

# Industry Research Report – Engineering Stones Industry

February 2024

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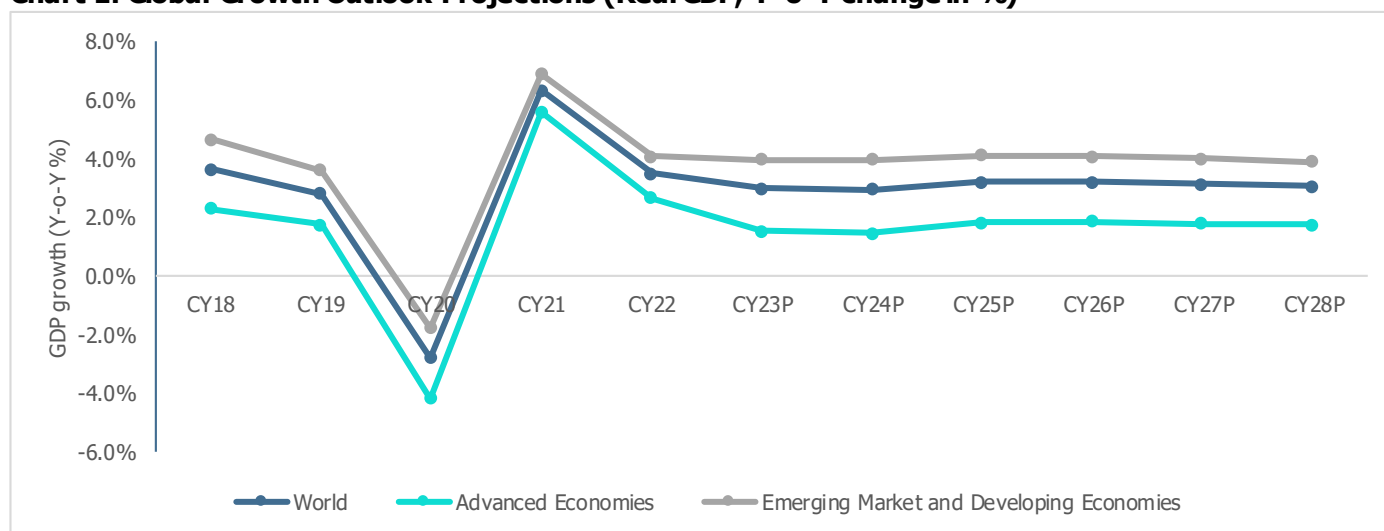
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## 1. Economic Outlook

### 1.1 Global Economy

As per the International Monetary Fund (IMF)'s World Economic Outlook growth projections released in October 2023, the global economic growth for CY22<sup>1</sup> stood at 3.5% on a year-on-year (y-o-y) basis, down from 6.3% in CY21 due to disruptions resulting from the Russia-Ukraine conflict and higher-than-expected inflation worldwide. On the other hand, the global economic growth for CY23 is projected to slow down further to 3.0% and 2.9% in CY24, attributed to compressing global financial conditions, expectant steeper interest rate hikes by major central banks to fight inflation, and spill-over effects from the Russia-Ukraine conflict, with gas supplies from Russia to Europe expected to remain tightened. For the next 4 years, the IMF projects world economic growth in the range of 3.0%-3.2% on a y-o-y basis.

**Chart 1: Global Growth Outlook Projections (Real GDP, Y-o-Y change in %)**



Notes: P-Projection;

Source: IMF – World Economic Outlook, October 2023

#### Advanced Economies Group

The major advanced economies registered GDP growth of 2.6% in CY22, down from 5.5% in CY21, which is further projected to decline to 1.5% in CY23. This forecast of low growth reflects increased central bank interest rates to fight inflation and the impact of the Russia-Ukraine war. About 90% of advanced economies are projected to witness decline GDP growth in CY23 compared to CY22. In addition, this is further expected to decline to 1.4% in CY24.

One of the major countries from this group is the **United States**. The United States registered GDP growth of 2.1% in CY22 compared to 5.9% in CY21. Whereas, growth for CY23 and CY24 is projected at 2.1% and 1.5%, respectively. Among advanced economies group, private consumption has been stronger in the United States than in the euro area. The business investments have also been robust in the second quarter, in addition, the general government fiscal stance of United States is expected to be expansionary in CY23. However, the unemployment rate is expected to rise coupled with declining wages and savings. With this, the GDP growth is expected to soften in near term.

Further, the **Euro Area** registered GDP growth of 3.3% in CY22 compared to 5.6% in CY21. For CY23 and CY24, the growth is projected at 0.7% and 1.2%, respectively. There is divergence in GDP growth across the euro area. Wherein, Germany is expected to witness slight contraction in growth due to weak interest rate sensitive sector and slow trading

<sup>1</sup> CY – Calendar Year



demand. On the other hand, the GDP growth for France has been revised upwards on account of growing industrial production and external demand.

### Emerging Market and Developing Economies Group

For the emerging market and developing economies group, GDP growth stood at 4.0% in CY22, compared to 6.8% in CY21. This growth is further projected at 4.0% in CY23 and CY24. About 90% of the emerging economies are projected to make positive growth. While the remaining economies, including the low-income countries, are expected to progress slower.

Further, in **China**, growth is expected to pick up to 5.0% with the full reopening in CY23 and subsequently moderate in CY24 to 4.8%. The property market crisis and lower investment are key factors leading to this moderation. Whereas, **India** is projected to remain strong at 6.3% for both CY23 and CY24 backed by resilient domestic demands despite external headwinds.

**Table 1: GDP growth trend comparison - India v/s Other Emerging and Developing Economies (Real GDP, Y-o-Y change in %)**

	Real GDP (Y-o-Y change in %)									
	CY19	CY20	CY21	CY22	CY23P	CY24P	CY25P	CY26P	CY27P	CY28P
India	3.9	-5.8	9.1	7.2	6.3	6.3	6.3	6.3	6.3	6.3
China	6.0	2.2	8.5	3.0	5.0	4.2	4.1	4.1	3.7	3.4
Indonesia	5.0	-2.1	3.7	5.3	5.0	5.0	5.0	5.0	5.0	5.0
Saudi Arabia	0.8	-4.3	3.9	8.7	0.8	4.0	4.2	3.3	3.3	3.1
Brazil	1.2	-3.3	5.0	2.9	3.1	1.5	1.9	1.9	2.0	2.0

P- Projections; Source: IMF- World Economic Outlook Database (October 2023)

The **Indonesian** economy is expected to register growth of 5% both in CY23 and CY24 with a strong recovery in domestic demands, a healthy export performance, policy measures, and normalization in commodity prices. In CY22, **Saudi Arabia** was the fastest-growing economy in this peer set with 8.7% growth. The growth is accredited to robust oil production, non-oil private investments encompassing wholesale and retail trade, construction and transport, and surging private consumption. Saudi Arabia is expected to grow at 0.8% and 4.0% in CY23 and CY24, respectively. On the other hand, **Brazil** is expected to project growth of 3.1% in CY23 driven by buoyant agriculture and resilient services in the first half of CY23.

Despite the turmoil in the last 2-3 years, India bears good tidings to become a USD 5 trillion economy by CY27. According to the IMF dataset on Gross Domestic Product (GDP) at current prices, the GDP has been estimated to be at USD 3.4 trillion for CY22 and is projected to reach USD 5.2 trillion by CY27. India's expected GDP growth rate for coming years is almost double compared to the world economy.

Besides, India stands out as the fastest-growing economy among the major economies. The country is expected to grow at more than 6% in the period of CY24-CY28, outshining China's growth rate. By CY27, the Indian economy is estimated to emerge as the third-largest economy globally, hopping over Japan and Germany. Currently, it is the third-largest economy globally in terms of Purchasing Power Parity (PPP) with a ~7% share in the global economy, with China [~18%] on the top followed by the United States [~15%]. Purchasing Power Parity is an economic performance indicator denoting the relative price of an average basket of goods and services that a household needs for livelihood in each country.

Despite Covid-19's impact, high inflationary and interest rates globally, and the geopolitical tensions in Europe, India has been a major contributor to world economic growth. India is increasingly becoming an open economy as well through growing foreign trade. Despite the global inflation and uncertainties, Indian economy continues to show resilience. This resilience is mainly supported stable financial sector backed by well-capitalized banks and export of services in trade balance. With this, the growth of Indian economy is expected to fare better than other economies majorly on account of

strong investment activity bolstered by the government’s capex push and buoyant private consumption, particularly among higher income earners.

## 1.2 Indian Economic Outlook

### 1.2.1 GDP Growth and Outlook

#### Resilience to External Shocks remains Critical for Near-Term Outlook

India’s GDP grew by 9.1% in FY22 and stood at Rs. 149.3 trillion despite the pandemic and geopolitical Russia-Ukraine spillovers. In Q1FY23, India recorded 13.2% y-o-y growth in GDP, largely attributed to improved performance by the agriculture and services sectors. Following this double-digit growth, Q2FY23 witnessed 6.3% y-o-y growth, while Q3FY23 registered 4.5% y-o-y growth. The slowdown during Q2FY23 and Q3FY23 compared to Q1FY23 can be attributed to the normalization of the base and a contraction in the manufacturing sector’s output.

Subsequently, Q4FY23 registered broad-based improvement across sectors compared to Q3FY23 with a growth of 6.1% y-o-y. The investments, as announced in the Union Budget 2022-23 on boosting public infrastructure through enhanced capital expenditure, have augmented growth and encouraged private investment through large multiplier effects in FY23. Supported by fixed investment and higher net exports, GDP for full-year FY23 was valued at Rs. 160.1 trillion registering an increase of 7.2% y-o-y.

Furthermore, in Q1FY24, the economic growth accelerated to 7.8%. The manufacturing sector maintained an encouraging pace of growth, given the favourable demand conditions and lower input prices. The growth was supplemented by a supportive base alongside robust services and construction activities.

#### GDP Growth Outlook

- During FY24, strong agricultural and allied activity prospects are likely to boost rural demands. However, a rebound in contact-intensive sectors and discretionary spending is expected to support urban consumption.
- Strong credit growth, resilient financial markets, and the government’s continual push for capital spending and infrastructure are likely to create a compatible environment for investments.
- External demand is likely to remain subdued with a slowdown in global activities, thereby indicating adverse implications for exports. Additionally, heightened inflationary pressures and resultant policy tightening may pose a risk to the growth potential.

Taking all these factors into consideration, in October 2023, the RBI in its bi-monthly monetary policy meeting estimated a real GDP growth of 6.5% y-o-y for FY24.

**Table 2: RBI’s GDP Growth Outlook (Y-o-Y %)**

FY24 (complete year)	Q2FY24	Q3FY24	Q4FY24	Q1FY25
6.5	6.5	6.0	5.7	6.6%

Source: Reserve Bank of India

### 1.2.2 Gross Value Added (GVA)

Gross Value Added (GVA) is the measure of the value of goods and services produced in an economy. GVA gives a picture of the supply side whereas GDP represents consumption.

#### Industry and Services sector leading the recovery charge

- The gap between GDP and GVA growth turned positive in FY22 (after a gap of two years) due to robust tax collections. Of the three major sector heads, the service sector has been the fastest-growing sector in the last 5 years.

- The **agriculture sector** was holding growth momentum till FY18. In FY19, the acreage for the rabi crop was marginally lower than the previous year which affected the agricultural performance. Whereas FY20 witnessed growth on account of improved production. During the pandemic-impacted period of FY21, the agriculture sector was largely insulated as timely and proactive exemptions from COVID-induced lockdowns to the sector facilitated uninterrupted harvesting of rabi crops and sowing of kharif crops. However, supply chain disruptions impacted the flow of agricultural goods leading to high food inflation and adverse initial impact on some major agricultural exports. However, performance remained steady in FY22.

Further, in Q1FY23 and Q2FY23, the agriculture sector recorded a growth of 2.4% and 2.5%, respectively, on a y-o-y basis. Due to uneven rains in the financial year, the production of some major Kharif crops, such as rice and pulses, was adversely impacted thereby impacting the agriculture sector's output. In Q3FY23 and Q4FY23, the sector recorded a growth of 4.7% and 5.5%, respectively, on a y-o-y basis.

Overall, the agriculture sector performed well despite weather-related disruptions, such as uneven monsoon and unseasonal rainfall, impacting yields of some major crops and clocked a growth of 4% y-o-y in FY23, garnering Rs. 22.3 trillion. In Q1FY24, this sector expanded at a slower pace of 3.1% compared to a quarter ago. Going forward, rising bank credit to the sector and increased exports will be the drivers for the agriculture sector. However, a deficient rainfall may impact the reservoir level weighing on prospects of rabi sowing. A downside risk exists in case the intensity of El Nino is significantly strong.

- The **industrial sector** witnessed a CAGR of 4.7% for the period FY16 to FY19. From March 2020 onwards, the nationwide lockdown due to the pandemic significantly impacted industrial activities. In FY20 and FY21, this sector felt turbulence due to the pandemic and recorded a decline of 1.4% and 0.9%, respectively, on a y-o-y basis. With the opening up of the economy and resumption of industrial activities, it registered 11.6% y-o-y growth in FY22, albeit on a lower base.

The industrial output in Q1FY23 jumped 9.4% on a y-o-y basis. However, in the subsequent quarter, the sector witnessed a sharp contraction of 0.5% due to lower output across the mining, manufacturing, and construction sectors. This was mainly because of the poor performance of the manufacturing sector, which was marred by high input costs. In Q3FY23, the sector grew modestly by 2.3% y-o-y. The growth picked up in Q4FY23 to 6.3% y-o-y owing to a rebound in manufacturing activities and healthy growth in the construction sector. Overall, the industrial sector is estimated to be valued at Rs. 45.2 trillion registering 4.4% growth in FY23.

The industrial sector grew by 5.5% in Q1FY24. The industrial growth was mainly supported by sustained momentum in the manufacturing and construction sectors. Within manufacturing (as captured by IIP numbers), industries such as pharma, non-metallic mineral products, rubber, plastic, metals, etc., witnessed higher production growth during the quarter.

- The **services sector** recorded a CAGR of 7.1% for the period FY16 to FY20, which was led by trade, hotels, transport, communication, and services related to broadcasting, finance, real estate, and professional services. This sector was the hardest hit by the pandemic and registered an 8.2% y-o-y decline in FY21. The easing of restrictions aided a fast rebound in this sector, with 8.8% y-o-y growth witnessed in FY22.

In Q1FY23 and Q2FY23, this sector registered a y-o-y growth of 16.3% and 9.4%, respectively, on a lower base and supported by a revival in contact-intensive industries. Further, the services sector continued to witness buoyant demand and recorded a growth of 6.1% y-o-y in Q3FY23. Supported by robust discretionary demands, Q4FY23 registered 6.9% growth largely driven by the trade, hotel, and transportation industries. Overall, benefitting from the pent-up demand, the service sector was valued at Rs. 20.6 trillion and registered growth of 9.5% y-o-y in FY23.

Whereas in Q1FY24, the services sector growth jumped to 10.3%. Within services, there was a broad-based improvement in growth across different sub-sectors. However, the sharpest jump was seen in financial, real estate, and professional services. Trade, hotels, and transport sub-sectors expanded at a healthy pace gaining from strength in discretionary

demand. Accordingly, steady growth in various service sector indicators like air passenger traffic, port cargo traffic, GST collections, and retail credit are expected to support the services sector.

**Table 3: Sectoral Growth (Y-o-Y % Growth) - at Constant Prices**

At constant Prices	FY18	FY19	FY20 (3RE)	FY21 (2RE)	FY22 (1RE)	FY23 (PE)	Q1FY23	Q1FY24
<b>Agriculture, Forestry &amp; Fishing</b>	<b>6.6</b>	<b>2.1</b>	<b>6.2</b>	<b>4.1</b>	<b>3.5</b>	<b>4</b>	<b>2.4</b>	<b>3.5</b>
<b>Industry</b>	<b>5.9</b>	<b>5.3</b>	<b>-1.4</b>	<b>-0.9</b>	<b>11.6</b>	<b>4.4</b>	<b>9.4</b>	<b>5.5</b>
Mining & Quarrying	-5.6	-0.8	-3	-8.6	7.1	4.6	9.5	5.8
Manufacturing	7.5	5.4	-3	2.9	11.1	1.3	6.1	4.7
Electricity, Gas, Water Supply & Other Utility Services	10.6	7.9	2.3	-4.3	9.9	9	14.9	2.9
Construction	5.2	6.5	1.6	-5.7	14.8	10	16	7.9
<b>Services</b>	<b>6.3</b>	<b>7.2</b>	<b>6.4</b>	<b>-8.2</b>	<b>8.8</b>	<b>9.5</b>	<b>9.4</b>	<b>10.3</b>
Trade, Hotels, Transport, Communication & Broadcasting	10.3	7.2	6	-19.7	13.8	14	25.7	9.2
Financial, Real Estate & Professional Services	1.8	7	6.8	2.1	4.7	7.1	8.5	12.2
Public Administration, Defence and Other Services	8.3	7.5	6.6	-7.6	9.7	7.2	21.3	7.9
<b>GVA at Basic Price</b>	<b>6.2</b>	<b>5.8</b>	<b>3.9</b>	<b>-4.2</b>	<b>8.8</b>	<b>7</b>	<b>11.9</b>	<b>7.8</b>

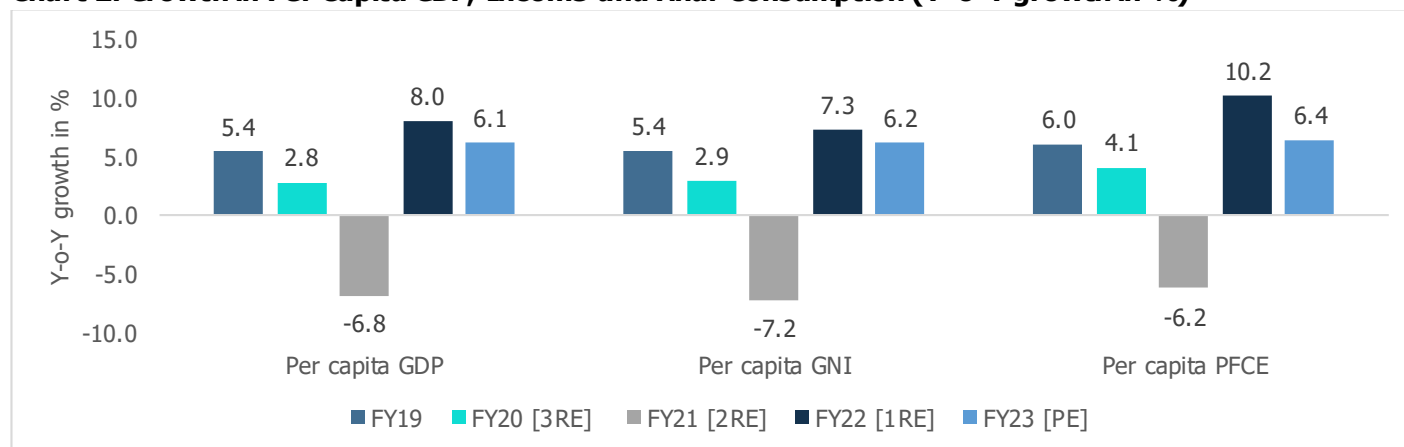
Note: 3RE – Third Revised Estimate, 2RE – Second Revised Estimates, 1RE – First Revised Estimates, PE – Provisional Estimate; Source: MOSPI

### 1.2.3 Per capita GDP, Per Capita GNI and Per Capita PFCE

India has a population of about 1.3 billion with a young demographic profile. The advantages associated with this demographic dividend are better economic growth, rapid industrialization and urbanization.

Gross Domestic Product (GDP) per capita is a measure of a country’s economic output per person. FY21 witnessed significant de-growth due to the pandemic. However, in FY22 the economy paved its way towards recovery and the per capita GDP grew by 8.0%. This growth was moderated to 6.1% due to the correction of base effect in FY23. The Gross national income (GNI) also increased by 7.3% in FY22 and 6.2% in FY23. The per capita private final consumption expenditure (PFCE), which represents consumer spending, increased by 10.2% in FY22 and 6.4% in FY23.

**Chart 2: Growth in Per Capita GDP, Income and Final Consumption (Y-o-Y growth in %)**

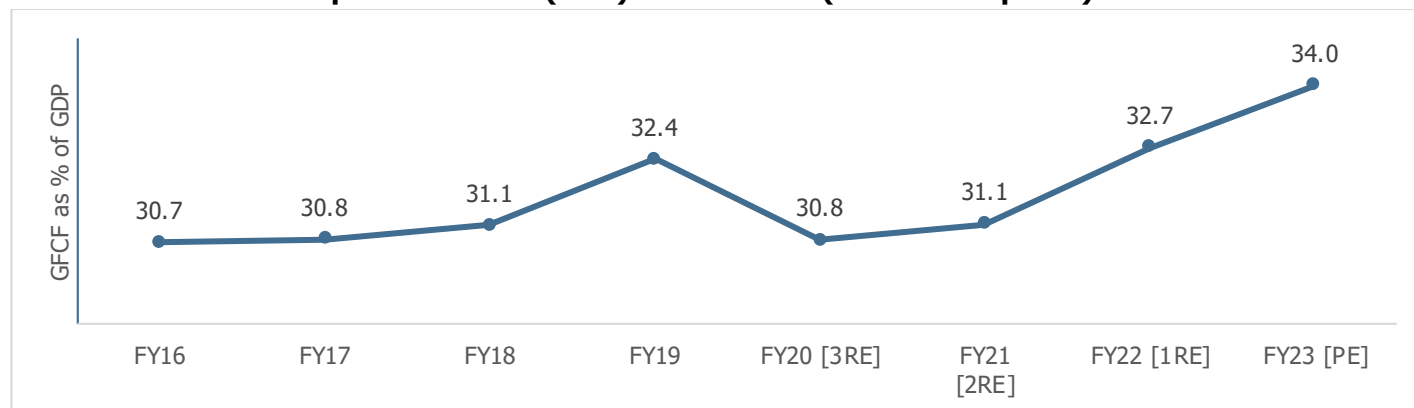


Note: 3RE – Third Revised Estimate, 2RE – Second Revised Estimates, 1RE – First Revised Estimates, PE – Provisional Estimate; Source: MOSPI

### 1.2.4 Investment Trend in Infrastructure

Gross Fixed Capital Formation (GFCF), which is a measure of the net increase in physical assets, witnessed an improvement in FY22. As a proportion of GDP, it is estimated to be at 32.7%, which is the second-highest level in 7 years (since FY15). In FY23, the ratio of investment (GFCE) to GDP climbed up to its highest in the last decade at 34%, as per the advanced estimate released by the Ministry of Statistics and Programme Implementation (MOSPI).

**Chart 3: Gross Fixed Capital Formation (GFCF) as % of GDP (At constant prices):**



RE: Revised Estimate; Source: MOSPI

Overall, the support of public investment in infrastructure is likely to gain traction due to initiatives such as Atmanirbhar Bharat, Make in India, and Production-linked Incentive (PLI) scheme announced across various sectors.

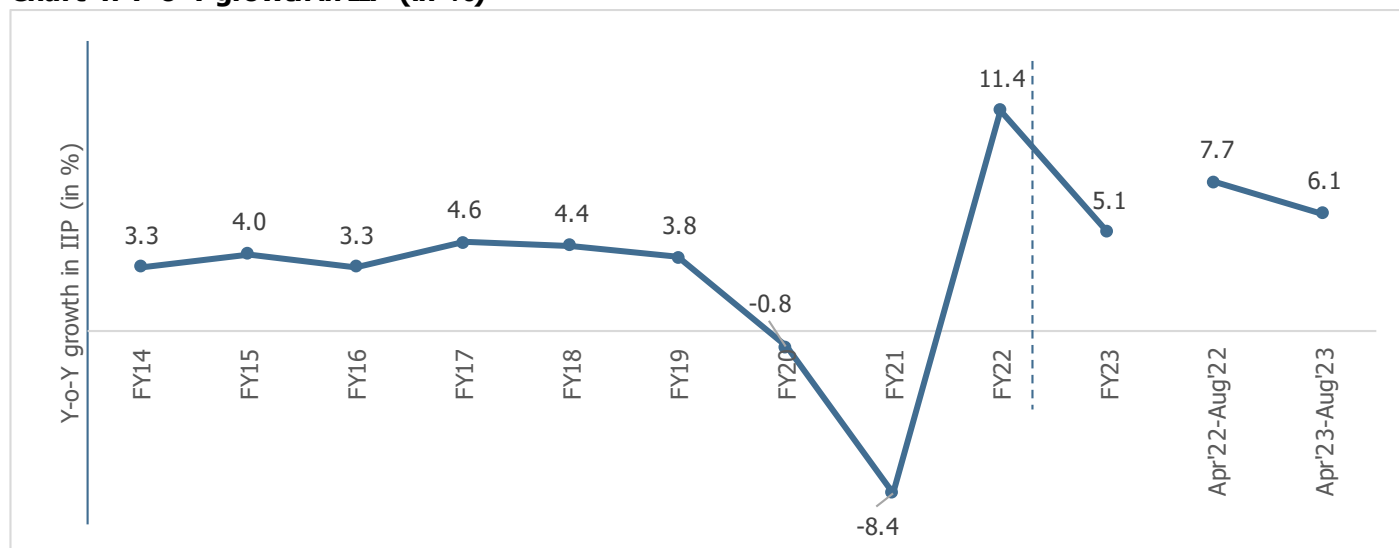
### 1.2.5 Industrial Growth

#### Improved Core and Capital Goods Sectors helped IIP Growth Momentum

The Index of Industrial Production (IIP) is an index to track manufacturing activity in an economy. On a cumulative basis, IIP grew by 11.4% y-o-y in FY22 post declining by 0.8% y-o-y and 8.4% y-o-y, respectively, in FY20 and FY21. This high growth was mainly backed by a low base of FY21. FY22 IIP was higher by 2.0% when compared with the pre-pandemic level of FY20, indicating that while economic recovery was underway, it was still at very nascent stages.

During FY23, the industrial output recorded a growth of 5.1% y-o-y supported by a favourable base and a rebound in economic activities. During April 2023 and May 2023, IIP grew by 4.2% y-o-y and 5.3% y-o-y growth, respectively. This growth in April and May 2023 was aided by encouraging performance of the mining and manufacturing sectors. However, in June 2023, the industrial output slowed to 3.7% mainly due to moderation in the manufacturing sector's output. This industrial growth rebounded to 5.7% in July 2023 with improvement in the manufacturing segment and further accelerated to 10.3% in August 2023 with improvement in the manufacturing segment. Sectors like mining and electricity as well aided this performance.

Chart 4: Y-o-Y growth in IIP (in %)



Source: MOSPI

The rebound in industrial activity in July 2023 is encouraging. The healthy momentum recorded in the infrastructure and construction sector is likely to continue aided by the Government's focus on this segment. The consumption demand is likely to see an improvement in the upcoming festive season. However, the elevated food inflation and monsoon-related vagaries could pose a risk to consumption demand. Over a longer period of time, the unfolding of the domestic demand scenario remains critical for industrial activity. External demand is likely to remain weak and that will continue to cast a shadow on export-dependent sectors.

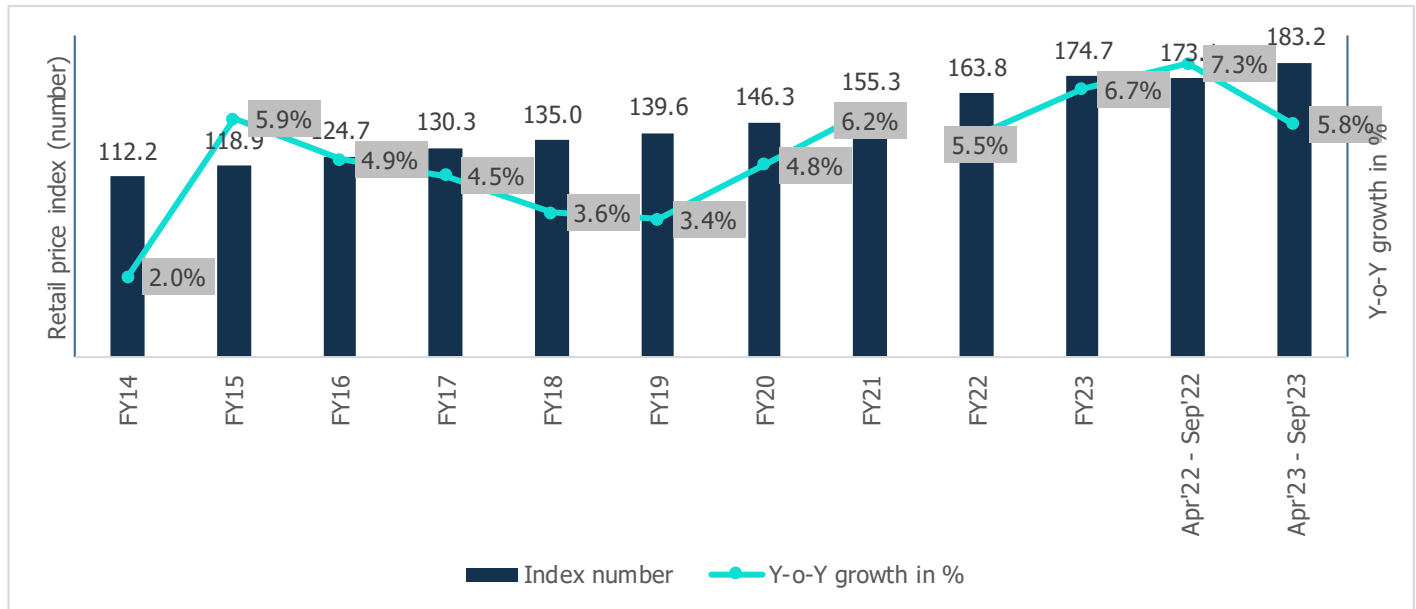
### 1.2.6 Consumer Price Index

India's consumer price index (CPI), which tracks retail price inflation, stood at an average of 5.5% in FY22 which was within RBI's targeted tolerance band of 6%. However, consumer inflation started to upswing from October 2021 onwards and reached a tolerance level of 6% in January 2022. Following this, CPI reached 6.9% in March 2022.

CPI remained elevated at an average of 6.7% in FY23, above the RBI's tolerance level. However, there was some respite toward the end of the fiscal wherein the retail inflation stood at 5.7% in March 2023, tracing back to the RBI's tolerance band. Apart from a favorable base effect, the relief in retail inflation came from a moderation in food inflation.

In the current fiscal FY24, the CPI moderated for two consecutive months to 4.7% in April 2023 and 4.3% in May 2023. This trend snapped in June 2023 with CPI rising to 4.9% and 7.4% in July 2023 largely due to increased food inflation. The CPI has breached the RBI's target range for the first time since February 2023. This marks the highest reading observed since the peak in April 2022 at 7.8%. The notable surge in vegetable prices and elevated inflation in other food categories such as cereals, pulses, spices, and milk have driven this increase. Further, the contribution of food and beverage to the overall inflation has risen significantly to 65%, surpassing their weight in the CPI basket. This was moderated for second consecutive month in September 2023 by 5% helped by a sharp correction in vegetables prices and lower LPG prices.

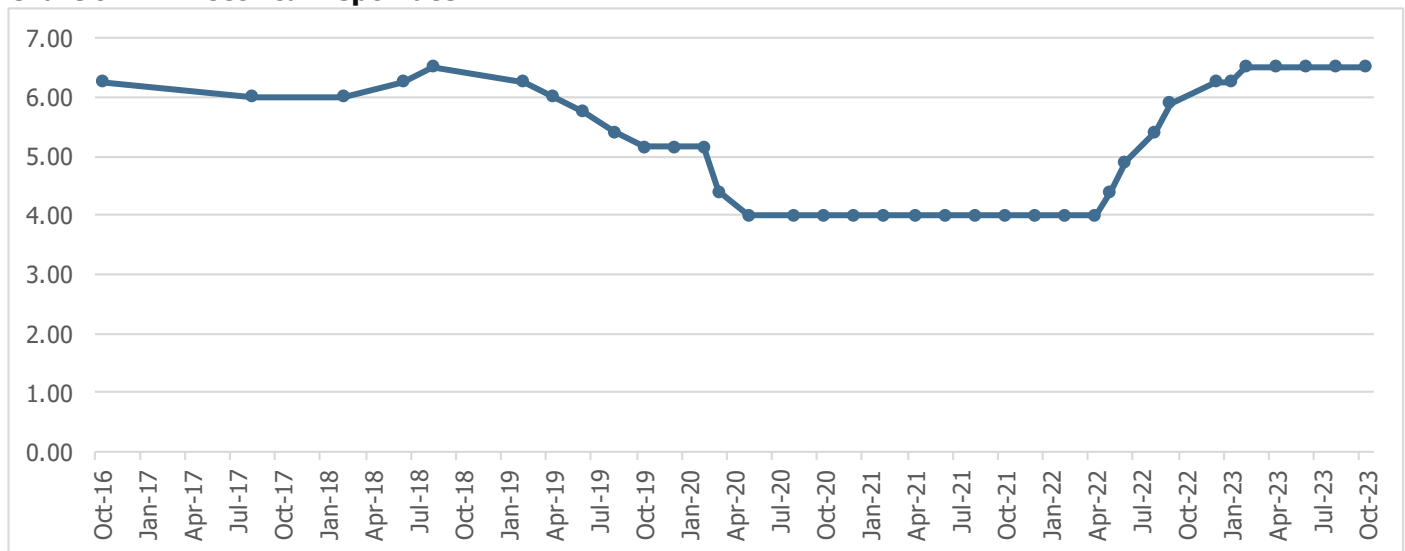
**Chart 5: Retail Price Inflation in terms of index and Y-o-Y Growth in % (Base: 2011-12=100)**



Source: MOSPI

The CPI is primarily factored in by RBI while preparing their bi-monthly monetary policy. The RBI has increased the repo rates with the rise in inflation in the past year from 4% in April 2022 to 6.5% in January 2023.

**Chart 6: RBI historical Repo Rate**



Source: RBI

However, with the inflation easing over the last few months, RBI has kept the repo rate unchanged at 6.5% in the last four meetings of the Monetary Policy Committee. At the bi-monthly meeting held in October 2023, RBI projected inflation at 5.4% for FY24 with inflation during Q2FY24 at 6.4%, Q3FY24 at 5.6%, Q4FY24 at 5.2% and Q1FY25 at 5.2%

In a meeting held in October 2023, RBI also maintained the liquidity adjustment facility (LAF) corridor by adjusting the standing deposit facility (SDF) rate of 6.25% as the floor and the marginal standing facility (MSF) at the upper end of the band at 6.75%.

