: Virgin Paper & Paperboards - ~815,000 TPA
				Tribeni, WB: Specialty Papers - ~60,000 TPA
				Kovai, TN: Recycled Boards - ~115,000 TPA
				Chennai (TN), Hardiwar (Uttarakhand), Nadiad (Gujarat), Munger (Bihar): Packaging and Printing business - converts over 1,00,000 tonnes of paper, paperboard and laminates per annum into a variety of value-added packaging solutions for the food & beverage, personal & home care products, cigarette, liquor, quick service restaurants and consumer goods industries
JK Paper Ltd.	3	Paper and Board: 7.61 Lakh TPA	Paper and Board: 7.61 Lakh TPA	Paper and Board: 7.61 Lakh TPA

Kuantum Papers Ltd.**	1	Writing and printing paper – 148,500 TPA	Pulping capacity (Agro + wood) – 380 TPD / ~138,700 TPA Paper Machine Capacity - 450 TPD / ~164,250 TPA Chemical Recovery Plant – 700 TPD / ~255,500 TPA	Pulping capacity (Agro + wood) – 380 TPD / ~138,700 TPA Paper Machine Capacity - 450 TPD / ~164,250 TPA Chemical Recovery Plant – 700 TPD / ~255,500 TPA
NR Agarwal Industries Ltd.^	3	Total Production capacity – 288,000 TPA	Total Production capacity – 246,000 TPA	Total Production capacity – 440,000 TPA
Ruchira Papers Ltd.	1	Kraft paper, writing and printing paper - 400 TPD / ~146,000	Kraft paper, writing and printing paper - 450 TPD / ~164,250	Kraft paper, writing and printing paper - 450 TPD / ~164,250
Satia Industries Ltd.	1	Writing and Printing Paper – 205,000 TPA	Writing and Printing Paper – 205,000 TPA	Writing and Printing Paper – 255,000 TPA
Seshasayee Paper & Boards Ltd.	2	Erode, TN: Paper – 165,000 TPA	Erode, TN: Paper – 165,000 TPA	Erode, TN: Paper – 165,000 TPA
		Tirunelveli, TN: Paper – 90,000 TPA	Tirunelveli, TN: Paper – 90,000 TPA	Tirunelveli, TN: Paper – 90,000 TPA
Sillverton Industries Ltd.	2	Kraft Paper - 108,000 TPA Writing and Printing Paper – 108,000 TPA	Kraft Paper - 108,000 TPA Writing and Printing Paper – 108,000 TPA	Kraft Paper - 108,000 TPA Writing and Printing Paper – 108,000 TPA Cup stock Paper – 49,500 TPA
West Coast Paper Mills Ltd.	3	N.A.	Paper – 320,000 TPA Pulp – 255,000 TPA	Paper – 320,000 TPA Pulp – 255,000 TPA

Note: N.A.: Not Available

Manufacturing Capacity details for all the companies except ITC Ltd. and NR Agarwal Industries Ltd., are as reported by the companies in its annual report and may not be exhaustive as not all the companies provide complete capacity details

** For ITC Ltd., No. of manufacturing facilities shown in the above table represents the Packaging and Printing factories unit and Paper & Paperboard Mills unit. ITC Ltd. has a total of 107 manufacturing facilities for the whole group*

For ITC Ltd. Additionally, the manufacturing capacity details has been taken from the company's website accessed in April 2025 and may not be exhaustive

^ For NR Agarwal Industries Ltd.,

For FY24, No. of manufacturing facilities and manufacturing capacity details are as of September 30, 2024 , and has been taken from ratings rationale dated Jan 2025

For FY23, manufacturing capacity details are as per ratings rationale dated November 2023. Additionally, the total production capacity is excluding the capacity of the shutdown plant of 42,000 TPA

For FY22, manufacturing capacity details are as per ratings rationale dated September 2022. Additionally, the total production capacity is excluding the capacity of the shutdown plant of 66,000 TPA

*** For Kuantum Papers Ltd., for FY22, manufacturing capacity details are as of March 31, 2022, as per ratings rationale dated December 2022. Additionally, the data for pulping capacity and chemical recovery plant capacity was not available, hence has not been included in the above table*

