



INDEPENDENT MARKET REPORT GLOBAL ADHESIVES AND COATINGS MARKET

A Frost & Sullivan Report

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Contents

Section 1: Global & India Macro-Economic Overview	7
1.1. Macroeconomic Overview – Global.....	8
1.1.1. Gross Domestic Product (GDP) Growth	8
1.1.2. Medium - Long term: Robust Recovery Expected	12
1.1.3. COVID-19 fiscal stimulus packages in G20 countries	13
1.1.4. Inflation Rate Growth in India vs World	15
1.1.5. Global Population Growth Trend	16
1.2. Macroeconomic Overview of India.....	17
1.2.1. Gross Domestic Product (GDP) Growth and Outlook	17
1.2.2. Private Final Consumption Expenditure (PFCE) growth in India.....	20
1.2.3. GDP Per Capita	20
1.2.4. GDP per capita PPP in India	21
1.2.5. Share of household consumption as % of GDP.....	24
1.2.6. Demographic Overview of India	26
1.2.7. Urbanization.....	27
1.2.8. Demographic dividend.....	28
1.2.9. Sectoral Share of GVA.....	28
1.2.10. Index of Industrial Production (IIP)	30
1.2.11. Purchasing Manager’s Index (PMI)	33
1.2.12. Strong Growth Path	33
Section 2: Overview of Global Chemicals and Specialty Chemicals.....	38
2.1 Chemicals - The Recovery Driver	39
2.2. Global Chemicals market overview.....	41
2.3. Impact of Make in India	51
2.4. India – Racing Ahead of China	52
Section 3: Paints & Coatings Industry Overview	55
3.1 Global Paints & Coatings industry overview – market size – historical and projected	56
3.2 Market segmentation by geography – historical and projected	57
3.3 Global Architectural Paint market overview.....	60
3.4 Market segmentation by end-user industry	61

3.5	Coating Emulsions market	63
3.6	Competition - Key players and their share in the market.....	65
3.7	Demand drivers and restraints Global Paints and coatings sector	66
3.8	Indian Domestic paint industry	69
3.9	Market Segmentation – By Technology (Industrial and Decorative).....	71
3.10	Growth Drivers in the Indian decorative paints sector.....	74
3.11	Jesons’ Industries presence across key end use segments.....	81
Section 4: Adhesive Industry Overview		83
4.1	Global Adhesives Industry Overview	84
4.2	Market segmentation by geography – historical and projected	84
4.3	Market Segmentation– by Application/Industry Type	86
4.4	Product-wise market overview (market size – historical and projected)	87
4.5	Competition - Key players and their share in the market.....	95
4.6	Demand drivers and restraints for Pressure Sensitive Adhesive Industry.....	96
4.7	Jesons Industries presence across key end use segments.....	98
Section 5: Construction Chemicals Industry Overview		99
5.1.	Global Construction Chemicals industry overview – market size – historical and projected... 100	
5.2.	Market segmentation by geography – historical and projected	101
5.3.	Market segmentation by end-user industry – historical and projected	103
5.4.	Indian construction chemicals Industry overview	105
5.5.	Jesons Industries presence across key end use segments.....	107
5.7.	Competition - Key players and their share in the market.....	108
5.8.	Demand drivers and restraints	109
Section 6: Overview for Other Products in the Jesons Industries portfolio		114
6.1	Textile chemicals.....	115
6.2	Carpet chemicals.....	116
6.3	Leather chemicals	117
6.4	Paper Coating.....	118
Section 7: Peer comparison		119
Section 8:.....		121
Strategic Positioning for Jesons Industries Limited		121
8.1	Market Leadership in the Domestic Market	122

8.2	Market Leadership in the Exports Market	123
8.4	Diversified Product Portfolio.....	124
8.5	Multiple location facilities – Logistical advantage	125
8.6	Dedicated R&D center	126
8.7	Innovative product launches in the last 5 years	126
	Opaque polymer Bondex	127
	Redispersible Polymer Powder (RDP)	128
	Others	128
8.8	Long standing relationship with Marquee customers	128
	PSA Market.....	128
	Emulsions Market	129
8.9	Key strategic measures and initiatives.....	130
8.10	Best practices followed by Jesons Industries Limited.....	130

VII. Disclaimer

The market research process for this study has been undertaken thorough secondary / desktop research as well as primary research, which involves discussing the status of the market with leading participants and experts. The research methodology used is the Expert Opinion Methodology. Quantitative market information was sourced from interviews by way of primary research as well as from trusted portals, and therefore, the information is subject to fluctuations due to possible changes in the business and market climate. Frost & Sullivan's estimates and assumptions are based on varying levels of quantitative and qualitative analyses, including industry journals, company reports and information in the public domain.

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This study has been prepared for inclusion in the draft red herring prospectus, red herring prospectus and the prospectus of "Jesons Industries Ltd.." in relation to an initial public offering in connection with its listing on Indian stock exchange.

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VIII. Abbreviations

AMRUT: Atal Mission for Rejuvenation and Urban Transformation

APAC: Asia Pacific

CAGR: Compound Annual Growth Rate

COVID-19 – Coronavirus Disease 2019

COP: Conference of the Parties

EODB: Ease of Doing Business

EU: Europe

EUR: Euro

INR: Indian Rupees

LATAM: Latin America

MEA: Middle East and Africa

NA: North America

USD: United States Dollar

Y-O-Y – Year over year

R&D – Research & Development

Kg - Kilogram

KT – Kilo Ton

LATAM – Latin America

M&A – Merger & Acquisitions

MEASA – Middle East Africa & South Asia

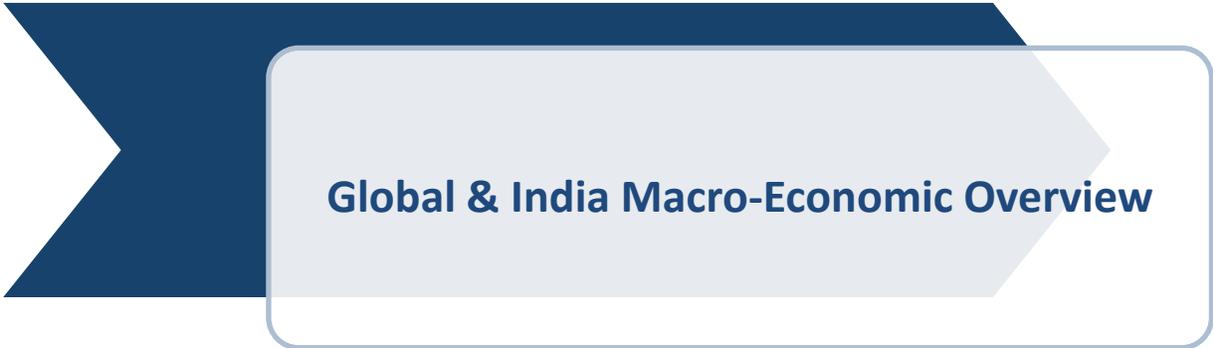
MMS – Milli Meters

MMT – million Metric Ton

Note: The year for reporting in the report refers to Calendar Year (CY) unless mentioned otherwise

Foreign Exchange Assumptions for 2021: USD TO INR: 74.2, EUR to USD: 1.21

Section 1: Global & India Macro-Economic Overview



1.1. Macroeconomic Overview – Global

1.1.1. Gross Domestic Product (GDP) Growth

A year and a half since the onset of the COVID-19 pandemic, the global economy is poised to stage its most robust post-recession recovery in 80 years in 2021. But the rebound is expected to be uneven across countries, as major economies look set to register strong growth even as many developing economies lag. While IMF suggested the economic growth to bounce back at 6%, the United Nations on responded to the rebounding Chinese and US economies by revising its global economic forecast upward to 5.4% growth for 2021, but it warned that surging COVID-19 cases and inadequate availability of vaccines in many countries threaten a broad-based recovery. With successful pandemic control and a faster vaccination process, the global growth could accelerate to above 5% is what the World Bank suggests.

The global economy is going through the most robust post-recession recovery in 80 years in 2021, a year and a half since the onset of the COVID-19 pandemic. With successful pandemic control and a faster vaccination process, the global growth could accelerate; IMF expects the global economic growth to bounce back to 5.9% in 2021 and 4.9% in 2022, with emerging markets and developing economies growing at 6.4% in 2021 and 5.1% in 2022.

In raising its projection from January 2021 of 4.7% growth, the U.N.'s mid-2021 World Economic Situation and Prospects report pointed to the rapid vaccine rollout in a few large economies led by the US and China and an increase in global trade in merchandise and manufactured goods that has already reached its pre-pandemic level. But the U.N. cautioned that this will unlikely be sufficient to lift the rest of the world's economies.

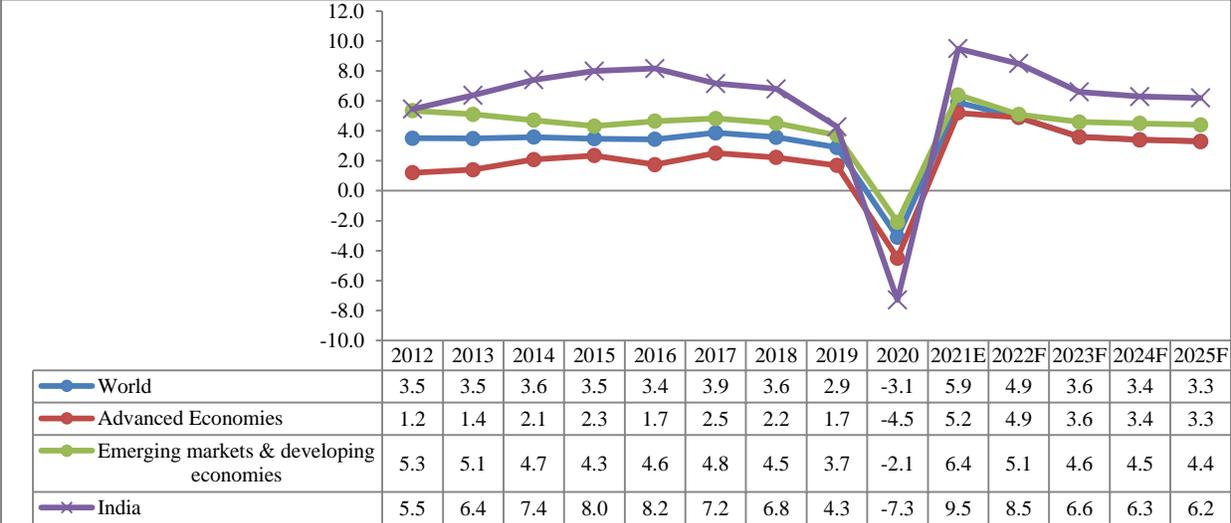
Compared with the synchronized nature of the global economic slowdown in the first half of 2020, the global economy showed signs of a two-track recovery that began in the third quarter of 2020 with developed economies experiencing a nascent recovery, but economic growth in developing economies lagging behind. A resurgence in infectious cases in Europe, Russia, the United States, Japan, Brazil, India, and various developing economies renewed calls for lockdowns and curfews and threatened to weaken or delay a potential sustained economic recovery into mid to late 2021. Since the beginning of 2021, developed economies have made strides in vaccinating growing shares of their populations, raising prospects of a recovery in those economies and, in turn, the broader global economy. However, a surge in diagnosed cases in developing economies and resistance to vaccinations among some populations in developed economies might slow the speed and the strength of an economic recovery over the near term.

With the growth in the COVID-19 pandemic, the economic damage is already evident and represents the largest economic shock the world has experienced in decades. Prospects for the world economy have brightened, but the recovery is likely to remain uneven. Public health strategies, the speed of vaccine rollout, fiscal and monetary support, and the importance of hard-hit sectors, are driving the differences between countries. While advanced economies are expected to benefit from quicker access to vaccines and strong fiscal support, some countries with large tourism revenues like Iceland and Spain face a longer route to achieving recovery.

Asia-Pacific countries like China and Australia implemented effective containment measures and will continue to recover as they vaccinate. In Latin America, Chile’s rapid vaccine rollout and an increase in export prices are fuelling one of the fastest economic rebounds among emerging-markets, while high unemployment, stagnant wages and inflation are expected to prolong Argentina’s recovery. Emerging economies face the most challenges coping with COVID-19 outbreaks because of lower resource capacity and slower vaccine rollouts. As long as a large proportion of the world’s population is not vaccinated and the risk of new outbreaks remains, recovery will remain vulnerable to fresh setbacks.

Exhibit 1.1: Real GDP Growth (%) 2012- 2025F

Source: World Economic Outlook, International Monetary Fund Estimate, Moody’s Outlook, Frost & Sullivan



Source: World Economic Outlook, International Monetary Fund Estimate, Moody’s Outlook, Frost & Sullivan

The baseline forecast envisions a ~6.0% growth in global GDP in 2021. 2020 experienced downfall of nearly -3.1% in Global GDP. Using market exchange rate weights—this has been the deepest global recession in decades, despite the extraordinary efforts of governments to counter the downturn with fiscal and monetary policy support. The collapse in global economic activity in 2020 is estimated to have been slightly less severe than previously projected, mainly due to shallower contractions in advanced economies and a more robust recovery in China. In contrast, disruptions to activity in the majority of other emerging market and developing economies were more acute than expected. The deep recession triggered by this pandemic is expected to have short-term repercussions like low investments with the erosion of human capital and fragmentation of the global trade linkages. However, the medium-long term health of the economy will be healthy, with the demand expected to soar back to its pre-COVID levels. This is expected to be driven by the increased government investments and incentive schemes.

The advanced economies are projected to recover slowly as compared to the global average. Every country is subject to a substantial downgrade growth of GDP in 2020. The United States of America and Canada are expected to witness a downgrade of -5.9% and -6.2% respectively. The European countries are expected to slide down to -7.5% with UK at -6.5%. In the Asian continent, Japan is expected to

witness a downfall to -5.2%. These downturns are expected to reverse the years of progress toward development goals and tip millions of people back into extreme poverty.

The emerging market and developing economies will be buffeted by the economic headwinds from multiple quarters: pressure on the weak health care systems, the loss of trade and tourism, dwindling remittances, the subdued capital flows, and the tight financial conditions amidst the mounting debt. The exporters of energy and industrial commodities were particularly hard hit. The pandemic and efforts to contain it have triggered an unprecedented collapse in oil demand and a crash in oil prices. The demand for metals and transport-related commodities such as rubber and polymers used in the manufacture of vehicle parts also tumbled. Trade restrictions and supply chain disruptions raised food security issues in some places in spite of growing agricultural markets.

Emerging market and developing economies are forecast to expand 6.4% this year, supported by higher demand and elevated commodity prices. However, the recovery in many countries is being held back by a resurgence of COVID-19 cases and lagging vaccination progress, as well as the withdrawal of policy support in some instances. China is expected to rebound by a more modest 8.4%. The recovery among emerging market and developing economies is forecast to moderate to 5.1% in 2022. Even so, gains in this group of economies are not sufficient to recoup losses experienced during the 2020 recession. Per capita income in many emerging market and developing economies is also expected to remain below pre-pandemic levels, and losses are anticipated to worsen deprivations associated with health, education and living standards. Major drivers of growth had been expected to lose momentum even before the COVID-19 crisis, and the trend is likely to be amplified by the scarring effects of the pandemic.

Growth in low-income economies this year is anticipated to be the slowest in the past 20 years other than 2020, partly reflecting the very slow pace of vaccination. Low-income economies are forecast to expand by 2.9-3.1% in 2021 before picking up to ~4.7% in 2022.

Despite a decline over the past 15 years, trade costs remain almost one-half higher in these countries than in advanced economies, in large part due to higher shipping and logistics costs. Efforts to streamline trade processes and clearance requirements, to enable better transport infrastructure and governance, encourage greater information sharing, and strengthen competition in domestic logistics, retail, and wholesale trade could yield considerable cost savings.

Another important feature of the current landscape is the historic collapse in oil demand and oil prices. In 2020, the oil price visited the negative territory when the yearly price dropping the lowest to-USD 19.78 in April 2020 while the average annual prices dropped to USD 41.96. However the prices have recovered following end of 2020 with The Brent crude oil prices averaged USD 65 per barrel in March 2021. The low oil prices are likely to provide an initial temporary support to the growth of the countries once the restrictions to economic activities have been lifted. The low oil prices offer an opportunity to oil producers to diversify their economies. In addition to this, the recent oil price plunge may provide further momentum to undertake the energy subsidy reforms and deepen them once the immediate health crisis subsides.

Although the global economy is growing again after a 3.3% contraction in 2020, the pandemic has caused a heavy toll of deaths and illness, plunged millions into poverty, and may depress economic activity and incomes for a prolonged period. Top near-term policy priorities are controlling the spread of COVID-19 and ensuring rapid and widespread vaccine deployment. To support economic recovery, authorities also need to facilitate a re-investment cycle aimed at sustainable growth that is less dependent on government debt.

The near-term outlook remains highly uncertain, and different growth outcomes are still possible, as a section of the report details. A downside scenario in which infections continue to rise and the rollout of a vaccine is delayed could limit the global expansion to 1.6% in 2021. Meanwhile, in an upside scenario with successful pandemic control and a faster vaccination process, global growth could accelerate to nearly 6%.

Policymakers need to continue to sustain the recovery, gradually shifting from income support to growth-enhancing policies. In the longer run, in emerging market and developing economies, policies to improve health and education services, digital infrastructure, climate resilience, and business and governance practices will help mitigate the economic damage caused by the pandemic, reduce poverty and advance shared prosperity. In the context of weak fiscal positions and elevated debt, institutional reforms to spur organic growth are particularly important. In the past, the growth dividends from reform efforts were recognized by investors in upgrades to their long-term growth expectations and increased investment flows.

Central banks in some emerging market and developing economies have employed asset purchase programs in response to pandemic-induced financial market pressures, in many cases for the first time. When targeted to market failures, these programs appear to have helped stabilize financial markets during the initial stages of the crisis. However, in economies where asset purchases continue to expand and are perceived to finance fiscal deficits, these programs may erode central bank operational independence, risk currency weakness that de-anchors inflation expectations, and increase worries about debt sustainability.

Having said this, several sectors have witnessed a growth during the pandemic and have successfully weathered the storm over this duration. Sectors like ITeS, E-Commerce, pharmaceuticals, chemicals, diagnostics, consumer goods and durables, agrochemical and fertilizers have benefited owing to the pandemic. The crisis has increased the demand in medical supplies and care.

India, which has been a leader in supplying affordable drugs to the world, and has now deployed its capacities in the field of vaccines to help fight the global COVID-19 pandemic. Besides the neighbouring countries, Brazil and South Africa too have reached out to India seeking vaccines to deal with the COVID-19 crisis in their countries. The Serum Institute of India (SII) which is considered to be the world's largest vaccine manufacturer and the drug major AstraZeneca vaccine have partnered for the supply of the vaccine to India and other countries; the vaccine has been developed with the University of Oxford less than a week after launching the world's largest inoculation drive, India - shipped tens of thousands of free doses of Covid-19 vaccines to neighbouring countries in what is being widely described as "**vaccine diplomacy**". **Similar to SII there are other Indian companies that are involved in manufacturing of vaccine such as Bharat Biotech that is producing COVAXIN®. Recently the company announced**

Capacity Expansion to Support vaccination campaigns in India and Worldwide. Capacity expansion has been implemented across multiple facilities in Hyderabad and Bangalore, to reach ~ 700 million doses / year, one of the largest production capacities for Inactivated viral vaccines worldwide. Currently 4 vaccines have been approved for use in India; Oxford/AstraZeneca's AZD1222, Gamaleya's Sputnik, SII's Covishield, and Bharat Biotech's Covaxin. India also has 13 vaccines under clinical trials. EU had not made Covishield eligible for EU's digital green certificate. India put pressure on EU that it will not recognise a EU vaccine pass for travellers unless the bloc does the same for India's own vaccine certificate. So far, Austria, Germany, Slovenia, Greece, Iceland, Ireland, Spain and Estonia have confirmed accepting Covishield. Switzerland also allows Covishield for Schengen state.

1.1.2. Medium - Long term: Robust Recovery Expected

Given the nature of the COVID-19 shock, a self-imposed reduction in social mobility has been designed to contain the spread of a virus, generating dramatic effects on the economic activities. The short-term economic growth is expected to be comparatively muted. However, given the series of steps taken by the governments and industries across the globe, the medium and long term global economy is expected to remain robust.

US: The infection rates have been declining in the states hit first, however, they continue to rise in the south and the west. All the states have reopened their economies beginning with construction, manufacturing, and limited retail, although at differing speeds. In the labour market, jobs increased in May and the unemployment rate became better (13.3% from 14.8%). Owing to the on-going labour market and small and medium enterprises (SME) stress, in addition to the pressure on the state budgets an additional fiscal support is expected. The GDP is expected to rise sharply to ~5.1% by 2021 and gradually showcase a stable growth of ~3% over the next few years.

Europe: With the virus curve flattening across the continent, Europe has embarked toward a steady recovery. The 19 countries European countries that share the euro currency will collectively register 4.2% growth this year after seeing economic output crater 7.2% in 2020. A range of indicators from traffic patterns to health stringencies show the activities are normalizing faster in Germany as compared to nations like Spain which is bouncing back slowly. The financial conditions show a V-shaped recovery with the liquidity normalizing accompanied by a strong increase in loans to corporations, driving a strong credit impulse. The governments have launched a series of actions to support SMEs, the labour market (over one-quarter of the Eurozone labour force has been benefitting from the short-term working scheme) and the most-hit sectors like tourism and the automotive industry. Liquidity has normalized and there is a strong increase in loans to corporations, driving a strong credit impulse. These relaxations and improvements were possible following the flattened curve in May. However European nations are witnessing the second wave of COVID-19 infections in October 2020 and most countries are tightening curbs.

Asia Pacific: China was infected first with the virus; however, it has also been the first to recover from the pandemic. In general, the infection curves have remained flat and the policy support is working for China. China has proved to have recovered faster with their technology and manufacturing sectors performing better than services. The SME sector, however, has been a little slow to respond. It is estimated that the situation has been nearly back to the pre-COVID-19 level. China is expected to

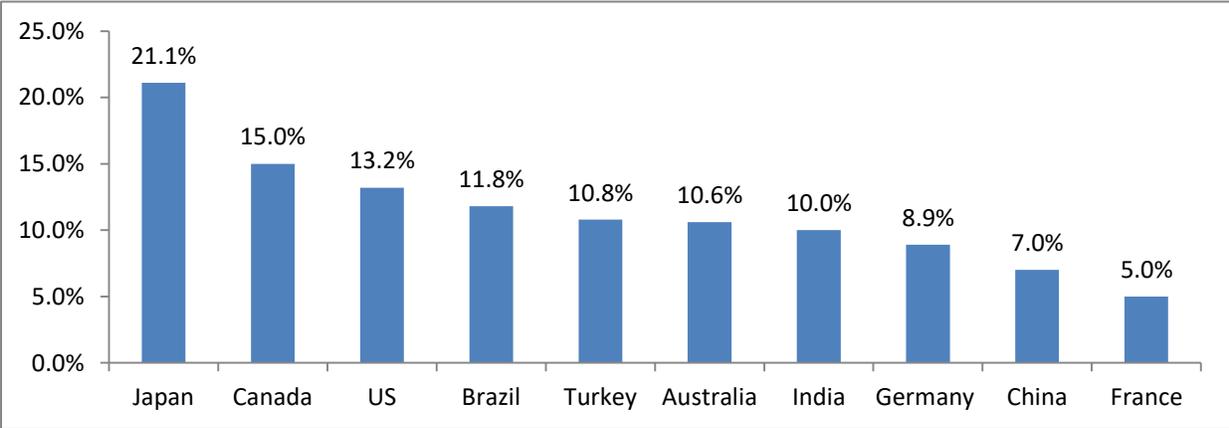
experience a growth of 8.1% in 2021 and around 5% in 2022-2023 after eking out a 2.3% increase in 2020. The forecast for Japan has been lowered to -5.1% in 2020; however the country will rebound to 3.1% in 2021 and ~5% by 2022 driven by its robust domestic demand growth.

India: India went through an early lockdown in March 2020 which led to the slowdown of many sectors; however, the chemical industry was comparatively less affected. India also started manufacturing PPE kits and in a span of less than 2 months became the world’s largest producer. India is slowly opening up with most sectors coming back to normalcy. Although India witnessed a significant downturn in 2020, it is expected to rebound to ~11.5% in 2021. IMF gave India a huge upgrade due to the fast recoveries at its factories and farms. India is expected to experience the fastest recovery among major countries with a huge turnaround from 2020’s decline of over 10%. Despite lock down there are several economic indicators which brings good news, in terms of e-way bills, electricity, and registrations of cars and two-wheelers, container traffic have risen up. Moreover, the capacity utilisation at factories has increased to over 70 % as migrant labourers return. April 2020’s GST collection was at 28% of that collected in April 2019 which progressed to August 2020 collection at 88% of the August 2019 levels. The GST collections touched a new high of nearly INR 1.2 lakh crores in January 2021, indicating a sharp recovery post lockdown and better compliance manifested in record returns of INR 90 lakh. The numbers based on December sales, with returns filed in January show that revenue from imports went up by 16%. The country’s GST collection is growing gradually indicating that economy recovery is in sight.

1.1.3. COVID-19 fiscal stimulus packages in G20 countries

In order to address these issues, most of the large global economies have announced several stimulus packages to revive demand.

Exhibit 1.2: COVID-19 fiscal stimulus packages in G20 countries, as a share of GDP

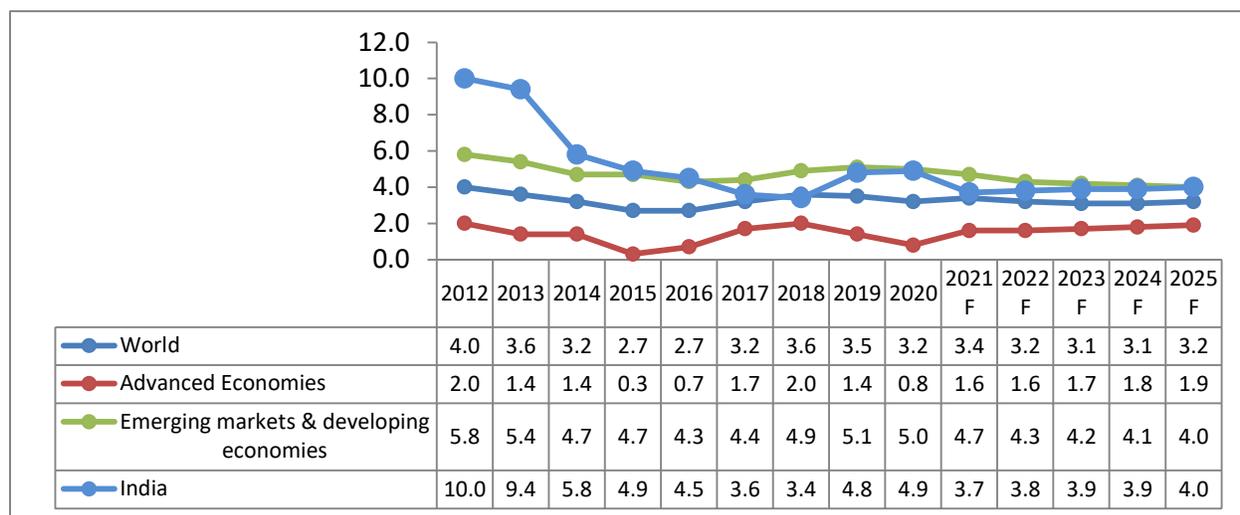


Source: IMF

Japan	Canada	USA	India
<p>Government of Japan adopted the Emergency Economic Package against COVID-19 of USD 1.1 trillion (21.1 % of 2019 GDP) and subsumed the remaining part of the previously announced packages.</p> <p>The April package aims at five objectives, including to: (i) develop preventive measures against the spread of infection and strengthen treatment capacity (expenditure of 0.5 % of 2019 GDP), (ii) protect employment and businesses (16.0 % of 2019 GDP), (iii) regain economic activities after containment (1.5 % of 2019 GDP), (iv) rebuild a resilient economic structure (2.8 % of 2019 GDP), and (v) enhance readiness for the future (0.3 % of 2019 GDP).</p> <p>The key measures comprise cash hand-outs to every individual and affected firms, deferral of tax payments and social security contributions, and concessional loans from public and private financial institutions.</p>	<p>The authorities have reprioritized spending through a revised budget, which is currently in parliament. In the meantime, they have taken measures to support the private sector, including loan guarantees and tax obligations facilities as follows: loan guarantees of up to 50% for large companies in all sectors; up to 80 % for companies in the tourism and transport sectors (USD 1 billion); up to 100 % for small-and medium-sized enterprises in all sectors</p> <p>Other measures include faster settlement of invoices and VAT refunds, extension of the tax payment period, payment in instalments for VAT and other withholding taxes, cancellation of contributions to the Pension Fund for three months, and funding of an emergency plan with USD 1 billion through the reallocation of budgetary appropriations, to cover additional expenses for personnel, training and medical equipment.</p> <p>For the most vulnerable, mitigating measures are estimated at USD 2.2 billion (1.2 % of GDP). They comprise: (i) income compensation to provide financial support to individuals operating in the informal sector; (ii) social inclusion emergency measures for vulnerable people without income; (iii) support to microfinance institutions</p>	<p>On August 8, President Trump issued executive orders mostly to address the expirations of certain Coronavirus reliefs provided by previous legislations. These included i) using USD 44 billion from the Disaster Relief Fund to provide extra unemployment benefits; ii) continuing student loan payment relief; iii) deferring collections of employee social security payroll taxes; and iv) identifying options to help renters and homeowners avoid evictions and foreclosures.</p> <p>An estimated USD2.3 trillion (around 11% of GDP) Coronavirus Aid, Relief and Economy Security Act (“CARES Act”). The Act includes (i) USD293 billion to provide one-time tax rebates to individuals; (ii) USD268 billion to expand unemployment benefits; (iii) USD25 billion to provide a food safety net for the most vulnerable; (iv) USD510 billion to prevent corporate bankruptcy by providing loans, guarantees, and backstopping Federal Reserve 13(3) program; (v) USD349 billion in forgivable Small Business Administration loans and guarantees to help small businesses that retain workers; (vi) USD100 billion for hospitals, (vii) USD150 billion in transfers to state and local governments and (viii) USD49.9 billion for international assistance (including SDR28 billion for the IMF’s New Arrangement to Borrow).</p>	<p>India’s fiscal support measures can be divided into two broad categories: (i) direct spending (about 1.7% of GDP) and foregone or deferred revenue (about 0.3 % of GDP falling due within the current year); and (ii) below-the-line measures designed to support businesses and shore up credit provision to several sectors (about 4.9 % of GDP).</p> <p>The key direct-spending measures are: in-kind (food; cooking gas) and cash transfers to lower-income households; insurance coverage for workers in the healthcare sector; and wage support and employment provision to low-wage workers. An additional 150 billion rupees (about 0.1 % of GDP) will be devoted to health infrastructure. Several measures to ease the tax compliance burden across a range of sectors have also been announced, including postponing some tax-filing and other compliance deadlines, and a reduction in the penalty interest rate for overdue GST filings.</p> <p>Measures without an immediate direct bearing on the government’s deficit position aim to provide credit support to businesses (1.9 % of GDP), poor households, especially migrants and farmers (1.6 % of GDP), distressed electricity distribution companies (0.4 % of GDP), and targeted support for the agricultural sector (0.7 % of GDP), as well as some miscellaneous support measures (about 0.3 % of GDP).</p> <p>Key elements of the business-support package are various financial sector measures for micro, small, and medium-sized enterprises and non-bank financial companies, whereas additional support to farmers will mainly be in the form of providing concessional credit to farmers, as well as a credit facility for street vendors. Agricultural sector support is mainly for infrastructure development.</p>

1.1.4. Inflation Rate Growth in India vs World

Exhibit 1.3A: Inflation Rate (end of period consumer prices) (%) 2012 – 2025F



Source: World Economic Outlook, International Monetary Fund Estimate-October 2019, Frost & Sullivan Analysis

The consumer price pressures appeared to ease down starting May 2020 with both food and beverages, and fuel and light becoming cheaper month-on-month. The Reserve Bank of India's (RBI) target range for CPI inflation is 2.0% to 6.0% for 2021. The consumer price inflation is expected to average at 3.7% in 2021.

The global inflation curve has by large been on the downward curve since 2012 this is largely because the global commodity prices. Commodity prices fell sharply in this period following fall in prices of Brent crude by ~18%. The fall in the prices of the commodities came as a result of slackening demand from China, the single largest commodity consuming country. At the start of this decade, data shows GDP growth and industrial productions have fallen to 3-year lows in China. Another factor affecting global commodity prices was uncertainty in the Euro zone. Business confidence in Germany had dropped to a two-year low, US manufacturing declined and China's factory sector contracted. As a result crude oil and copper post their biggest declines. Following these factors, growth in early start of this decade, in the global economy remained very bleak which resulted in reduced commodity prices thereby lowering inflation

Inflation rate in India is in the range of 4.8% as of 2019, as per the Indian Ministry of Statistics and Programme Implementation. This represents a modest reduction from the previous half decade. Inflation rates in India are usually quoted as changes in the Wholesale Price Index (WPI), for all commodities. Many developing countries use changes in the consumer price index (CPI) as their central measure of inflation. In India, CPI (combined) is declared as the new standard for measuring inflation (April 2014).

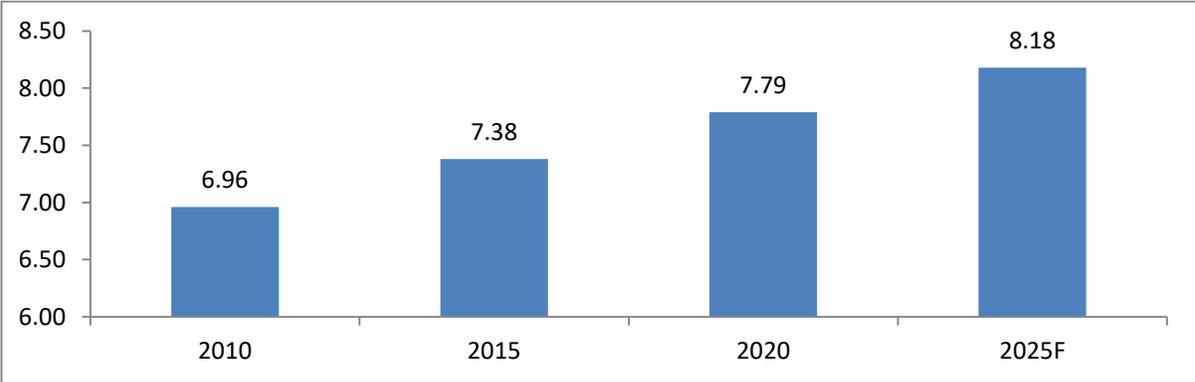
Many economists believe that the inflation-targeting regime had been instrumental in lowering India's inflation rate but India being an open economy its inflation trajectory is really driven largely by global commodity price movements. Back in 1990s when India was a more autarchic country, domestic factors — especially food-related supply shocks — drove inflation. But since India liberalised, inflation is largely

driven by global commodity prices. The decline in inflation came about because global commodity prices fell in 2014-15, and had very little to do with the introduction of inflation targeting. Inflation has risen again in 2019 because global commodity prices rose in 2017/2018, and we are seeing them pass through into domestic prices.

The availability of covid-19 vaccine, could now unleash a pent-up demand, bringing along inflation. A return to pre-pandemic lives may bring a surge in spending, which may poise inflation for a comeback. Even in United States, with a Republican-led Senate, Biden will get a stimulus bill, though smaller, passed early next year. Unlike the Global financial crisis where new money creation went to banks and financial institutions, this time the massive monetary policy easing and never seen before government relief packages seems to be trickling fast to the real economy. The monetary inflation is resulting in a weaker dollar. A weaker dollar and high liquidity could result in higher commodity prices as well and therefore could be inflationary. The Federal Reserve has announced that it will adopt an average inflation target going forward that will allow inflation to run above 2% post vaccine announcement, to support the pandemic-struck economy.

1.1.5. Global Population Growth Trend

Exhibit 1.3B: Global Population Growth Trend : 2010-2025F, Billion



Source: World Bank, UNICEF

The total population has more than doubled since the 1950s, and continues to increase. Populous middle-income countries account for a considerable share of the growth in world population between 2010-25. Just five nations – China, India, Indonesia, Pakistan and Nigeria – are expected to account for around 859 million births till 2025. If the current trend continues, the majority of the next billion is destined to be born in low- and middle income countries. A lot of pressure is thus on key sectors and care industries like Agriculture, Pharmaceuticals, Healthcare etc. to support this growing population.

1.2. Macroeconomic Overview of India

1.2.1. Gross Domestic Product (GDP) Growth and Outlook

An already-slipping Indian economy has been derailed from its growth track after a stringent shutdown was imposed in March 2020 to halt the spread of Covid-19. India's GDP contracted to 7.3% in 2020 – the first time in four decades.

The health shock of COVID 2.0 seems to be seeping into the economic domain and attenuating the pace of our V-shaped recovery. After coping with the first wave of the pandemic, the economy finally showed some signs of recovery from Q3 FY-21. The second COVID-19 wave has now hit the country hard, pushing more than half of the Indian states into lockdown. This brings major headwinds to the economic recovery and downside risks to the possible green shoots. The Indian economy turned a corner this month and began regaining momentum in June 2021, ultra-high frequency data indicate, though subdued consumer sentiment is expected to limit the pace of recovery in Asia's third largest economy. This comes as states gradually ease curbs on business activity, keeping in mind the decline in the number of fresh Covid cases. The week ended June 13 was at least the third consecutive week in which economic activity sequentially gained momentum, according to three data trackers by research agencies using a range of data available on daily or weekly basis. Economically, in June, India will see activities pick up signalling recovery during the gradual unlocking process. The NCAER report has stressed on a strong positive push to restore the growth process after the Covid-19 waves India has seen. This, combined with a strong expansionary macroeconomic policy thrust, could help revive normal growth.

Economists are now speculating about how India will dig itself out of that hole once the second wave's economic damage is fully realized. They estimate that the latest outbreak has pushed back India's economic recovery by three to six months, depending on the virus's trajectory and the nation's preparedness for a possible third wave. Since hitting a peak above 400,000 daily cases in early May, the infection rate has dropped to 152,734 per day, and the number of deaths has fallen to around a four-week low of 3,128 daily. Economists believe that the delay in economic recovery would be limited to just about a quarter, provided the COVID's second wave is not allowed to last much beyond June. The economic recovery would depend on the pace of vaccination and government policy interventions in the coming weeks and months. India's Health Minister, Harsh Vardhan, has pledged to vaccinate at least all of the adult population by the end of the year, notwithstanding a current supply shortage.

An already-slipping Indian economy had been derailed from its growth track after a stringent shutdown was imposed in March 2020 to halt the spread of Covid-19. India's GDP contracted to 7.3% in 2020 – the first time in four decades.

With industries, transport, shops, and malls shut, the economic activity came to a grinding halt in India toward the end of March 2020. The domestic consumption, which makes up around 57% of GDP, was almost wiped out. Pay cuts and layoffs across the country completely eroded the demand. The Indian government's decision to remove most of the restrictions has provided the much-needed relief to the large as well as the small businesses. Despite this, the demand scenario remained weak in 2020. The revival in consumption, meanwhile, will be driven by discretionary as well as non-discretionary spending. The non-discretionary spending refers to groceries and other essential items. Expectedly, this

category remained largely unscathed during the lockdown. The recovery in 2021 is expected to be in double digit following a better start to the year as compared to 2020. Near-term prospects are favourable but second covid wave is a risk to recovery.

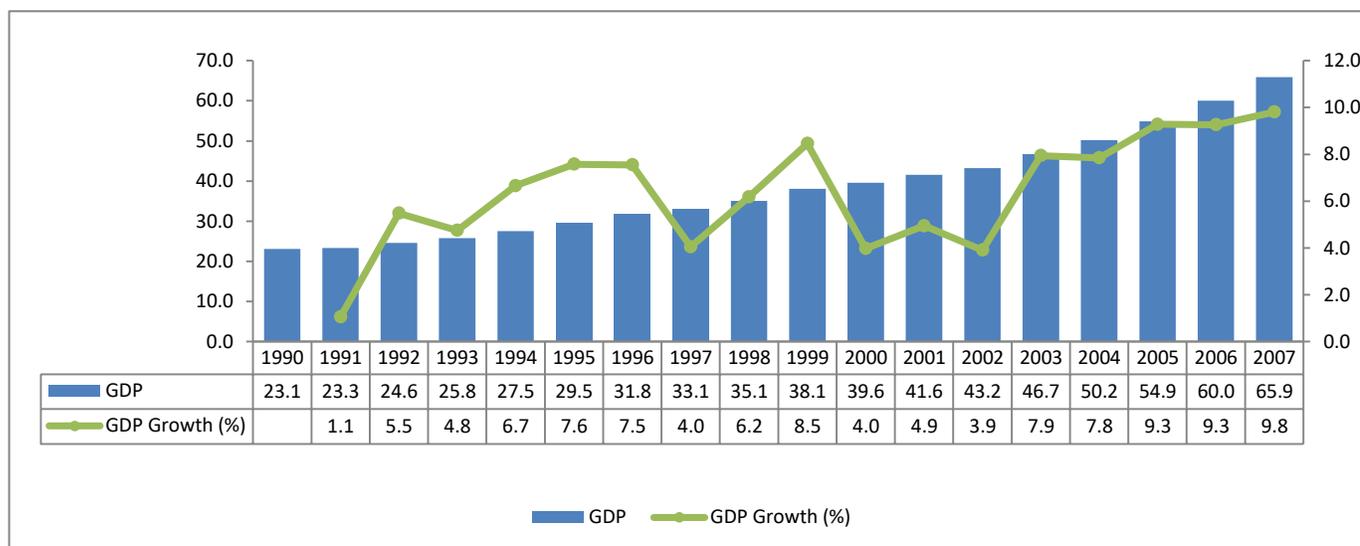
However, the medium term growth outlook is expected to improve and record a growth rate of ~6.6% by 2025F, on an account of the strong macroeconomic fundamentals which include moderate inflation, the implementation of key structural reforms and the improved fiscal and monetary policies. Meanwhile, the recent moves by the government to improve balance sheets of state-owned banks, through an augmented re-capitalization plan worth INR 2110 Bn for public sector banks spread over two years, is expected to support the capital shortages of the public sector banks that have hindered the bank’s lending capacity.

From 2012 to 2016, the market-friendly policies safeguarded India from the subdued global economy; the improved macroeconomic fundamentals and robust capital inflow strengthened the economic growth from 5.5% in 2012 to 8.2% in 2016. However, in 2017 the GDP declined to 6.8% from 8.2% in 2016 due to the external vulnerabilities such as global slowdown, impact of demonetization and the transitory effect of goods and services tax (GST) implementation.

The economic growth of India slipped further in 2019 as a result of the lingering effect of demonetization and the other political reforms. The growth has remained relatively slow due to the prolonged on-going stress among non-bank financial institutions (NBFIs), obstructing the overall credit provision of the financial system.

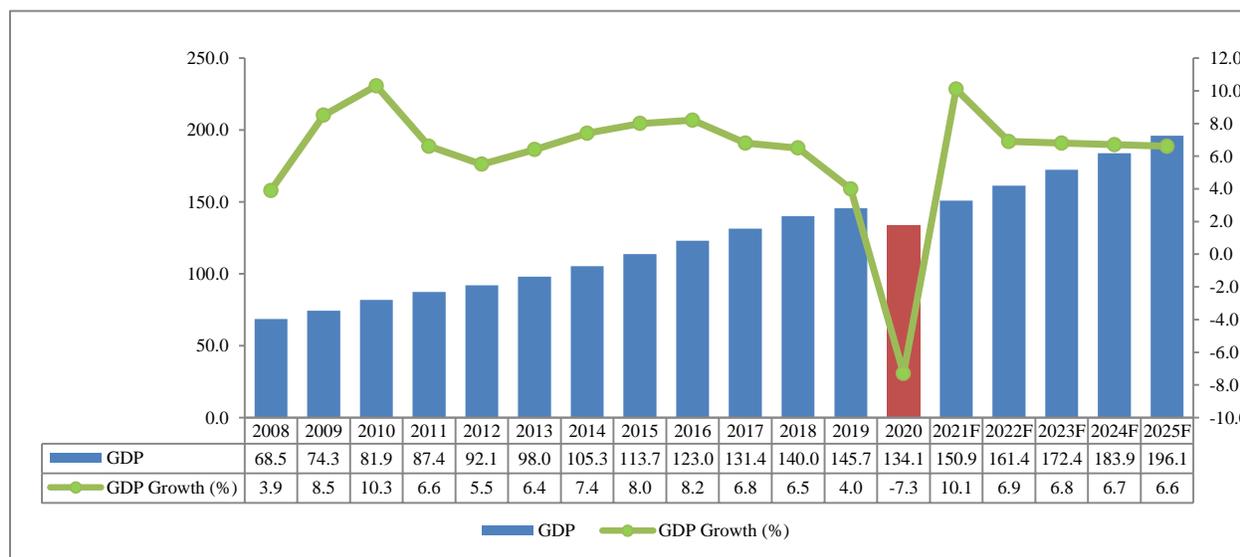
Due to Covid-19, the GDP of FY21 declined by 8.0% at INR 1,34,08,882 Cr as compared to INR 1,45,69,268 Cr for the same period last year. The Private Final Consumption declined by 9.0% in FY21 to INR 75,74,812 Cr. as compared to INR 83,21,701 Cr.