Further, the central bank continued to remain focused on the withdrawal of its accommodative stance. With domestic economic activities gaining traction, RBI has shifted gears to prioritize controlling inflation. While RBI has paused on the policy rate front, it has also strongly reiterated its commitment to bringing down inflation close to its medium-term target of 4%. Given the uncertain global environment and lingering risks to inflation, the Central Bank has kept the window open for further monetary policy tightening in the future, if required.

### 1.2.7 Key Demographic Drivers for Economic Growth

The trajectory of economic growth of India and private consumption is driven by socio-economic factors such as demographics and urbanization.

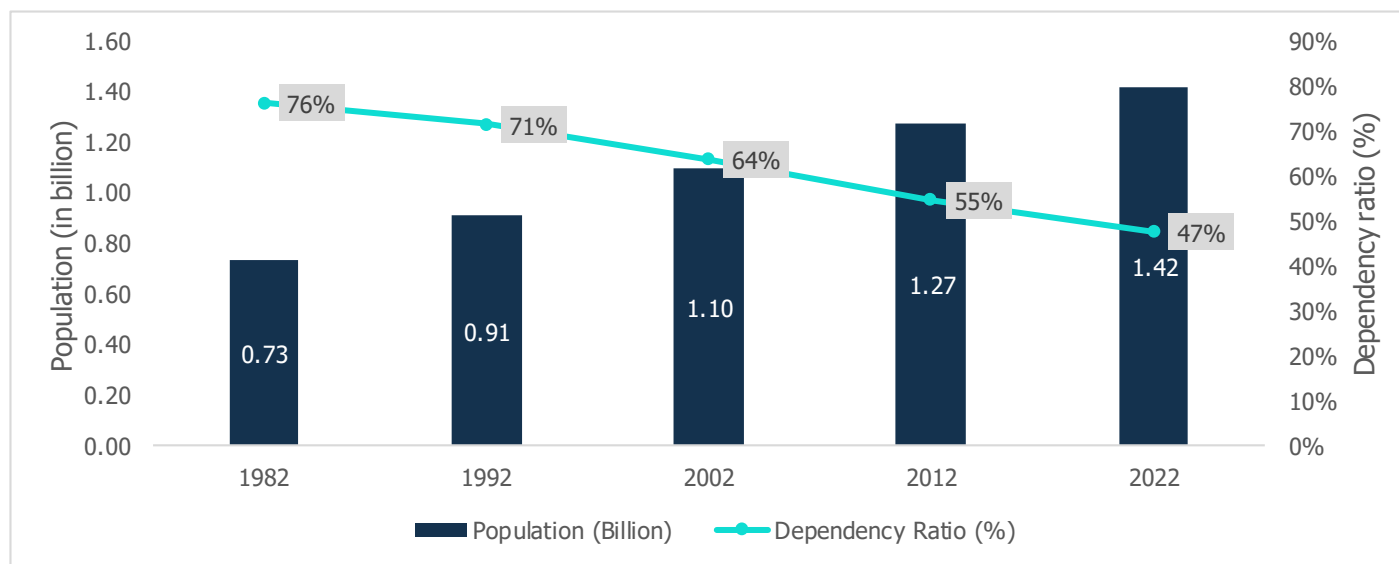
Some of the key demographic drivers are as under:

- **Growing Population and Declining Dependency Ratio**

With 1.41 billion people, India is the second-most populous country in the world, with the population witnessing significant growth in the past few decades.

Age Dependency Ratio is the ratio of dependents to the working age population, i.e., 15 to 64 years, wherein dependents are population younger than 15 and older than 64. This ratio has been on a declining trend. It was as high as 76% in 1982, which has reduced to 47% in 2022. Declining dependency means the country has an improving share of working-age population generating income, which is a good sign for the economy.

**Chart 7: Trend of India Population vis-à-vis dependency ratio**



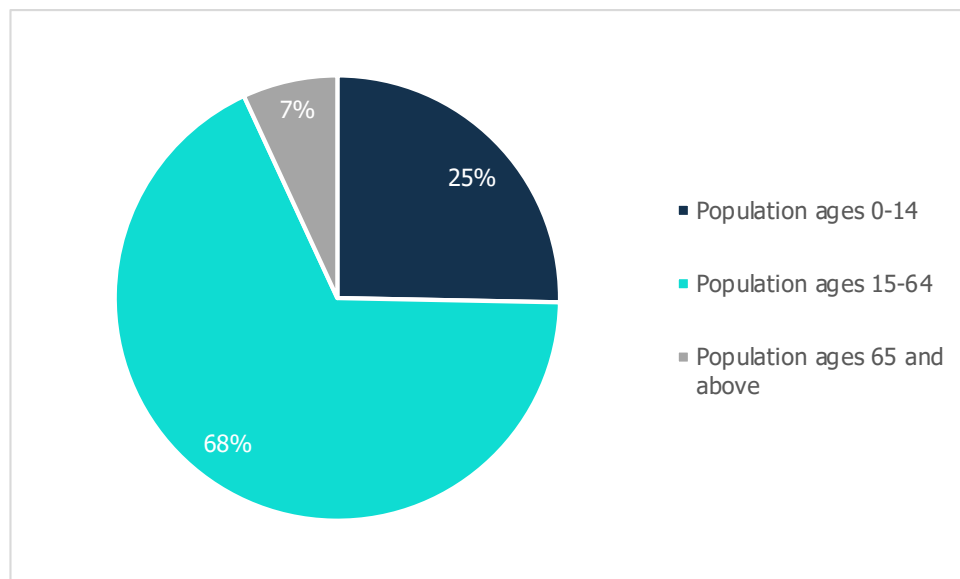
Source: World Bank Database

- **Young Population**

With an average age of 29, India has one of the youngest populations globally. With vast resources of young citizens entering the workforce every year, it is expected to create a 'demographic dividend'. India is home to a fifth of the world's youth demographic and this population advantage will play a critical role in economic growth.

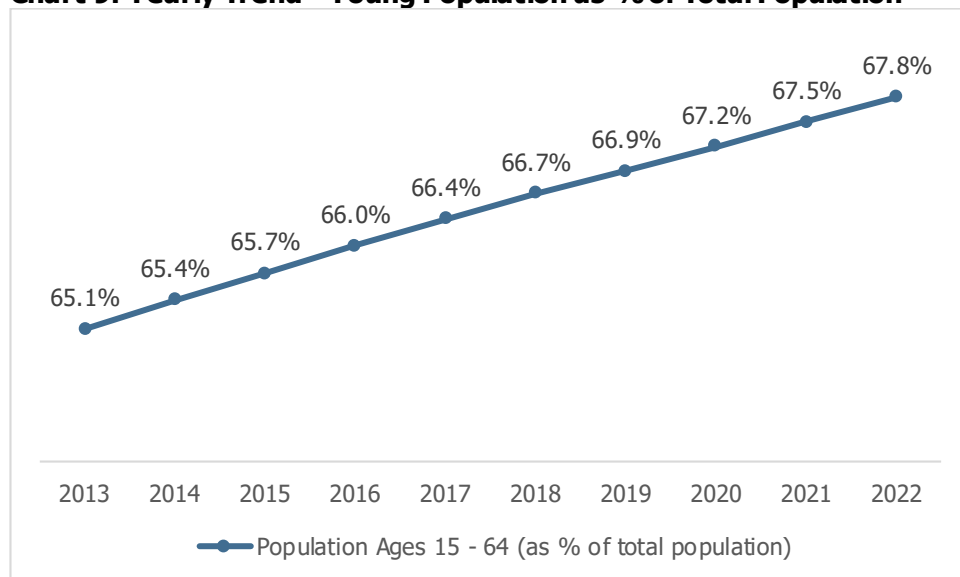


**Chart 8: Age-Wise Break Up of Indian population**



Source: World Bank Database

**Chart 9: Yearly Trend - Young Population as % of Total Population**

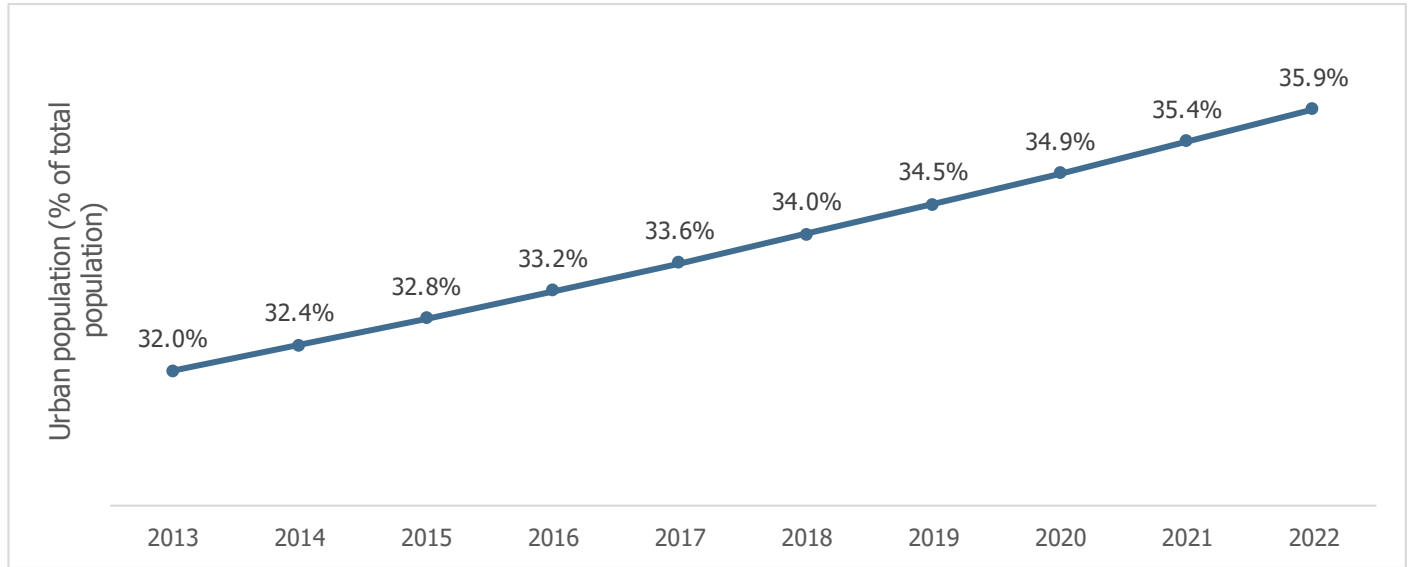


Source: World Bank database

**• Urbanization**

The urban population is significantly growing in India. The urban population in India is estimated to have increased from 403 million (31.6% of total population) in the year 2012 to 508 million (35.9% of total population) in the year 2022. People living in Tier-2 and Tier-3 cities have greater purchasing power.

**Chart 10: Urbanization Trend in India**



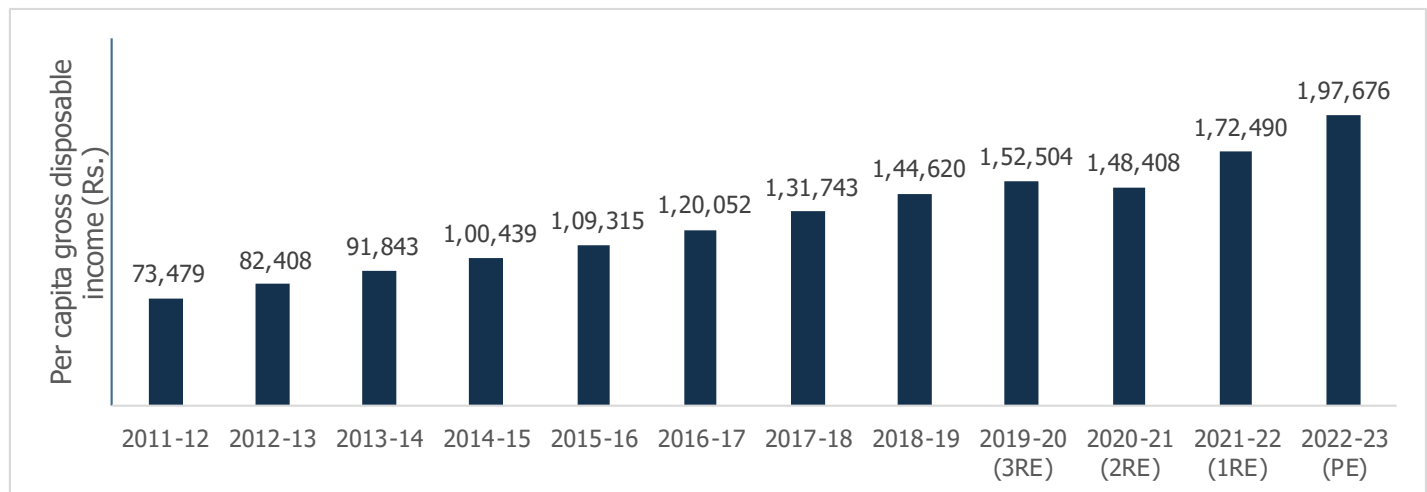
Source: World Bank Database

- **Increasing Per Capita Disposable Income**

Gross National Disposable Income (GNDI) is a measure of the income available to the nation for final consumption and gross savings. Between the period fiscal 2012 to fiscal 2023, per capita GNDI registered a CAGR of 9.4%. More disposable income drives more consumption, thereby driving economic growth.

The chart below depicts the trend of per capita GNDI in the past 12 years:

**Chart 11: Trend of Per Capita Gross National Disposable Income**



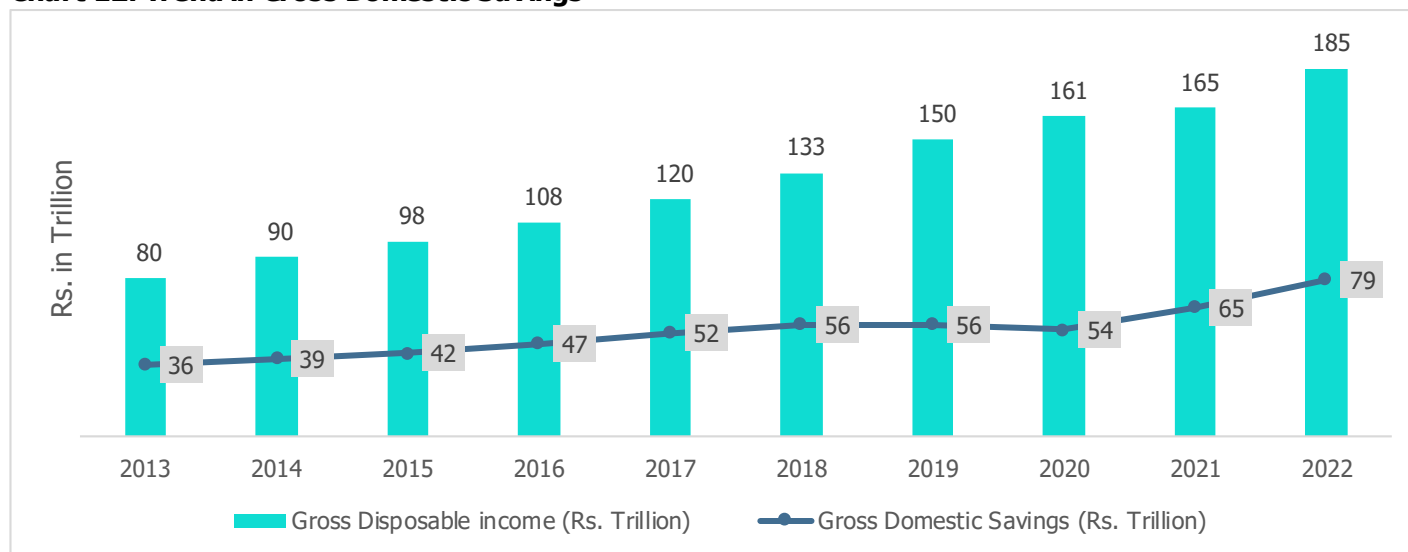
Note: 3RE – Third Revised Estimate, 2RE – Second Revised Estimates, 1RE – First Revised Estimates, PE – Provisional Estimate

Source: MOSPI

- **Increase in income and savings levels:**

Rising income is the most powerful long-term driver of economic growth, because the economy is complimented by a high demographic dividend. The middle-income group in India has the highest level of gold consumption. The wealthy consume the most per capita, but the middle class consumes the most total volume.

**Chart 12: Trend in Gross Domestic Savings**



Source: World Bank Database; MOSPI

Although there is a growing propensity to consume gold as income rises, the proportion of gold in one's portfolio does not rise at the same rate. A fall in household savings rates, availability of different investment avenues and agricultural earnings can be hurdles to Indian demand.

### India V/s China Chart

#### Emerging Market and Developing Economies Group

For the emerging market and developing economies group, GDP growth stood at 4.0% in CY22, compared to 6.8% in CY21. This growth is further projected at 4.0% in CY23 and CY24. About 90% of the emerging economies are projected to make positive growth. While the remaining economies, including the low-income countries, are expected to progress slower.

Further, in **China**, growth is expected to pick up to 5.0% with the full reopening in CY23 and subsequently moderate in CY24 to 4.8%. The property market crisis and lower investment are key factors leading to this moderation. Whereas, India is projected to remain strong at 6.3% for both CY23 and CY24 backed by resilient domestic demands despite external headwinds.

**Chart 13: GDP growth trend comparison - India and China (Real GDP, Y-o-Y change in %)**



Notes: P-Projection;

Source: IMF – World Economic Outlook, October 2023

Despite the turmoil in the last 2-3 years, India bears good tidings to become a USD 5 trillion economy by CY27. According to the IMF dataset on Gross Domestic Product (GDP) at current prices, the GDP has been estimated to be at USD 3.4 trillion for CY22 and is projected to reach USD 5.2 trillion by CY27. India’s expected GDP growth rate for coming years is almost double compared to the world economy.

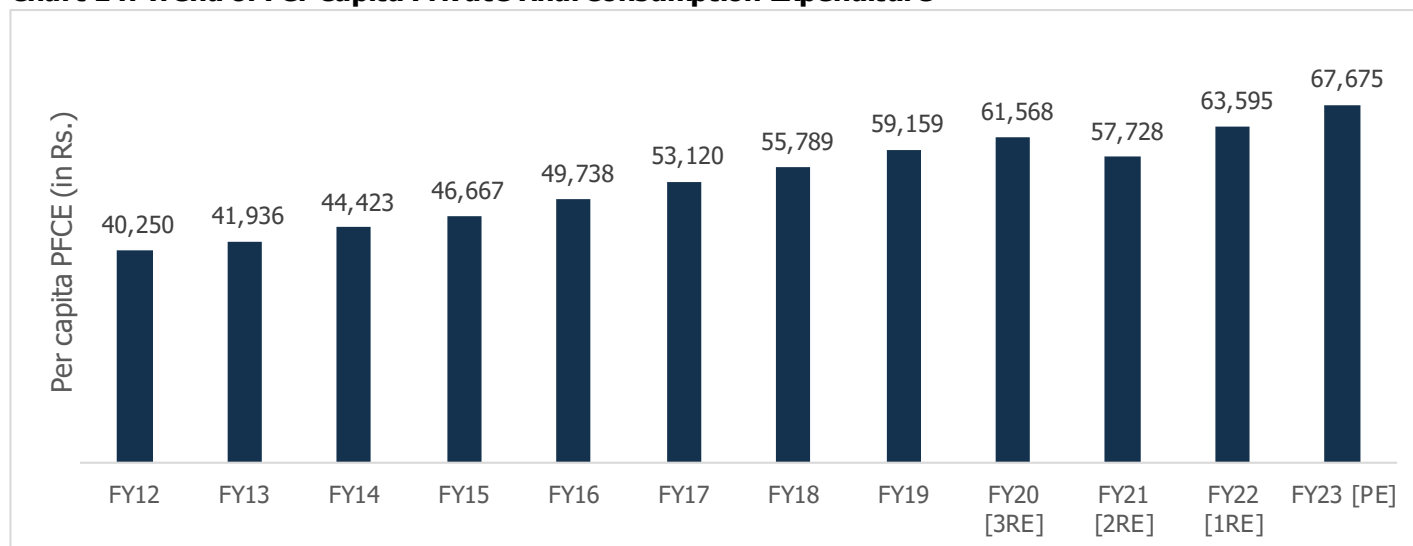
Besides, India stands out as the fastest-growing economy among the major economies. The country is expected to grow at more than 6% in the period of CY24-CY28, outshining China’s growth rate. By CY27, the Indian economy is estimated to emerge as the third-largest economy globally, hopping over Japan and Germany. Currently, it is the third-largest economy globally in terms of Purchasing Power Parity (PPP) with a ~7% share in the global economy, with China [~18%] on the top followed by the United States [~15%]. Purchasing Power Parity is an economic performance indicator denoting the relative price of an average basket of goods and services that a household needs for livelihood in each country.

**PFCE per capita**

• **Consumer Spending**

There has been a gradual change in consumer spending behaviour as well. Private Final Consumption Expenditure (PFCE) which is measure of consumer spending has also showcased growth in the past decade. Following chart depicts the trend of per capita PFCE:

**Chart 14: Trend of Per Capita Private Final Consumption Expenditure**



RE: Revised Estimate; Source: MOSPI

### 1.2.8 Concluding Remarks

The major headwinds to global economic growth are escalating geopolitical tensions, volatile global commodity prices, and a shortage of key inputs. Despite the global economic growth uncertainties, the Indian economy is relatively better placed in terms of GDP growth compared to other emerging economies. It is expected to grow at 6.3% in CY24 compared to the world GDP growth projection of 3%. The bright spots for the economy are continued healthy domestic demand, support from the government towards capital expenditure, moderating inflation, and improving business confidence.

Likewise, several high-frequency growth indicators including the purchasing managers index, auto sales, bank credit, and GST collections have shown improvement in FY23. Moreover, normalizing the employment situation after the opening up of the economy is expected to improve and provide support to consumption expenditure.

Further, in line with the latest India Meteorological Department (IMD) projection, the rainfall activity has been muted during June 1, 2023 to September 20, 2023, with cumulative rainfall falling back to a 7% deficit. Also, weak-to-moderate El Nino conditions are expected to lead to a prolonged dry spell. A drop-in yield due to irregular monsoon and a lower acreage can lead to a demand-supply mismatch, further increasing the inflationary pressures on the food basket. Going ahead, consumption demand is expected to pick up during the festive season, but the quantum of rise in demand will be dependent on the extent of the impact of the irregular monsoon.

At the same time, public investment is expected to exhibit healthy growth as the government has allocated a strong capital expenditure of about Rs. 10 lakh crores for FY24. The private sector's intent to invest is also showing improvement as per the data announced on new project investments. However, volatile commodity prices and economic uncertainties emanating from global turbulence may slow down the improvement in private CapEx and investment cycle.

Furthermore, the industrial sector is expected to perform better among all sectors, as input costs are now moderating. With flagship programmes like 'Make in India' and the PLI schemes, the government is continuing to provide the necessary support to boost the industry sector. Similarly, the service sector is expected to see continued growth in FY24. However, some segments in the service sector, like information technology, are likely to be impacted by the slowdown in the US and European economies.

## 2. Overview of Natural and Engineered Stone Industry

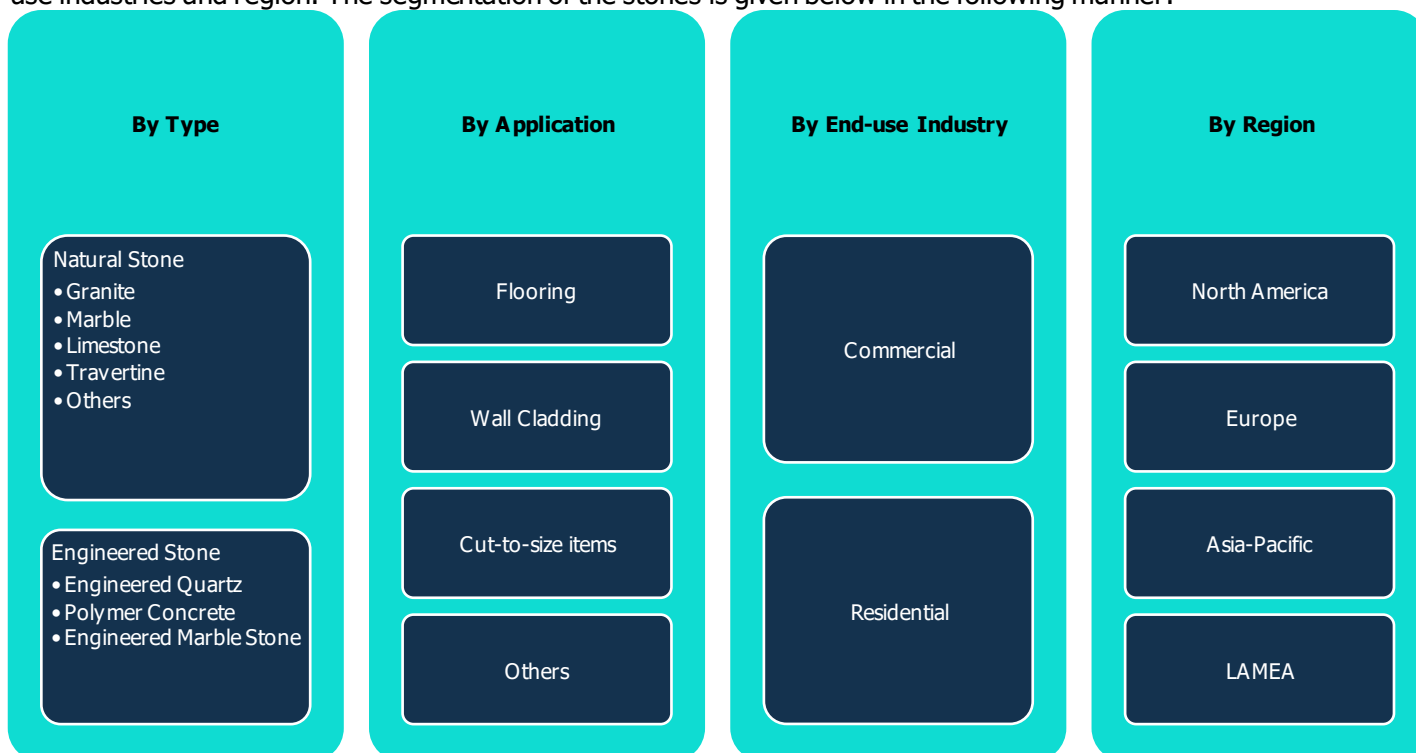
Natural stones are produced by complex geological processes and include products such as granite, limestone, marble, slate, quartzite, onyx, sandstone, travertine, and others quarried from the earth. They are widely known for their uniqueness, aesthetic appeal, texture, colour, and composition as no two natural stones are the same. Further, natural stones have a wide range of applications in large-scale constructions such as the construction of government buildings, churches, monuments, and road construction. Previously, for residential construction projects, wood and brick were a non-debatable choice. However, as per recent trends, natural stone is widely used in residential construction owing to its excellent structural and decorative aspects. Some of the popular applications of natural stones in residential construction include atriums, fireplaces, countertops, bathrooms, entryways, and other surfaces.

Also, natural stones are known for the sense of peaceful tranquility that they create and for their distinctive beauty. In addition to aesthetic appeal, natural stones are durable compared to other building materials, such as wood. They can last for decades and require very little maintenance. Natural stones are also available in slabs that can be as large as 350x200 cm. These stones are available in a variety of finishes such as antiquated, leather, rugged, polished, and tumbled and in a variety of edges such as bull-nosed, beveled, and others.

Quartz, an example of engineered stone used in the countertop industry, is a composite material made up of crushed stone bonded by an adhesive. For instance, for countertops, the slabs are made from quartz crystals bonded with a resin binder. The engineered stone slabs are manufactured by bonding up to 93% natural quartz which is one of the hardest materials. Whereas pigments, aggregates, and polymer resins are used to produce vibrant stone surfaces with excellent stain, heat, chip, and scratch resistance properties. Furthermore, it is recommended that the engineered stone like quartz products should not be used for exterior applications as direct exposure to sunlight can lead to fading. Accordingly, engineered stone like quartz are used for vanity tops, reception or bar counters, kitchen benchtops, upstands, and splash backs.

### 2.1 Market Segmentation

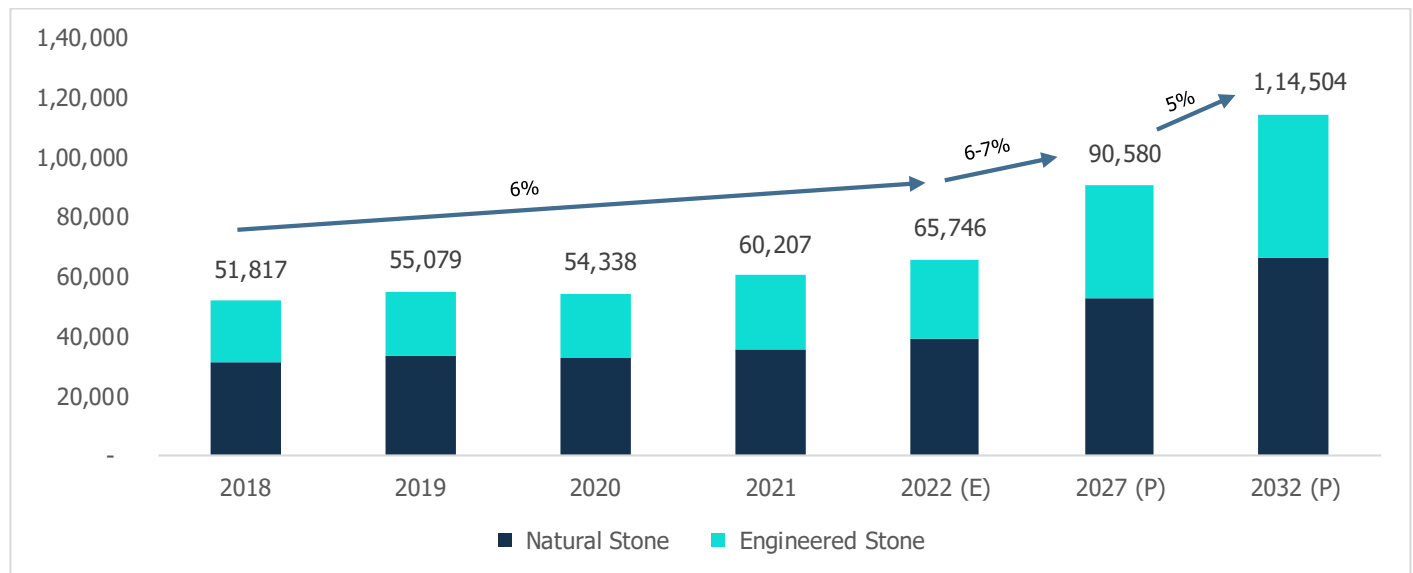
The Natural and Engineered stones can be bifurcated into various segments depending upon their type, application, end use industries and region. The segmentation of the stones is given below in the following manner:



## 2.2 Market Segmentation by Type

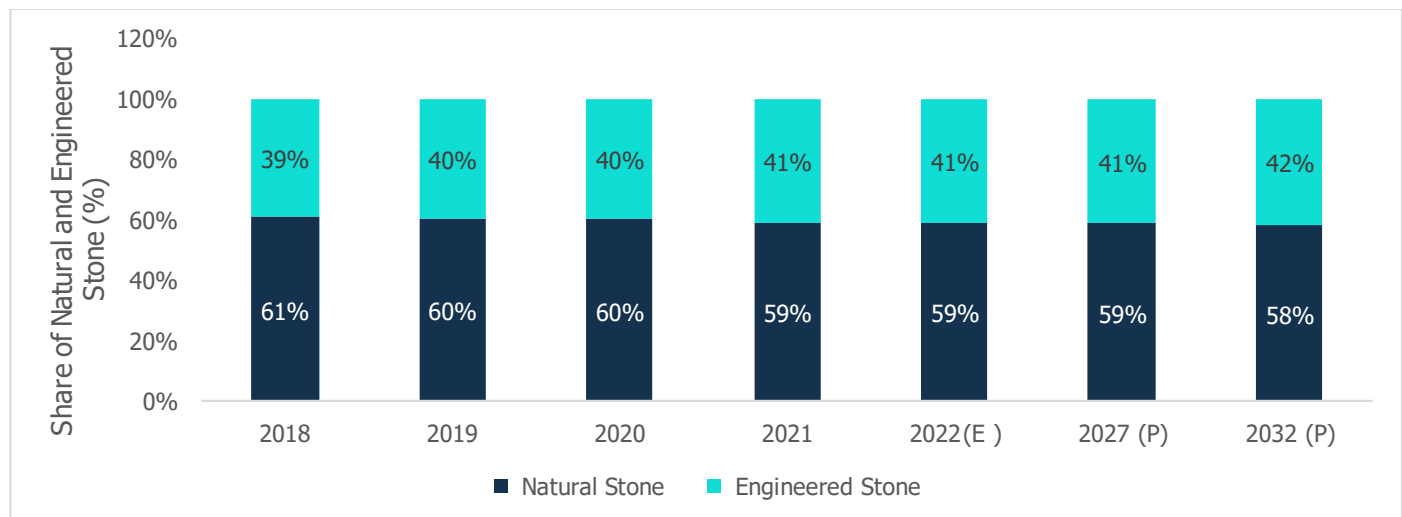
The global natural and engineered stone (combined) market is expected to account for \$65,746 million in 2022 and is expected to reach of \$1,14,504 million by 2032. In the year 2022, the natural stone segment is expected to account for a major 59% of market share with \$38,829 million while the contribution of engineered stone segment stood at \$26,917 million. However, in projected years between 2022 and 2027, the engineered stone is expected to grow at a higher CAGR of 67% as compared to natural stone which is expected to grow at a CAGR of 5-6%. This is mainly because the engineered stones are non-porous, strong, durable and stain resistant. The engineered stones are also available in various colors and designs which is making them a preferred choice.

**Chart 15: Global Natural and Engineered Stone Market by Type (\$Million)**



Source: Research Dive, CareEdge Research

**Chart 16: Share of Natural and Engineered Stone Market**



Source: Research Dive, CareEdge Research

## Natural Stones

Natural stones are a result of millions of years of geological changes and mineral compositions on Earth. These materials are mined from the Earth's surface and utilized in a range of projects such as sculptures, worktops, fireplaces, and flooring.

The Natural Stone segment is further divided into:

- Granite
- Marble
- Limestone
- Travertine and others.

### Marble

Marble is the geological name for massive & compact limestone which is completely re-crystallized by heat and pressure that captures several foreign substances, thus creating a unique variety of colours and veining (minerals). Marble is just a changed limestone, or to be more specific, metamorphic limestone. The dissimilarity of materials causes veining in marbles facilitating weakness within many marbles. Like numerous other stones such as Calcareous stones, travertine and onyx, calcium carbonate is a major component of marble.



Further, marble can be polished and used for architectural and ornamental purposes. It is available in different colors from white to black, yellow, red, and green. Marbles are also veined or clouded beautifully. They are preferred for floorings as they emphasize the living space with its richness.