Source: Annual reports, Ratings rationale, Crisil Intelligence

Financial overview

Operating Income (Rs. million)

Operating Income (Rs. Million)	FY22	FY23	FY24	FY25	9MFY25	CAGR (FY22-FY24)	CAGR (FY22-FY25)
Andhra Paper Ltd.*	13,808.58	21,011.51	18,014.26	15,412.41	11,338.70	14.22%	3.73%
ITC Ltd.^#	76,416.20	90,813.50	83,444.10	84,245.80	62,358.90	2.16%	3.30%
JK Paper Ltd.^	42,364.20	68,575.20	70,951.30	67,180.70	50,285.70	29.41%	16.61%
Kuantum Papers Ltd.*	8,323.41	13,111.14	12,153.46	11,070.39	8,296.90	20.84%	9.97%
NR Agarwal Industries Ltd.*	16,188.20	17,692.77	12,938.02	16,590.32	11,933.00	-10.60%	0.82%
Ruchira Papers Ltd.*	6,151.34	8,053.43	6,612.59	6,592.30	4,975.50	3.68%	2.33%
Satia Industries Ltd.*	9,036.25	18,859.10	17,262.68	15,119.87	11,153.20	38.22%	18.72%
Seshasayee Paper & Boards Ltd.^	14,197.50	21,956.30	19,105.00	17,543.80	12,520.30	16.00%	7.31%
Sillverton Industries Ltd.*	6,198.32	8,683.41	8,812.00	N.A.	7,454.83	19.23%	N.A.
West Coast Paper Mills Ltd.^	33,835.05	49,265.63	44,534.97	40,622.94	30,210.00	14.73%	6.28%

Note: N.A.: Not Available

** On standalone basis*

^ On consolidated basis

FY25 financials for all companies are as per their quarterly financials

All numbers are restated as per Crisil Intelligence standards and may not match company reported numbers

 # For ITC Ltd., revenue and the subsequent revenue growth data is for its Paperboards, Paper and Packaging division and includes inter segment revenue, while the rest of the parameters is for ITC Ltd. at consolidated level

Source: Company filings, Crisil Intelligence

OPBDIT (Rs. million)

OPBDIT (Rs. Million)	FY22	FY23	FY24	9MFY25	CAGR (FY22-FY24)
Andhra Paper Ltd.	2,268.21	7,425.21	4,336.68	1,142.90	38.27%
ITC Ltd.#	206,800.70	257,427.10	262,424.40	194,588.20	12.65%
JK Paper Ltd.	10,071.90	21,002.70	17,120.80	7,114.40	30.38%
Kuantum Papers Ltd.	1,222.37	3,813.44	3,550.50	1,827.20	70.43%
NR Agarwal Industries Ltd.	1,538.11	1,931.71	1,926.84	833.90	11.93%
Ruchira Papers Ltd.	636.70	1,092.10	818.63	806.10	13.39%
Satia Industries Ltd.	1,907.59	4,178.54	4,297.95	2,087.60	50.10%
Seshasayee Paper & Boards Ltd.	1,695.50	5,373.30	3,440.70	861.90	42.45%
Sillverton Industries Ltd.	737.52	1,242.40	1,230.09	1,315.95	29.15%
West Coast Paper Mills Ltd.	6,860.41	16,793.98	11,243.19	4,003.30	28.02%

Note:

All numbers are restated as per Crisil Intelligence standards and may not match company reported numbers

OPBDIT = Operating income - total expenses before interest tax, depreciation and extraordinary items

 # For ITC Ltd., the numbers are for all segments and at a company level

Source: Company filings, Crisil Intelligence

EBITDA (Rs. million)