Exhibit 1.2.1(A): Real GDP Value, at constant price (INR 000’Bn) and Growth %, India, 1990 to 2007



Source: Moody’s Outlook, Moody’s press release 2020, International Monetary Fund Estimate, Dun and Bradstreet, Frost & Sullivan

Exhibit 1.2.1(B): Real GDP Value, at constant price (INR 000’Bn) and Growth %, India, 2008 to 2025F



Source: Moody’s Outlook, Moody’s press release 2020, International Monetary Fund Estimate, Dun and Bradstreet, Frost & Sullivan

Exchange Rate Trends

Over the long term, the rupee's overvaluation and structurally higher inflation relative to the US would exert downside pressure on the currency. Most analysts have revised forecasts for the rupee to average INR 75.00/USD in 2020 and INR 77.00/USD in 2021, versus INR 73.00/USD and INR 75.00/USD previously.

Indian rupee being an emerging market currency with structural fundamental vulnerabilities such as its twin deficit (current account and fiscal account), make the currency susceptible to sell-off during periods of risk-offs. The extended lockdown in 2020 also added to the woes of the rupee, ensuring a slide in the first quarter of the new financial year.

However, the rupee has witnessed an uptick recently driven by –

- FPI Inflows:** The foreign portfolio investors have purchased over INR 1.6 lakh crores in India equities in 2020. In 2020, India was the only country that had significant inflows from foreign investors, while other emerging markets saw major outflow this year. As per National Securities Depository (NSDL) data, FPIs invested a record INR 150,000 crores in Indian markets in the last three months of 2020.
- Weak Dollar:** The Indian rupee was seen recovering against a weak dollar overseas and optimism of higher growth projection. However, a concern surrounding fiscal deficit will likely keep a check on the local unit. Also, the rupee is trading in a narrow range as traders remained cautious ahead of the Reserve Bank of India (RBI) monetary policy that was scheduled in February. Besides,

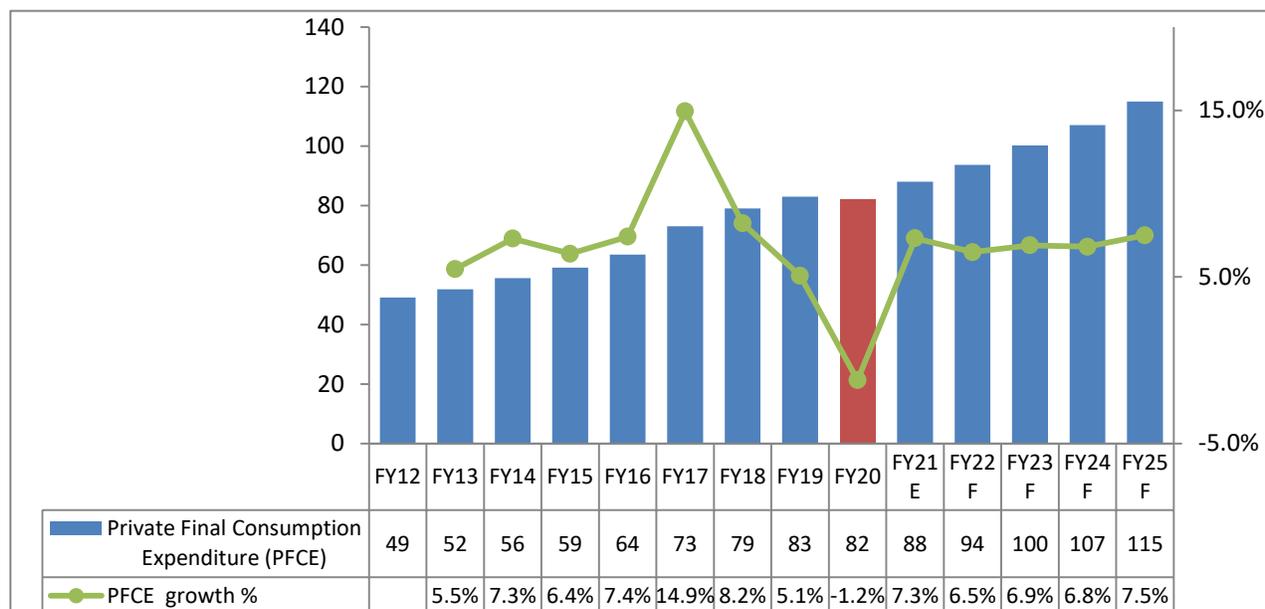
continued faith by foreign investors into the domestic market is also supporting the Indian currency.

1.2.2. Private Final Consumption Expenditure (PFCE) growth in India

The Private Final Consumption Expenditure has been showing a subdued growth over past couple of years. However, the PFCE growth decelerated in 2019 due to the reduced rural and urban income growth, the waning Pay Commission effect and the NBFC (Non-Banking Financial Company) crunch.

In 2019-20, Private Final Consumption Expenditure (PFCE) had a share of ~57% in India's GDP. PFCE growth collapsed to 2.7% in the March 2020 quarter, with the year average estimated to be as low as -1.2% - the lowest since June 2006. Real private final consumption expenditure (PFCE) is expected to decline by 1.2% owing to the impact of covid-19 pandemic during FY21 but likely to record 7.3% growth during FY21. Going ahead, PFCE is expected to stabilize between 6.9% - 7.5% through 2023-25.

Exhibit 1.2.2: Private Final Consumption (INR 000'Bn) and Growth (%), India, FY12 to FY25F



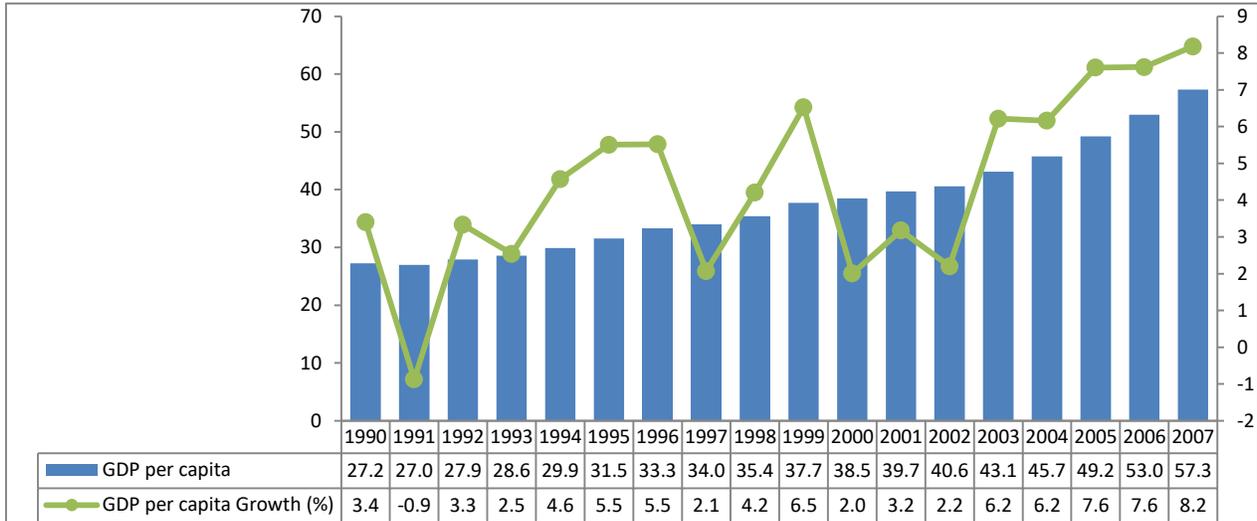
Source: MOSPI - Second Advance Estimates of National Income, 2019-20, at 2011-12 prices;; Revised outlook based on covid-19 not published by MOSPI

1.2.3. GDP Per Capita

The GDP per capita at constant prices in India remained low until 2012 during the economic downturn. Thereafter, the growth gradually picked up for GDP per capita till 2016 where it reached 6.8%. However, it slumped during 2017-2018 as a result of demonetization and implementation of GST.

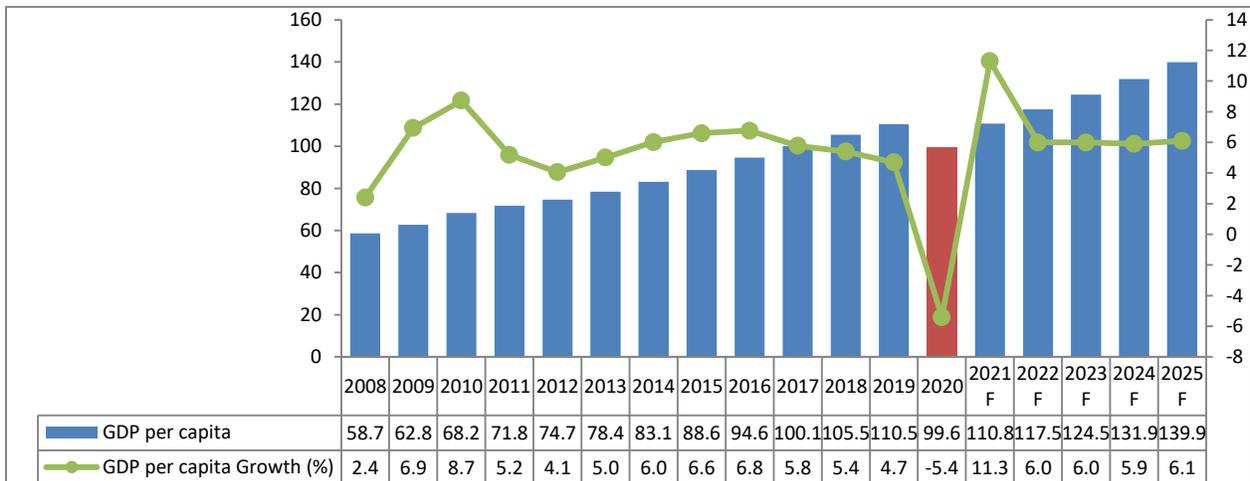
The GDP per capita in 2020 is expected to witness its lowest growth rate since 1990 at -5.4%. However, with the economy getting back on track slowly, the GDP per capita growth is expected to increase and plateau at around 6.1% in 2025F.

Exhibit 1.2.3(A): GDP per Capita Value, at constant price (INR'000) and Growth %, India, 1990 to 2007



Source: World Economic Outlook, International Monetary Fund Estimates-April 2021, Frost & Sullivan

Exhibit 1.2.3(B): GDP per Capita Value, at constant price (INR'000) and Growth %, India, 2008 to 2025F

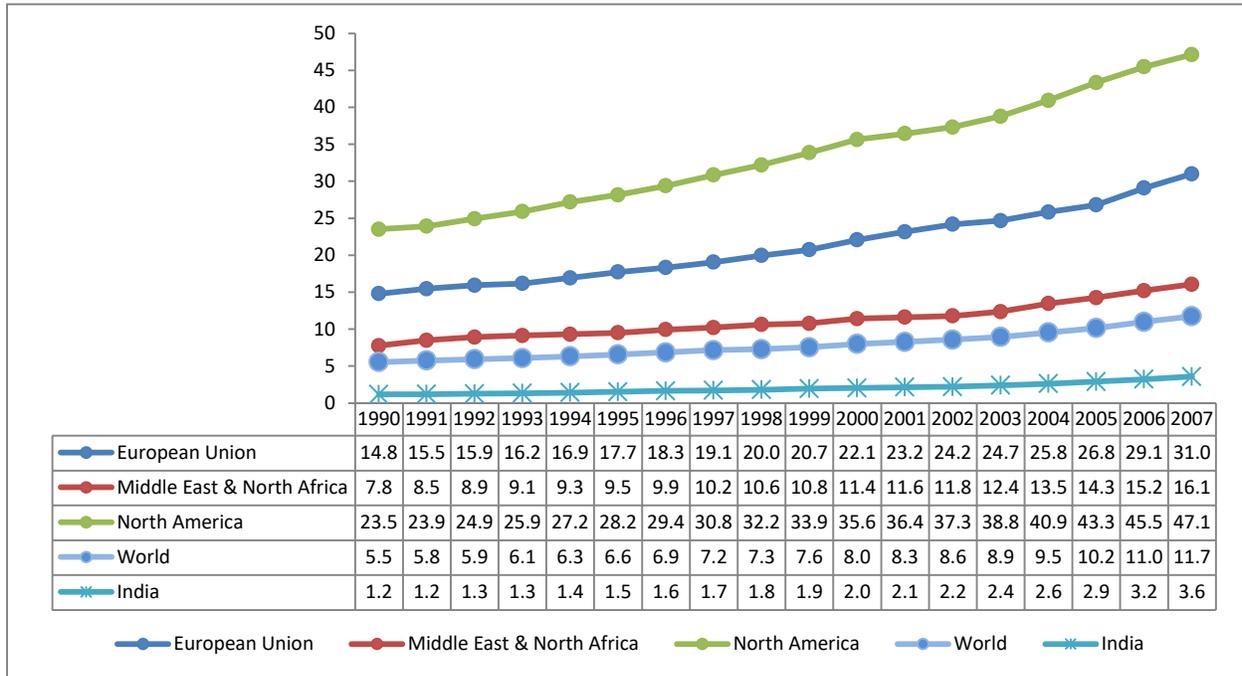


Source: World Economic Outlook, International Monetary Fund Estimates-April 2021, Frost & Sullivan; Outlook for 2021 and onwards is based on IMF data published in April 2020. Covid-19 impact not registered in the outlook 2021 onwards

1.2.4. GDP per capita PPP in India

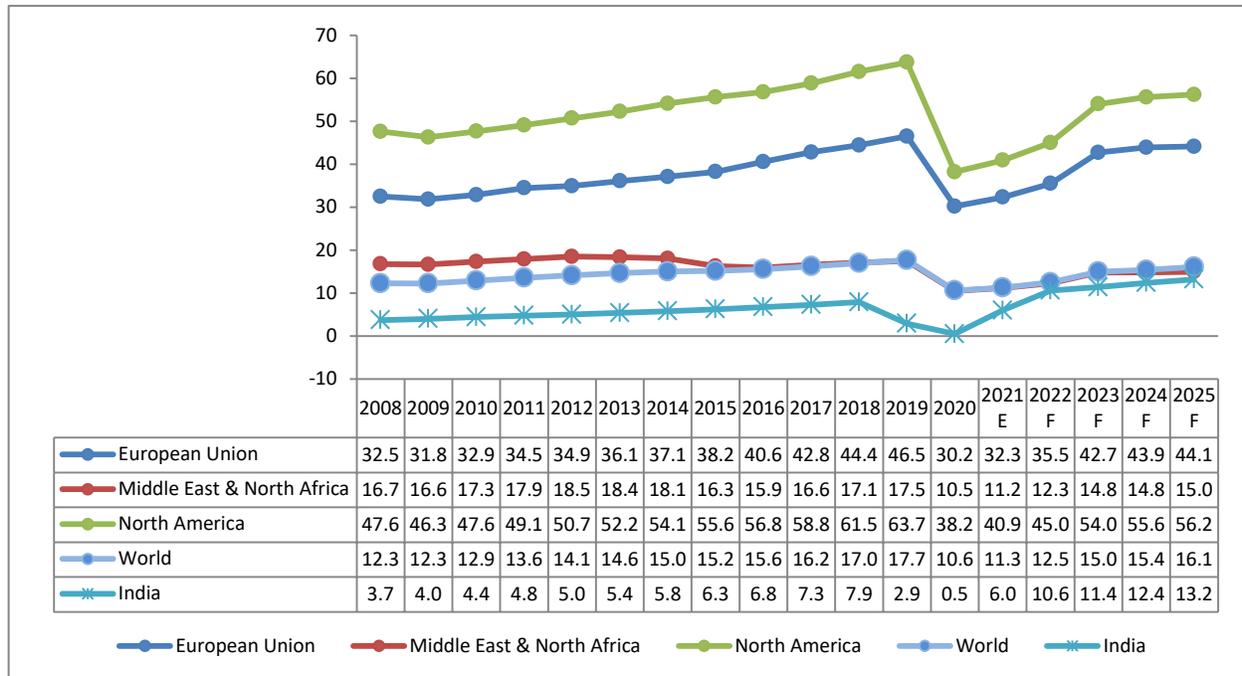
India is projected to become fourth-largest economy of the world by 2026. Due to its large population, India is at the 145th position in term of GDP (nominal) per capita.

Exhibit 1.2.4(A): GDP per capita, current prices ('000 USD)(PPP; international dollars per capita) 1990 - 2007



Source: World Economic Outlook, International Monetary Fund Estimate-June 2020, World Bank, Frost & Sullivan
 Forecasts are pre-covid and haven't been updated post Covid from World Bank

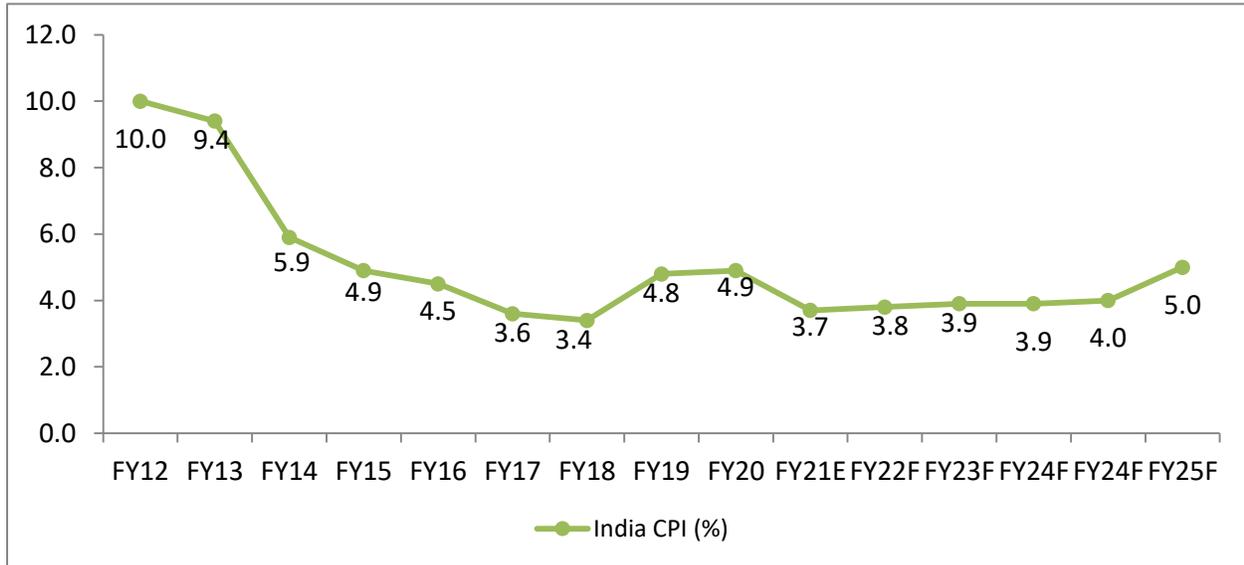
Exhibit 1.2.4(B): GDP per capita, current prices ('000 USD) (PPP; international dollars per capita) 2008 – 2025F



Source: World Economic Outlook, International Monetary Fund Estimate-June 2020, World Bank, Frost & Sullivan
 Forecasts are pre-covid and haven't been updated post Covid from World Bank

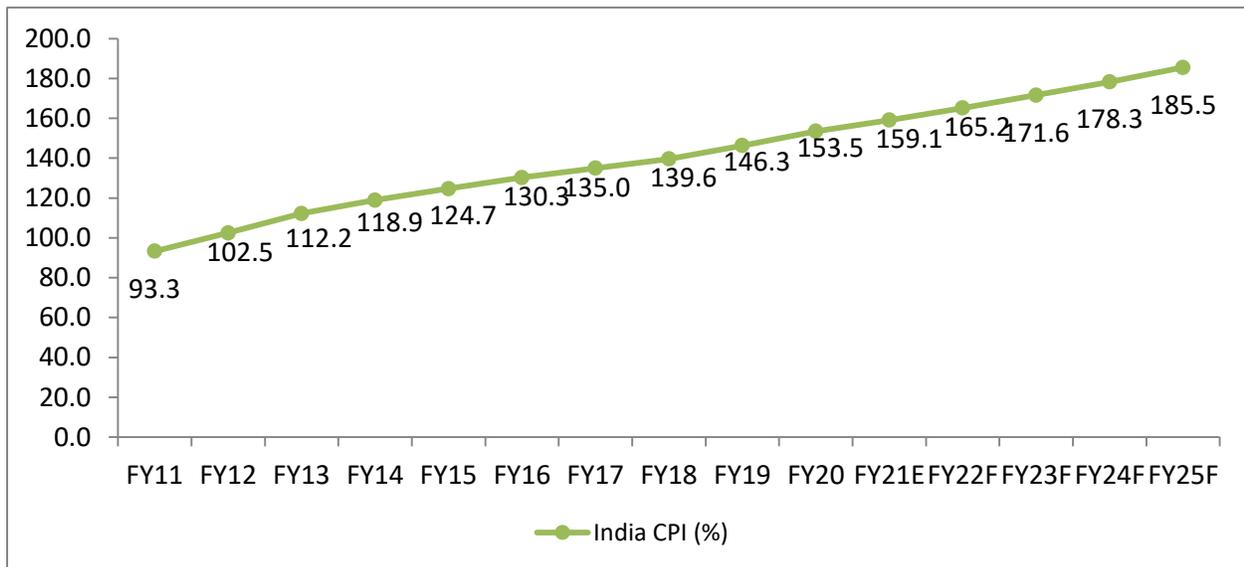
India's per capita income is approximately ~2.5 times lower than the world's average. This figure is over 50 times lower than the richest country of world and ~10 times greater than the poorest country. India stands at the 33rd position in the list of Asian countries.

Exhibit 1.2.5(A): Inflation (end of period consumer prices) (%) FY2012 – FY2025F



Source: World Economic Outlook, International Monetary Fund Estimate-June 2020

Exhibit 1.2.5(B): Inflation (end of period consumer prices – index value annual) FY2011 – FY2025F



Source: MOSPI, IMA

Persistent supply chain disruptions seem to have more than offset the impact of weak demand. Food cargo movement was restricted owing to re-instatement of lockdowns in many cities and heavy rains in agrarian states.

While food inflation remained the dominant factor, rising transport costs due to higher domestic taxes on petroleum products also contributed to the inflationary trends. A more favourable food inflation outlook may emerge in the coming months with bumper Rabi harvest and improving food surplus management possibly easing prices of cereals. Price stabilisation in crude and retail fuels is also likely to ease incremental pressures on headline inflation.

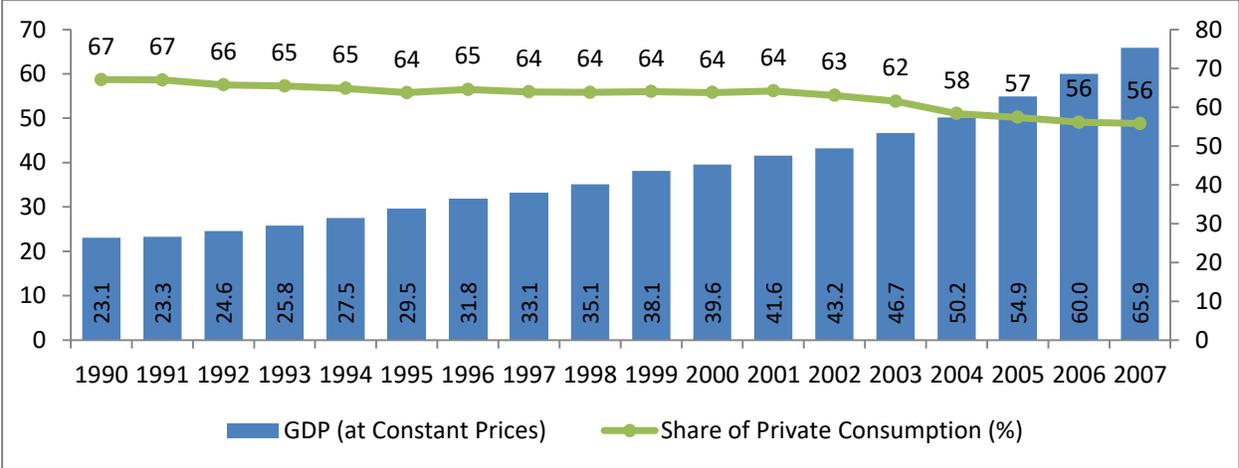
India’s retail inflation has spiked sharply to 6.3% in May 2021 after easing to 4.23% in April 2021, as per data released by the government. Retail inflation, measured by the Consumer Price Index (CPI), has jumped primarily due to higher food and fuel prices. It has breached the Reserve Bank of India’s target range of 2-6% for the first time in five months. Food inflation rose to 5.01% in May, compared to 2.02% in April. The core inflation in May stood at 6.6%. Wholesale price-based inflation data released indicated that it had surged to a record high of 12.94% in May due to rising prices of crude oil and manufactured goods. Experts have expressed concern about higher inflation and the second wave of the Covid-19 pandemic, which has severely impacted lower and middle income families. Several reports have highlighted how prices of several commodities have been rising for the past few months. It may be noted that the prices of petrol and diesel, edible oil and other FMCG products have sharply increased in May.

Overall, the yearly average Consumer Price Index (CPI) rate is expected to be ~3-4.5%, showcasing a significant drop as compared to FY20 (ending on March 2020), albeit owing to the significant demand slowdown from March to June 2020.

1.2.5. Share of household consumption as % of GDP

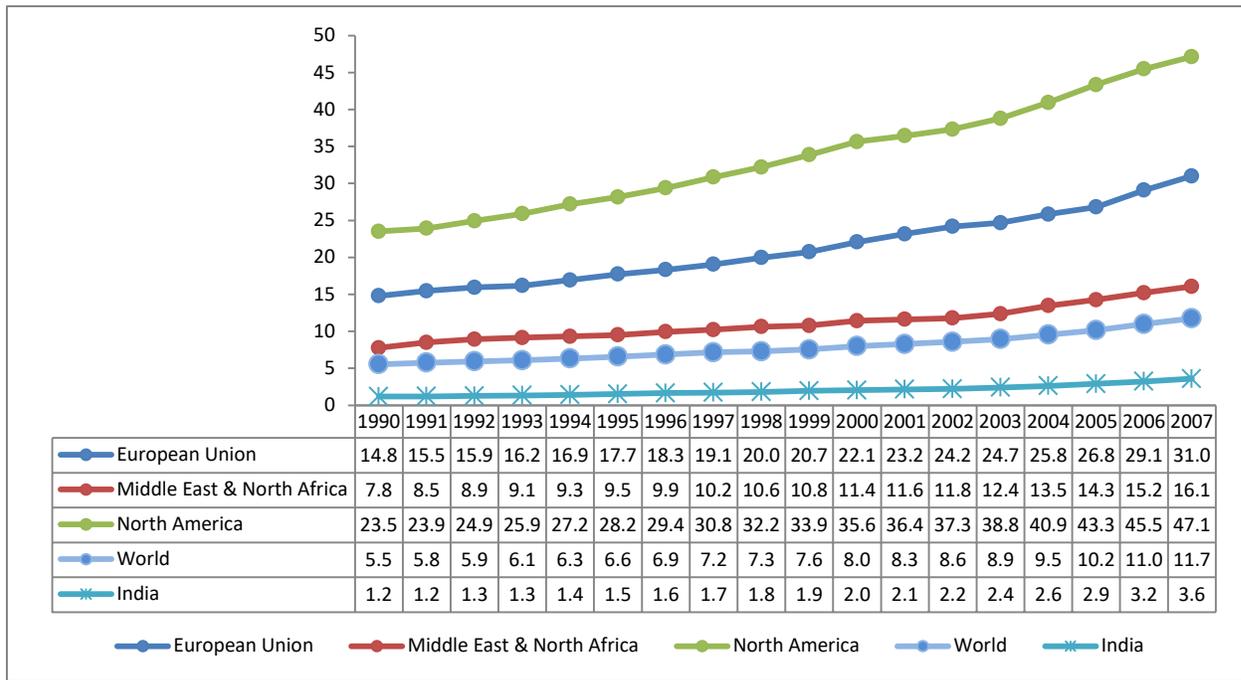
India Private Consumption accounted for 57.9 % of its Nominal GDP in Sep 2020, compared with a ratio of 57.1 % in the previous quarter. India Private Consumption contribution to Nominal GDP ratio is updated quarterly, available from Jun 1996 to Sep 2020, with an average share of 59.1 %.

Exhibit 1.2.6(A): Household consumption, % of GDP (INR 000’Bn) and Growth %, India, 1990 to 2007



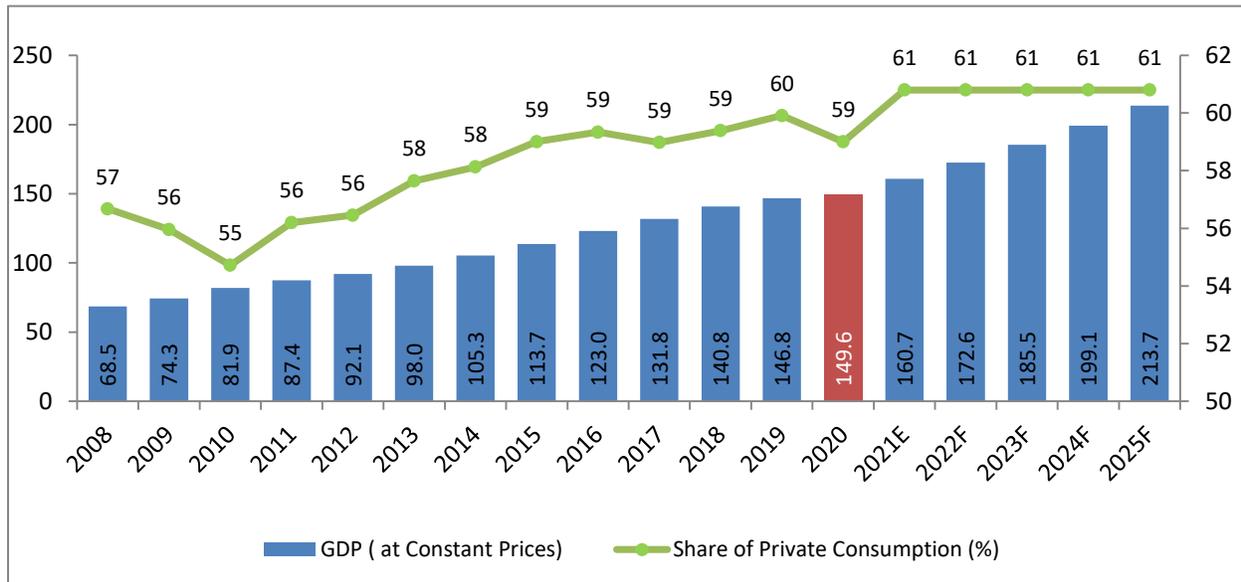
Source: World Bank, International Monetary Fund Estimate-June 2020, Frost & Sullivan

Exhibit 1.2.6(A): Household consumption, % of GDP (INR 000’Bn) and Growth %, India, 1990 to 2007



Source: World Bank, International Monetary Fund Estimate-June 2020, Frost & Sullivan

Exhibit 1.2.6(B): Household consumption, % of GDP (INR 000’Bn) and Growth %, India, 2008 to 2025F



Source: CEIC, World Bank, International Monetary Fund Estimate-June 2020, Frost & Sullivan

In the latest reports, India GDP contracted 23.9 % YoY in Jun 2020. India Nominal GDP reached USD 635.2 Bn in Sep 2020. Its GDP deflator (implicit price deflator) increased 3.8 % in Sep 2020. India GDP

Per Capita reached 2,140.4 USD in Mar 2020. Its Gross Savings Rate was measured at 31.4 % in Mar 2020. For Nominal GDP contributions, Investment accounted for 28.3 % in Sep 2020. Public Consumption accounted for 11.9 % in Sep 2020.

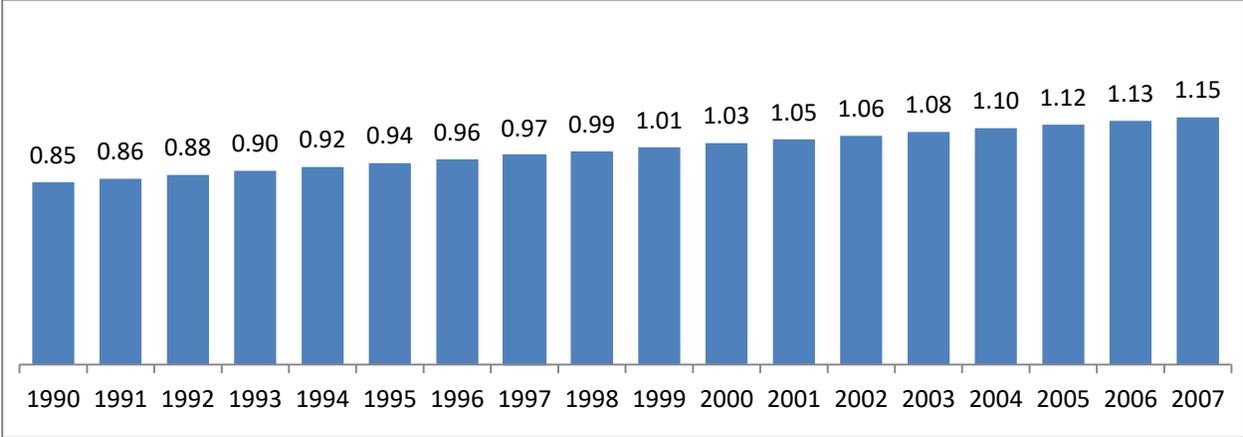
1.2.6. Demographic Overview of India

Population Growth

With a population of 1.35 Bn in 2019, India is the second largest populated country in the world. The population is estimated to grow at a CAGR of 1.3% during 2019-2025F replacing China and making it the most populous country in the world.

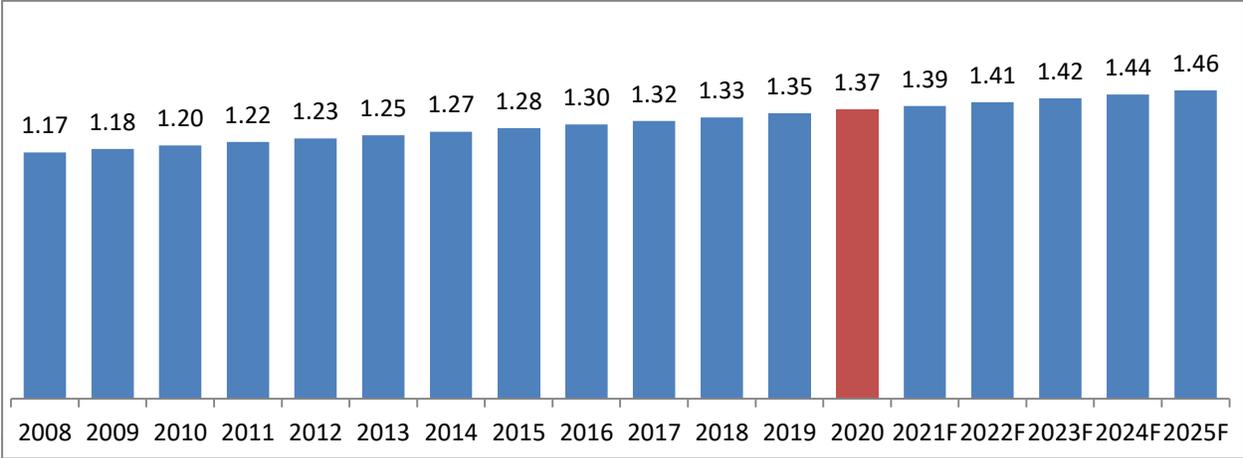
The country has a relatively young demographic profile, with an average median age of 28.2 years by 2020; one of the lowest globally as compared to 37.2 years in the US, 45.8 years in Japan and 36.3 years in China.¹

Exhibit1. 2.7(A): India Population in Bn, Historical and Projected, 1990-2007



Source: World Bank: Health Nutrition and Population Statistics: Population estimates and projections, International Monetary Fund

Exhibit 1.2.7(B): India Population in Bn, Historical and Projected, 2008-2025F



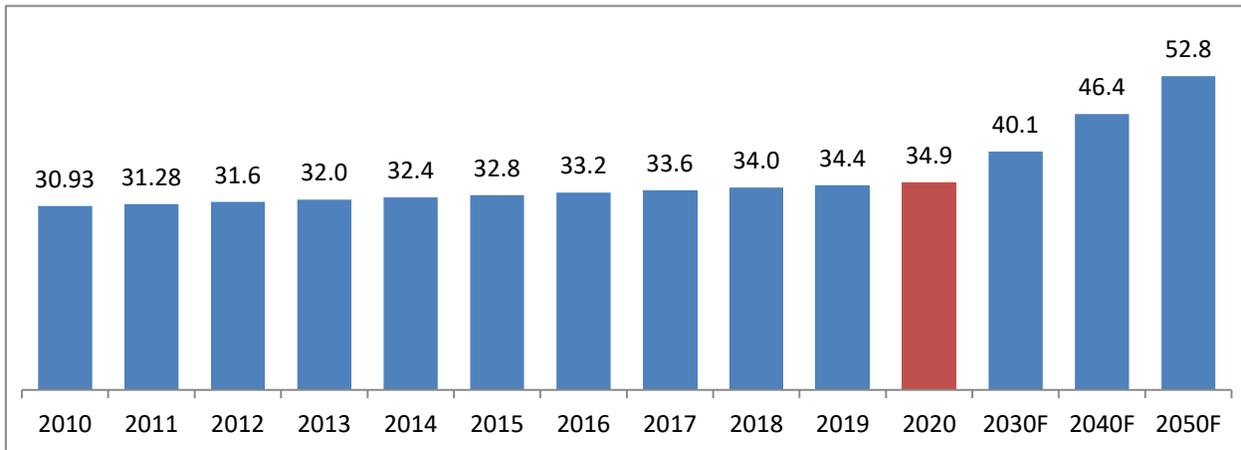
¹ Print Week

Source: World Bank: Health Nutrition and Population Statistics: Population estimates and projections, International Monetary Fund Estimates-June 2020

1.2.7. Urbanization

The growing urban population of India has led to an increase in the urbanization of the country. There has been a drastic increase in urban towns and cities in the country over the past few years. There are almost 10 Mn people migrating to cities and towns every year. India’s urban population has increased from 27.8% in 2001 to 32.8% in 2015 and is expected to further increase to 34.9% in 2020.

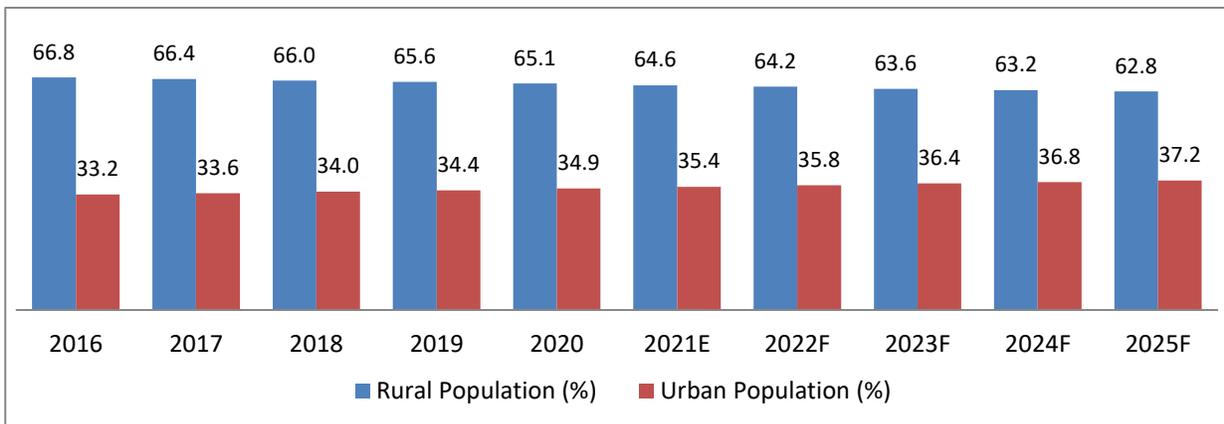
Exhibit 1.2.8: India Urban Population (%), 2010-2020, Forecast 2050



Source: World Bank: Health Nutrition and Population Statistics: Population estimates and projections

The high economic growth, higher standard of living and increasing opportunities in the cities have led to urbanization, which has further added pressure on these cities in terms of infrastructure and housing. This has resulted in disordered urbanization and disparity in the market owing to the demands of the growing population. However, in order to cope up with this scenario the government has been working on planned urbanization, providing affordable housing to the poor by developing innovative housing finances.

Exhibit 1.2.9: Rural vs Urban Population, India Outlook (%), 2016-2025F



Source: World Bank: Health Nutrition and Population Statistics: Population estimates and projections, UN household size and composition database

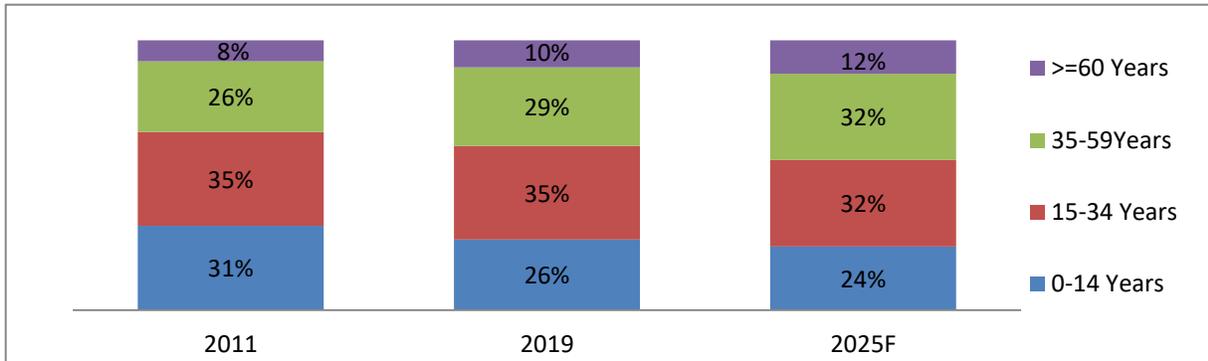
1.2.8. Demographic dividend

The demographic dividend is considered to be an important factor for the economic growth as the working age population is usually more productive. India is set to witness a considerable increase in the working population over the next decade. The median age in India will be 31.4 years by 2030.

The Indian economy has a potential to grow at a rapid rate as the working age population (15-59 years) comprises almost 64% of the total Indian population in 2019. Moreover, the youth (15-34 years) make up majority of the working-age population.

The demographic dividend can accelerate the development of the nation if implemented with effective policies. If utilized appropriately, the demographic dividend of India would further push up the economic growth rate by 2%².

Exhibit 1.2.10: Age Group Classification of the India Population, 2011-2025F



Source: World Bank: Health Nutrition and Population Statistics: Population estimates and projections

The Indian Government is serious about utilizing the potential of the demographic dividend and has introduced the National Skill Development Corporation (NSDC) which will be contributing significantly (about 30%) to the overall target of skilling/up skilling 500 Mn people in India by 2022³, by encouraging private sector initiatives in skill development programmes and providing funds.

1.2.9. Sectoral Share of GVA

In terms of the contribution of various sectors to India’s Gross Value Added in FY20, the service sector is the dominant sector with a revenue share of 55%, followed by industry at 31% and agriculture at 14%. The key industries in the country are textiles, chemicals, steel, cement and food processing. The government is working towards increasing the share of the manufacturing sector, a sub-component of industry. The government’s ‘Make in India’ campaign aims at increasing the contribution of the manufacturing sector from 18% in FY20E to 25% by FY25F.

² Economic times

³ Livemint

Although agriculture has a low share at 14%, it employs 49% of the labour force. The key agricultural products include rice, wheat, oilseed, cotton, jute, tea, sugarcane and lentils

The services sector is the largest sector of India. Gross Value Added (GVA) at current prices for the services sector is estimated at INR 96.54 lakh crore in FY21. The services sector accounts for 53.89% of total India's GVA of INR 179.15 lakh crore rupees. With GVA of INR 46.44 lakh crore, the Industry sector contributes 25.92%. While Agriculture and allied sector share 20.19%. At 2011-12 prices, the Agriculture & allied, Industry, and Services sector's composition is 16.38%, 29.34%, and 54.27%, respectively. Share of primary (comprising agriculture, forestry, fishing, and mining & quarrying), secondary (comprising manufacturing, electricity, gas, water supply & other utility services, and construction), and tertiary (services) sectors have been estimated as 21.82%, 24.29%, and 53.89% respectively.