Compared to other stones marble is relatively softer and is also less stain-resistant. It is required to be carefully maintained and should be treated as fine furniture. It is vulnerable to damage from citric acids, alcohols and oils and hence spills should be wiped up immediately.

### Granite

Granite is an igneous rock, which, during its development, remains in the form of liquid magma in the center of the Earth. Unlike lava, granite does not come to the surface. It remains trapped inside the earth where it slowly cools and gets crystallized. Due to the extreme pressure within the Earth, and the absence of atmosphere, the granite formed is very dense and is without any pores. Granite is made up of different kinds of ingredients, including common minerals like feldspar, quartz, and mica, the proportions of which differ from deposit to deposit. Quartz, which is the hardest part of granite (ranging between 70% and 80% of the density of a diamond) makes up only between 10%-30% of the rock, whereas feldspar (potassium and sodium varieties) makes up 60%-80%.



Further, there are different colours of granite varying from stark white to beiges, browns, reds, pinks, yellows, greens, blues, greys, and blacks. Textures range from clear to coarse and crystalline to heavily veined. These natural materials were formed on the earth many years ago by processes and conditions, which gave each of them varying properties and characteristics. Granite is the most durable of the stone surfaces, which makes it the best choice for a worry-free countertop. It is extremely durable, stain-resistant, and easy to care for. It is chip-resistant and is unlikely to crack or scratch during normal use.



## Limestone

Limestone is formed as a result of millions of years of sea shells and bones of sea creatures settling as sediment on the ocean floor (hence it is called a sedimentary stone). The calcium in the bones & shells combines with Carbon Dioxide in the water to form Calcium Carbonate, which is the basic mineral structure of all limestone and marble. Limestone is available in elegant shades of yellow, blue, brown and black. Due to its durability limestone is generally used as building stone and for making statues. Its use as wall cladding material has also gained immense popularity.



## Engineered Stone

Engineered stone, is a composite material formed out of crushed stone that is held together by an adhesive. The various types of engineered stones are:

- Engineered quartz,
- Polymer concrete and
- Engineered marble

Historically, amongst the three kinds of engineered stone, engineered quartz has accounted for the highest market share followed by engineered marble stone.

## Quartz

Quartz, which is also known as "engineered stone", is a product with the word "quartz" referring to a natural mineral. Quartz particles are bound together with resin, pigments, and other elements. Quartz is manufactured at plants across the globe, including the United States, Europe, and Asia. The specific composition of engineered quartz varies by brand and hue, and manufacturers promote their slabs' high mineral content.



Further, manufactured quartz includes 93% mineral quartz. There are, however, two caveats. First, the maximum quartz percentage is 93%, and the actual quartz content can be substantially lower. Second, the percentage is based on weight rather than volume. A quartz particle is much heavier than a resin particle. So, if a person wants to determine how much quartz is in a countertop, he/she should measure the elements by volume rather than weight. Vicostone, for example, is about 90% natural quartz aggregates and polymer resin and pigments.

The strength of quartz, even in a manufactured form, makes it naturally resistant to abrasion, scratches, dents, and even acids without the need for sealants. And the environmental impact of manufactured quartz is low. Quartz is an abundant material and the finished product is nontoxic and nonallergenic, and will last a lifetime, reducing the need for replacement.

## Polymer Concrete

Conventional cement concrete is manufactured by substituting the cement hydrate binders with polymer resins or liquid resins, creating a composite material known as polymer concrete. Liquid resins, such as methacrylic resins, thermosetting resins, and tar-modified resins, polymerize at ambient or room temperature to form polymer concrete. Polymer concrete's binder phase is made entirely of polymers and does not include any cement hydrates. Polymeric binders hold the aggregates together tightly. As a result, polymer substitution significantly improves the strength, adhesion, water tightness, chemical resistance, freeze-thaw durability, and abrasion resistance of polymer concrete as compared to standard cement concrete.



### Engineered Marble Stone

Engineered marble is made from crushed natural stone that has been pressed, heated, and bonded with a small quantity of resin. Engineered marble, unlike porous natural stone, is less prone to moisture, which may lead to mildew. It is also more scratch- and stain-resistant than quarried or cultured marble. Moreover, it does not need any extra cleaning or polishing.

Composite Marble can be used in interior application like flooring, window jamming etc. Engineered stone composite is a constituent of marble dust and chips, bound with resin and pigment. It mainly constitutes byproducts of the marble processing and mining industry. In addition to the remnant marble products, colored glass, metal, or shells also can be combined to make composite marble. It is molded into structures later refined and polished to be used as countertops, bathtubs, sanitary ware, kitchenware, and many more.



Engineered Stones are preferred and are expected to grow at a higher rate than natural stones because of the following reasons:

#### 1. Engineered Stones are Non-Porous

Engineered stones have components such as resins which make their surface non-porous and highly resistant to staining. Natural stones on the other hand are porous and can get stained.

#### 2. Engineered Stones have a Wide Colour Range

When quartz is produced, pigments are added to it to change its colour. Quartz has a very wide colour palette that contains colours that are not usually found in nature. On the other hand, while natural stones are durable, their colour palette is limited to colours found naturally.

#### 3. Engineered Stones do not need Sealing

With engineered stones, sealing is not needed because resins are already acting as a sealant. Natural stones need to be sealed several times, depending on the material and colour.

#### 4. Engineered Stones are more Affordable

Engineered stones are a mixture of quartz blended with an adhesive or a sealant. Sometimes the primary material like quartz is also mixed with glass and mirrors. Thus, compared to natural stones engineered stones are cheaper.

### Raw Material Sources of Engineered Stones

Natural Quartz procured locally through mining and grinding. Quartz sand, includes fully transparent sand, semi-transparent sand, acid-washed sand, water washing sand, solid white sand, and so on. Quartz powder is finer quartz, but actually quartz powder and quartz sand come from different suppliers. The suppliers of quartz powder need to go to each quartz sand factory to collect some quartz leftovers to crush and grind. On the other hand, polyester resins are procured locally from Indian Manufacturers. The quality of the resin is closely related to the quality of artificial quartz stone. Other pigments and chemicals (only 2-3% of the cost) are imported. The quality of pigment is one of the important factors in determining the fading speed of quartz products. As for raw materials such as glass chips, mirror chips, and seashell chips, it is also important for suppliers to control the size and cleanness, dryness of the raw materials.

### 2.3 Market Segmentation by Application

Based on application, the market has been classified into flooring, wall cladding, cut-to-size items, and others. Among these, the flooring segment accounted for the highest share of 52% of the total market in 2021 and is estimated to hold this share in 2022. It is further expected to grow at a CAGR of 6-7% and reach \$48,674 million in 2027. Compared to

engineered stones, natural stones occupied a larger share in the flooring segment in 2021. This is because, natural stone flooring is elegant, has superior durability, is easy to clean. For instance, marble flooring endures smooth texture, dramatic veining, high-gloss finish. Granite is also a popular choice for flooring as it ranks 7 on the Mohs scale and is harder than marble. Similarly, travertine flooring is used in hallways, shower stalls, living rooms, bathrooms, and laundry rooms.

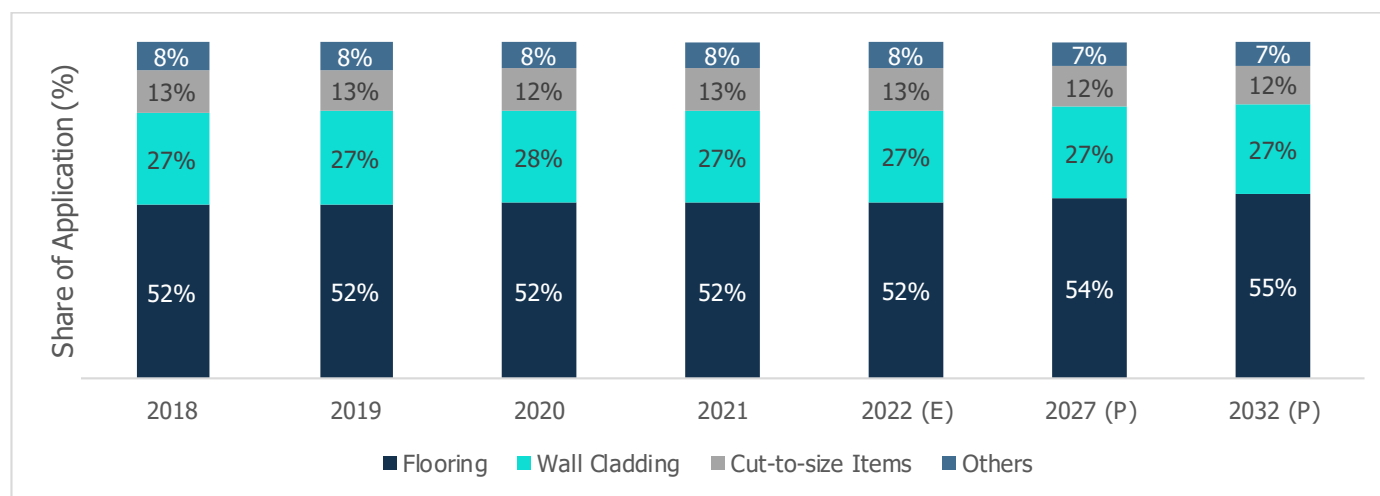
The composite Marble can be used in interior application like flooring, window jamming etc. Engineered stone composite is a constituent of marble dust and chips, bound with resin and pigment. The remnant marble products, colored glass, metal, or shells also can be combined to make composite marble. It is molded into structures later refined and polished to be used as countertops, bathtubs, sanitary ware, kitchenware, and many more.

**Table 4 :Global Natural and Engineered Stone Market by Application (\$Million)**

Application	2018	2019	2020	2021	2022 (E)	2027 (P)	2032 (P)
Flooring	26,735	28,540	28,276	31,444	34,503	48,674	62,970
Wall Cladding	14,221	15,144	14,968	16,346	17,815	24,302	30,415
Cut-to-size Items	6,549	6,912	6,770	7,621	8,257	10,934	13,263
Others	4,312	4,483	4,324	4,796	5,171	6,669	7,855
<b>Total</b>	<b>51,817</b>	<b>55,079</b>	<b>54,338</b>	<b>60,207</b>	<b>65,746</b>	<b>90,580</b>	<b>1,14,504</b>

Source: Research Dive, CareEdge Research

**Chart 17 :Global Natural and Engineered Stone Market by Application**



Source: Research Dive, CareEdge Research

#### 2.4 Market Segmentation by End-Use Industry

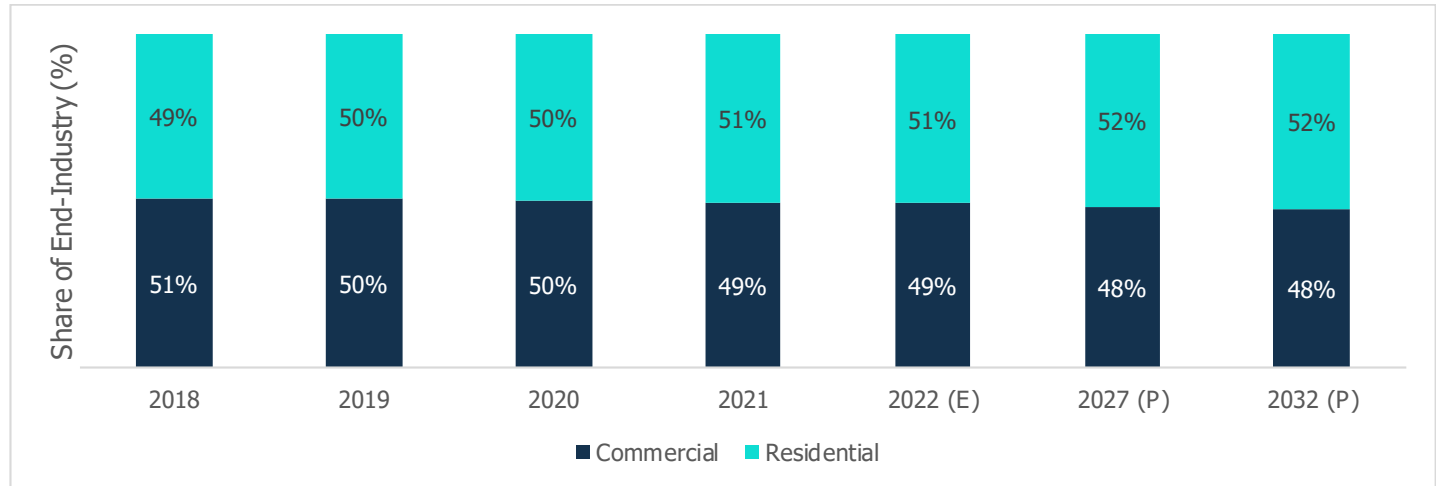
Based on end-use industry, the market has been classified into commercial and residential. Among these, the commercial segment accounted for ~49% of market share in 2022. However, by 2032 the share of the commercial segment is expected to decrease and account for 48% of the market while the share of residential sector is expected to increase from ~51% to 52%.

**Table 5 :Global Natural and Engineered Stone Market by End-Use Industry (\$Million)**

End-Use Industry	2018	2019	2020	2021	2022 (E)	2027 (P)	2032(P)
Commercial	26,246	27,782	27,294	29,641	32,268	43,766	54,458
Residential	25,571	27,297	27,044	30,566	33,479	46,813	60,046
<b>Total</b>	<b>51,817</b>	<b>55,079</b>	<b>54,338</b>	<b>60,207</b>	<b>65,746</b>	<b>90,580</b>	<b>1,14,504</b>

Source: Research Dive, CareEdge Research

**Chart 18:Global Natural and Engineered Stone Market by End-Use industry**



Source: Research Dive, CareEdge Research

Further, the commercial construction projects such as construction of hotels, medical facilities, shopping malls, sports facilities, industrial structures, retail & grocery stores are expected to grow at a lower CAGR of 6-7% as compared to CAGR of 7-8% of residential segment between 2021 to 2026. This is mainly because residential construction activities are growing at a faster pace owing to growing population and government support for residential construction in countries namely India, Indonesia, United Arab Emirates, Spain, China.

For Commercial and Residential real estate, natural and engineered stones are a primary material. Historically, natural stones have dominated the market for both commercial and residential real estate. In commercial real estate, natural stone is expected to account for over 61% of the market while in the residential real estate it is estimated to account for ~57% of the total market.

Chart 19: End-Use industry bifurcation by Type



Source: Research Dive, CareEdge research

## 2.5 Market Segmentation by Region

The Asia-Pacific natural and engineered stone market accounted for \$33,313 million in 2021 and is expected to reach \$66,424 million in 2032. This growth is majorly owing to the presence of large construction markets in this region namely China and India. In addition, the technological advancements in the construction sector are anticipated to drive the procurement for natural and engineered stone market in the Asia-Pacific region. For instance, China's 14th Five-Year Plan focuses on implementing digital technology in building and construction projects. It focuses on increasing the connectivity

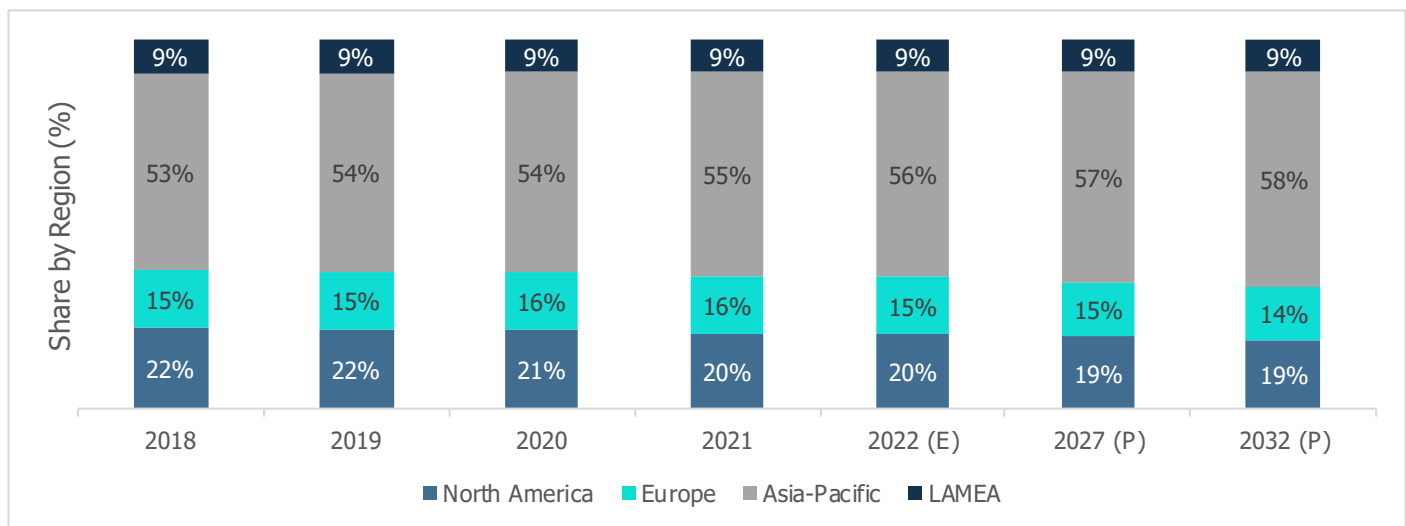
between city clusters and developing greener economy, facilitating low-carbon construction, water conservation, and sustainable development.

**Table 6 : Global Natural and Engineered Stone Market by Region (\$Million)**

Region	2018	2019	2020	2021	2022 (E)	2027 (P)	2032 (P)
North America	11,350	11,915	11,607	12,282	13,305	17,589	21,298
Europe	7,995	8,521	8,428	9,344	10,142	13,549	16,592
Asia-Pacific	27,688	29,665	29,495	33,313	36,538	51,442	66,424
LAMEA	4,783	4,979	4,809	5,268	5,762	8,000	10,191
<b>Total</b>	<b>51,817</b>	<b>55,079</b>	<b>54,338</b>	<b>60,207</b>	<b>65,746</b>	<b>90,580</b>	<b>1,14,504</b>

Source: Research Dive, CareEdge Research

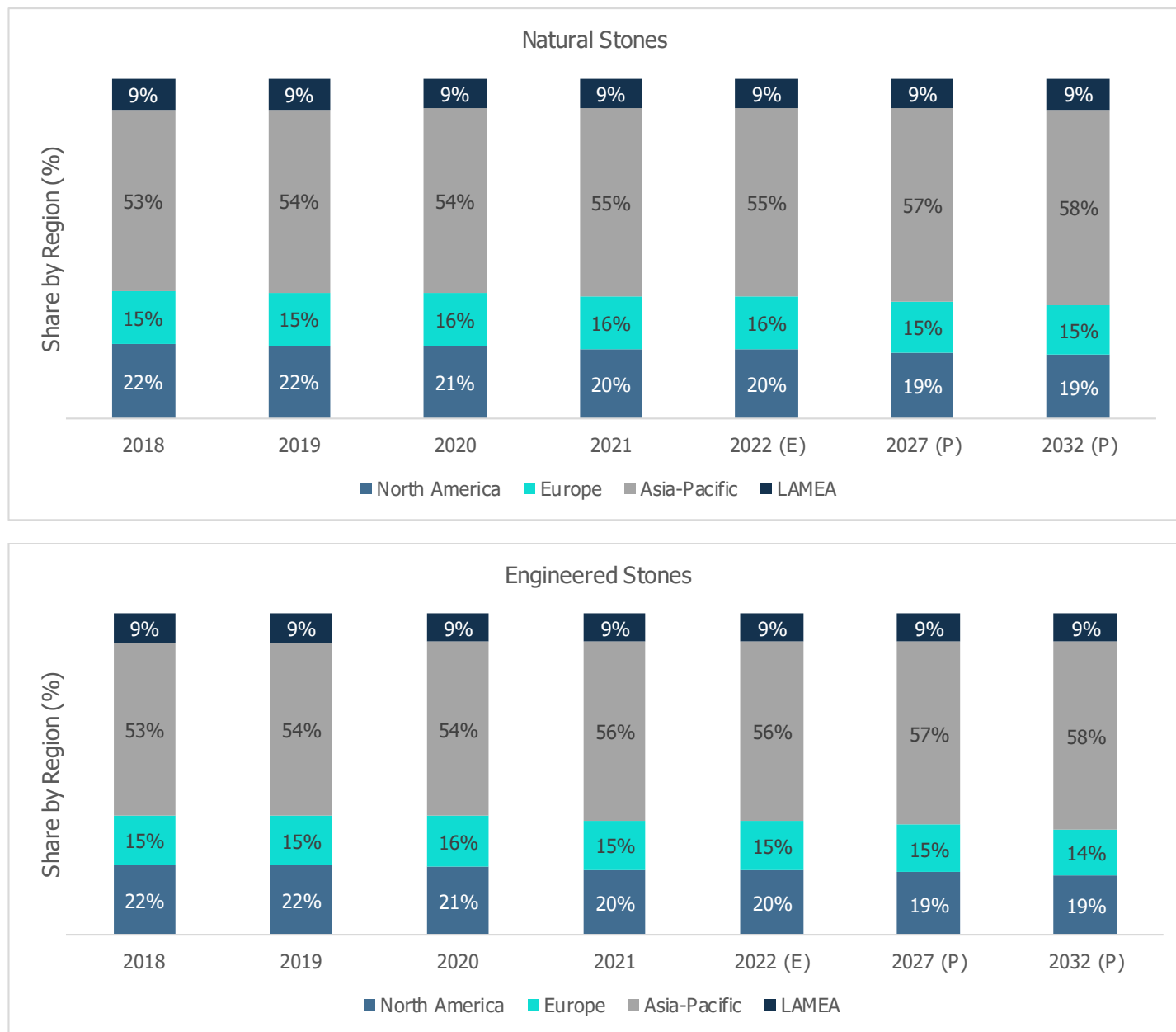
**Chart 20: Global Natural and Engineered Stone Market by Region**



Source: Research Dive, CareEdge Research

Further, the industry can be bifurcated into Natural stone and Engineered Stones. Asia-Pacific region is expected to account for the largest share (56%) in both natural and engineered stone market followed by North America and Europe.

Chart 21: Global Natural and Engineered Stone Market by Region



Source: Research Dive, CareEdge Research

### 3. Global Natural Stone Industry

#### 3.1 Overview of Global Natural Stone Industry

The use of natural stone can be traced back to countless buildings, structures, and monuments that were built thousands of years ago in different parts of the world and they have stood the test of time. Some of the examples of such structures include the Colosseum in Rome, the Mayan temples in Mexico, the great Pyramids of Giza, Egypt, and others. In addition, natural stone is a green building material as it is recyclable and can be used without any additional wall covering or finishes.

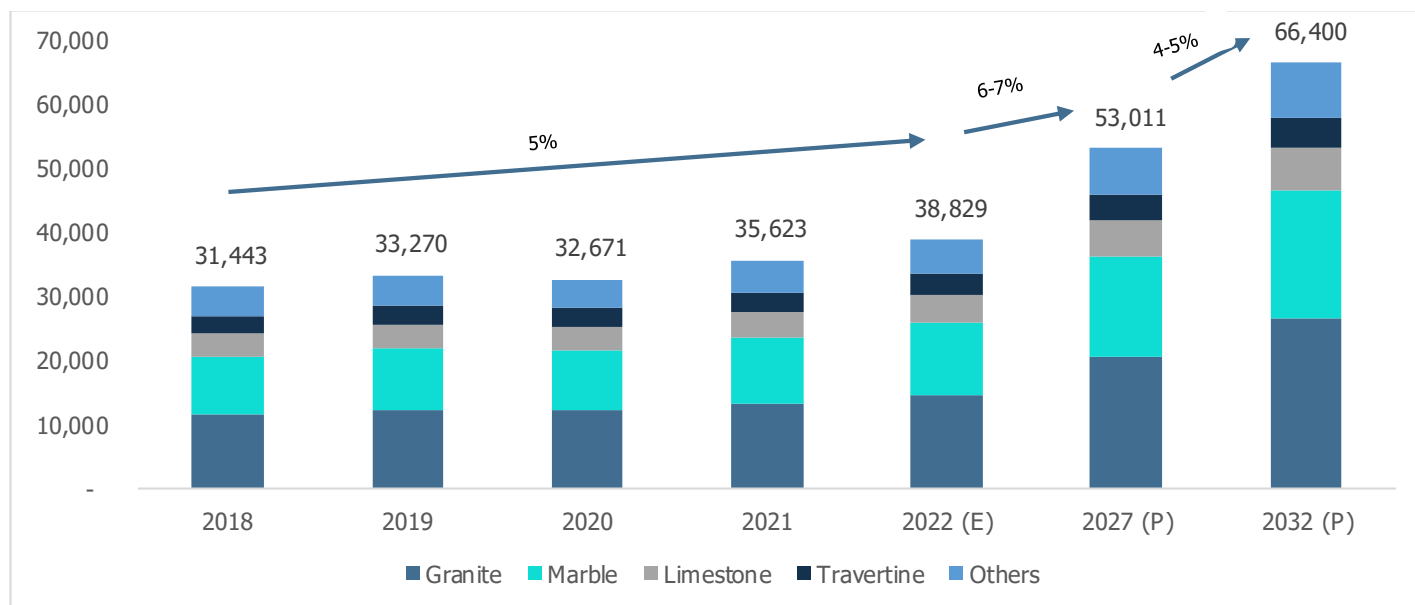
Marble is quarried from countries namely Italy, Greece, U.S., India, Sweden, China, and Germany. Among these, Italy is well-known for high-grade and luxurious marble. The Italian marble has high heritage as Italy has been a pioneer in perfect quarrying methods since ancient times. Some of the popular Italian marbles are carrara marble, calacatta marble, statuario marble, and others.

#### 3.2 Current Scenario

In 2021, the global natural stone held a higher share of 59% of the total market as compared to engineered stone market and it is expected that it will remain same in 2022. Its market grew from \$31,443 to \$35,623 in 2021. It is expected that the market would grow at a CAGR of 6-7% between 2022 and 2027.

Under the natural stone segment granite has been the highest contributor followed by marble. The granite and marble segments collectively are expected to account for around 67% market share in 2022.

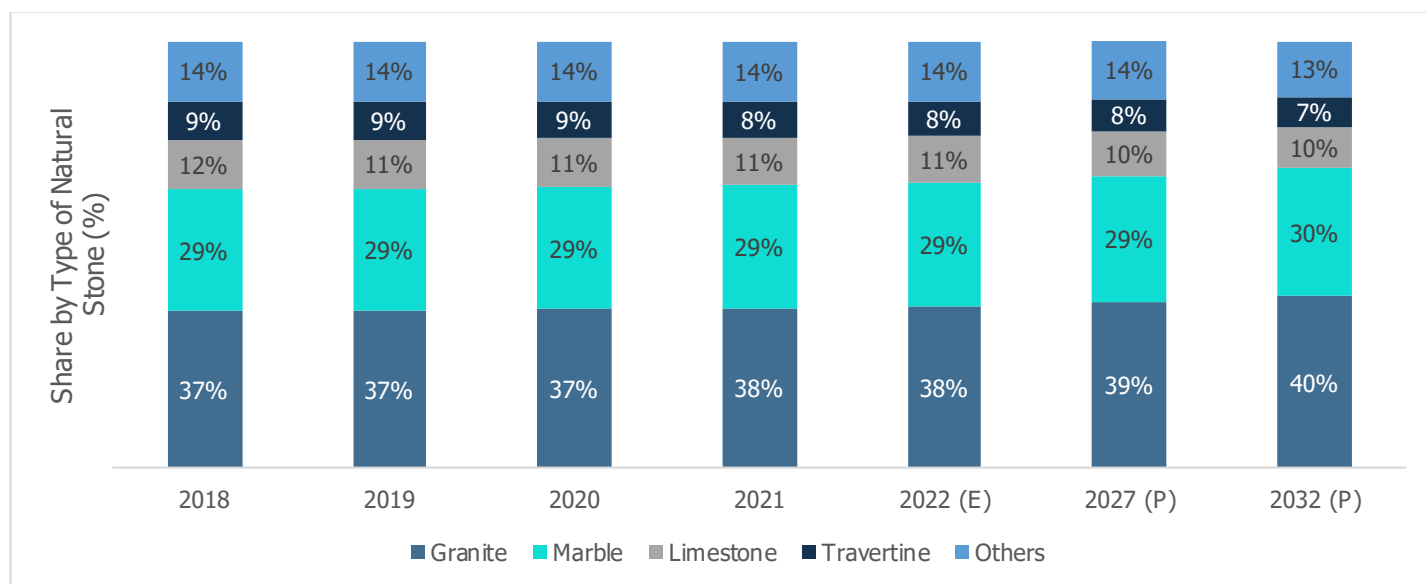
**Chart 22: Global Natural Stone Market by Type (\$Million)**



Source: Research Dive, CareEdge Research



**Chart 23: Share of Global Natural Stone Market by Type**



Source: Research Dive, CareEdge Research

### Granite

Granite is a hard-igneous rock that is granular and phaneritic in nature. Granite is a hard-igneous rock that is granular and phaneritic in nature. Granite grew from \$11,522 in 2018 to \$13,367 in 2021 and expected to reach \$14,664 in 2022. The market is expected to grow at a CAGR of 6-7% to reach \$20,661 million in 2027. The increasing adoption of granite for the construction of kitchen countertops, bath vanity tops, backsplashes, bathroom skins & basins, and tabletops or desktops majorly drives the growth of the global granite market. In addition, the rise in demand for granite for residential purposes and increased investment in construction activities drive the market growth.

### Marble

Marble is a popular metamorphic rock found in mountainous regions and is usually quarried in India, Italy, China, and Spain. The estimated CAGR between 2018 and 2022 for marble industry is 6%. The estimated market is valued at \$11,208 in 2022, expected to reach \$15,603 in 2027. Marble is famous for its beauty, elegance, and timeless appeal. Many architectural projects including the historical ones are built using different marbles.

Further, the marble market is expected to see an increased demand from residential, industrial, and commercial construction industries. Due to its aesthetics such as beauty and sculpting and the increasing consumer demand for interior designing of housing structures, the use of marble for decorative purposes in buildings is expected to grow further.

### 3.3 Outlook

The global natural stone industry has showed signs of recovery after in decline in 2020 and is expected to grow at a CAGR of 6-7% between 2022 and 2027. Further, the industry is expected to grow at 4-5% CAGR between 2027 and 2032.

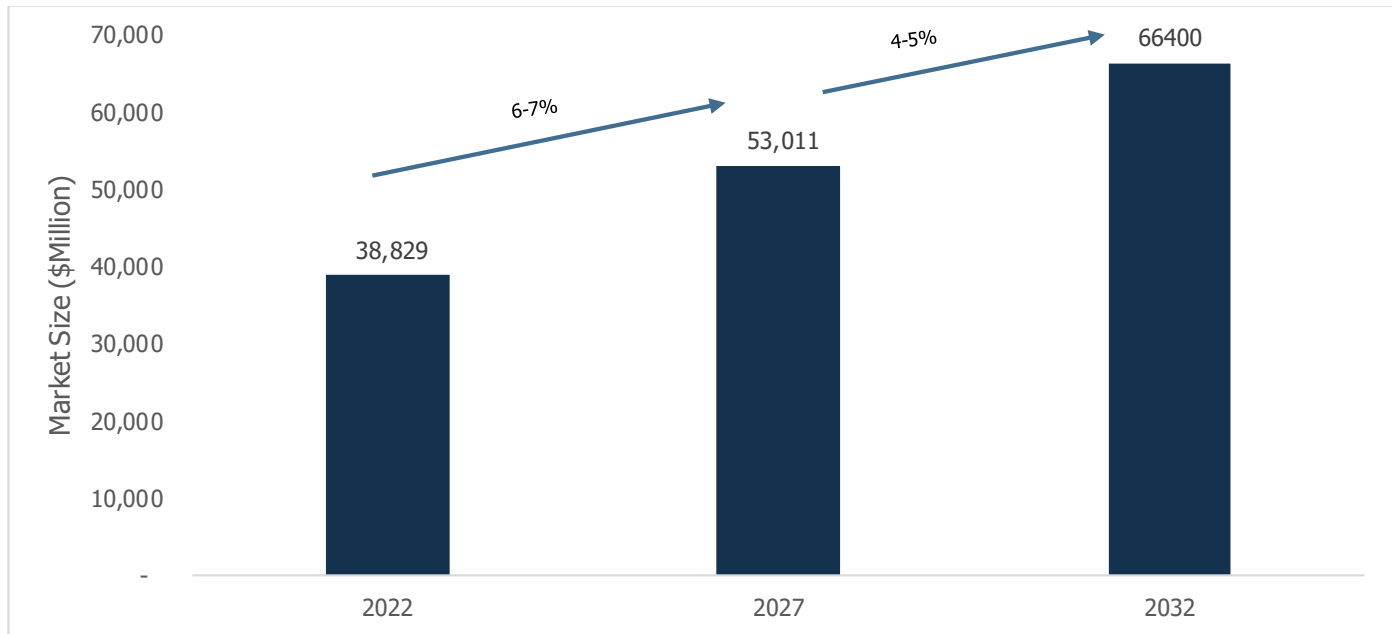
The global economy was impacted by the Covid-19 pandemic. Country-wise lockdowns and delays in manufacturing and delivery of natural stone used in residential and commercial areas hampered the growth of the natural stone sector. As the pandemic is subsiding, the global economy has started to show signs of recovery.

The building industry is expanding as a result of rising housing investment and construction spending in countries such as the United States, Japan, India, and others, which is fueling the worldwide natural stone market. Furthermore, the

global market is predicted to develop due to increased urbanization and population expansion, which is expected to increase demand for natural stones for flooring and wall cladding applications.

Increase in Individuals' disposable income, and their awareness of appealing outdoor designs has caused a shift in the preference for house remodeling among residential end users, particularly in urban regions. Natural stone benefits such as extended durability, aesthetic presence, and dependability encourage the use of slate and limestone in commercial and residential construction, propelling the global natural stone market forward.