EBITDA (Rs. Million)	FY22	FY23	FY24	9MFY25	CAGR (FY22-FY24)
Andhra Paper Ltd.	2,489.11	7,774.97	4,867.69	1,853.40	39.84%
ITC Ltd.[#]	221,582.50	276,299.80	283,933.50	213,602.60	13.20%
JK Paper Ltd.	10,478.10	21,653.60	17,847.60	7,946.50	30.51%
Kuantum Papers Ltd.	1,238.50	3,832.89	3,393.68	1,874.00	65.53%
NR Agarwal Industries Ltd.	1,544.38	1,971.41	1,950.78	1,136.60	12.39%
Ruchira Papers Ltd.	650.99	1,109.58	844.07	829.20	13.87%
Satia Industries Ltd.	2,019.68	4,252.10	4,350.18	2,206.90	46.76%
Seshasayee Paper & Boards Ltd.	1,895.10	5,745.60	4,033.40	1,413.70	45.89%
Sillverton Industries Ltd.	745.17	1,288.23	1,306.69	1,385.21	32.42%
West Coast Paper Mills Ltd.	7,178.20	17,386.45	12,636.48	5,660.00	32.68%

Note:
All numbers are restated as per Crisil Intelligence standards and may not match company reported numbers
EBITDA = OPBDIT + non-operating income
[#] For ITC Ltd., the numbers are for all segments and at a company level
Source: Company filings, Crisil Intelligence

Profit After Tax (PAT) (Rs. million)

PAT (Rs. Million)	FY22	FY23	FY24	9MFY25	CAGR (FY22-FY24)
Andhra Paper Ltd.	1,397.32	5,224.63	3,397.39	810.57	55.93%
ITC Ltd.[#]	155,031.30	194,767.20	207,513.60	152,446.00	15.69%
JK Paper Ltd.	5,438.20	12,082.20	11,332.00	3,349.30	44.35%
Kuantum Papers Ltd.	134.23	1,361.52	1,838.26	890.64	270.07%
NR Agarwal Industries Ltd.	610.22	993.04	1,254.63	244.70	43.39%
Ruchira Papers Ltd.	330.94	676.27	491.95	489.30	21.92%
Satia Industries Ltd.	1,006.75	1,921.74	2,111.86	831.95	44.83%
Seshasayee Paper & Boards Ltd.	1,100.20	3,958.30	2,707.70	821.00	56.88%
Sillverton Industries Ltd.	309.72	685.97	886.85	824.40	69.22%
West Coast Paper Mills Ltd.	3,458.81	10,870.12	7,860.85	2,894.90	50.75%

Note:
All numbers are restated as per Crisil Intelligence standards and may not match company reported numbers
[#] For ITC Ltd., the numbers are for all segments and at a company level
Source: Company filings, Crisil Intelligence

- Among the players considered, Sillverton Industries Ltd. had the second highest growth in PAT from FY22 to FY24. It grew at the CAGR of 69.22% from FY22 to FY24.

OPBDIT Margin (%)

OPBDIT Margin (%)	FY22	FY23	FY24	9MFY25
Andhra Paper Ltd.	16.43%	35.34%	24.07%	10.08%
ITC Ltd.[#]	34.08%	36.28%	37.01%	34.40%

OPBDIT Margin (%)	FY22	FY23	FY24	9MFY25
JK Paper Ltd.	23.77%	30.63%	24.13%	14.15%
Kuantum Papers Ltd.	14.69%	29.09%	29.21%	22.02%
NR Agarwal Industries Ltd.	9.50%	10.92%	14.89%	6.99%
Ruchira Papers Ltd.	10.35%	13.56%	12.38%	16.20%
Satia Industries Ltd.	21.11%	22.16%	24.90%	18.72%
Seshasayee Paper & Boards Ltd.	11.94%	24.47%	18.01%	6.88%
Sillverton Industries Ltd.	11.90%	14.31%	13.96%	17.65%
West Coast Paper Mills Ltd.	20.28%	34.09%	25.25%	13.25%

Note:
All numbers are restated as per Crisil Intelligence standards and may not match company reported numbers
OPBDIT margin = OPBDIT / Operating Income
 # For ITC Ltd., the numbers are for all segments and at a company level
Source: Company filings, Crisil Intelligence

EBITDA Margin (%)

