

Industry Research Report

On

Coal and Cement Sectors

16 January 2024

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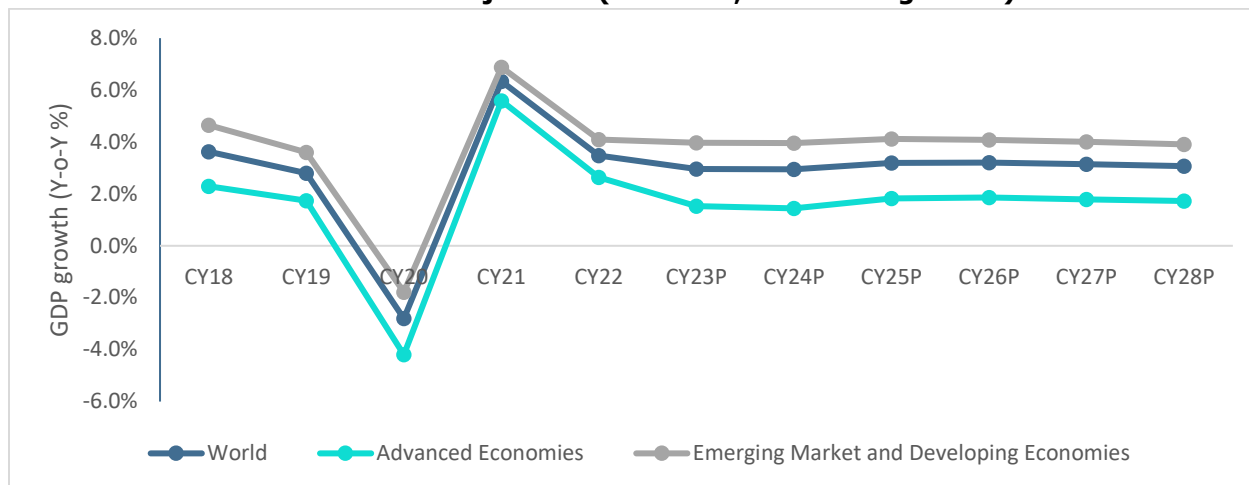
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1 Economic Outlook

1.1 Global Economy

As per the International Monetary Fund (IMF)'s World Economic Outlook growth projections released in January 2024, the global economic growth for CY23¹ stood at 3.1% on a year-on-year (y-o-y) basis, down from 3.5% in CY22 due to disruptions resulting from the Russia-Ukraine conflict and higher-than-expected inflation worldwide. On the other hand, the global economic growth for CY24 is projected to remain stable at 3.1%, attributed to growth resilience in major economies due to high government and private spending, rapidly subsiding inflation rates, and advanced economies easing their fiscal policies. Cost of borrowing remained high as central banks fight inflation. For the next 4 years, the IMF projects world economic growth in the range of 3.1%-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

Table 1: GDP growth trend comparison - India v/s Other 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
Euro Area	1.6	-6.1	5.6	3.3	0.7	1.2	1.8	1.7	1.5	1.3
United States	2.3	-2.8	5.9	2.1	2.1	1.5	1.8	2.1	2.1	2.1

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

¹ CY – Calendar Year

Advanced Economies Group

The major advanced economies registered GDP growth of 2.6% in CY22, down from 5.6% 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 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 4.1% in CY22, compared to 6.9% 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 4.2%. 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.

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 nominal 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 environment 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 real GDP grew by 9.1% in FY22 and stood at ~Rs. 149 trillion despite the pandemic and geopolitical Russia-Ukraine spillovers. In Q1FY23, India recorded 13.1% y-o-y growth in real GDP, largely attributed to improved performance by the agriculture and services sectors. Following this double-digit growth, Q2FY23 witnessed 6.2% 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, real GDP for full-year FY23 was valued at Rs. ~160. 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 favorable demand conditions and lower input prices. The growth was supplemented by a supportive base alongside robust services and construction activities. This momentum was maintained in the Q2FY24 with GDP growth at 7.6%, mainly supported by acceleration in investments. However, private consumption growth was muted due to weak rural demand and some moderation in urban demand amid elevated inflationary pressures in Q2FY24. On the supply side, a significant improvement in manufacturing and construction activities supported growth. Overall, the economy expanded by 7.7% in H1FY24 compared to 5.3% in H2FY23. As per recent Ministry of Statistics and Programme Implementation (MoSPI)'s advanced estimate release and Interim Union Budget 2024-25, the real GDP growth for FY24 is pegged at 7.3% and will attain a level of ~ Rs. 171.79 trillion.

Growth Outlook

- On 1st of February 2024, The Union Minister for Finance and Corporate Affairs, Smt. Nirmala Sitharaman, presented the Interim Union Budget 2024-25 in the Parliament, emphasizing the mantra of 'Sabka Saath, Sabka Vikas, and Sabka Vishwas,' along with the whole-of-nation approach of "Sabka Prayas."

- In the recent announcement significant emphasis is placed on infrastructure development with an increased capital expenditure outlay of Rs. 11,11,111 crores, amounting to 3.4% of the GDP. The PM Gati Shakti initiative identifies three major economic railway corridor programs to enhance logistics efficiency and reduce costs, alongside doubling the number of airports to 149 and expanding aviation routes, with Indian carriers placing orders for over 1000 new aircraft. Additionally, initiatives in green energy, tourism, and investments, including a substantial provision for interest-free loans to states for reforms, demonstrate a comprehensive approach towards economic growth and employment generation.
- Moreover, the budget prioritizes research and innovation, allocating a corpus of Rs. 1 lakh crore for long-term financing and refinancing, aimed at catalyzing growth and development. It introduces schemes for deep-tech technologies in defense for self-reliance and proposes substantial support for states' milestone-linked reforms. Notably, reforms in FDI inflow and provisions for deep-tech research underscore the government's commitment to fostering a robust economic ecosystem and achieving self-sufficiency.
- Under Viksit Bharat scheme, a provision of Rs.75,000 crore rupees as fifty-year interest free loan is proposed to support milestone-linked reforms by the State Governments.
- The Budget Estimates for 2024-25 project total receipts, excluding borrowings, at Rs.30.80 lakh crore, while total expenditure is estimated at Rs.47.66 lakh crore. Tax receipts are anticipated to reach Rs.26.02 lakh crore, with a continued provision of a fifty-year interest-free loan scheme for state capital expenditure, totaling Rs.1.3 lakh crore. The fiscal deficit for the year is estimated to be 5.1% of GDP. Market borrowings through dated securities are projected at Rs.14.13 lakh crore gross and Rs.11.75 lakh crore net. These estimates reflect the government's fiscal plan, balancing revenue generation, expenditure allocation, and borrowing strategies for the upcoming financial year.

Prior to the Interim Union Budget 2024-25, in December 2023, the RBI in its bi-monthly monetary policy meeting estimated a real GDP growth of 7% y-o-y for FY24 comparatively lower from Budget's estimate.

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

FY24P (complete year)	Q3FY24P	Q4FY24P	Q1FY25P	Q2FY25P	Q3FY25P
7.0%	6.5%	6.0%	6.7%	6.5%	6.4%

Note: P-Projected; 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.

In FY23, 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, garnering Rs. 22.3 trillion.

In Q1FY24, this sector expanded at a slower pace of 3.5% y-o-y growth compared to y-o-y growth a quarter ago. This further stumbled to 1.2% in Q2FY24. Overall, H1FY24 registered a 2.4% growth with weakest monsoon experience caused by El Nino conditions.

Going forward, rising bank credit to the sector and increased exports will be the drivers for the agriculture sector. However, a deficient rainfall may have impact on the reservoir level, weighing on prospects of Kharif sowing. Considering these factors, the agriculture sector is estimated to attain Rs. 22.7 trillion and mark 1.8% y-o-y growth for complete FY24.

- 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 FY23 grew by 4.4% with estimated value Rs. 45.2 trillion owing to a rebound in manufacturing activities and healthy growth in the construction sector.

The industrial sector grew by 5.5% in Q1FY24, while Q2FY24 growth was up by 13.2% owing to positive business optimism and strong growth in new orders supported manufacturing output. The industrial growth was mainly supported by sustained momentum in the manufacturing and construction sectors. Within manufacturing, industries such as pharma, motor vehicles, metals, petroleum and pharma witnessed higher production growth during the quarter. The construction sector (13% growth in Q2FY24) benefited from poor rainfall during August and September and higher implementation of infrastructure projects. This was reflected in robust cement and steel production and power demand in Q2FY24. Overall, H1FY24 picked up by 9.3% with manufacturing and construction activities witnessing significant acceleration.

India's industrial sector is experiencing strong growth, driven by significant expansion in manufacturing, mining, and construction. This growth is supported by positive business sentiment, declining commodity prices, beneficial government policies like production-linked incentive schemes, and efforts to boost infrastructure development. These factors collectively contribute to the sustained buoyancy in industrial growth due to which the industrial growth is estimated at 7.9% on y-o-y basis registering the value of Rs. 48.9 trillion in FY24. • 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.

Overall, in FY23, 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 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. The service sector growth in Q2FY24 moderated to 5.8% partly due to the normalization of base effect and some possible dilution in discretionary demand. Considering these factors, service sector marked 8% growth in H1FY24.

With this performance, 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. With this, the growth of service sector is estimated at Rs. 86.2 trillion registering 7.7% growth in FY24 overall.

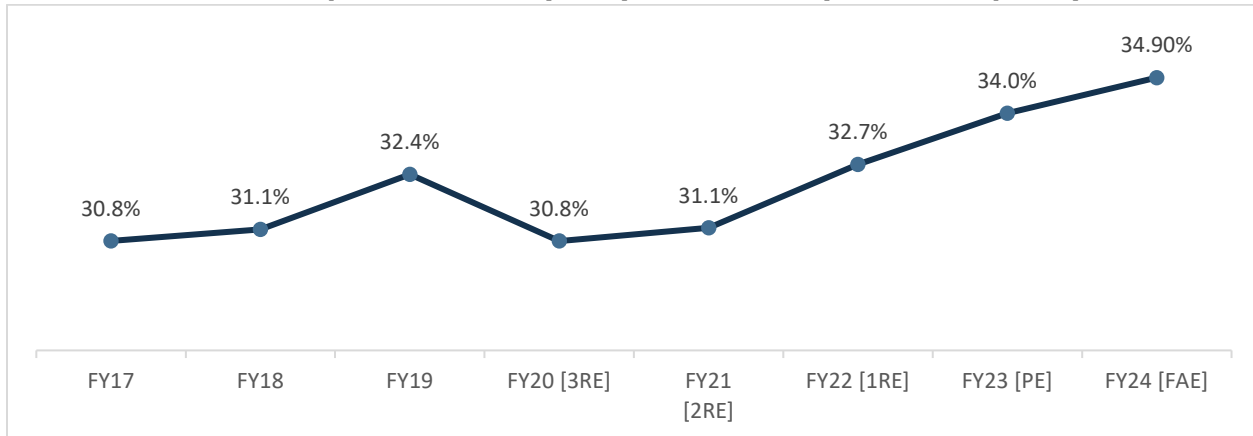
Table 3: Sectoral Growth (Y-o-Y % Growth) - at Constant Prices

At constant Prices	FY19	FY20	FY21	FY22 (FRE)	FY23 (PE)	FY24 (FAE)
Agriculture, Forestry & Fishing	2.1	6.2	4.1	3.5	4.0	1.8
Industry	5.3	-1.4	-0.9	11.6	4.4	7.9
Mining & Quarrying	-0.9	-3.0	-8.6	7.1	4.6	8.1
Manufacturing	5.4	-3.0	2.9	11.1	1.3	6.5
Electricity, Gas, Water Supply & Other Utility Services	7.9	2.3	-4.3	9.9	9.0	8.3
Construction	6.5	1.6	-5.7	14.8	10.0	10.7
Services	7.2	6.4	-8.2	8.8	9.5	7.7
Trade, Hotels, Transport, Communication & Broadcasting	7.2	6.0	-19.7	13.8	14.0	6.3
Financial, Real Estate & Professional Services	7.0	6.8	2.1	4.7	7.2	8.9
Public Administration, Defence and Other Services	7.5	6.6	-7.6	9.7	7.2	7.7
GVA at Basic Price	5.8	3.9	-4.2	8.8	7.0	6.9

Note: FRE – First Revised Estimates, PE – Provisional Estimate, FAE – First Advance Estimate; Source: MOSPI

1.2.3 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 (GFCF) to GDP climbed up to its highest in the last decade at 34%. Continuing in its growth trend, this ratio is expected to reach 34.9% in FY24.