**Chart 24: Outlook of Global Natural Stone Industry (\$Million)**



Source: Research Dive, CareEdge Research

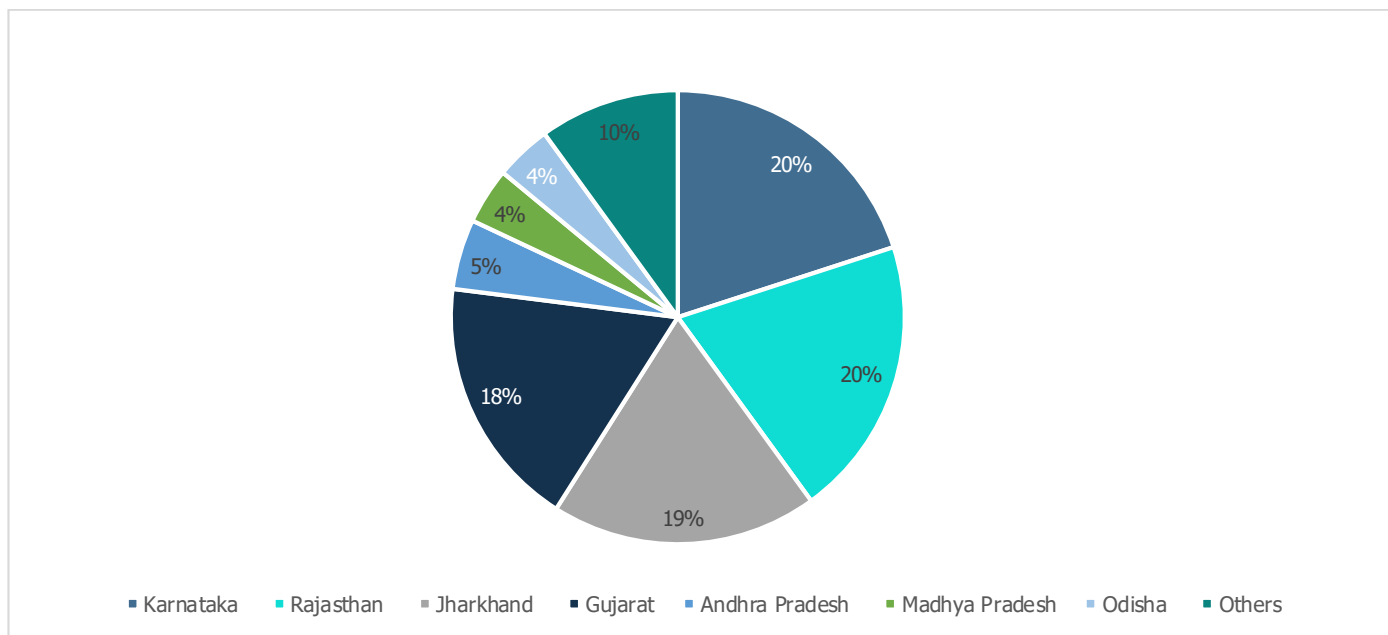
#### 4. Indian Natural Stone Industry

The market for natural stones in India is expected to grow considerably in the coming few years. India has rich reserves of stones due to its diverse geographical location. India holds 3rd place in the global production of natural stones, and holds nearly 11% share of the global natural stone market. Rajasthan is the most important and a major contributor to country’s mining business and holds nearly 90% share in India’s sandstone sector. Natural stone deposits in Rajasthan can be widely observed in Kota, Bharatpur, Tonk, and Sawai Madhopur, among others.

Further, India has rich mineral deposits and has one of the largest granite reserves in the world. It accounts for over 20% of the global granite reserves. The granite production mainly takes place in and around the states of Andhra Pradesh, Telangana, Rajasthan, Karnataka, Tamil Nadu, Uttar Pradesh, Odisha, Madhya Pradesh, and Gujarat among others.

The market for natural stones in the country is mainly driven by the extraction, processing, export and import of natural stones. The natural stone industry in India has also opened many different employment opportunities for low level labor owing to rising demand for natural stones in construction and remodeling of both commercial and residential buildings.

**Chart 25: State wise break up of granite resources in India**

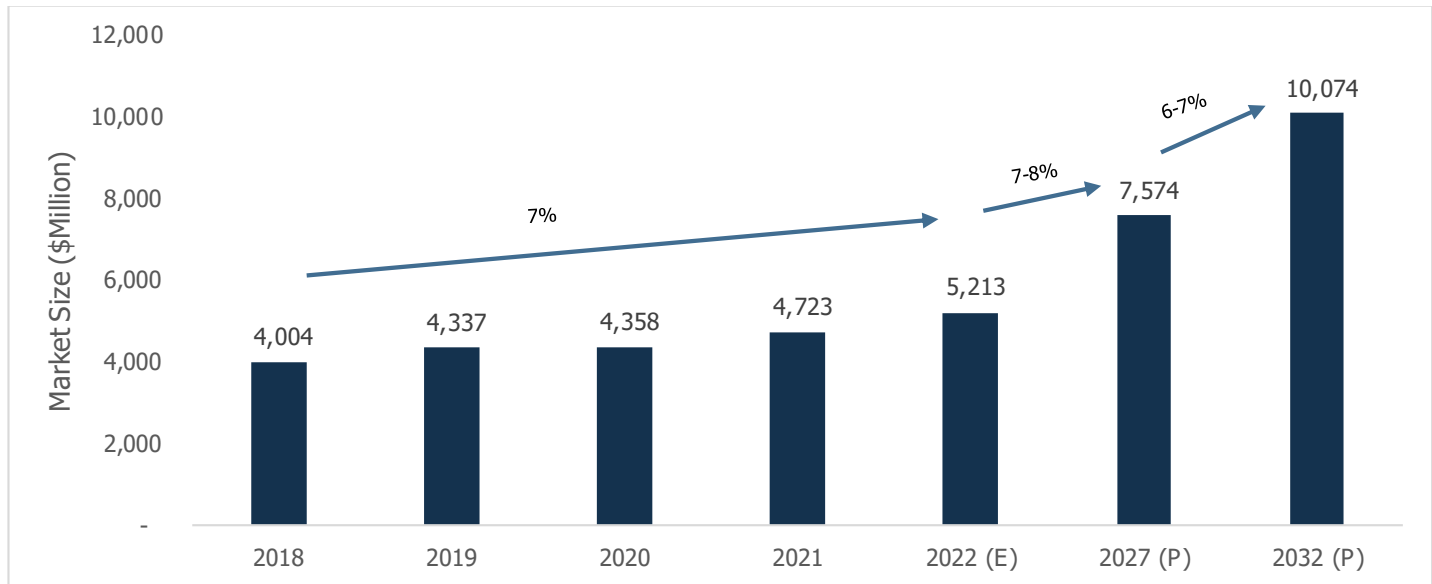


Source: Indian Minerals Yearbook 2019

##### 4.1 Current Scenario

In 2022, the Indian natural stone market is estimated at \$5,213 million growing at a CAGR of around 7% between 2018 and 2022. Going forward, the market is expected to reach \$10,074 million in 2032. However, the growth could be affected due to factors such as illegal mining, lack of environmental clearances or irregularity in the allotment process of the quarries as these issues have cropped up in the recent years. Also, lack of support from government or introduction of new policies can impact the growth of the industry. For instance, for the Indian granite industry 2019 was a tough year. According to industry players, issues like lack of policy support from the government and implementation of GST resulted in a slowdown in the exports of the country. However, in FY21 and FY22, Granite blocks or slabs (rectangular, square) worth US\$119.12 million and US\$148.67 million were exported from India.

**Chart 26: Indian Natural Stone Market (\$Million)**



Source: Research Dive & CareEdge Research

Furthermore, construction and remodelling activities in India are rising due to rapidly increasing urbanization and population. This is set to boost the demand for natural stones for flooring and interior aesthetic looks of homes and commercial buildings. The government has also taken initiatives and launched several schemes to increase employment rates, construction activities, and the number of residential buildings.

For instance, under the PMAY-Pradhan Mantri Awaas Yojna-Urban initiative, the government has allocated \$2.5 billion to construct the foundations for approximately 1.5 million new houses and 1.8 million existing houses. The scheme is also aimed at creating additional 7.8 million jobs, across the country. Such initiatives by the government are expected to generate high demand for natural stones.

**COVID-19 Impact:** The industry was impacted by the Covid-19 pandemic majorly owing to unprecedented lockdown imposed across the country with ban on non-essential activities. The Indian stone industry had suspended their entire operations related to production, manufacturing, and transport, import-export of various natural stones such as granite, marble, limestone, and others owing to Indian government directives to contain the pandemic. All quarry activities, allied logistics, administrative offices, and natural stone processing facilities were ceased which also affected the construction sector owing to non-availability of raw materials required for flooring, countertops, and others. The operations were affected for a brief period of time but the Government resumed the services across sectors in a phased manner limiting the damages to the industry.

## 4.2 Outlook of Indian Natural Stone Industry

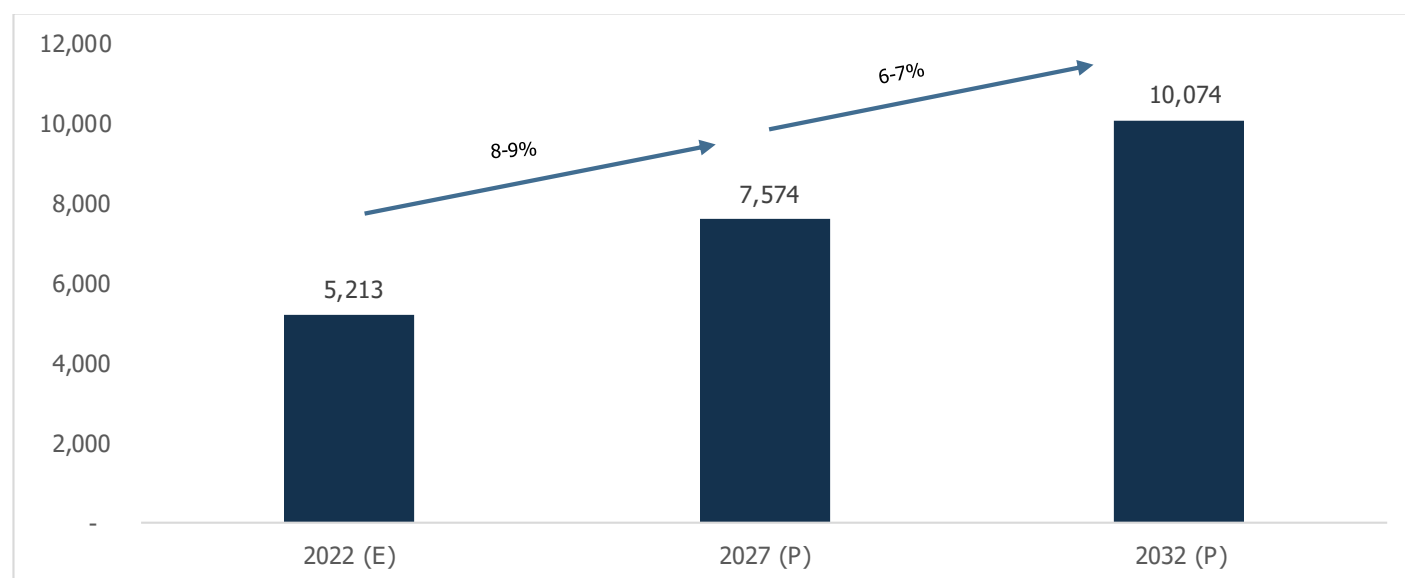
The Indian natural stone industry is expected to grow at a CAGR 8-9% between 2022-2027 reaching \$7,574 million in 2027. In the projected years, the industry is expected to grow at a CAGR of 6-7% between 2027 and 2032 to reach \$10,074 million.

The outlook for the natural stone segment is stable with a positive upside in the medium term. The natural stone industry is linked to the commercial and residential real estate industries. The residential and commercial real estate industries are expected to return to normalcy recovering from the effects of the pandemic.

The real estate industry made a quick turnaround post the first wave of the pandemic. The residential real estate segment remains poised for growth in the future on account of relatively better economic momentum and better preparedness to deal with newer variants of the virus or any lockdowns.

The resumption in sales and launches indicates that consumer sentiment around investing in a property is picking up. With the reopening of the economy, the rate of absorption of office spaces is expected to increase as offices have started to open up again and employees are returning back. This augurs well for the natural stone industry as construction of new real estate would also lead to demand growth for natural stones such as marble and granite.

**Chart 27: Outlook of Indian Natural Stone Industry (\$Million)**



Source: Research Dive & CareEdge Research

## 4.3 Government Regulations

In India, mining activities are regulated by the Mines and Minerals Development and Regulation (MMDR) Act, 1957. It specifies the requirements for obtaining and granting mining leases for mining operations. The act is applicable to all minerals except minor minerals and atomic minerals. Since granite, marble and quartz are minor minerals, this act is not applicable to these minerals. The minor minerals are administered under the Minor Mineral Concession Rules of the respective states. In India, the State Governments are the owners of the minerals within their respective boundaries. The State Governments grant the mineral concessions for all the minerals located within the boundary of the State, under the provisions of the MMDR Act, 1957, and Mineral Concession Rules (MCR), 1960 framed thereunder.

**The Mineral Laws (Amendment) Act 2020 India:** It amends the Mines and Minerals (Development and Regulation) Act 1957 (MMDR Act) and the Coal Mines (Special Provisions) Act 2015 (CMSPA). The amendments to the MMDR Act, among other things, enable state governments to take advance actions for the auction of a mining lease before its expiry; provide for approvals, licenses and clearances of the previous lessee to be automatically transferred to the new lessee for a period of two years from the date of grant of the new lease; and allow holders of a non-exclusive reconnaissance permit to apply for other licenses.

**National Mineral Policy 2019:** This policy replaces the National Mineral Policy 2008. The policy was introduced with the aim to increase transparency and enforcement and implement sustainable mining practices. Among other things, the policy includes incentives to attract private investment and state-of-the-art technology through rights of first refusal at auction and opportunities for the private sector to take up exploration activities.

The policy also emphasizes strengthening the regulatory mechanism by incorporating e-governance systems for the following:

- Facilitate end-to-end accounting of mineral ore in the supply chain
- Increase awareness and information campaigns to involve local populations, to supplement law enforcement capabilities in preventing illegal mining

**The Mineral Conservation and Development (Amendment) Rules 2018:** These rules aim to ensure that mineral production is not affected by the expiry of existing mining leases. The rules require general exploration (G2) to be carried out by 1 April 2019 for all mining leases (other than coal, lignite and atomic minerals) used for non-captive purposes expiring in March 2020. The amendment also lays down timelines for the implementation of exploration plans to ensure a seamless transition on the expiry of existing mining leases.

**Granite Conservation and Development Rules, 1999:** The Granite Conservation and Development Rules, 1999 were brought into effect to conserve and have a systematic development and scientific mining of granite resources and to lay a uniform framework with respect to scientific and systematic exploitation of granite throughout the country.

The Rules state that:

- No lease shall be granted by the state government unless it is satisfied that there is evidence to show that the area for which the lease is applied has been prospected earlier for granite or the existence of granite therein has been established otherwise.
- The period for which leases may be granted shall not exceed thirty years. Provided that the minimum period for which any such lease may be granted shall not be less than twenty years. A lease may be renewed for a period not exceeding twenty years. Notwithstanding anything contained in sub-rule, if the state government is of the opinion that in the interest of the development of granite, it is necessary to do so, it may, for reasons to be recorded, authorize the renewal of a lease for a further period or periods not exceeding twenty years in each case.
- The minimum area that may be granted or renewed under a lease for ensuring mining activities to optimum depth shall not be less than one hectare.

## 4.4 Key Growth and Demand Drivers

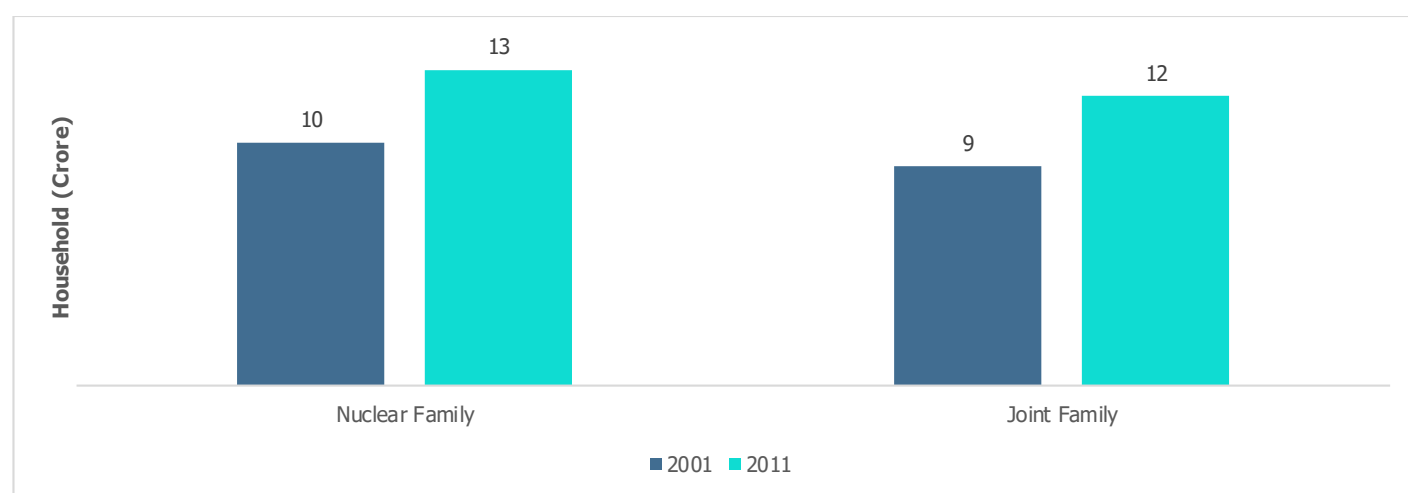
### 4.4.1 Residential real estate:

#### Rise in the Number of Nuclear Families:

- According to the 2001 census, out of 19 crore households, 10 crore or a little over 50% were nuclear households. In the 2011 census, the share grew to 52.1% –13 crore nuclear out of 24.9 crore households.
- The nuclear family concept is very well linked with the rapid urbanization of the country.
- People migrate from one place to another in search of jobs which ultimately increases the nuclear family counts.

An increase in the nuclear family, will therefore, lead to an eventual increase in the demand for residential units. Thereby generating more demand for natural stones since they are widely used in wall construction and wall cladding.

**Chart 28: Nuclear & Joint Family Household**



Source: Census Data & CareEdge Research

### Relocations

- The pandemic made consumers from the middle-income and above categories aware of the shortfalls of their present residences. As the pandemic forced individuals to spend all their time within the confines of their homes, most families became acutely aware of the lack of space or limitations with respect to the facilities offered in their complexes. We expect such families, mostly from metros and Tier-1 cities, to be motivated to relocate and make new purchases due to the want of more open space, modern amenities, proximity to their workplace, and desire to relocate closer to extended families and friends. Moreover, the increasing demand for residential homes would have a positive impact on the demand for interior designing, generating more demand for natural stones.

### Shifting Buying Behaviour

- COVID-19 has induced a shift in home-buying behaviour. The financial uncertainty brought on by the pandemic is estimated to have led to many consumers considering a home as an essential financial security. Consumers are also giving serious thought to how they live and may want to move to larger homes considering their family size and the need to accommodate work-from-home and study-from-home. Accordingly, the demand for projects with good architecture, uncluttered space, and recreational activities for children and the elderly is projected to increase.

#### 4.4.2 Commercial Real Estate:

##### Increasing Population to Result in Increased Workforce

- China's (most populated country in the world) population grew at a rate of 12% from 1.25 billion in 1999 to 1.4 billion in 2019 whereas India's population increased by 32% from 1.04 billion to 1.37 billion during the same period. India accounts for the second-largest populated country in the world. Its rising population will result in more individuals joining the workforce. A higher number of employees will create more demand for office space and construction of more office spaces leading to higher commercial real estate demand which will generate more demand for natural stones.

##### Growth in E-Commerce: Key Demand Driver of Warehousing

- The e-commerce industry is likely to be the demand driver for the warehousing industry. Unlike most sectors, the e-commerce industry benefited from the coronavirus pandemic. Even consumers who were averse to using e-commerce websites to shop were forced to do so as retail stores remained shut and malls were not allowed to operate. The reliance on online marketplaces selling groceries and medicines also increased and in times of distress, discounts and offers offered by these companies made them more attractive to consumers. The shifting buying habits of consumers are unlikely to change after the departure of the pandemic, creating more demand for more storage facilities for online marketplaces.

#### 4.5 Key Challenges

##### Delay in Shipping and Rise in Marine Freight

- Container shortages have been reported at the originating ports across all countries. This is due to an overwhelming amount of material arriving and insufficient resources to handle the flow such as lack of workers at the ports to load and unload and less truck driver to take the containers inland and bring them back disrupting the global logistics system.
- The shortage of containers has also resulted in increased waiting periods and increased marine freight. The rise in cost is especially detrimental for countries where the major form of transport is by sea. The high freight makes up a significant amount of the CIF export price. Usually, an export order is awarded at a fixed price with tight margins wherein the transportation cost is also included. Even a marginal increase in transportation cost impacts the profitability of the players. It is difficult for international players to endure such high total-product costs given the substantial growth in transportation expenses over the last two years. The price is anticipated to remain high for at least the next two years. Maintaining customers and orders with such high sea freight is a major challenge for stone export businesses.

##### Lack of Technological Upgradation

- The stone sector is facing an industrial upgrade challenge. The penalty of ignoring environmental protection will be revoked again in the near future as an industry with substantial environmental damage. Stone processing firms must adapt their previous comprehensive management, which overlooked environmental protection, if they are to develop sustainably. As a result, upgrading processing equipment and infrastructure is critical to the stone industry's long-term development. Upgrades necessitate a significant financial investment by businesses. It is a



significant burden for businesses to update equipment and infrastructures in the current climate of low earnings and severe competition in the stone product industry. Given the uncertainties surrounding future government policies, businesses face a difficult task in making investment decisions.

### **Unorganized Players**

- The real estate industry has a significant presence of smaller players. The high share of unorganized players made the industry susceptible to working capital and liquidity issues during demonetization and the coronavirus pandemic. The presence of small firms, coupled with reliance on labour, makes the industry vulnerable to such shocks.

### **Illegal Mining in Parts of India**

- Granite, in India is classified as a minor mineral under the MMDR Act 1957 and its reserves and leasing regulations are governed by the governments of respective states. However, the Indian granite mining has suffered due to illegal mining. In 2019, the mining activities suffered as the quarries which did not have environmental clearances were shut by the government. This also led to shortage of granite in the market which subsequently led to raw material shortage for granite processors. Also, the lack of environmental clearances by the granite quarries aggravated the raw material shortage issues.
- In Tamil Nadu and Karnataka, a number of quarries were shut as they lacked the environmental clearances and the granite processors were forced to source the granite blocks from other states or even countries. The sourcing of raw material of from other states and countries increased their transportation cost and had an adverse effect on their competitiveness in international market.
- This issue of illegal mining and lack of environmental clearance in the country could be a point of concern in future as well which could lead to stone shortage.

## 5. Engineered Stone – Quartz & Engineered Marble Industry

### 5.1 Brief Overview

Quartz, an engineered stone, is a composite material formed of crushed stone that is held together by an adhesive. Slabs of quartz crystals are kept together by a resin binder in the case of counters. The majority of quartz is made using a 93% crushed stone to 7% resin and coloring ratio. Engineered quartz is gaining significant popularity as they are durable and non-porous. For instance, the engineered quartz is resistant to dents, abrasion, scratches, and acid.

Engineered quartz is available in different styles, designs, and prices that makes it a popular choice among home renovators and contractors. When these quartz aggregates are compressed to slabs, they endure similar texture and color as that of granite or natural slate.

One of the key benefits of engineered stone is that it can be cut into tiles which can be used for flooring and provides sophisticated finish. Also, engineered stones are resistant to mold and mildew due to which they are also suitable for wet rooms of commercial and residential constructions. The engineered stones can also be used to create luxurious fireplaces owing to its modern and sleek finish that meet the architectural styling requirements.

### 5.2 Current Scenario

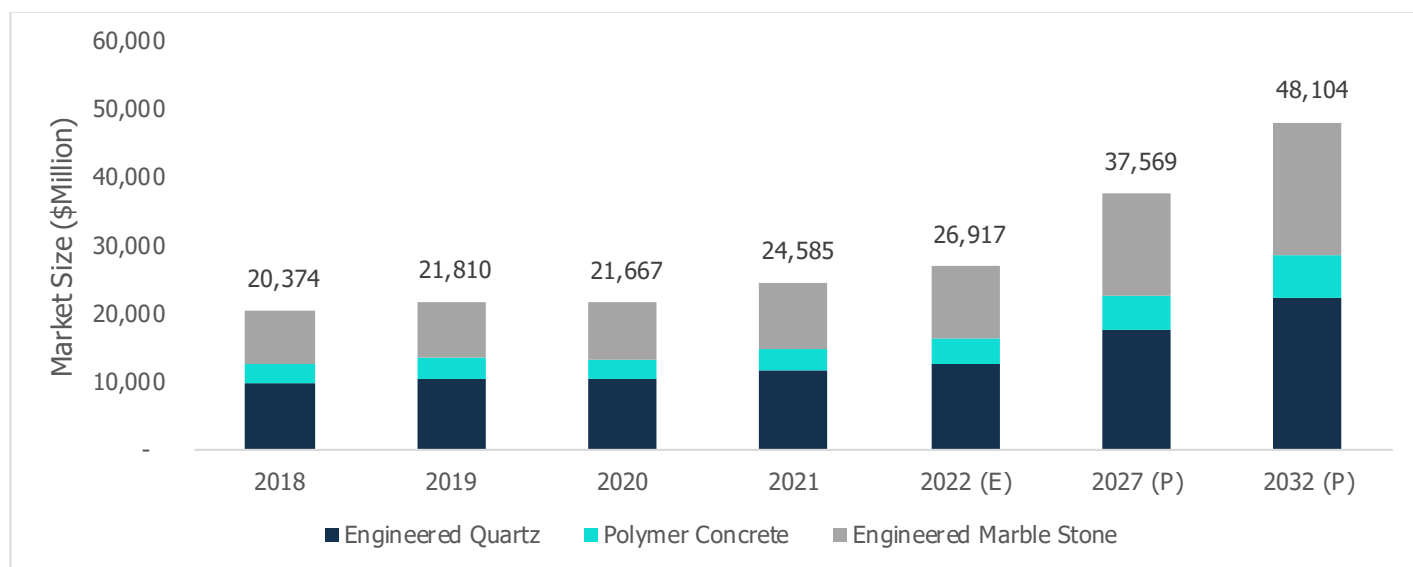
The global engineered stone market's CAGR is expected to be 7% and reach \$26,917 million in 2022 from \$20,374 million in 2018. The engineered quartz has been the major contributor in the engineered stone segment followed by the engineered marble stone.

In the year 2020 and 2021, the industry was impacted by the price fluctuations of quartz. The average price of quartz increased by 12% and 3% in the year 2021 and 2020 respectively. Rise in shipping cost and raw materials were the primary reason for the same.

Global situations like Ukraine – Russia war, trade wars and pandemic lead to surge in uncertainty in global economy. The war between Ukraine and Russia has triggered a humanitarian crisis and economic slowdown in the global growth. The commodity price rise due to the war has led to projections of inflation at 5.7% in advanced economies and 8.7% in emerging economies. The developing economies are projected to have inflation projections of 1.8 and 2.8 percentage points higher than projections for last January.

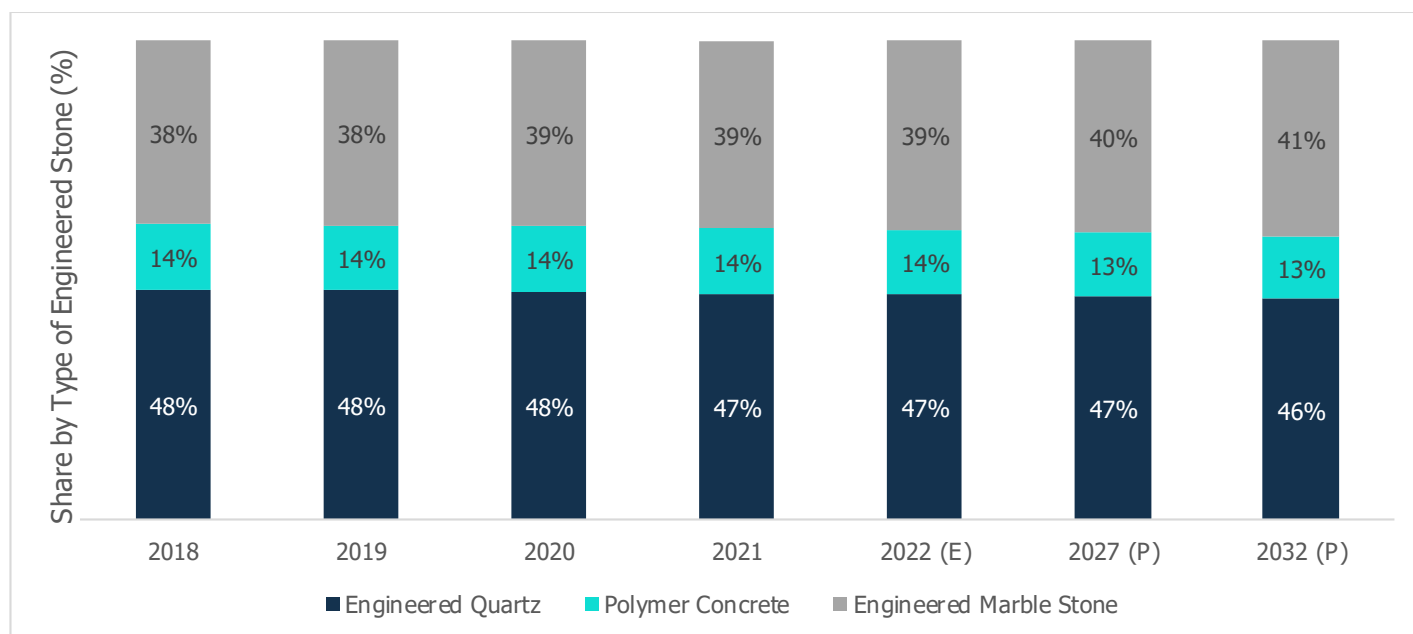
However, in the projected period from 2022 to 2027, the engineered stone market is expected to grow at a CAGR of 7-8% and reach \$37,569 million, thereafter the industry is expected to reach \$ 48,104 million in 2032.

**Chart 29: Global Engineered Stone Market by Type (\$Million)**



Source: Research Dive, CareEdge Research

**Chart 30: Share of Global Engineered Stone Market by Type**



Source: Research Dive, CareEdge Research

### 5.3 Region Wise Contribution

#### 5.3.1 North America

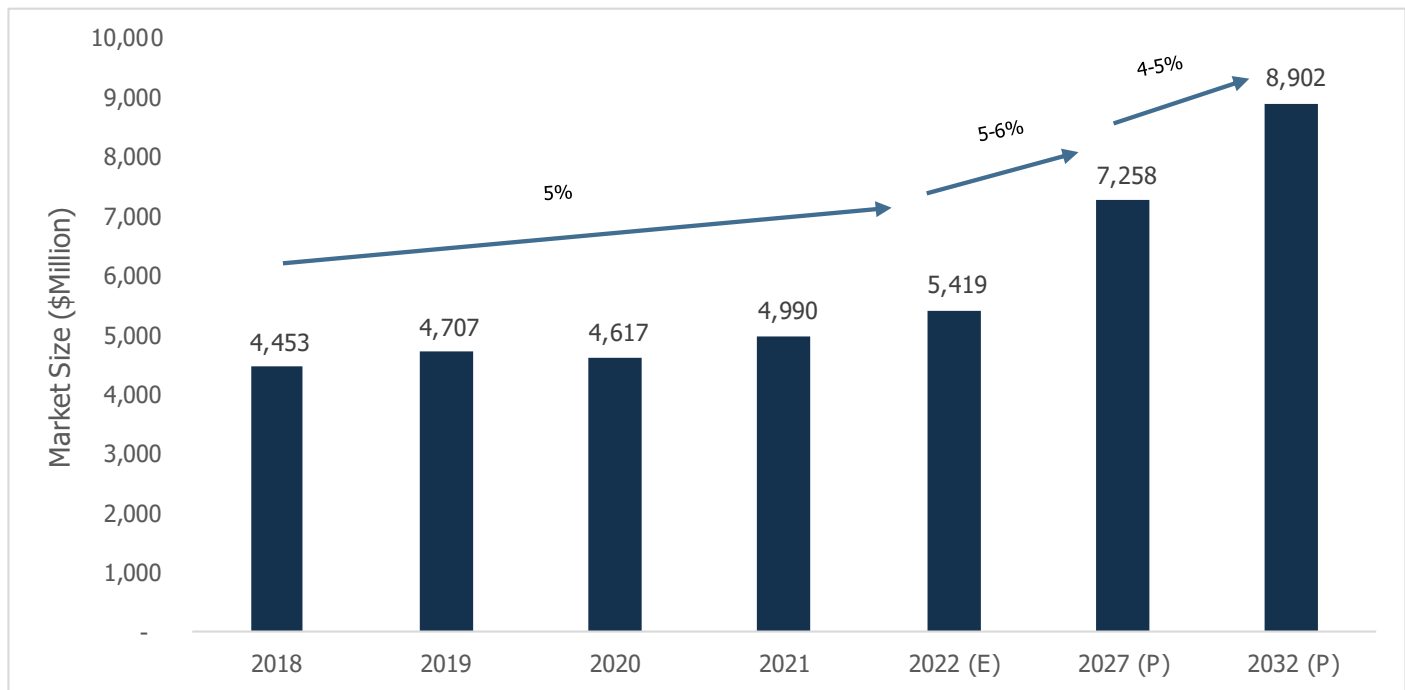
The engineered stones market in North America is expected to have a high growth in Canada in the forecasted years 2022 to 2032. The growth is majorly attributed to increased construction and remodeling activities, and growing demand for strong, natural, and aesthetic looking countertops for kitchens. The segment is also expected to expand in the USA driven by increase in demand for building and construction activities. The rise in demand for countertops in new

construction as well as renovations is expected to boost the engineered stone market in the USA. Countertops is the dominant application segment for engineered stones.

Engineered stones surface countertops have gained popularity due to their durability and stain resistance. They can be used primarily for kitchen countertops, bathroom countertops, and outdoor applications as they are durable and non porous. Thus, growth in the building and construction activities is estimated to boost the demand for engineered stones. Rise in commercial activities in the country is leading to construction of commercial buildings and institutional buildings further driving the demand for engineered stones.

The engineered stone segment is valued at an estimated \$5,419 million in 2022, growing at a CAGR of 5% from \$ 4,453 million in 2018.