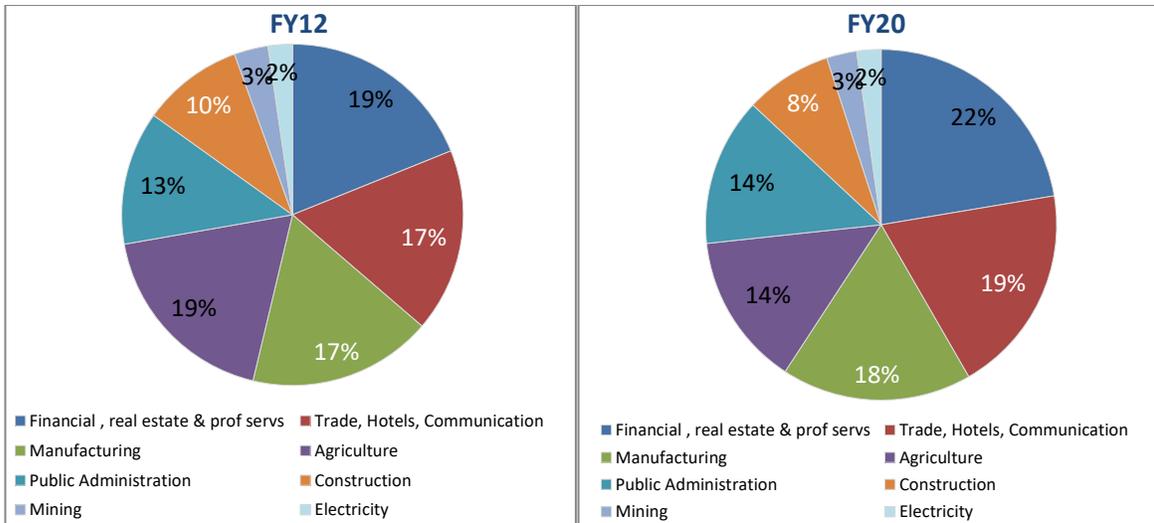
The service sector employs almost 29% of the labour force and includes key sectors such as financial services, telecommunication, tourism and insurance. Within the service sector, the financial sector continues to dominate in terms of contribution to the economy with a share of 22% in FY20E.

The Indian economy saw a recovery in the January-March quarter of 2021, before the second wave of the pandemic disrupted activity again. While gross value added in the final quarter of the fiscal year grew at a stronger pace than in the third quarter, the gross domestic product growth was subdued on account of past subsidy dues paid out in the fourth quarter.

Agriculture sector grew at 3.1% in fourth quarter compared to 4.5% in third quarter. The sector grew 3.6% for the full year. The mining sector contracted by 5.7% in fourth quarter compared to a contraction of 4.4% in the previous three months. Mining contracted by 8.5% annually. Manufacturing grew by 6.9% in fourth quarter compared to 1.7% in the previous three-month period. For the full year, the sector contracted by 7.2%. Construction grew 14.5% in fourth quarter compared to 6.5% in the preceding quarter. The sector contracted by 8.6% in the full year. Trade, hotel, transport, communication contracted by 2.3% in fourth quarter compared to their contractions of 7.9% in the previous quarter. Contraction for the full year was at 18.2% The financial services sector grew at 5.4% compared to 6.7% in the previous quarter. For the full year, the sector contracted by 1.5%.

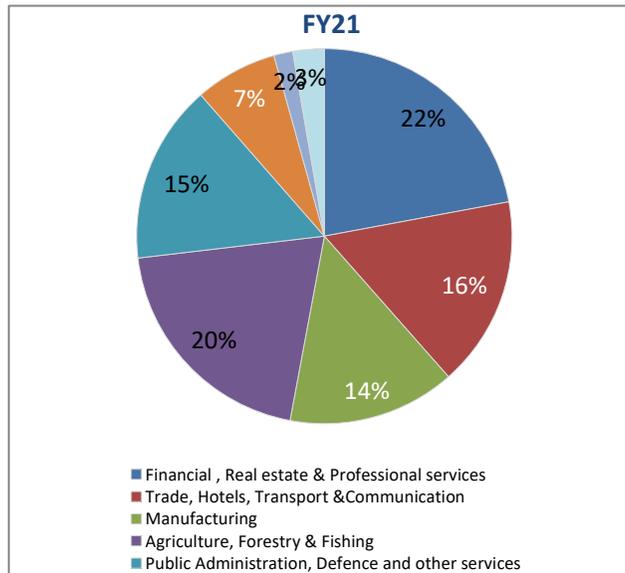
Source: BloombergQuint

Exhibit 1.2.11(A): Sectoral Share of GVA; (%), India, FY12 and FY20



Source: MOSPI – Second Advanced Estimates of National Income 2020-2021, at 2011-12 prices

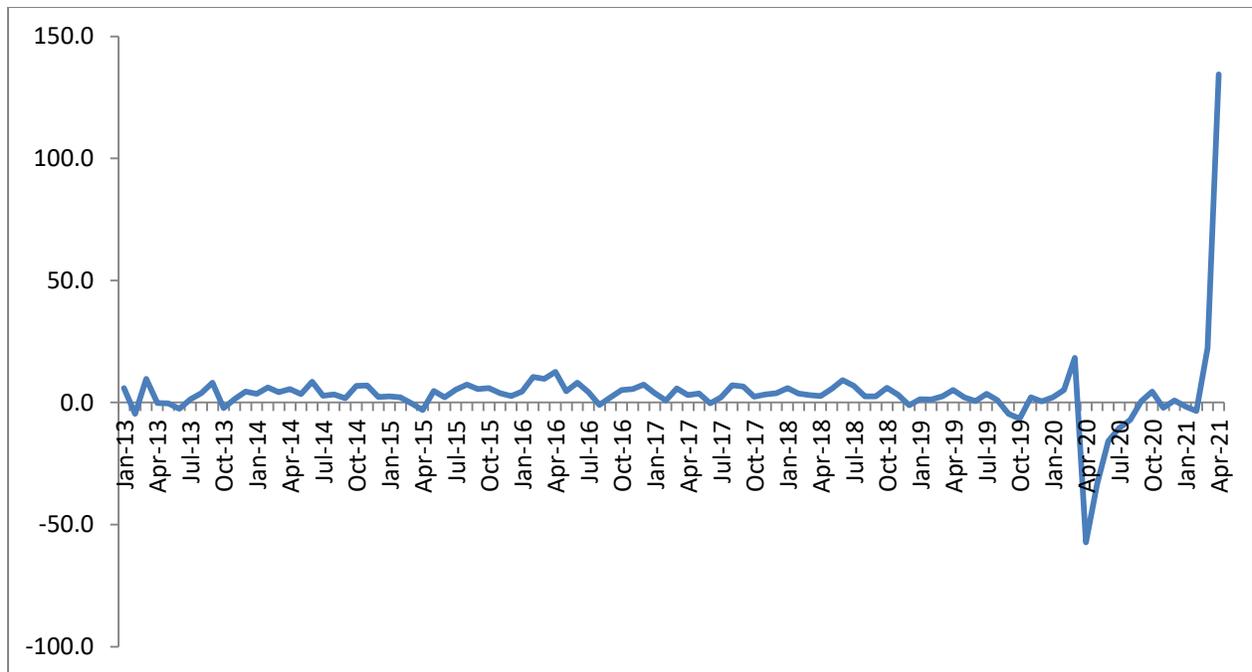
Exhibit 2.11(B): Sectoral Share of GVA; (%), India, FY21



Source: MOSPI – Second Advanced Estimates of National Income 2020-2021, at 2011-12 prices

1.2.10. Index of Industrial Production (IIP)

Exhibit 1.2.12(A): IIP Growth (%) – 2013 – 2020



Source: MOSPI

IIP Growth (%)					
Jan-13	5.9	Oct-15	5.9	Jul-18	6.8
Apr-13	-0.2	Jan-16	4.5	Oct-18	6.1
Jul-13	1.4	Apr-16	12.6	Jan-19	1.4
Oct-13	-2.3	Jul-16	4.2	Apr-19	5.1
Jan-14	3.6	Oct-16	5.2	Jul-19	3.6
Apr-14	5.6	Jan-17	3.8	Oct-19	-6.6
Jul-14	2.8	Apr-17	3	Jan-20	2.2
Oct-14	6.9	Jul-17	2.2	Apr-20	-57.3
Jan-15	2.5	Oct-17	2.4	Jul-20	-10.5
Apr-15	-3	Jan-18	5.9	Oct-20	4.2
Jul-15	5.3	Apr-18	2.7	Jan-21	-1.6
				Apr-21	134.4

Source: MOSPI

The country's index of industrial production (IIP) surged **134.4%** year-on-year to 126.6 in the month of April primarily due to a low base in the previous year, according to the data released by the Ministry of Statistics & Programme Implementation (MoSPI).

India's industrial production contracted in January 2021 to -1.6% from 1.4% in January 2020, underscoring the flattening of the recovery trend seen in Oct-Dec quarter. The fall also marked a weak start to the calendar year 2021. India had imposed a lockdown on March 25, 2020 to curb Covid-19 and began lifting restrictions in stages from May, sparking an uptick. However, many states imposed shutdowns in July to curb outbreaks, undermining the recovery. The Centre further eased restrictions since September 1 and has taken steps to discourage local lockdowns.

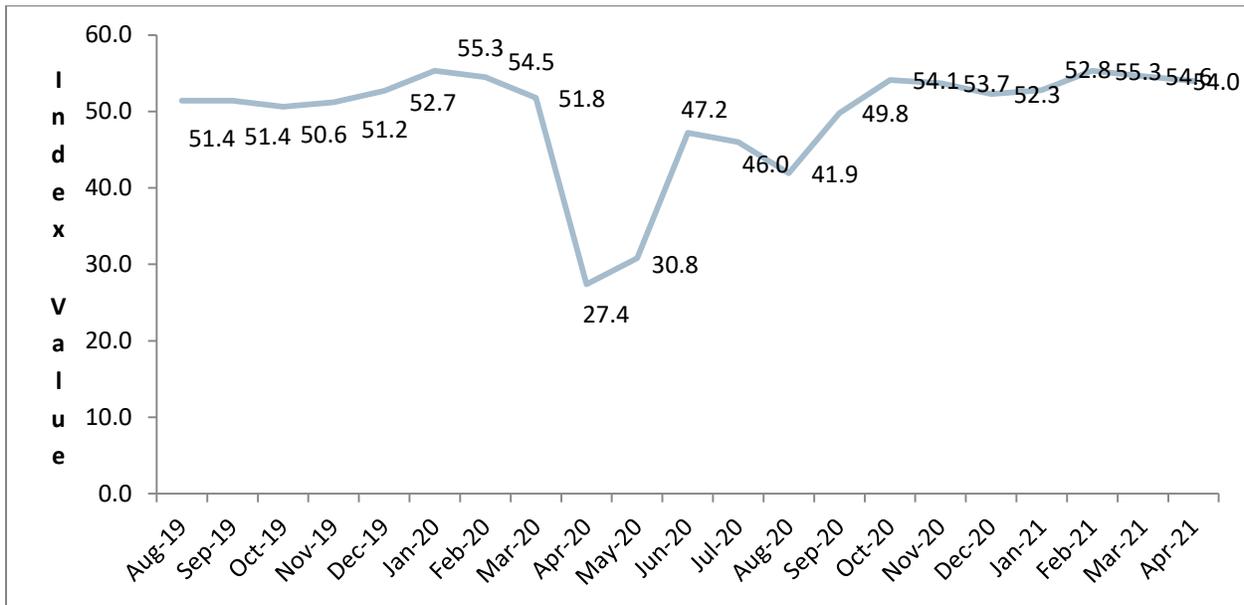
The high-frequency indicators suggest that the economy picked up pace toward the end of August 2020 even though Covid-19 cases continued to rise again. The cases started to rise in India by May 2020 which reached a peak in September 2020 which started to flatten by December 2020. Second wave of Covid started in March-end of 2021. The new surge is taking place despite a year of awareness about the crying need to follow Covid-appropriate behaviour.

- The sales of passenger vehicles in India have reduced by over 2% in FY21. Passenger vehicle wholesales declined by 2.24%. The industry registered sales of 27,11,457 units as compared to 27,73,519 units in 2019-20.
- Two-wheeler dispatches also declined in the same time period. Sale of units from manufacturer to dealer reduced by 13.18%. In FY 19-20, the industry provided 1,74,16,432 units to dealerships, whereas in FY 20-21 the industry only registered wholesale of 1,51,19,387 units.
- The weightage of Manufacturing, Mining and Electricity production in overall Index of Industrial Production (IIP) is 77.6%, 14.3% and 7.9% respectively. The overall Index of Industrial Production for the month of February 2021 stands at 129.4 and January 2021 stands at 136.2 as compared to December 2020 (135.9), November 2020 (126.1) and October 2020 (129.2). The Indices of Industrial Production for the Mining, Manufacturing and Electricity Sectors for the month of February 2021 stand at 116.5, 129.3 and 153.9 respectively.
- The net sales of consumer electronics and appliances industry grew by 23.5% y-o-y in Q3FY21 to INR 14.2 thousand crores from INR 11.5 thousand crores during the same period last year. Further, the net sales of players in this industry improved on a yearly basis from a decline of 54.7% in Q1FY21 to a growth of 23.5% in Q3FY21. This growth was primarily driven by pent up demand and festive season in Q3FY21 in particular aided the growth. Consumer electronics and appliances industry witnessed sharp contraction in demand in Q1FY21 due to the outbreak of Covid-19 and subsequent restrictions. However, demand has been improving from Q2FY21 till Q4FY21 due to ease in restrictions and is backed by pent up demand.
- Amid the GDP performance of all sectors, by clocking the 3.4% growth in FY21, agriculture achieved the bright spot. The growth was driven largely by a bumper rabi harvest and facilitated by relaxation in lockdown. The gross value added (GVA) at current prices for agriculture and allied sectors rose by 3.4% in FY21 as against 4.0% Y-o-Y growth in FY20 vs. FY19. All other

sectors (except Electricity and gas) had recorded a negative Y-o-Y growth in GVA. Electricity sector grew by 2.9% making Agriculture as the fastest growing segment

1.2.11. Purchasing Manager’s Index (PMI)

Exhibit 1.2.13(B): India Purchasing Manager’s Index – 2019 - 2021



Source: MOSPI

A PMI reading over 50 or 50% indicates growth or expansion of the manufacturing sector as compared to the previous month, while a reading under 50 suggests contraction. A reading at 50 indicates that the number of manufacturers reporting better business is equal to those stating business is worse.

India PMI Index dropped drastically during the month of April 2020 to 27.4 which stayed at this level for about a quarter. PMI numbers from Q4 of FY21 looked promising with the index jumping all the way up to 54 in March 2021 from 27.4 in April 2020. The shift in PMI numbers suggest positive outlook of the Indian economy.

1.2.12. Strong Growth Path

India’s growth story was largely positive based on the strength of domestic absorption and the economy was registering a steady pace of economic growth pre-Covid. Moreover, its other macroeconomic parameters like inflation, fiscal deficit and current account balance had exhibited distinct signs of improvement. Though the pandemic has led to a short-term slowdown of the economy, the medium-long term fundamentals are sound and India is expected to witness the revival of its economy soon.

The government has taken several measures to revive the economy and to return to a normal to high growth trajectory. As the monetary and fiscal stimuli work their way through, India can expect an economic turnaround soon. In addressing the current slowdown, India has several advantages and comforting factors including the following:

- **Aatmanirbhar Bharat Abhiyan:** Prime Minister Narendra Modi on May 12, 2020 announced the Aatmanirbhar Bharat Abhiyan which combined relief, policy reforms and fiscal and monetary measures to help businesses and individuals to cope with the situation created by the pandemic and helps transform India into a self-reliant economy. Government seized the crisis to push forward long-pending industrial and other economic reforms in a least political resistant atmosphere.
 - This campaign is especially expected to benefit the Specialty chemicals sector, with several players hoping to position themselves as an alternative to China as the coronavirus crisis prompts companies to diversify their supply chains.
 - Government announced a production linked incentive (PLI) scheme for the promotion and manufacturing of pharmaceutical raw materials in India. The government's move is aimed to boost domestic manufacturing and cut dependence on imports of critical Active Pharmaceutical Ingredients (APIs). Further, the government has also decided to develop three mega bulk drug parks in partnership with states. These schemes will likely appeal more to the smaller players and should foster more investments. The government is soon planning to roll out such a scheme for the chemicals sector as well.
 - The government is also in the process of launching a production-linked incentive (PLI) for the chemical sector to increase self-reliance in the country. This move is to reduce country's dependency on imports of basic chemicals. The PLI scheme will help the sector to identify import-dependent chemicals and work towards producing them within the country.
 - Specialty chemical companies will look at import substitution along with export opportunities to further drive their business. Historically, domestic consumption has been the driving metric for Specialty chemicals manufacturing in India, with exports playing a much smaller part – owing to reduced raw material availability, higher utility tariffs and a stricter regulatory structure. However, owing to the current geo-political issues, India's focus on being a manufacturing hub for exports of specialty chemicals will increase, subsequently increasing the share of exports in the overall market.
- **Preferred Destination for Foreign Investment:** Lately, India has become an attractive destination for foreign investment owing to its large and rapid growing consumer market in addition to a developed commercial banking network, availability of skilled manpower and a package of fiscal incentives for foreign investors
- **Strong and Diversified Industrial and Infrastructural Base:** India has established a strong and diversified manufacturing base for the production of a wide variety of basic and capital goods to meet the requirements of various sectors; and systematically rolled out a public-private partnership (PPP) programme for the delivery of high-priority public utilities and infrastructure.
- **Burgeoning Foreign Exchange (Forex) Reserves:** Foreign exchange reserves of India totalled USD 477 Bn as on March 20, 2020. This figure stood at USD 581 Bn as on December 25, 2020, recording a whopping increase of USD 104 Bn in a relatively short period of around 9 months. The forex kitty had surged by USD 3.074 Bn to record a high of USD 608.081 Bn in the 2nd week of June 2021. Sliding from a lifetime high, the country's foreign exchange reserves declined by USD 4.148 Bn to

reach USD 603.933 Bn for the week ended 18 June 2021 due to a fall in gold and currency assets, the Reserve Bank of India (RBI) data suggested. India's foreign exchange reserves however, provide confidence in the country's ability to manage the balance of payments.

- **Demographic Dividend:** Presently, India is one of the youngest nations in the world with more than 62% of its population in the working age group (15-59 years), and more than 54% of its total population below 25 years of age. Its population pyramid is expected to bulge around the 15-59 age groups over the next decade. This poses a formidable challenge as well as a huge opportunity.
- **Aatmanirbhar Bharat Abhiyan- 02:** These announcements were made on 12th Oct 2020:
 - Rs 25,000 crores provided as additional capital expenditure to Ministry of Road Transport and Ministry of Defence
 - 11 States were sanctioned Rs. 3621 crores as interest free loan towards capital expenditure
- **Aatmanirbhar Bharat Abhiyan- 03:**
 - Prime Ministers Rozgar Protsahan Yojana (PMRPY) was implemented up to 31.3.2019 to incentivize formalization and creation of new employment
 - Total benefit of Rs. 8300 Crore has been given to 1,52,899 Establishments covering 1,21,69,960 Beneficiaries under PMRPY

Indian Government Initiatives and Policies for Manufacturing Sectors: Prime Minister of India, Mr Narendra Modi, launched the 'Make in India' program to place India on the world map as a manufacturing hub and give global recognition to the Indian economy. Government aims to create 100 Mn new jobs in the sector by 2022. With the help of Make in India drive, India is on a path of becoming the hub for hi-tech manufacturing as global giants such as GE, Siemens, HTC, Toshiba, and Boeing have either set up or are in process of setting up manufacturing plants in India, attracted by India's market of more than a billion consumers and an increasing purchasing power.

According to the United Nations Conference on Trade and Development (UNCTAD), India ranked among the top 10 recipients of Foreign Direct Investment (FDI) in South Asia in 2019, attracting USD 49 Bn, a 16% increase from the previous year. Cumulative Foreign Direct Investment (FDI) in India's manufacturing sector reached USD 89.4 Bn during April 2000 - March 2020. In May 2020, the Government of India increased FDI in defence manufacturing under the automatic route from 49% to 74%. India has become one of the most attractive destinations for investment in the manufacturing sector. Some of the major investments and developments in this sector in the recent past are:

- In November 2020, the National Small Industries Corporation (NSIC) signed a Memorandum of Understanding (MoU) with Dun & Bradstreet Information Services India to create an ecosystem to encourage, finance and promote growth of micro, small and medium enterprises (MSMEs)
- In October 2020, Japan Bank for International Cooperation (JBIC) agreed to provide USD 1 Bn (INR 7,400 crore) to SBI (State Bank of India) for funding the manufacturing and sales business of suppliers and dealers of Japanese automobile manufacturers and providing auto loans for the purchase of Japanese automobiles in India

- In October 2020, Tata Group announced plans to invest INR 5,000 crore (USD 673.20 million) to set up an Apple phone component plant in Hosur, Tamil Nadu
- In October 2020, Grinntech, an investor-backed start-up specialising in lithium-ion batteries for EVs and energy storage systems, signed a MoU with the Tamil Nadu government to establish a battery and battery management system manufacturing facility in the state
- In October 2020, five international electronics manufacturing applications from companies such as Foxconn, Wistron, Pegatron, Samsung and Rising Star have been approved by the Government of India to set up production worth INR 9 Trillion (USD 122.5 Bn) over the next five years
- In October 2020, five Indian manufacturers such as Micromax, Lava, Padget Electronics, UTL Neolyncs and Optimus Electronics have been cleared by the Government of India to set up handset production
- In September 2020, Pegatron, the second-largest manufacturer of Apple after Foxconn, began its India operations. The move is a precursor for the Taiwanese electronics maker to set up a manufacturing base in India.

Government Initiatives

The Government of India has taken several initiatives to promote a healthy environment for the growth of manufacturing sector in the country. Some of the notable initiatives and developments are:

- In November 2020, the Ministry of Skill Development and Entrepreneurship begun skill training of 3 lakh migrant workers from the identified 116 districts across Uttar Pradesh, Bihar, Rajasthan, Odisha, Madhya Pradesh and Jharkhand. The initiative aims to empower migrant workers and rural population in the post-COVID-19 era through demand-driven skilling and orientation under the centrally sponsored and centrally managed (CSCM) component of the Pradhan Mantri Kaushal Vikas Yojana (PMKVY) 2016-20.
- In March 2020, the government approved the Production Incentive Scheme (PLI) for Large-scale Electronics Manufacturing. The scheme proposes production-linked incentive to boost domestic manufacturing and attract large investments in mobile phone manufacturing and specified electronic components including Assembly, Testing, Marking and Packaging (ATMP) units.
- In May 2020, Government increased FDI in Defence manufacturing under the automatic route from 49% to 74%
- In March 2020, the Union Cabinet approved financial assistance to the Modified Electronics Manufacturing Clusters (EMC2.0) Scheme for development of world class infrastructure along with common facilities and amenities through Electronics Manufacturing Clusters (EMCs)
- Under the Pradhan Mantri Kaushal Kendras, 73 lakh people were trained during 2016-20 while 723 Pradhan Mantri Kaushal Kendras were established till Jan 2020
- As of August 2020, there were about 15,000 Industrial Training Institutes (ITIs) in India
- In August 2019, the Government permitted 100% FDI in contract manufacturing through the automatic route

- Under the Make in India initiative, Government aims to increase the share of the manufacturing sector to country's GDP to 25% by 2025.
- Under the Mid-Term Review of Foreign Trade Policy (2015-20), the Government of India increased export incentives available to labour intensive MSME sectors by 2%. In April 2020, Government extended FTP for one more year, up to March 31, 2021.

Source: IBEF

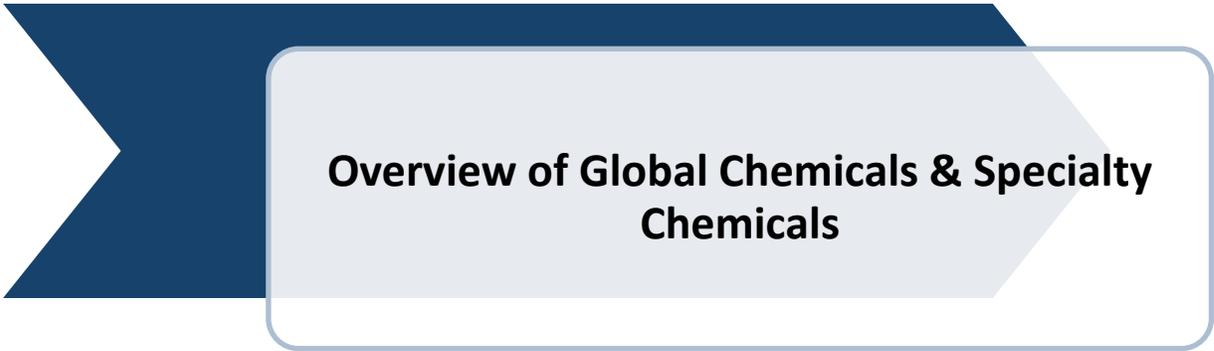
Across India, the recent revision of Market Access Initiative by the Ministry of Commerce and Industry aims at benefiting the small to mid-segment newer industry players which do not possess global sales and marketing reach. As a result of the revised MAI policies, the robust growth in Contract Research & Manufacturing Services (CRAMS) industry in India will support newer economies such as Myanmar, Cambodia to collaborate with the local Indian players beneficial for the overall growth of the Asian economy. Moving forward, with a total of over 300 USFDA approved manufacturing sites, the country can become the global leader in the CRAMS industry with the implementation of mandates including Schedule M (Good Manufacturing Practices (GMP) for Premises & Materials and Requirements of GMP in Plant and Equipment) outlining various requirements for manufacturing good quality drugs and pharmaceuticals, by applying Current Good Manufacturing Practice (CGMP) guidelines.

India is an attractive hub for foreign investments in the manufacturing sector. Several mobile phone, luxury and automobile brands, among others, have set up or are looking to establish their manufacturing bases in the country.

The manufacturing sector of India has the potential to reach USD 1 trillion by 2025. The implementation of the Goods and Services Tax (GST) will make India a common market with a GDP of USD 2.5 trillion along with a population of 1.32 billion people, which will be a big draw for investors.

With impetus on developing industrial corridors and smart cities, the Government aims to ensure holistic development of the nation. The corridors would further assist in integrating, monitoring and developing a conducive environment for the industrial development and will promote advance practices in manufacturing.

Section 2: Overview of Global Chemicals and Specialty Chemicals



Overview of Global Chemicals & Specialty Chemicals

2.1 Chemicals - The Recovery Driver

As the chemical industry lies at the heart of several value chains and acts as a solution provider to other sectors of the economy, it plays a pivotal role in leading a sustainable recovery. Today, chemical innovations already contribute to several sustainable development challenges such as energy and climate, transport, health and food, among others. The chemicals and materials sector can leverage both direct and indirect stimulus programmes, and can strengthen their broader impact to provide shared value across business and society. Below are some examples of how direct and indirect stimulus packages have impacted the chemicals and materials sector –

- China introduced higher export subsidies for petrochemical products and launched billion-dollar investments in a total of 16 refineries and petrochemical projects
- Several EU countries, the US and Japan are incentivizing the creation of local pharmaceuticals clusters. For instance, France aims to move production of paracetamol at home. Japan offers subsidies to firms restoring manufacturing of pharmaceuticals.
- Germany's green hydrogen strategy includes a USD 10 Bn budget – multiple times the current German hydrogen market, but still a small portion of the country's overall electric energy sector
- The EU is backing e-mobility subsidies, with a plan worth USD 91 Bn – 250% of the EU's electric vehicle market (worth USD 37 Bn in 2019, according to estimates by Allied Market research)
- Chemicals Industry in India has been de-licensed except for few hazardous chemicals; Upcoming Petroleum, Chemicals and Petrochemicals Investment Regions (PCPIRs) and Plastic parks will provide state-of-the-art infrastructure for Chemicals and Petrochemicals sector

As economies are gradually reopening for business, companies are turning their attention to recovery. As the market stands now, we forecast the following developments in the chemical industry over the mid-term (2-3 years).

- **Specialty chemicals to drive growth; Agro-chemicals and Pharma-chemicals to be focus areas:** Post the opening of the lockdown across major global economies, the specialty chemical industry was amongst the first to recover, given the increasing need for its inputs towards essential supplies such as pharmaceuticals, personal health and hygiene and agrochemicals. This sector is expected to be the key driver for growth in the chemicals sector, out-pacing petrochemicals and other bulk chemicals in the next 2-3 years.
- **China's loss, India's gain:** Several global players are opting for a "China + 1 offshore strategy", with capacities shifting to cost efficient markets with strong technology capabilities like India. Stringent environmental regulations and increased cost of labor have already stifled growth in China, which contributes 35-40% to the global chemical industry. The pandemic has compounded the situation further as companies across the world are looking for alternate supply solutions. Japan's announcement to offer incentives to companies shifting base from China to India further proves the desperation engulfing countries to reduce dependence on China and develop local supply chains. JVs / Technology transfers will drive the knowledge wave for the Indian industry, given stronger IP protection rights. China's Chemical Industry is very large, approximately 10 times, as compared to India; even a small shift from China to India will

be a big boost for India. The spillover impact of China's declining competitiveness has set the stage for India to intensify its effort to capture larger market share.

- **US China Trade War:** Four years and a new president later, US tariffs on Chinese products remain. Even after the Phase One trade deal (meant to be the first in a series of deals) was signed in January 2020, US tariffs on Chinese products remained in place. When the COVID-19 pandemic hit, the trade war faded into the background, used only to highlight China's inability to meet the conditions of the deal to purchase an additional USD 200 Bn in American products over the 2017 level through 2021 due to the disruption from the pandemic. The trade war continues to ravage the US economy even under the new Biden administration. The Biden administration has not made changes to tariff structures and is said to be examining the Phase One trade deal. Wang Yi, the Chinese foreign minister, recently asked President Joe Biden to restart talks with China to remove tariffs and sanctions. Wang pointed out that the United States has greatly diminished bilateral talks at all levels. Biden signed an executive order to analyse global supply chains in four industries that were strongly affected by the pandemic. These include computer chips, large-capacity electric vehicle batteries, pharmaceuticals, and critical minerals in electronics. The semiconductor industry faced serious bottlenecks at the outset of the global pandemic, when Chinese factories were in lockdown. These industries were also hit by the US-China trade war, and the two external shocks led many C-suite executives to reassess their firms' global supply chain resilience

While these headwinds in the Chinese industry cannot be expected to be permanent, whenever the Chinese companies make a comeback, it would be at a significantly higher cost of production given the significant investment in environmentally compliant equipment and manufacturing practices. India, in the meantime, would have significantly strengthened its position in the global supply chain and would be a very viable alternative for global players looking to de-risk their supply chain, while retaining their sourcing costs. Pharmaceuticals and agrochemicals are the key sectors that are particularly set to benefit from this shift in dynamics, wherein the Chinese manufacturers continue to operate at lower capacity levels, given the increased monitoring of safety standards and compliance norms.

The powering trend of de-risking of input procurement from China by global chemical leaders offers great export as well as domestic sales opportunity for Indian specialty chemical industry.

Resilience in manufacturing and supply systems

The COVID-19 global crisis continues to disrupt manufacturing and global supply chains with severe consequences for society, businesses, consumers and the global economy. Since the start of the outbreak, the global production system has been challenged by factory shutdowns, demand surges for essential goods, stockpiling and panic-buying, as well as shifting consumer preferences.

World Economic Forum has appreciated the manufacturing sector for adopting the following strategies to combat the current crisis, in the short-term, and help build resilience across manufacturing and supply systems by incubating new business partnerships and public-private cooperation.

- **Ensuring business continuity and protecting employees** – Companies are protecting employees, ensuring supply security, mitigating financial impact and navigating continued market

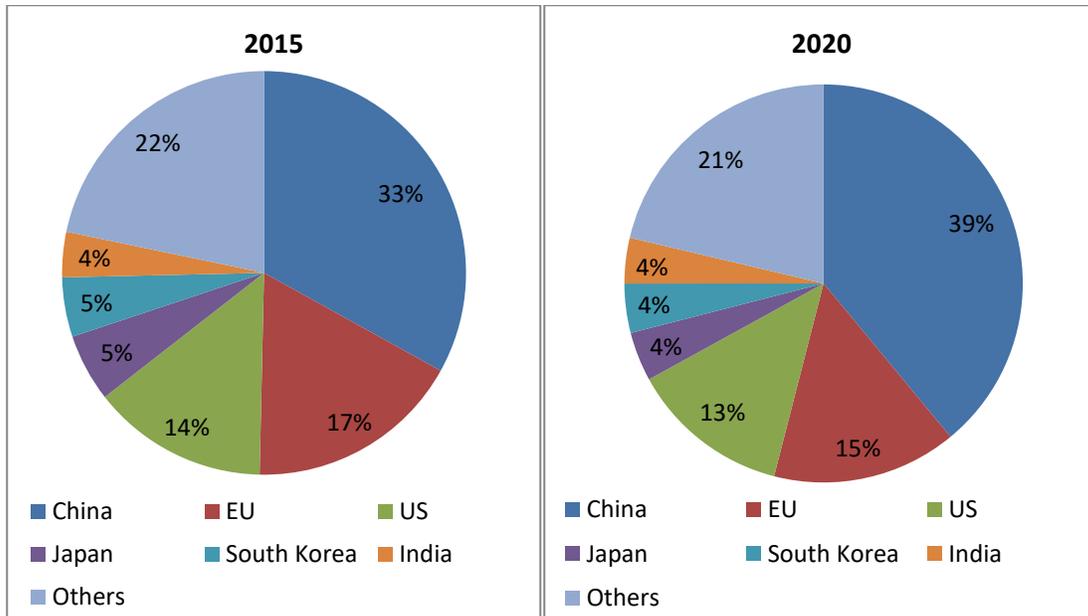
uncertainty as the demand drops. Companies have moved quickly to support suppliers, ensure cash liquidity and mitigate the impact on customers, while repurposing manufacturing to produce essential goods.

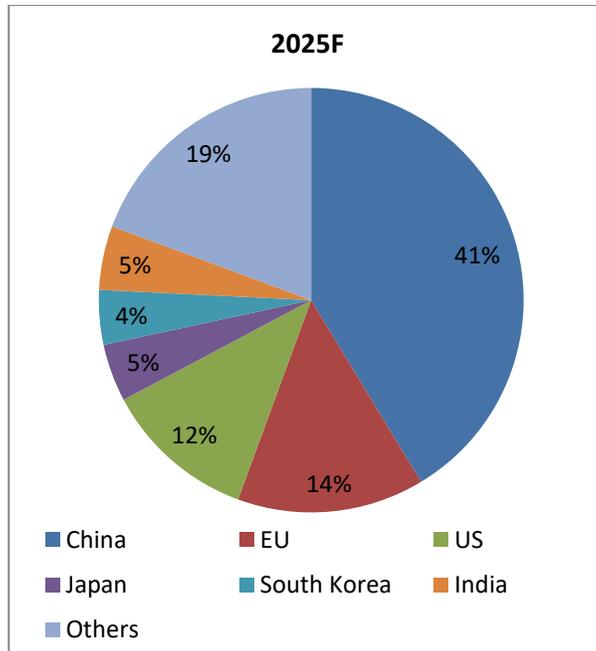
Preparing for recovery and increasing resilience – Companies are already focused on preparing for the post COVID-19 scenario while drawing key learning from this pandemic and its impact on global businesses. Leading multinational companies have already launched strategic initiatives to create more resilient supply chains before the on-going crisis and are now seeing an acceleration of the speed and determination of implementation.

2.2. Global Chemicals market overview

The global chemicals market is valued at around USD 5,027 billion with China accounting for major market share (39%) in the segment followed by European Union (15%) and United States (13%). India accounts for ~4% market share in the global chemicals market. The global chemicals market is expected to grow at 6.2% CAGR; reaching USD 6,780 billion by 2025. Going forward the APAC is anticipated to grow at the fastest rate of 7-8% during the forecast period (2019-25F). The chemicals markets in Western Europe, North America, and Japan are relatively mature and hence would record slow growth rates of around 3-4%.

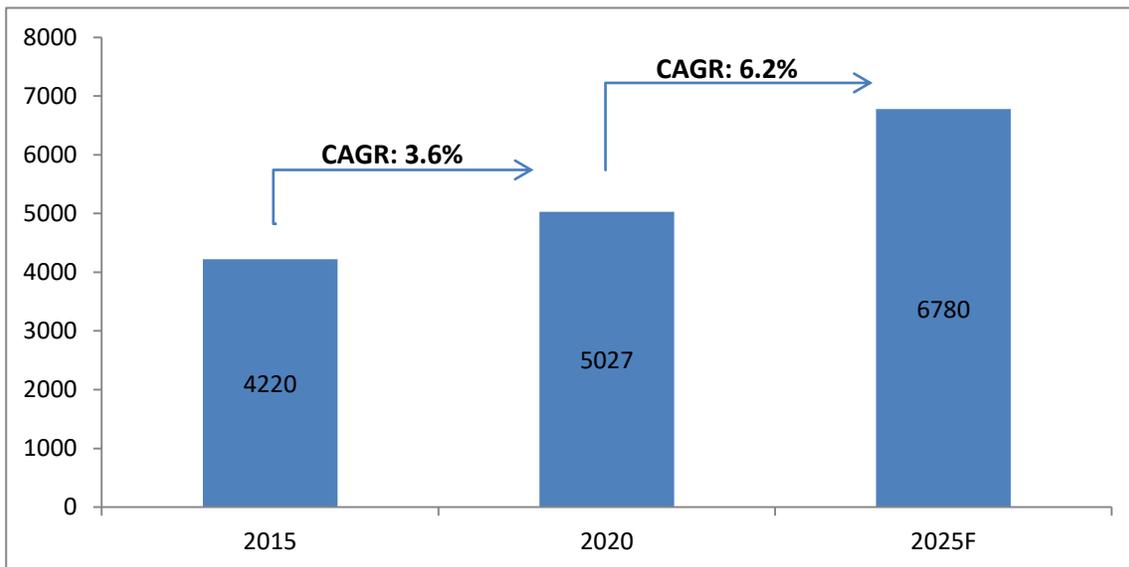
Exhibit 2.1.A: Global chemicals market, 2015, 2020 & 2025F, USD 4,227, USD 5,027 billion & 6,780 billion





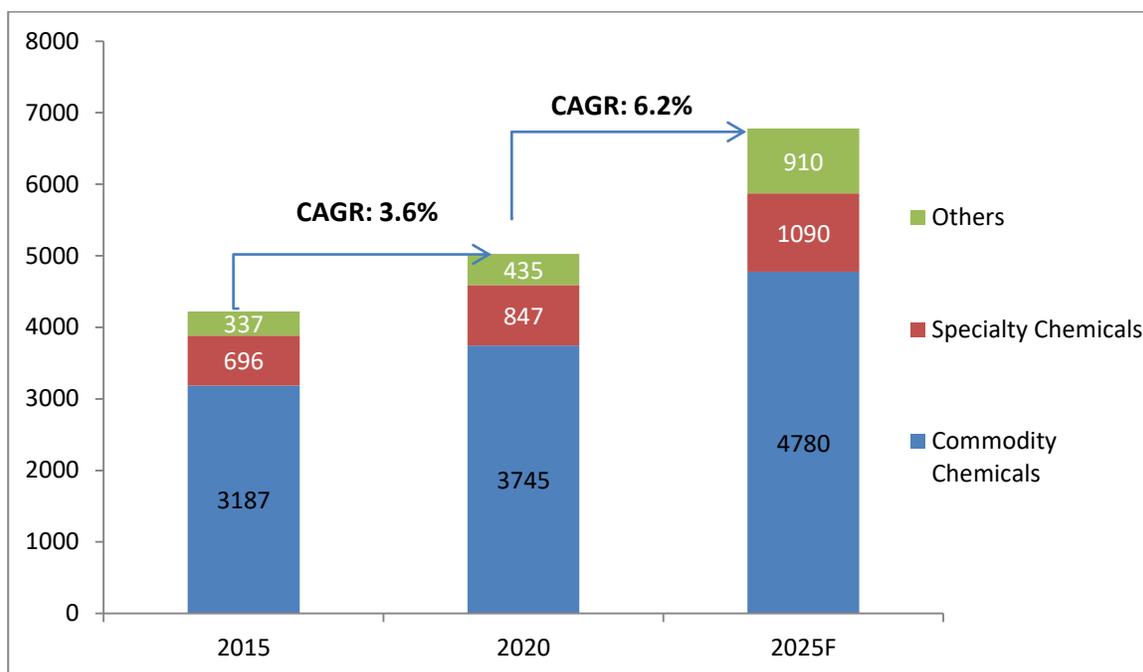
Source: Frost & Sullivan

Exhibit 2.1.B: Global chemicals market, 2015, 2020 and 2025F (USD billion)



Source: Frost & Sullivan

Exhibit 2.1.C: Global chemicals market, 2015, 2020 and 2025F (USD 4220 billion, USD 5027 billion and USD 6780 billion)



Source: Frost & Sullivan

Note: Others mainly include Biotech chemicals. Also note that the Indian chemical industry generally showcases Agrochemicals & Fertilizers and Pharmaceuticals API outside of Specialty chemicals and Petrochemicals outside of Commodity Chemicals. In the above graph the specialty chemicals section, however, is inclusive of the 2 categories (Agrochemical and Fertilizers and Pharmaceuticals API) and the Commodity Chemicals section is inclusive of Bulk chemicals and Petrochemicals.

	Commodity Chemicals	Specialty Chemicals	Other Chemicals
2015-20	3.3%	3.9%	5.2%
2020-25F	5.0%	5.2%	15.9%

Commodity Chemicals: The commodity chemicals market includes companies that manufacture basic chemicals in large volumes. These include plastics, synthetic fibres, films, raw material for certain paints and pigments industries, explosives, and petrochemicals. There is limited product differentiation within the sector; products are sold for their composition. The commodities market is highly fragmented. The leading companies, The Dow Chemical and BASF SE, account for less than 5% of the total market each. Other industry leaders include Bayer AG, DuPont de Nemours, and AkzoNobel. More than 85% of the market share, however, is accounted for by a mix of other companies. The end user markets include other basic chemicals, specialties, and other chemical products; manufactured goods such as textiles, automobiles, appliances, and furniture; and pulp and

paper processing, oil refining, aluminium processing, and other manufacturing processes. Markets also include some non-manufacturing industries. The sector is presently valued at ~USD 3,745 billion and is expected to grow at 5%-6% globally in the next five years.

- **Petrochemicals** are derived from crude oil, crude products, or natural gas. Petrochemicals are used in the manufacture of numerous products such as synthetic rubber, synthetic fibres (e.g., nylon and polyester), plastics, fertilizers, paints, detergents, and pesticides. It is the basis for most organic chemistry. The global petrochemicals market size was predicted at ~USD 475 billion in 2020 and is anticipated to witness a CAGR of 5%-6% over the forecast period. The growth of the market for petrochemicals will be driven by rising demand for downstream products from end-use industries and capacity additions in the base chemical industry.

Specialty Chemicals: The specialty chemicals market is characterized by high value-added, low volume chemical production. These chemicals are used in a wide variety of products, including fine chemicals, additives, advanced polymers, adhesives, sealants and specialty paints, pigments, and coatings. The specialty market is extremely fragmented. The consolidation of companies has been a major trend, and is expected to continue. Similar to the commodity sector, the specialty sector is affected by high costs of energy and feedstock. Intangible value issues include heightened emphasis on research, customer migration to alternative products, and the impact of regulations on products. The overall market stood at ~USD 847 billion in 2020, and is expected to showcase a growth between 5-6% over the next five years.

- **Pharmaceutical (API):** API are generally considered a sub-sector of the chemical industry. Information and statistics on the chemical industry may or may not include the pharmaceutical sector, though it tends to be demarcated as a separate category. The global active pharmaceutical ingredients market size is projected to reach ~USD 250-270 billion by 2025 at a CAGR of 5%-6% during the forecast period. The market growth is driven mainly by factors such as rising drug R&D, the increasing incidence of chronic diseases, the growing importance of generics, and the increasing uptake of biopharmaceuticals. On the other hand, unfavourable drug price control policies across various countries and high manufacturing costs are expected to restrain the growth of this market. Following are some of the critical success factors for the players involved in pharmaceutical chemicals and API –

1. **Marketing strategy** – Most leaders have a well-defined product marketing strategy to target right customer segment. Companies have invested in R&D to introduce new products beneficial to the end users.
2. **Reduced Dependence on China** – Both global and domestic drug companies have started to diversify their sourcing of APIs and KSMs
3. **Strong hold on the entire value chain** – Manufacturers are now positioning themselves at solution providers; starting with raw material intake from the supplier, culminating with storage of the finished product in automated warehouses to contractual agreements with distributors to market their products.