Chart 2: Gross Fixed Capital Formation (GFCF) as % of GDP (At constant prices):


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

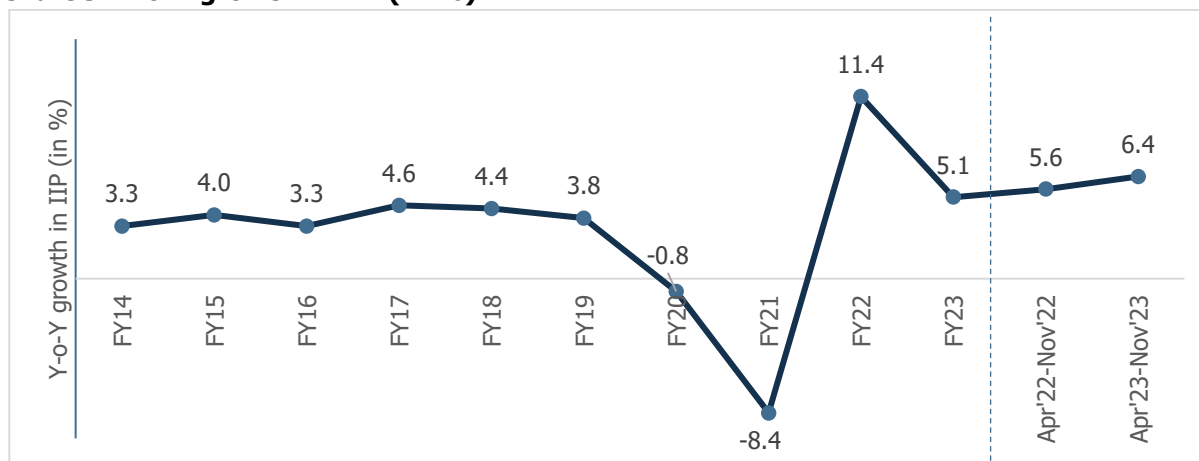
1.2.4 Industrial Growth

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 favorable base and a rebound in economic activities. The period April 2023 – November 2023, industrial output grew by 6.4% compared to the 5.6% growth in the corresponding period last year. For the month of November 2023, the IIP growth slowed down to 2.4% compared to the last year primarily on account of a normalization of base.

So far in the current fiscal, while the infrastructure-related sectors have been doing well, slowing global growth and downside risks to rural demand have posed a challenge for industrial activity. Though the continued moderation in inflationary pressure offers some comfort, pain points in the form of elevated prices of select food items continue to persist.

Chart 3: Y-o-Y growth in IIP (in %)

Source: MOSPI

1.2.5 Consumer Price Index

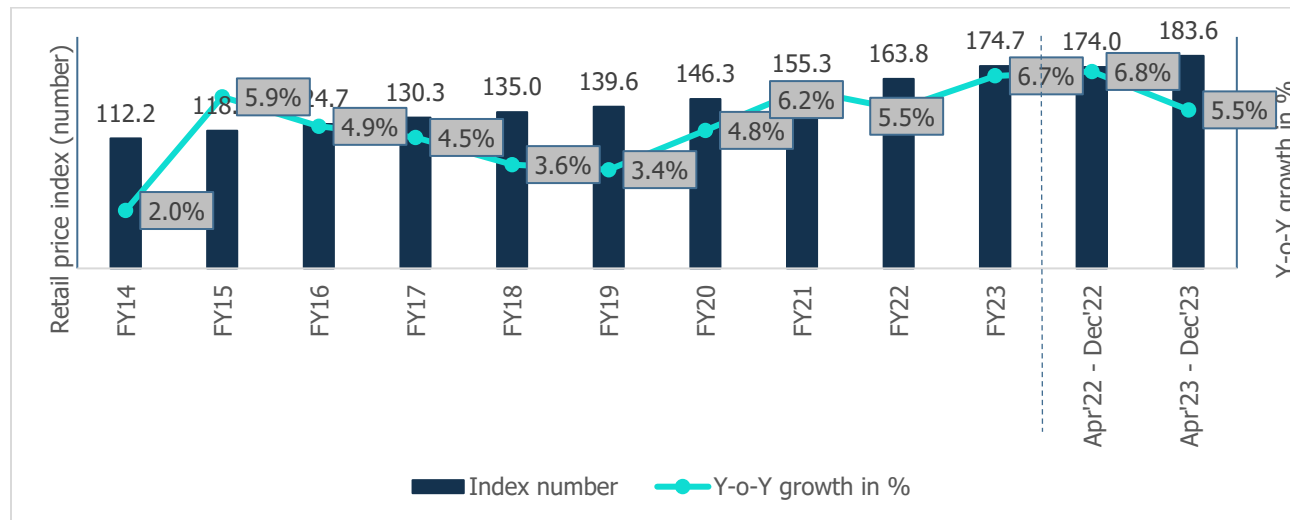
India's consumer price index (CPI), which tracks retail price inflation, stood at an average of 5.5% in FY22 which was within RBI's targeted tolerance band of 6%. However, consumer inflation started to upswing from October 2021 onwards and reached a tolerance level of 6% in January 2022. Following this, 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%. In July 2023, the CPI had reached the RBI's target range for the first time since February 2023 at 7.4% largely due to increased food inflation. This marked 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 had risen significantly to 65%, surpassing their weight in the CPI basket. In August 2023, the food inflation witnessed some moderation owing to government's active intervention. This was further moderated for second consecutive month in September 2023 to 5%, led by a sharp correction in vegetables prices and lower LPG prices. Helped by deflation in the fuel and light category, the retail inflation in October 2023 softened at 4.9%. This trend reversed in November 2023 due to spike in certain vegetable prices as well as sticky inflation in non-perishable food items such as cereals, pulses and spices and the CPI rose to 5.6%. In the month of December 2023, elevated food prices and an unfavourable base drove headline inflation to a four-month peak of 5.7%.

While the consistent decrease in core inflation due to falling commodity prices and diminishing demand-side pressures is encouraging, the ongoing high food inflation, potentially exacerbated by a projected drop in Kharif production and uncertainties around Rabi sowing, remains worrisome. Despite these concerns, the favourable base effect throughout Q4FY24 and the expected easing of food price pressures with the arrival of fresh crops from January to March could help mitigate inflation risks.

Chart 4: Retail Price Inflation in terms of index and Y-o-Y Growth in % (Base: 2011-12=100)

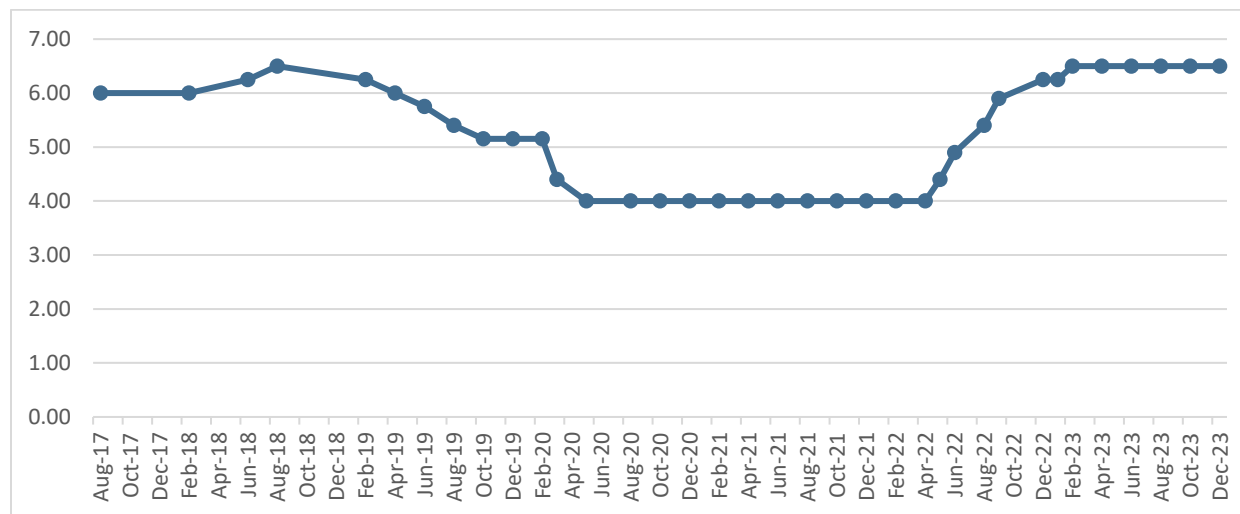


Source: MOSPI

The CPI is primarily factored in by RBI while preparing their bi-monthly monetary policy. At the bi-monthly meeting held in December 2023, RBI projected inflation at 5.4% for FY24 with inflation during Q3FY24 at 5.6%, Q4FY24 at 5.2% Q1FY25 at 5.2% , Q2FY24 at 6.5% and Q3FY24 at 6.4%.

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. Considering the current inflation situation, RBI has kept the repo rate unchanged at 6.5% in the last five meetings of the Monetary Policy Committee.

Chart 5: RBI historical Repo Rate



Source: RBI

In a meeting held in December 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.

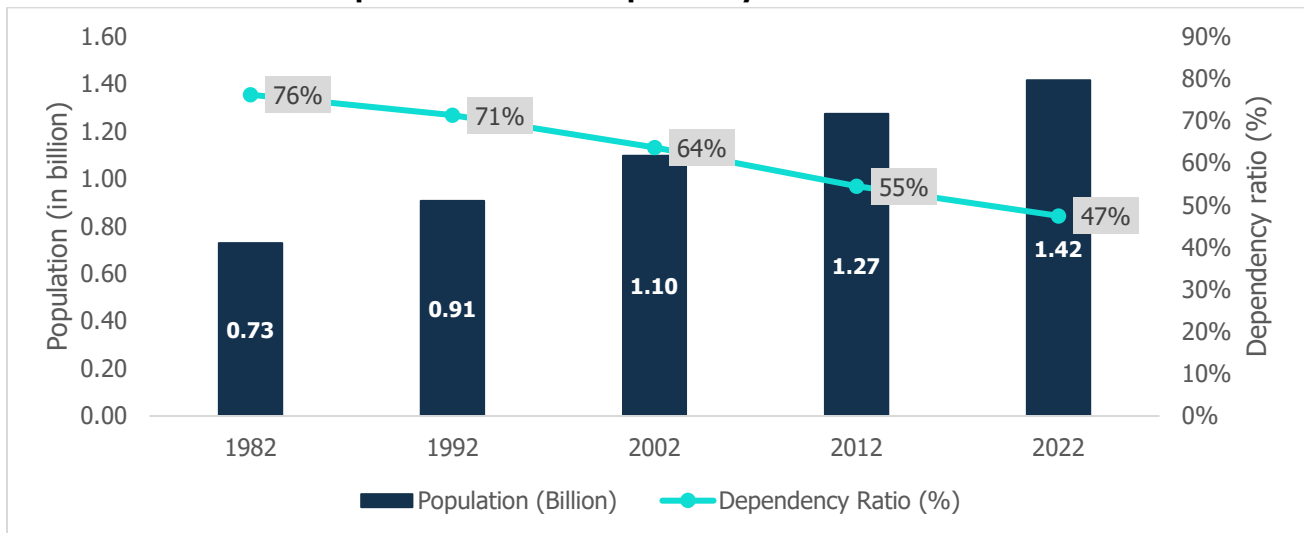
1.2.6 Overview on Key Demographic Parameters

- **Population growth and Urbanization**

The trajectory of economic growth of India and private consumption is driven by socio-economic factors such as demographics and urbanization. According to the world bank, India’s population in 2022 surpassed 1.42 billion slightly higher than China’s population 1.41 billion and became the most populous country in the world.

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.