**Chart 31: North America Engineered Stone Market (\$Million)**



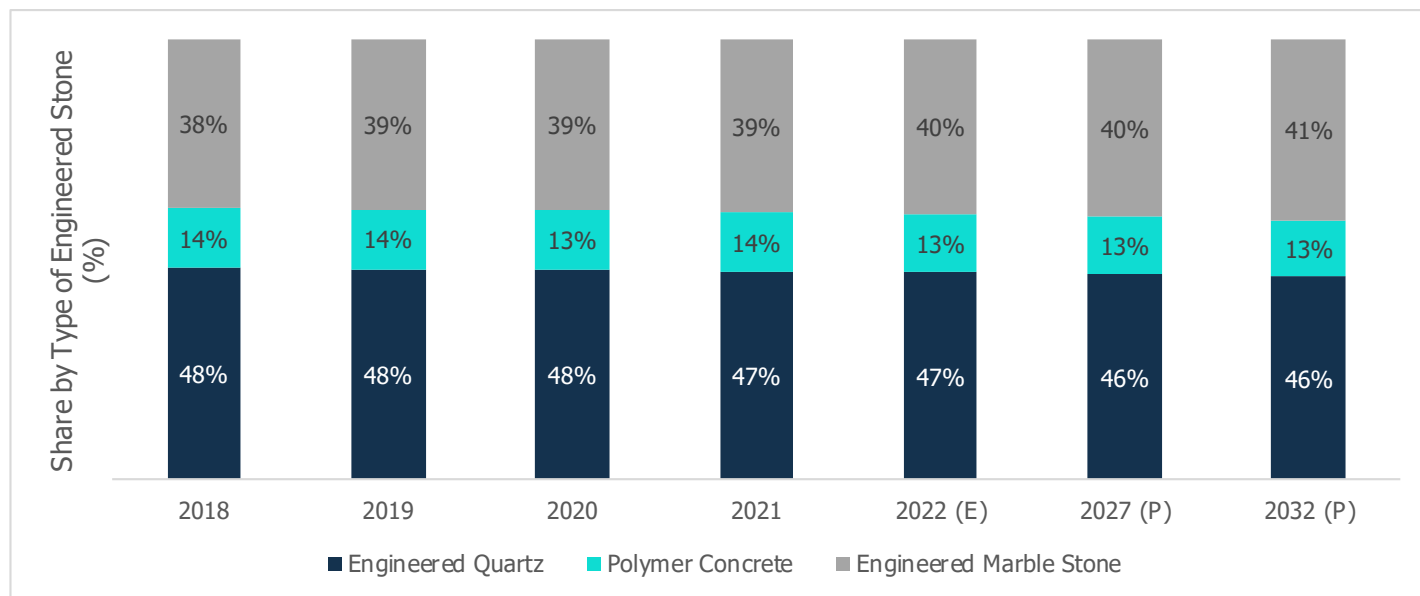
Source: Research Dive, CareEdge Research

**Table 7: North America Engineered Stone Market by Type (\$Million)**

Type	2018	2019	2020	2021	2022 (E)	2027 (P)	2032 (P)
Engineered Quartz	2,135	2,252	2,205	2,346	2,543	3,372	4,095
Polymer Concrete	607	637	621	675	729	953	1,141
Engineered Marble Stone	1,711	1,817	1,791	1,969	2,147	2,932	3,667
<b>Total</b>	<b>4,453</b>	<b>4,707</b>	<b>4,617</b>	<b>4,990</b>	<b>5,419</b>	<b>7,258</b>	<b>8,902</b>

Source: Research Dive, CareEdge Research

**Chart 32: Share of North America Engineered Stone Market by Type**

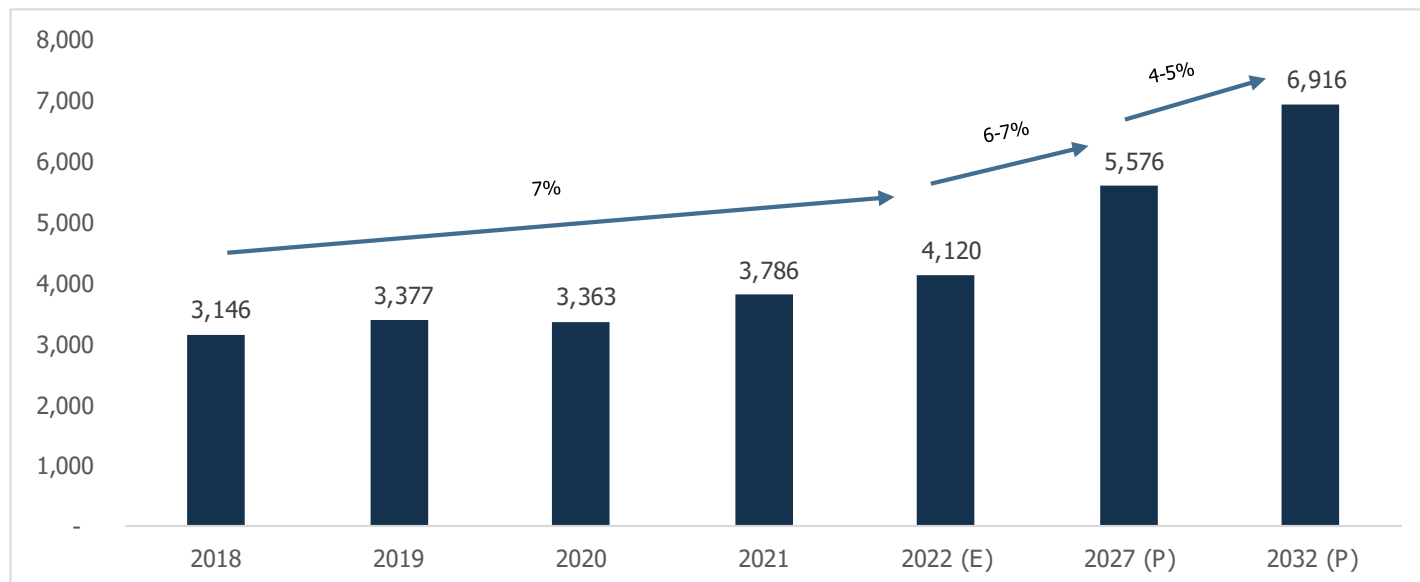


Source: Research Dive & CareEdge Research

### 5.3.2 Europe

The engineered stones are known for their colour, structure, texture, and appearance which offer broad spectrum of choices to its consumers are estimated to drive the engineered stones market share. Engineered stone offers a wide spectrum of choice that can be matched to any desired appearance or ambience. To add to it, the high 168 expectation in terms of the quality are major growth driving factors. The engineered stone segment estimated to be valued at \$4,120 million in 2022 and is expected to grow at a CAGR of 6-7% between 2022 and 2027.

**Chart 33: Europe Engineered Stone Market (\$Million)**



Source: Research Dive, CareEdge Research

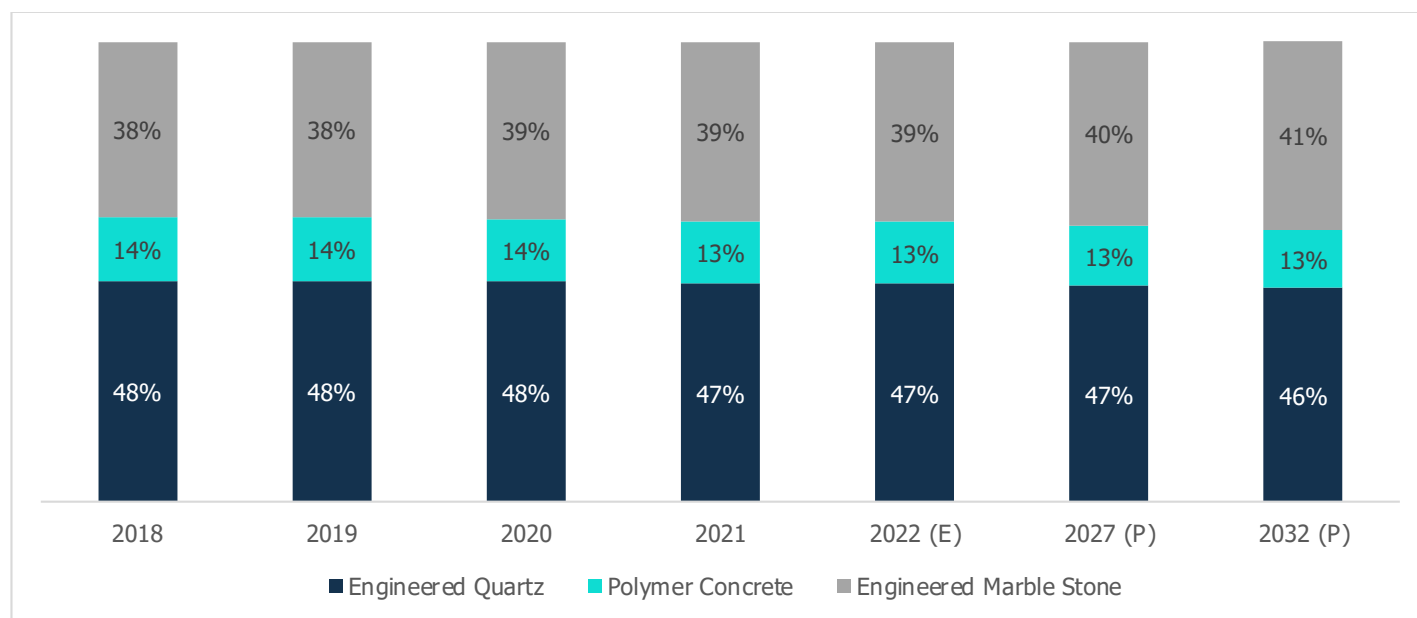
**Table 8: Europe Engineered Stone Market by Type (\$Million)**

Type	2018	2019	2020	2021	2022 (E)	2027 (P)	2032 (P)
Engineered Quartz	1,510	1,617	1,608	1,797	1,951	2,615	3,212
Polymer Concrete	435	463	459	506	548	724	876
Engineered Marble Stone	1,202	1,296	1,297	1,483	1,621	2,237	2,828
<b>Total</b>	<b>3,146</b>	<b>3,377</b>	<b>3,363</b>	<b>3,786</b>	<b>4,120</b>	<b>5,576</b>	<b>6,916</b>

Source: Research Dive, CareEdge Research

Engineered quartz has been the highest contributor in the engineered stone market in Europe in the historical period. In future, the engineered marble stone is expected to grow at a higher CAGR between 56%. Engineered marble’s features like high strength and durability can drive its growth in future.

**Chart 34: Share of Europe Engineered Stone Market by Type**

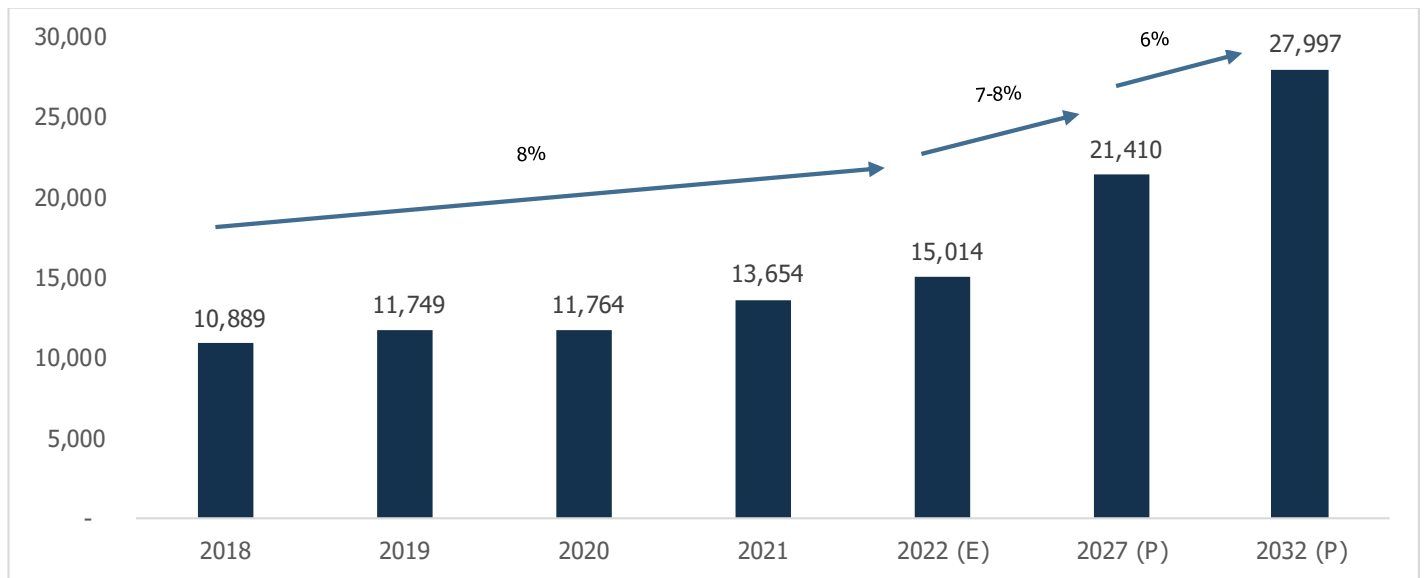


Source: Research Dive, CareEdge Research

### 5.3.3 Asia-Pacific

Asia Pacific’s engineered stone segment is valued at an estimated \$15,014 million in 2022. It is expected to grow at a CAGR of 7-8 % between 2022 and 2027 and is estimated to reach \$27,997 million by 2032. Improved building construction activities along with the expansion & modernization of building stock in developing countries and growth in the housing units & non-residential structures are estimated to keep the demand consistent for engineered stone in the Asia-Pacific region. In addition, growing demand for engineered stone countertops for non-residential sectors such as hotels, universities, schools, and hospitals would drive the demand in this region.

**Chart 35: Asia-Pacific Engineered Stone Market (\$Million)**



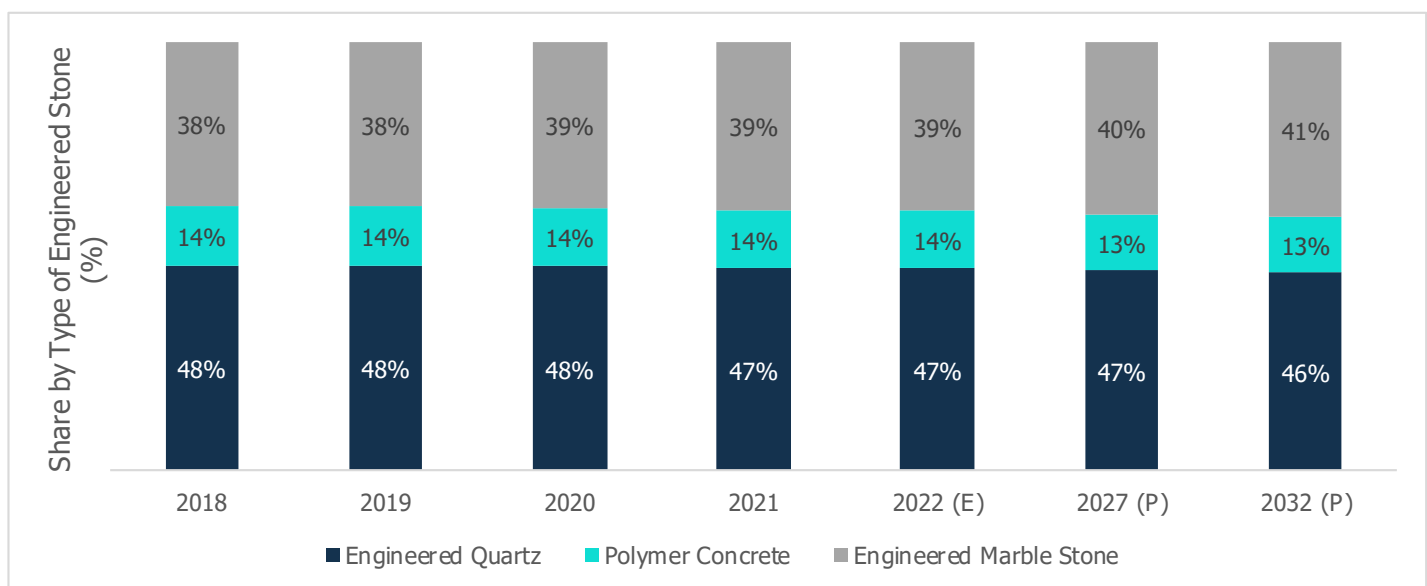
Source: Research Dive, CareEdge Research

**Table 9: Asia-Pacific Engineered Stone Market by Type (\$Million)**

Type	2018	2019	2020	2021	2022 (E)	2027 (P)	2032 (P)
Engineered Quartz	5,226	5,628	5,624	6,430	7,057	9,965	12,903
Polymer Concrete	1,502	1,610	1,601	1,875	2,053	2,860	3,653
Engineered Marble Stone	4,162	4,512	4,539	5,348	5,904	8,584	11,441
<b>Total</b>	<b>10,889</b>	<b>11,749</b>	<b>11,764</b>	<b>13,654</b>	<b>15,014</b>	<b>21,410</b>	<b>27,997</b>

Source: Research Dive & CareEdge Research

**Chart 36: Share of Asia-Pacific Engineered Stone Market by Type**

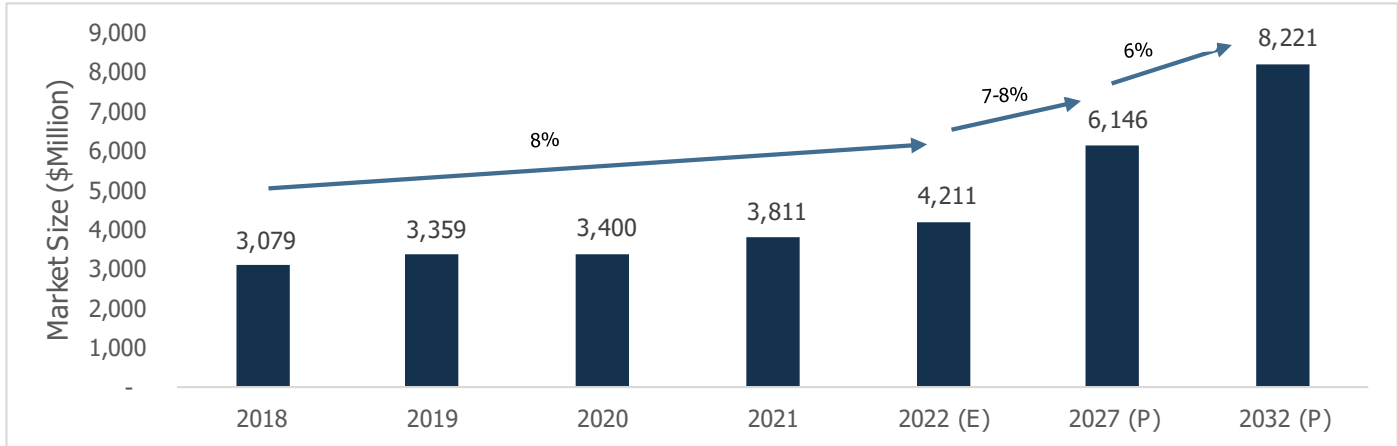


Source: Research Dive, CareEdge Research

### 5.3.4 China

Under the Asia-Pacific region, the Chinese engineered stone market is valued at an estimated \$4,211 million in 2022, and is projected to reach \$8,221 million by 2032.

**Chart 37: China Engineered Stone Market (\$Million)**



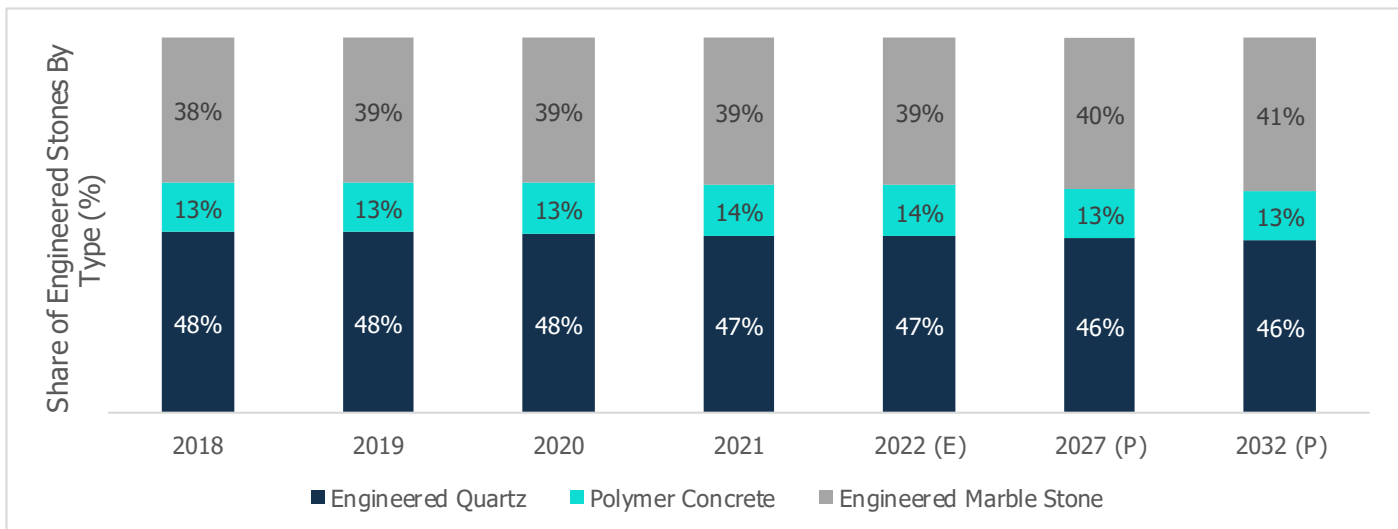
Source: Research Dive, CareEdge Research

**Table 10: China Engineered Stone Market by Type (\$Million)**

Type	2018	2019	2020	2021	2022 (E)	2027 (P)	2032 (P)
Engineered Quartz	1,482	1,613	1,629	1,792	1,976	2,856	3,782
Polymer Concrete	413	448	450	524	576	821	1,072
Engineered Marble Stone	1,184	1,298	1,320	1,496	1,659	2,469	3,367
<b>Total</b>	<b>3,079</b>	<b>3,359</b>	<b>3,400</b>	<b>3,811</b>	<b>4,211</b>	<b>6,146</b>	<b>8,221</b>

Source: Research Dive, CareEdge Research

**Chart 38: Share of China Engineered Stone Market by Type**



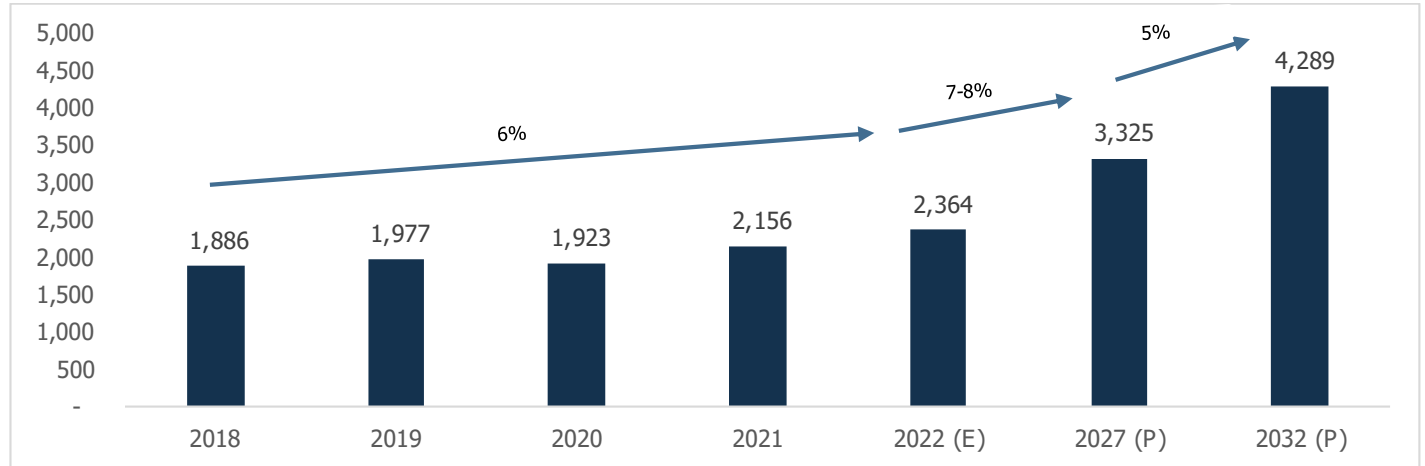
Source: Research Dive, CareEdge Research



### 5.3.5 LAMEA

The engineered stone market in LAMEA is estimated to have a CAGR of 6% and is estimated at \$2,364 million in 2022. It is expected to reach \$ 4,289 million in 2032. The expansion in the construction sector in countries namely Abu Dhabi, Qatar, Saudi Arabia, and Dubai is estimated to propel the engineered stone market demand in the coming years.

**Chart 39:LAMEA Engineered Stone Market (\$Million)**



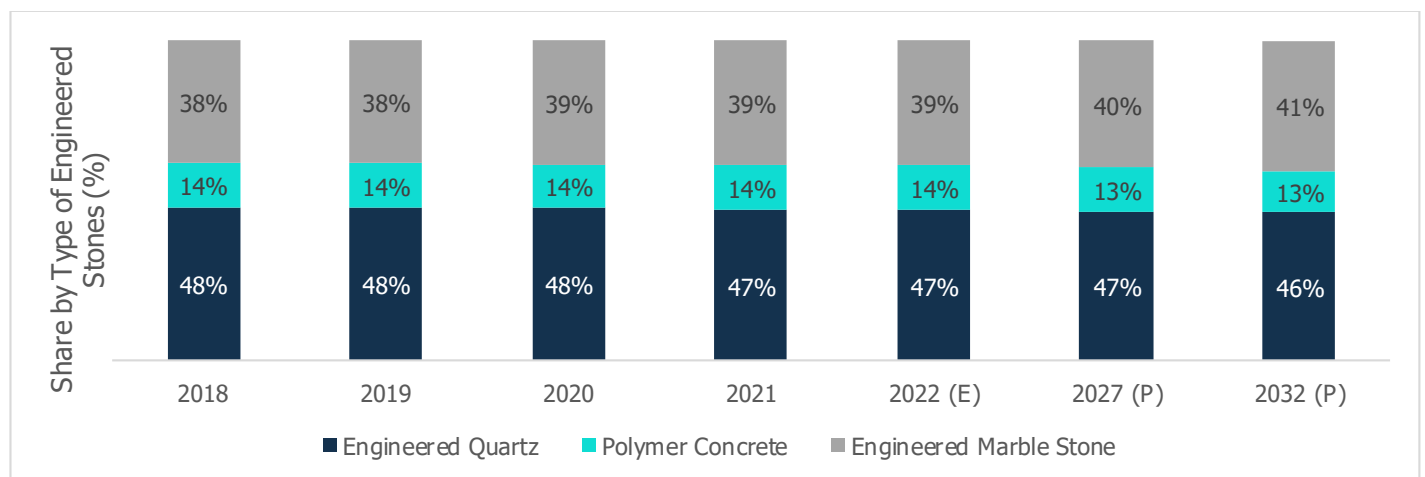
Source: Research Dive, CareEdge Research

**Table 11: LAMEA Engineered Stone Market by Type (\$Million)**

Type	2018	2019	2020	2021	2022 (E)	2027 (P)	2032 (P)
Engineered Quartz	906	947	920	1,017	1,113	1,550	1,980
Polymer Concrete	259	269	260	298	325	447	563
Engineered Marble Stone	721	760	743	841	926	1,328	1,746
<b>Total</b>	<b>1,886</b>	<b>1,977</b>	<b>1,923</b>	<b>2,156</b>	<b>2,364</b>	<b>3,325</b>	<b>4,289</b>

Source: Research Dive, CareEdge Research

**Chart 40: Share of LAMEA Engineered Stone Market by Type**

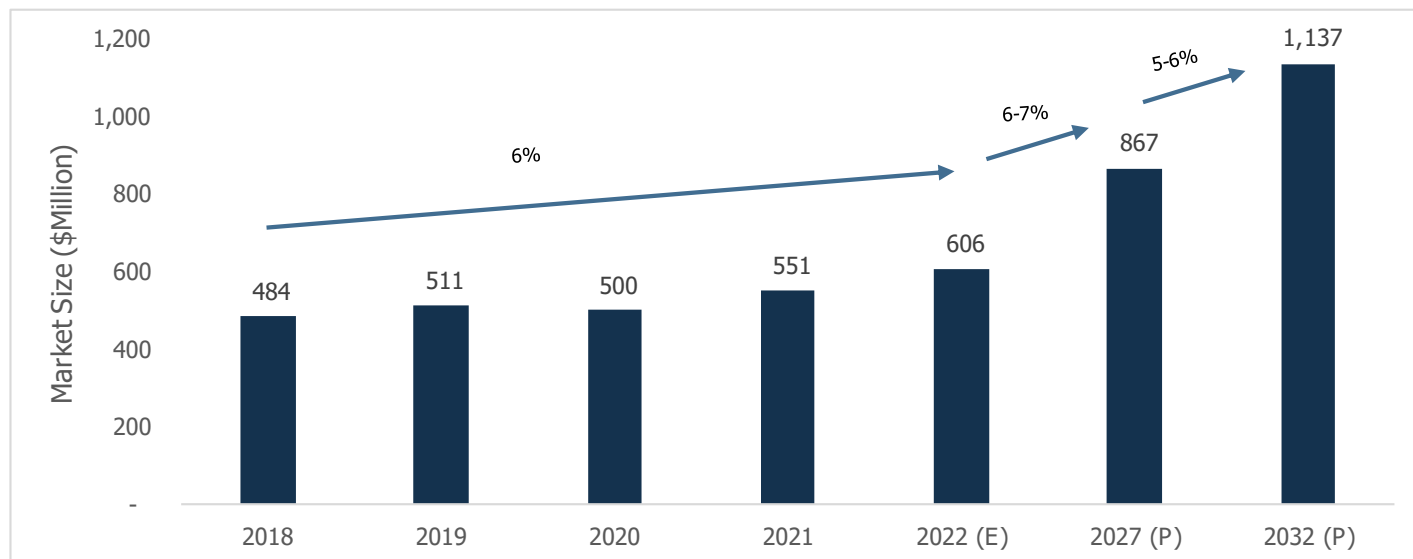


Source: Research Dive & CareEdge Research

### 5.3.5.1 UAE

Under LAMEA, the UAE engineered stone market is estimated to be valued at \$606 million in 2022, and is projected to reach \$1,137 million by 2032.

**Chart 41: UAE Engineered Stone Market (\$Million)**



Source: Research Dive, CareEdge Research

Dubai and the Gulf region have evolved as global business hubs with corporates having their offices in this region. It is also developing as the centre for export and various activities around the world. The engineered stone industry in Dubai is expected to benefit from the following key demand drivers:

- In Dubai, infrastructure is developing at a rapid pace. The application of engineered stone is expected to witness growth in Dubai due to increased infrastructure activities like building metro stations and various tourist attractions.
- Dubai is situated centrally and has new manufacturing lines established strategically at the Free Trade Zone and near ports. This positioning of the manufacturing units near the port leads to the optimization of freight and transportation charges as compared to manufacturing units established in landlocked areas that use rail and roads for transportation. Moreover, the companies and production facilities located in Free Trade Zones are exempt from income tax and VAT. The income tax exemption and free trade privileges serve as a key factor in attracting investments.

In 2018, the US imposed very high anti-dumping duties on imports of quartz surface products from China. The US Department of Commerce, in 2019 announced its final Anti-Dumping Duty (AD) and Countervailing Duty (CVD) rates on quartz surface products from China.

**Anti– Dumping Duty:**

Exporter	Producer	Estimated average margin(percent)	weighted dumping
Foshan Yixin Stone Co., Ltd	Foshan Yixin Stone Co., Ltd	333.09	
Foshan Yixin Stone Co., Ltd	QingYuan Yue Feng Decoration Material Co., Ltd	333.09	
Suzhou Colorquartzstone New Material Co., Ltd., Shanghai Meiyang Stone Co., Ltd., CQ International Limited	Suzhou Colorquartzstone New Material Co., Ltd. and Shanghai Meiyang Stone Co., Ltd	265.81	
Non-Individually Examined Exporters Receiving Separate Rates.	Producers Supplying the Non-Individually-Examined Exporters Receiving Separate Rates.	297.40	
China-Wide Entity	China-Wide Entity	336.69	

Source: USITC

**Countervailing Duty:**

Company	Subsidy rate (percent)
Foshan Hero Stone Co., Ltd.	190.99
Fasa Industrial Corporation Limited	190.99
Foshan Yixin Stone Co., Ltd	45.32
Foshan Nanhai Julang Quartz Co	190.99
Qinguan Yuefeng Decoration Material Co	190.99
All Others	45.32

Source: USITC

The rates announced on the imports of quartz slabs range between 265.81%-336.69%. Along with this, countervailing duty in the range of 45.32%-190.99% was also announced on the imports of quartz surface products. The imposition of AD and CVD duties was to protect US businesses from dumping of quartz surface products at less than fair value by China.

Quartz surface products consist of slabs and other surfaces made up of a mixture of materials consisting of predominately silica and resin binder. The duties imposed also include but are not limited to other surfaces such as countertops, bar tops, worktops, tabletops, flooring, wall facing, shower surrounds, fireplace surrounds, mantels, and tiles. However, it does not cover quarried stone products such as granite, marble, soapstone, quartzite and crushed glass.

Accordingly, this opened up opportunities for other countries to increase their exports of quartz surface products to the US. However, to restrict other countries from selling quartz surface products at lower prices in the US market, the Department of Commerce under the United States International Trade Commission (USITC) issued a notice imposing anti-dumping duty on India and Turkey.

#### Anti-dumping duty:

Country	Exporter/Producer	Estimated weighted average dumping margin(percent)
India	Marudhar Rocks International Pvt. Ltd./Marudhar Quartz Surface Private Limited	0.00
	Pokarna Engineered Stone Limited	0.00
	All Others	0.00
Turkey	Belenco dis Tikaret A.S. , ; and Peker Yu`zey Tasar(mlar( Sanayi ve Ticaret A.S	5.17
	Ermas , Madencilik Turizm Sanayi Ve Ticaret Anonim S , irketi	0.00
	All Others	5.17

Source: USITC

#### Countervailing duty:

Country	Exporter/Producer	Subsidy rate (percent)
India	Antique Marbonite Private Limited	1.57
	Pokarna Engineered Stone Limited	2.34
	All Others	2.17
Turkey	Belenco Dis , Ticaret A.S , . and Peker Yu`zey Tasar(lar( Sanayi ve Tic. A.S	2.43
	All Others	2.43

Source: USITC

The Anti – dumping duty in the range of 0.00% to 5.17% was imposed on quartz surface products from Turkey applicable from May 2020 (period of investigation from April 2018 through March 2019) as published in the May 2020 notice. Also, countervailing subsidy of 2.43% was imposed on quartz surface products from Turkey applicable from May 2020 (period of investigation from January 2018 through December 2018) as published in the May 2020 notice.

As per the World Trade Organization (WTO) norms on anti-dumping duty, 'Anti-dumping investigations are to end immediately in cases where the authorities determine that the margin of dumping is insignificantly small (defined as less than 2% of the export price of the product). Other conditions are also set. For example, the investigations also have to end if the volume of dumped imports is negligible (i.e. if the volume from one country is less than 3% of total imports of that product — although investigations can proceed if several countries, each supplying less than 3% of the imports, together account for 7% or more of total imports)'. UAE does not have significant production facilities at present, hence there's a lesser likelihood of such antidumping measures being imposed on it. This makes UAE an attractive base for global stone manufacturers to setup production facilities.