- Agrochemicals & Fertilizers:** The global Agrochemicals & Fertilizer Market is expected to garner revenue of ~USD 250-260 billion by 2025 with a CAGR of 5.5-6% during the forecast period of 2020-25. The major chemicals used in agriculture to regulate plant growth are synthetic fertilizers, pesticides, and hormones, amongst others. The growth of agriculture in the emerging markets such as South America, Africa, and the Middle East is paving the way for several profitable opportunities for the market players. Additionally, a strong focus of agrochemical manufacturers on product innovation is expected to render a higher competitive advantage to them over their rivals. The market of agrochemicals & fertilizers in China and India is expected to grow significantly owing to the increase in consumption and production of fertilizers, such as nitrogen based, potassium based fertilizers, in these countries. China and India are the major exporters of agrochemicals & fertilizers in the Latin America, Asia Pacific and other regions. These factors are expected to create a robust platform for the growth of the China and India market. A key success factor for the crop protection chemicals in the market is extensive R&D capabilities of a company to develop new molecules satisfying the government norms and stringent environment regulations (possibly having higher pesticide biodegradability index). Emergence of bio-pesticides are making a splash in the existing crop protection market, however product features in these green pesticides are so limited that it has not gained popularity as much as traditional crop protection chemicals. Although it remains a challenge as of now, to introduce (equally effective) 100% sustainable pesticide, transition to hybrid pesticides is seen as future solution for the sustainable agriculture. This essentially ensures a robust growth trajectory for traditional crop protection chemicals in high-volume-high-growth centres like India. Following are some of the critical success factors for the players involved in crop protection chemicals –

- 1. Backward integration of technical active ingredients** – Many formulators’ needs to have backward integration of its technical AI’s (Active Ingredients) in order to succeed in gaining high profit margins in the market.
- 2. Comprehensive product portfolio** – ‘One stop solution’ for farmers of all the agrochemical needs surely drives the success of one firm over another
- 3. Strong distribution network** – Distribution network plays vital role in reaching at the fragmented farmers’ base across the world also enabling excellent feedback mechanism & deep customer relations.

- Paints** - In 2020, the Global Paints market was ~48 billion liters valued at USD 160 billion, with a ~5.5 % compound annual growth rate (CAGR) through 2025. This will be driven by an expected growth in global manufacturing activity and increasing demand for coatings used in the production of motor vehicles, durable goods, and industrial maintenance applications. Following are some of the critical success factors for the players involved in paints sector –

- 1. Innovative manufacturing processes** - Introduction of various innovative manufacturing processes and technologies have helped companies to instantly mitigate to numerous

potential negative impacts and maximize their opportunities for carrying growth to the decorates & glaze products.

2. **Low VOC (Volatile Organic Compounds) content** - From the past decade, innovative formulation technologies have significantly facilitated to cater to numerous new and diverse consumer demands. Anticorrosive protection, low-VOC content coats, and nanocoatings are few of the recent innovations available in the present market
- **Emulsions** – The Emulsions market was valued at USD 6,413 million in 2020, and is projected to reach USD 9,035 million by 2025 growing at a CAGR of 7.45% from 2020 to 2025. Asia is expected to be the highest contributor to this market, with USD 1,332.8 million in 2020, and is anticipated to reach USD 1,954 million by 2025, registering a CAGR of 8.51%. Following are some of the critical success factors for the players involved in emulsions sector –
 1. **Environmental friendly products** - The shift in trend towards the adoption of environment-friendly paints and coatings coupled with the favourable regulatory scenario is likely to support the development of low VOC content or VOC-free paints and coatings. This has led to the initiation of emulsion polymerization in the global market.
 2. **Foraying into Latest technology** - Emulsion polymerization technique produces high molecular weight polymers with little viscosity. However, polymers can also be tailor-made according to their usage to display the desired morphology and composition.

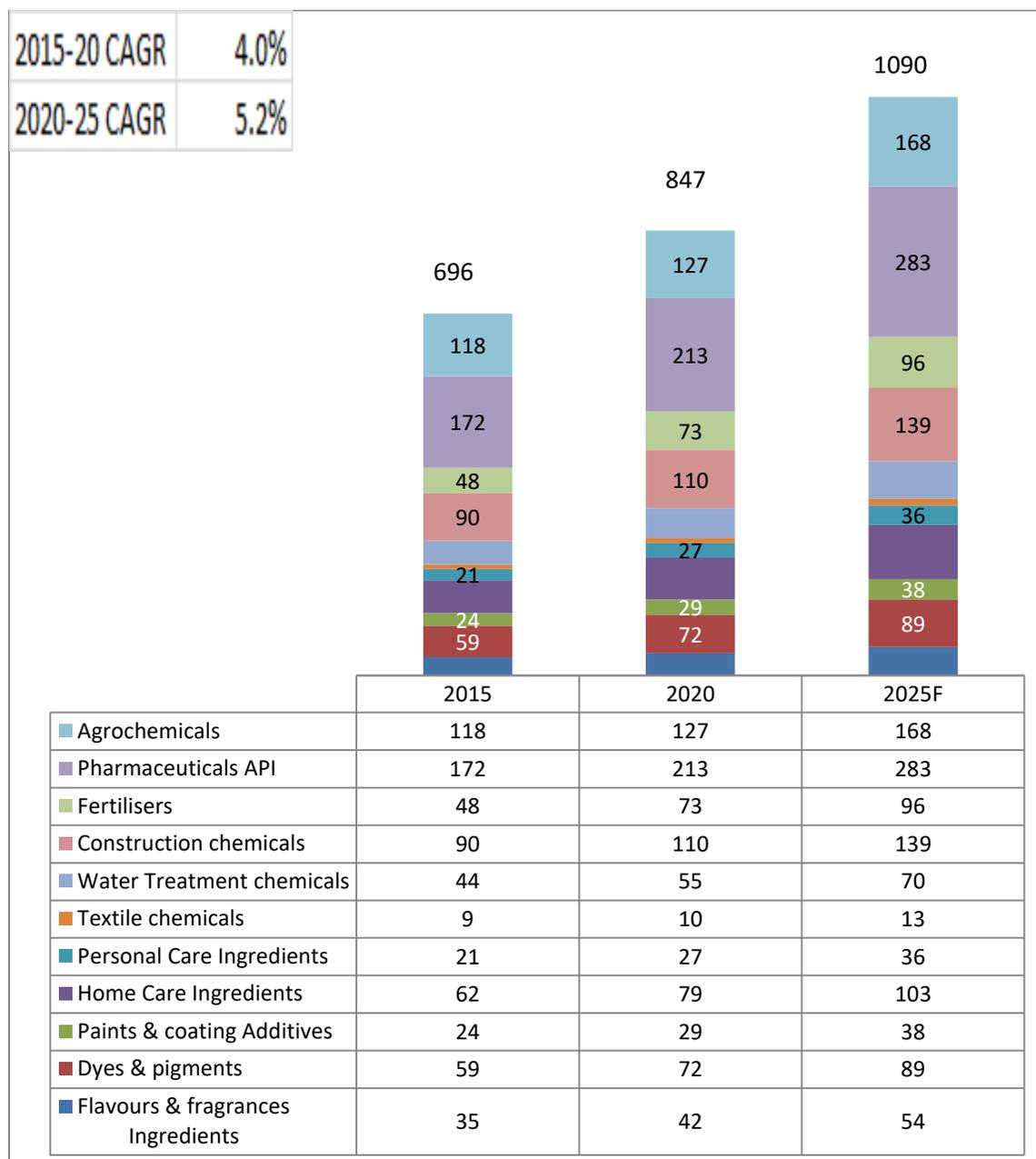
Adhesives - The global adhesives and sealants market is set to gain traction from the increasing adoption of adhesive tapes by engineers from numerous fields, especially aviation and automotive. These tapes can be drawn into films and can be formulated with multiple viscosities.

The global Adhesives market is valued at around USD 47 billion. The global Adhesives market is expected to grow at 5.9% CAGR; reaching USD 63 billion by 2025.

Global adhesives market is expected to rise pertaining to increasing demand from construction industry. The adhesives are used as an alternative to joining materials and sealants are used as mechanical seal for blocking fluid passage owing to wide demand for adhesives and sealants from construction industry. The industry is rising globally pertaining to construction of hospitals and quarantine centres due to coronavirus outbreak. Following are some of the critical success factors for the players involved in emulsions sector –

1. **Strong portfolio in packaging adhesives**- Growth in flexible packaging, paper & board packaging, and rigid packaging segments will drive the demand for packaging adhesives, companies
2. **Presence in water based PSA (Pressure Sensitive Adhesives)** - Water base and dextrin/starch based adhesives are the widely used adhesives in the packaging industry, which together occupy more than 70 percent of packaging adhesives. These two are the majorly used adhesives in labelling and corrugated boxes applications especially by food and beverages

Exhibit 2.2: Global Specialty Chemicals Market, Value by segment (USD billion), 2015, 2020 and 2025F



CAGR	Agrochemicals and fertilizers	Pharmaceutical API	Dyes and Pigments	Paints & Coatings Additives	Home Care Ingredients	Personal Care Ingredients	Textile Chemicals	Water Treatment Chemicals	Construction/Infrastructure Chemicals	Flavours & Fragrances Ingredients	Total
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2015-20	5.4%	4.4%	4.1%	4.2%	5.0%	4.9%	2.5%	4.3%	4.1%	3.9%	4.0%
2020-25F	5.7%	5.8%	4.3%	5.0%	5.4%	6.2%	3.8%	5.0%	4.8%	5.2%	5.2%

Source: Frost & Sullivan

Inclusions-

Agrochemicals and Fertilizers: Agrochemicals include organic fertilizers, liming and acidifying agents (which are designed to change the pH), soil conditioners, insecticides and pesticides, fungicides, herbicides, and other chemicals like crop-growth regulators. Fertilizers are mainly inorganic compounds of nitrogen like urea or ammonium nitrate, compounds of phosphorous and potassium.

Dyes and Pigments: These are inclusive of Reactive Dyes, Disperse Dyes, Acid Direct Dyes, Azo Dyes, Sulphur Dyes, Solvent Dyes, Vat Dyes, Food Colorants, Organic Pigments, Optical Whitening agents, Inorganic Pigments, Pigment emulsions among others

Construction/Infratech Chemicals: These are inclusive of concrete admixtures (plasticizers, accelerators, retarders, air entrainers), waterproofing (bitumen, PVC, silicon, SBR and others), protective coatings (epoxy, PUR, PE, alkyl, acrylic and others), concrete repair mortar (cement based and plaster based), plasters, base coats, adhesives among others

Paints and Coatings Additives: These are made up of insulating paint additives, powder coating additives, catalysts, wetting agents, levelers, clarifier, coupling agents, deflocculants, thinners, thickeners, anti-caking agents and other chemicals.

Water Treatment Chemicals: These are made up of PH neutralizers, algaecides, antifoams (including insoluble oils, silicones, alcohols, stearates and glycols), biocides, boiler water chemicals, coagulants and flocculants, corrosion inhibitors, disinfectants, defoamers among others.

Textile Chemicals: These are inclusive of coating & sizing agents, colorants & auxiliaries, finishing agents, surfactants, de-sizing agents, bleaching agents, leather chemicals among others.

Flavors and Fragrances: Essential Oils (orange, corn mint, eucalyptus, pepper mint, lemon), Oleoresins (paprika, black pepper, turmeric, ginger, others), Aroma chemicals (esters, alcohol, aldehyde, phenol, others), others.

Home & Personal Care Ingredients: These are inclusive of formaldehyde, glycerols, titanium dioxide, isopropyls, alcohols, dimethicone, sodium lauryl sulphate, parabens, tocopherols benzones, oleochemicals, surfactants, polymers, botanical extracts among others.

The emerging market and developing economies are expected to lead the overall growth rebound, with the chemicals sector driving the growth story.

As the chemical industry lies at the heart of several value chains and acts as a solution provider to other sectors of the economy, it plays a pivotal role in leading a sustainable recovery. Today, chemical innovations already contribute to several sustainable development challenges such as energy and climate, transport, health and food, among others. The chemicals and materials sector can leverage both direct and indirect stimulus programmes, and can strengthen their broader impact to provide shared value across business and society. Below are some examples of how direct and indirect stimulus packages have impacted the chemicals and materials sector –

- China introduced higher export subsidies for petrochemical products and launched billion-dollar investments in a total of 16 refineries and petrochemical projects

- Several EU countries, the US and Japan are incentivizing the creation of local pharmaceuticals clusters. For instance, France aims to move production of paracetamol at home. Japan offers subsidies to firms restoring manufacturing of pharmaceuticals.
- Germany's green hydrogen strategy includes a USD 10 billion budget – multiple times the current German hydrogen market, but still a small portion of the country's overall electric energy sector
- The EU is backing e-mobility subsidies, with a plan worth USD 91 billion – 250% of the EU's electric vehicle market (worth USD 37 billion in 2019, according to estimates by Allied Market research)
- Chemicals Industry in India has been de-licensed except for few hazardous chemicals; Upcoming Petroleum, Chemicals and Petrochemicals Investment Regions (PCPIRs) and Plastic parks will provide state-of-the-art infrastructure for Chemicals and Petrochemicals sector
- With a high population base and majority of countries being underdeveloped or developing nations in Asia Pacific (APAC), there is high rate of construction activities resulting in higher demand for construction chemicals and paints & coatings additives. Embracing modern practices in the fields, agrochemicals have seen tremendous growth particularly for pesticides and fertilizer consumption. The consumption of pesticides in Asia-Pacific is slated to record the fastest growth rate on a global basis to reach a projected volume of 797.5 KT by 2020. China, India and Japan represent the largest agrochemicals markets of the Asian continent. Currently, China is leading the market with its developing agricultural sector along with the need for its ever growing population. Globally, China is not only the largest producer but also the largest consumer of fertilizers.

Impact of COVID 19

1. Many leading chemical manufacturers have reduced capital and operational expenditure to address the crisis. Capacity utilizations had scaled down to 40%-60% capacity due to labour shortages and disruptions in the supply of raw material since March, however companies are slowly getting back to pre-Covid levels. The supply chains are being reconfigured as competitive order of chemicals producers in the US, Middle East, China and Europe has changed. The demand for chemicals for automotive, transportation and consumer products sectors have fallen by ~20%-30% with the automotive industry almost coming to standstill in April-May. The products that have been less exposed to the prices of oil have seen stable prices whereas the crude dependent ones like petrochemicals have been highly impacted.
2. Given that companies are now transitioning their operations away from China to other geographies like India, Vietnam among others, the overall capacity utilization and labour issues are also expected to be resolved. India's strategic advantage in this regard has been elaborated in the ensuing section. Most companies in the chemical industry have stepped up to produce raw materials for sanitization and safety products which have been the need of the hour. The companies are also looking at innovations around 3D printing, polymer recycling, green hydrogen as a source of energy, bio-based products etc. to have better sustainability and higher margins.

3. With Covid-19, China is facing an unprecedented global backlash and many companies are not considering it the first preferred location for setting up factories. Companies are considering migrating to countries like India, Vietnam and others. China's weakened position is a blessing in disguise for India. Taking advantage of this situation, the Indian government has taken policy interventions to attract companies looking to shift their manufacturing base to India in the post COVID-19 scenario.

Global manufacturers have initiated talks with Indian firms to explore the possibility of shifting a part of their supply chains from China as they seek to diversify their operations following the covid-19 outbreak. First of the lot are companies interested in sourcing automobile components and electronic products from India. In the chemicals sector, India could become global specialty chemical export hub. The key growth accelerator would be our readiness in responding to the strong demand of key global markets to de-risk their supply chain by diversifying their base beyond China. In a way China's loss is India's gain. The tightening of environmental protection norms in China since January 2015 resulting in increase in operating costs, closure and relocation of manufacturing facilities along with rising labour costs and the recent trade dispute between China and United States have reduced Chinese exports and resulted in shifting the source of key raw materials from China to India. Indian companies were also heavily reliant on China which, over the years, has emerged as a manufacturing powerhouse. These companies suffered huge losses as bulk of the supplies from China was stalled owing to pandemic making Indian companies adopt the strategy of local sourcing. Local sourcing and global companies shifting base to India is expected to boost manufacturing sector of India. In a nutshell, India is on a growth trajectory with Indian companies opting for local sourcing and bulk of Global companies shifting their base to India.

Impact of Covid-19 on industries relevant to Jisons:

The global paints and coatings market is expected to at a CAGR of 5.5% over 2020-25. The growth is mainly due to the companies rearranging their operations and recovering from the COVID-19 impact, which had earlier led to restrictive containment measures involving social distancing, remote working, and the closure of commercial activities that resulted in operational challenges. A gradual re-opening of the European and North American economies with the world economy entering a "new normal" phase in Q3 of 2020 will result in the overall growth of the global paints and coatings sector

Antiviral and Antimicrobial paints will grow. This is already happening as the demand for antiviral and antimicrobial paints has skyrocketed as a result of the pandemic; some of these paints have seen four to five times demand increases this year. We expect that the long-term sustainable demand for these products will be at least twice that of pre-pandemic level. However, the COVID-19 pandemic has severely impacted the market growth in the building and construction sector. Stoppage of all construction projects, movement restriction, production halt, and shortages of labor to contain the COVID-19 outbreak has led to a decline in the growth of the construction industry, which, in turn, is anticipated to hamper the demand for paints and coatings in the architectural and decorative applications in the near future.

2.3. Impact of Make in India

The chemical industry contributes approximately 6.6% of national gross domestic product and accounted for 15-17% of India's manufacturing sector in FY20. The government permits 100% foreign direct investment (FDI) in this sector under the automatic approval route. The manufacturing of most chemical products inter-alia covering organic/inorganic, dyestuff and pesticides is de-licensed. The factors such as boost to specialty (as well as fine agrochemicals) chemicals due to rapid development in construction and agricultural sector, inadequate per capita consumption and strong demand from paints, textiles and diversified manufacturing base shall aid towards the development of Indian chemicals sector.

Frost & Sullivan's analysis indicates that the major indicators like success of Make in India and governments' permit for 100% FDI is positively impacting specialty chemicals segment; pertaining to competitive manufacturing costs, higher investments in R&D, cheaper raw material availability/transport, strong demand from end-use segments, overall supportive ecosystem, etc. Within the specialty chemicals, manufacturing of fine chemicals (pesticide ingredients as well active pharmaceutical ingredients), flavour & fragrance ingredients, surfactants and colorants will be most attractive segments in the next half decade. This is due to their strong growth potential, highly differentiated products and high penetration levels predominantly.

Moreover, India's specialty chemical companies are gaining favour with global multinational corporations because of the geopolitical shift after the new coronavirus outbreak as the world looks to reduce its dependence on China. Increasing tariff levels and changing environmental policies in China along with 'Make in India' initiative and a permit to 100% FDI from India, would add more possibilities of specialty chemicals manufacturing base shifting from China to India. With the rapid globalisation and opening up of the Indian economy, "Intellectual Capital" has become one of the key wealth drivers in the present international trade. Intellectual property rights have become significantly conspicuous on the legal horizon of India both in terms of new statutes and judicial pronouncements. India ratified the agreement for establishing the World Trade Organization (the "WTO"), which contains the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS). Indian Statutes, enforcement provisions and methods of dispute resolution with respect to intellectual property (IP) protection are fully TRIPS-compliant. India has laws covering various areas of intellectual property as Trade Marks, Patents, Copyrights and Related Rights, Industrial Designs, Information Technology and Cyber-crimes, Data Protection among others. Favourable government policies will encourage growth in industry.

The government is also expected to introduce a production-linked incentive scheme for the agrochemicals sector with incentives of 10-20% output and creating an end-to-end manufacturing ecosystem through cluster development. The sector can progress by adopting a multi-pronged approach by leveraging the reforms in rules and regulations as well as 'Make in India'. Indian government has set up a 2034 vision for the chemicals and petrochemicals sector to seize the opportunities to strengthen domestic manufacturing, reduce imports and attract investment for manufacturing key chemicals in the country. The government has taken initiative to promote and facilitate 'Aatmanirbhar Bharat' (self-reliance India) in the chemicals and petrochemicals sector. The

government might relook at the Pesticides Management 2020 Bill as it does not meet the farmer's requirement; most clauses being redrafted from Insecticides Act 1968 and Rules 1971.

2.4. India – Racing Ahead of China

China's specialty chemicals market has seen a downturn in recent years due to various factors. Most prominent amongst these are the recent environmental norms introduced by the Chinese government, which have led to shutdown of a number of chemical plants.

The Chinese government started implementing stricter environmental protection norms from January 2015. With the focus on controlling pollution, the Chinese Ministry of Environmental Protection enforced strict penalties on polluting industries, including chemicals. Some of the major steps taken were:

- Shift towards gas-based power plants from coal-based ones
- Implementation of strict penalties for noncompliance
- Construction of compulsory effluent treatment plants
- Mandatory for all polluting industries to operate from industrial clusters away from habitat
- Small to mid-size chemicals plants to relocate by the end of 2020
- All larger plants must relocate by the end of 2025 and start the process by no later than 2020
- Taxes to be levied on polluting industries based on pollution type, location and severity

As a result of all of the above, the Chinese chemical companies are witnessing a rise in capex and opex costs, making them less competitive in the export market. In 2017, an estimated 40% of the chemical manufacturing capacity in China was temporarily shut down for safety inspections, with over 80,000 manufacturing units charged and fined for breaching emission limits.

Lower Corporate tax rate

India is taking initiatives to boost manufacturing sector. To encourage investment in the manufacturing sector, the Indian government has taken proactive steps, including offering competitive tax rates.

In 2019, the corporate tax rate was reduced in India for the first time in three decades, and the manufacturing sector benefited the most from the slashed taxation rate. For manufacturing firms incorporated after October 1, 2019 and beginning operations before March 31, 2023, the corporate tax rate has been slashed from 25% to 15% (this will amount to an effective tax rate at near 17%, including surcharge and cess).

This lower tax rate has allowed India to compete with ASEAN's emerging economies like Vietnam, Thailand, and Indonesia for foreign investment more effectively. India, however, has an edge over these nations due to its larger market, cheap labor pool, and quick availability of labour.

Ease of Business

India's rank in the ease of doing business index has progressed due to the pro-business reforms which has put the country among top 20 'improvers' according to a list by the World Bank on top 20 economies that have improved the most on ease of doing business core. The country's ranking rose to

63 in 2020 from 130 in 2016. It improved its rank in 6 out of 10 indicators with the biggest change in the 'Construction Permits' and 'Trading across Borders'. Five years ago, China ranked 90th in the report. While in 2019, its ranking climbed to 31st.

External Debt

On comparing debt portion of both the countries, India has low amount of debt as compared to China and even USA. As of Dec 2019, India owes ~US\$ 564 Bn whereas China owes ~US\$2 trillion dollars. This indicates China is a more debt-ridden country as compared to India.

Infrastructure developments in India

In Union Budget 2020–21, the Government has given a massive push to the infrastructure sector by allocating Rs 1,69,637 crore (USD 24.27 Bn) to enhance the transport infrastructure. Government of India allocated Rs 111 lakh crore (USD 1.4 Tn) under the National Infrastructure Pipeline (NIP) for FY 2019–25. Sectors such as energy (24%), roads (18%), urban (17%) and railways (12%) amount to ~71% of the projected infrastructure investments in India. The Government of India is expected to invest highly in the infrastructure sector, mainly highways, renewable energy, and urban transport.

- In April 2020, the Government set a target of constructing roads worth Rs 15 lakh crore (USD 212.80 Bn) in the next two years
- In May 2020, Border Roads Organisation (BRO) achieved major milestone by digging up a 440-metre long tunnel below the busy Chamba town on Rishikesh-Dharasu road Highway (NH 94)
- Indian energy sector is expected to offer investment opportunities worth USD 300 Bn over the next 10 years
- NHAI will be able to generate revenue of Rs One lakh crore (USD 14.31 Bn) from toll and wayside amenities over the next five years
- In the Union Budget 2020–21, the Government has given a massive push to the infrastructure sector by allocating Rs 1,69,637 crore (USD 24.27 Bn) to develop the transport infrastructure.
- Communication sector has been allocated Rs 38,637.46 crore (USD 5.36 Bn) to develop post and telecommunications departments
- Indian Railways has received an allocation of Rs 72,216 crore (USD 10.33 Bn) under Union Budget 2020–21
- Ministry of Housing and Urban Affairs received an allocation of Rs 50,040 crore (USD 6.85 Bn) under the Union Budget 2020–21

Industrial corridor developments in India

11 industrial corridors are expected to come up by FY25 in India, Delhi-Nagpur industrial corridor project development activities are also expected to begin soon. Western Dedicated Freight Corridor (DFC) has been considered as the transportation backbone for the Delhi Mumbai Industrial Corridor (DMIC) project while Eastern DFC is the backbone for Amritsar Kolkata Industrial Corridor (AKIC) project. For other industrial corridor projects like Chennai Bengaluru Industrial Corridor (CBIC) and Bengaluru Mumbai Industrial Corridor (BMIC), NH-4 has been considered as the backbone. For the East

Coast Economic Corridor (ECEC), NH-5 which is part of the Golden Quadrilateral, the Kolkata– Chennai rail route has been considered as the transport backbone.

The proposed North South East-West and East Coast Dedicated Freight Corridors will further supplement the existing transportation backbone for the corresponding Industrial Corridors. State governments have been urged to transfer land to the project SPVs for commencement of project development activities or identify land for conducting the feasibility studies. National Industrial Corridor Development Corporation Ltd is in constant engagement with the States to fructify this development. In a nutshell, industrial corridors are going to get developed with greater pace over the next half decade in the country. With all these development ***India is emerging as a preferred hub for speciality chemicals industry***

Section 3: Paints & Coatings Industry Overview



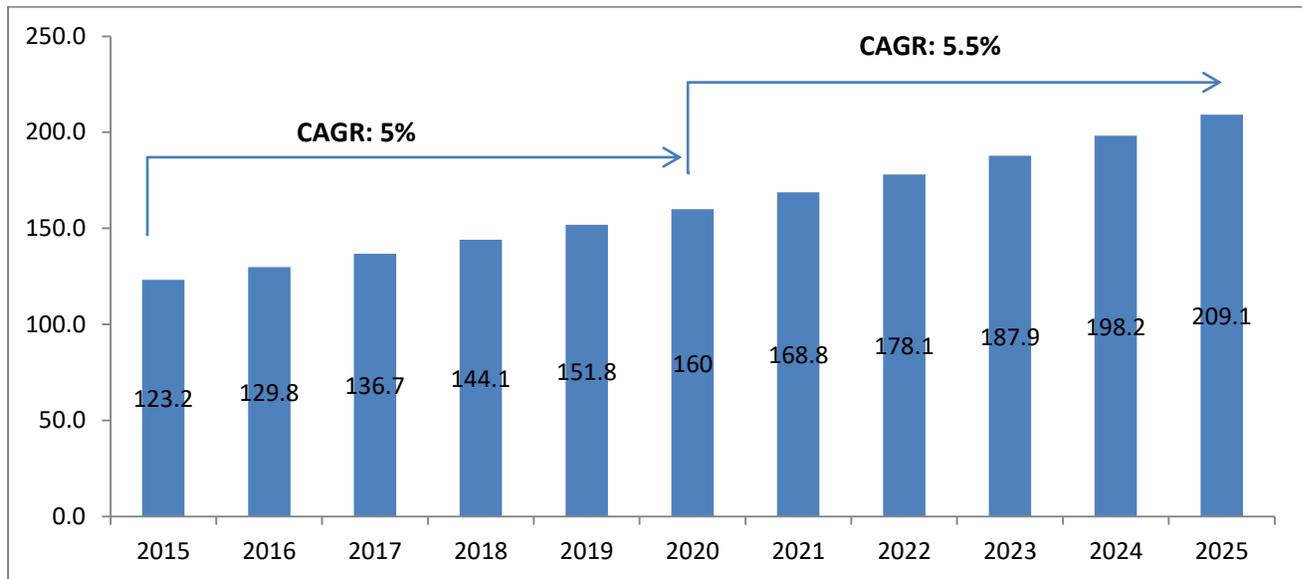
3.1 Global Paints & Coatings industry overview – market size – historical and projected

The worldwide paints and coatings industry is a well-established and stable sector of the global economy. Paint and coatings demand tends to follow overall economic activity, hence GDP per capita and paints and coatings consumption per capita have a significant relationship. The market for paints and coatings is highly reliant on industrial output and construction spending.

Paints and coatings have grown at a constant rate of around 2% each year since the turn of the century. The growth of the global paints and coatings emulsions market is being fueled by an increase in global building construction investment, notably residential development, which is predicted to rise, particularly in North America and Europe.

In 2020, the Global Paints & Coatings market was ~48 billion liters valued at USD 160 billion, with a ~5.5 % compound annual growth rate (CAGR) through 2025. This will be driven by an expected growth in global manufacturing activity and increasing demand for paints and coatings used in the production of motor vehicles, durable goods, and industrial maintenance applications

Exhibit 3.1: Global Paints and coatings market, 2015 to 2025F (USD billion)



Source: Frost & Sullivan

Exhibit 3.2: Paints and coatings market value chain



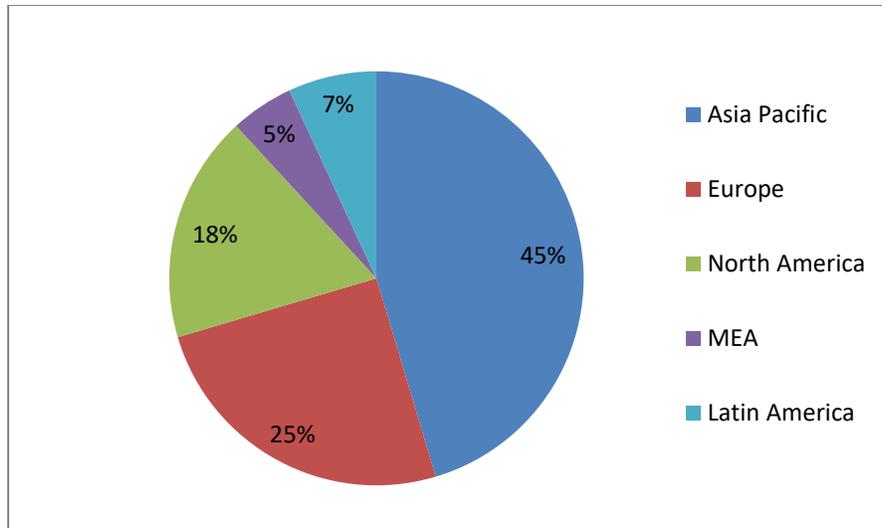
Jesons manufactures coating emulsions that are used as binders in paints and is the top supplier to paint manufacturers.

3.2 Market segmentation by geography – historical and projected

In terms of revenue and volume, Asia Pacific held the largest market share in 2020 and is expected to continue to do so during the projected period. This can be attributed to China's, Japan's, and India's growing building and construction sectors, as well as their automobile industries. The use of paints and coatings in residential and non-residential paints and coatings is driving the demand for them. They have a wide range of uses in terms of wall, window, and furniture design. China is the largest consumer, since the country's expanding population fuels the residential construction sector, which in turn fuels the market's growth. Furthermore, their use in the automotive industry is propelling market value in Asia Pacific.

Europe holds a key position and is expected to have significant market share rise, owing mostly to increased demand from the automotive industry. Due to more disposable income and a plentiful supply of raw materials, Europe is one of the world's main automobile makers.

Exhibit 3.3: Global Paints market segmentation by Geography, 2020, USD 160 billion



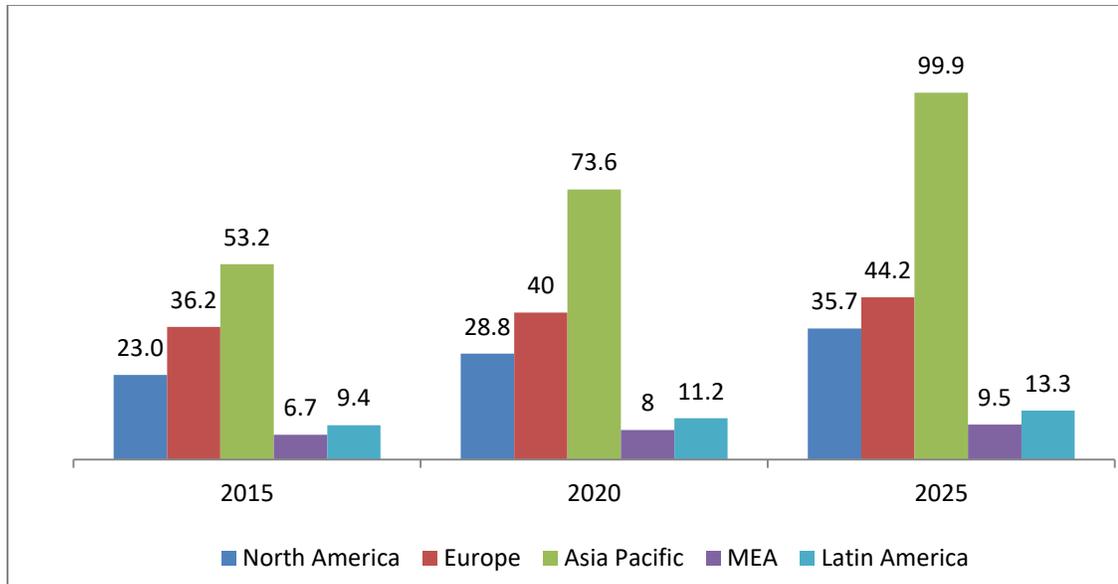
Source: Frost & Sullivan

The United States is one of the world's largest users of paints for automotive and construction applications.. These products are mostly utilized in the United States for the remodeling and refurbishment of existing infrastructures, as well as the production of automotive refinish. Continuous acceptance of novel technologies, rising disposable income, and the consolidation of used automobiles are all factors that will help to the region's market growth.

Colombia, Brazil, and Peru have proposed nationwide infrastructure initiatives in Latin America, which will stimulate investment in the region. The expansion of infrastructure and maintenance spending by the public and private sectors in these countries is helping to propel the regional market forward. Growing industrialization in Brazil may increase demand for architectural paints and coatings, which may assist enhance sales even further.

Over the projected period, APAC is predicted to outperform all other regions, growing at a CAGR of 6.3 %. In the meantime, growth in the European regional market is predicted to pick up to 2% in the same timeframe.

Exhibit 3.4: Global Paints and coatings Industry size by Geography – forecast - (USD billion), 2015-2025F



Source: Frost and Sullivan analysis

Exhibit 3.4A: Global Paints and coatings Industry size by Geography – forecast - 2015-2025F



Middle East and Africa paints & coatings

In 2020, the Middle East paints and coatings market is expected to be worth more than USD 8 billion, with a CAGR of more than 3.5 % expected during the forecast period (2021-2026).

COVID-19 has caused economic instability and lockdowns, resulting in a drop in several end-user industries like construction and automotive. In the aftermath of the pandemic, the automotive industry in the GCC region shrank by about 24% in 2020 compared to 2019. Furthermore, when construction organizations transition to a post-COVID-19 environment, they face a difficult task in ensuring that their staff follows social distance requirements while being productive.

Also, construction companies around the world are deciding whether to close or stay open with strategies to keep workers healthy. However, the markets are slowly opening, which is likely to be an encouraging sign for market growth.

The Nigerian paints and coatings market is growing rapidly, with the increasing government spending on construction and infrastructure. In addition, the FDI inflow into the sector and private investment has increased, which is expected to augment the country's paints and coatings market. In Jordan, upcoming infrastructure and few other residential constructions, along with growth in the automotive sector, is expected to augment the growth of the Jordan paints and coatings market. In addition, automotive is another major industry that is expected to grow in countries, such as Morocco and Algeria, owing to the presence of many multinational OEM manufacturers who are keen to invest and start their production plants in these countries. Therefore, the rest of Middle East and Africa paints and coatings market holds growth potential for the forecast period.

South East Asia paints & coatings

This sub-region includes Indonesia, Vietnam, Thailand, Malaysia, the Philippines, Singapore, Cambodia, and Laos. These markets comprise 10% of the volume and 11% of the value of the Asia Pacific paints and coatings market. Similar to South Asia, these markets offer some good growth potential. The decorative paints and coatings markets in these countries comprise a relatively high percentage of the paints and coatings markets in these countries. Decorative paints and coatings comprise about 70% of the paint and coatings market volume in these countries versus 50% for Asia Pacific as a whole.

Australia and New Zealand (ANZ): These two countries along with the surrounding island countries in the Pacific comprise about 1% of the volume and 1.5% of the value. It is the smallest sub-region. In many ways the paint markets in these countries resemble those of North America and Western Europe with some regional differences.

3.3 Global Architectural Paint market overview

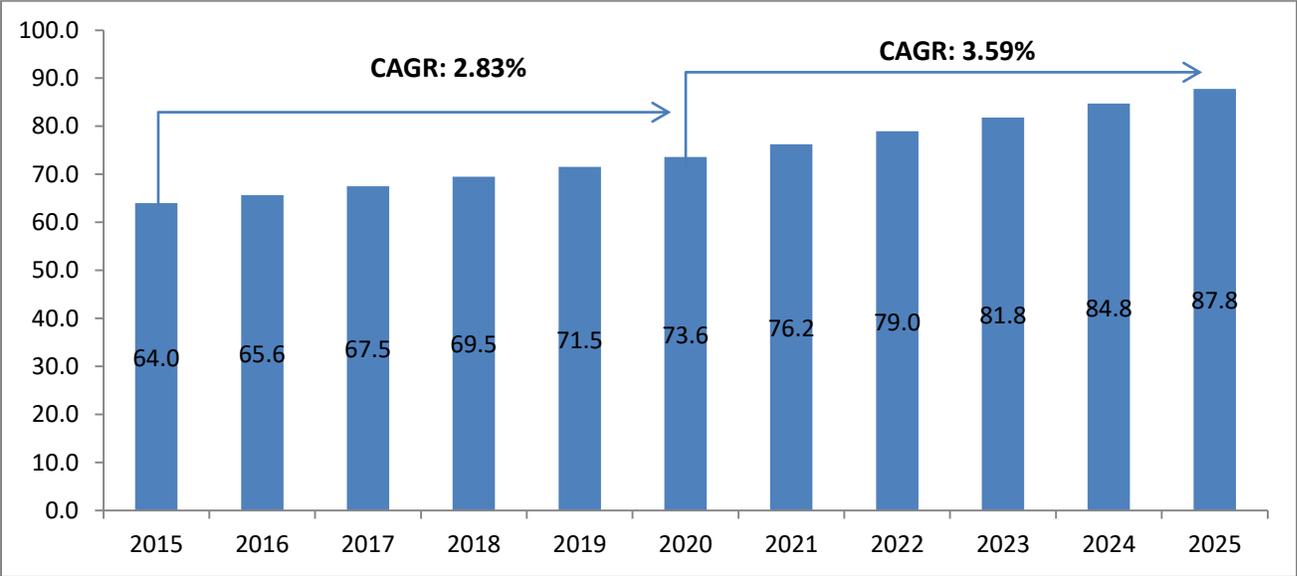
In 2020, the Architectural Paints & Coatings market was valued at 73.6 USD billion and is forecasted to advance 4.5% per year through 2025 to 87.8 USD billion. Architectural paints and coatings are used to decorate and protect new and existing residential, commercial, institutional, and industrial structures the demand for architectural paints and coatings varies with the building and resale markets.

We expect growth in demand mainly to be driven by APAC (which currently holds the biggest share of the Architectural market at 43 % in volume, 34 % in value) due to continued urbanization, and by North America, supported by the continued recovery in the housing market, and demand for remodeling activities.

In terms of end use, the global mix of 'do-it-yourself' (DIY) and professional (PRO) is roughly 40/60 %. Overall, the residential market accounts for 65 % of demand, compared to 35 % for commercial (higher in APAC), while remodelling operations account for roughly 70 % of demand, compared to 30 % for new construction. In both residential and commercial construction, remodelling takes the lead (75%). The 'do-it-for-me' (DIFM) or contractor market has grown in North America at the expense of the 'do-it-yourself' (DIY) sector.

In 1980, the DIY market in the United States was around 60% and the contractor market was 40%. In the United States, the market has flipped, with contractors accounting for 64% and DIY accounting for 36%. Sherwin-Williams is the world's leading architectural paint supplier, with the highest brand awareness, and is the most popular brand among DIY painters as well as contractors and professional painters.

Exhibit 3.9: Global Architectural Paints and coatings market, 2015 to 2025F (USD 73.6 billion)



Source: Frost & Sullivan

The pandemic in 2020 prompted a reduction in new house and nonresidential development over most of the world, causing the paint market to fall in that year. Paint and coatings, on the other hand, are frequently required for housing and nonresidential building construction, which has persisted despite slowdowns and pauses in a number of places throughout the world. A considerable number of homeowners chose to repaint their homes during the epidemic, which boosted the residential market.

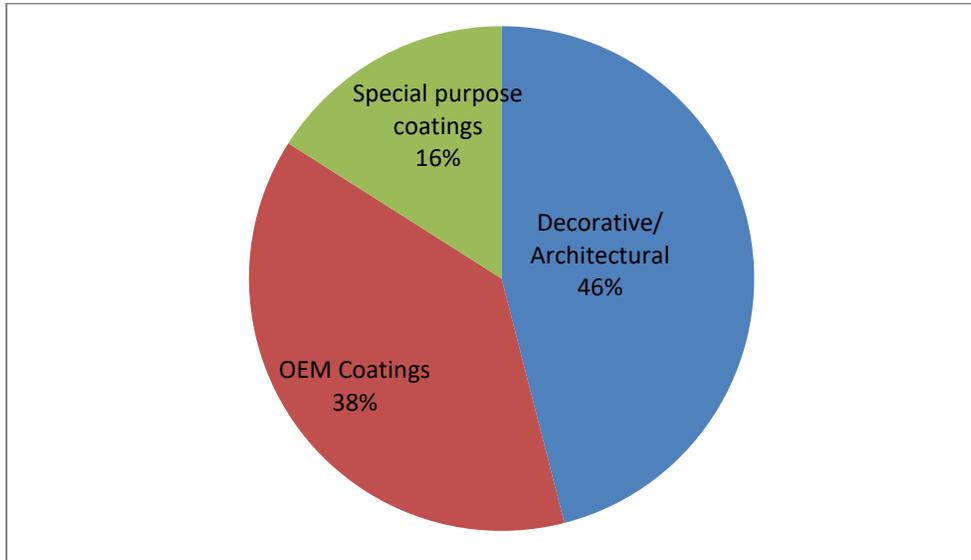
As these markets recover in 2021, demand for paint will rise, which is likely to remain relatively strong in the long run due to continued healthy growth in both residential and nonresidential markets, particularly in developing countries.

3.4 Market segmentation by end-user industry

Decorative paints is the largest segment globally at 46% of the value. Architectural paints and coatings are used for decoration and general maintenance of residential, commercial, institutional and industrial buildings. **They include both interior and exterior paints, are either water-based or solvent-based, and are used mostly by professional painters and Do-It-Yourselfers.**

All the other segments are classified under OEM and Special Purpose (incl. general industrial, auto OEM, wood, protective, marine etc.)

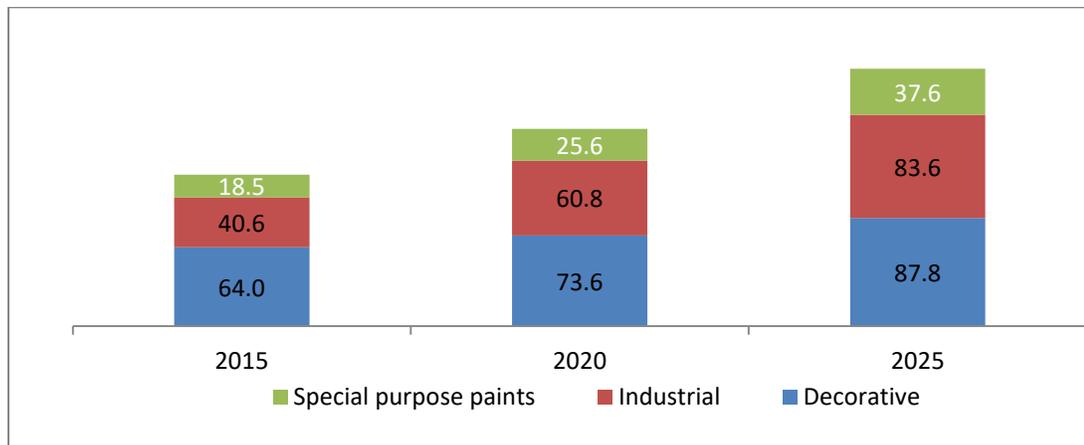
Exhibit 3.5: Global Paints and coatings market segmentation by end industry, 2020, USD 160 billion



Source: Frost & Sullivan

Jesons supplies emulsion primarily to the Architectural/decorative paint category in India as well as globally. The architectural and decorative segment accounted for 46 % of the total value of the global paints and coatings market.