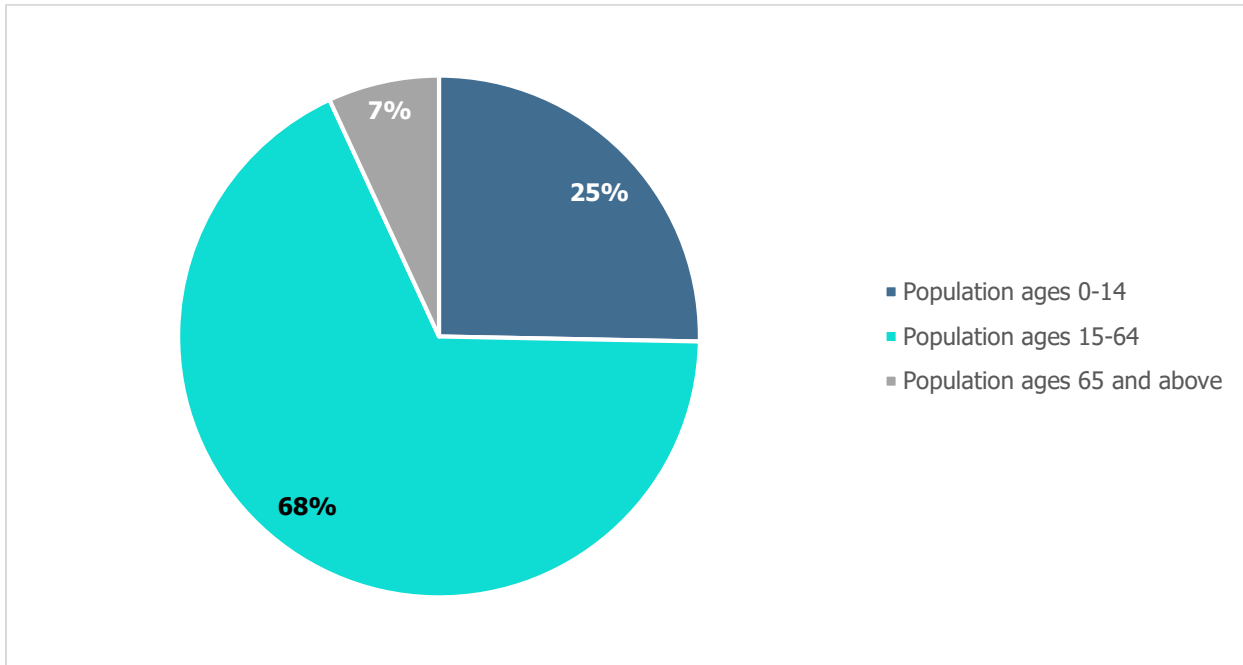
Chart 6: Trend of India Population vis-à-vis dependency ratio



Source: World Bank Database

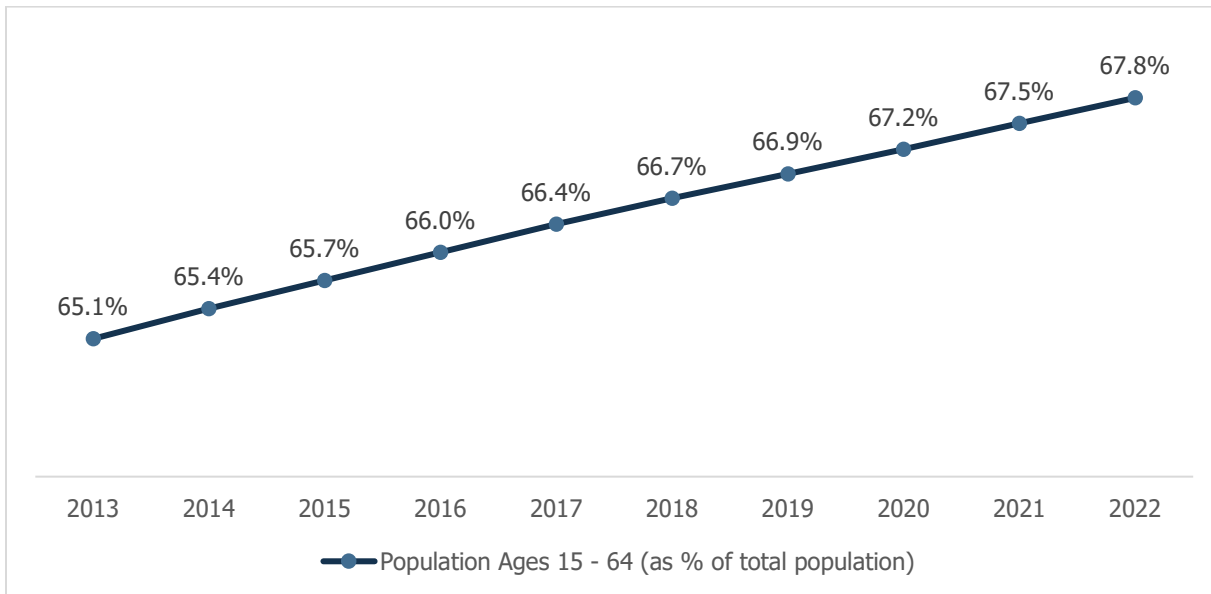
With an average age of 29, India has one of the youngest populations globally. With vast resources of young citizens entering the workforce every year, it is expected to create a 'demographic dividend'. India is home to a fifth of the world’s youth demographic and this population advantage will play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

Chart 7: Age-Wise Break Up of Indian population



Source: World Bank Database

Chart 8: Yearly Trend - Young Population as % of Total Population

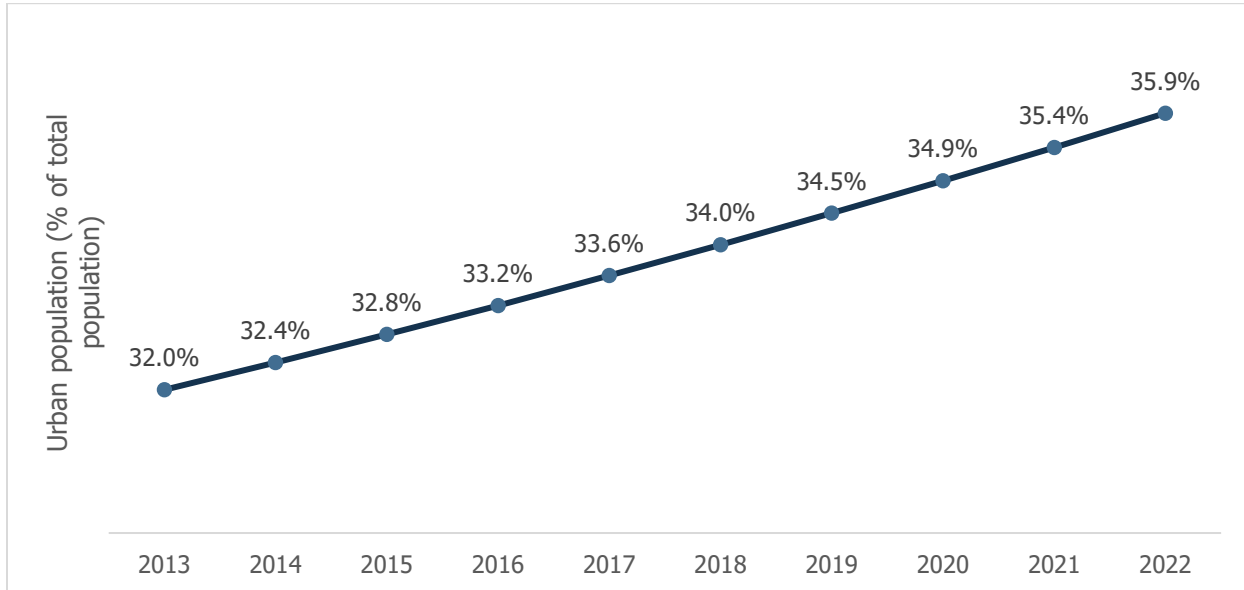


Source: World Bank Database

- **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 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 9: Urbanization Trend in India



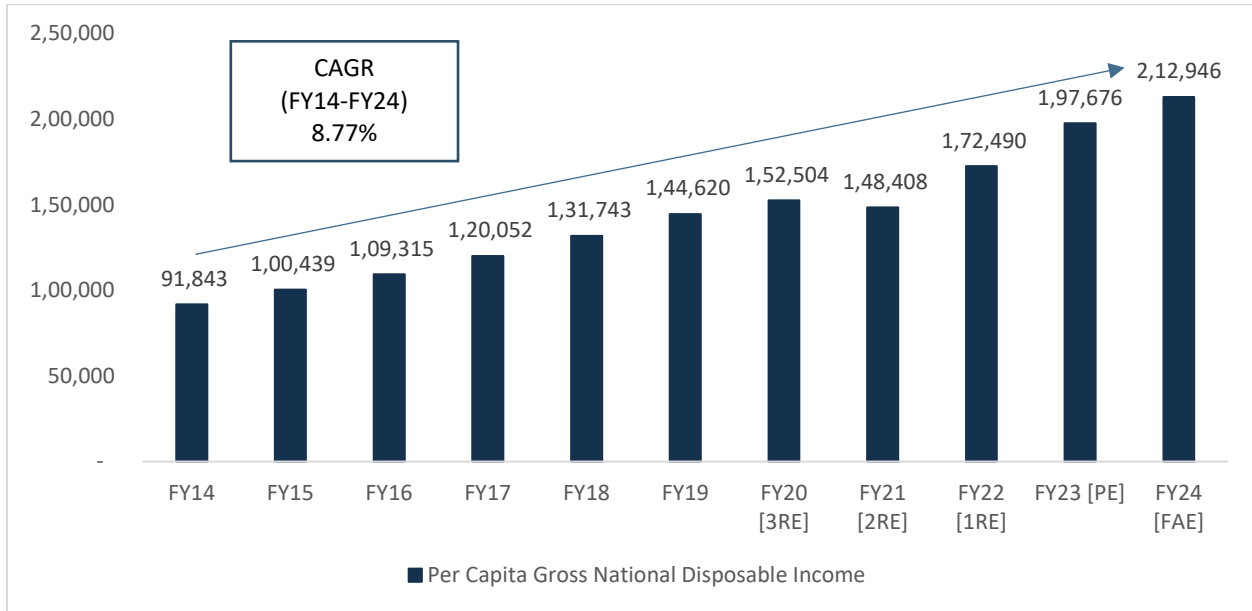
Source: World Bank Database

- **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 FY14 to FY24, per capita GNDI at current prices registered a CAGR of 8.77%. More disposable income drives more consumption, thereby driving economic growth.

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

Chart 10: Trend of Per Capita Gross National Disposable Income (Current Price)

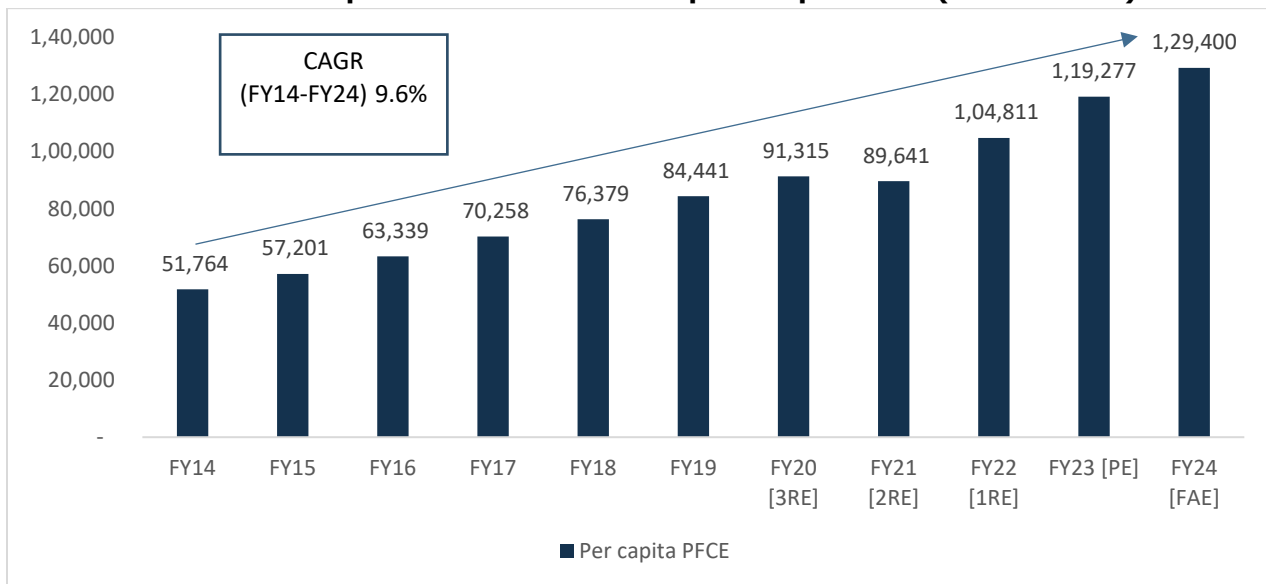


Note: 3RE – Third Revised Estimate, 2RE – Second Revised Estimates, 1RE – First Revised Estimates, PE – Provisional Estimate; Source: MOSPI

- Increase in Consumer Spending**

With increase in disposable income, 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 significant growth in the past decade at a CAGR of 9.6%. Following chart depicts the trend of per capita PFCE at current prices:

Chart 11: Trend of Per Capita Private Final Consumption Expenditure (Current Price)



Source: MOSPI

1.2.7 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. According to IMF's forecast, it is expected to 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, as per the Indian Meteorological Department (IMD), the rainfall witnessed a deficit until September 2023. A drop-in yield due to irregular monsoons and a lower acreage can lead to a demand-supply mismatch, further increasing the inflationary pressures on the food basket. Moreover, the consumption demand is expected to pick up in Q3FY24 due to the festive season. Going forward, the rising domestic demand will be driven by the rural economy's performance and continual growth in urban consumption. However, high domestic inflation and global headwinds pose a downside risk to domestic demand.