EBITDA Margin (%)	FY22	FY23	FY24	9MFY25
Andhra Paper Ltd.	17.74%	36.40%	26.25%	15.38%
ITC Ltd.#	35.65%	37.93%	38.87%	36.54%
JK Paper Ltd.	24.50%	31.28%	24.90%	15.55%
Kuantum Papers Ltd.	14.85%	29.19%	28.29%	22.46%
NR Agarwal Industries Ltd.	9.54%	11.12%	15.05%	9.29%
Ruchira Papers Ltd.	10.56%	13.75%	12.72%	16.59%
Satia Industries Ltd.	22.08%	22.46%	25.12%	19.58%
Seshasayee Paper & Boards Ltd.	13.16%	25.73%	20.48%	10.81%
Sillverton Industries Ltd.	12.01%	14.76%	14.70%	18.41%
West Coast Paper Mills Ltd.	21.02%	34.87%	27.51%	17.76%

Note:
All numbers are restated as per Crisil Intelligence standards and may not match company reported numbers
EBITDA margin = EBITDA / Total Income
 # For ITC Ltd., the numbers are for all segments and at a company level
Source: Company filings, Crisil Intelligence

PAT Margin (%)

PAT Margin (%)	FY22	FY23	FY24	9MFY25
Andhra Paper Ltd.	10.12%	24.87%	18.86%	7.15%
ITC Ltd.#	25.55%	27.45%	29.27%	26.95%
JK Paper Ltd.	12.84%	17.62%	15.97%	6.66%
Kuantum Papers Ltd.	1.61%	10.38%	15.13%	10.73%
NR Agarwal Industries Ltd.	3.77%	5.61%	9.70%	2.05%
Ruchira Papers Ltd.	5.38%	8.40%	7.44%	9.83%
Satia Industries Ltd.	11.14%	10.19%	12.23%	7.46%

PAT Margin (%)	FY22	FY23	FY24	9MFY25
Seshasayee Paper & Boards Ltd.	7.75%	18.03%	14.17%	6.56%
Sillverton Industries Ltd.	5.00%	7.90%	10.06%	11.06%
West Coast Paper Mills Ltd.	10.22%	22.06%	17.65%	9.58%

Note:
All numbers are restated as per Crisil Intelligence standards and may not match company reported numbers
PAT margin = PAT / Operating Income
 # For ITC Ltd., the numbers are for all segments and at a company level
Source: Company filings, Crisil Intelligence

Return on Capital Employed (RoCE) (%)

RoCE (%)	FY22	FY23	FY24
Andhra Paper Ltd.	16.68%	48.36%	24.33%
ITC Ltd.#	34.28%	40.22%	39.23%
JK Paper Ltd.	15.24%	27.00%	20.41%
Kuantum Papers Ltd.	6.78%	23.32%	22.96%
NR Agarwal Industries Ltd.	16.88%	20.41%	13.26%
Ruchira Papers Ltd.	13.08%	22.44%	14.80%
Satia Industries Ltd.	16.00%	20.90%	24.40%
Seshasayee Paper & Boards Ltd.	11.30%	33.91%	18.94%
Sillverton Industries Ltd.	18.25%	31.35%	24.86%
West Coast Paper Mills Ltd.	24.14%	58.42%	31.46%

Note:
All numbers are restated as per Crisil Intelligence standards and may not match company reported numbers
RoCE = Profit before interest and tax (PBIT) / (Average total debt + Average tangible networth + Average deferred tax liability)
 # For ITC Ltd., the numbers are for all segments and at a company level
Source: Company filings, Crisil Intelligence

- For FY24, Sillverton Industries Ltd. had the third highest RoCE of 24.86% among the players considered.