Exhibit 3.6: Global Paints and coatings Industry size by end-industry – forecast - (USD billion), 2015-2025F



Source: Frost and Sullivan analysis

Architectural paints are applied to new and existing residential, commercial, institutional, and industrial structures to adorn and protect them. The demand for architectural paints varies with the building and resale markets. We expect demand to grow primarily due to continued urbanization in APAC (which

currently holds the largest share of the Architectural market at 43 % in volume and 34 % in value) and North America, which will be aided by the housing market's continued recovery and demand for remodeling activities.

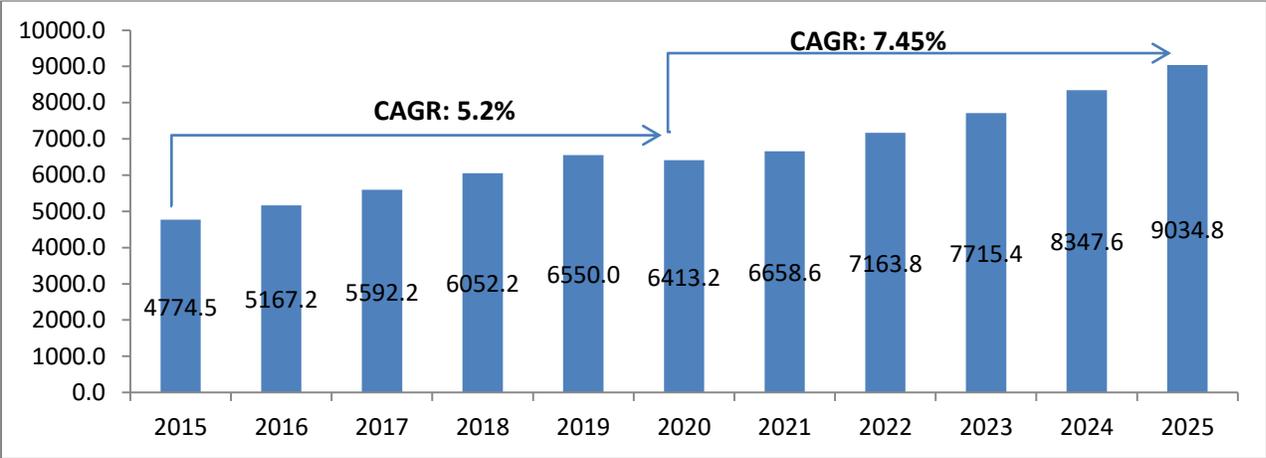
Industrial paints are often distinguished by the fact that they provide both protection and cosmetic features to the coated products. The drop in industrial output that occurred during the recession had a significant impact on demand for industrial paint. However, over the last five years, growth has picked up, owing to rising demand in developing countries and ongoing expansion in Asia (especially China). Much of what drives demand in Industrial paints end markets is influenced by the macroeconomic environment and propelled by rising industrial production. We anticipate that growth in general industrial and industrial wood will outperform that of other industries.

The major end-markets for special purpose paints include automotive refinish, traffic-marking paints, marine coatings, and aerosol paints. Marine coatings are directly related to shipbuilding activity, which is cyclical in nature. Automotive refinish paints are indirectly tied to the number of miles driven and directly tied to the accident rates. Industrial maintenance paints are tied very heavily to construction, maintenance of medium- and heavy duty facilities such as petrochemical and wastewater treatment plants, infrastructure, and oil and gas production—and indirectly tied to the global price of crude oil.

3.5 Coating Emulsions market

The Coating Emulsions / Emulsions market was valued at USD 6,413 million in 2020, and is projected to reach USD 9,035 million by 2025 growing at a CAGR of 7.45% from 2020 to 2025. Asia is expected to be the highest contributor to this market, with USD 1,332.8 million in 2020, and is anticipated to reach USD 1,954 million by 2025, registering a CAGR of 8.51%. Asia and North America collectively expected to account for about 62.6% share of the emulsions market in 2019, with the former constituting around 32.8% share. Asia and Europe are expected to witness significant growth rates at a CAGR of 8.51% and 6.91% respectively, during the forecast period.

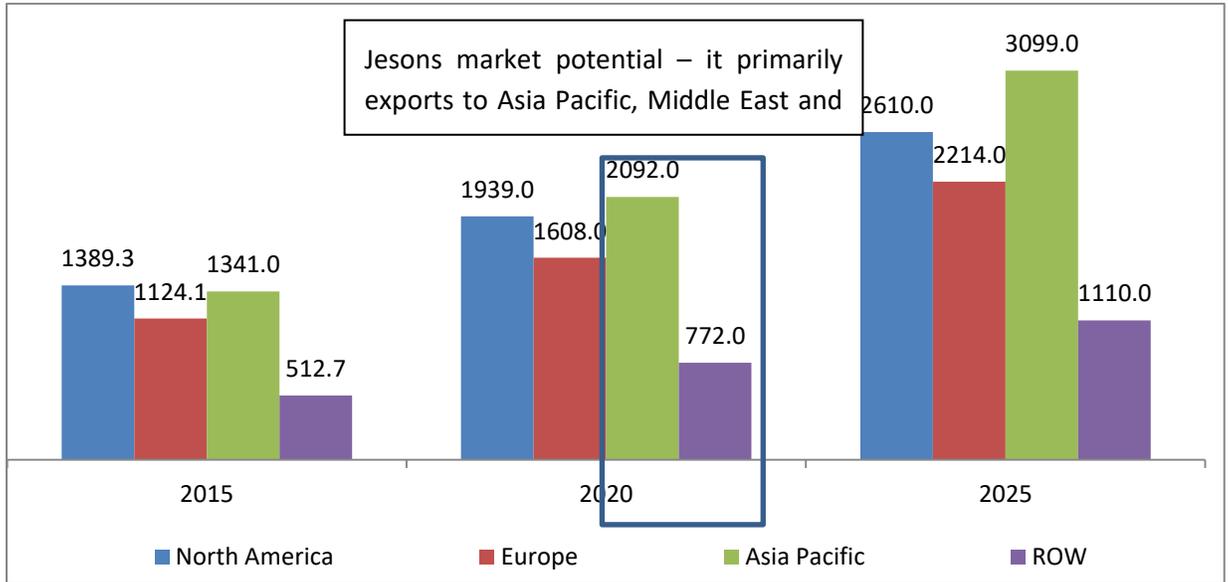
Exhibit 3.7: Global Emulsions Market Value, 2015 to 2025F (USD million)



Source: Frost & Sullivan

Note: Emulsions constitutes 20-25% of a typical paint product

Exhibit 3.8 A: Global Emulsions Market Value, by Geography – forecast - (USD million), 2015-2025F



Source: Frost and Sullivan analysis

Region	North America	Europe	Asia Pacific	RoW
CAGR	6.51%	7.01%	8.74%	8.03%

The major types of acrylic emulsions are pure acrylic, and polymer & copolymer. The polymer & copolymer segment is projected to lead the type segment of the acrylic emulsions market in terms of sales value and volume, during the forecast period. **This is due to the wide usage of these emulsions in the manufacture of water-based coatings for architectural paints & coating applications**

Water based Paints segment is expected to be the highest contributor to this market, with USD 2,778.4 million in 2019, and is anticipated to reach USD 5,018.6 million by 2029, registering a CAGR of 7.10%. Water-based Paints and Adhesives & Sealants segments collectively expected to account for about 70.6% share of the Emulsions market in 2019, with the former constituting around 42.4% share

The Water-based Paints market was valued at USD 2,707 million in 2020, and is projected to reach USD 3723 million by 2025 growing at a CAGR of 7.10% from 2020 to 2025. Asia is expected to be the highest contributor to this market, with USD 872 million in 2020, and is anticipated to reach USD 1,261 million by 2025, registering a CAGR of 8.17%.

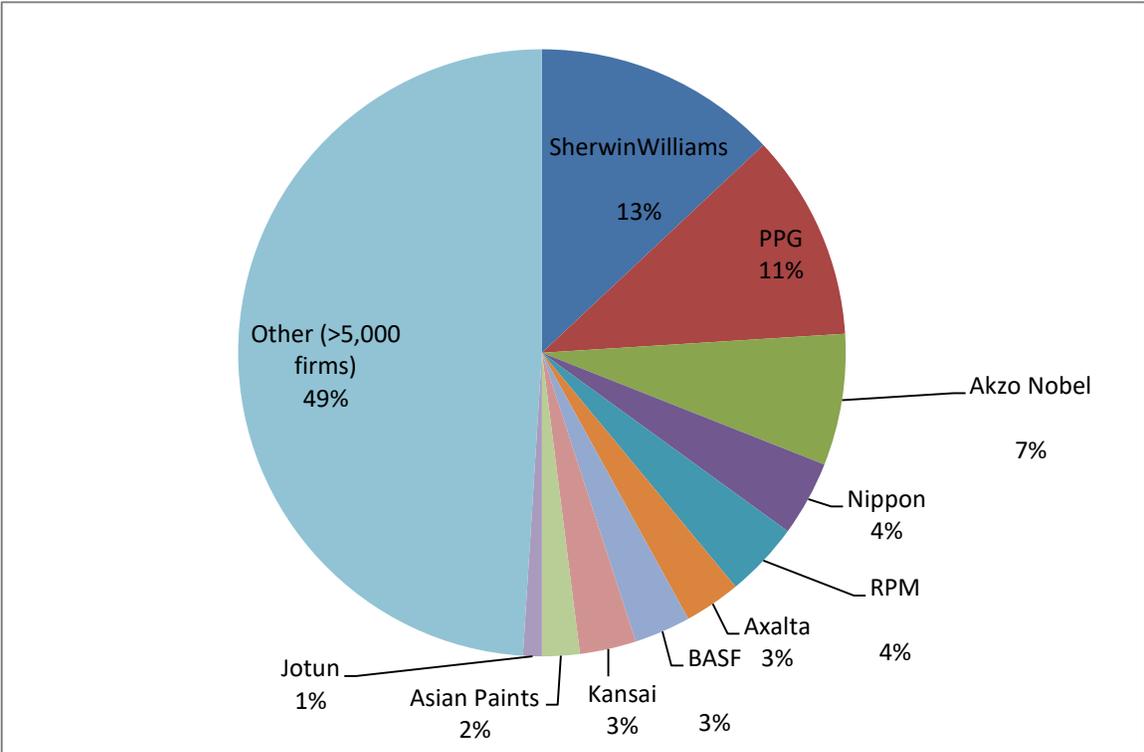
In Decorative Paints segment, Water Based Paints contribute to nearly 75% by value.

Asia and North America collectively expected to account for about 62.4% share of the Water-based Paints market in 2020, with the former constituting around 31.9% share. Asia and Europe are expected to witness significant growth rates at a CAGR of 8.17% and 6.61% respectively, during the forecast period. Presently, share of these two sub-segments is estimated to be around 57.6% in the overall Water-based Paints market in 2020, and is anticipated to reach 59.8% by 2025.

3.6 Competition - Key players and their share in the market

Over the last two decades, the worldwide paints and coatings industry has become highly consolidated, with the top ten suppliers currently accounting for about half of the whole market. Following its acquisition of Valspar, the Sherwin Williams Company ('S-W') has lately risen to the top of the rankings. Mergers and acquisitions ('M&A') have been an important aspect of the paints and coatings industry's strategy in recent years, complementing the industry's strong organic growth. From raw material procurement through manufacture – and from distribution to research and development to supplier consolidation – the advantages of scale can be seen. This is largely due to the consolidation and globalization of paints and coatings custodians.

Exhibit 3.10: Competitive Landscape: Global Paints and coatings industry (USD 160 billion) 2020



Source: Company Websites, Frost & Sullivan

Consolidation has been a prevalent issue in the paints & coatings industry for the previous decade, affecting the landscape and market share of participants. SHW's acquisition of Comex's North American assets, DD's divestiture of Performance Coatings to Carlyle, AkzoNobel's divestiture of its North American architectural paints business to PPG, VAL's acquisition of Ace Hardware's paint manufacturing

assets, PPG's acquisition of Comex's Mexican assets, Nippon Paint's acquisition of Dunn-Edwards, and, most recently, SHW's acquisition of VAL in June 2017

Planned acquisitions

- AkzoNobel is planning to buy Grupo Orbis, a Colombian paints and coatings manufacturer. AkzoNobel will strengthen its position in South and Central America as a result of this transaction. The deal will be completed before the first quarter of 2022.
- Nippon Paint, a firm based in Japan, has created a new product called Nippon Paint projection screen paint. This new product incorporates the brand's exclusive paint film technology and eco-friendly formula, allowing customers to enjoy an entirely new movie viewing experience.
- In Lusaka, Kansai Plascon, a Kansai Paint subsidiary, introduced the world's first anti-mosquito paint. The goal of this product is to assist Zambia in achieving its objectives. This product's aim is to help Zambia to reach its goal of being malaria-free by 2021-end.

3.7 Demand drivers and restraints Global Paints and coatings sector

From a purely economic standpoint, the global paints and coatings industry is doing a good job of growing at a moderate, but predictable, rate; it is consistently – and predictably – profitable; it is not capital intensive; and raw material price increases can, on average, be passed on to end-customers. It's simple to see why the private equity industry has been so interested in buying paint and coatings companies in recent years.

Residential Market Continues to Drive the Global Architectural Paint Market

Residential structures account for the vast majority of demand for architectural paint and coatings, amounting to 73% of the market in 2020. However, residential building construction represented just over half of overall global building construction activity. The residential market's size is attributable to the fact that the aftermarket for architectural paint in residential buildings is much more important than that for nonresidential buildings.

Going forward, the residential market will maintain its dominant position in the global architectural paint market, supported by advances in new housing construction and remodeling activity worldwide.

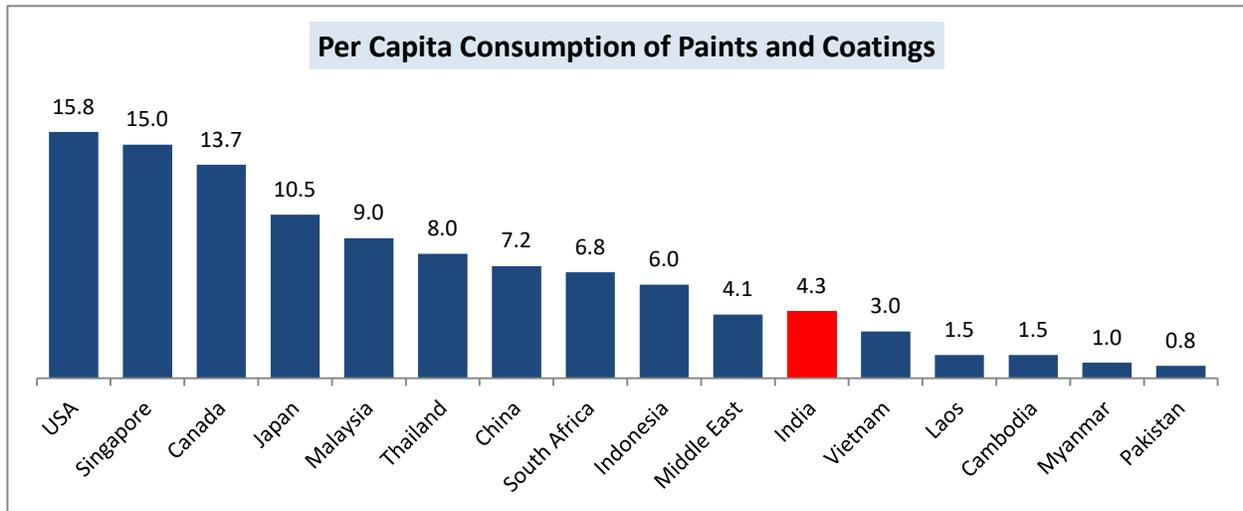
In addition to the strength of the architectural paint subspace, other secondary trends provide optimism for the overall paints and coatings market:

- Packaging coatings (mainly for beverage/food cans) are expected to rise steadily until at least 2022.
- Antiviral and antimicrobial paints will become more popular (some of these paints have seen four to five times demand increases this year).
- As people avoid using public transit, traffic patterns in China and other parts of Asia are returning to pre-pandemic levels. This could lead to increased automobile sales in the future.
- Recreation vehicles (RVs) in North America, paints for bikes, fishing rods and poles, and other outdoor sporting and recreational equipment are among niche paints markets that will do well this year and next year.

There may be opportunities for growth with green or sustainable paints as some of the major governments have been discussing whether to increase environmental regulations

India per Capita Paint Consumption

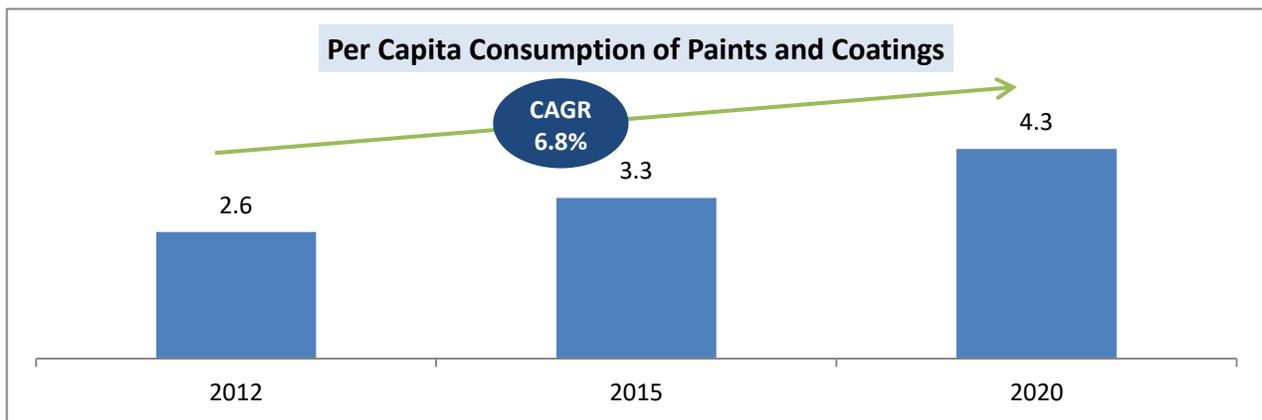
Exhibit 23: India's Per Capita Consumption of Paints and Coatings vs. Key Global Economies (kg), 2020



Source: Bloomberg, Frost & Sullivan

The average consumption of paints and coatings for Asia Pacific is 4.7 kg while that of the developed nations in Asia Pacific have an average consumption of 9.7 kg.

Exhibit 24: Per capita consumption India (kilograms), 2012, 2015, 2020



Source: Bloomberg, Frost & Sullivan

India's per capita paint consumption rose by a CAGR of ~7.0% in the last seven years from 2.6 kg in FY12 to 4.3 kg in FY20. Compared to the global average consumption of ~14-15 kg per capita, India, despite the enormous size of the industry, is far behind. Although the per capita consumption of Paints & Coatings in India is very low as compared to its global counterparts; there is a huge opportunity for market penetration in India.

- The industrial sector aided by impetus in infrastructure, is expected to drive the GDP growth, resulting in increased consumption of paints and coatings

- The increasing GDP per capita and a growing middle class population are expected to raise the per capita paint consumption by 30 – 40% during FY20-FY22
- Increasing urbanization coupled with rise in disposable income is leading to an increased spend on decorative paints

Rising Automotive Production in Asia-Pacific

China, India, Philippines, and Vietnam are turning out to be potential markets for the demand and supply of automobiles, with many automotive manufacturers planning their manufacturing and assembly plants in these countries. This can be attributed to the availability of cheap labor, low raw material prices, and rising urban population in the region. Major car manufacturers, such as Chevrolet, Daimler, Jeep, Audi, Volvo, and Kia have either set up their automotive manufacturing facilities, or are planning to start new facilities in Asia-Pacific in the near future. This in turn, is expected to increase the usage of coatings in the automotive industry to a major extent in the region.

Asia-Pacific expected to dominate the Market Growth

Asia-Pacific had the largest share in the market, accounting for more than 40% of the global market in 2021. Rapidly growing construction industry, primarily in China and India, is a major factor driving the demand for paints and coatings in the region.

Replacement of Solvent-borne with Waterborne Coatings Driven by VOC Regulations

With the European Commission revising the upper VOC limit for architectural paints and varnishes to 30g/l for waterborne and solvent-borne interior flat coatings and primers, and 40 g/l for exterior paints, the customer preference for waterborne coatings has been increasing. In response to this, suppliers are focusing on low-VOC and zero-VOC, as waterborne coatings are expensive compared to solvent-borne ones. This boosts the average price, which in turn drives revenue in the market.

The increase in usage of water based paints creates ample opportunity for emulsions manufacturing companies as emulsions are used in manufacturing of water based paints.

Key Challenges in the global paints and coatings market

Substitution of Coatings with Decorative Concretes, House wraps, and Wallpapers

Substitute materials such as decorative concrete and house wraps do not require frequent maintenance unlike architectural coatings. The necessity of repainting at an interval of 2-3 years for interior applications and 4-5 years for exterior applications makes architectural coatings an expensive option compared to other materials. Customer trends are also moving towards exposed walls in interior design where bricks, marbles, and stone are left untreated and unpainted to gain a raw, historic look in the room. This trend is likely to restrain the demand for architectural coatings in interior wall paint applications.

Highly Mature Western European Market

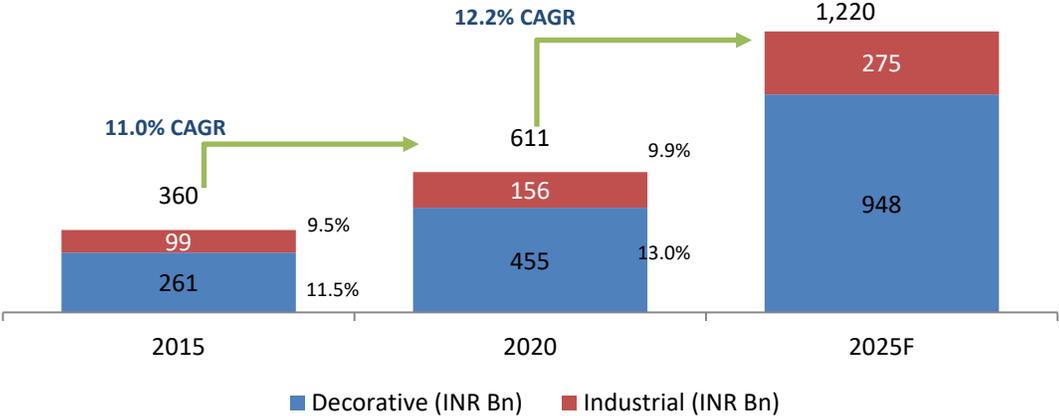
The market demand for architectural coatings in Western Europe is mature, with Germany, France, and Spain being highly saturated markets. The number of residential and commercial buildings that are

expected to commence in the short and medium terms is comparatively lower in Western Europe. This is likely to restrain growth opportunities for architectural coatings in the region.

3.8 Indian Domestic paint industry

The Indian paint industry is one of the key industries holding a decent share in the country’s GDP. The industry has registered a growth at a CAGR of ~11% during 2015-20; ~2x of GDP’s growth rate. The high growth trajectory and the shift of preference toward odour free, and dust & water resistant paints can be attributed to the rise in urbanization, growth in the popularity of branded paints, shortening of the re-painting cycle and robust pricing power prevalent in paint industry. An uptick in demand is expected for both the decorative and industrial paints during the forecast period with the massive infrastructure moves by the Government of India – from roads to ports; from smart cities and urban mission to the Housing for All schemes.

Exhibit 3.11: India Paints Industry Market - by Product Type, Value (INR billion), 2015, 2020, 2025F



Source: Company websites, Coatings World, News Articles, Frost & Sullivan

The decorative and industrial segment split is tilted towards the former with the decorative segment constituting around 74% of the total paint sales; resulting in the paint sector growing at a robust rate even amidst the industrial slowdown.

The Indian Paint Industry currently valued at around INR 611 billion is poised to grow at a healthy rate and is expected to reach around INR 1,220 billion by 2025. There is a strong co-relation between the Indian Paint Industry and the GDP growth of the country. It has historically surpassed India's GDP growth by ~2 times. Going forward, the decorative paint market is expected to witness CAGR of 13% while industrial paint market is expected to witness a CAGR of 9.9% by 2025.

Market Segmentation – by Product Type

Exhibit 3.12 A: India Paints Industry Market - by Sub-product type – Decorative, Value (INR billion), 2015, 2020, and 2025F

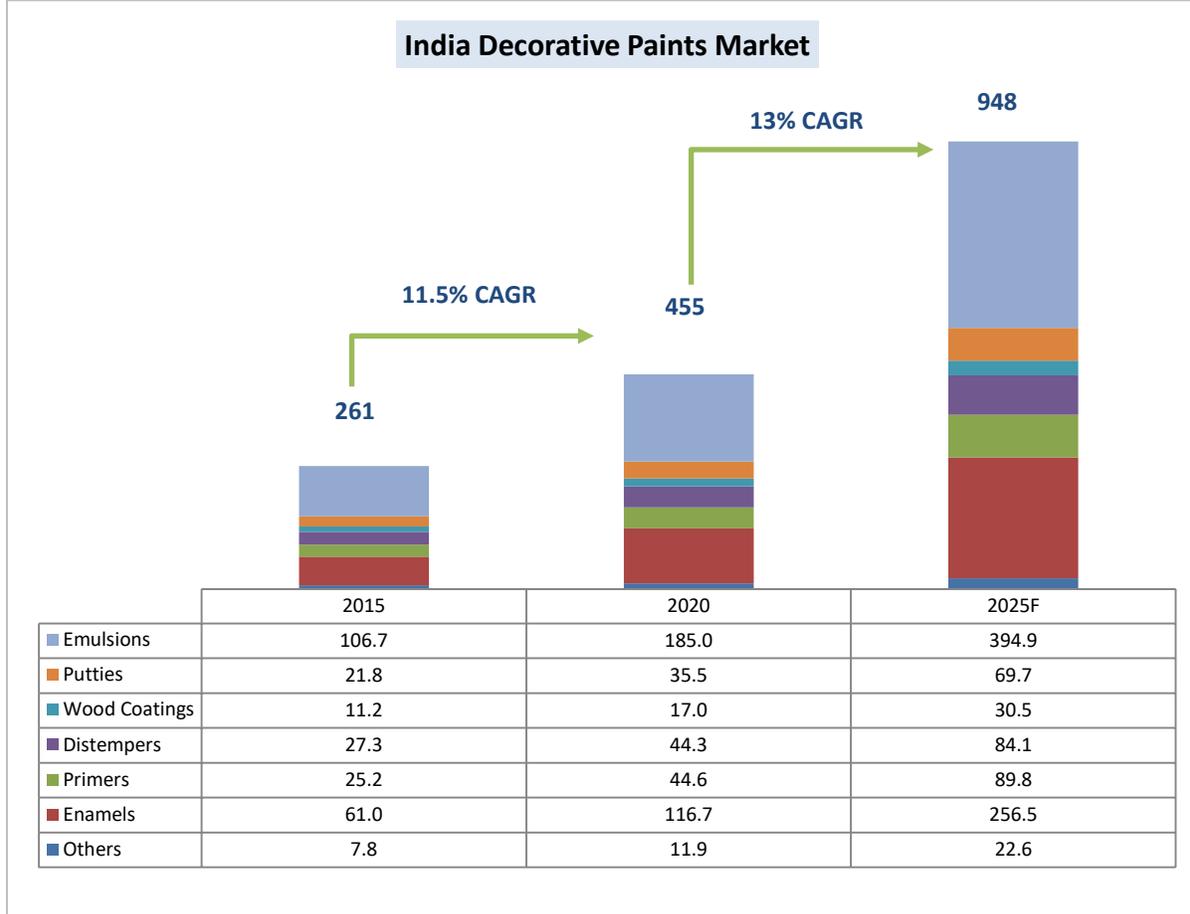


Exhibit 3.12 B: India Decorative Paints Market, Value CAGR (%), 2014-19 and 2019-24F

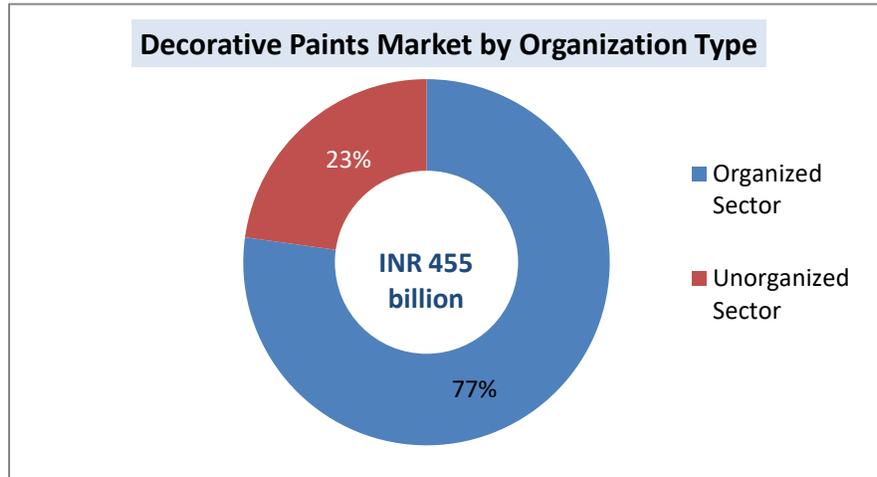
	Enamels	Emulsions	Primers	Distempers	Wood Coatings	Putties	Others
2014-20	13.6%	11.4%	11.8%	9.9%	8.6%	10.0%	8.4%
2020-25F	14.2%	13.6%	12.3%	10.9%	9.6%	11.7%	11.0%

Source: Coatings World, News Articles, Frost & Sullivan

In the past few years, the industry has witnessed a gradual shift in consumer’s preference from the traditional whitewash to a better quality, ‘value for money (VFM)’/’bottom of pyramid (BOP)’ paint, especially in the tier II-IV cities. The demand for putty, distemper, lower end enamels, among others is expected to grow in the coming years.

The Indian paints market is dominated by the decorative market contributing to ~74% of the total paints market. The organized market accounts for the top 10-12 players who make up for 77% of the decorative market share while the remaining 23% is made up of many small players.

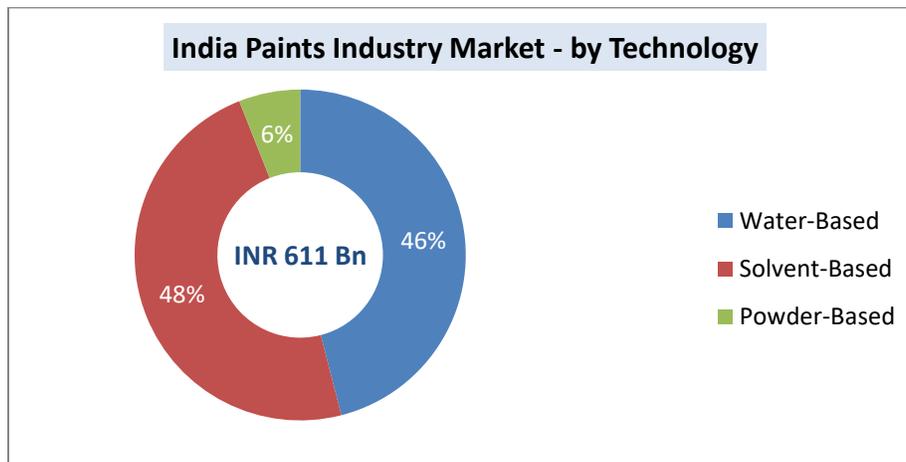
Exhibit 3.13: Segmentation of India Decorative Paints Market by Organization Type, Value (INR billion), FY2021



Source: Company Websites, Frost & Sullivan

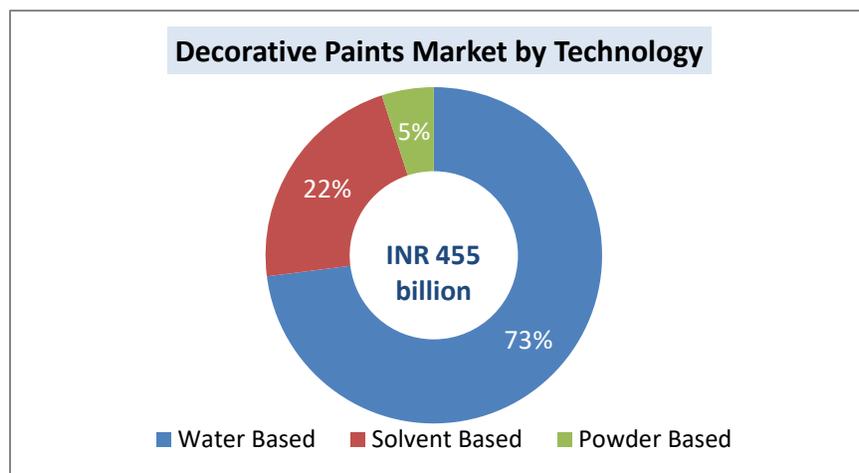
3.9 Market Segmentation – By Technology (Industrial and Decorative)

Exhibit 3.14: India Paints Industry Market - by Technology, Value (INR Bn), FY2021



Source: Coatings World, News Articles, IPA, Frost & Sullivan

Exhibit 3.15: Segmentation of India Decorative Paints Market by Technology, Value (INR Bn), FY2021

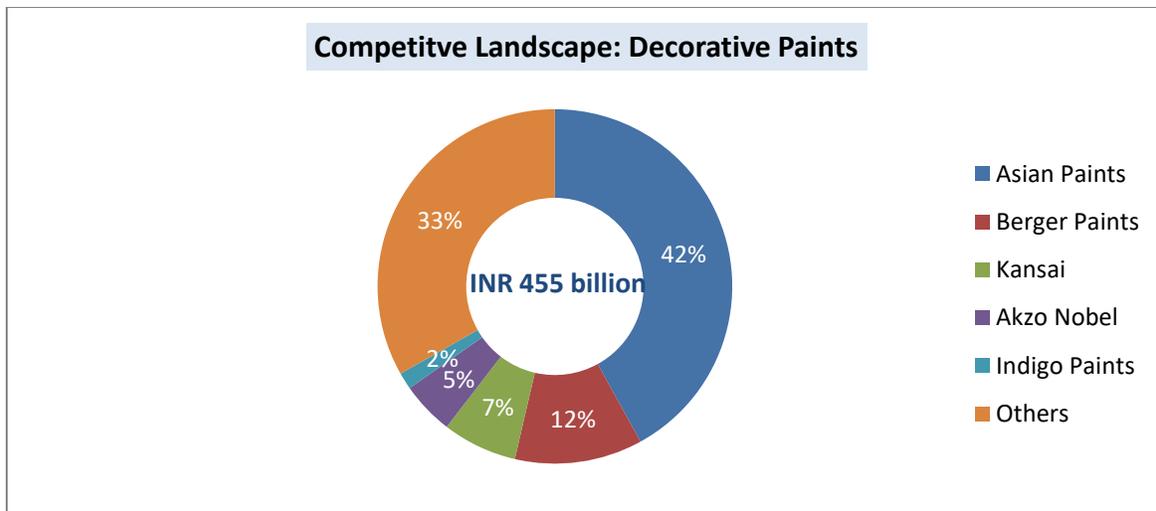


The consumption of water-based paints is rising globally, and the demand is expected to remain high as the Indian paint manufacturers are switching from solvent-based to water-based paints. Currently Water Based Paints contribute to close to 75% of the Indian Decorative Paints segment (in terms of sales value)

The overall fluctuating prices of oil are creating a major pricing issue for paint companies. The slew of recent capacity increases announced by key paint firms is also more concentrated on water-based systems.

The Asian Paints plant in Mysuru, market leader in decorative paints, has 600,000 KL per annum water-based capacity. The company has a greater proportion of water-based paints than its rivals. Likewise, Kansai Nerolac, the pioneer in the industrial paint market, has steadily increased the proportion of water-based paints in its portfolio.

Exhibit 3.16: Competitive Landscape: Decorative Paints (INR billion) FY2021



Source: Company Websites, Frost & Sullivan

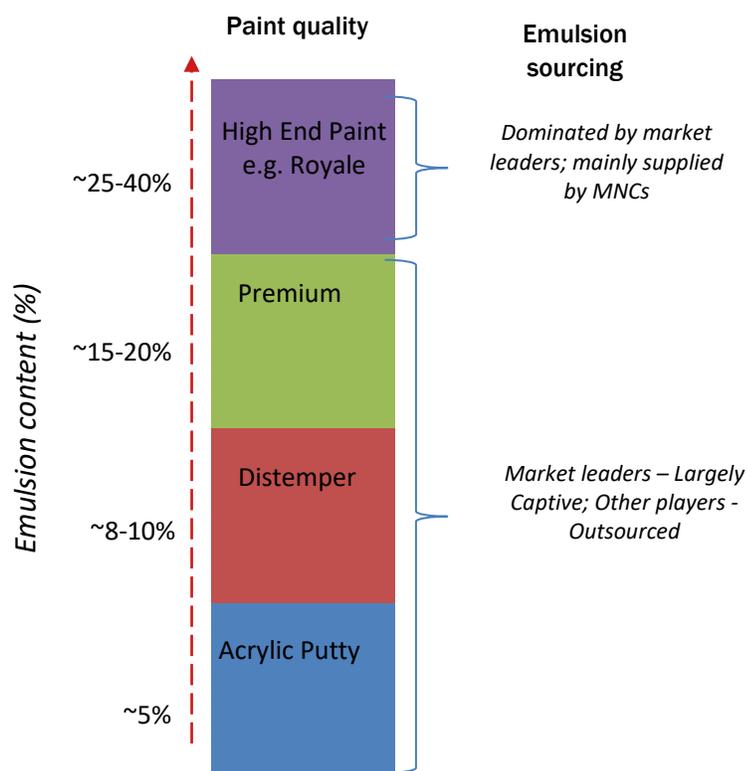
Asian Paints is a market leader in the decorative paints domain contributing to 42% of the total market. The Decorative paint segment accounts for 95-97% of Asian Paints' revenue. Berger Paints follows Asian Paints in the decorative category to become the second largest contributor in the market; Kansai Nerolac falls behind as its revenue is heavily dependent on the Industrial paints industry as well attributing to a 45-50% of its revenue. Akzo Nobel is slowly expanding its footprint in the decorative market by evaluating options in the smaller cities with lower competition. The unorganized sector made up of many small players mainly in tier II-IV cities and rural areas, makes it comparatively easier for bigger players to penetrate into their market by influencing the customers' decisions through their large dealer network.

The other paint companies are Nippon India, Kamdhenu Paints, Jenson & Nicholson Paints Pvt. Ltd. (JNPL), JSW Paints, Jotun Paints, etc.

With a view to tap the current market and expand further, most companies are increasing their product base with new products satisfying consumer demands in addition to offering value-added services to the consumers through specialized and trained applicators, well supported by back end support of specialized service.

The Indian decorative paint industry has been dominated by 4 four major entities, with an aggregate market share of 68% in 2020, as the industry presents significant entry barriers. These market entry barriers include the development of an extensive distribution network through long-term relationships with dealers, the ability to set up tinting machines with dealers, as well as significant marketing costs and the establishment of a distinct brand to gain product acceptance.

Emulsion Sourcing by Paint manufacturers



Larger players have their captive capacities for meeting ~75-80% of their requirements. They source high solid emulsions from players like BASF and Dow.

For other requirements, they mostly utilize their captive capacities or outsource to players like Jesons.

Jesons is expected to be the biggest beneficiary of outsourcing by the new entrants.

3.10 Growth Drivers in the Indian decorative paints sector

Government's 'Housing for All / affordable housing' measures has helped fresh demand for painting and will help re-painting demand in the future

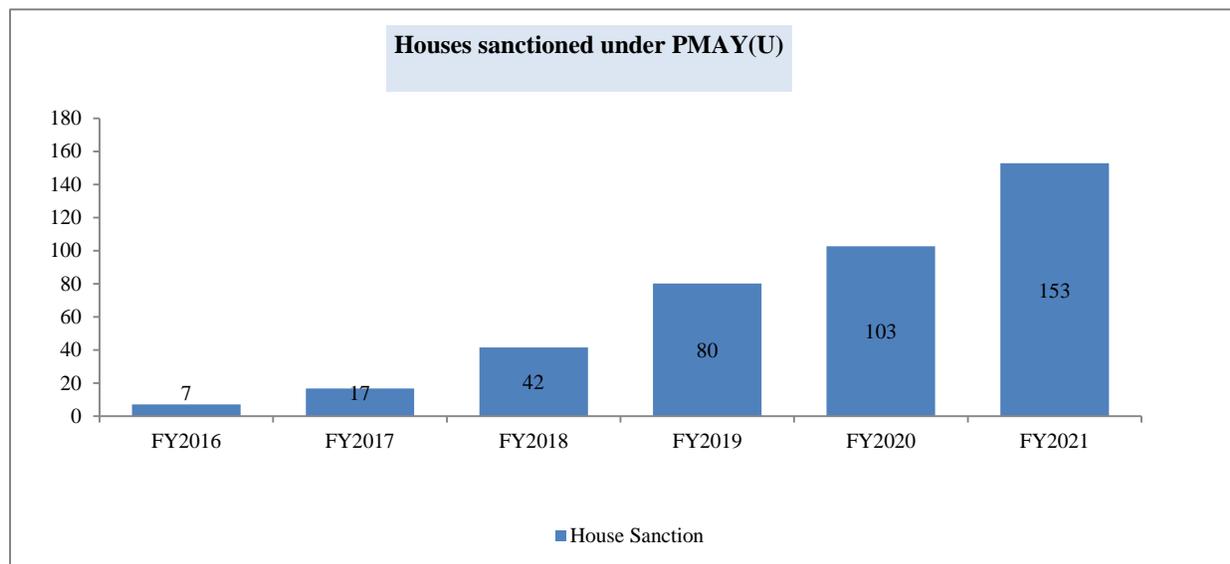
Pradhan Mantri Awas Yojana (PMAY), an initiative by the Government of India ensures affordable house for all in the urban areas with a target of building 20 million affordable houses by 31 March 2022. It has two components: Pradhan Mantri Awas Yojana (Urban) (PMAY-U) for the urban poor and Pradhan Mantri Awaas Yojana (Gramin) (PMAY-G and also PMAY-R) for the rural poor.

Under the PMAY-U, as per the ministry of Housing & Urban Affairs, a demand of 1.12 Cr houses in urban areas has been validated. In FY20, the total number of houses sanctioned under the scheme had crossed 1 Cr and ~57 lakh houses were in various stages of construction; ~30 lakh of which have been

completed. The houses sanctioned under the mission involve an investment of about INR 5,700 billion with Central Assistance of INR 1,600 billion of which INR 600 billion of Central Assistance has already been released.

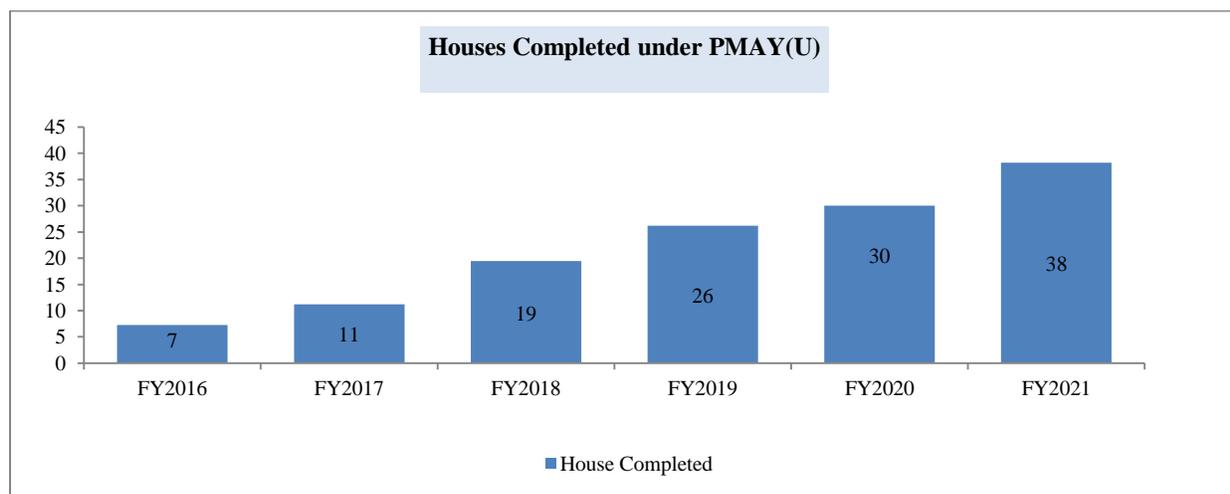
Exhibit 3.17: Year-on-Year houses sanctioned under PMAY(U), India (lakhs), FY16-FY21

Source: Press Information Bureau, Ministry of Housing & Urban Affairs



Source: Press Information Bureau, Ministry of Housing & Urban Affairs

Exhibit 3.18: Year-on-Year Houses Completed under PMAY(U), India (lakhs), FY16-FY21



Source: Press Information Bureau, Ministry of Housing & Urban Affairs

The government has identified 305 cities and towns across nine states for implementing this scheme, named, 'Housing for All'. The selected cities and towns are in Chhattisgarh (36 cities/towns), Gujarat (30), Jammu and Kashmir (19), Jharkhand (15), Kerala (15), Madhya Pradesh (74), Odisha (42), Rajasthan (40) and Telangana (34).