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.

2 Coal Sector in India

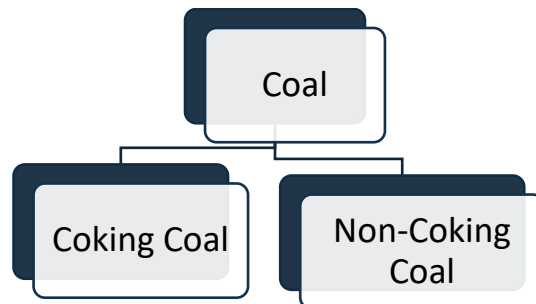
2.1 Overview

Coal is one of the key fossil fuels in India. It is the backbone of domestic energy production. Coal-fired power plants meet over 70% of India's electricity demand. Similarly, it fulfils the requirements of steel, cement, fertilizer, and brick kilns. The performance of the coal sector is crucial for economic development and GDP growth. It is a significant contributor to primary energy consumption and power generation to meet India's growing need.

Further, India is the second-largest producer and consumer of coal globally. In India, the central government has controlled coal production since the nationalization of coal mines in the early 1970s. At the same time, the participation of the private sector has been on the rise with the auctioning of captive and commercial coal mines.

2.1.1 Classification of Coal in India

In India coal is broadly classified into two types – coking and non-coking. The former constitutes only a small part of the total coal resources of the country.



Source: Industry

Coking Coal: Coking Coal, when heated in the absence of air, forms coherent beads free from volatiles, with strong and porous mass, called coke. Coking coal is used in steel-making and metallurgical industries.

The impurities in coal affect the quality of coke produced. These are moisture, volatile matter, ash, sulfur, phosphorous, and alkali contents. Their levels are kept as low as possible since their presence can affect coking coal's performance in the blast furnace by decreasing its impact as a fuel in terms of the amounts of carbon available.

Whereas sulphur and ash are particularly important since their increased presence can decrease the coke productivity in the blast furnace. High-quality coking coal is in great demand among steel producers who need it to make high-quality coke to maximise the productivity of their blast furnace operations.

Non-Coking Coal: Non-Coking Coal has relatively lower ash and higher fixed carbon. It does not soften and form coke during carbonization in the coke oven. It is mainly used for power generation. It is also used for cement, fertilizer, glass, ceramic, paper, chemical, and brick manufacturing alongside other heating purposes.

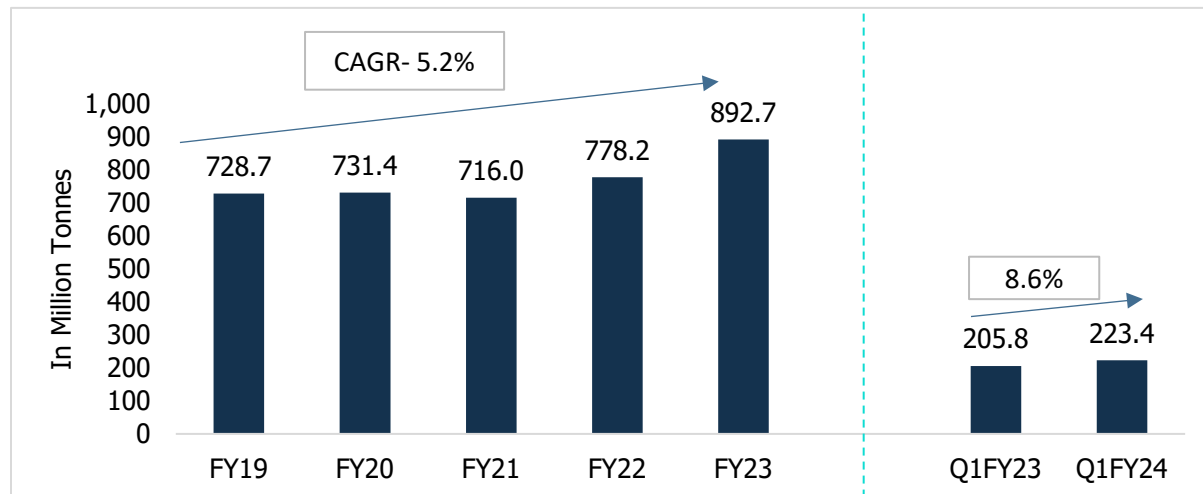
Coal Grades: The gradation of non-coking coal is based on Useful Heat Value (UHV) and the gradation of coking coal is based on ash content. Whereas for semi-coking/weakly coking coal, it is based on ash plus moisture content.

2.2 Production of Coal in India

Over the years, India has seen a significant ramp-up in coal production. Coal production has grown at a CAGR of 5.2% during FY19-FY23. However, in FY21, the sector saw a decline over FY19 due to the pandemic-induced lockdowns and lower-than-expected electricity and fuel demand.

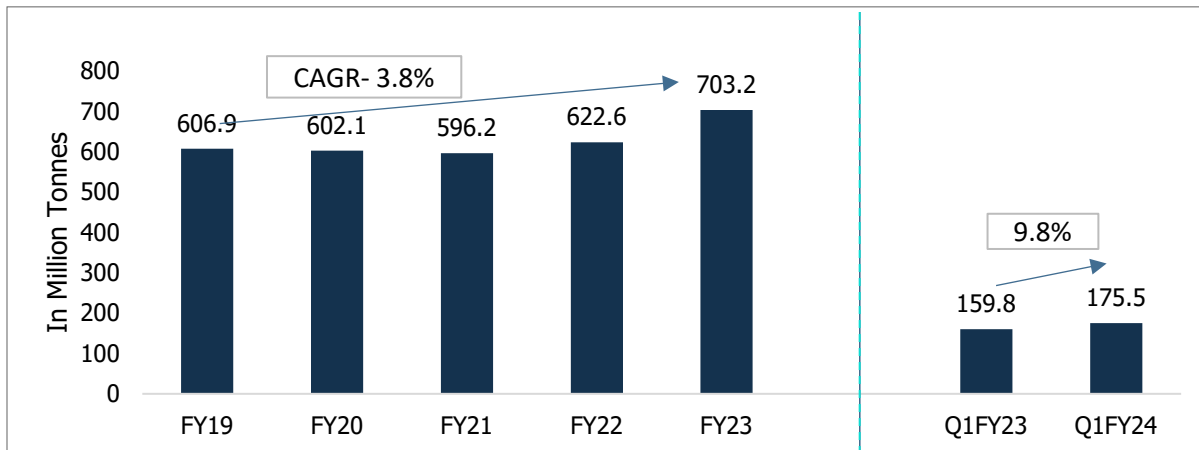
Further, the high growth of 8.6% in FY22 (on the lower base) is attributed to the post-pandemic economic activities which raised the demand for electricity and fuel. Moreover, in FY23, the production increased significantly by 14.9% y-o-y reaching 892.7 MT. For the quarter ended June 2023, the domestic coal production has reached 223.4 MT, a growth of 8.6% y-o-y, majorly driven by the continual increase in production by Coal India Limited (CIL).

Chart 12: Domestic Coal Production



2.3 Key Domestic Producers

India's domestic coal production is dominated by Coal India Limited (CIL), a state-owned coal mining corporation established in November 1975. CIL functions through 11 fully-owned subsidiary companies in 83 mining areas spread over eight states in India. As of April 01, 2023, CIL has 322 mines, of which 138 are underground, 171 opencast, and 13 mixed mines.

Chart 13: CIL – Production Trend

Source: Ministry of Coal, CareEdge Research

CIL has continued to be a substantial contributor toward domestic coal production. It has continuously taken significant efforts to ramp up domestic coal production to meet the ever-growing power demand.

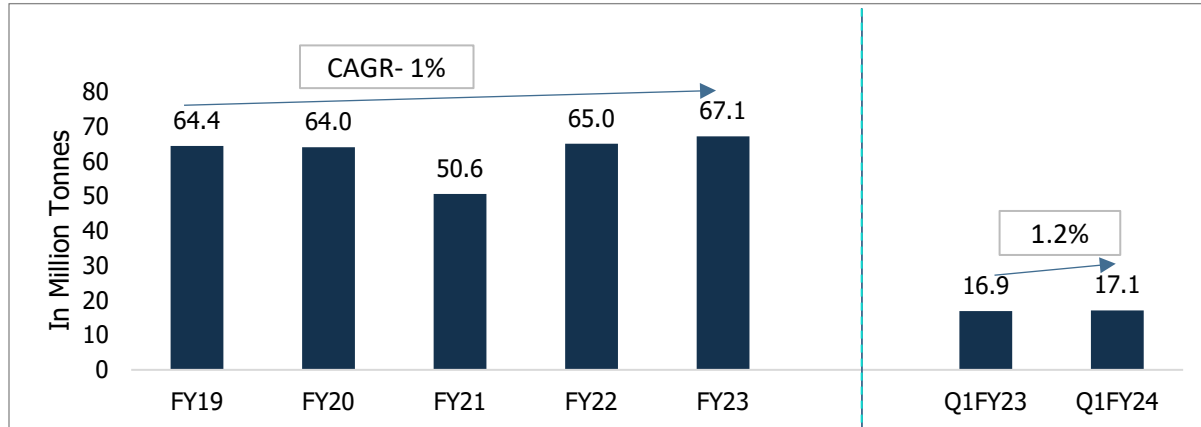
CIL's production has projected a CAGR of 3.8% during FY19-23. In FY23, production nearly grew by 13% y-o-y. Whereas during the Q1FY24, the production recorded a 10% increase over the previous quarter.

Further, in FY19, CIL contributed to around 83% of the total domestic production. However, with the gradual commissioning of captive mines amid easing regulations, its share has declined to 79% as of June 2023.

The Singareni Collieries Company Limited (SCCL)

The Singareni Collieries Company Limited (SCCL) is a government-owned coal mining company jointly owned by the Government of Telangana and Government of India on 51:49 basis. SCCL's primary business is coal mining. In addition, the company has ventured into setting up coal-based power plants, which commenced commercial operations from September 2016.

Further, SCCL operates 29 underground mines and 19 opencast mines situated in 4 districts of northern Telangana, i.e., Khammam, Karimnagar, Warangal, and Adilabad. Its operations are directed toward meeting the linkage requirements of Power (66%), Cement (13.5%), Captive Power (6.6%), Sponge Iron (3.1%), and other customers (10.8%).

Chart 14: SCCL – Production Trend

Source: Ministry of Coal, CareEdge Research

SCCL is India's second-largest coal producer, single-handedly accounting for 8% of the total domestic coal production. Its production has grown at a CAGR of 1.0% over FY19-23. Whereas the production increased by 3.26% y-o-y in FY23 and 1.1% y-o-y during Q1FY2.