Return on Equity (RoE) (%)

RoE (%)	FY22	FY23	FY24
Andhra Paper Ltd.	13.55%	39.13%	19.57%
ITC Ltd.#	26.30%	30.91%	30.20%
JK Paper Ltd.	20.00%	35.88%	26.24%
Kuantum Papers Ltd.	3.27%	28.03%	29.07%
NR Agarwal Industries Ltd.	12.34%	17.26%	18.21%
Ruchira Papers Ltd.	11.42%	19.61%	12.39%
Satia Industries Ltd.	20.38%	30.18%	25.42%
Seshasayee Paper & Boards Ltd.	9.28%	27.64%	15.39%
Sillverton Industries Ltd.	19.26%	32.75%	30.82%
West Coast Paper Mills Ltd.	22.04%	48.14%	24.93%

Note:

All numbers are restated as per Crisil Intelligence standards and may not match company reported numbers
RoE = PAT / Average tangible net worth
Tangible Networth = Total paid up equity share capital + Gross Reserves + Goodwill - Intangible Assets
[#] For ITC Ltd., the numbers are for all segments and at a company level
Source: Company filings, Crisil Intelligence

- Sillverton Industries Ltd. had the highest RoE of 30.82% in FY24 among the players considered.

Asset Turnover Ratio

Asset Turnover Ratio	FY22	FY23	FY24
Andhra Paper Ltd.	1.44	2.12	1.56
ITC Ltd.[#]	2.12	2.29	2.10
JK Paper Ltd.	0.87	1.09	1.06
Kuantum Papers Ltd.	0.73	1.12	0.98
NR Agarwal Industries Ltd.	2.44	2.84	1.34
Ruchira Papers Ltd.	1.50	1.77	1.33
Satia Industries Ltd.	1.01	1.64	1.28
Seshasayee Paper & Boards Ltd.	1.48	2.13	1.81
Sillverton Industries Ltd.	2.94	3.98	3.90
West Coast Paper Mills Ltd.	1.00	1.42	1.20

Note:
All numbers are restated as per Crisil Intelligence standards and may not match company reported numbers
Asset turnover ratio = Operating income / Average gross block
[#] For ITC Ltd., the numbers are for all segments and at a company level
Source: Company filings, Crisil Intelligence

- Among the players considered, Sillverton Industries Ltd. had the highest asset turnover ratio in FY22, FY23 and FY24 of 2.94, 3.98 and 3.90 respectively.

Interest Coverage Ratio

Interest Coverage Ratio	FY22	FY23	FY24
Andhra Paper Ltd.	59.26	152.42	123.51
ITC Ltd.[#]	375.18	357.47	368.46
JK Paper Ltd.	8.50	9.67	8.86
Kuantum Papers Ltd.	1.76	4.49	7.79
NR Agarwal Industries Ltd.	6.11	14.31	18.49
Ruchira Papers Ltd.	10.67	22.08	23.86
Satia Industries Ltd.	10.55	12.60	14.65
Seshasayee Paper & Boards Ltd.	65.94	230.22	188.24
Sillverton Industries Ltd.	9.03	17.09	16.63
West Coast Paper Mills Ltd.	7.25	27.09	27.05

Note:
All numbers are restated as per Crisil Intelligence standards and may not match company reported numbers
Interest coverage Ratio = Profit before depreciation, interest and tax (PBDIT) / interest and finance charges
[#] For ITC Ltd., the numbers are for all segments and at a company level

Source: Company filings, Crisil Intelligence

Gearing Ratio

Gearing Ratio	FY22	FY23	FY24
Andhra Paper Ltd.	0.05	0.03	0.06
ITC Ltd.[#]	0.00	0.00	0.00
JK Paper Ltd.	1.04	0.72	0.44
Kuantum Papers Ltd.	1.83	0.93	0.72
NR Agarwal Industries Ltd.	0.27	0.21	0.73
Ruchira Papers Ltd.	0.21	0.11	0.11
Satia Industries Ltd.	0.76	0.58	0.32
Seshasayee Paper & Boards Ltd.	0.00	0.00	0.01
Sillverton Industries Ltd.	0.82	0.40	0.57
West Coast Paper Mills Ltd.	0.26	0.07	0.07

Note:
All numbers are restated as per Crisil Intelligence standards and may not match company reported numbers
Gearing ratio = Total Debt / Tangible Networth
Tangible Networth = Total paid up equity share capital + Gross Reserves + Goodwill - Intangible Assets
[#] For ITC Ltd., the numbers are for all segments and at a company level
Source: Company filings, Crisil Intelligence

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