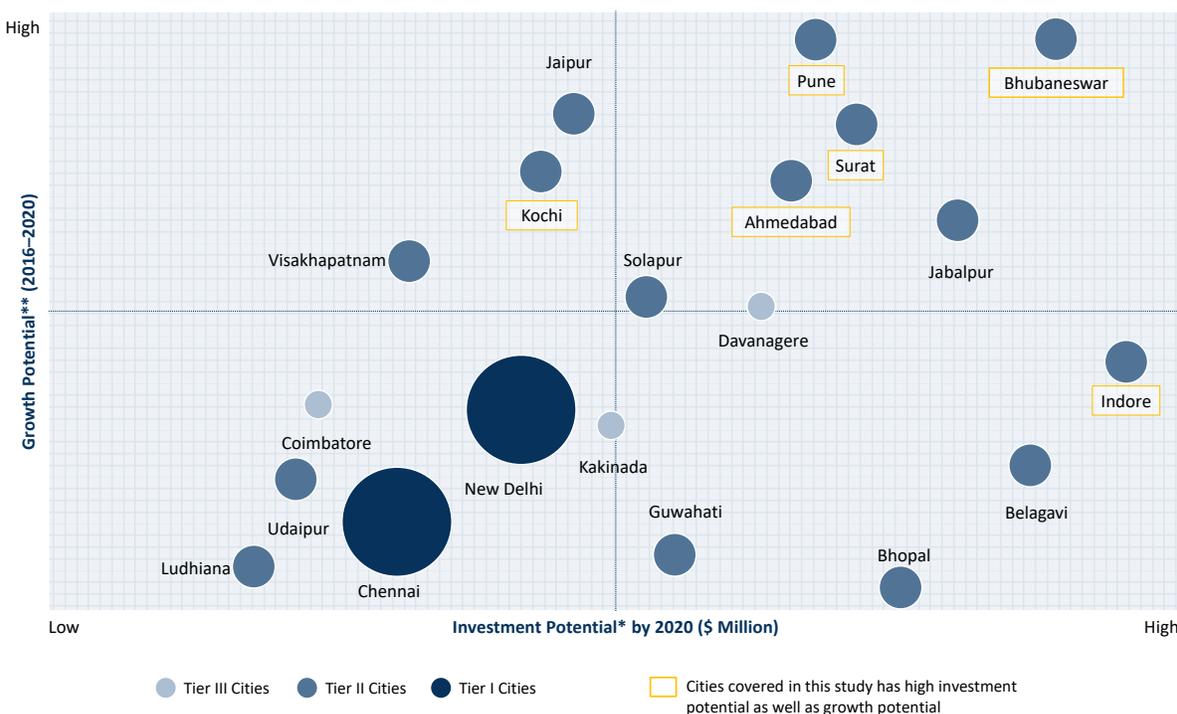
The Ministry has also launched sub schemes like Global Housing Technology Challenge- India (GHTC-India) and Technology Sub-Mission (TSM) to provide the best construction technologies and to facilitate adoption of modern, innovative and green technologies for faster and quality construction of houses. The Government’s initiative on infrastructural development will support the states in deploying disaster resistant and environment friendly technologies.

In addition to this, the construction activity under the scheme has had a huge impact on the other sectors of the economy with a multiplier effect in employment generation. Around 1.2 Cr employments have been generated through forward and backward linkages with about 250 auxiliary industries like, steel, brick kilns, cement, paint, hardware, sanitary etc. These factors indicate a positive impact on the paints industry leading to higher consumption expected till the conclusion of the scheme in 2022.

Smart cities

In order to sustain the rapid urbanization in India, the Government of India/Ministry of Urban Development (MoUD) had launched the “Smart City Mission” in 2015. Through the Smart City Mission, the Government of India had announced its intention to develop 109 cities as Smart Cities by 2020. The construction of smart cities has lead to larger number of commercial and residential complexes being created driving the demand for decorative paints.

Exhibit 3.19: Top 20 Prioritized smart City in India, 2017



Source: smartcities.gov.in; Frost & Sullivan

In January 2016, as per the Smart City Mission guidelines, 20 of the 109 smart cities were prioritized for the implementation of smart city projects

**Economic Growth which includes GDP growth potential, infrastructure investment growth,

*Analysis based on overall proposed investment across 6 sectors (urban development, energy, public services, technology infrastructure, transportation, waste and water management

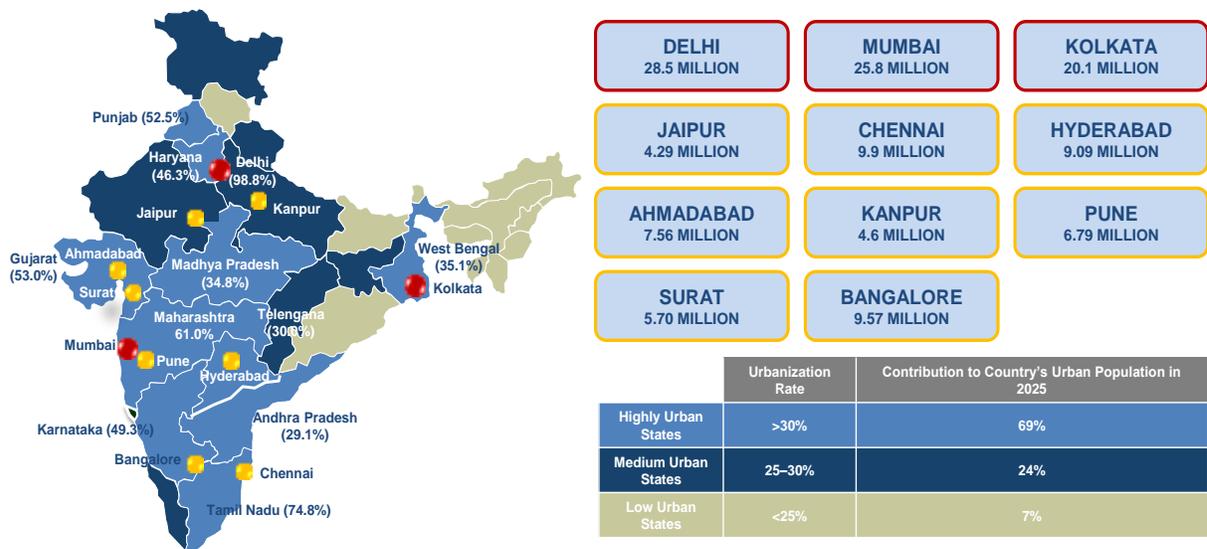
AMRUT - Atal Mission for Rejuvenation and Urban Transformation

The Atal Mission for Rejuvenation and Urban Transformation (AMRUT) had been launched by the Government of India with an aim of providing basic civic amenities such as water supply, sewerage, urban transport, parks to improve the quality of life for all, especially to the poor. Under this project the government will undertake the renovation of 500 cities.

Rapid growth of Urbanization

India's trajectory of urbanization has grown well from 25.6% in 1990 to 34.5% in 2019 (34.9% in 2020). The rise in urbanization, supported by demand for real estate and improved infrastructure, has boosted the paint application. The UN expects that by 2030 ~40% of the population of India will reside in urban areas.

Exhibit 3.18: Urbanization rate of highly Urban states and Mega cities, 2025F

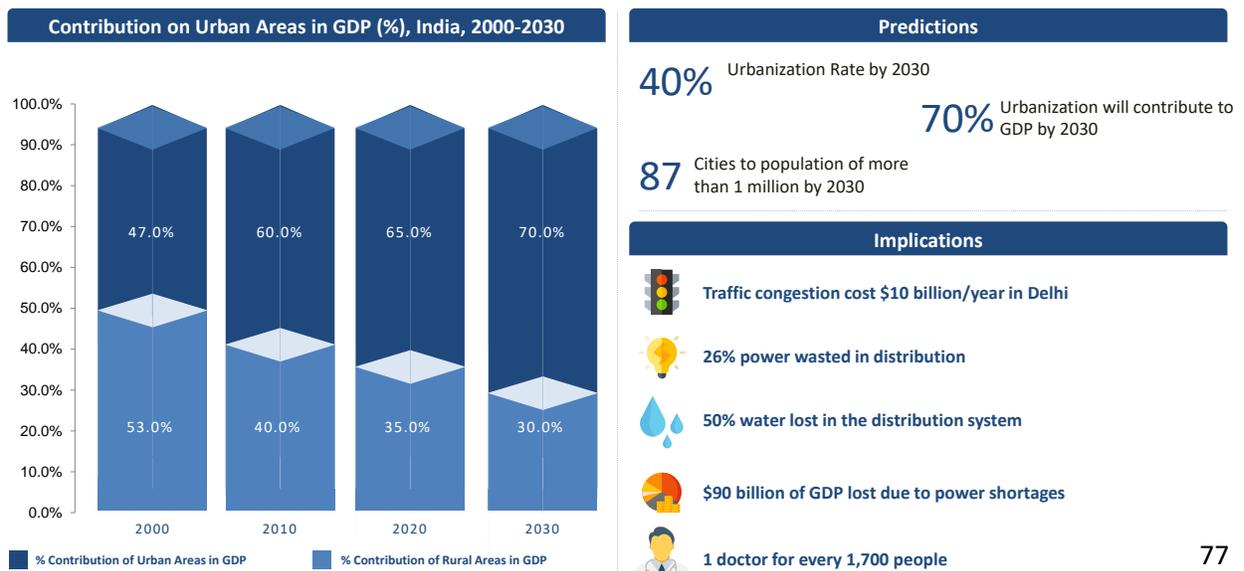


Key: ● Mega Cities in 2025 ● Emerging Mega Cities (over 4 million population in 2025)

Note: Mega City is defined as a city with population of over 8 million and GDP of USD250 billion or more

Source: Department of Economic Affairs, Ministry of Finance, India and Frost & Sullivan, 2011

Exhibit 3.20: Urban Areas contribution to GDP (%), India, 2000-2030F



Source: smartcities.gov.in, UN Population Database (2017 Revision), Frost & Sullivan

Real Estate Sector Growth

2019 has been a raging year for the Indian economy with the retail inflation soars and the GDP slumping to a six year low. However, the residential real estate sector (Top 7 cities) has remained resilient with sales increasing 6% Y-o-Y despite muted consumption expenditure. The sales have exceeded the launches for the first time post 2016 demonstrating the growth potential of the sector. However the situation has become difficult in 2020 in India owing to the impact of the on-going pandemic. Q1 2020 witnessed a slump in sales on Y-o-Y basis as the buyers deferred their purchase decisions in light of the impending crisis, which led to the sales dipping by nearly 30% in Q1 2020 on a Y-o-Y basis.

Exhibit 3.21: Residential Sales in Top 7 Cities, 2016-2020

Residential (in Units)	2016	2017	2018	2019	Y-o-Y 2019	Q1 2020
Launches	128,083	104,145	159,452	136,998	-14%	40,574
Sales	147,584	96,050	136,273	143,923	+6%	27,451

Source: Real Estate Intelligence Service (JLL), National Real Estate Development Council, Frost & Sullivan

Note: Top 7 cities include Delhi NCR, Mumbai, Bengaluru, Chennai, Hyderabad, Pune and Kolkata. Mumbai includes Mumbai city, Mumbai suburbs, Thane city and Navi Mumbai.

At a pan India level, the real estate sector in India is expected to reach USUSD 1 trillion by 2030. By 2025, it has been estimated to contribute 13% to the country's GDP. The real estate stock in India was estimated at 3.7 million sq. ft. (msf) in 2019. Emergence of nuclear families, rapid urbanisation and rising household income are likely to remain the key drivers for growth of real estate.

The commercial real estate did well in 2019 but is likely to be affected post the crisis. The demand for commercial real estate won't evaporate completely as the 'Work from Home' model can't be fully adopted as there are multiple jobs that can't be digitized. The demand for the commercial section is expected from Metros and tier I cities and will largely depend on urban conglomerates as tier II demand has not picked up yet and will take long time to sell. Office spaces have been mostly driven by growth in ITeS/IT, BFSI, consulting and manufacturing sectors.

The sector has been performing well; except for the pandemic and is expected to bounce back in 2021-22. A decent growing real estate sector indicates a growth in demand for decorative paints in the future.

Growth Drivers



Rapid Urbanization: Urban Indian population is expected to reach 600 million by 2030

Affordable Housing Initiative: The government's focus on providing 'Housing for All' will see a growth in affordable houses

Low interest rates: The government is providing low interest rates for affordable housing

Growth of Disposable Income: Increasing urbanization has led to increasing income levels driving the need for houses with affordable amenities

Access to Credit: Government initiatives such as Credit Linked Savings Scheme make credit available for low cost property buyers

Government Reforms Driving the Indian Real Estate Sector



Real Estate Act (RERA) – The Act aims to increase the transparency of transactions and infuse accountability. It also aims to proactively address the concerns of different stakeholders including buyers, developers and investors through a dedicated grievance forum



Goods and Services Tax (GST) – This aims to remove multiple layers of taxation and implement a unified tax economy. It is expected to trim construction costs



Indian Accounting Standard (Ind AS) 115 – This mandates real estate firms to move from %age completion methodology to project completion methodology. Under the new rule, developers can show revenue in their books only after the project is complete and the property is handed over to the buyer



Insolvency and Bankruptcy Code (IBC) – This framework enables on time recovery of loans and mandates stakeholders to resolve bad debts which have negatively affected the several leading banks in India



Real Estate Investment Trusts (REITs) – Allows companies to look for alternate source of investments and fund raising avenues. In 2017, SEBI allowed mutual funds to invest in REITs

Currently, there have been fewer options available in the value added sub category and mainly in the premium price ranges; however, with an increasing demand for these products, the companies are likely to launch more specialized products

Covid's positive impact on paints health and hygiene segment

The Covid-19 outbreak prompted Berger Paints to introduce 'Silk Breathe Easy Emulsion' (Ghar ka Sanitizer) under their category of home health & hygiene, which reduces contamination and destroys bacteria. The focus to bridge the gap between the customer's needs and availability with these differentiated products has helped Berger Paints to improve its market identity as well as its top-end premium portfolio.

In response to the Covid-19 pandemic and in an effort to strengthen its foray into the currently nascent 'Health and Hygiene' play, Asian Paints launched hand sanitizers and surface disinfectants recently under the brand name of 'Viroprotek'. The product is being manufactured at the company's plant at Ankleshwar, Gujarat and it is taking steps to set up additional capacity for these products at the plant at Rohtak, Haryana.

Many players have launched anti-microbial paints etc. to capitalize the opportunity arising from the Covid-19 pandemic.

Jesons is expected to be the biggest beneficiary of outsourcing by new entrants, New age players like Indigo, JSW and Aditya Birla which outsource 100% of their paint emulsions needs.

Trend of outsourcing

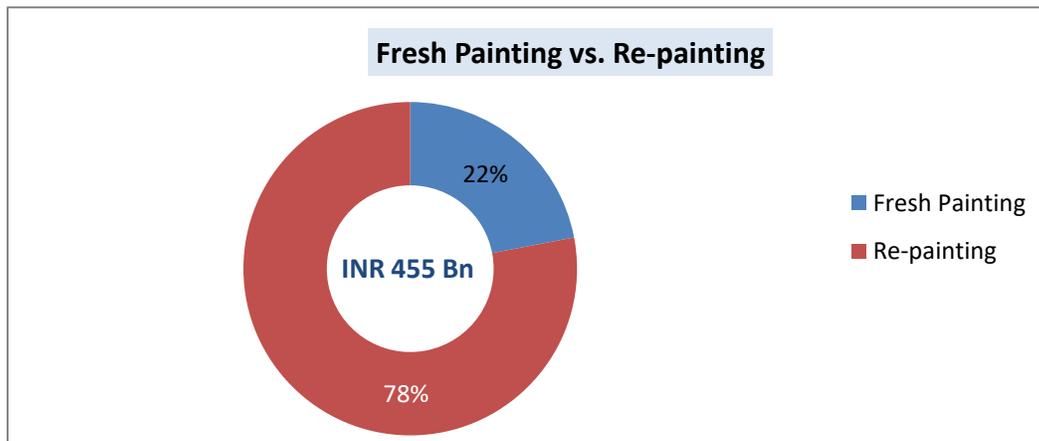
Larger players have their captive capacities for meeting ~75 -80% of their requirements:

- They source high solid emulsions from players like BASF and Dow
- For other requirements, they mostly utilize their captive capacities or outsource to players like Jesons
- Players like Asian paints, Kansai and Berger have captive capacity to produce emulsions and meet majority of their requirements in-house.
- Players like Akzonobel, Indigo Paints, Nippon, JSW and Aditya Birla completely outsource their emulsions requirements.
- Jesons is expected to be the biggest beneficiary of outsourcing by new entrants

Growing demand for fresh painting in India

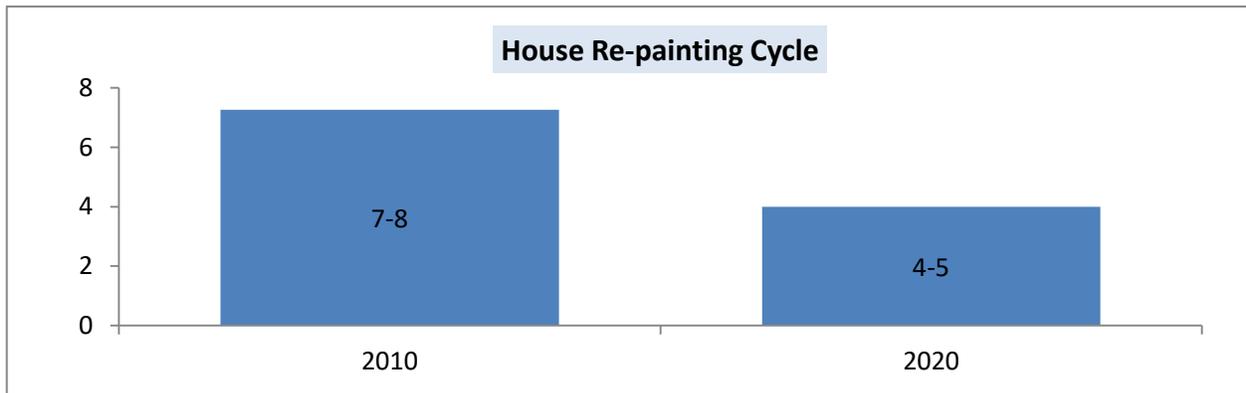
Fresh painting accounts for ~22% of Decorative paint demand. Within the 22% fresh painting, the share of unorganized players tends to remain high as not all builders provide high quality paints in newly constructed houses. Some builders opt for low-quality distempers (mostly purchased from unorganized players) with an opinion that the buyers will either get interiors done or repaint their houses as per their choice. Hence opting for local paints helps builders reduce cost of construction. This leads to incremental demand of repainting using better-quality paints (mostly emulsions). Re-painting represents ~78% of demand in the decorative segment in India.

Exhibit 3.22: Segmentation of India Decorative Paint Market, Fresh vs Re-painting, Value (INR Bn), FY2021



Source: Livespaces, Company Websites, Frost & Sullivan

Exhibit 3.23: Indian Household Re-painting Cycle Reduction in years, 2010-2020



Source: Frost and Sullivan

In the last decade, the average re-painting cycle has gradually reduced from repainting the house from an interval of 7-8 years in 2010 to 4-5 years in 2020 (Interior painting majorly). Earlier the major factor for re-painting the house was the life of paint coat i.e., repainting was done only when paint withered. However this trend has been changing gradually with some consumers giving more importance to aesthetics, change in looks and appearance of their premises at regular intervals even while the condition of the existing paint is good. These consumer behavioural changes have led to reduction in re-painting cycle.

Small unorganised paint manufacturers primarily catering to the lower end of the price points still maintain a sizeable 30- 35% share in the overall paint industry.

3.11 Jesons' Industries presence across key end use segments

Jesons is one of the leading specialty coating emulsions supplier to the Indian paint sector with about 30% market share in the segment in FY21 (in terms of sales value). Jesons also exports its various products to more than 50 countries, with strong presence in Asia Pacific, Middle East and African Market. Other large players in the market are Visen, BASF and Dow. With a strong global presence and specialty coating emulsion supply to leading paint companies in India and overseas, Jesons has huge potential to tap into global coating market which is valued at USD 6.4 billion in 2020.

Jesons key products in the emulsions sector - Styrene acrylic, pure acrylic, VAM acrylic, VAM VEOVA, PVA, opaque polymers. It exports to more than 50 countries across SE Asia and MEA

Jesons' USP to tap the market potential

- Multi -location facilities with strong distribution network to cater to demands of clients from varied geographies
- Proven ability to supply to large players -Recently acquired Asian Paints and AkzoNobel
- Focus has been on SME segment since the bargaining power of Jesons is high, and it provides higher margins
- Available infrastructure and capability to cater to large clients

- New entrants completely rely on outsourcing, Jesons is expected to be the biggest beneficiary of outsourcing by new entrants
- Distinct ability to supply to both SME players and large players
- Strong customer relationships along with personal relationships focusing on fulfilling client commitments
- Robust track record of introducing new products

Section 4: Adhesive Industry Overview



4.1 Global Adhesives Industry Overview

The global adhesives and sealants market is set to gain traction from the increasing adoption of adhesive tapes by engineers from numerous fields, especially aviation and automotive. These tapes can be drawn into films and can be formulated with multiple viscosities.

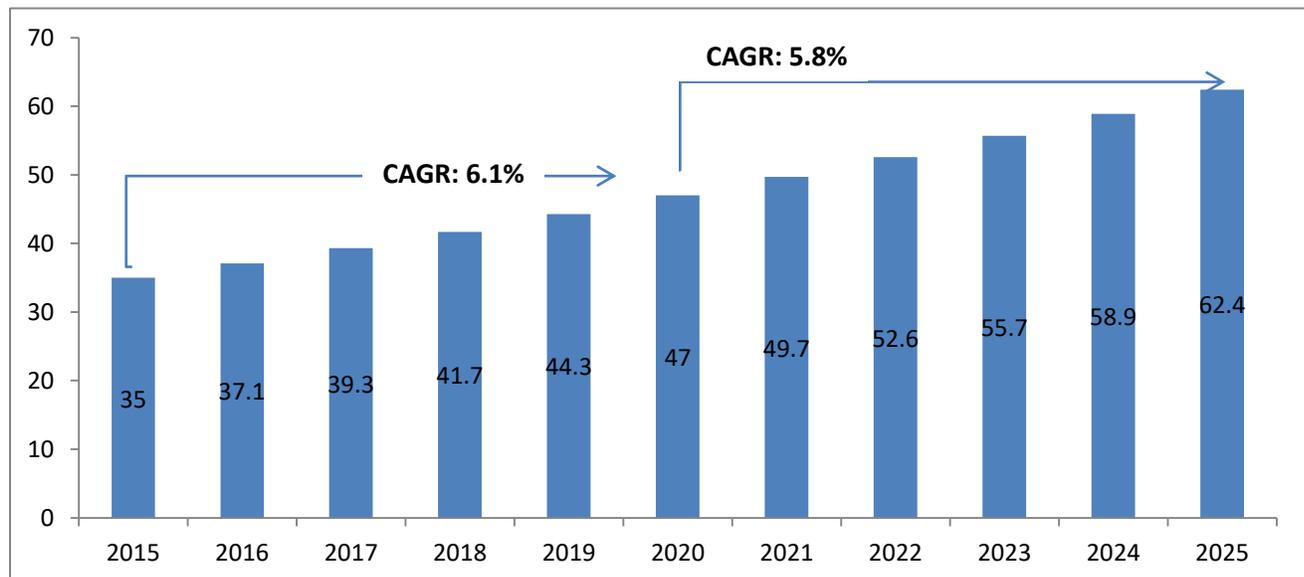
The global Adhesives market is valued at around USD 47 billion. The global Adhesives market is expected to grow at 5.9% CAGR; reaching USD 63 billion by 2025.

Global adhesives market is expected to rise pertaining to increasing demand from construction industry. The adhesives are used as an alternative to joining materials and sealants are used as mechanical seal for blocking fluid passage owing to wide demand for adhesives and sealants from construction industry. The industry is rising globally pertaining to construction of hospitals and quarantine centres due to coronavirus outbreak.

The demand for low cost flexible packaging has been consistently increasing in Asia Pacific, owing to a steady rise in food exports and growth in the food processing sector. In addition, the change in lifestyle and workplace habits and shifting preference toward modern food habits are increasing the demand for packaged foods hence driving the demand for PSA used in the packaging sector.

Online retail shopping has increased at a higher rate, with growing internet technologies and web applications, which has largely supported the growth of the packaging industry.

Exhibit 4.1: Global adhesives market, 2015 to 2025F (USD billion)



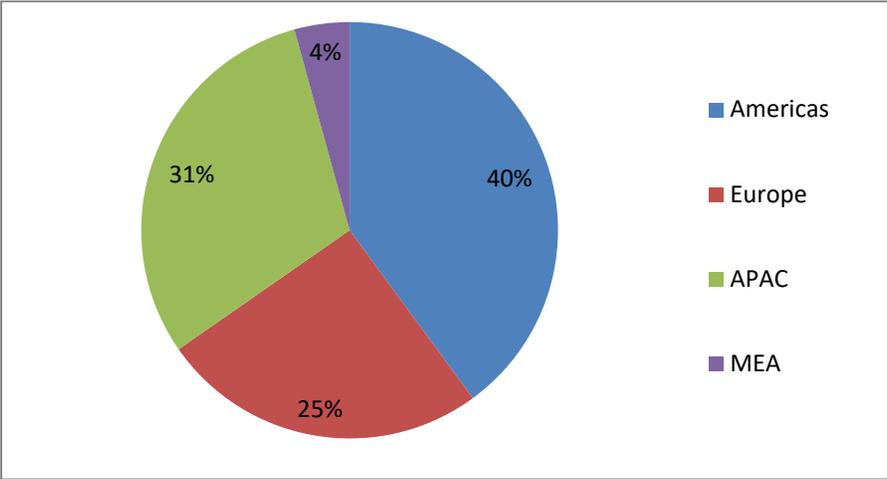
Source: Frost & Sullivan

4.2 Market segmentation by geography – historical and projected

Geographically, Asia Pacific is anticipated to remain at the forefront throughout the forthcoming years. The region held USD 14.3 billion in 2020 in terms of revenue in the market. Its forecasted to grow at the

highest CAGR globally at 7.9%. The high demand for these products from the automotive industry is set to boost growth. In North America, a surging shift of manufacturers towards eco-friendly and recyclable products would drive growth. Europe is anticipated to show significant growth because of the high demand for green adhesives and sealants.

Exhibit 4.2: Global Adhesives market segmentation by Geography, 2020, USD 47 billion



Source: Frost & Sullivan

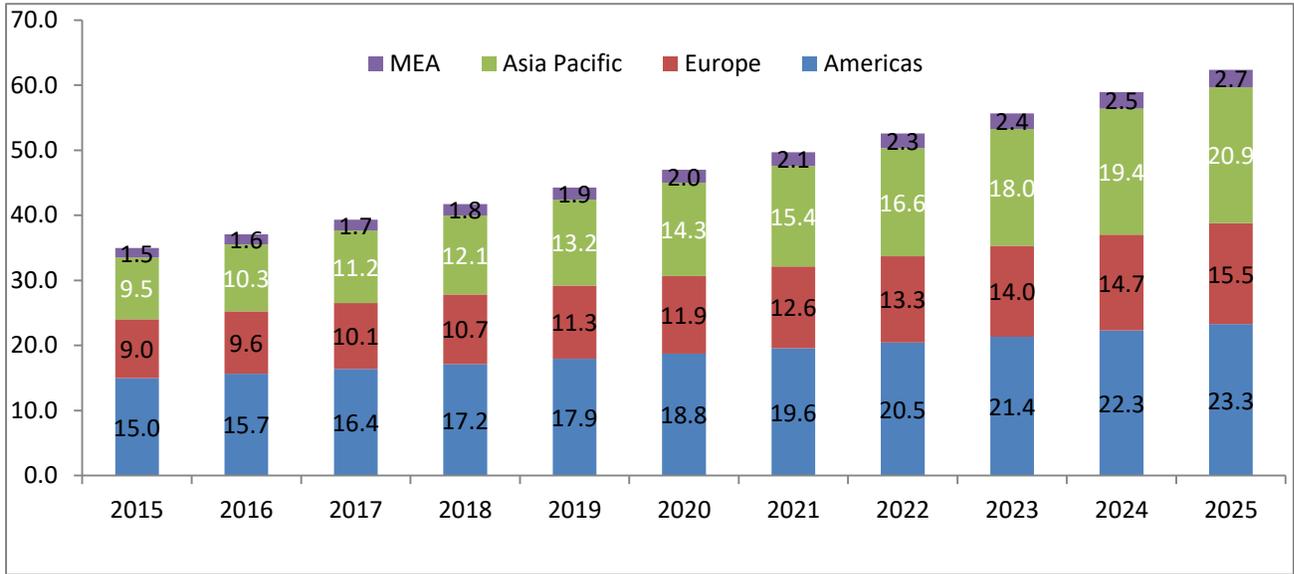
The Americas and APAC will concurrently dominate in terms of volume consumption and revenue contribution during the forecast period, with annual volumes and revenue expected to exceed 2 million tonnes and USD7.45 billion, for both regions.

Major end-use industries consuming packaging adhesives, electrical and electronic adhesives and sealants, and manufacturers of industrial machinery are dominant in the Americas and APAC, followed by Europe. This makes the regional consumption of industrial adhesives and sealants relatively high as compared to that in MEASA.

Biodegradable and sustainable products and recycling technologies, premium end-use requirements, and regulatory requirements demanding products that provide more HSE benefits are more prevalent in North America and Europe, which favorably drives the price growth in the two regions

Although India is a major contributor to the MEASA demand, its end-use industry size is limited compared to other regions, considerably restricting regional consumption.

Exhibit 4.3: Global Adhesives Industry size by Geography – forecast - (USD billion), 2015-2025F



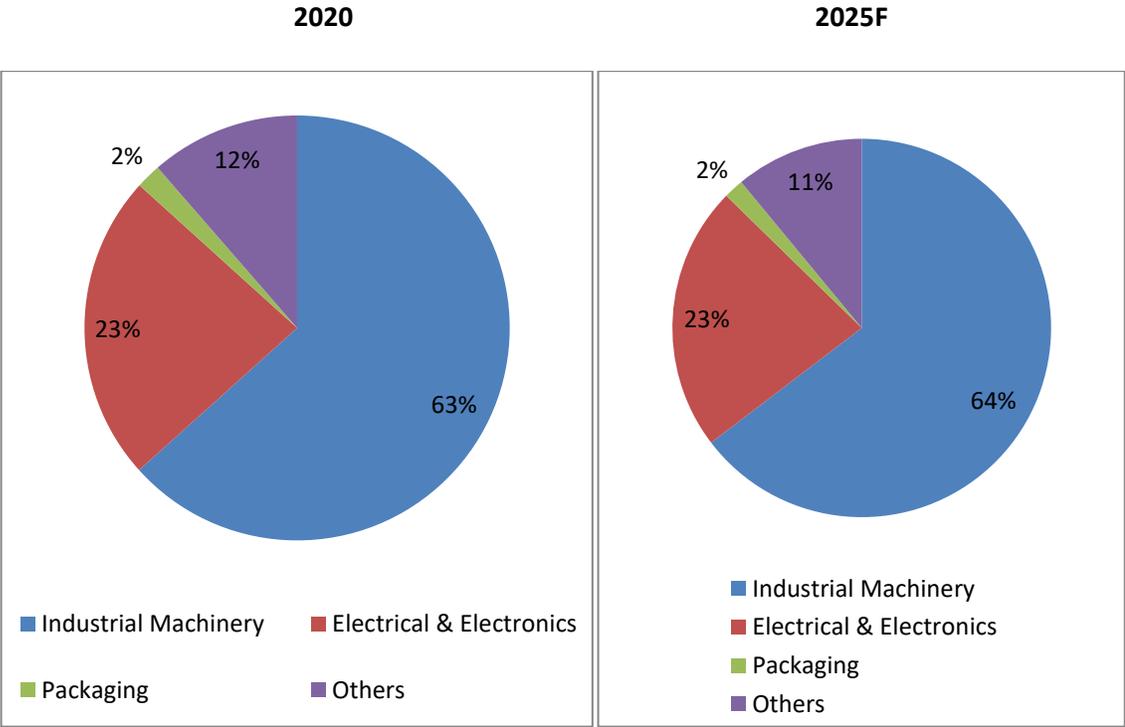
Source: Frost and Sullivan analysis

4.3 Market Segmentation– by Application/Industry Type

A wide variety of packaging requirements from FMCG, healthcare and hygiene, food and beverage, PPE, and eCommerce, translates into packaging applications becoming a dominant consumer of industrial adhesives.

Industrial Adhesives and Sealants in Packaging

Exhibit 4.4: Global Adhesives Market, 2020, Split by Application Industry 2020, 2025F (USD 47 billion)



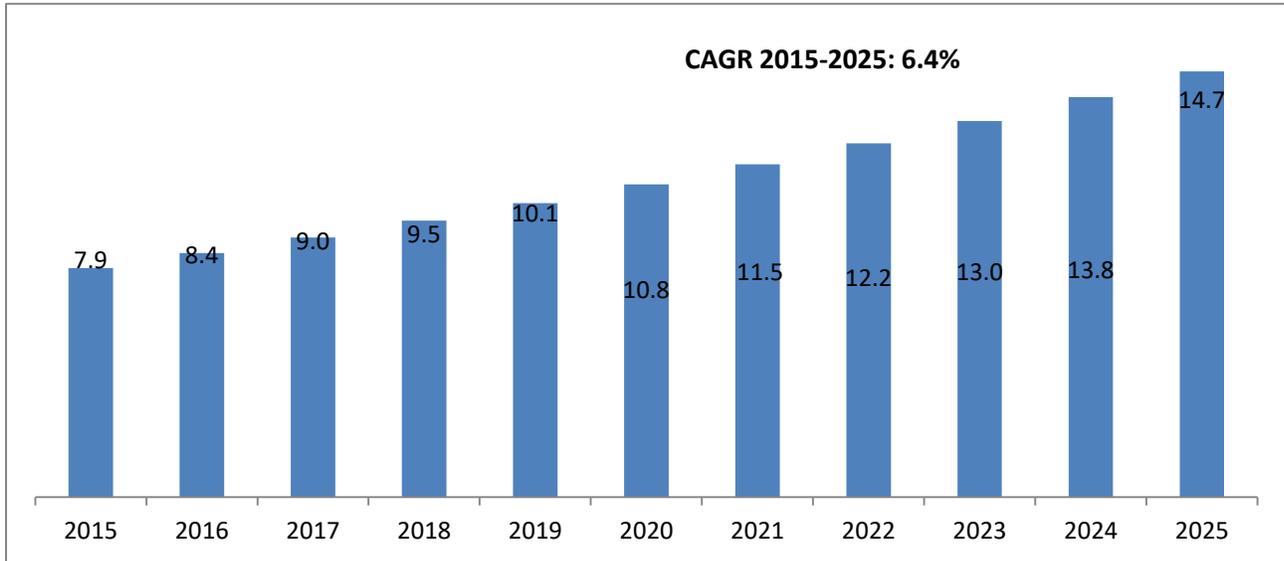
Source: Frost & Sullivan research & analysis

Jesons caters to the packaging end application for specifically into water based solvents

4.4 Product-wise market overview (market size – historical and projected)

The global pressure sensitive adhesives market was valued at USD 10.8 billion in 2020, and is projected to reach USD 14.7 billion by 2025 at a CAGR of 6.4% from 2015 to 2025.

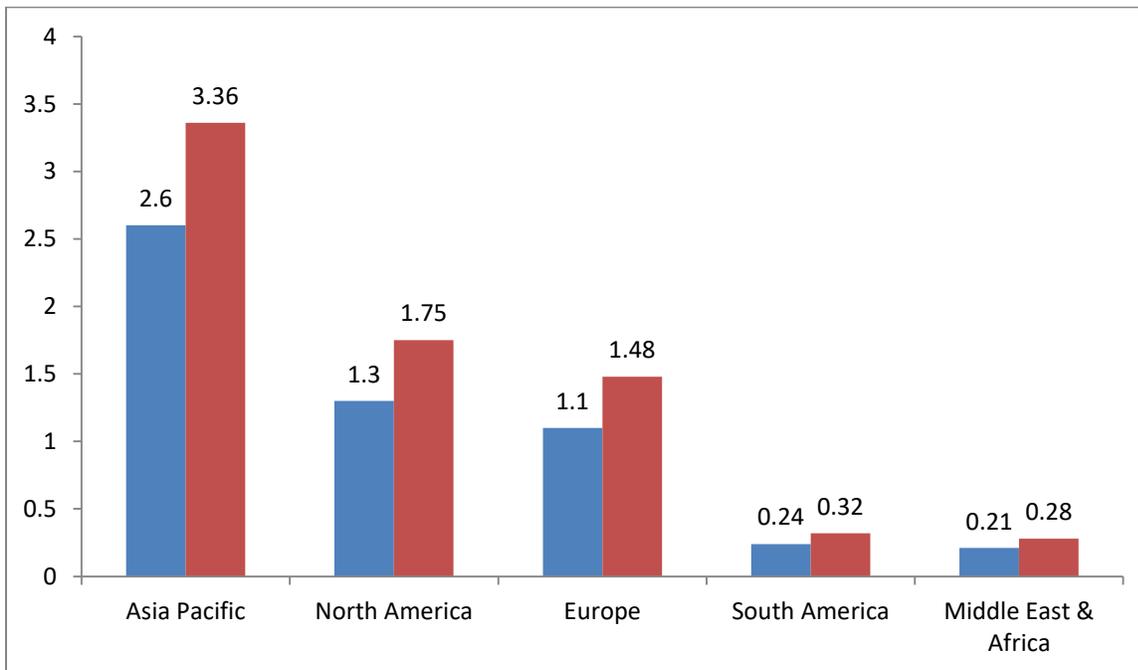
Exhibit 4.5: Global PSA Market size forecast 2015-2025



Source: Frost & Sullivan Research & Analysis

Acrylic segment was the highest contributor to the global pressure sensitive adhesives market with USD 5.45 billion in 2020, and is estimated to reach USD 7.2 billion by 2025, registering a CAGR of 6.1% during the forecast period. Jesons caters to Acrylic Pressure Sensitive Adhesive market which is about 50% of the total PSA market as of 30 June, 2021.

Exhibit 4.6: Global Acrylic Pressure Sensitive Market Revenue USD billion 2020-2025

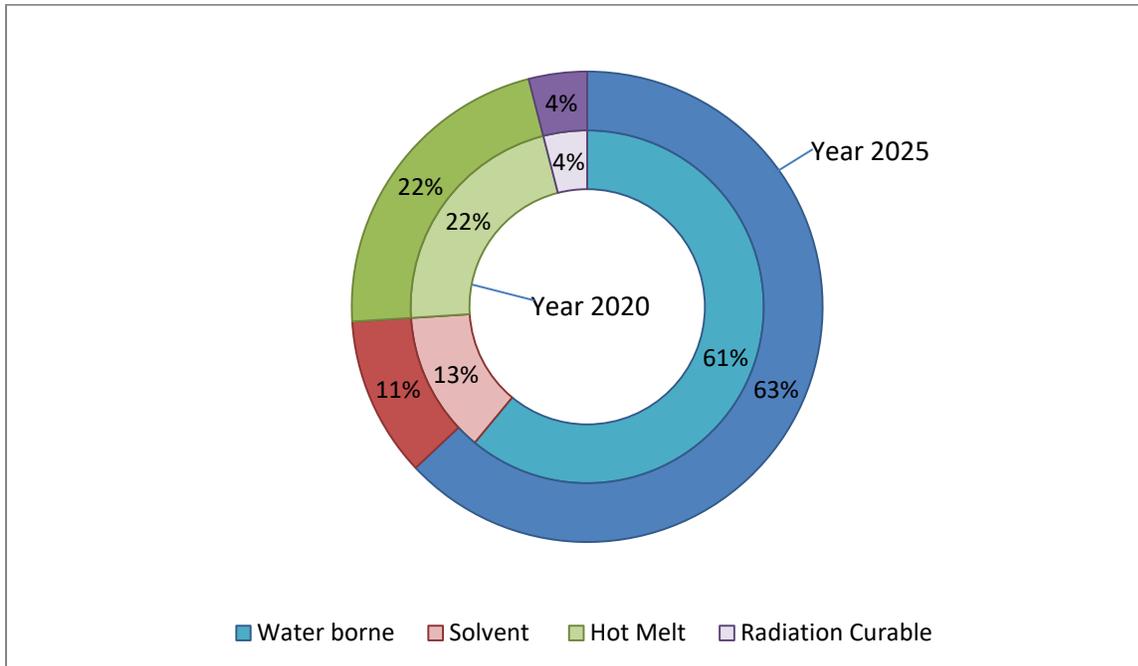


Region	Asia Pacific	North America	Europe	South America	MEA

CAGR	5.3%	6.1%	6.1%	5.9%	5.9%
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Water-based segment was the highest contributor to the global acrylic pressure sensitive adhesives market, registering a CAGR of 6.8% during the forecast period. The solvent-based segment is estimated to register a CAGR of 5.2%.

Exhibit 4.6: Global Acrylic Pressure Sensitive Market, % Revenue share by technology (2020-2025)



During the forecast period, the global market for packaging tapes is expected to develop at a CAGR of 5%. The sealing and strapping packaging tapes market is being driven by strategies such as product innovation, with manufacturers focusing on manufacturing new and innovative tapes to gain a competitive advantage. Due to crucial qualities such as sealing heavy boxes and bundling unpacked products, sealing and strapping packaging tapes are generally accepted by many end-user sectors.

The safety of single parcel shipments has become an important concern for companies in the e-commerce business, since more and more consumer goods are shipped in single parcel shipments. As a result, these tapes are an ideal choice for such players, assuring good package sealability and closing. Over the foreseeable period, this is expected to enhance market growth adoption.

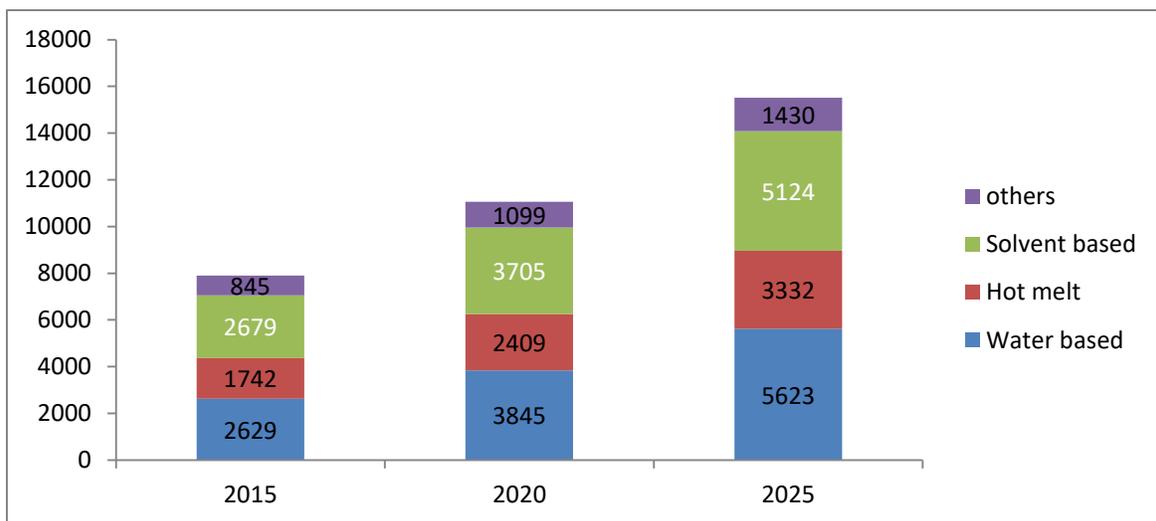
Jesons caters to Acrylic PSA market with its products into Tape & label adhesives, pigments, wood adhesives and leather chemicals.

Global pressure sensitive adhesives market by type

Water-based segment was the highest contributor to the global pressure sensitive adhesives market with USD 3,845 million in 2020, and is estimated to reach USD 5,623 million by 2025, registering a CAGR of 7.9% during the forecast period. The radiation-based segment is estimated to reach USD 1,430 million by 2025 at a CAGR of 5.4%.