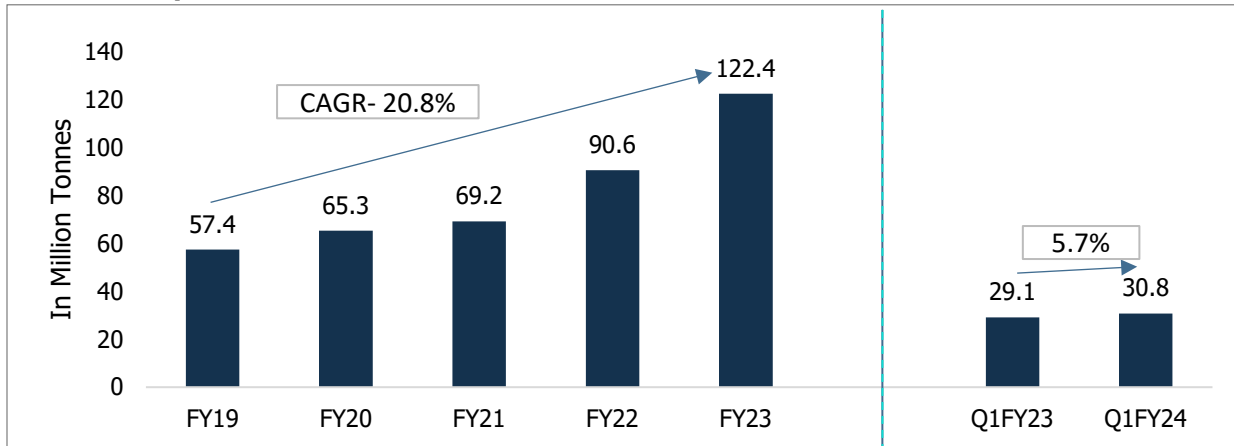
Captives

Captives are private companies that produce coal commercially. The government allows privately owned end-users (such as electricity generators and companies in industrial sectors like cement) to produce their own coal, by auctioning coal blocks.

Captives are largely supported by government initiatives such as the Amendment to the Mines and Minerals Act 1957, which permits captive mines to sell up to 50% of their annual coal production in the open market after meeting the end-use plant requirements. Another initiative is the production through Mine Developer and Operator (MDO) mode.

Furthermore, Captives have thrived due to the increased use of mass production technologies, expansion of existing projects, privatization of coal blocks, 100% Foreign Direct Investments, Single-Window Clearance, etc. These factors are likely to continue to boost domestic coal production in the medium-long term.

Chart 15: Captives – Production Trend



Source: Ministry of Coal, CareEdge Research

Over the years, Captives have seen significant growth. Production from Captives has grown at a CAGR of 20.8% during FY19-FY23. Also, in FY23, Captives’ production grew at a staggering rate of over 35% y-o-y. However, the growth has moderated to 6% y-o-y in Q1FY24.

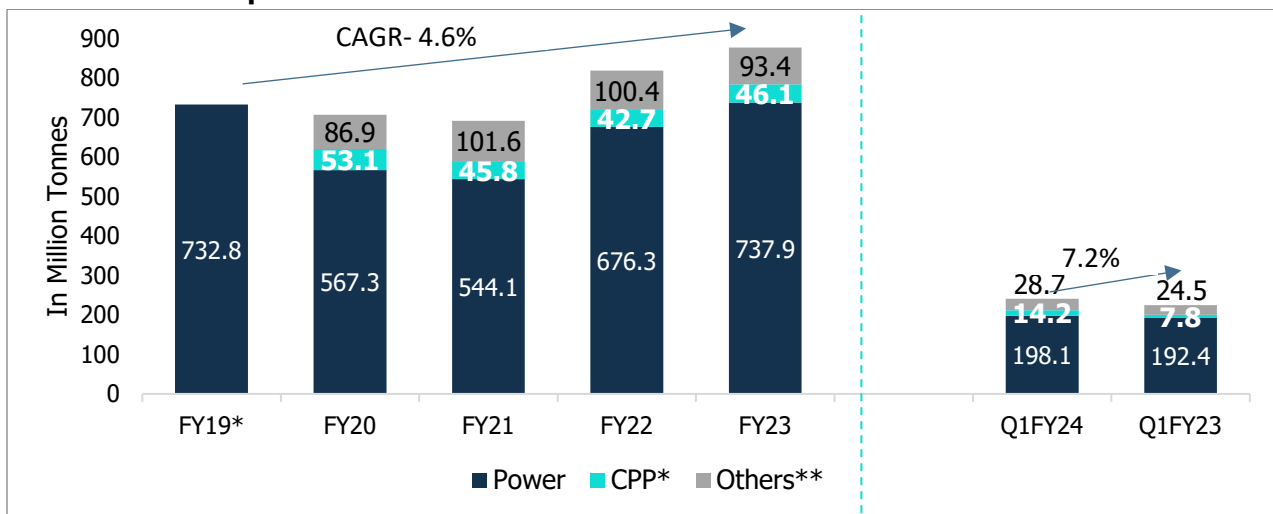
Further, steady growth in captive coal production is accredited to the pace of commercial mine auctions and the commissioning of auctioned mines. For instance, four new captive mines were commissioned during FY23.

2.4 Trends in Coal Dispatch

The end-users of coal use coal for purposes such as electricity generation and steel or cement production. Over the past decade, there has been a significant uptick in dispatch towards the power sector. This is due to increased dependency on coal-based power generation to meet the growing energy demands.

Further, coal is also one of the essential raw materials required for steel and cement production. Hence, timely and effective dispatch of coal to its end-users is essential for ensuring continual business operations.

Chart 16: Coal Dispatch



Source: Ministry of Coal, CMIE, CareEdge Research

* Sector-wise break up is not available

Total coal dispatches have grown at a CAGR of 4.6% during FY19-FY23. In FY20, the total coal dispatches de-grew by 3.5% y-o-y, due to supply crunch and COVID-19 impact in the last quarter of the fiscal. It further declined by 2.2% in FY21 due to the continual impacts of COVID-19-linked lockdowns and reduced power demands.

However, coal dispatches have recovered over FY22-23. In FY23, the total coal dispatches increased by around 7.1% y-o-y, supported by higher production and a steady increase in the availability of railway rakes during the period.

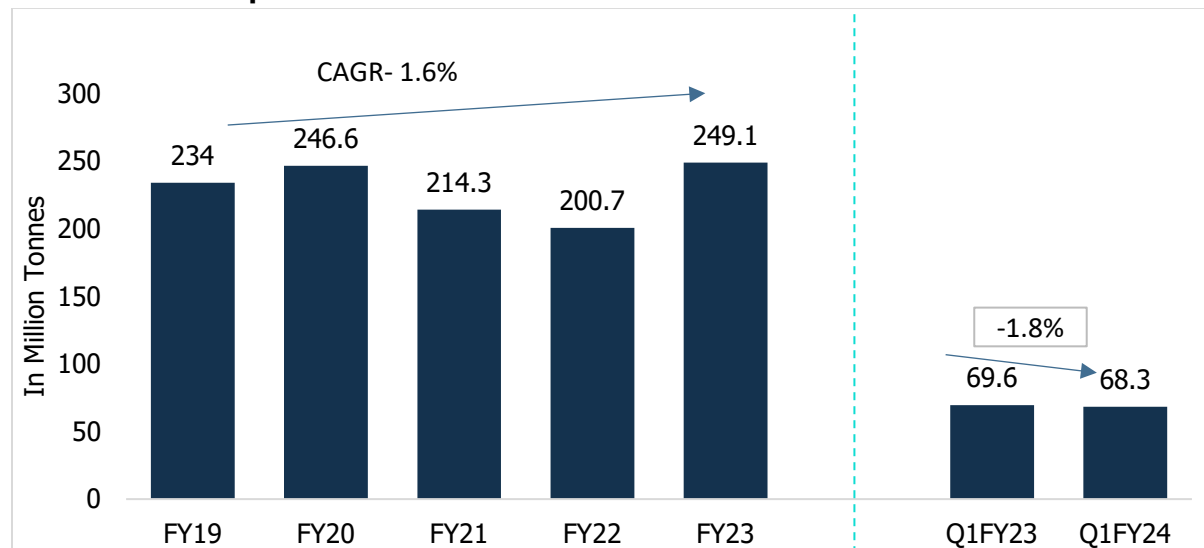
Further, the power sector accounted for 84% of the total coal dispatches during FY23, from 80% in FY20. This increased supply to the power sector is majorly due to the sector's higher coal requirement. This is attributed to increased electricity demands due to seasonal changes and warmer temperatures. Besides, the government has prioritized the power sector for domestic coal dispatches.

Moreover, during Q1FY24, the aggregate coal dispatch increased by 7.2% y-o-y on account of higher production. Dispatch to the power sector was 198.1 MT, an increase of 2.9% y-o-y. Whereas the power sector accounted for 82% of the total coal dispatches during Q1FY24. Accordingly, the dispatches to captive power plants grew by 80.9% y-o-y and there was a 17% y-o-y increase in supply for other sectors since the power sector demand normalized from previous quarters.

2.5 Coal Imports

Coal imports have increased at a CAGR of 1.6% during FY19-FY23. During the pandemic-impacted FY21 and the subsequent year of recovery FY22, India saw a decline in coal imports amid halted operating power plants and overall economic movements. However, in FY23, coal imports surpassed pre-COVID-19 levels of FY20, despite domestic coal production registering an all-time high of 892 MT in FY23. At the same time, coal imports have declined by 1.8% y-o-y in Q1FY24.

Chart 17: Coal Imports



Source: Ministry of Coal, CMIE, CareEdge Research

Adani Enterprises Ltd, India Coke and Power Pvt. Ltd and Swiss Singapore Overseas Enterprises Pvt. Ltd. are some of the major coal trading companies in India who imports steam coal, coking coal, petroleum coke and thermal coal from Indonesia, South Africa, USA, Australia and Russia and deliver it to the energy deficit countries. Companies like Steel Authority of India, JSW Steel Ltd, Tata Steel Limited etc. import steel for their internal uses.

Apart from these, some of the companies based out of Gujarat in the coal trading sectors are Shree Chamunda Coal Pvt Ltd., Zenyam Energy Resources Ltd., MCD Coal Pvt. LTD., Naini Coal Company Ltd., etc.

2.5.1 Coking vs Non-Coking Coal

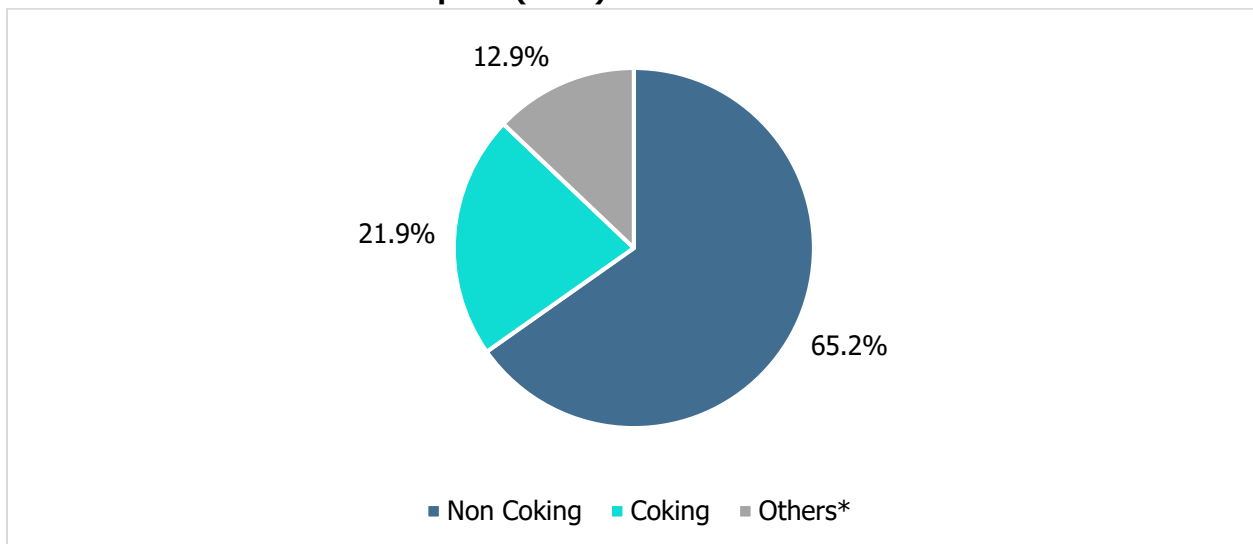
Coking coal, also known as metallurgical coal, is the primary raw material in the steel industry. It is used in coke production and as a fuel and reducing agent in blast furnaces. Coke plays a vital role in the blast furnace, converting iron ore into molten iron, an essential step in steel production.