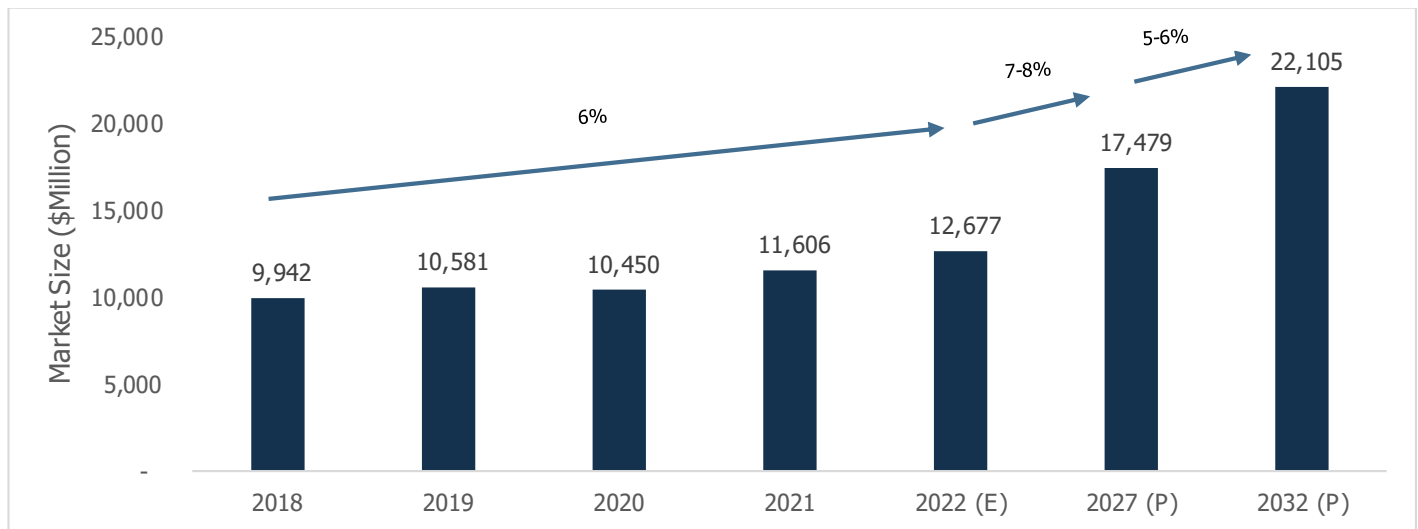
## 5.4 Performance of Key End-Use Industries

### 5.4.1 Commercial Real Estate

The commercial engineered stone market is estimated to be valued at \$11,606 million in 2022, and is projected to reach \$22,105 million by 2032.

The construction industry of countries such as China, India and UAE are expected to drive the growth in the industry. The central government of China is expected to focus on transportation and energy, emphasizing increasing connectivity within city clusters.

**Chart 42: Global Commercial Engineered Stone Market (\$Million)**



Source: Research Dive, CareEdge Research

Further, the UAE’s construction sector is also anticipated to attain moderate post-pandemic growth over the coming years. The significant commitment and resources of the UAE government would lead to development of different mega projects opportunities for construction and engineering companies.

Moreover, the increased awareness of pollution reduction is opening doors for the manufacture of recyclable engineered stone, which is projected to drive the global market over the forecast period. Some engineered stone items, such as porcelain sinks, liquor bottles, wine bottles, beer bottles, and perfume bottles, include up to 70% recyclable material, allowing for product recycling.

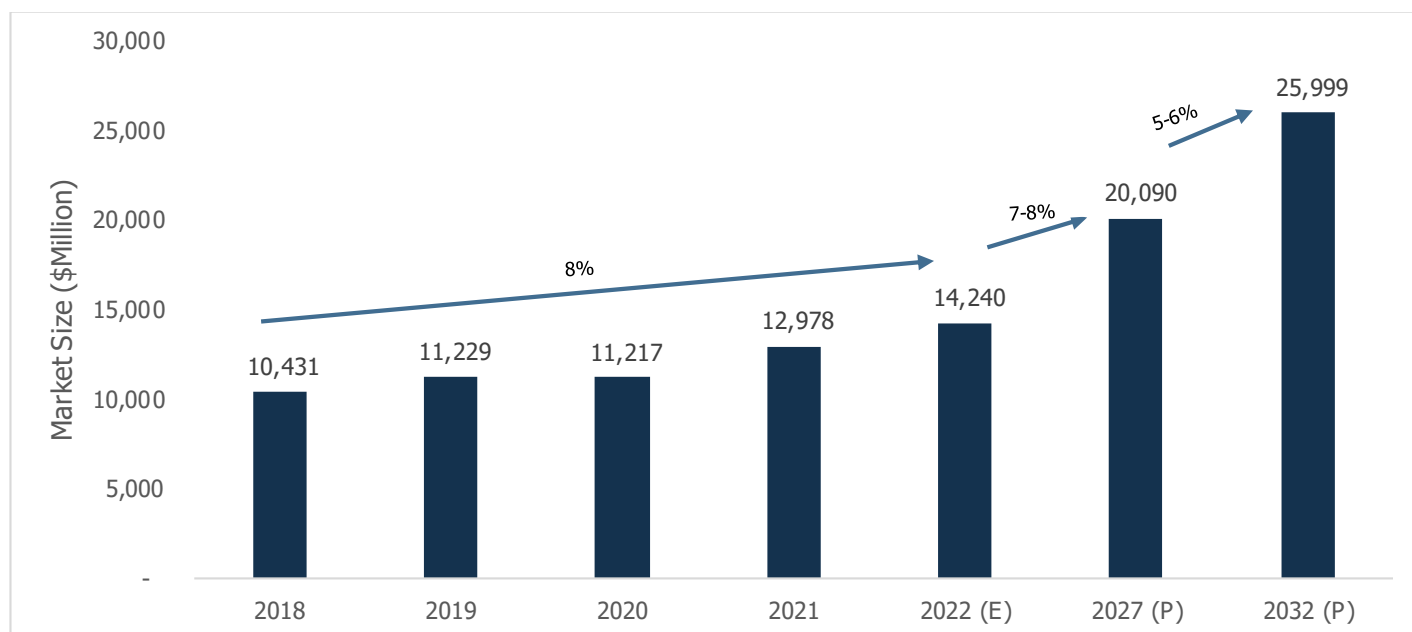
Engineered stone's eye-catching look and durability are also increasing its application in works of art, which is expected to provide many potential prospects in the global market. Engineered stones are highly resistant to heat & scratch and are highly durable thus widely being used in the fireplace. Owing to the high living standard and luxurious lifestyle, the global market for engineered stone is anticipated to grow at a significant CAGR in the near future.

Furthermore, engineered stones are suitable for use in hospital food facilities, canteens, and commercial buildings due to their properties such as non-porousness and durability. They can be produced in large sizes and their non-porous nature allows them to be used in wet areas such as washrooms, swimming pools, showers, bathtubs, etc. Engineered stones find their potential use in a wide range of applications accelerating their growth and demand in the global market.

**5.4.2 Residential Real Estate**

The residential engineered stone market is estimated at \$14,240 million in 2022, and is projected to reach \$ 25,999 million by 2032. The use of engineered stone in the residential industry is expected to grow at a CAGR of 7-8% between 2022 to 2027. This is mainly due to the growing popularity of engineered stone owing to its durability, aesthetic appearance, and application in residential flooring.

**Chart 43: Global Residential Engineered Stone Market (\$Million)**



Source: Research Dive, CareEdge Research

Engineered stone has been a popular alternative for household applications such as vanities, kitchen countertops, walls, and flooring due to its exquisite aesthetic. Countertops have evolved from basic platforms made of concrete earlier. Now, the countertops are multi-purpose platforms and have expansive utilities.

Engineered quartz is one of the major stones used in manufacturing countertops. The demand for trendy designs, modular kitchens, and decorative cabinets or shelves is increasing the demand for engineered stones. It is projected that through 2024, the engineered stone will be the fastest-growing major countertop material. Whereas the rising share of housing space devoted to kitchens and bathrooms and the growing interest in home renovation will continue to drive the countertop market in future.

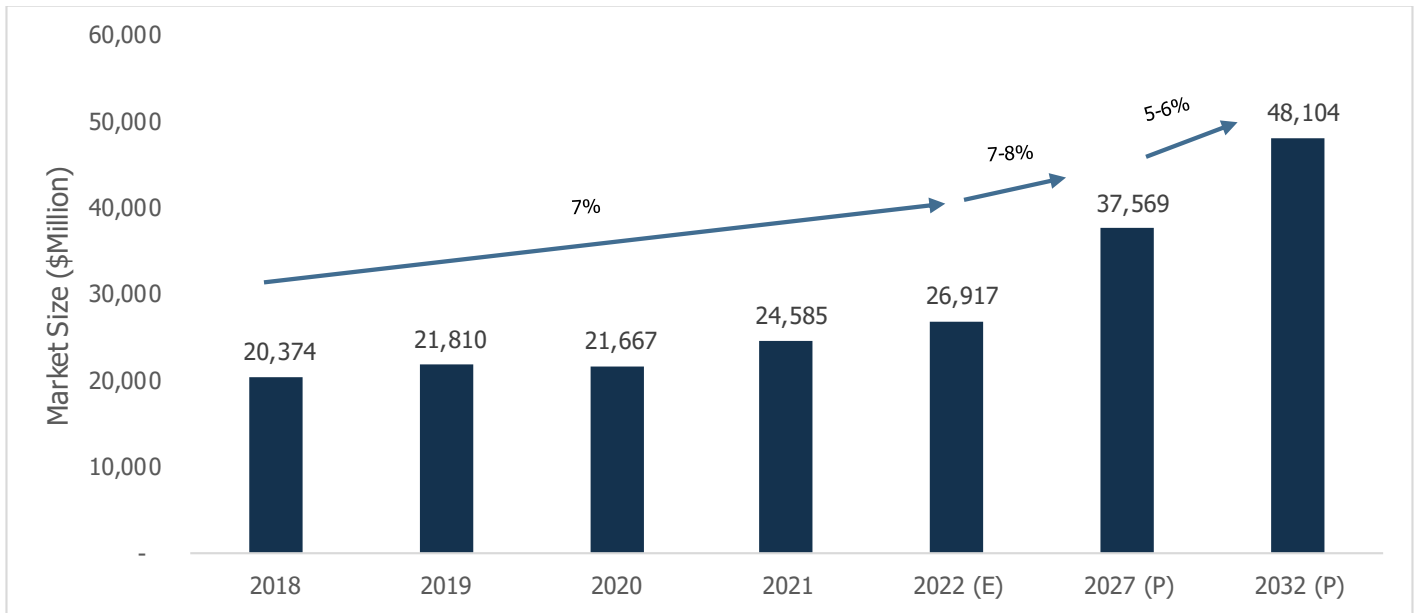
Moreover, engineered stones prevent bacterial development and aid in the maintenance of a sanitary environment, which is a major element driving the global engineered stone market. Since engineered stones are non-porous due to their manufacturing style, they are the ideal choice for kitchens and bathrooms. Additionally, they can be safely used in food areas since they do not require any auxiliary chemical substance like protective coatings. Besides, a variety of colours and structures of engineered stones suitable for a versatile ambience or appearance is estimated to propel the market growth.

### 5.5 Outlook

The global engineered stones market is expected to reach \$ 48,104 million by 2032. The industry is expected to grow at a CAGR of 5-6% between 2027 and 2032. As the global economy is recovering from the pandemic, the industry has started to witness a gradual uptrend. Rising per-capita income, rapid expansion of building sectors, and existence of a high number of engineered stones in regions such Asia-Pacific would further boost demand. Increase in residential renovations, as well as surging need for redeveloping old building constructions will further contribute towards growth of the industry.

Engineered stones are environmentally friendly as they contain 93% crushed leftover stone from quarries or natural stone beds and their demand would be benefitted with increasing need for environmentally friendly and sustainable building products for various applications such as kitchen worktops, flooring, raised flooring, internal cladding, vanity tops, and bathroom furnishings for residential and commercial construction projects.

**Chart 44: Outlook of Global Engineered Stone Industry (\$Million)**



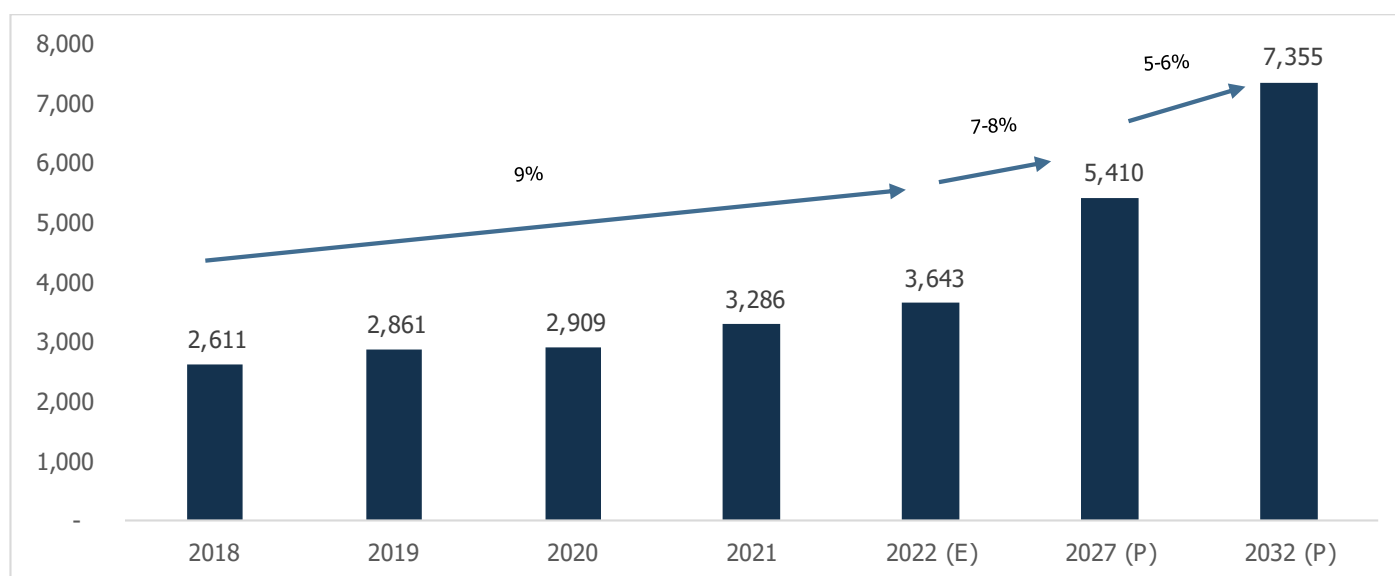
Source: Research Dive, CareEdge Research

## 6. Indian Engineered Stone Industry

Engineered quartz was declared as a minor mineral by the Government of India in 2015. More than half of quartz in India comes from the state of Andhra Pradesh, followed by Rajasthan. Other states where quartz is available are Chhattisgarh, Gujarat, West Bengal, Karnataka and Jharkhand. The industry mainly consists of unorganized players. Besides catering to the Indian market, India is a major exporter of engineered or quartz stones in countries like the U.S, Europe and U.A.E. The demand for engineered stones has increased tremendously owing to its wide range of applications, cost effectiveness, and many other characteristics such as strength, durability, and availability in various color pellets.

The Indian engineered stone market is estimated to be valued at \$3,643 million in 2022. The industry is expected to grow at a CAGR of 7-8% in the projected years between 2022 to 2027. By the year 2032, the Indian engineered stone market is expected to reach \$ 7,355 million.

**Chart 45: Indian Engineered Stone Market (\$Million)**



Source: Research Dive, CareEdge Research

Moreover, In the FY2020-21 the industry was impacted by the Covid-19 leading to disruptions in production and transportation process. As the lockdowns were imposed throughout the country, laborers migrated back to their native towns creating a shortage of labor. The infrastructure and customer base were also affected by the pandemic as the customers wanted to check the look and feel of the products which was not possible during the time of lockdowns. The Indian stone industry grew at a very slow pace in that period.

### 6.1 Performance of Key End-Use Industries

#### 6.1.1 Residential Real Estate

The residential real estate segment was performing exceptionally well during the first half of the previous decade on account of economic growth and the services sector which resulted in migration to metros and propelled the demand for housing units in these areas. However, problems related to elevated property prices, delayed launches by developers, and stalled projects triggered a loss of confidence in the sector.

Further, in India, around three houses are built per 1,000 people per year as against the required construction rate of five houses per 1,000 individuals per year. This indicates that there is significant untapped potential for growth in the sector. While the current shortage in housing in urban areas is around 10 million units, the shortage in affordable housing



space is expected to be much higher, considering the population belonging to that strata. In addition, increased economic growth and the uptick in India's service sector have created additional demand for office space, which, in turn, is likely to result in greater demand for housing units in nearby vicinity.

Moreover, the Indian housing market has been steadily progressing over the past decades. It is expected that this will result in the industry incurring investment, both in the short term and the long term. Also, the government allowed FDI of up to 100% through automatic routes in the construction sector. This helped attract investments in the sector. Accordingly, the growing flow of funds through the FDI route in Indian real estate is encouraging increased transparency. Whereas developers, in order to attract funding, have revamped their accounting and management systems to meet due diligence standards.

For performance of the industry please refer to section 4.1.1

### 6.1.2 Commercial Real Estate

The Indian real estate industry witnessed a slowdown in the years before the pandemic due to the general slowdown in the economy. However, this had minimal impact on the demand for office space. The demand for office space grew by leaps and bounds for the better part of the past decade with the unavailability of good quality supply being the only impediment to higher growth. We estimate the demand for office space, particularly in metros, to have outstripped supply before 2020.

Furthermore, with residential real estate becoming end-user-driven, commercial real estate emerged as a more attractive investment proposition for individual investors as well as institutional funds. Due to the investment potential of commercial spaces, developers are also responding to the demand.

For the performance of the industry refer to section 4.1.2.

### 6.1.3 Construction

The construction sector is the country's second-largest economic segment after agriculture. It contributed 7.6% to the national GVA (at constant price) in FY21. The order book of construction companies is dependent on the capital expenditure in the economy. Broadly, the investments can be classified into infrastructure, real estate, and industrial construction.

Historically, infrastructure creation, spread across sectors such as roads and highways, telecom, airports, ports, power, oil and gas and railways dominated the investments. Similarly, the infrastructure demand and government initiatives show the potential for catapulting India to the third-largest construction market globally.

For performance of the construction industry please refer to section 4.1.3

## 6.2 Government Regulations

**The Occupational Safety, Health and Working Conditions Code 2020 (OSH Code):** The central government has recently amalgamated the existing Indian labour laws relating to the safety, health, and working conditions of workers employed in various establishments, including mines, under the OSH Code. Among other things, the OSH Code sets the requirements for the safety and working conditions of labour employed in mines. The OSH Code will come into effect on a date to be notified by the central government. Once notified, it will replace the Mines Act 1952 (Mines Act) and the Mines Rules 1955 (Mines Rules).

The OSH Code sets to provide safe working conditions for the labourers. Some of the provisions listed under the OSH code are:

- Employers must provide a risk-free workplace and instruct employees on safety protocols.
- In the case of interstate migrants, the employer/contractors should notify specified authorities of both states in case of fatal accidents and serious bodily harm. They should ensure suitable work conditions and extend medical checkups and other benefits.
- No worker below the age of 18 or apprentice/trainee below the age of 16 may work in a mine.

### 6.3 Key Growth and Demand Drivers

#### 1. Global Situations and Anti-Dumping Duties

- Historically, China has been the largest global exporter of engineered stones. Factors such as large-scale manufacturing, low cost and government support have helped China to dominate the global export market.
- In 2018, the US-China trade war started and the tensions negatively impacted consumers in both countries. The US imposed anti-dumping duty on Chinese imports. In retaliation, China also responded by imposing high tariffs on the US goods. The tariffs imposed by both countries led to a decline in imports and exports to and from the US and China. However, trade diversion to other countries due to the anti-dumping duty on China benefitted manufacturers of the other countries. The decline in imports from China opened opportunities for other countries to export goods to the US.
- In addition to the trade war, the disruption caused by COVID-19 led to the manufacturers adopting the 'China Plus One' strategy. The China Plus One strategy focuses towards shifting away from China and diversifying their sources of production.
- Countries like Vietnam, Thailand, Indonesia, Malaysia, and India are major attractions for manufacturers because of low-cost labour.

#### 2. Growth in the Economy coupled with Increased Urbanization Boosts Demand

- The Indian economy has experienced steady growth in the past decade and is expected to be one of the fastest-growing economies in the post-pandemic era.
- India's urban population is expected to reach over half a billion by 2025 from an estimated 461 million in 2018.
- Rising income and employment opportunities have led to migration to urban areas thereby creating a greater need for real estate in major Indian cities. A rise in the need for real estate would also create demand for engineered stones because of its multipurpose uses such as kitchen countertops, flooring, wall cladding, and cut-to-size items.

#### 3. Net Absorption of Office Space in Commercial Real Estate

- After dropping around 60% in Q1CY17 mainly due to demonetization in November 2016, the net absorption witnessed a five-year high in Q1CY19. While the net absorption continued witnessing strong growth until February 2020 (before the outbreak of Coronavirus), post the outbreak many new leasing deals have been pushed back by a couple of months, and are also being renegotiated for the removal of lock-in periods and downward revision of rentals. Bengaluru, Mumbai and Delhi NCR accounted for nearly 75% of the net absorption in Q1CY20, which was led by the IT/ITeS sector. Pre-commitments for Q1CY20 accounted for 50% (4.9 msf) of the net absorption for the same period.

**Table 12: City-wise net absorption in India's office market**

City	Q4FY20	Q1FY21	Q2FY21	Q3FY21	Q4FY21	Q1FY22	Q2FY22
	(mn sq ft)	(mn sq ft)	(mn sq ft)	(mn sq ft)	(mn sq ft)	(mn sq ft)	(mn sq ft)
<b>Bengaluru</b>	2.7	0.5	2.7	1.4	2.2	5.2	1.01
<b>Chennai</b>	0.9	0.1	0.2	0.9	0.4	0.5	0.7
<b>Delhi NCR</b>	1.6	0.5	0.2	1	1.1	1.2	1.4
<b>Hyderabad</b>	0.9	1.2	1.5	2.8	1.1	1.6	1.1
<b>Kolkata</b>	0.02	-	0.02	0.2	0.1	-	0.03
<b>Mumbai</b>	2.1	0.5	0.3	0.9	0.2	2.5	1
<b>Pune</b>	0.4	0.6	0.5	1.1	0.5	0.6	0.6
<b>Total</b>	<b>8.6</b>	<b>3.3</b>	<b>5.3</b>	<b>8.2</b>	<b>5.5</b>	<b>11.7</b>	<b>5.9</b>

Source: Industry Sources & CareEdge Research

The city-wise absorption rate is higher in metros than in tier II and III cities on account of a higher presence of offices and multinational companies in these regions. Net absorption in India's overall office market, which is driven by metros, witnessed a fall of 33% on a sequential basis during Q4FY21. During this period, around 5.5 million square feet of office space was leased. When compared to the same period during the previous year, net absorption accounted for 64% of that in the Q4FY20 quarter.

#### 4. Development of Attractive and Aesthetic Infrastructure

- Due to its elegant appearance, quartz stone has been a popular choice for home applications such as vanities, kitchen countertops, walls, flooring, etc., with the increasing demand for residential and commercial real estate, the demand for these applications will also tend to rise.

#### 5. Growth in the Construction and Building Industry to push Demand for Engineered Stones

- As construction activities rise, properties such as non-porous and durability make engineered stones suitable for applications in hospital food facilities, canteens, commercial buildings, and railway and metro stations.
- Quartz can be produced in large sizes and is non-porous in nature allowing it to be used in wet areas such as washrooms, swimming pools, showers, and bathtubs.

#### 6. Demand from Tier-2 and Tier-3 Cities to be on an Upswing

- E-commerce companies were already growing by leaps and bounds prior to the pandemic mainly due to increased penetration and demand from metros. As a result, most warehousing space occupied by these companies was near or in metros and tier 2 cities such as Mumbai, Delhi NCR, Bengaluru, Chennai, Ahmedabad, Kolkata, Hyderabad and Pune.
- However, with the growing absorption of online retail in India, the demand from smaller towns and cities will be on an upswing. E-commerce companies will consider investing in warehousing space in these cities to ensure seamless last-mile deliveries which would further benefit the engineered stone industry.

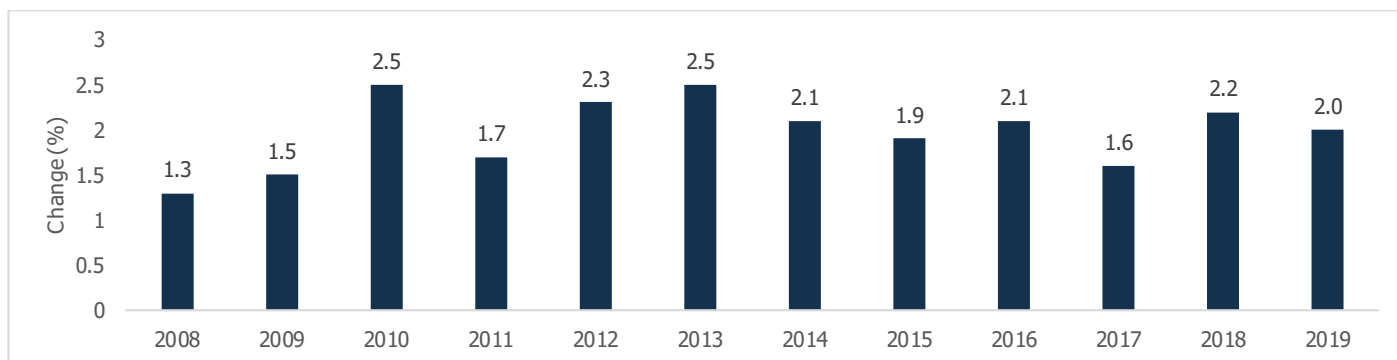
#### 7. Hygienic and Resistant to Bacteria Growth

- The engineered stones are also resistant to bacteria growth and thus help in maintaining a hygienic environment, which is an important factor driving the engineered stone market. An engineered stone is not only visually appealing but is very robust and thus increases its use in work of art which in turn is anticipated to create several growth opportunities.

### 8. Labour Cost advantage

- Globally, in the years preceding the Covid-19 pandemic the growth in real wages has witnessed a fluctuating trend, wherein China stood out with a constant rise in wages, which more than doubled during the period 2008-19. Among the advanced G20 economies, wage growth was accelerated by the Republic of Korea followed by Germany. Among the emerging G20 countries, all countries except Mexico experienced significant positive growth in wages over the period.

**Chart 46: Annual average global real wage growth (%)**

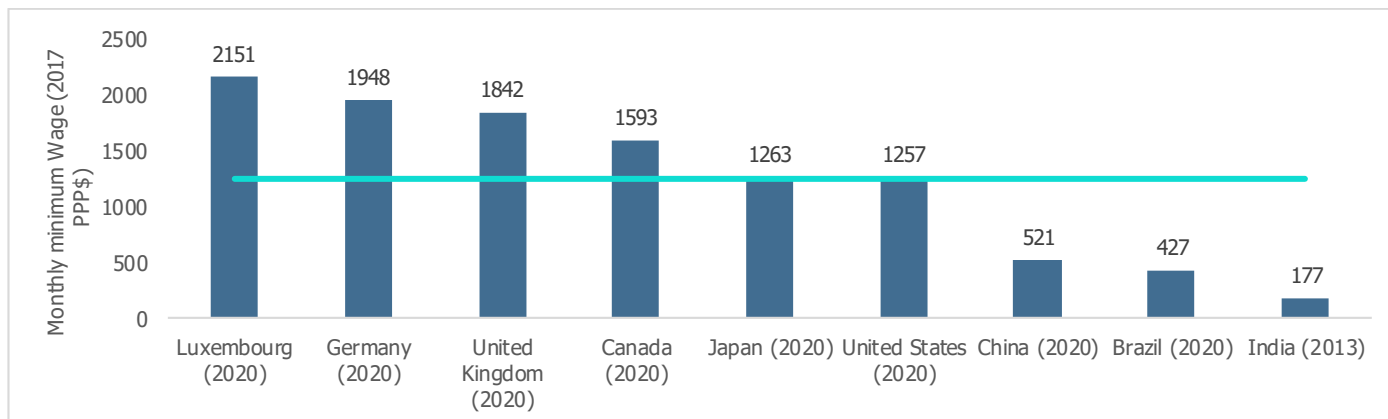


Source: International Labour Organization’s Global Wage Report 2020-21, CareEdge Research

However, it is observed that developing countries such as India and China continued to have lower minimum wages compared to developed countries such as the US, the UK, and Germany.

- A comparison of monthly minimum wages across countries shows that India has the lowest monthly minimum wage at \$177 compared to the average minimum wage at \$1242.
- India benefits from having lower minimum wages as there is the availability of a large labour pool and almost half its population is of working age. A majority section of the working population is involved in the unorganized sector working for small-scale businesses. Due to its low wage structure, India enjoys a competitive advantage over other countries.

**Chart 47: Gross Monthly Minimum Wage (2017 PPP\$)**



Source: International Labour Organization

Note: The wages for all the countries have been converted to U.S. dollars as the common currency by using the 2017 Purchasing Power Parity (PPP) rates for private consumption expenditures. Converting to 2017 PPP\$ helps to internationally compare countries by considering the differences in relative prices between countries

## 6.4 Key Challenges

### Availability of Substitutes

- There are other alternative materials available in the market such as tiles, laminate, hardwood flooring, and soft flooring like carpet, which are gaining popularity among people as these materials are ready to use without requiring any additional coating. Also, the cost of alternative flooring materials is cheap compared to engineered stones, which makes these materials even more preferable among people with low incomes.

### Health-Related Issues

- Engineered stone is a mix of ground natural stone and resin. Like much of the earth's crust, the natural stone contains crystalline silica. When pulverized during fabrication or processing crystalline silica becomes easy to inhale, or 'respirable.' Exposure to respirable crystalline silica (RCS) causes inflammation, and over time, permanent lung scarring. This condition, known as silicosis, can lead to tuberculosis, lung cancer, chronic bronchitis, autoimmune disorders, and kidney disease.
- Engineered quartz counters pose a higher risk than natural stone because workers are exposed to dust that is more than 90% silica. By comparison, granite may contain up to 50% and some varieties of marble and limestone may contain no silica at all. Workers in manufacturing — those opening bags of ground quartz or mixing raw materials — have a high risk of exposure to RCS. Similarly, those in quartz countertop fabrication cutting, sawing, grinding, and drilling into the material face are at risk as well.

### Highly Competitive Intensity

- The engineered stone industry is highly competitive due to factors such as low entry to barriers, easy availability of raw materials, and limited initial capital investment, which leads to large inclusion of regional and unorganized players.

### Fluctuation in Raw Material Prices

- Quartz prices have fluctuated significantly in the last few years. The increased shipping costs and expensive sand mix are among the factors raising the quartz prices. Also, there has been an unprecedented rise in the market price of resin due to pandemic-related issues like supply chain issues, production difficulties, and labour shortages.
- Polyester, which forms a major share of the total raw materials used for engineered stones, also saw fluctuations in the prices. In 2020, the average polyester prices decreased due to lower energy prices. Whereas in 2021, the average polyester prices increased due to the rising raw material prices of resin attributed to higher energy costs during the pandemic.

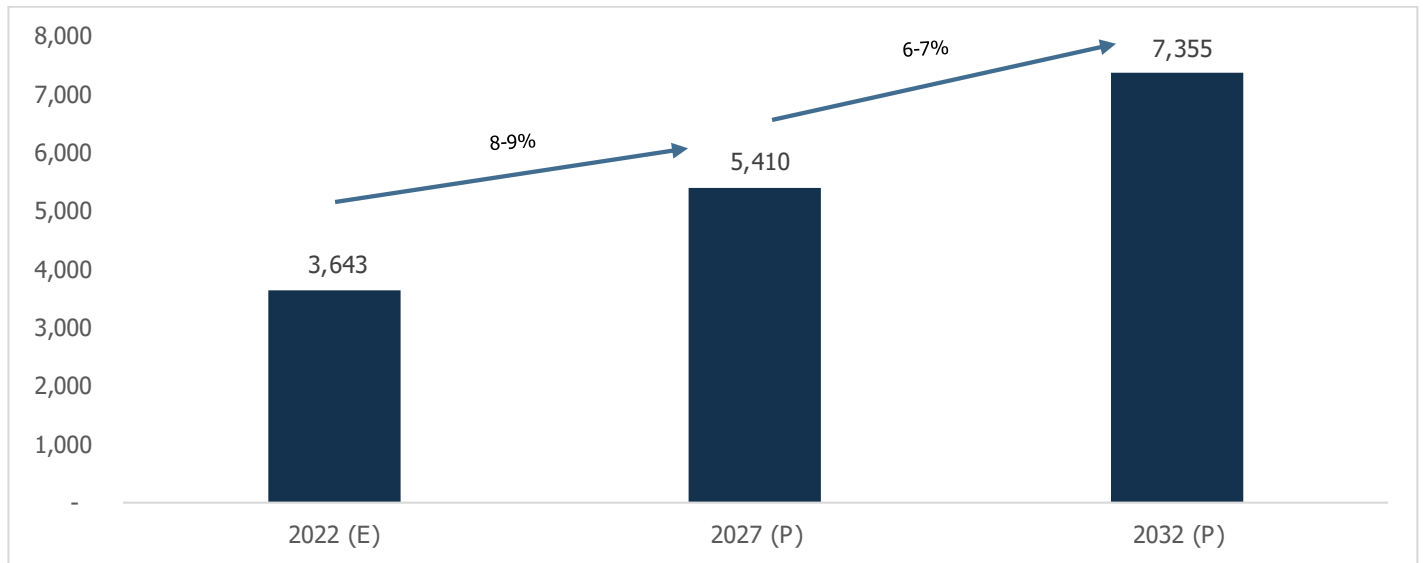
## 6.5 Outlook of Indian Engineered Stone Industry

The Indian engineered stone industry is estimated to be valued at \$ 3,643 million in 2022 and is expected to grow at a CAGR of 8-9% between 2022-2027 to reach \$5,410 million in 2027.

The outlook for the natural segment is stable with a positive upside in the medium term. Like natural stones, the engineered stone industry is also linked to commercial and residential real estate industries. Going forward, with hybrid working environment, design specifications for homes are likely to be altered as there will be higher demand for flexible homes that are capable of functioning as offices and classrooms if required. This would result in increased penetration of engineered stones to be used in interior designing. Under commercial real estate, the hospitality segment is expected to register a gradual pick-up over the coming years as the sector recovers from the effects of the pandemic. This would turn

out well for engineered stones as they are widely used in swimming pools, food facilities, walls, canteens, kitchen countertops, etc.