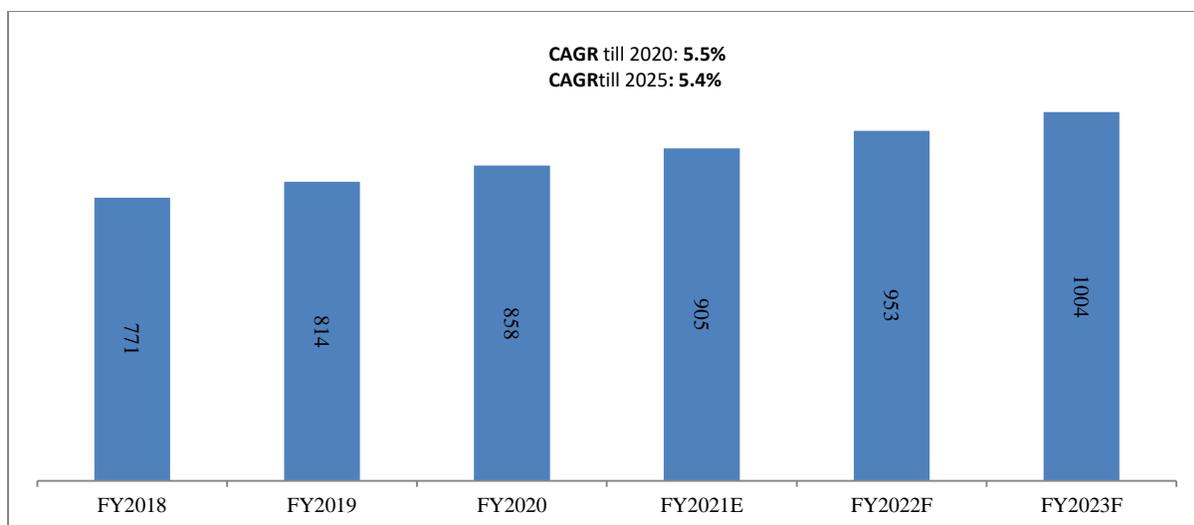
Water based and solvent-based segments collectively accounted for about 74% of the global pressure sensitive adhesives market in 2020, with the former constituting around 61% share. The water based and hot melt segments are expected to grow at significant CAGRs of 7.9% and 6.7%, respectively, during the forecast period.

Exhibit 4.7: Global PSA Market by type, Growth Trend, 2015, 2020, 2025F (USD million)



Source: Frost & Sullivan

The India pressure sensitive adhesives market was valued 858 million USD in FY 20. It is expected to grow to 1,004 million USD by growing at rate 5.4% per annum in FY 23.



Packaging segment was the highest contributor to the India pressure sensitive adhesives market with \$263 million in 2020, and is estimated to reach \$321 million by 2023, registering a CAGR of 6.9% during the forecast period. The consumer goods segment is estimated to reach \$86 million by 2023 growing at a CAGR of 3.3%. Packaging and electronics segments collectively accounted for about 51% of the India pressure sensitive adhesives market in 2020, with the former constituting around 30.7% share. The packaging and building & construction segments are expected to grow at significant CAGRs of 6.9% and 6.1%, respectively, during the forecast period. The packaging segment is expected to grow at a significant CAGR of 6.9% during the forecast period and remain dominant end use for pressure sensitive adhesives market.

End-use Industry	2018	2019	2020	2021E	2022F	2023F	CAGR% (2020–23)
Automotive	56	59	62	64	67	70	4.1%
Packaging	230	246	263	282	301	321	6.9%
Building & Construction	126	134	143	152	161	171	6.1%
Electronics	158	168	177	187	198	209	5.7%
Medical	89	92	94	96	98	100	2.1%
Consumer Goods	72	75	78	81	83	86	3.3%
Others	39	40	42	43	45	46	3.1%
Total	771	814	858	905	953	1,004	5.4%

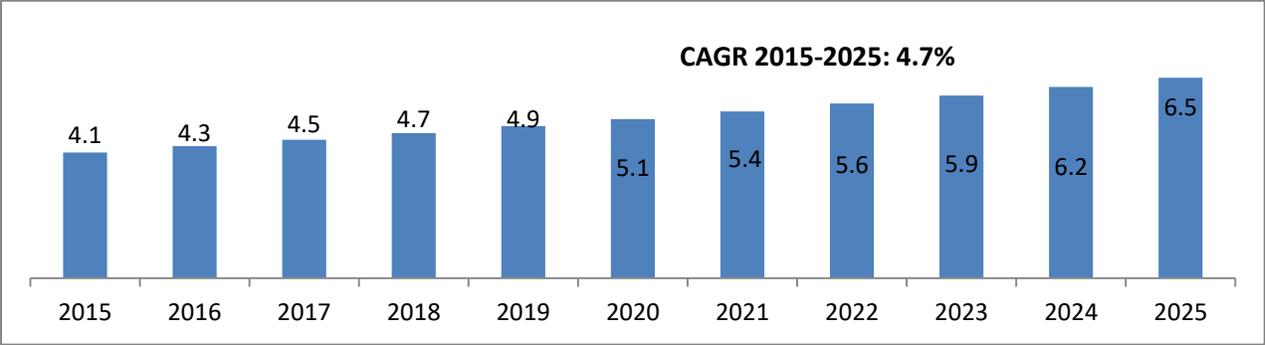
Jesons deals with only water based technology catering to primarily packaging end use segment.

Wood Adhesive

The global wood adhesives market size was valued at USD 5.1 billion in 2020 and is predicted to grow at a CAGR of 5.0% from 2020 to 2025. Growing global engineered wood-based panel production is a significant factor driving the market.

Engineered wood-based panels such as plywood, oriented strand board, and particle board consume a significant volume of adhesives during their manufacturing process. For instance, plywood is produced by binding veneers with adhesive.

Exhibit 4.8: Global Wood Adhesives Market size forecast 2015-2025



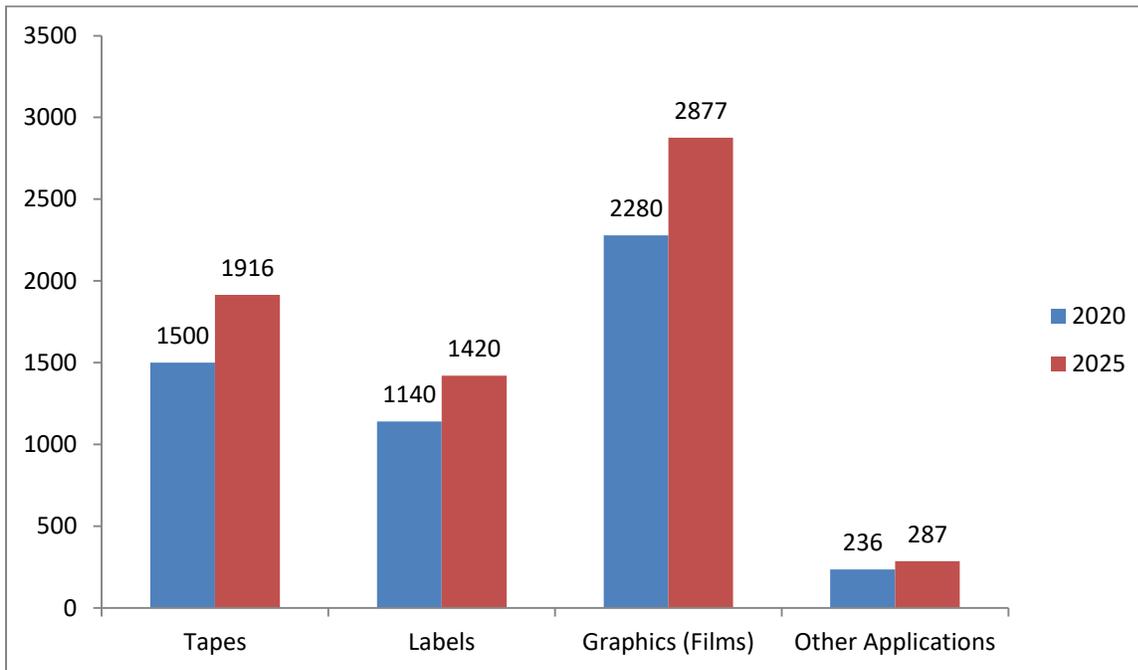
Source: Frost & Sullivan Research & Analysis

The global wooden furniture market is expected to grow over the forecast period owing to the increasing demand for eco-friendly and green furniture. Rising concerns among people regarding the abatement of trees and global warming have led to a surge in the use of engineered wood-based panels. Rapid urbanization coupled with an increase in disposable income has contributed to a higher demand for engineered wood furniture. This is estimated to be a significant factor in influencing product demand.

Wood panel manufacturers, especially in Asia Pacific, rely on in house production capabilities to produce adhesives for their products. Adhesive production is considered to be a part of wood-based panel manufacturing in the woodworking industry. However, most small to medium panel manufacturers do not have adequate adhesive production and quality control capabilities. Adhesive formulation and monitoring of quality is solely dependent on the operator’s knowledge, skill, and experience.

The market is characterized by the presence of a stringent regulatory framework associated with the emission levels of formaldehyde during wood-based panel manufacturing. This is expected to open new growth avenues for soy-based, polyurethane, and polyvinyl acetate adhesives over the next seven years.

Exhibit 4.9: Global Acrylic Pressure Sensitive Adhesives Market size forecast 2020-2025 (USD million)



Acrylic bonded adhesive tapes are widely resistant to the weathering and aging, especially when exposed to UV rays, moisture, and chemicals. They maintain stability when exposed to high temperatures, making them the go-to adhesive tapes, especially for thermal applications.

Acrylic tapes are used in day-to-day life for various purposes, ranging from packaging to attaching. Common examples of acrylic pressure sensitive adhesives (tapes) are electrical tapes, duct tapes, masking tapes, surgical tapes, and box sealing tapes, among others.

Some of the major advantages of acrylic pressure sensitive adhesives tapes include:

- The ability to bond dissimilar materials without the concerns of incompatibility
- They provide vibration dampening and noise reduction
- They reduce assembly time
- They eliminate the need for surface refinishing
- They are thinner and lighter materials
- They provide uniform thickness and possess gap filling properties

Different types of acrylic PSA tapes used in various applications are as follows

Commercial

- Acrylic based commercial tapes are used for aesthetic and functional purposes in varied industries They are known for temperature resistance, conformability, shear strength, and surface adhesion They are majorly used in construction, metalworking, and packaging, among others

Protective

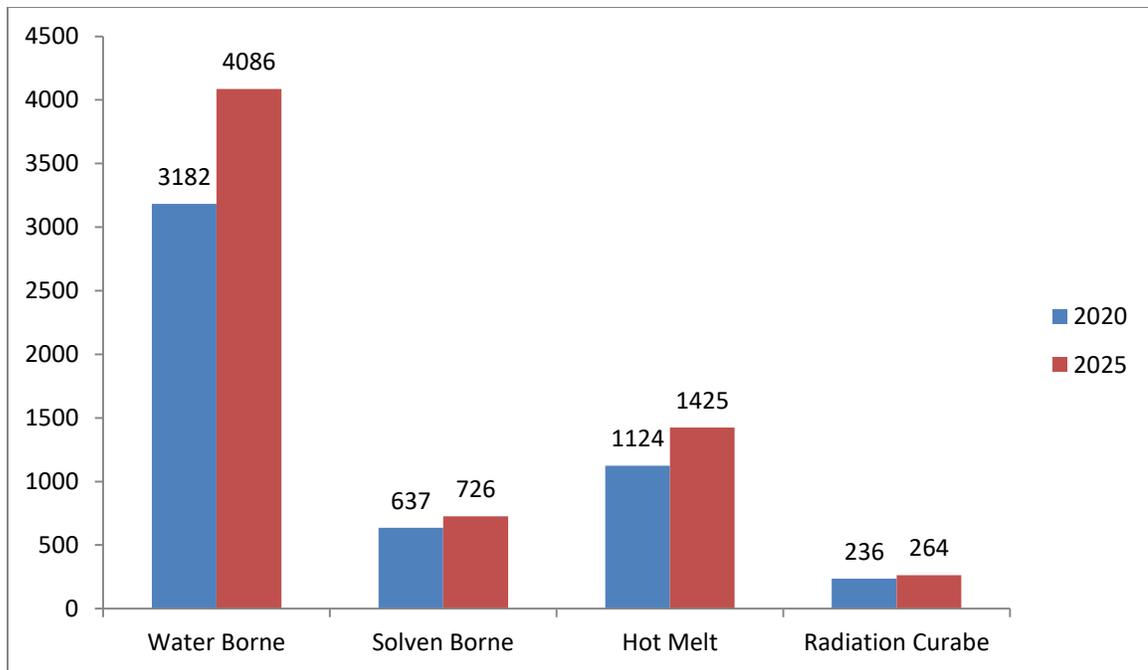
- Acrylic protective tapes are used in surface protection for a variety of applications They are applied over varied surfaces to protect them from scratches and paint overspray, along with providing tear and abrasion resistance These tapes are majorly employed in industries, such as consumer goods manufacturing, and automotive, to prevent damage to the manufactured product in assembly line or transportation.

Foam

- Acrylic foam tapes are majorly used in industries, such as automotive and construction There are various types of foam acrylic tapes available in the market, namely, double sided foam tapes, closed cell foam tape, single sided foam tapes, and gasket tapes They are used for various purposes, such as weather stripping, exterior mounting, interior mounting, and sign mounting, among others.

The rapidly growing end user industries, such as packaging, medical, and transportation, coupled with unique uses and advantages of acrylic PSA tapes, are expected to boost the market.

Exhibit 4.10: Global Acrylic Pressure Sensitive Adhesives Market size by Technology 2020-2025 (USD million)

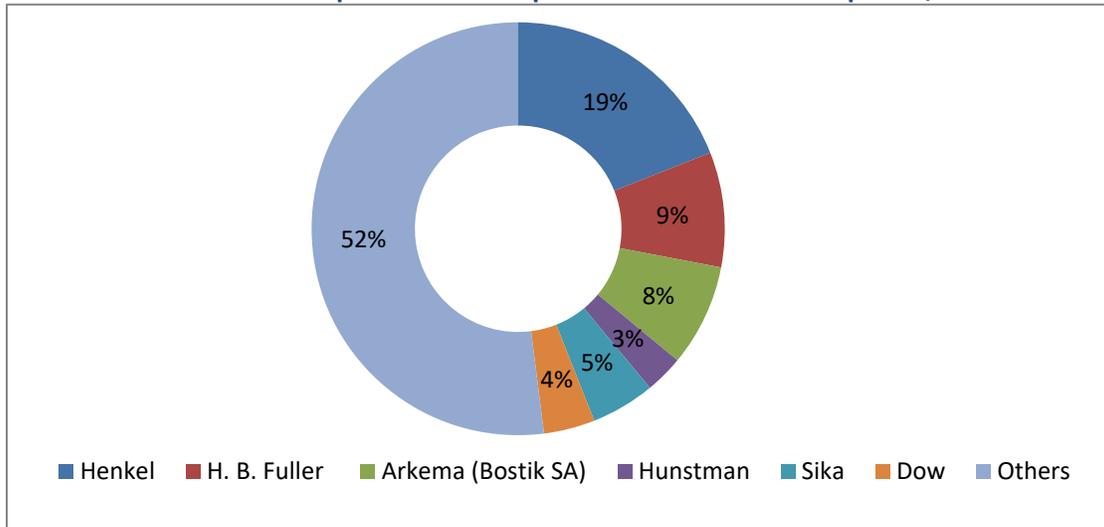


Water borne acrylic PSAs use water as a solvent, along with polymer and a water dispersible agent. The acrylic binder is used mainly due to its property to resist ultraviolet light (which translates into excellent exterior durability, including color and gloss retention, along with resistance to chalking. These binders are majorly used in tapes and labels where water is retained and not absorbed by coating They have limitations with usage in graphics and inkjets, as these require a material that does not contain water for durability. Water borne acrylic PSAs exhibit a promising future, as they are an eco and user friendly alternative to solvent based coatings These PSAs are known to be eco-friendly, as they are in accordance with US regulations that require water borne coatings to have a VOC content of less than 3 5 pounds per gallon of water. Some of the water based acrylic PSAs are classified as environmentally benign and can be easily removed from the material during recycling. Labels and packaging constitute the major applications of water based acrylic PSAs Packaging labels, adhesive films in the growing food and beverage, automotive, and electrical and electronics industry are expected to increase the consumption of water based acrylic PSAs.

4.5 Competition - Key players and their share in the market

The Adhesives market is consolidated as the top 6 players account for majority of the market close to 46%. Henkel leads the acrylic PSA market followed by, H. B. Fuller, Huntsman, Dow, and Arkema (Bostik SA). Besides these, other prominent players in the market include Ashland, Franklin International, LG Chem, Soken Chemical & Engineering Co. and Tesa.

Exhibit 4.11: Competitive Landscape: Global Adhesives Companies, 2020



Source: Company Websites, Frost & Sullivan Analysis

Henkel is the global market leader, with a diverse adhesive and sealant portfolio for all end-use industries. The company has a major presence in all 4 global regions. Global companies are focusing on partnerships for distribution and sale of products in specific countries/regions. Small- and mid-sized industrial adhesive and sealant manufacturers are expected to strategize on simultaneously developing tailor-made products and providing cost-effective products to the relevant customers in the industrial space.

The top companies are also focused for their product quality, new product line, and pricing strategy, with their innovation and collaboration to the local market through subsidiaries or local distributors. Companies, such as Henkel, Arkema, H.B.Fuller, Dow, and 3M, regularly acquire companies and have strong distribution network in different countries. These companies help the parent companies to get a foothold across the global market.

Notable Acquisitions and Mergers - Arkema acquired Fixatti in Q4 2020, Applied Adhesives acquired Premier Packaging Solutions in November 2020, Meridian acquired John P. Kummer GmbH, AG and Ltd. in April 2020, US-based AJ Adhesives and Mid-America Packaging (MAP) together acquired EVCO Industries in January 2020, and Arsenal Capital Partners acquired Applied Adhesives in March 2021

4.6 Demand drivers and restraints for Pressure Sensitive Adhesive Industry

1. Booming ecommerce market in India

In India, e-commerce has changed the way people do business. From USD 46.2 billion in 2020, the Indian e-commerce sector is predicted to expand to USD 111.40 billion by 2025.

India has the fifth largest packaging industry around the world, which is also growing at a significant rate. The country's packaging industry is majorly driven by growing innovation in

industries to make their products compact and portable. With the increasing employment in the country, there is an increase in the use of ready to eat food products, which further propels the growth of the packaging industry, and, in turn, increases the demand for acrylic PSAs.

Hence, although the per capita consumption of packaging is quite low in India, at around 8.7 kg, the rapidly growing ecommerce sector and increasing demand from end user industries, like pharmaceuticals, food and beverage, and beauty and personal care, are driving the growth of the packaging market.

2. **Growing Popularity of Sustainable Packaging Expected to Fuel Demand for Biodegradable Adhesives, 2021** - The long-term environmental hazards associated with disposal of non-biodegradable packaging in sectors such as food and beverage, healthcare, and FMCG, coupled with growing regulatory norms across many countries, increasingly call for safe disposal of packaging products.

Packaging companies are expected to focus on the development of more sustainable packaging products, which involves the use of sustainable packaging adhesives.

Completely compostable packaging is an increasingly preferred choice, and adhesive chemistries that help meet this packaging criterion are expected to be the R&D focus of packaging adhesive manufacturers.

3. **High-Performance Elastic Adhesives for Electrical & Electronic Applications to Create Fresh Adhesive Demand** - Manufacturers in the electrical and electronics industry are faced with the challenge of unavailability of adhesive options that are suitable for the production of foldable and flexible electrical or electronic devices.

Manufacturing of such devices requires an adhesive that is considerably elastic and cures at low temperatures—especially for flexible electronics components. The adhesives used in many electronic products are required to be easy to process and capable of withstanding repeated folding and unfolding of the device parts.

At the same time, the adhesive should also be significantly compatible with existing production lines and aid in augmenting the speed of the manufacturing process through high speeds of application, supported by features such as primer-less adhesion for foldable or flexible device production.

Electronic device manufacturers in the consumer electronics space are also looking for adhesives that can withstand mechanical shocks such as those from device drops or other impacts.

4. **High-performance adhesives for niche applications such as high-precision bonding expected to drive market growth** - In the past few years, there has been an increasing need for extreme precision bonding in electronics, luxury packaging, and other consumer goods manufacturing. Requirements such as bonding precisions from as low as 500 microns up to 2 mm while simultaneously meeting special criteria call for the development of innovative adhesives.

The advent of such novel products is expected to create a fresh market for premium, high-precision bonding adhesives, such as Bostik's Born2Bond™ range. Adhesive manufacturers are expected to prefer the use of methoxyethyl cyanoacrylate (MECA) technology to formulate these instant adhesives, as its chemistry discourages blooming and odor, increases ease of

application, and facilitates rapid curing and regulatory compliance regarding health, safety, and the environment (HSE)

These premium-priced adhesives represent a potential annual revenue of USD 6 billion to 8.4 billion, with an estimated average annual growth of 9%

5. Growing popularity of flexible packaging across diverse packaging end-use industries expected to create new business opportunities for industrial adhesive manufacturers - Flexible packaging products are increasingly preferred by packaging customers across various industries, such as food/beverage and healthcare, due to the multiple application benefits they provide, such as augmented shelf-life of packaged foods, sustainable packaging, cost-effectiveness, aesthetic, and marketability.

Growth Restraint Analysis for Adhesives Market

- 1 Change in availability of raw materials for the manufacture of adhesives and sealants temporarily impacting feedstock inventory - The availability of feedstock used in the production of basic chemicals that become raw materials for adhesives and sealants has been declining in the past few years. The dearth of feedstock will significantly affect the availability of raw materials in the long-term and result in a rise in the average price.
- 2 Specific instances of surface preparation efforts before adhesive application restricting adhesive demand - It is observed that for bonding of specific substrate types, adhesive applications still require surface preparation treatments, such as cleaning the material surface to be bonded. The surface pre-treatment is even more vital in cases where oil and grease are present on the metal surface to be bonded, as they considerably lower the surface energy of the metal surfaces and thus impair the bonding strength.
- 3 Acrylic PSAs are highly used in different applications as tapes, labels, graphics, and so on. These adhesives are made of hydrocarbons and organic compounds that emit volatile organic compounds - The governments across the world are concerned about the effects of these VOCs and they have formed rules and regulations regarding the maximum limits of VOC content These VOC emissions cause eye irritation, throat and nose irritation, headache, asthma, vomiting, dizziness, and some chronic diseases, such as cancer, kidney problems, liver damage, and central nervous system damage

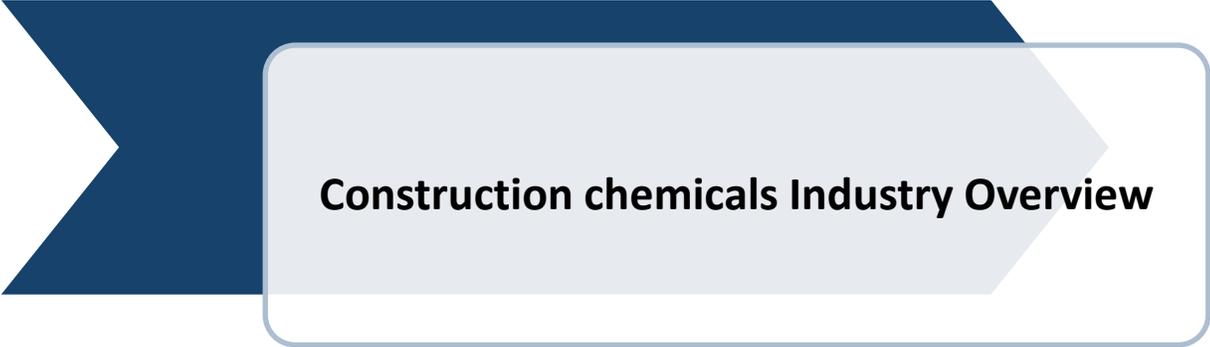
4.7 Jesons Industries presence across key end use segments

With a robust, low-cost manufacturing, coupled with superior product offering Jesons is one of the leading supplier of PSA in Tape and Label segment in India (in terms of sales value).

Apart from being a market leader in India, Jesons has successfully established strong foothold in high-growth markets across Asia Pacific, Middle East and Africa. It holds about 10% market share in terms of exports out of India for PSA products (in terms of sales value).

Key products offered by Jesons are Tape & label adhesives, pigments, wood adhesives and leather chemicals. The key applications of these products are across packaging tapes, labels, protective films, wood & paper, stationery, glue, primary binder, secondary binder, tanning, retaining and finishing.

Section 5: Construction Chemicals Industry Overview



Construction chemicals Industry Overview

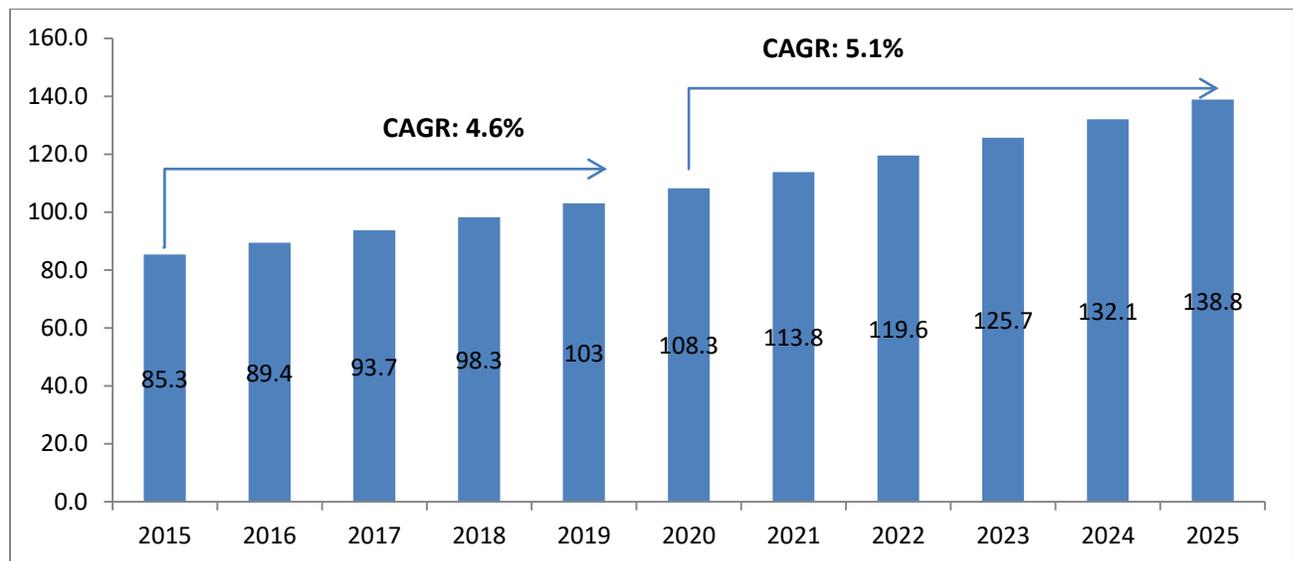
5.1. Global Construction Chemicals industry overview – market size – historical and projected

Construction chemicals and materials used in construction include concrete admixtures, waterproofing compounds, grout and concrete repair, and industrial flooring. Construction chemicals refer to the chemical compounds that are combined with building materials, such as concrete and mortar. These chemicals improve the compatibility of these materials with the building structures they are used with. They also help to improve the overall building performance and protect the structures that they are used in.

The Global Construction Chemicals Market is expected to be worth USD 139 billion dollars by the end of 2025; growing at a compound annual growth rate of approximately 5.1 % from the year 2020. Shifting customer preference toward high-performance products that meet Construction Products Regulations (CPR) and sustainability norms is likely to boost the revenue of construction chemicals.

The size of the global construction chemicals market is expected to experience substantial growth between 2020 and 2025. The growth will largely be due to the increased demand from several end-user industries, including both residential and non-residential sectors, as well as infrastructure.

Exhibit 5.1: Global Construction Chemicals market, 2015 to 2025F (USD billion)



Source: Frost & Sullivan

5.2. Market segmentation by geography – historical and projected

An increased interest on infrastructure development in emerging economies and a rapid change toward urbanization in these countries is expected to drive the expansion of the global construction chemicals market during the forecasted period.

In China, Mexico, Brazil and India, initiatives made by the government are contributing to the increased growth of infrastructure activities, which, in turn, is contributing to the growth of the global construction chemicals market. Additionally, the increasing trend of urbanization in these areas has led to an increased need for more residential buildings. This is expected to further fuel the growth of the market.

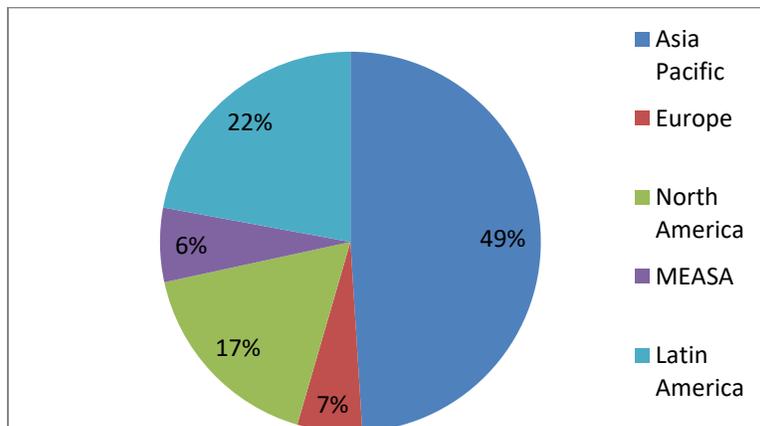
Exhibit 5.2: Mega projects in APAC, 2020



Source: Frost and Sullivan analysis

An increase in the per capita income, combined with strengthened economic policies in developing economies is leading to the expansion of both residential and non-residential sectors. In Asia Pacific, foreign investments have grown over the past few years, which is also aiding in the growth of the market.

Exhibit 5.3: Global Construction Chemicals market segmentation by Geography, 2020, USD 108 billion

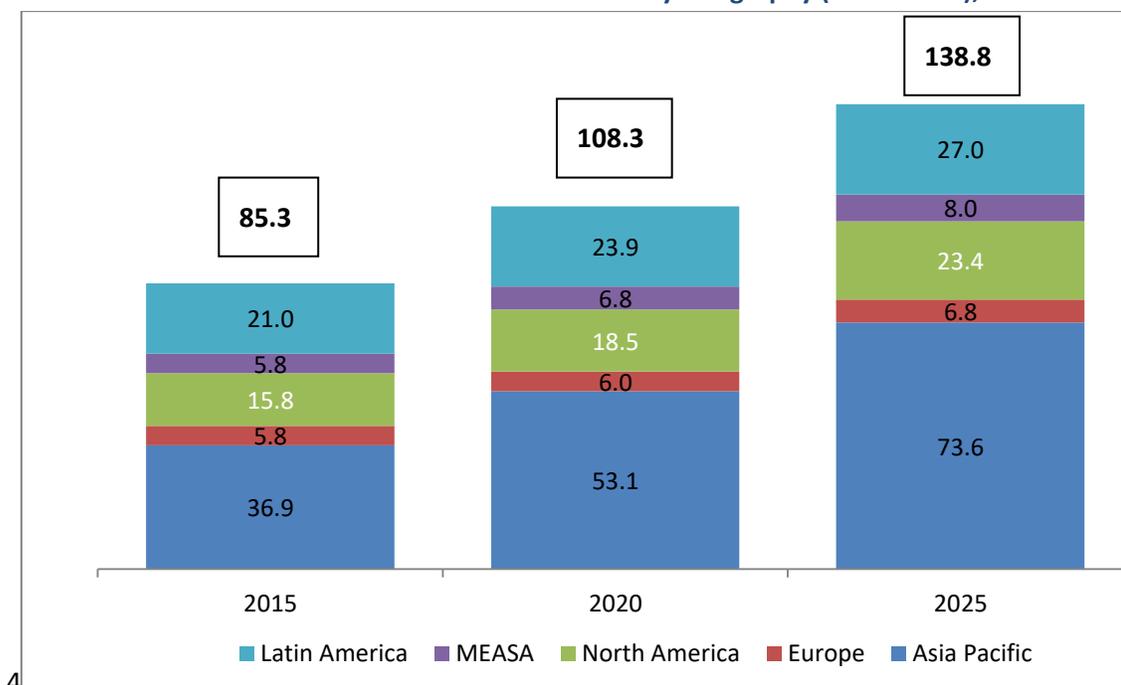


Source: Frost & Sullivan

Due to the rapid industrialization and urbanization of countries such as China, India, and Japan, the Asia Pacific building chemicals market accounted for about half of the worldwide share in 2020. The region had a GDP of more than USD 14 billion in 2020 and is expected to grow at a rate of more than 7% CAGR due to the rapidly increasing population and rapidly developing economies of China, India, Japan, and other South East Asian countries such as Indonesia, Malaysia, Vietnam, and the Philippines, among others. In the next years, more government investments in infrastructure development will also benefit the industry.

In the future years, the BRICS countries' booming construction industries, driven by China and India, will have a significant impact on the global construction chemicals market. The area construction industry has been bolstered by a rapidly growing population and increasing economy as a result of many government initiatives and private investments.

Exhibit 5.4: Global Construction Chemicals market by Geography (USD billion), 2015-2025F



Source: Frost and Sullivan analysis

Region	Asia Pacific	Europe	North America	MEASA	Latin America
2015-20 CAGR	7%	2.70%	4.80%	3.20%	3.20%

The European construction chemicals market is expected to generate more than USD 6 billion by 2020, with a relatively modest growth rate of roughly 2.70 % CAGR during the forecast period. Less infrastructure development in the region will reduce demand for asphalt modifiers, which are widely employed in the construction of roads and pavements. The region's abundance of heritage buildings

may influence demand for adhesives, sealants, and protective coatings used in maintenance and restoration projects.

With a global market share of 17 %, the building chemicals market in North America is the most dominant in the world. In 2020, the market for NA was valued at USD 18.5 billion. The region's construction chemical demand is expected to be driven by the region's rising economy and strong market fundamentals for commercial real estate developments. An increase in state and federal spending for public works and institutional infrastructure, particularly in the United States and Canada, is also predicted to enhance the construction chemicals industry. Furthermore, the expanding population and impending building projects in the pipeline may fuel the expansion of the construction chemicals market.

5.3. Market segmentation by end-user industry – historical and projected

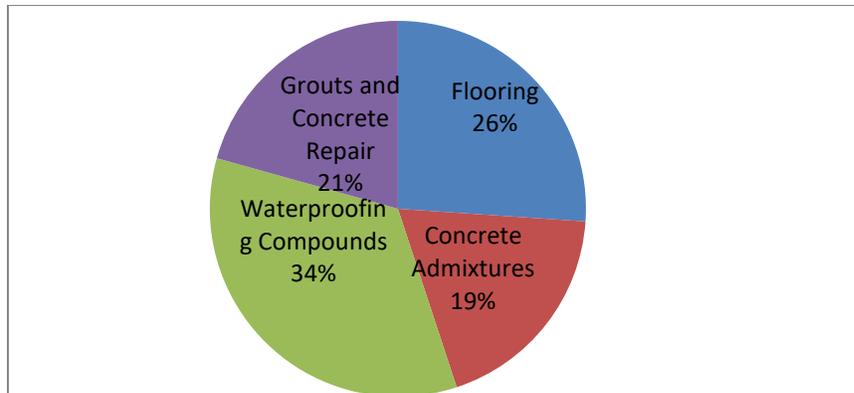
The concrete admixtures sub-segment of the types segment is anticipated to hold one of the leading market share by gathering revenue USD 20.58 billion in 2020, growing at a CAGR of 4.6% in the forecast period. This is mainly owing to the growing demand for concrete in construction projects across the world. The, it is expected to witness the highest CAGR during the forecast period.

Concrete admixture is defined as a material other than water, aggregates, hydraulic cement, and fiber reinforcement used as an ingredient of concrete or mortar and added to the batch immediately before or during its mixing. The main reasons for use of admixtures are to reduce the cost of concrete production and establish control over the production process and properties of concrete. Concrete admixtures provide several benefits to concrete including:

- Compressive and flexural strength at all ages, decreased permeability
- Improved durability
- Corrosion and shrinkage reduction
- Initial set adjustments
- Increased slump and workability
- Improved pumpability
- Improved cement efficiency and concrete mixture economy

Concrete, being a primary structural material used for residential construction across a majority of European countries, is likely to boost the demand for concrete admixtures. The demand for admixtures in commercial buildings is expected to grow stronger in accordance with expanding commercial construction activity. However, this is expected to vary significantly across regions.

Exhibit 5.5: Global Construction chemicals market by end industry, 2020, USD 108 billion



Source: Frost & Sullivan

Waterproofing segment accounts for the largest share in the construction chemicals market at 34%. Waterproofing can be defined as the protection of surfaces or structures to avert the constant or intermittent infiltration of water in its various forms, such as rain, humidity, snow, and hail. Depending on the source of water ingress, waterproofing products are majorly used in a variety of above- and below-ground applications.

In addition, depending on the type of application, waterproofing products are used across residential, commercial, and infrastructure projects.

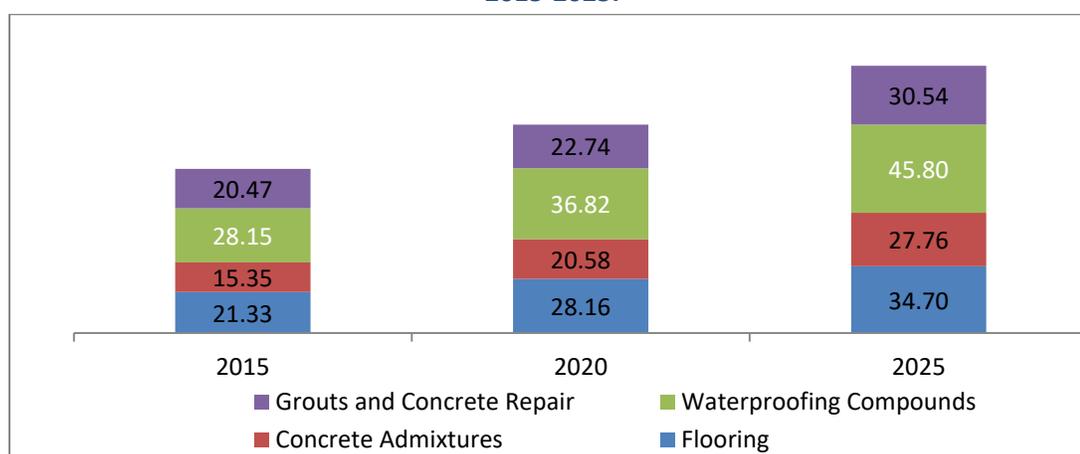
- For above-grade, waterproofing products are used for roofs, walls and decks, and retaining structures such as tanks.
- For below-grade, waterproofing products are used for underground parking decks, foundations, and retaining walls.
- Waterproofing products are available in the market in broadly three types: sheet membranes, liquid-applied and spray-applied membranes.
- For the purpose of this study, waterproofing is mainly segmented into above-grade and below-grade chemicals and membranes

Grout segment accounts for the third largest share in the construction chemicals market at 21%.

Grout is a semi-liquid, flow able plastic material having negligible shrinkage to fill gaps or voids completely, while imparting stability without cracking, delamination, or crumbling. Injection grouting is a process of filling cracks, voids, or honeycombs under pressure in concrete or masonry structural members for repairing cracks and strengthening damaged concrete or masonry structural members. There are different types of grouts used for the repairing and strengthening of concrete in load bearing applications. Selection of the type of grout for a particular application is based on its compatibility with the original building material.

Concrete repair mortars are typically based on a dry-mix formulation using dispersible powder. The selection of the type of concrete mortar is also based on the type of maintenance and repair activities that need to be carried out.

Exhibit 5.6: Global Construction chemicals Industry size by products – forecast - (USD billion), 2015-2025F

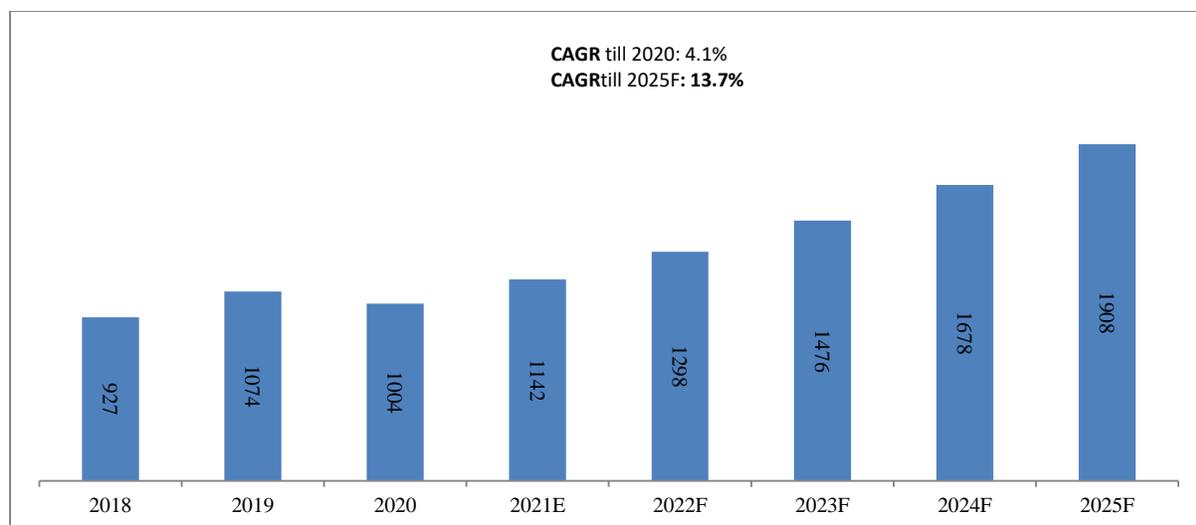


Source: Frost and Sullivan analysis

Flooring solutions are typically based on synthetic resin and cementitious systems. Industrial facilities for flooring purposes include manufacturing facilities, warehouses, and food processing, while commercial facilities include supermarkets, laboratories, aviation hangars, and parking decks. Industrial applications require flooring products to possess characteristics such as chemical resistance, load impact, abrasion resistance, and moisture penetration. Product types available in the market vary significantly on the basis of mechanical properties, safety regulations, slip resistance, anti-static performance, and chemical or fire resistance. The strength of the floor depends on the kind of flooring system, which can vary from a single coat of polymer such as epoxy, PU, aliphatic polyaspartics, or acrylic to a complete build-up, including a screed for leveling purposes

5.4. Indian construction chemicals Industry overview

Exhibit 5.6: Indian Construction Chemicals in million USD (2018-2025)



The major product categories in construction chemicals market are:

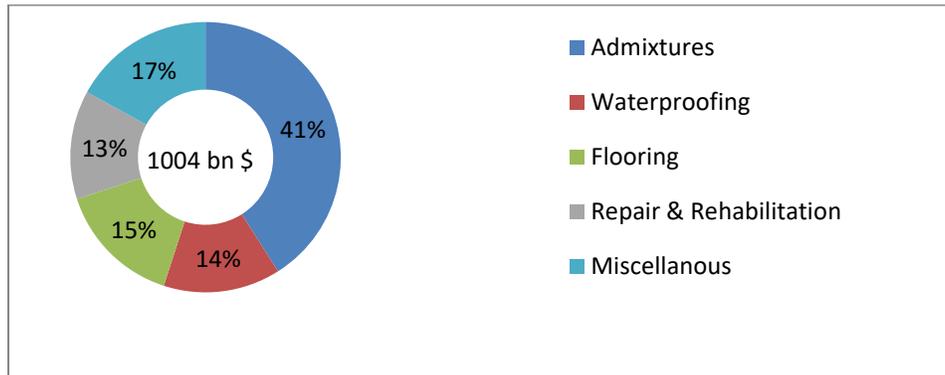
1. **Admixtures:** These are ingredients in concrete other than cement, water and aggregate those are added to the mix immediately before or during mixing. Normally, admixtures constitute less than 5% the mass of cement in the mixture. These are added to provide the mixture certain characteristics such as extra strength, protection against corrosion, reduction of water in the mix, coloration for aesthetics, etc.
2. **Waterproofing chemicals:** These enhance the shelf life of concrete, in turn providing longer durability to a structure while reducing maintenance costs. They reduce water damage to the structure, thereby preventing metal corrosion, electric hazards, rotting of timber structures and finishes, swelling of plasterboards and growth of fungus.
3. **Flooring chemicals:** These chemicals are used in flooring and are particularly important for industrial construction. Some of the most commonly used flooring chemicals are epoxy and floor hardeners, polyurethane coatings and polyurea based flooring chemicals.
4. **Repair and rehabilitation chemicals:** These chemicals are used for repair and strengthening of structures. They are used in maintenance of historical structures, industrial building and infrastructure.
5. **Others:** One of the major construction chemical in this segment is grout. It is a construction material used to embed rebars in masonry walls, connect sections of pre-cast concrete, fill voids and seal joints (such as those between tiles). Others include Adhesives, Sealants and these products have a variety of applications in construction.