Further, coking coal has a high carbon content, ranging between 70% to 90%, making it suitable for high-temperature applications. It also has relatively low levels of ash and sulfur. High-quality coking coal produces coke with desirable properties, such as strength and porosity, crucial for efficient iron and steel production. Hence, coking coal is often imported from other countries to meet the quality requirements. India's coking coal imports accounted for nearly 22% of total coal imports in FY23.

Whereas non-coking coal, also known as thermal coal, is mainly used for power generation and different industrial processes/applications requiring heat energy. These include cement production, paper mills, and chemical manufacturing.

Compared to coking coal, non-coking coal has lesser carbon content, ranging between 45% to 70%, suitable for combustion. It has high levels of ash and sulfur. India needs large quantities of non-coking coal for power generation and to supplement the significant efforts of ramping up domestic coal production. Non-coking coal continues to form a major chunk of coal imports at nearly 65.2% during FY23.

Chart 18: Share in Total Coal Imports (FY23)



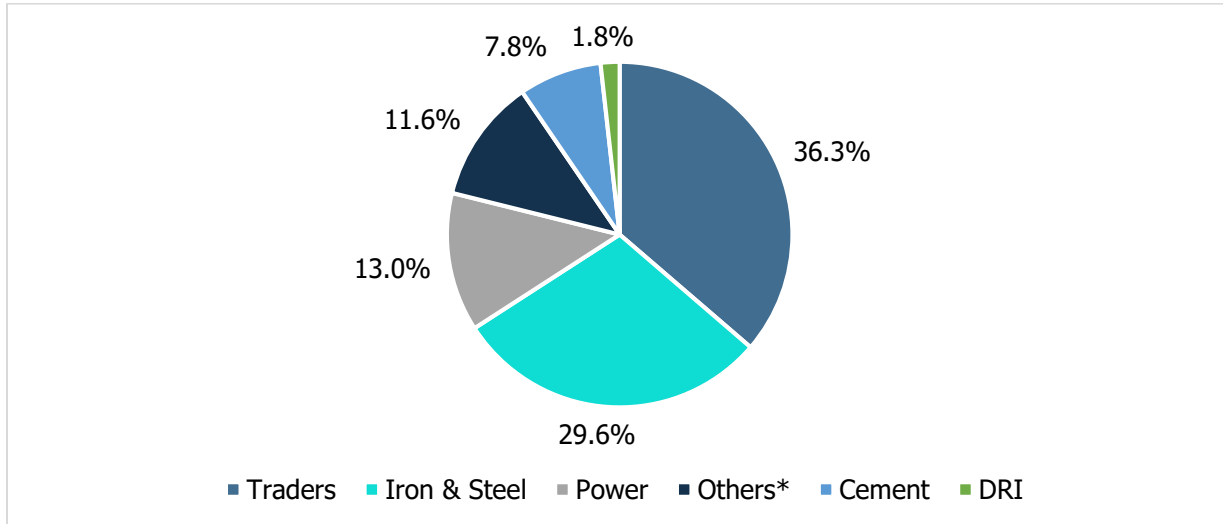
Source: Ministry of Coal, CMIE, CareEdge Research

Note: * includes anthracite, PCI Coal, pet coke, met coke

2.5.2 Sectoral Distribution of Coal Imports

Traders have the largest share in coal imports at 36.3% followed by the iron and steel industries at 29.6% and the power industry at 13%.

Chart 19: Sector-Wise Share in Coal Import (FY23)



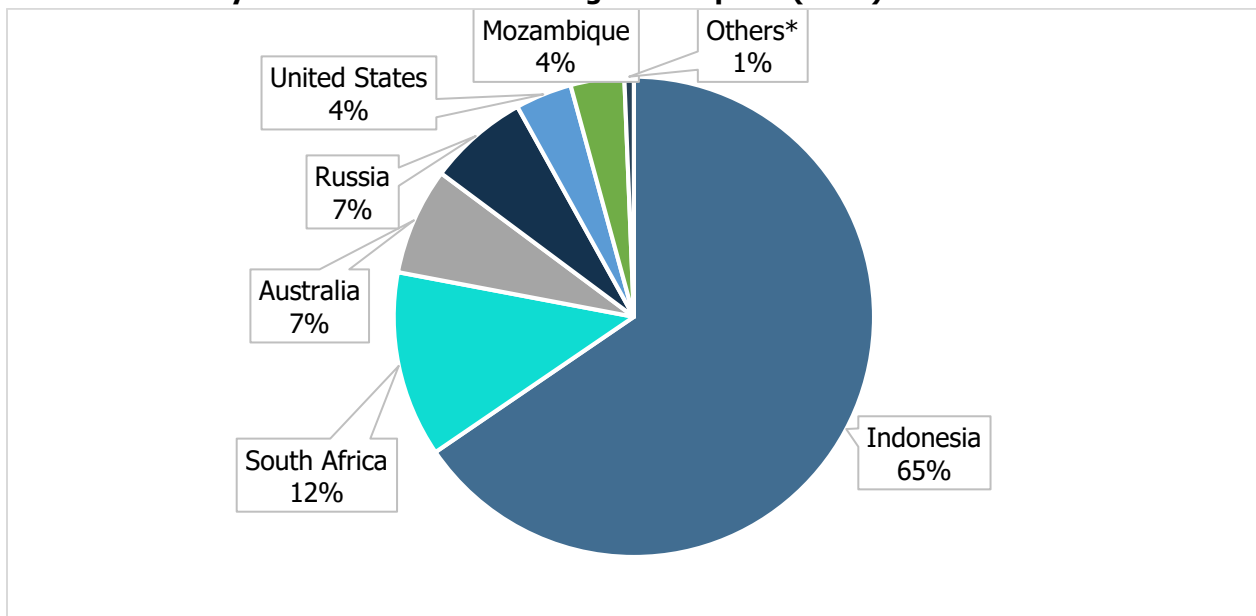
Source: Ministry of Coal, CMIE, CareEdge Research

Note: * indicates the others include Calcium Carbide, Chemical & Petrochem, Textile, Mining, Aluminum, Calciner, Ferro Alloy, Paper & Plywood, Logistics, Auto, Graphite Electrode and other sectors

2.5.3 Country-Wise Distribution of Coal Imports

Indonesia continues to be a key source of India’s non-coking coal imports, constituting over 65% of the total non-coking coal imports in FY23. South Africa is the second-largest non-coking coal supplying country with a 12.5% share of India’s non-coking coal imports, followed by Australia with 7.2%.

Chart 20: Country-Wise Share in Non-coking Coal Imports (FY23)

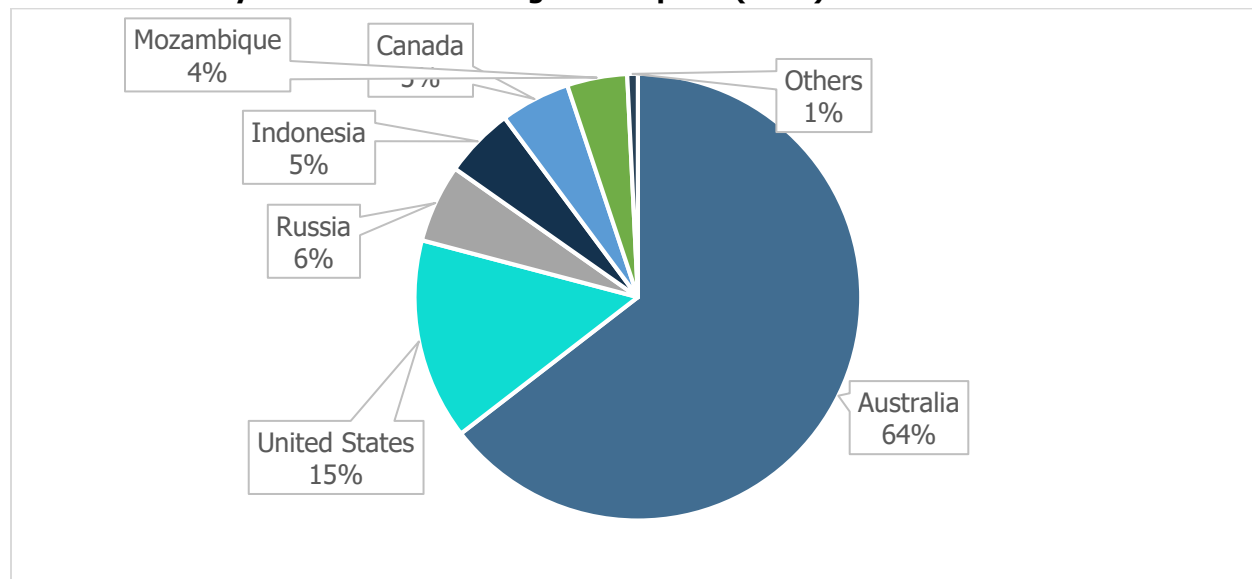


Source: Ministry of Coal, CMIE, CareEdge Research

Note: * Includes Kazakhstan, New Zealand, Colombia and Others

Australia is the largest coking coal supplier to India with a share of 64.5% in Indian coking coal imports in FY23. The United States is the second-largest supplier with a 14.6% share in FY23 imports followed by Russia, Indonesia, Canada, and Mozambique.

Chart 21: Country-Wise Share in Coking Coal Imports (FY23)



Source: Ministry of Coal, CareEdge Research

Note: * Includes Austria, Columbia, the Netherlands, New Zealand and South Africa

2.6 Trends in International Coal Prices - 5-Year Trend

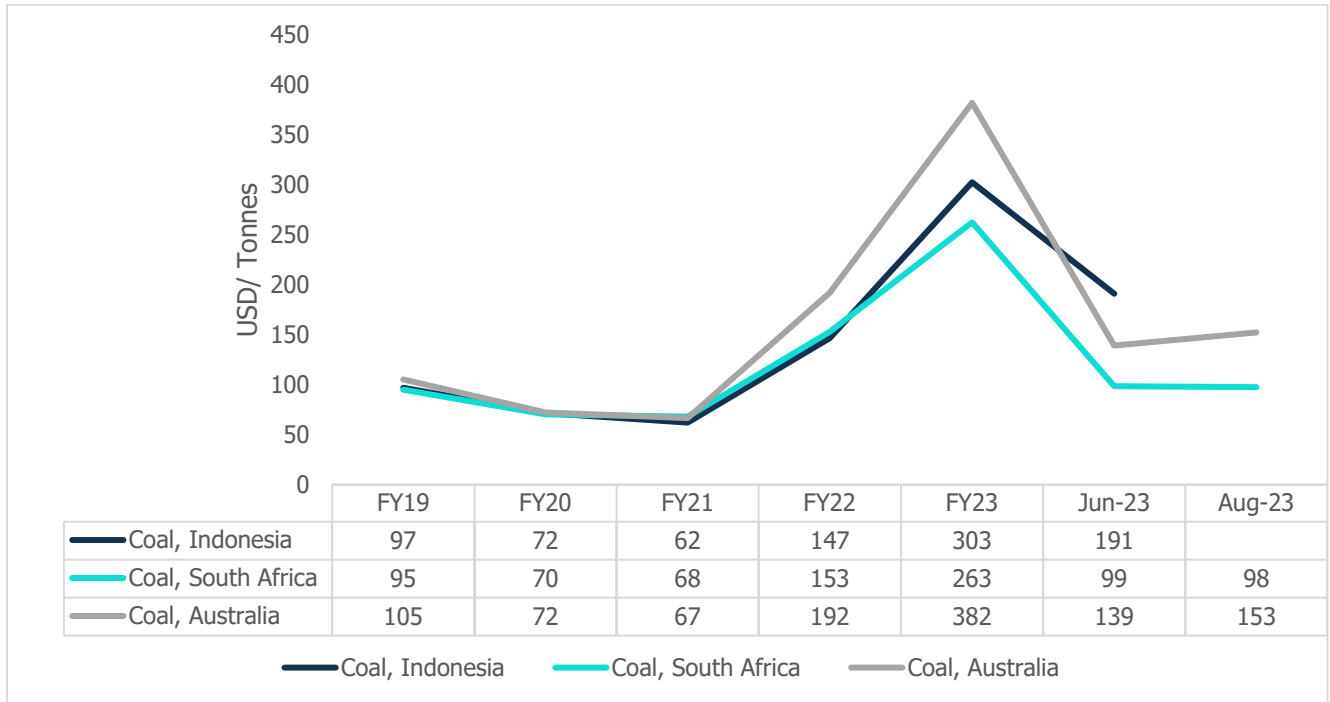
The international coal prices remained fairly range-bound from March '18 to September '19. However, prices declined sharply and fell to USD 50 per tonne by August '20 as COVID-19 impacted coal demands.