**Chart 48: Outlook of Indian Engineered stone Industry (\$Million)**



Source: Research Dive & CareEdge Research

## 7. Unsaturated Polyester Resin

### 7.1 Overview

Unsaturated polyester resin (UPR) is a polymer type widely used in the manufacturing of various products, particularly in the field of composite materials. It is a thermosetting resin, meaning it undergoes a chemical reaction that irreversibly solidifies or 'sets' when it is cured, typically through the addition of a curing agent. The curing process involves the addition of a catalyst, usually a peroxide, and sometimes an accelerator. This combination initiates a chemical reaction that results in the formation of a three-dimensional network of polymer chains, turning the liquid resin into a solid, durable material. Unsaturated polyester resins find extensive use in the production of composite materials such as fiberglass-reinforced plastics (FRP).

Further, unsaturated polyester resin (UPR) is a versatile liquid polymer that, when cured through cross-linking with styrene and specific organic peroxides known as hardeners, solidifies into a durable shape. This material is commonly used in combination with reinforcing materials such as glass fibres to create fibreglass (FRP), a composite material with exceptional strength and durability characteristics. UPR when used in liquid form offers several benefits such as poor linear shrinkage, owing to which there is minimal change in the product dimensions during the curing process, excellent wettability of fibers, and charges that offer effective bonding with the reinforcing materials.

UPR has a wide range of applications in composite materials, wood paints, corrugated panels, flat laminated panels, gel coats for boats, automotive, and bathroom fixtures, construction materials & decorative elements such as quartz, marble, and artificial cement. Moreover, UPR is valued for its versatility, ease of processing, and ability to be moulded into complex shapes. It provides a good balance of mechanical properties, chemical resistance, and cost-effectiveness.

The production of unsaturated polyester resin involves the condensation of various raw materials, including unsaturated polyols, anhydrides, and acids. The processing of these resins incorporates additional materials like fillers, surfactants, stabilizers, and initiators, contributing to improved stability and robust crosslinking properties in the final product.

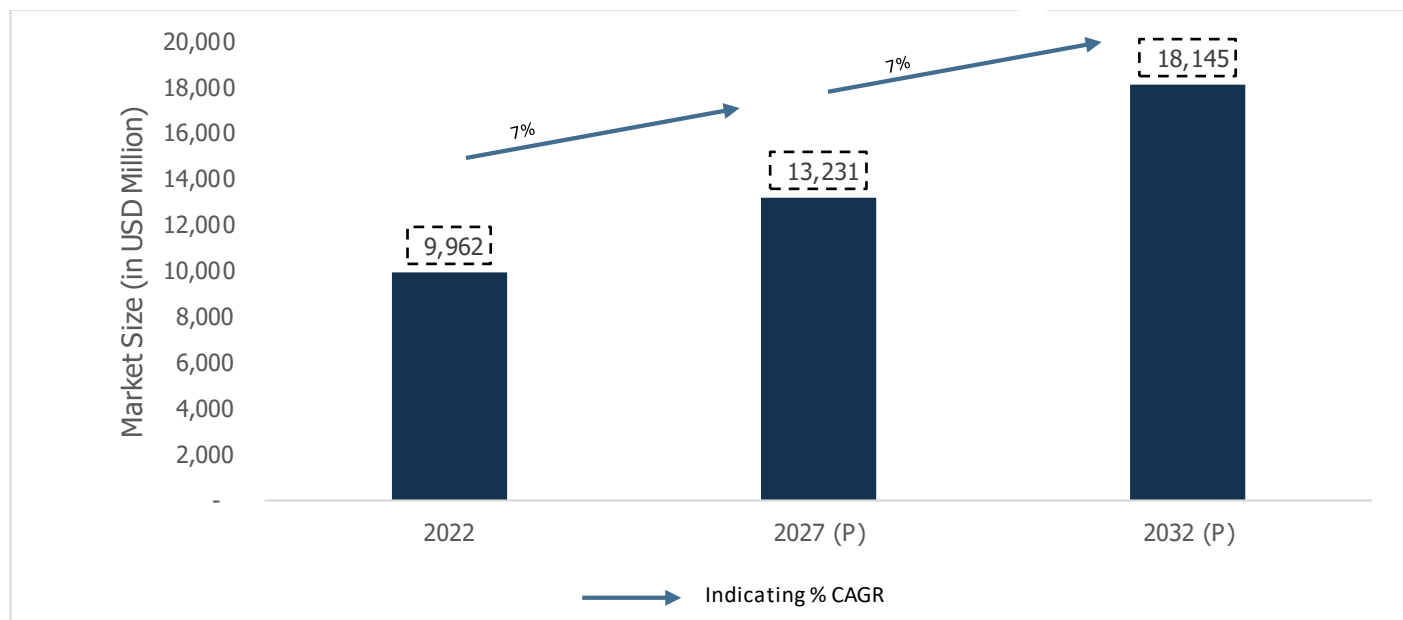
While UPR has many advantages, it may have limitations in terms of heat resistance and some chemical exposures. In applications where, higher resistance to heat or certain chemicals is required, other types of resins like epoxy or vinyl ester may be preferred.

### 7.2 Global Unsaturated Polyester Resin – Market Size

The global unsaturated polyester resin market was valued at \$9,962 million in 2022 and is projected to reach \$18,145 million by 2032, registering a CAGR of 6% from 2022 to 2032. Unsaturated polyester resins are used during the manufacturing of storage tanks, pipes, flat roofs, and waterproofing linings., They also find use in high-specification components used in the automotive, aerospace, marine, construction, and other industries.

Furthermore, after cross-linkage, the UPR turns solid, enabling properties like excellent electrical insulation, strength, rigidity, excellent surface finish, water resistance, dimensional stability in varying temperature conditions, and excellent mechanical strength. Therefore, the versatile properties of UPR make it a key component of several industries such as construction, watersports, automotive, and others.

**Chart 49: Global Unsaturated Polyester Resin Market Size (\$ Million)**



Source: Research Dive, CareEdge Research

### 7.3 Region Wise Contribution

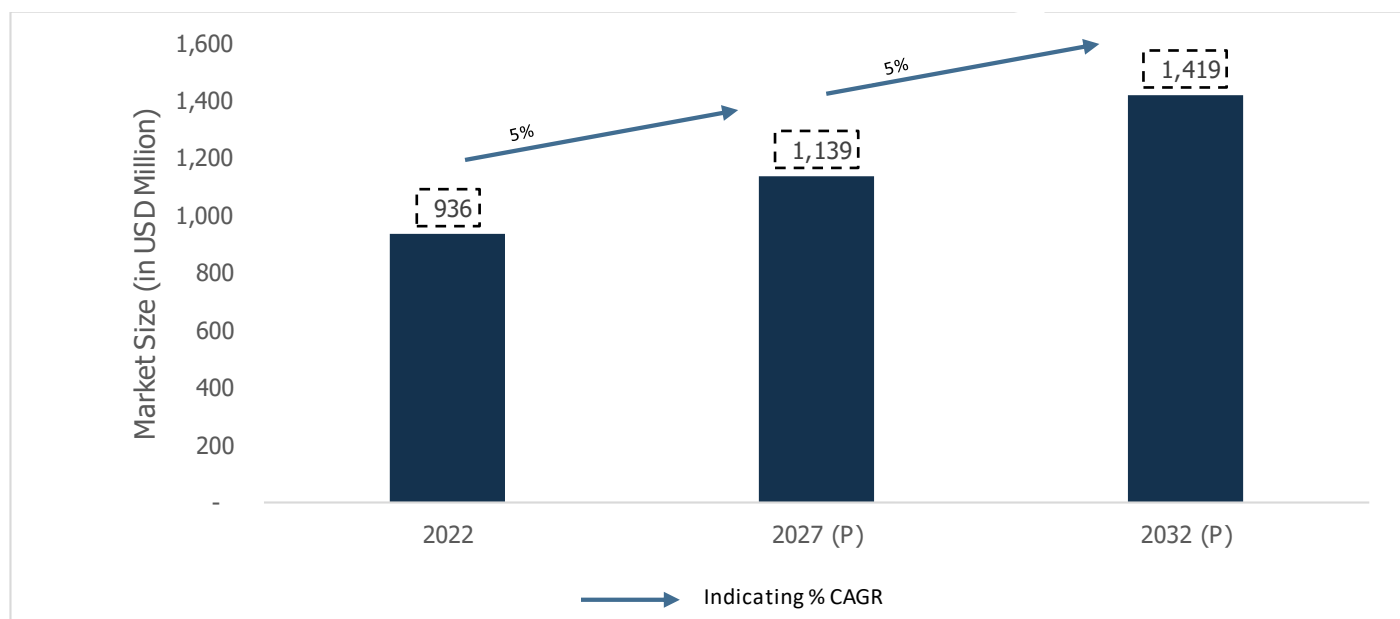
#### 7.3.1 North America

The North America UPR market was valued at \$936 million in 2022 and is projected to reach \$1,419 million by 2032, registering a CAGR of 4% from 2022 to 2032. The unsaturated polyester resin market growth in North America is attributed to diverse applications across various industries. North American markets of the U.S., Canada, and Mexico have a robust manufacturing sector. Also, the region significantly emphasizes lightweight and high-performance materials, fueling the demand for unsaturated polyester resins.

Additionally, the construction and automotive industries have become key consumers, incorporating these resins for their versatility in creating durable & cost-effective components. Further, the market is witnessing innovations in formulations to meet the increasing demand for sustainable & eco-friendly solutions, aligning with the broader trend of environmentally conscious manufacturing practices in North America. With a proactive approach toward technological advancements and a burgeoning focus on research & development, the unsaturated polyester resin market in North America is poised for continued expansion in the coming years.



**Chart 50: North America Unsaturated Polyester Resin Market (\$Million)**



Source: Research Dive, CareEdge Research

### 7.3.2 Europe

The Europe unsaturated polyester resin market was valued at \$2,022 million in 2022 and is projected to reach \$3,433 million by 2032, registering a CAGR of 4% from 2022 to 2032. The unsaturated polyester resin market in Europe is experiencing notable growth, reflecting dynamic developments across diverse industries in the region. Recognized for their versatile applications and desirable properties such as strength, corrosion resistance, and moldability, unsaturated polyester resins have become crucial in Europe's manufacturing landscape. The automotive, construction, and marine sectors in European markets like Germany, the UK, Spain, Italy, France, and Rest of Europe are actively driving the demand for these resins as the region undergoes industrial expansion and infrastructural development.

In the automotive industry, a key player in Europe's economy, unsaturated polyester resins play a pivotal role in crafting lightweight and high-performance components. With a focus on innovation and sustainability, the demand for these resins is expected to grow in tandem with the automotive sector's commitment to advanced materials.

Germany's automotive prowess is evident in its position as a key player in the electric vehicle (EV) market, with major manufacturers investing heavily in EV technology. This transition toward electric mobility further underscores the importance of advanced materials like unsaturated polyester resins in creating lightweight and durable components essential for electric vehicle applications. The strategic integration of these resins in the German auto industry exemplifies the country's dedication to engineering excellence and staying at the forefront of automotive innovation. As Germany continues to be a driving force in the global automotive landscape, the unsaturated polyester resin market plays a vital role in supporting the industry's evolving needs.

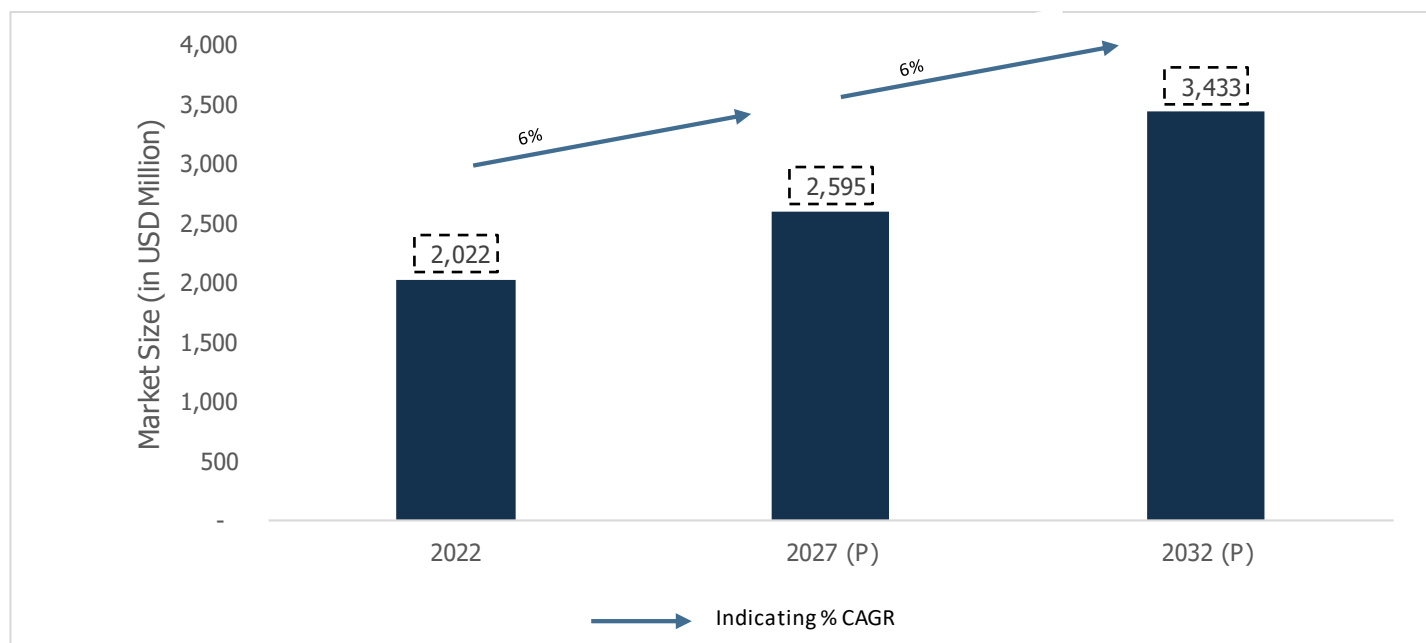
Furthermore, the construction sector, known for its significance in the European economy, is an important demand driver for unsaturated polyester resins. For instance, the construction sector in the UK embraces these resins for applications ranging from infrastructure projects to architectural designs.

Similarly, the construction industry in France has embraced unsaturated polyester resins for an array of applications, ranging from composite materials in infrastructure projects to innovative architectural designs. The resin's ability to provide structural reinforcement and aesthetic appeal makes it a preferred choice for construction projects across the

country. The versatility of these resins enhances the durability and performance of construction materials, supporting various commercial and residential projects across the region.

Moreover, Europe's strategic geographical location and its emphasis on research & development further reinforce its position as a manufacturing hub. The demand for advanced materials, including unsaturated polyester resins, is attracting international companies and contributing to the region's growth. With its commitment to evolving industrial and manufacturing needs, Europe's unsaturated polyester resin market is poised to play a pivotal role in supporting and advancing the region's dynamic industrial landscape. As Europe continues to navigate economic and technological advancements, the unsaturated polyester resin market remains integral to the region's commitment to innovation and sustainability

**Chart 51: Europe Unsaturated Polyester Resin Market (\$Million)**



Source: Research Dive, CareEdge Research

### 7.3.3 Asia-Pacific

The Asia-Pacific unsaturated polyester resin market was valued at \$5,900 million in 2022 and is projected to reach \$11,344 million by 2032, registering a CAGR of 7% from 2022 to 2032. The Asia-Pacific market for unsaturated polyester resin is poised for significant growth, driven by the expanding applications of these resins in diverse manufacturing sectors. Whereas products such as sheet moulding materials, gel coats, electrical wires, automotive body parts, marine components, artificial stone, and cement composites are witnessing an upsurge in demand, propelling the regional market forward.

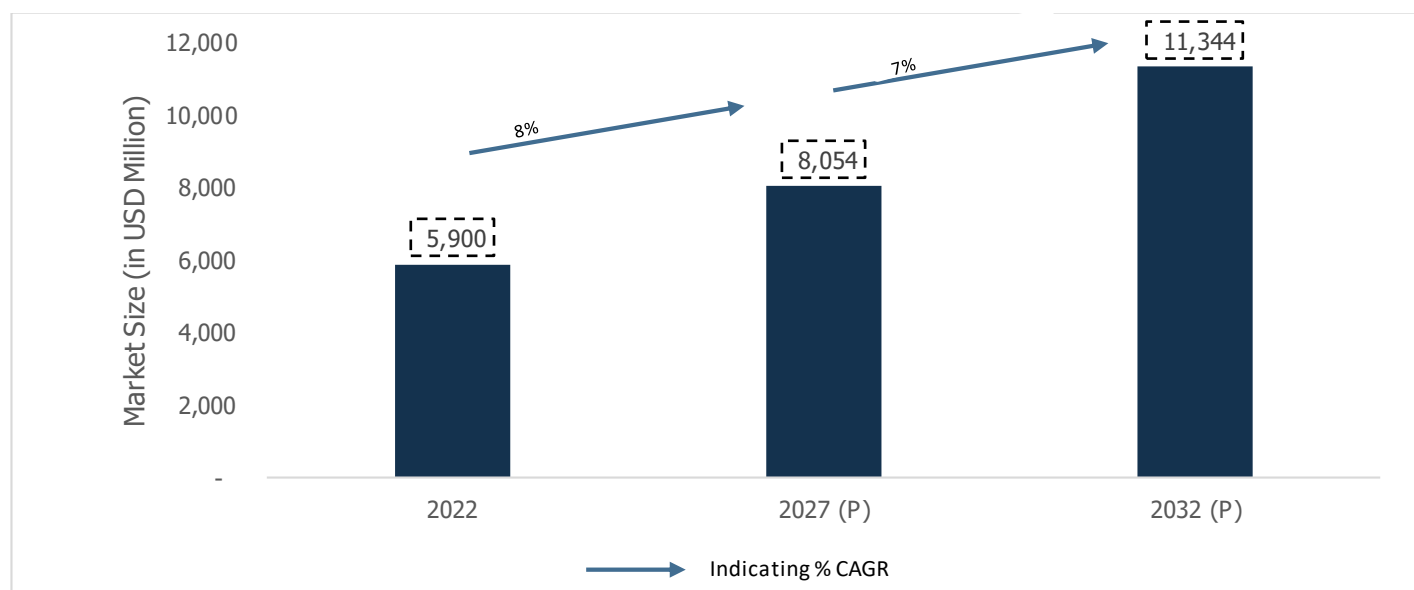
China's unsaturated polyester resin market has experienced rapid growth over the past decade, mirroring the country's dynamic economic expansion. The robust economic trends in China have thus created a favourable environment for the production and consumption of these resins, making them integral to various industries.

Further, the Japanese market thrives on technological advancements and a commitment to quality, making its exports sought after in international trade. Unsaturated polyester resins play a vital role in Japan's manufacturing landscape, finding applications in diverse sectors, including automotive, construction, and electronics. The country's proficiency in producing high-quality resins aligns with global demands for advanced materials.

Whereas India’s economic growth and technological advancements are poised to play a pivotal role in fostering innovation and contributing to the nation’s industrial development, which will further lead to growth in the unsaturated polyester resin market. In the case of South Korea, the future of the unsaturated polyester resin market appears highly promising, driven by diverse applications across industries, including automotive and electronics. The country stands as a major hub for renowned car manufacturers such as Hyundai and Kia, as well as technological giants like LG and Samsung. As South Korea continues to be a powerhouse in both the automotive and electronics industries, the analyzed market is poised for sustained growth, reflecting the nation’s technological prowess and its pivotal role in shaping the materials landscape for advanced applications.

Furthermore, Australia’s unsaturated polyester resins market is witnessing robust growth, driven by population growth and increased urbanization that has fueled substantial expansion in the building and construction sector. The demand for UPR products is on the rise, particularly in conjunction with fibreglass products, as these materials find increased application in construction projects. With strong chemical and heat resistance, good fatigue limits, and high tensile strength, unsaturated polyester resins are becoming integral in various sectors across the Asia-Pacific region, positioning them as key components in the evolving landscape of material applications.

**Chart 52: Asia-Pacific Unsaturated Polyester Resin Market (\$Million)**



Source: Research Dive, CareEdge Research

### 7.3.4 LAMEA

The LAMEA unsaturated polyester resin market was valued at \$1,105 million in 2022 and is projected to reach \$1,949 million by 2032, registering a CAGR of 6% from 2022 to 2032. The LAMEA region held the largest market share of the unsaturated polyester resins market in 2022, primarily attributed to the escalating infrastructure development activities. The region is experiencing robust growth driven by the surging demand for cost-effective and durable materials in the automotive sector.

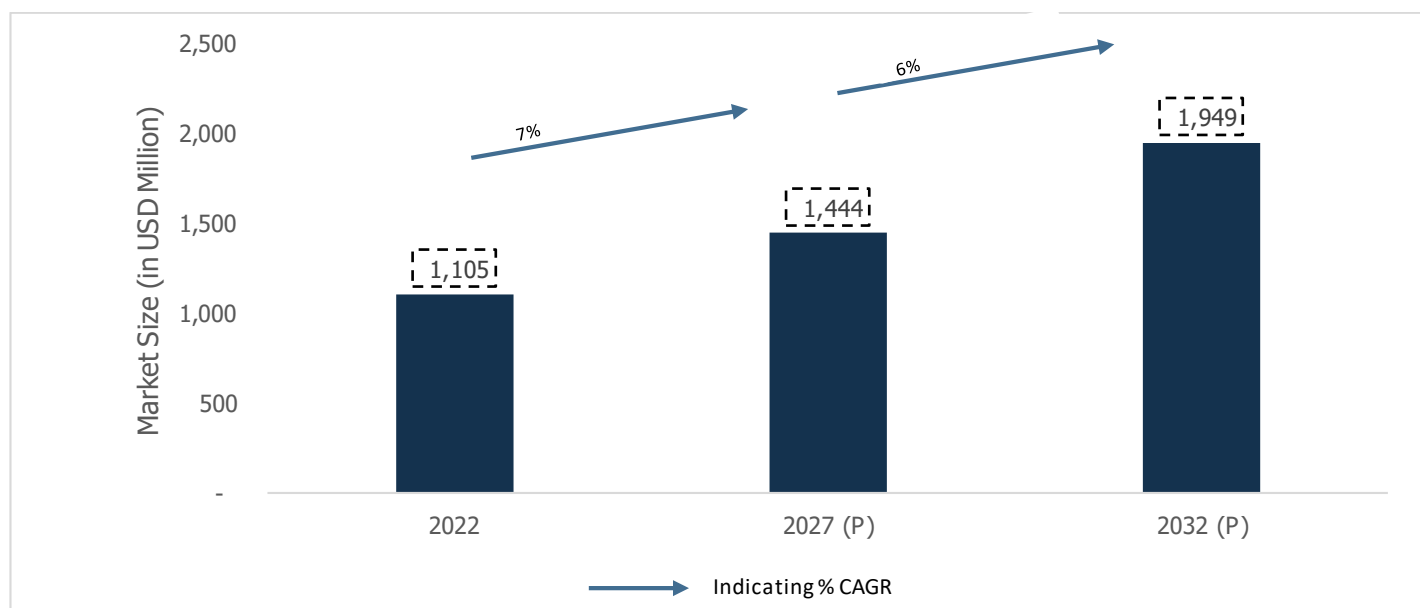
The unsaturated polyester resin market in Brazil is experiencing substantial growth, propelled by the burgeoning construction and automotive sectors. The demand for durable and cost-effective materials in these industries has driven the widespread adoption of UPRs. Brazil’s infrastructure development initiatives further contribute to the market’s expansion. The dynamic economic landscape and the increasing use of electronic products also play crucial roles in bolstering the growth of the UPR market in Brazil.

In Saudi Arabia, the UPR market is on an upward trajectory, propelled by the nation's significant infrastructure development and construction projects. Saudi Arabia's focus on diversifying its economy and investing in technological advancements positions the UPR market as a key player in contributing to the country's industrial development.

Whereas South Africa's increasing adoption of electronic products and a focus on sustainable practices further amplify the role of UPRs in shaping the materials landscape in the region. The country's infrastructure development initiatives, coupled with a burgeoning automotive industry, contribute significantly to the market's expansion.

Furthermore, the LAMEA UPR market growth is propelled by the increasing emphasis on renewable energy, which adds to the demand for UPRs. Simultaneously, the rising adoption of electronic products in the LAMEA region is a significant factor bolstering market growth. As the region witnesses sustained economic development and infrastructure expansion, the UPR market in LAMEA is positioned as a key player, meeting the diverse needs of various industries and contributing to the materials landscape in this dynamic and evolving market.

**Chart 53: LAMEA Unsaturated Polyester Resin Market (\$Million)**



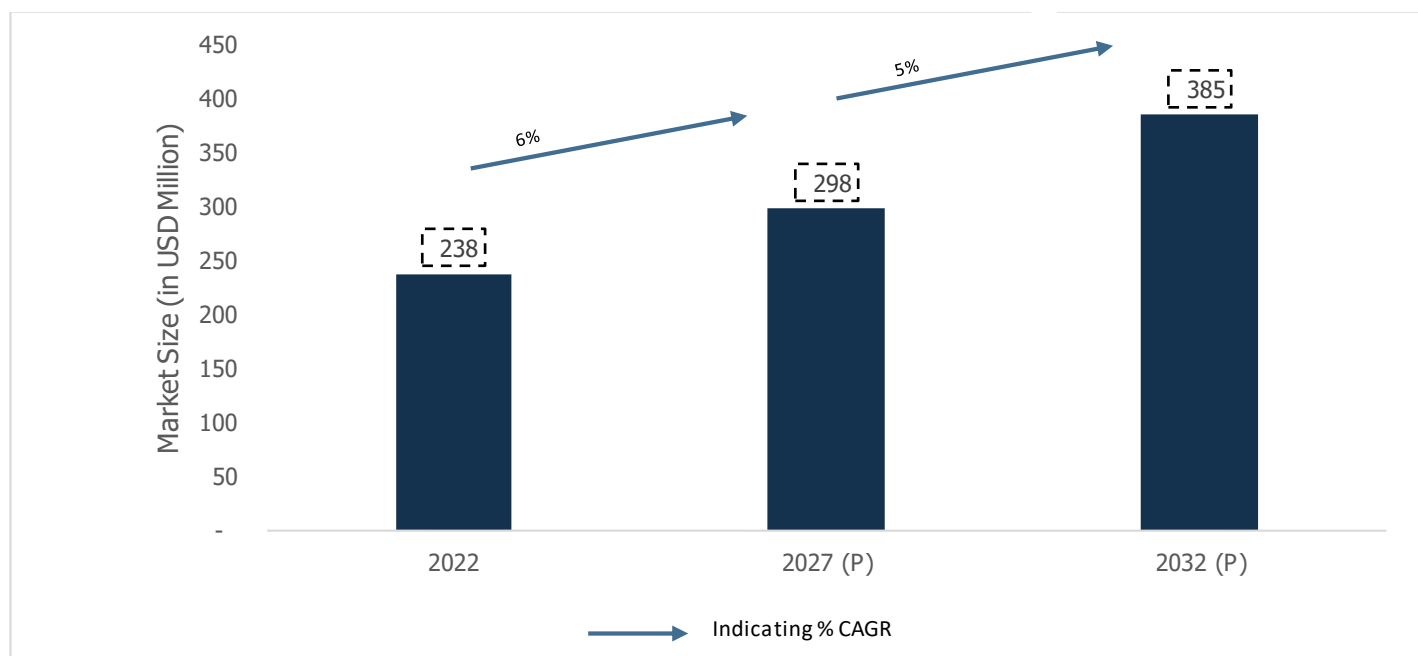
Source: Research Dive, CareEdge Research

#### 7.3.4.1 UAE

The United Arab Emirates unsaturated polyester resin market was valued at \$238 million in 2022 and is projected to reach \$385 million by 2032, registering a CAGR of 5% from 2022 to 2032. The UAE's UPR market is witnessing notable expansion, driven by the region's robust construction and manufacturing activities. The demand for versatile and high-performance materials in applications such as automotive components, building structures, and marine products fuels the adoption of UPRs in the region.

Further, the UAE's commitment to sustainable practices contributes to the market's growth, aligning with the increasing global emphasis on eco-friendly materials. With a thriving electronic industry and ongoing infrastructure projects, the UPR market in the UAE continues to play a pivotal role in meeting the evolving material needs of diverse sectors.

**Chart 54: UAE Unsaturated Polyester Resin Market (\$Million)**



Source: Research Dive, CareEdge Research

## 7.4 Performance of Key End-Use Industries

Depending on the End-Use Industry, the market has been categorized into building and construction, electrical, transport, stones and others.

### 7.4.1 Construction & Building

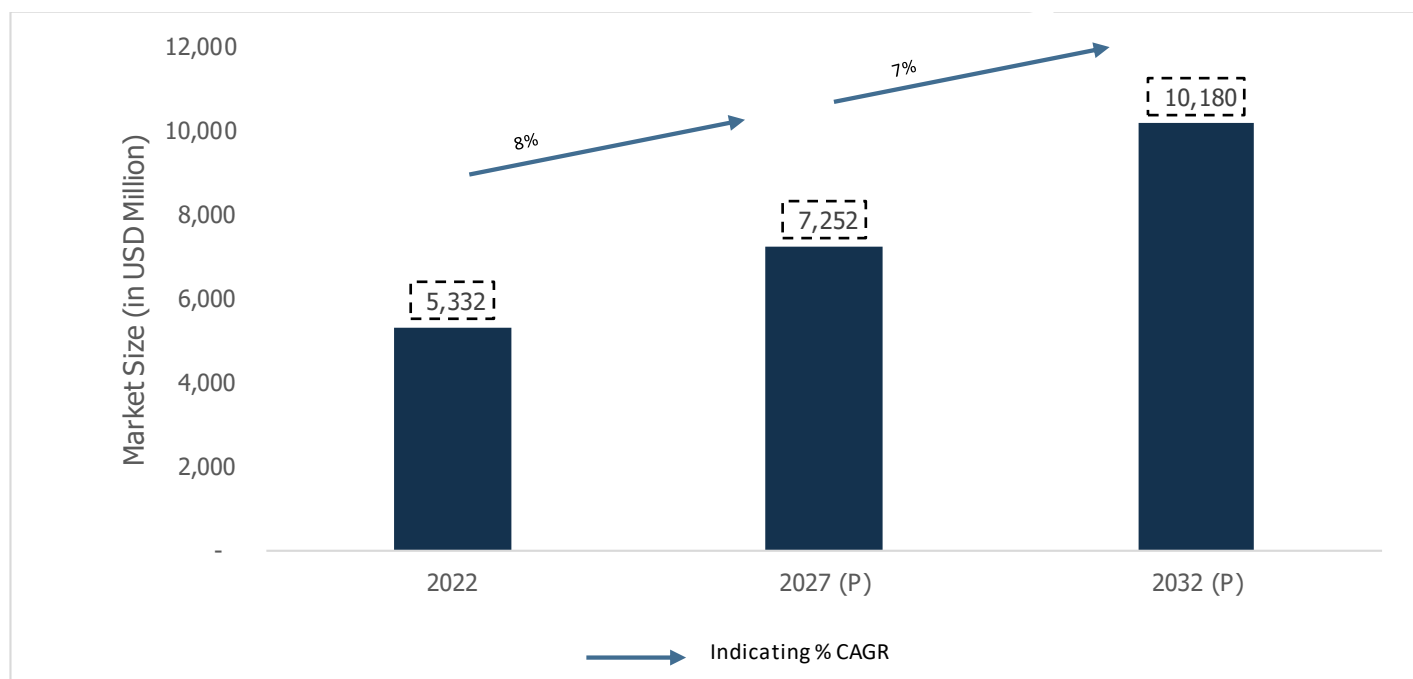
The unsaturated polyester resin market for construction and building was valued at at \$5,332 million in 2022 million in 2022 and is projected to reach \$10,180 million by 2032, registering a CAGR of 7% from 2022 to 2032. Unsaturated polyester resins hold a crucial position in the construction sector, presenting a versatile and resilient solution for a diverse range of applications. In construction, UPR is extensively used in the creation of flat and corrugated sheets, light domes, skylights, rain gutters, sewage water treatment plant covers, washbasins, shower cabins, dormer windows, and door ornaments. Whereas UPR finds extensive use in producing frames for windows and doors, formworks, panoramic windows, pipes, and bulkheads

This diverse array of products exemplifies the versatility of glass-reinforced plastic (GRP), a composite material that incorporates UPR, as a construction material. Glass fibre-reinforced UPR resins are preferred materials due to their resilience and adaptability to challenging environments.

UPR's application in the construction sector is further marked by its capacity to offer design flexibility, high dimensional accuracy of products, and excellent compatibility with other construction materials. The inherent qualities of UPR make it an ideal selection for construction applications, particularly in chemical plants where materials need to endure harsh conditions such as exposure to water, acids, solvents, oxidizing media, and fluctuating temperature conditions.

Moreover, the robust nature of UPR makes it well-suited to meet the rigorous requirements of construction projects, providing durability, structural integrity, and design flexibility. Overall, the diverse applications of UPR in construction underscore its significance as a foundational material in shaping the contemporary architectural landscape.

**Chart 55: UPR Market - Construction and Building End-Use Industry (\$Million)**



Source: Research Dive, CareEdge Research

### 7.4.2 Transport

The unsaturated polyester resin market for transport was valued at \$1,924 million in 2022 and is projected to reach \$3,589 million by 2032, registering a CAGR of 6% from 2022 to 2032. Unsaturated polyester resin stands as a significant influence in the transportation sector, playing a transformative role across diverse modes of conveyance. This versatile thermosetting polymer finds extensive use in the automotive, aerospace, and marine industries, significantly impacting the design, performance, and durability of transportation components.

Within the automotive sector, UPR is a fundamental material for producing lightweight yet sturdy composite parts. Its high strength-to-weight ratio contributes to fuel efficiency, making it crucial for manufacturing body panels, interior components, and structural elements of vehicles. The moldability of UPR further allows for intricate designs, enabling automakers to achieve both aesthetic appeal and streamlined functionality. Additionally, the corrosion-resistant nature of UPR ensures the longevity of automotive parts, making it a preferred choice for exterior applications in harsh environmental conditions.