The market is expected to reach a valuation of over US\$ 1,900 Mn by the end of 2025, growing at a robust CAGR of 13.7% from 2020-2025. In the year 2020, the industry saw a contraction due to the pandemic otherwise construction industry in India has always seen double digit growth at least for the last decade or so.

Drivers for the business

- Increasing focus on Infrastructure and Manufacturing sector will be a major growth driver for Construction Chemicals industry in India
- The increasing use of Ready Mix Concrete (RMC), increasing repair and renovation work and rising awareness about the benefits of construction chemicals among the end user which will drive the demand in the coming years
- Polymers are the main raw material required for production of almost all the construction chemical, the raw material requirement is mostly catered through imports.

Exhibit 5.7: Types of Construction Chemicals India



In India, the key challenge is lack of awareness about construction chemicals. Most construction chemicals manufacturers in India need to employ technically trained business development teams to educate end-users and build the market.

Major companies in India construction chemicals market include Fosroc, Sika, Pidilite, STP Berger, MYK Laticrete, MBCC (BASF), Bostik, Jotun, Thermax, Mapei, Asian Paints, Asian Paints PPG, Chembond, Chryso and others.

5.5. Jesons Industries presence across key end use segments

Jesons manufactures construction chemicals used in Cement Primers, Crack Filling, Anchors & Grouts, Waterproofing, Damp Proofing, Laying Tiles and Roof Coating. Jesons product portfolio in the construction chemicals segment –

Product name	Key features	Applications
BONDEX® J - 76	Excellent bond strength in cementitious Surface	Cement Primers, Crack Filling, Anchors & Grouts, Waterproofing, Damp Proofing Suitable Application:- Flexible Membrane, Laying Tiles and Roof Coating

BONDEX® J - 400	Excellent elongation in cementitious compositions	Crack Filling, Anchors & Grouts, Waterproofing, Damp Proofing, Flexible Membrane, Laying Tiles and Roof Coating Suitable Application:- Cement Primers
BONDEX® EP55	Elastomeric - Flexible, low dirt pick up	Exterior Paint, Elastomeric Paint, Primer, Roof Coating, Elastomeric Membrane Suitable Application:- Interior Paint, Acrylic Emulsion Paint

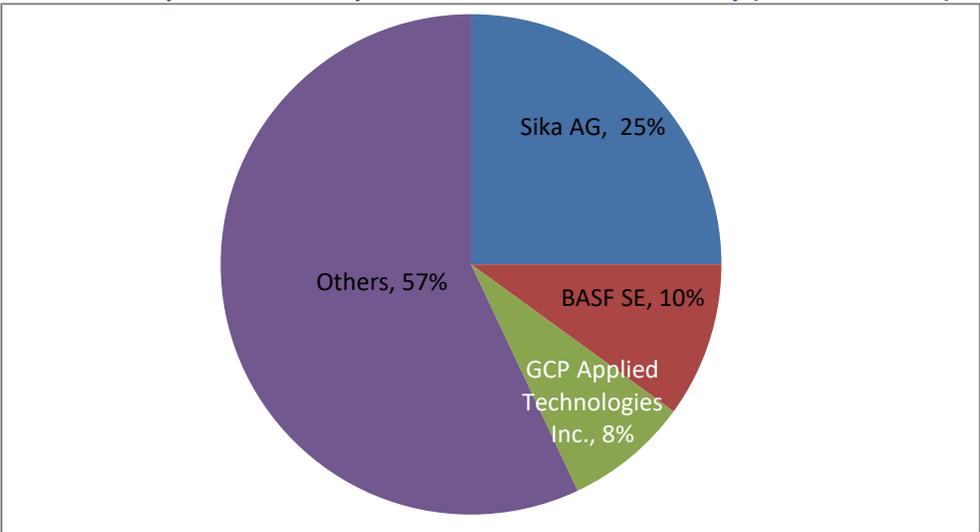
Construction Chemicals



5.7.Competition - Key players and their share in the market

The construction chemicals market is fragmented in nature, as the top 10 players account for a share of approx. 40% in the market studied. Major players in the market include Sika AG, BASF SE, GCP Applied technologies, MAPEI, and Dow.

Exhibit 5.8: Competitive Landscape: Global construction industry (USD 108 billion) 2020



Source: Company Websites, Frost & Sullivan

SIKA AG

Sika is a specialty chemicals company with a leading position in the development and production of systems and products for bonding, sealing, damping, reinforcing, and protecting in the building sector and motor vehicle industry. Sika has subsidiaries in 100 countries around the world and manufactures in over 300 factories

BASF SE

BASF is the world's largest chemical company and a major supplier to the nutrition and health industries that are critical during the pandemic. As of 30 March, the company saw no major impact on global supply chain and operations of its business.

BASF in March secured the required permissions from the Ministry of Health of Rhineland-Palatinate and fulfilled the required legal and technical mandates to start production of hand sanitizers at its Ludwigshafen site in Germany. The company aims to initially supply the products to hospitals in the Rhine-Neckar metropolitan region.

GCP Applied Technologies

GCP Applied Technologies is an American public corporation based in Cambridge, Massachusetts. It sells chemicals and materials used in construction as well as sealants and coatings used in packaging.

GCP Applied Technologies Inc. provides construction products and technologies that include admixtures and additives for concrete and cement, the VERIFI in-transit concrete management system, waterproofing products and specialty construction products.

5.8. Demand drivers and restraints

Growth of the Construction Industry

Global spending in construction will account for 17.5 trillion by 2030, triggered by increasing housing and infrastructure needs for growing population and industrial investment, with China, the US, and India leading the way and accounting for 57% of all global growth.

The overall growth of the global construction industry is a major growth driver for the global construction coatings market. The construction industry is expected to register a CAGR of around 1% between 2020 and 2027, registering high growth from 2024 onwards, after a considerable decline in the near term due to the crisis created by the COVID-19 outbreak.

Exhibit 5.8: Global construction spending – forecast - (USD billion), 2018-2030F



Source: Frost & Sullivan Research & Analysis

Global spending in construction will account for 17.5 trillion by 2030, with China, US, and India, leading the way and accounting for 57% of all global growth. More than 60% of global infrastructure investment will be made in emerging economies, particularly in Asia, while the US and Canada will account for approximately 20%.

Growth in sustainable manufacturing processes

Sustainable energy sources are expected to be incorporated in building materials. Algae-infused wall panels are being tested on building facades to regulate heat in buildings using photosynthesis. Global glass manufacturer NSG Group has entered into a joint venture with Ubiquitous Energy to manufacture and integrate the latter's building integrated photovoltaic Clear View power technology into window glass.

Construction chemical manufacturers in Europe and North America will benefit from developing bio-based materials and/or adding them to their portfolios, because regulatory bodies and customers in these regions are demanding more environmentally friendly products. Construction chemical manufacturers that collaborate with leading research institutes and universities on projects of this type stand to gain an edge in this increasingly competitive market.

Growth in Repainting for Maintenance Purposes in All Types of Construction

The exterior of a typical commercial or industrial building is repainted every 5-to-10 years depending on the external environment of its location. The cycles of repainting are shorter for buildings located in wet and humid areas and highly urbanised cities. Repainting is mostly frequent on masonry and wood surfaces, while metal structure coatings are required to be durable for more than 10-to-15 years.

Repainting on independent residential buildings is a longer cycle and typically happens every 10-to-15 years depending on where the building is located and the preferences of the owners of those houses. Additionally, maintenance of build structures to repair substrate materials or refurbishment of already-built structures will contribute to the growth of construction coatings market. Although the outbreak COVID-19 is likely to delay expenditure on repainting in the short term, the demand from this maintenance market is expected to revive after 2021-22. For instance, a number of historical buildings in

Europe that were scheduled to be repainted in 2020, are more likely to have the work done in 2021-22. Moreover, one of the key programmes under the planned EU Green Deal is to renovate existing buildings to enhance their environmental footprint, which is anticipated to create additional demand for construction coatings for repainting of buildings in the region. Additionally, in the US and Europe, commercial buildings constructed in the 1980s and before are being considered for repainting jobs with advanced coatings that have higher thermal efficiencies.

The Drive by Regulatory Authorities to Reduce Volatile Organic Compounds (VOC) Emissions and the Rising Need for Advanced Performance amongst Customers

Volatile Organic Compounds (VOC) are greatly dangerous for human health, as a number of these compounds such as benzene and methylene chloride, are proven carcinogens. In addition, these chemicals are proven to cause physical ailments such as headaches, asthma, or develop allergies to humans exposed to these. Laws and regulations limiting the VOC of most coatings were implemented globally due to concerns over health and atmospheric pollution.

The US EPA has issued guidelines for individual regions, limiting the amount of solvent in coatings on an industry-by-industry basis. With a few exceptions, most industries and shop applicators are required to limit VOC content to 340 g/l of paint as applied, i.e., including thinner. This corresponds to 55%–60% solids by volume.

Similarly, in Mainland China, VOC should be limited to 420 g/l on all coatings manufactured or imported, non-compliance of which results in a 4% consumption tax levied on the invoice value. Additionally, the State Administration for Market Regulation (SAMR) and the Standardization Administration of the P.R.C.(SAC) have released in early 2020, 9 new VOC regulations impacting coatings used in various end industries, including construction. One of those standards, GB 18582-2020, which will come into effect by the end of 2020, mandates new limits for use of harmful substances in architectural wall coatings, both interior and exterior.

The European Union follows the Directive 2004/42/CE when a coating is applied onsite and Directive 1999/13/EC when a coating is applied in shop or off-site facilities. The general enforcement of laws and regulations to reduce the solvent content of coatings used in construction has been promoting the development of waterborne and powder coatings, which emit negligible VOCs compared to traditional solvent-borne coatings.

Additionally, premium customers of construction chemicals are increasingly preferring higher priced advanced products that provide durable protective, anti-microbial, and mould and UV resistant performance. These trends are expected to promote average price growth with the commercialisation and adoption of newer advanced products offered at a higher price point.

Building contractors and architects are moving toward working with sustainable materials, mainly to earn certification and reputation for their projects such as GREET (Singapore) and LGEEP (Australia). • The APAC market is also gradually moving toward low-VOC-emitting water-based acrylic adhesives due to increasing customer awareness and stringent regulations in countries such as Singapore

Gradual Growth in Industrial Sector is Expected to Boost the Demand for Industrial Flooring Products in Europe

The industrial sector in Europe is expanding gradually driven by rising private investment in manufacturing facilities. Lending schemes at low interest rates offer a strong incentive for private companies to invest in manufacturing facilities. In particular, Central European industrial markets continue to grow faster than their developed counterparts in Western Europe. Although a positive outlook is observed throughout the region, annual growth is spearheaded by Germany, Ireland, Sweden and the UK

Growth of Modular and Prefabricated Construction

Frost & Sullivan's analysis suggests that the pandemic will lead to notable changes in the way projects are carried out in the industry. For instance, prefabricated construction, which was already picking up pace in the developed world in both residential and commercial construction, is likely to be explored by more construction companies around the world. This process, aided by digital technologies, such as Artificial Intelligence (AI) and Big Data analytics applied over the design and construction process, could transform the global construction industry in the coming years, driving the demand, especially for metal and wood construction chemicals used on such prefabricated structures

Adoption of PCE-based Admixtures

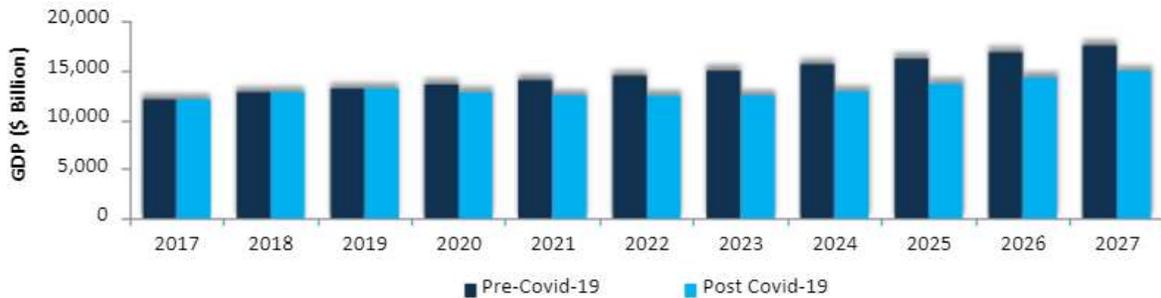
Globally, PCE-based technology has achieved high penetration in plasticizers and superplasticizing admixtures. In APAC, countries such as Australia and New Zealand have completely transitioned to PCE-based admixtures, due to their high slump retention and superior water-reducing ability at lower dosage rates. However, developing countries such as Thailand and Vietnam are still heavily reliant on lower-cost, traditional naphtha and ligno-based admixtures

Growth Restraint Analysis for the Global Construction chemicals Market

Slowdown in Construction Due to the Outbreak of COVID-19

The construction industry will be greatly impacted by the significant disruption to global economic activity, which is likely to eventually result in considerable reduction in investment along with stalling or delaying of planned projects between 2020 and 2021. The industry is still being challenged by a number of obstacles that are likely to cause a near-negative growth for the industry from 2020 to 2026. Major obstacles include the lack of adequate resources (both material and personnel), cost incurred due to additional measures for health and safety and delays or cancellations of ongoing projects.

Exhibit 5.9: Global GDP from construction – forecast - (USD billion), 2017-2027F



Source: Frost and Sullivan analysis

With the imposition of lockdowns and travel bans from and to China since January 2020, commercial construction companies that rely on materials from China are expected to face a supply crunch and steep price rises

Supply Chain Disruption

With the outbreak of the COVID-19 pandemic, the global supply chains of both raw materials and end products are significantly affected as a result of prolonged lockdowns and travel restrictions imposed in most countries around the world.

Construction coatings companies, especially the small and medium sized ones that do not have a strong presence in every location that they operate in, have been experiencing major disruptions in the supply of raw materials for manufacturing and distribution of coating products to their end customers. In addition, the need for social distancing has been forcing them to impose restrictions on the number of personnel working in their manufacturing facilities at a time and increasing the number of shifts per day to enable adequate production.

The impact of this restraint is expected to be high in the short term and improve thereafter.

Volatility in Crude Oil Prices

Prices of crude oil, a major raw material used for manufacturing formulation resins, have been frequently fluctuating due to a series of disruptive events such as geopolitical and climate-related issues. Such volatile nature of oil prices exert pricing pressure on coating manufacturers. However, as resins constitute less than 50% of the total volume in solvent and waterborne coatings, this restraint is expected to have a medium impact in the short term and improve thereafter.



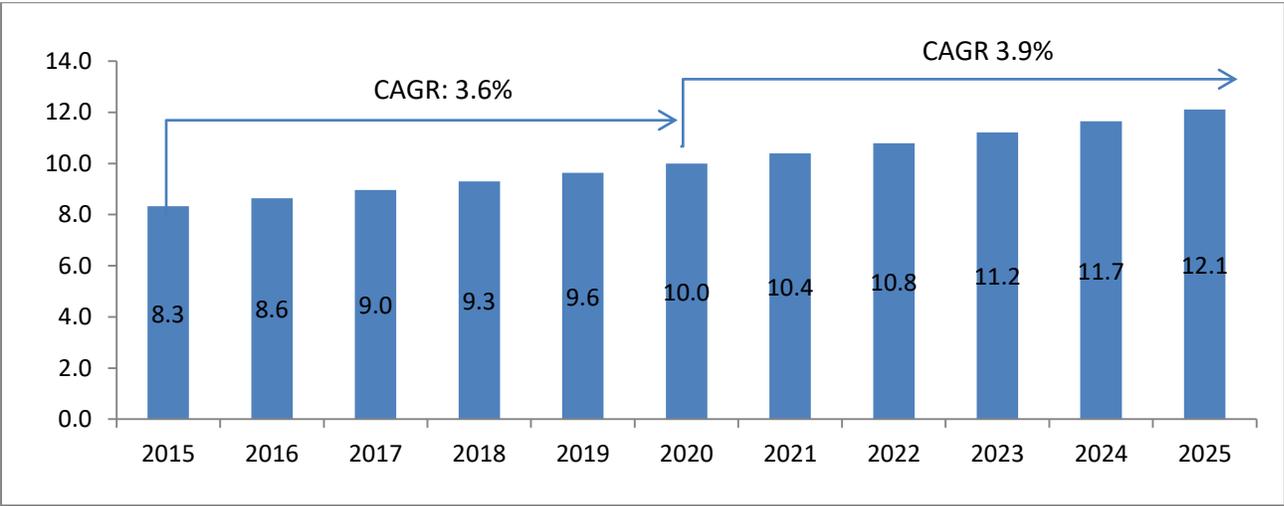
Other products in Industry Overview

Section 6: Overview for Other Products in the Jesons Industries portfolio

6.1 Textile chemicals

The global Textile Chemicals Market is expected to grow at a CAGR of 3.9 % from 2020 to 2025, from USD 10 billion in 2020 to USD 12.1 billion in 2025. The increased demand for technical fabrics is the driving factor for the Textile Chemicals industry. Textile chemicals are also projected to benefit from the increased adoption of low VOC and biodegradable ingredients in textile manufacture.

Exhibit 6.1: Global Textile Chemicals market, 2015 to 2025F (USD billion)



Source: Frost & Sullivan

Driver: Increase in demand for Technical textile

A technical textile is a type of cloth or fabric that is specifically designed for a certain function. They have distinct and distinct properties that set them apart from conventional fabric. Mechanical resistance, elasticity, reinforcing, anti-dust, tenacity, insulation, thermal & fire resistance, and UV and IR resistance are among the improved qualities of these fabrics. Technical textiles are commonly utilized in automotive, medical & personal hygiene, sports & leisure, pollution control & filtration, agriculture, industrial, packaging, and clothing for non-aesthetic applications.

Growth Opportunity: Growing adoption of low VOC and biodegradable materials for textile manufacturing

Textile producers and suppliers are increasingly being obliged to deliver textiles that are sustainably produced and free of harmful chemicals due to pressure from governments, non-governmental organizations, and end-users. Large brands and merchants are requesting that their suppliers prove the items' long-term viability. Restricted substance lists (RSLs) listing forbidden compounds and/or their limit values are created for this purpose. In addition to RSLs that indicate which compounds should be avoided, so-called positive lists specify which chemicals can be utilized. The Swiss company, Bluesign, for instance, has established a positive list, including dyestuffs and chemicals, which are available to the company's partners.

Bodal Chemicals Ltd., Kiri Industries Ltd., Archroma India Pvt. Ltd., Croda India Company Pvt. Ltd are other large players operating in the market. Jesons has come up with Innovative products in the textile chemicals market in the last 5 years for instance - Bondex ASM G which is Eco-friendly textile printing binder

Jesons has a specialized / customized broad portfolio in the segment –

POLYTEX 40 | POLYTEX 45 | POLYTEX 48 | POLYTEX 50 | POLYTEX 50, H/P | POLYTEX 55 | Bondex 5400 | Bondex 6412 | Bondex ET-ECO | Bondex ABM | Bondex ASM | Bondex FT1 | Bondex ET 44G | Bondex A87 | Bondex 8546 | Bondex 0049 | Bondex 40 | Bondex STK | Bondex 777 | Bondex

Its products imparts body with stiff feel, provBides PVA copolymer, smooth finish with body and is APEO free, it's also self-crosslinking.

Their major applications are into Textile finishing, pigment printing, flocking, khadi printing, stretch khadi, fabric glue etc.

6.2 Carpet chemicals

Over the forecast period, the worldwide carpet back coating market is expected to develop. Carpet back coating is a procedure that improves and enhances the resilience of various textile floor coatings, such as rugs and carpets. The backing process is a crucial stage in the manufacturing process that improves the resilience of textile floor coverings. Furthermore, soundproofing, stepping elasticity, and heat insulation are all features that backing can improve.

Soundproofing, stepping flexibility, and heat insulation are all advantages of floor coating backing. Pre-coatings, foam coatings, textile back coatings, heavy coatings, reinforcement, and back finish are some

of the several types of coatings used for textile floor coverings. Secondary backing, embossed gel foam backing, and felt backing are all options for carpet backing.

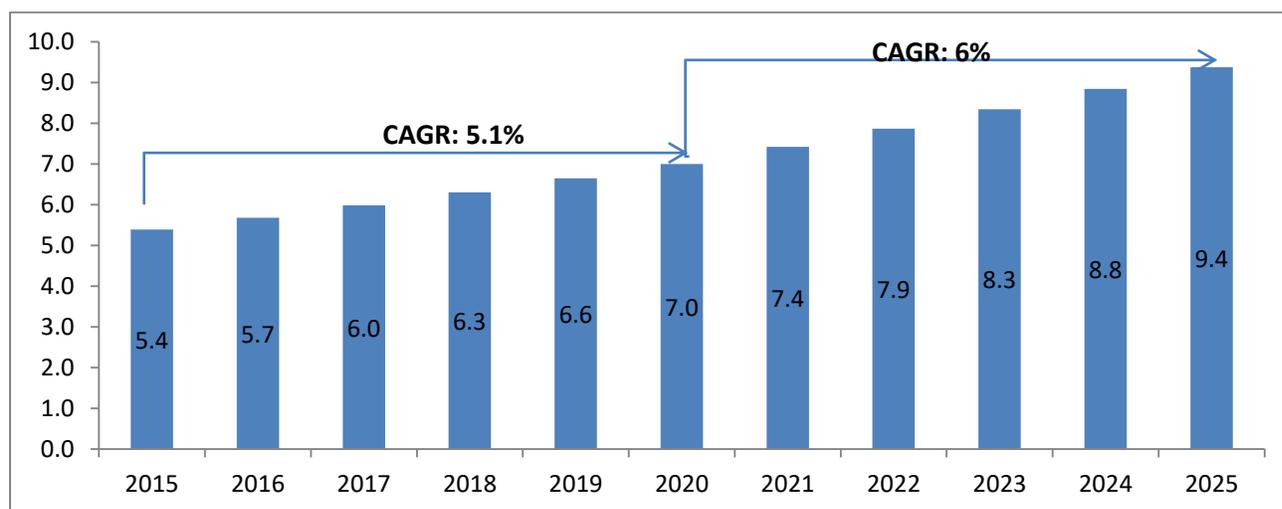
Jesons has a specialized / customized broad portfolio in the segment –

Its products are Soft & flexible have good resilience provide Excellent bonding and Better tuft lock. Their major applications is into Hand tufted carpet, non-woven carpet

6.3 Leather chemicals

The global leather chemicals market size was valued at USD 7.5 billion in 2020, and is projected to reach USD 9.5 billion by 2025, growing at a CAGR of 6% from 2020 to 2025.

Exhibit 6.2 Global Leather Chemicals market, 2015 to 2025F (USD billion)



Source: Frost & Sullivan

Tanning and dyeing chemicals, beam house chemicals, and finishing chemicals are the three types of leather chemicals. Tanning chemicals are substances that are used to turn raw hide into leather. Vegetable tannin, mineral salts, and animal oil are common tanning agents. Leather products are classified as vegetable tanned leather, synthetic tanned leather, alum tanned leather, aldehyde tanned leather, and chromium tanned leather depending on the tanning chemicals used. Surfactants, degreasers, sodium formate, sodium bicarbonate, neutralizing syntans, formic acid, and chrome syntans, chromium sulphate are among the dyeing chemicals.

Increased use of leather chemicals in end-use industries such as footwear and textiles are driving the leather chemicals market forward. Leather chemicals such as syntans, polymers, coloring auxiliaries, and fatliquor have expanded in use as a result of more aesthetically pleasing leather footwear and improved leather footwear production. Leather compounds include features including increased mold resistance, smoothness, and adhesiveness, which are boosting global demand.

Tanned leather, on the other hand, produces effluent containing sulfides and chromium, which has a harmful impact on the environment and workers. During the projected period, this is expected to be the most significant factor impeding the global leather chemicals market. The improvement of tanning processes, on the other hand, is predicted to limit the accumulation of chromium and sulfides in water, resulting in new income potential over the projection period.

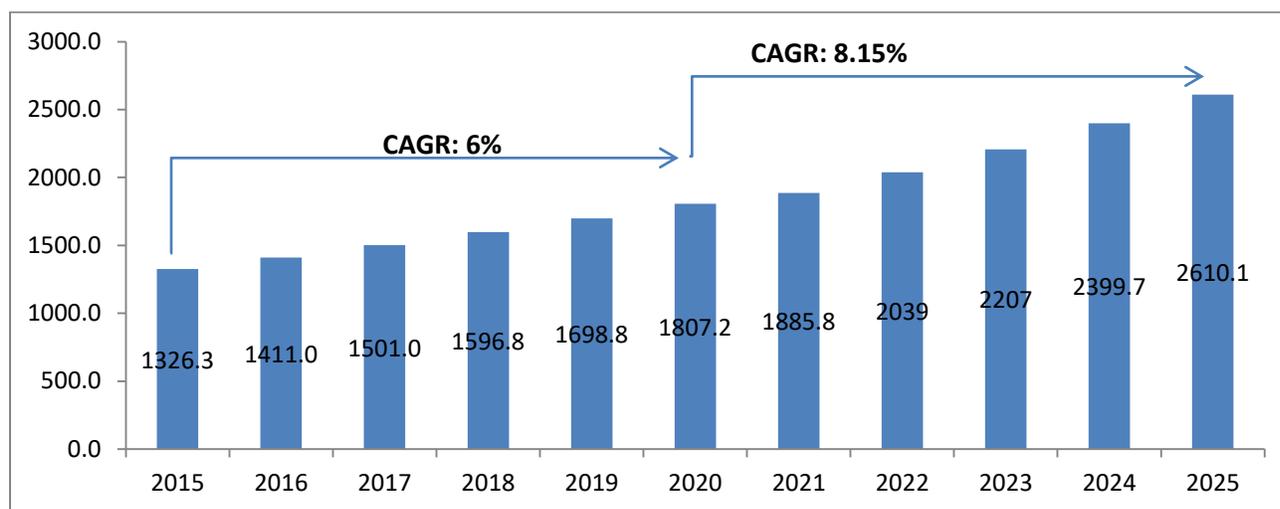
Jesons has a specialized / customized broad portfolio in the segment –

Key features of its products are - Low pH Acrylic Syntan. Being astringent, imparts tight grain and body, bleaching in nature, Excellent cut through. Their major applications is into Tanning, retaining and finishing

6.4 Paper Coating

The Paperboard Coating market was valued at USD 1807.2 million in 2020, and is projected to reach USD 2610 million by 2025 growing at a CAGR of 8.15% from 2020 to 2025. Asia is expected to be the highest contributor to this market, with USD604.4 million in 2019, and is anticipated to reach USD1,329.6 million by 2029, registering a CAGR of 9.23%.

Exhibit 6.3: Global Paper board coatings market, 2015 to 2025F (USD million)



Source: Frost & Sullivan

Asia and North America collectively expected to account for about 62.6% share of the Paperboard Coating market in 2019, with the former constituting around 32.9% share. Asia and Europe are expected to witness significant growth rates at a CAGR of 9.23% and 7.63% respectively, during the forecast period. Presently, share of these two sub-segments is estimated to be around 58.2% in the overall Paperboard Coating market in 2019, and is anticipated to reach 60.4% by 2029.

The industry is currently expanding due to rising demand for paper for a variety of applications, including packaging, office paper, stationery, corrugated boxes, wallpaper, and bookbinding. Some of the factors contributing to the growth of the paper coating materials market in the forecast period of

2020-2025 include technological advancements in the paper coating process, several advantages offered by paper coating materials and developing markets, growing demand from the paper manufacturing industries, and increasing disposable income.

On the other hand, the increasing demand for biopolymer paper coating material from the paper industry will further create several opportunities that will led to the growth of the paper coating materials market in the above mentioned period.

Jesons has a unique portfolio in the segment –

Bondex 128 The product has Excellent binding power, high print gloss and high wet pick-up resistance and its primary applications is into Paper / board coating.

Section 7: Peer comparison



The company has no direct listed comparable peers considering the Company's (i) product profile, (ii) end customer industry and (iii) size and scale. Hence we have identified a select peers as comparable proxies with a similar product properties, end customer profile, export mix and scale.

7.1 Peer comparison

Company name	ROA (PAT/ Avg. Total Assets)			ROCE (EBIT/Avg. Capital Employed)			ROE (PAT/Avg. Equity)		
	FY2019	FY2020	FY2021	FY2019	FY2020	FY2021	FY2019	FY2020	FY2021
Fine Organics	21.89%	21.20%	13.38%	32.69%	29.82%	19.13%	29.98%	29.45%	17.82%
Galaxy Surfactants	12.63%	13.63%	15.65%	25.10%	23.71%	24.68%	23.94%	23.70%	25.51%
Aarti Industries Ltd.	9.60%	8.80%	7.49%	21.33%	17.14%	13.70%	23.36%	19.11%	16.15%
Vinati Organics	25.59%	25.00%	16.96%	28.93%	27.44%	19.25%	30.57%	28.65%	19.08%
Apcotex Industries	12.93%	4.30%	10.41%	23.47%	7.56%	19.35%	17.78%	6.29%	15.87%
BASF	2.12%	0.53%	11.08%	1.50%	6.27%	27.07%	5.93%	1.72%	36.47%

Source: Bloomberg, Company Financials

Company name	Fixed Assets Turnover (Revenue from operations/Avg. Fixed Assets)		
	FY2019	FY2020	FY2021
Fine Organics	6.98x	5.12x	5.11x
Galaxy Surfactants	5.16x	3.66x	3.36x
Aarti Industries Ltd.	1.73x	1.20x	0.98x
Vinati Organics	1.92x	1.40x	1.11x
Apcotex Industries	6.82x	4.14x	3.62x
BASF	5.62x	7.65x	10.25x

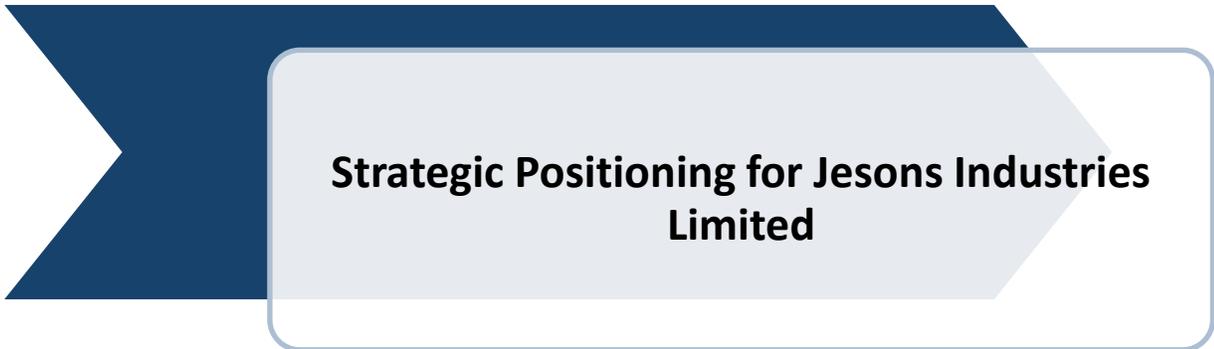
Source: Bloomberg, Company Financials

Note:

1. Fixed Assets includes Plant Property Equipment, Right of use asset, Capital Work in progress and Intangible assets.

Section 8:

Strategic Positioning for Jesons Industries Limited



Strategic Positioning for Jesons Industries Limited

8.1 Market Leadership in the Domestic Market

Jesons manufacture a wide and diversified range of Specialty Coating Emulsions (SCEs), additives and PSAs for various end user industries, such as paints, packaging, textiles, leather, paper and construction chemicals with over 20 years of experience in the emulsions and adhesives industry.

Jesons is one of the key emulsions supplier to the Indian paint sector, with a market share (in terms of sales value) of about 30% in year FY21.

Jesons also exports to more than 50 countries, with strong presence in Asia Pacific, Middle East and African Market.

8.2 Market Leadership in the Exports Market

Apart from being a key SCE supplier in India, Jesons has successfully established strong foothold in high-growth markets across Asia Pacific, Middle East and Africa.

Jesons is the largest exporter of Polymers of Vinyl Acetate (HS code 3905) & Acrylic Polymers (HS code 3506) (which are used in SCE and PSA) from India in FY2021. The company exported 6,687 tons of Polymers of Vinyl Acetate during FY2021 which is 52.9% of the total export of the same from India. Similarly the company also exported 38,888 tons of Acrylic Polymers (HS code 3506) in FY2021, which is 36.1% of the total exports of the same from India.

Export Market for Jesons

Apart from being a key supplier in India, Jesons has successfully established strong foothold in high-growth markets across Asia Pacific, Middle East and Africa.



Source: Company Websites, Frost & Sullivan

Exhibit 8.4: Jesons addressable market opportunity, FY2021 (USD million)

Addressable market for Jesons (USD million)	Coating Emulsions	PSA*
India Market	240	263
Exports market	2,862	NA
Total addressable market	3,102	263

Source: Company Websites, Frost & Sullivan

Note*: India packaging PSA market. Jesons key markets are in Tape and Label segment.

Jesons has been exporting its products to Nigeria, Algeria, Ghana, Senegal & Ethiopia in Africa; Vietnam, Bangladesh, Nepal, Philippines & Sri Lanka in South Asia; UAE, Iraq, Kuwait, Jordan & Israel in Middle East. Apart from these Jesons has high potential to tap some of the less explored markets such as Egypt, Sudan, Tanzania, Kenya, South Africa in Africa, Thailand, Indonesia, Malaysia in South East Asia, Saudi

Arabia in GCC etc. These markets offer a huge potential for companies like Jesons which manufactures and exports specialty coating emulsions which is a key ingredient for paints.

8.4 Diversified Product Portfolio

Jesons is one of the leading manufacturers of specialty coating emulsions (“SCE”) and water based pressure sensitive adhesives (“PSA”) in tape and label segments, in India (in terms of sales value). The company manufactures wide and diversified range of SCEs and PSAs for various end user industries, such as paints, packaging, construction chemicals, textiles, leather, and paper with a wide range of products in SCEs and PSAs. Amongst the Indian manufacturers, Jesons has one of the largest range of products in SCEs and PSAs product categories.

Exhibit 8.6: Jesons product portfolio, FY2021

Segment	Speciality Chemicals & Performance Chemicals Manufactured	End-use Products	Sub-Segment	End-user Industry
Coating Emulsion	Pure Acrylic Emulsions	Interior & Exterior paints	Paint	Paint Industry
	Styrene Acrylic Emulsions	Textile printing & finishing agents	Textile	Textile Industry
	Acrylic Dispersing Agents	Water proofing compound, Cementious Water proofing compound, elastromic / flexible coating	Construction Chemicals	Construction Industry
	Vam Acrylic Emulsions	Carpet back coating	Carpet	Carpet
		Paper / duplex coating	Paper Chemicals	Paper mills
	Pigment Dispersion	Interior & Exterior paints	Rdymix	Paint Industry
	Polyvinyl Acetate Emulsions (Homopolymer)	Wood adhesive	Wood	Furniture/ e-commerce
	Leather finishing & coating	Leather Chemicals	Leather Industry	
PSA	Pure Acrylic Emulsions	Tapes	Tape	Packaging, FMCG, Pharmaceuticals, E-commerce
	Vam Acrylic Emulsions	Lables	Label	Packaging, FMCG, Pharmaceuticals, E-commerce

	Pigment	Tapes	Pigment	Packaging, FMCG, Pharmaceuticals, E- commerce
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Source: Company presentations

8.5 Multiple location facilities – Logistical advantage

Jesons has multi -location facilities with strong distribution network to cater to demands of clients from varied geographies. They have six strategically located manufacturing facilities in Mundra, Roorkee, Daman, Vapi, and Chennai to cater domestic as well as export markets.

All its manufacturing facilities are located within a 150 km radius of trading ports, allowing logistical efficiency.

Jesons has efficient project execution team for setting up plants,, making it the ‘vendor-of -choice ’ for scaling up with customers. Company has a strong focus on designing modular plants, which are not only cost effective but also comply with all required safety standards.

Exhibit 8.7: Jesons manufacturing facilities



Source: Company presentations, Frost & Sullivan

They have established their Mundra plant in SEZ, which provides various tax benefits and consequent reduction of costs. All of their facilities are located close to ports, and the company intends to capitalize on such proximity.

8.6 Dedicated R&D center

Jesons has dedicated R&D Centre which is recognized by Department of Scientific and Industrial Research (Ministry of Science and Technology), Government of India.

8.7 Innovative product launches in the last 5 years

With a strong 27 member R&D team, Jesons is the market leader when it comes to the new product launches. The company has launched 113 new products during FY2019, FY2020, FY2021 and three months ended 30 June, 2021.

The company has a pipeline of 44 new products being developed as of June 30, 2021 targeting new customers and new markets.

Jesons is a Responsible Care accredited company that believes in sustainable growth that is advantageous to the customers while having a positive impact on the environment and society. Therefore, a culture of innovation is deeply ingrained into the system. Our innovation process goes through three main stages - research, development, and product launch.

New products introduced by Jesons in the PSA category have been highlighted below.

Exhibit 8.8: Key products introduced in the PSA category in last 5 years (2016-2020)

Category	Products	Features/applications
Tape	Bondex PF	Surface protection adhesive Made a water water-based adhesive replacing China imported rubber rubber-based adhesive
Label	Bondex ADR M	High shear strength Good machine coatability

Source: Company presentations, Frost & Sullivan

Below is the list of key products under emulsions category.

Exhibit 8.9: Key products introduced in the emulsions category in last 5 years (2016-2020)

Category	Products	Features/applications
Paints (Styrene Acrtic)	Bondex5290LV	Low viscosity product Suitable for automated plants
Paints (Pure Acrylic)	Bondex AA261	In-house developed product for premium and royale category
Paints (Modified Acrylic)	Bondex Opex90	Replacement of TiO2 Used in high end premium and royale category

Source: Company presentations, Frost & Sullivan

Opaque polymer Bondex

Titanium Dioxide (TiO₂) is one of the most important white pigment used in the paint Industry and it contributes to the major cost in the paint. TiO₂ is the major ingredient which imparts Opacity, Whiteness to the paint and also contributes to aesthetic look of the paint. Due to its high cost the paint companies always look for a suitable alternatives which can replace TiO₂ pigment.

Jesons have developed a product called Opaque polymer Bondex which acts as a acts as a spacer in between TiO₂ particles to improve its efficiency. The spacing phenomenon is very important and effective in Mid to High PVC paint, which are very regular paint products. In a paint formulation TiO₂ can replaced with 2.5 parts of Bondex Opex Polymer based on the final requirement of the customer.

Jesons Industries has two grades of Opaque polymer as Bondex Opex 90 and Bondex Opex 92.

Bondex Opex 90 is polymeric extender suitable for Mid to High PVC paint as it has lower gloss/ sheen development in Low PVC – Egg shell or Satin Paint. Bondex Opex 92 is suitable for all PVC's like Low, Mid and High – Paint. It can give sufficient gloss / sheen development in eggshell, Satin paints.

Redispersible Polymer Powder (RDP)

Redispersible polymer powder (RDP) is the powder form of liquid emulsion prepared by spray drying or freeze-drying process. For industrial production, spray drying is widely used as a drying process as it is cost effective compared to freeze drying process. The liquid emulsion is converting into powder in presence of anticaking agents. As named, it redisperses in water to form emulsion with properties essentially equivalent to that of original emulsion. Because of its powdery nature, it essentially being used in polymer modified dry-mix mortar. The first redispersible polymer developed was based on vinyl acetate homopolymer. With continuous research and innovation, significant progress has been made in this field and several polymers with varying proportion of vinyl acetate and ethylene (VAE) have been developed for numerous applications.

The global RDP powder market is segregated into different types based on their application. And end-use. The growing residential and commercial infrastructure is the key factor in driving the global market. Increasing demand for green buildings is another growth enabler in the RDP powder market.

the dispersing agents are very important ingredients in paint formulation, as they control

- Dispersion stability
- Viscosity
- Colour
- Shade development
- Many times gloss of the paint

Jesons Industries Limited has variety of dispersing agents. Bondex T 580 is 30% active content; a commodity dispersing agent used for economy to premium paint range. Bondex DA 30 is commodity dispersing agent for textile business and commodity paints. Bondex T 520 & T 530 are high solid dispersing agents with sodium and ammonium as counter ions. These are high efficiency dispersing agents suitable for premium to little high range of paint for both exterior and interior paint application.

Bondex T 532 is low solid (25%) - high efficiency dispersing agent for luxury paint grades where properties like sheen, gloss, appearance, aesthetic look are very demanding.

Others

Jesons has introduced Bondex J400M - High solid emulsion suitable for specific cement mixture for water proofing applications in the construction chemicals market and Bondex ASM G which is Eco-friendly textile printing binder in last 5 years.

8.8 Long standing relationship with Marquee customers

PSA Market

Jesons enjoys 85%+ wallet share with its top customers and has a long standing relationship.

Exhibit 8.10: : Jesons' PSA customer relationship

Customer	Segment	Length of relationship (Years)	of Wallet share
Storm Infracon	PSA	20	95%
Sarvodaya	PSA	5+	85%
Cosmos Twisters	PSA	10+	85%

Source: Company presentations, Frost & Sullivan

Key customers in the export markets

1. **Bangladesh** - Sun Yad Packaging and Well Group
2. **Sri Lanka** - Western Paper and Ceylon Tapes
3. **UAE** – Tuftape Al Muqarram and Insulation Mat
4. **Nepal** – Laminar and RR Poly Coating
5. **Nigeria** - Newtech Tapes and Benoly Tapes

Emulsions Market

Jesons has a strong customer relationship with Marquee customer base in the emulsions category. Their long term relationships with customers is indicative of the quality consciousness. Jesons manufactures Specialty Coating Emulsions which is being consumed by the paint companies in decorative paints. These coating emulsions have specific characteristics to give desired sheen, gloss, opacity to the paint. Jesons provide customized specialty coating emulsions to its customers based on their requirements which are being developed jointly with each of the customer after through R&D and a long approval process.

Exhibit 8.11: Jesons' Emulsions customer relationship

Customer	Segment	Length of relationship (Years)	Wallet share
Berger Paints - 2nd largest in India	Coating emulsions	9	60%
Kemic	Coating emulsions	6	100%
Nippon Paint - 4th Largest globally	Coating emulsions	8	90%

Chemical Partners	Coating emulsions	5	30%
Indigo Paints - 5th Largest in India	Coating emulsions	7	30%+
Chemstar Paints	Coating emulsions	14	25%
Anichem	Coating emulsions	8	100%

Source: Company presentations, Frost & Sullivan

8.9 Key strategic measures and initiatives

- **Leveraging presence in emulsion strongholds** - Leveraging brand equity and market presence in emulsions strongholds in Africa, Asia Pacific & ME to strengthen PSA presence
- **Deemed exports of end end-products** - Strong relationship with industry leaders, who are increasingly looking to export end end-products i.e. tapes and labels
- **Consolidation in tapes & labels** - Jesons enjoys 75%+ wallet share with large customers in tapes & labels, who are actively consolidating their market position
- **Scaling up with customers** - Supporting increased demand from customers who are expanding capacities (for e.g. Sarvodaya, Cosmos Industries, Sapna Industries)
- **Entering new markets** - Enter newer markets through anchor customers (for e. g. Jesons is in advanced talks with one of the largest tape manufacturers to enter Egypt)
- **Increasing wallet share with existing customers** - Scaling up presence with existing customers, such as Western Paper in Sri Lanka and Sun Yad Packaging in Bangladesh
- **Partnership with Soken** for solvent solvent-based PSA for applications in pharma, double -sided tapes and window films] would help expand offerings. It is a WinWin-win proposition for both the parties – Jesons gets access to solvent solvent-based technology and Soken gets access to large India market. There is ample opportunity for Jesons to cross sell solvent solvent-based PSA to existing customers
- They are in the process of introducing additional manufacturing and ancillary processes such as packaging etc., to eliminate dependence on other parties, as well as increase operational efficiencies

8.10 Best practices followed by Jesons Industries Limited

- **Entry into new markets** - Has started making in in-roads in Israel and Oman, through anchor customers such as Nirlat Paints and Berger Paints respectively and into large untapped US market through marketing JV with Dura
- **Leverage whitespace created by competitors** - Multiple instances of Jesons replacing existing suppliers in big ticket accounts in markets, such as UAE
- **Increasing wallet share with existing customers** - Strong traction and scale up in with key customers across geographies such as Vietnam, Philippines, Nigeria, and Kuwait

- **Sole supplier** - Being the largest supplier of emulsions for small and medium companies, Jesons is the vendor-of-choice and in some cases the 'sole supplier' for a host of its customers. Jesons has been able to successfully get on the rosters of leading paint companies, such as Berger and Nippon Paint; which provides it the flexibility to serve them across markets
- **Responsible Care accredited company** - Only Company in the emulsions segment to have the 'Responsible Care' certification, for all the plants, from Indian Chemical Council. Jesons is a Responsible Care accredited company that believes in sustainable growth that is advantageous to the customers while having a positive impact on the environment and society. Since 2012, when Jesons technology center was established, Jesons has launched many bold innovations, in products and solutions as well as technologies.