Further, coal prices started rising in CY21 due to production cutbacks and supply disruptions. This is also attributed to the Russia-Ukraine war, which commenced in February 2022, disrupting coal supplies to Europe.

During FY23, the average coal prices of Indonesian coal, South African coal, and Australian coal were 108%, 72%, and 99% higher, respectively, compared to FY22. However, coal prices declined from November 2022 with increased supplies from South Africa and Columbia alleviating the demand crunch in European countries, which is attributed to reduced coal imports from Russia. Furthermore, the winter in CY22 has been warmer compared to previous years. Such factors have led to a reduction in international coal prices.

Moreover, during YTD FY24 (April-August 2023), the average coal prices of South African coal and Australian coal were down by 65% and 62%, respectively, while Indonesian coal prices were down by 25% in YTD FY24 (April-June 2023), as compared to prices during the same time period in FY23. The coal prices are expected to stay muted in the current fiscal due to the sufficient availability of coal in the global market, subdued global demand, and gradual adjustments of the global markets to the Russia-Ukraine war.

Chart 22: International Prices of Coal



Source: Ministry of Coal, CMIE, CareEdge Research

2.7 Outlook on End-User Industries

Steel

Coal especially metallurgical coal is an essential ingredient in the production of steel. It takes approx. 770 Kilograms of coal to produce one tonne of steel. The met coal is heated above 1000°C to produce coke which is then added to blast furnace with iron ore. Carbon monoxide is produced by the burning coal which along with high temperature converts iron ore into molten steel called 'pig iron'. The impurities are then removed and alloys are added to make steel.

Improved activities in the construction sector and the sustained momentum in the real estate and automobile sectors are expected to boost the demand for steel products in the country. The domestic steel consumption is expected to grow at 8-10% in FY24 led primarily by infrastructure push in the pre-election year. The demand uptick from China has been slower than expected which is expected to have a bearing on steel prices in the near term. As Indian players prepare to cater to future demand, accelerating domestic iron ore production and identifying sustainable and cost-effective sources of import-dependent coking coal will be the key.

Some of the key budgetary announcements in this sector are:

- An increase in allocation toward infrastructure capex from Rs. 7.5 lakh crore to Rs. 10 lakh crores in Union Budget 2023-24
- A capital outlay of Rs. 2.4 lakh crore for Indian Railways
- 100 transport infrastructure projects

- Approval of Production Linked Incentive (PLI) Scheme for speciality steel
- Allocation toward the PMAY scheme is to be increased to Rs. 79,590 crores from Rs. 54,487 crores in the previous budget
- Rs. 15,000 cr. increase in allocation toward Jal Jeevan Mission

During FY23, exports witnessed a decline compared to FY22. This is due to the government-imposed export duty of 15% which made steel exports from India expensive, thereby affecting export demands. However, in November 2022, the government withdrew the export duty on steel products. Resultantly, exports have been rising sequentially and the full impact of the duty reversal is expected in FY24. At the same time, exports may not reach the highs achieved in FY22 due to weak global demand and increased finished steel exports from China.

Ceramic

The ceramics industry is expected to be driven by a strong government focus on the infrastructure sector and healthy growth prospects for real estate. In FY23, the residential real estate market witnessed steady growth with increased sales momentum. Also, the housing market is witnessing growth due to increased commercial activities, the need for upgraded infrastructure and living spaces, and improved demand scenarios.

In addition, the commercial real estate sector is expected to witness strong ceramic consumption in the near to medium term. Moreover, the growing urbanization and the advancing real estate prospects in both residential & commercial segments will boost the Indian ceramics industry.

Further, the increased construction activities and government initiatives for affordable housing, such as Pradhan Mantri Awas Yojana (PMAY), will further accelerate ceramic demands. Similarly, an outlay of Rs. 79,000 crores (Rs. 54,487 crores for rural & Rs. 25,103 crores for urban) has been announced in the Union Budget 2023-24 towards PMAY.

Paper

Packaging (~50% of the market share), the largest segment of the paper industry, is expected to drive the industry's growth. This is attributed to surging online consumer purchases. Additionally, sectors such as FMCG, pharmaceuticals, and retail will continue to contribute to expanding the packaging segment with per capita paper consumption in India at around 15 kg, way behind the global average of 57 kg.

Besides, educational institutions, offices, and similar establishments for printing paper, writing paper, and specialty papers will project increased demands. Additionally, the key driver for the industry's growth will be fueled by a focus on education, literacy, and a rising demand for higher-quality paper.

Power (Thermal)

Please refer to Section 2.12

Other Industries

Cement

Coal is used as a key energy source in cement production and the by-product from the coal combustion such as fly ash plays an important role in cement manufacturing and other construction activities.

Refer to Section- 3 of the report for outlook on this sector.

Aluminium

The aluminium industry is expected to be driven by steadily growing infrastructure, power, and automobile industries. In addition, industries like aviation, construction, packaging, renewable energy, consumer durables, defence, etc., will supplement the growth.

Aluminium is one of the leading industries of the Indian economy. It is expected to significantly contribute to the country's future growth. Apart from its potentially large growing market, India encompasses large high-quality bauxite ore deposits and a formidable pool of manpower, both skilled and unskilled. Accordingly, the Indian aluminium industry is surging forward with rapid expansion in the primary metal and downstream sectors.

Furthermore, recent announcements from the Union Budget 2023-24, such as the 33% y-o-y increase in capital outlay toward infrastructure at Rs. 10 lakh cr., allocation of Rs. 2.4 lakh crore for railways, and 100 transport infrastructure projects, will boost the demand for aluminium. The power sector accounts for a large share of the consumption of primary aluminium. With the increasing demand for power, there is a growing need to strengthen the transmission system. Accordingly, there have been investments in enhancing the transmission infrastructure.

As per the Power Grid Corporation of India Limited (PGCIL), an investment opportunity of around Rs. 1.90 lakh crore is expected in interstate transmission system, Rs. 1.96 lakh crore in intrastate transmission system, and around Rs. 0.2 lakh crore in cross-border interconnection up to 2030. As of March 2023, there are 24 transmission projects under construction. These include transmission system projects associated with renewable projects alongside conventional projects.

Whereas for the integration of additional wind and solar capacity by 2030, the estimated length of transmission line and sub-station capacity planned is around 50,890 CKm and 4,33,575 MVA, respectively. The investment required for the green transmission is projected to be around Rs. 2.44 lakh crore as per the Ministry of Power.

Of this, Rs. 0.281 lakh crore will be needed for integrating offshore wind capacities while Rs. 2.16 lakh crore will be required for the new solar and wind (onshore) plants. Additionally, rural electrification is predicted to drive investments in the power sector, which will further increase the demand for aluminium.

Moreover, aluminium demand will surge in India, given the shifting preference of consumers toward electric vehicles. The increased allocation for FAME (Faster Adoption and Manufacturing of Hybrid & Electric Vehicles) scheme to Rs. 5,172 cr. in Union Budget 2023-24 from Rs. 2,908 cr. in Union Budget 2022-23, and the cut in customs duty on lithium-ion batteries from 21% to 13%, will result in more sales and accelerate the demand for EVs.

Chemicals

The Indian chemicals industry witnessed stable growth in the past decade and steady growth is expected in the future. The upward momentum in demand for inorganic chemicals is estimated to continue to remain strong backed by low per capita consumption of chemicals (including agrochemicals), the rising demand for specialty chemicals, and projected growth in downstream sectors like colours, paints, pigments, coatings, pharma, textiles, and personal care, and the growing diversified manufacturing base.

Organic chemicals' demand is also estimated to remain strong, backed by the thriving downstream sectors like colours, paints, pigments, coatings, pharma, and personal care, among others. Also, the government has included this sector as a priority sector under the ambitious 'Make in India' initiative.

'Make in India' has played a pivotal role in driving some of the key initiatives to stimulate growth in the chemicals industry (organic and inorganic). Accordingly, the government has already taken some crucial steps for facilitating favourable conditions with regard to policies and infrastructure to attract global and domestic investments in the Indian chemicals industry. The results of these initiatives can be seen in the increasing interest of major companies to expand their business in this sector.

Furthermore, in order to be competitive at a global level, India will have to address the key issues of inadequate infrastructure and the lack of availability of low-cost feedstock for production. Moreover, the industry can leverage new technologies and explore alternative feedstock options such as coal gasification, syngas, and pet coke to mitigate the issue of feedstock availability in the sector.

Petrochemicals

In the last few years, the petrochemicals industry has flourished despite major challenges such as erratic prices of the feedstock in the international market and global container crises. The petrochemical sector growth will be supported by the PLI scheme and other government initiatives, such as Make in India. However, high feedstock price is a key risk, and thereby, a growth restraint.

Further, the government is taking all the necessary steps to make India a global petrochemical manufacturing hub. Some of the initiatives taken include revised customs duties on petrochemicals, reduced basic customs duty of naphtha, and a new addition of the Barmer Petrochemical Cluster. The Department of Chemicals and Petrochemicals has made the way Under this scheme, the Government of India provides grant funding up to 50% of the project cost, subject to a ceiling of Rs.40 crore per project. The remaining project cost is funded by the State Government, the State Industrial Development Corporations (SIDCs), or similar agencies of the State Government, beneficiary industries, and loans from financial institutions.

Moreover, it aims to improve the existing petrochemical technology and research in the country and to promote the development of new applications of polymers and plastics.

India is expected to contribute 10% of the incremental growth of global petrochemical demand. Plastics, detergents, medical equipment, and tyres will account for more than a third of the growth in oil demand by 2030.

Textile

Coal in textile industry is used as fuel in boilers which are heat exchange machines used to generate steam. The steam produced is used for fixation of chemicals, washing, dyestuff, finishing agents and drying of textile materials.

The domestic textile industry is one of the largest industries in the country and going forward, the industry is expected to grow in terms of installed spindlage and yarn production led by the installation of open-end rotors and setting up of export-oriented units. Technology-wise, the Indian spinning industry has been able to keep pace with international technology trends.

The government has allocated Rs. 4,389 crores to the textile sector in the Union Budget 2023-24 of which around Rs. 900 cr. has been allocated for Amended Technology Upgradation Fund Scheme (ATUFS), Rs. 450 crores for National Technical Textile Mission and Rs. 60 cr. for Integrated Processing Development Scheme. As per CMIE, 48 cotton and blended yarn projects were under construction as on March 2023 with a total investment outlay of Rs. 18,700 cr. Further, large-size companies will continue to show resilience while smaller-size companies will be more vulnerable to unfavorable market conditions.