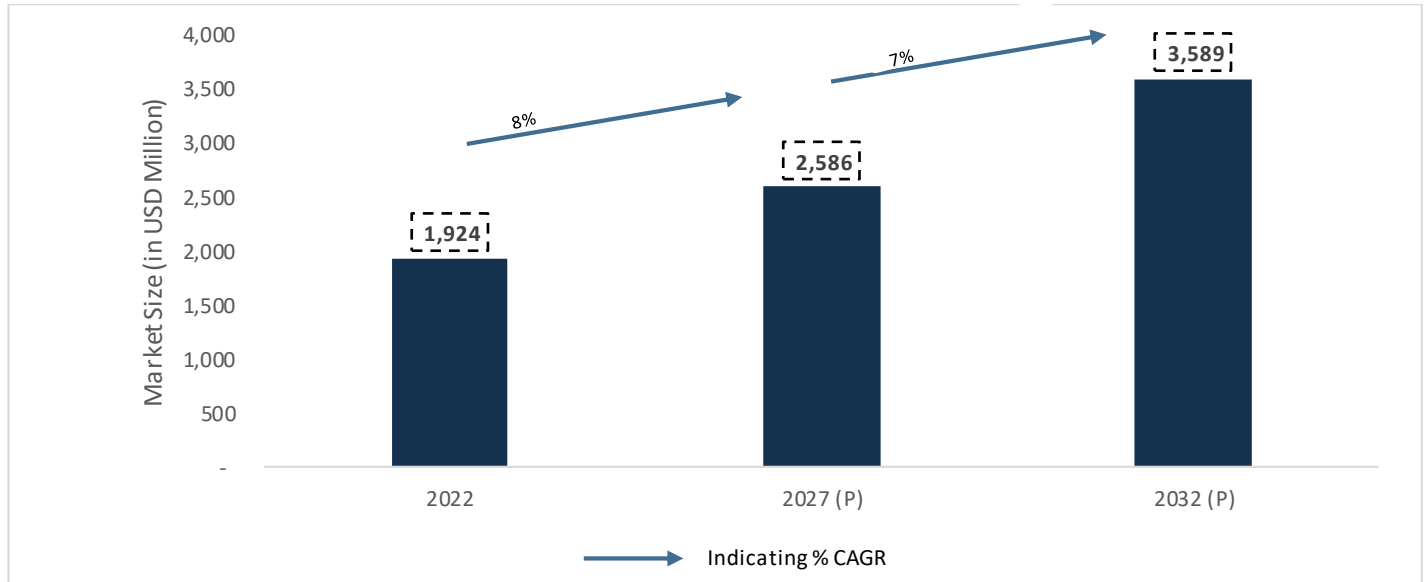
Further, aerospace engineering leverages the exceptional properties of UPR to enhance the performance of aircraft components. The resin's ability to withstand extreme temperatures and provide structural integrity makes it invaluable in the production of lightweight composite materials for aircraft interiors, panels, and structural components. The aerospace industry also relies on UPR to achieve the delicate balance between strength, weight, and durability, contributing to advancements in aviation technology.

Whereas in marine transportation, UPR plays a vital role in the construction of boats, yachts, and marine accessories. Its resistance to water, corrosion, and chemicals makes it an ideal choice for creating durable and seaworthy vessels. UPR-based composites are used in hulls, decks, and other structural components, ensuring that marine crafts maintain their structural integrity while navigating challenging maritime environments.

Furthermore, the versatility of UPR extends to railway and mass transit systems, where its lightweight and durable characteristics contribute to the development of efficient and reliable components. From interior panelling to structural

elements, UPR’s versatility and exceptional mechanical properties position UPR as a key enabler in shaping the future of transportation, where efficiency, durability, and innovation converge on the journey towards sustainable and high-performance mobility.

**Chart 56: UPR Market - Transport End-Use Industry (\$Million)**



Source: Research Dive, CareEdge Research

### 7.4.3 Electrical

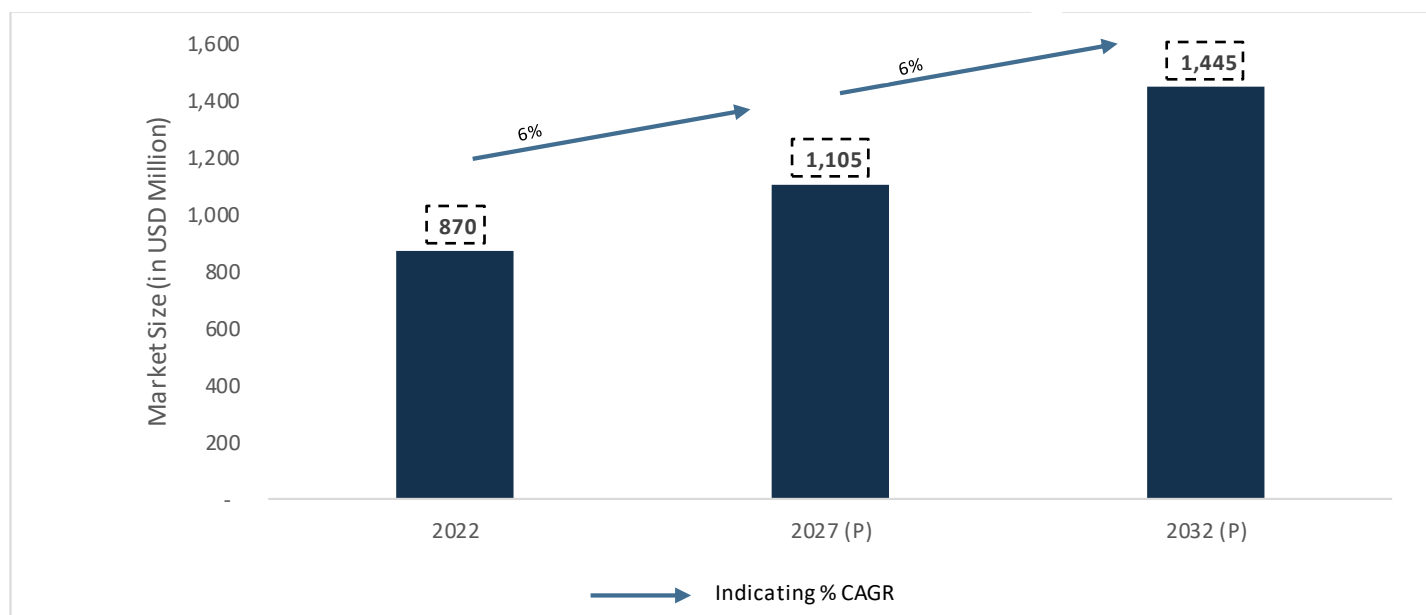
The unsaturated polyester resin market for electrical was valued at \$870 million in 2022 and is projected to reach \$1,445 million by 2032, registering a CAGR of 5% from 2022 to 2032. Unsaturated polyester resin plays a crucial role in the electrical industry, showcasing its versatility and significance across diverse applications. As a thermosetting polymer, UPR has gained widespread acceptance with its notable impact on the electrical domain. Recognized for its outstanding mechanical properties, resistance to chemicals, and ease of processing, UPR has emerged as a preferred material in electrical applications.

Within electrical uses, UPR holds a prominent position in producing insulating materials, circuit boards, and encapsulating electronic devices. Its exceptional electrical insulation properties make it a top choice for safeguarding sensitive electrical components, ensuring optimal performance and longevity. Polyester film, derived from UPR, plays a crucial role in industrial insulation applications, finding applications in cable overwraps, wires, transformers, membrane touch switches, and flexible printed circuit boards.

Further, polyester film’s applications in the electrical industry are extensive, serving as slots, gaskets, wedges, and phase insulation for low-voltage motors and electrical tools. It finds utility in cable insulation wrapping, battery applications, the computer and electrical industry for phase insulation, and glass fibre-reinforced plastics stripping. The film is also integral to the printing film and label manufacturing industry, and the availability of white-coloured polyester film enhances usability, ensuring clear visibility of its application state.

The UPR’s role in the electrical sector is thus pivotal, ensuring the integrity, safety, and efficiency of various electrical components and systems. Its use in polyester film highlights its significant contribution to insulation and protection within the intricate landscape of the electrical industry.

**Chart 57: UPR Market - Electrical End-Use Industry (\$Million)**



Source: Research Dive, CareEdge Research

#### 7.4.4 Stones

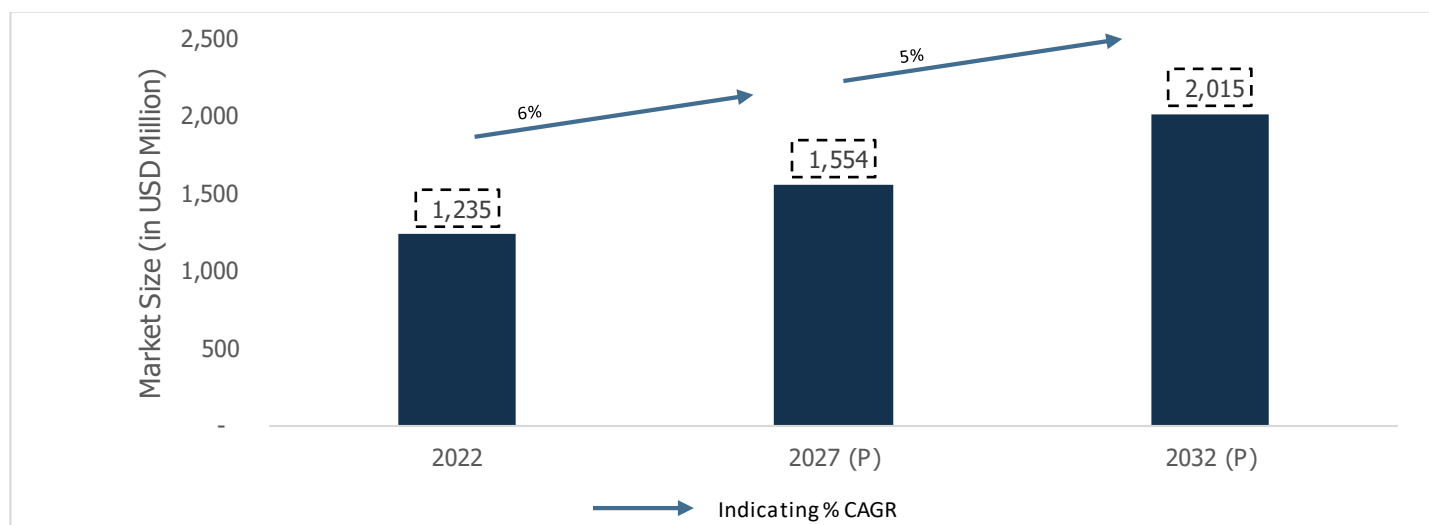
The unsaturated polyester resin market for stones was valued at \$1,235 million in 2022 and is projected to reach \$2,015 million by 2032, registering a CAGR of 5% from 2022 to 2032. The unsaturated polyester resin market has played a pivotal role in the stone industry for over five decades, particularly in the realms of marble polishing and artificial stone production. UPR serves as a fundamental solution for filling and reinforcing marble slabs, delivering not only aesthetic enhancements but also crucial structural support. Its unique ability to form a continuous phase with polymer materials makes it exceptionally adept at contributing to the production of artificial stone, a process that can be further optimized through resin modifications.

In the production of Corin artificial stone, both acrylic and polyester resins find common usage, each offering distinct advantages. The widespread adoption of artificial stones over natural stones can be attributed to a multitude of benefits. These include the ease of cleaning with water and cleaning materials, the absence of common surface cavities found in natural stones, high mechanical resistance, significant scratch resistance, suitable fire and thermal resistance, formability, affordability, improved strength, and ample durability & stability.

Furthermore, the versatility & compatibility of UPR with various applications in the stone industry position it as a foundational element in creating durable, aesthetically pleasing, and cost-effective artificial stone products. Its role in filling and reinforcing marble slabs enhances both the visual appeal and structural integrity of the final products. Additionally, UPR's ability to form a continuous phase with polymer materials ensures seamless integration in the production of artificial stone, allowing for tailored modifications to meet specific requirements. As the demand for artificial stones continues to rise, the unsaturated polyester resin market is poised for sustained growth, driven by its indispensable role in providing solutions that align with the evolving preferences and demands of the stone industry.



**Chart 58: UPR Market – Stones End-Use Industry (\$Million)**



Source: Research Dive, CareEdge Research

### 7.5 Outlook for Global Unsaturated Polyester Resin

The unsaturated polyester resin (UPR) extends its influence beyond the transportation, electrical, stones, and building & construction sectors, infiltrating various other sub-segments with its versatile applications. For instance, in marine industries, UPR finds considerable utilization in the production of fibreglass-reinforced composites for boat hulls, decks, and other components. Its excellent corrosion resistance, coupled with high strength & durability, positions UPR as an ideal material for marine applications, contributing to the overall efficiency and longevity of marine structures.

Furthermore, the UPR plays a crucial role in the manufacturing of corrosion-resistant equipment in the chemical industry. The inherent chemical resistance of UPR makes it a preferred choice for the fabrication of tanks, pipes, and other components that come in direct contact with corrosive substances. The material's resistance to a wide range of chemicals ensures the integrity of these structures, contributing to the safety and reliability of chemical processing operations.

Whereas in consumer goods and recreational products, UPR serves as a key ingredient in the production of a diverse range of items, including sports equipment, furniture, and decorative items. Its moldability, lightweight nature, and ability to achieve intricate designs make it a favoured choice for manufacturers looking to create aesthetically pleasing and functional products. Furthermore, the consumer goods sector benefits from UPR's versatility, allowing for the production of durable and cost-effective products that meet the demands of a discerning market.

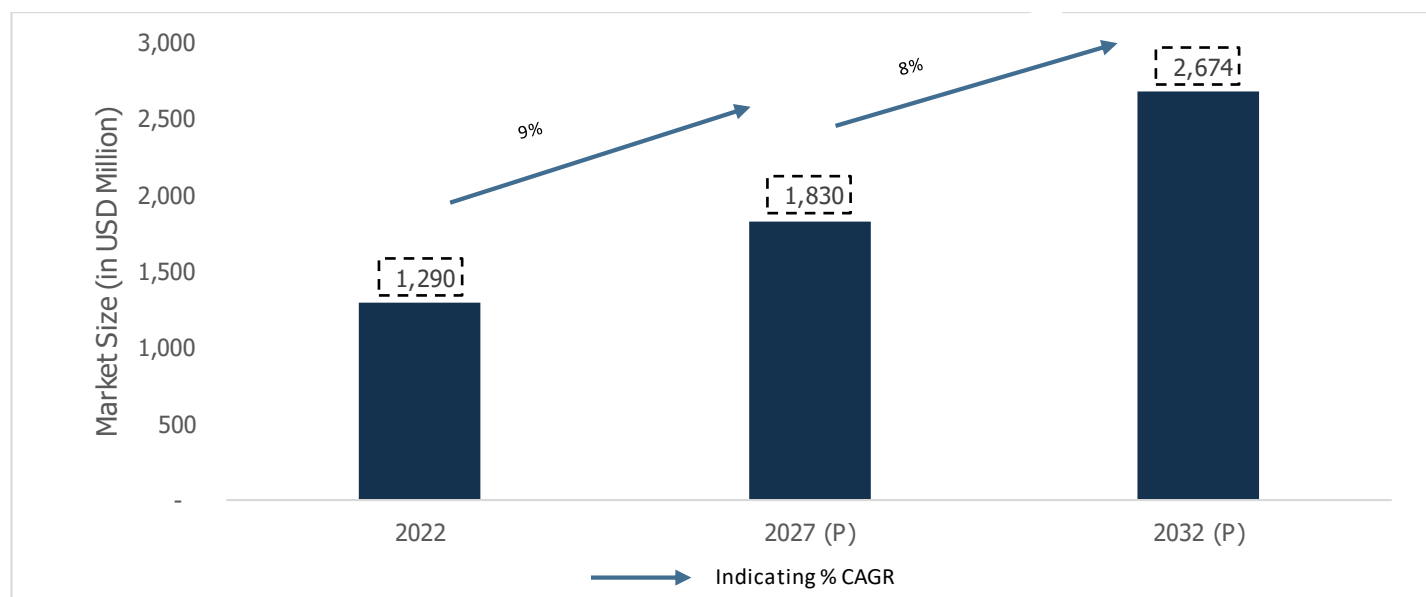
Additionally, UPR finds applications in the manufacturing of wind energy components, such as wind turbine blades. The material's combination of strength, flexibility, and resistance to environmental factors makes it well-suited for the challenging conditions encountered in wind energy applications. Besides, as the demand for renewable energy sources continues to grow, the UPR market is positioned to play a significant role in supporting the expansion of the wind energy sector.

### 7.6 India - Unsaturated Polyester Resin

The India unsaturated polyester resin market was valued at \$1,290 million in 2022 and is projected to reach \$2,674 million by 2032, registering a CAGR of 8% from 2022 to 2032. The unsaturated polyester resin market in India is experiencing significant growth, buoyed by robust development in the construction and automotive industries. The construction sector, fueled by rapid urbanization and infrastructure projects, showcases a soaring demand for unsaturated polyester resins used in applications like composite materials, laminates, and coatings.

Simultaneously, the automotive industry is witnessing a surge in the use of these resins for manufacturing lightweight components, enhancing fuel efficiency and sustainability. In addition, the Indian government's initiatives to boost these industries, such as the "Make in India" campaign and increased infrastructure investments, further amplify the demand for unsaturated polyester resins. These resins, known for their versatility, strength, and corrosion resistance, align seamlessly with the evolving needs of these key sectors. As India strives for economic growth and technological advancement, the unsaturated polyester resin market is poised to play a pivotal role in fostering innovation and contributing to the nation's industrial development.

**Chart 59: India Unsaturated Polyester Resin Market (\$Million)**



Source: Research Dive, CareEdge Research

### 7.6.1 Performance of Key End Use Industries - India

The India unsaturated polyester resin market was valued at \$1,290 million in 2022 and is projected to reach \$2,674 million by 2032, registering a CAGR of 8% from 2022 to 2032. The building and construction segment were the highest revenue contributor, accounting for \$689 million in 2022 and is estimated to reach \$1,379 million by 2032, with a CAGR of 7% from 2022 to 2032. The transport segment is estimated to reach \$479 million by 2032, at a significant CAGR of 8% from 2022 to 2032. The building & construction and transport segments collectively accounted for around 72% share in 2022, with the former constituting around 53% share. The cumulative share of these two segments was 72% in 2022 and is anticipated to reach 75% by 2032.

**Table 13: India Market – Performance by End-Use Industry (\$ Million)**

End-Use Industry	2022	2027P	2032P	CAGR (2022-2032)
Building and Construction	689	1,002	1,379	7%
Electrical	104	140	182	6%
Transport	244	351	479	7%
Stones	159	214	276	6%
Others	94	123	157	5%
<b>Total</b>	<b>1,290</b>	<b>1,830</b>	<b>2,472</b>	<b>7%</b>

Source: Research Dive, CareEdge Research

## 7.7 Key Growth and Demand Drivers

- **Increasing Demand from Construction, Infrastructure, and Automotive Industries**

Unsaturated polyester resin (UPR) is extensively used in construction applications such as pipes, tanks, and panels due to its favourable properties like corrosion resistance and durability. As global construction and infrastructure development projects expand, there is a rising demand for UPR in various construction materials. The demand for UPR is thus driven by the surging infrastructure projects worldwide.

Further, the automotive industry's emphasis on fuel efficiency and sustainability has led to a growing demand for lightweight materials. UPR, when used in composites, helps manufacturers produce lightweight yet durable components, contributing to the overall weight reduction of vehicles. Composites, reinforced with UPR, offer a balance of strength and weight savings, making them attractive for applications where reducing vehicle weight is crucial.

- **Rising Adoption of UPR in Marine Applications**

In marine environments, exposure to water and salt can lead to corrosion of materials. Unsaturated polyester resin offers a favourable combination of lightweight & high-strength properties, making it an ideal choice for marine applications. The material helps in constructing durable & efficient watercraft components without compromising on structural integrity.

Further, UPR provides excellent corrosion resistance, making it a preferred choice for manufacturing boats, yachts, and other marine components. This characteristic ensures the longevity of structures in harsh maritime conditions. Additionally, UPR can be easily moulded into complex shapes, allowing manufacturers in the marine industry to create intricate & customized designs for boats and yacht components. This flexibility in moulding contributes to the popularity of UPR in marine applications.

- **Increased Usage in Electrical and Electronics**

Unsaturated polyester resin exhibits excellent electrical insulation properties, making it suitable for manufacturing components such as electrical enclosures and insulators. This is crucial in the electrical and electronics industry where insulation is essential to prevent electrical conductivity and ensure the safety & efficiency of electronic devices.

Furthermore, UPR is known for its lightweight nature and durability. In the electronics industry, where weight is a critical factor, using lightweight materials becomes essential for manufacturing components without compromising on strength and durability. Whereas UPR can be easily moulded into various shapes and sizes, providing flexibility in the design and manufacturing process. This characteristic is beneficial in the production of customized components used in electrical and electronic applications.

Additionally, UPR exhibits resistance to corrosion, which is particularly important in the electrical industry where components may be exposed to harsh environmental conditions. The corrosion resistance of UPR helps in prolonging the lifespan of electronic components.

- **Advancements in Composite Materials to Create More Opportunities**

Advancements in composite materials are poised to create new opportunities in the unsaturated polyester resin industry. For instance, the aerospace industry is constantly seeking lightweight materials to enhance fuel efficiency and overall performance. UPR can be a viable option for manufacturing lightweight composite components in aircraft, contributing to fuel savings and improved efficiency.

Moreover, industries involved in manufacturing sports equipment, such as racing cars, bicycles, and sports gear, are also inclined towards materials that offer high performance and reduced weight. UPR's properties make it suitable for creating advanced composite materials in these applications.

On the other hand, improvements in manufacturing processes for UPR can lead to cost reductions, making it more lucrative than other materials. This can further drive its adoption in various industries, particularly where cost-effectiveness is a critical factor. Moreover, advancements in manufacturing technology can facilitate the scalable and efficient production of UPR-based composite materials. This is crucial for meeting the increasing demand across industries without compromising on quality.

Furthermore, the development of bio-based UPR formulations derived from renewable resources can align with the growing demand for environmentally sustainable materials. This can attract industries and consumers looking for eco-friendly alternatives, thereby expanding the market for UPR. As economies develop and infrastructure projects increase globally, there is a growing demand for advanced materials. UPR can find opportunities in emerging markets where there is a need for cost-effective and high-performance solutions in construction, transportation, and other sectors.

- **Growing Renewable Energy Sector to Create Opportunities**

With growing awareness about sustainability, the renewable energy sector has been experiencing exponential growth. Customizing unsaturated polyester resin products for specific applications and industries allows manufacturers to address unique requirements. Also, manufacturers of UPR can focus on strengthening their presence in the wind energy sector. This may involve establishing strategic partnerships with wind turbine manufacturers, optimizing formulations for turbine blade production, or expanding production capacity to meet the growing demand.

In addition, this can include developing resins with enhanced properties such as higher durability, specific chemical resistances, or tailored curing times. Customization provides a competitive edge as companies can differentiate themselves from competitors by offering tailored solutions. This can lead to stronger customer loyalty and increased market share.

- **Global Supply Chain Optimization offers Growth Opportunities**

Optimizing the global supply chain for UPR raw materials and products can enhance market access and reduce production costs. A well-optimized supply chain facilitates faster and more reliable delivery of UPR raw materials and products to global markets. It also enables companies to respond quickly to changes in demand or market conditions. This improved accessibility can help companies tap into new markets, meet customer demands promptly, and stay ahead of competitors.

Such agility is crucial in the UPR market, where demand fluctuations may occur due to factors like seasonality or sudden shifts in customer requirements. Whereas collaborations and partnerships across the supply chain, encompassing raw material suppliers, manufacturers, distributors, and logistics providers, can lead to shared benefits and improved overall efficiency. Strategic alliances can further provide access to new resources, technologies, and markets.

## 7.8 Key Challenges

- **High Raw Material Costs**

One of the primary challenges hindering the growth of the unsaturated polyester resin market is the high cost associated with UPR's implementation. Unsaturated polyester resins are primarily derived from petrochemical feedstocks, such as styrene, maleic anhydride, and phthalic anhydride. Any disruptions or fluctuations in the production or supply of these petrochemicals can directly impact the availability and cost of unsaturated polyester resins.

Since petrochemicals are derived from crude oil, the price volatility of crude oil directly affects the cost of feedstocks for unsaturated polyester resin production. Sudden spikes or declines in crude oil prices can lead to unpredictable fluctuations in the overall production costs of unsaturated polyester resins. Whereas economic factors on a global scale, such as geopolitical events, economic recessions, or natural disasters, can influence both the demand for crude

oil and the overall availability of petrochemical feedstocks. These external factors can create uncertainties in the unsaturated polyester resin market.

- **Environmental Concerns and Regulatory Compliance**

The increasing focus on sustainability and environmentally friendly alternatives in the resin industry poses a challenge for traditional unsaturated polyester resin producers. Consumers and businesses are seeking greener alternatives, which may impact the market share of conventional resins. Also, the environmental implications of disposing of unsaturated polyester resins, especially if not managed properly, can lead to negative perceptions. This can influence consumer choices and push industries toward more sustainable options.

Further, regulations regarding emissions from manufacturing processes can impact unsaturated polyester resin producers. Compliance may necessitate the adoption of cleaner technologies or the implementation of emission control measures. Proper disposal of waste generated during the production process is often regulated. Accordingly, companies may need to invest in waste treatment technologies to meet these standards. Regulations related to workplace safety can require additional measures and investments in employee training and equipment to ensure a safe working environment.

Moreover, the development and adoption of alternative materials, such as bio-based resins or composites, can intensify competition. As a result, traditional unsaturated polyester resin producers may face challenges in retaining market share against these emerging alternatives. Besides, economic fluctuations and downturns can impact the demand for unsaturated polyester resins, especially if these resins are used in industries sensitive to economic conditions, such as construction and automotive.

- **Economic Uncertainties and Changing Consumer Behaviour**

Economic uncertainties and changing consumer behaviour could influence market dynamics. Fluctuations in raw material prices, currency exchange rates, and other economic factors can affect the pricing of UPR. Uncertain events like Covid-19 pandemic can lead to disruption in supply chains and the demand for UPR and related products can experience fluctuations due to changes in end-user industries. For example, sectors like construction, automotive, and marine industries, which are major consumers of UPR, may see shifts in demand patterns.

## 8 Key Players

### 8.1 Five key Natural & Engineered Stone Players (Global)

#### 1. Cosentino Spain:

Cosentino is a family-owned company founded in 1979 in Spain. It produces innovative surfaces that can be used for indoor as well as outdoor designs.

The company deals in natural and engineered stones like quartz, granite, marble, limestone, and travertine. Some of the uses of the surfaces provided by Cosentino include kitchen countertops, claddings, bathroom flooring, and facades.

It offers over 200 colours, unique designs, and a range of thicknesses in the stones. The surfaces provided by the company are resistant to stains and easy to maintain.

Cosentino has four segments, namely – Silestone, Dekton, Sensa, and Scalea. Each of these segments provides unique surfaces made of different materials.

#### 2. Caesarstone Ltd:

Caesarstone Ltd. was founded in 1987 in the state of Israel. It was incorporated in 1989 and was listed on NASDAQ in March 2012.

It started as a manufacturer of high-end engineered surfaces, primarily countertops, and now it sources and designs engineered quartz, natural stone, and porcelain products. The products are largely countertops and vanities and are used in other interior and exterior spaces. It is also a reseller of countertops mainly used in commercial and residential buildings and has become one of the largest providers of engineered quartz surfaces.

Caesarstone designs its products in a wide range of colours, textures, thicknesses, and finishes. Its products are sold in over 50 countries and it generates a substantial portion of its revenues from the United States, Australia, and Canada. In 2021, Caesarstone's sales in the US market accounted for 47.4%, 18.4% in Australia (including New Zealand), and 13.1% in Canada.

#### 3. Cambria USA:

Cambria was founded in 2000 and is headquartered in Minnesota, the United States. It is a family-owned business and is a leading quartz surface producer.

Cambria focuses on pure, natural quartz surface products like countertops, fireplace surrounds, floor tiles, etc. It is believed to be a premier source for expansive design palettes. Its quartz surfaces reportedly showcase strength and are nonabsorbent and stain- & scratch-resistant. These surfaces are also believed to be durable, maintenance-free, and nonporous.

Cambria has more than 2000 employees across North America and has 32 facilities including a state-of-the-art slab manufacturing facility and fabrication & distribution centres.

#### 4. LX Hausys:

LX Hausys was founded in 1947 in Korea and now it has become the largest building material company in Korea. The company has different segments like building & decorative materials, industrial film, and automotive materials & components.

The company deals in engineered stones like quartz and provides different products that can be used in kitchens and bathrooms like windows, coated glass, and flooring. It is present in North America, Europe, Asia Pacific, and LAMEA.

## 5. Vicostone

Vicostone was established in 2002 and is based in Vietnam. It is a pioneer in manufacturing engineered stones in Asia.

The company's quartz-based engineered stones are produced from about 90% pure natural quartz and are available in more than 130 designs and wide colour palettes. Its quartz surfaces can be used in interior applications like countertops, wall panelling, flooring, bathroom vanities, etc.

The company has five production lines of compound stones that utilize technology transferred from Breton S.p.A (Italy). Vicostone holds certifications from the National Sanitation Foundation for providing safe surfaces for food preparation environments and healthcare facilities and GreenGuard certification for being free of volatile organic compounds. It has also passed the Microbial resistance (D6329-98) test which states that Vicostone surfaces meet standards to prevent the growth of bacteria.

## 8.2 Five key Natural & Engineered Stone Players (India)

### 1. Pokarna Ltd:

Pokarna Ltd. was founded in 1991 in India and offers a wide range of natural stones. The company has a start-to-end procedure which involves extracting, cutting, shaping, and polishing granite. Today, Pokarna Ltd. is one of the leading exporters of granite and the largest exporter of quartz in India.

The company's product range includes tiles, slabs, and cut-to-size natural quartz and granite. The quartz manufactured by the company is used in countertops, wall cladding, furniture, and flooring. Pokarna Ltd is also an exclusive partner with IKEA for the measurement, supply, and installation of made-to-measure quartz surface worktops in India.

Pokarna Ltd. has 15 mines and 2 state-of-the-art manufacturing facilities of granite and quartz in Telangana.

### 2. Marudhar Marble

Marudhar Stones is one of the largest processors and exporters of Granite slabs and quartz from India. The Company has twin factories located at Granite rich belt of Hosur and Salem. The company has one of the largest annual processing capacities of more than 500,000 sq. ft, say capacity of 2,500 containers.

### 3. Esprit Stones Pvt Ltd:

Esprit Stones manufactures engineered stones. Esprit is jointly promoted by Aravali & Gattani Group. It has a state-of-the-art factory in Udaipur and a 1,00,000 sq. ft plant, which is set up in a 6-acre area. It has products in a wide range of colours and designs. The surfaces produced by the company can be used for vanities, kitchen countertops, floors, and wall cladding. Haique is the engineered stone brand of Esprit Stones that manufactures Quartz and Engineered marble.

The Aravalli Group, a mining major, and The Gattani Group, a conglomerate with diversified interests across polymers to clean energy. The groups have expertise in sectors like mining, real estate, hospitality, and energy amongst others.

The Aravali Group was founded in 1975 and has 8 companies in the minerals, real estate, and finance sectors. It owns the largest underground mines in India in addition to 6 mines, which it has taken on lease from the Rajasthan government. It is spread over 83 hectares and has 600 feet of proven deposits, yielding 100,000 MT of marble.

The Gattani Group was established in 1979 and is a multi-faceted conglomerate. In the infrastructure sector, they have expertise in excavation, mining, and land grading.

#### **4. Global Surfaces Ltd.**

Global Surfaces Ltd was incorporated in 1991 in Jaipur and provides natural and engineered stone products. It is involved in the mining, production, and export of natural stones and engineered quartz.

The company offers products made of granite, marble, and quartz. The product range includes slabs and countertops that can be used in flooring, indoor wall cladding, vanity tops, reception desks, table tops, staircases, etc. The products can be customized according to different shapes, sizes, colours, and forms. Since its inception, the company has progressed and created new growth avenues in the international markets.

Global Surfaces Ltd. holds various certifications including Greenguard, ISO 9001:2008 Registered QMS certification.

#### **5. Classic Marble Company (CMC):**

Classic Marble Company is headquartered in Mumbai and was founded in 1994. It is the biggest importer of stones in India and is the only company to supply more than 150 Mn sq. ft. of imported marble in the country since its inception.

The company supplies natural and exotic marble as well as other stones like travertine, onyx, and limestone.

CMC is an ISO 9001:2015, 14001:2015, 45001:2018 certified company and has its stockyards in Silvassa. The company has various brands like Kalinga Stone, Quadra, Techlam, and Kalesinterflex, which provide a wide range of stones like engineered marble, terrazzo and quartz. The company has over 700 varieties of exquisite stones sourced from nearly 53 countries.

### **8.3 Key Unsaturated Polyester Resins Players (India)**

#### **1. Refnol resins & Chemicals Ltd:**

The Company was established in 1980 as Refnol Oil Refineries Pvt. Ltd. and is promoted by the Khatau Group. It discontinued the oil re-refining activity and diversified in manufacture of textile sizing chemicals with collaboration with Seydel International Inc. and the company was renamed as Refnol Resins & Chemicals Ltd. It manufactures resins that are used across industries like construction, electrical and automotive.

#### **2. Orson Resin and Coatings:**

Orson Resins and Coatings Private Limited (ORCPL) is a reputed manufacturer of polyester resins for composites, paints and coating industry since 1998. It is one of the largest unsaturated polyester resin manufacturers and exporters of resin in India.

#### **3. Revex plasticisers Pvt Ltd:**

The company was established in the year 1981 and is a manufacturer and exporter of unsaturated polyester resin and has diversified in other materials like pigments pastes and gelcoats.



## 9 Annexure

### Abbreviations:

AD : Anti-Dumping Duty	LPG : Liquefied Petroleum Gas
CMSPA : Coal Mines (Special Provisions) Act 2015	MCR : Mineral Concession Rules
CPI : Consumer Price Index	MMDR : Mines and Minerals Development and Regulation
CVD : Countervailing Duty	MOSPI : Ministry of Statistics and Programme Implementation
EV : Electric Vehicle	MSF : Marginal Standing Facility
FRP : Fiberglass-Reinforced Plastics	OSH : Occupational Safety, Health and Working Conditions Code 2020
GDP: Gross Domestic Product	PFCE : Private Final Consumption Expenditure
GFCF : Gross Fixed Capital Formation	PLI : Production-linked Incentive
GNDI : Gross National Disposable Income	PPP: Purchasing Power Parity
GNI : Gross National Income	RBI: Reserve Bank of India
GST : Goods and Services Tax	RCS : Respirable Crystalline Silica
GVA: Gross Value Added	SDF : Standing Deposit Facility
IIP : The Index of Industrial Production	UPR : Unsaturated Polyester Resin
IMD : India Meteorological Department	USITC : United States International Trade Commission
IMF : International Monetary Fund	WTO : World Trade Organization
LAF : Liquidity Adjustment Facility	

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