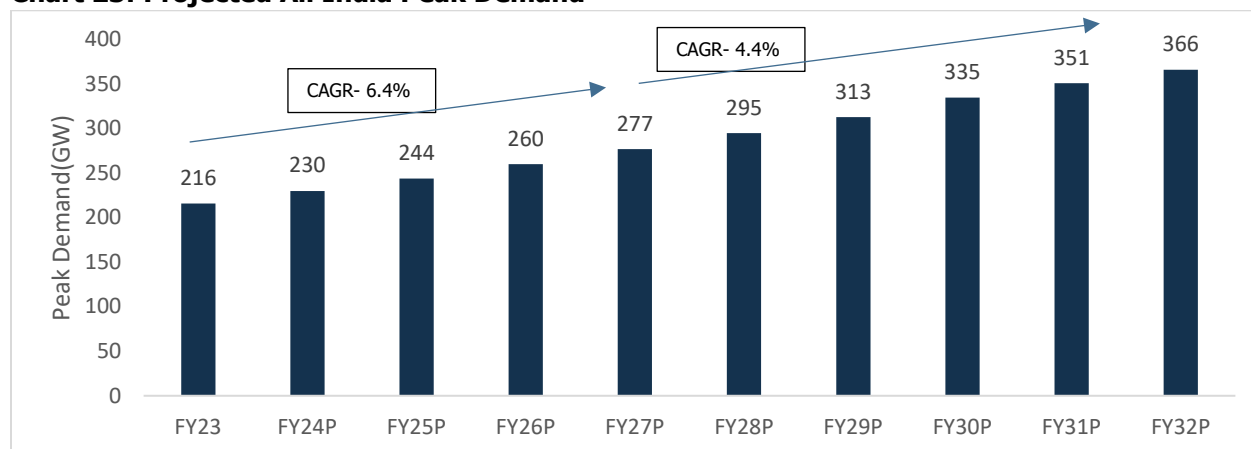
2.8 Key Demand Drivers

1. Growing Electricity Demands

India's is a rapidly growing economy. The country's high population and the resultant demand for more energy remains a major driver of electricity generation. Accordingly, the coal sector's sustained growth is linked to its ability to cater to the growing energy needs of the country poised for further economic development and urbanization.

According to the 20th Electric Power Survey of India, the all India peak electricity demand projected to grow to 277 GW by FY27 and 336 GW by FY32, implying a CAGR of 6.4% over FY23-27 and 4.4% over FY27-32. The energy requirement is projected at 1,908 BU by FY27 and 2,474 BU by FY32 implying a CAGR of 6% over FY23-27 and 4.1% over FY27-32.

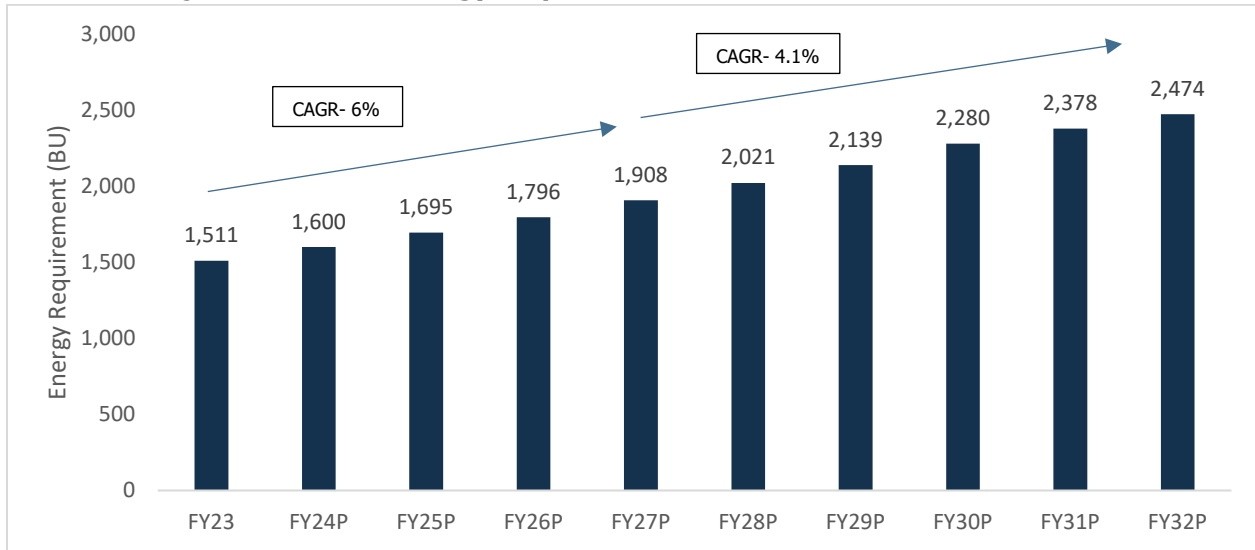
Chart 23: Projected All India Peak Demand



P- Projected

Source: 20TH Electric Power Survey of India, CareEdge Research

Chart 24: Projected All India Energy Requirement



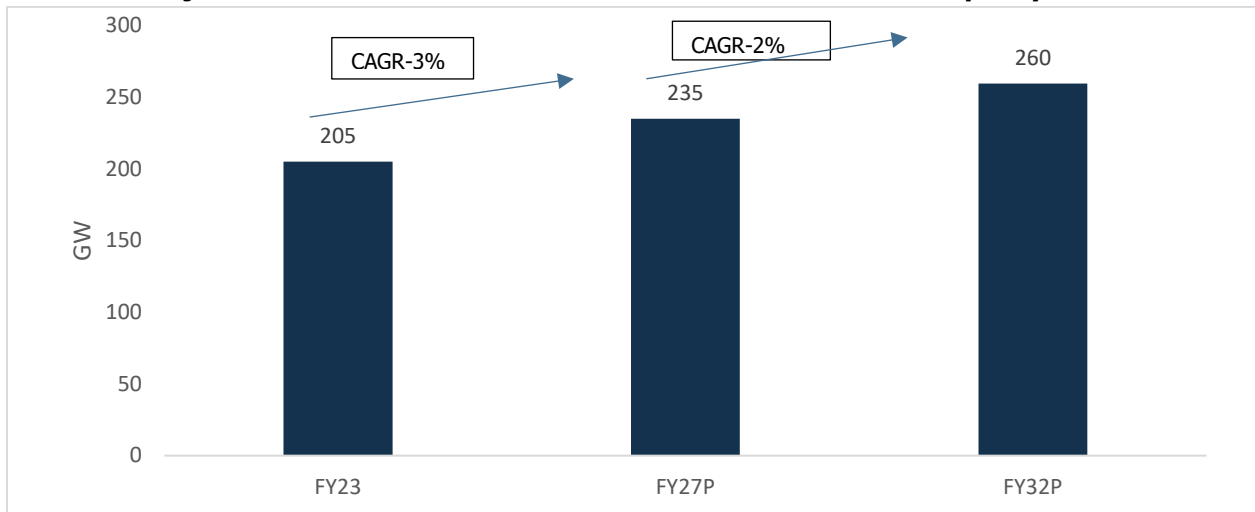
P- Projected
Source: 20TH Electric Power Survey of India, CareEdge Research

2. Increasing Coal-based Power Generation

India's power sector is highly dependent on coal-fired power plants as their primary source of electricity generation, accounting for 57% of the country's power supply in FY23. Furthermore, the industrial sector relies on coal as a primary energy source for carrying out processes such as metal and cement production. While the government's thrust on raising the contribution of power generated from renewable sources is increasing, coal-based power is expected to remain a major source in the near to medium term.

The capacity addition for coal-based power generation is expected to grow at a CAGR of 3% from 205 GW in FY23 to 235 GW in FY27 and at a CAGR of 2% from FY27 to FY32 to reach 260 GW

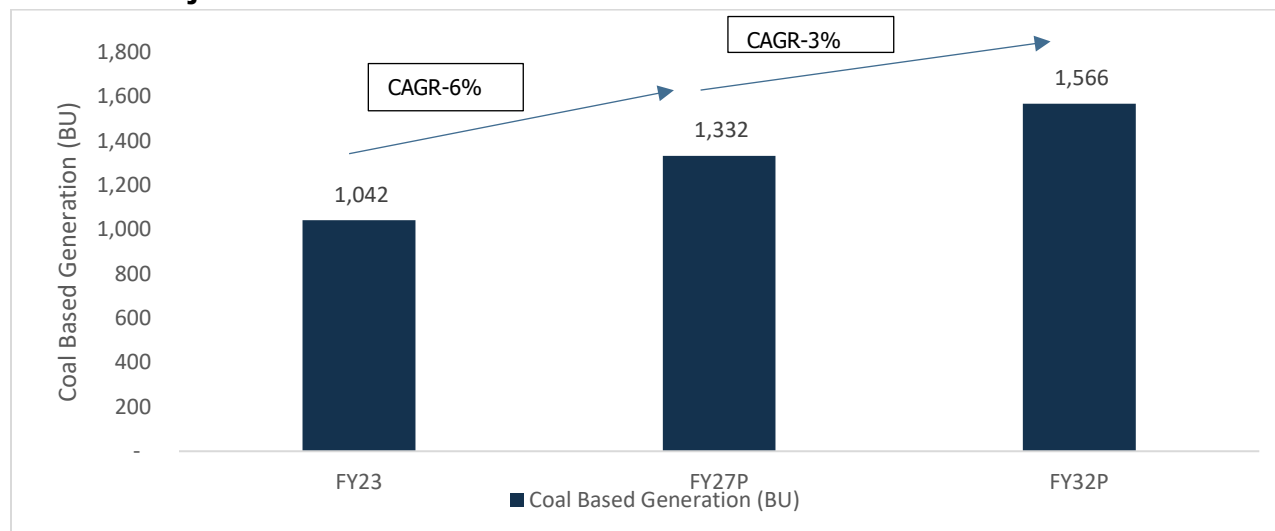
Chart 25: Projected All India Coal-based Power Generation Installed Capacity



Source: National Electricity Plan 2022-32, CEA

The coal-based power generation is expected to grow at a CAGR of 6% from 1,042 BU in FY23 to 1,332 BU in FY27 and at a CAGR of 3% from FY27 to FY32 to reach 1,566 BU.

Chart 26: Projected All India Coal Power Generation



Source: National Electricity Plan 2022-32, CEA

3. Electrification of Mobility Infra

The global market for electric vehicles (EVs) is growing. As per the International Energy Agency (IEA), the global EV fleet will reach about 130 million by 2030, a sharp rise from just more than 5.1 million in 2018.

The growth of the EV segment in India has also been on an increasing trend. The penetration of EVs has increased to 5% of the total vehicle sales in FY23. The EV sales have witnessed massive growth in FY23 on account of favourable government policies for EVs supporting the reduction in upfront cost and expansion of charging infrastructure, rising fuel prices and shifting consumer preferences.

Further, the two-wheeler and three-wheeler segments dominate the electric vehicles market in India, comprising around 62% and 34%, respectively, of total EV sales in FY23. Electric two-wheelers (E2Ws) are a key segment of the electric vehicle market in India, with growing interest among consumers and increasing government support for electric mobility. On the other hand, Electric three-wheelers (E3Ws) are also an important mode of public transportation in India, particularly for last-mile connectivity and intra-city transportation.

The historical trends of sales of EVs in each segment are depicted in the table below:

Table 4: Sale of EV Units in India (In Units)

EV Sales Units	FY18	FY19	FY20	FY21	FY22	FY23
Two-wheeler	1,897	25,393	24,839	40,837	2,52,547	7,27,434
Three-wheeler	92,395	1,18,944	1,40,683	88,378	1,82,587	4,04,231
Four-wheeler	1,362	1,632	2,727	4,588	18,565	47,383
Goods vehicle	993	517	50	28	2,452	3,049
Total EV sales units	96,647	1,46,486	1,68,299	1,33,831	4,56,151	11,82,097

Source: Council of Energy & Environment & Water (CEEW), CareEdge Research

Moreover, the Government of India has targeted 30% EV penetration by 2030. NITI Aayog projects EV sales penetration of 80% for two- and three-wheelers, 50% for four-wheelers, and 40% for buses by 2030. As EV adoption grows, there will be additional power demand for EVs, and hence, the readiness of the electricity grid for EV charging demand is critical to achieving a rapid and large-scale transition to EVs.

The total electricity demand for EVs, at a 33% EV penetration rate by 2030, is projected to be 37 TWh as per the NITI Aayog 2021 report. This constitutes less than 2% of the total electricity demand across the country by 2030. Therefore, meeting the overall energy demand for EVs in India is possible.

The charging demand by vehicle segment is depicted below in the table:

Table 5: Charging Demand by Vehicle Segment

Vehicle segments	Total daily charging demand in kWh - 2025	Total daily charging demand in kWh – 2030
E – 2W	1,25,596	7,65,442
E-3W (passenger / cargo)	2,55,162	9,72,757
E-car (personal)	17,498	1,64,786
E-car (commercial)	55,931	4,91,838
Total	4,54,187	23,94,823

Source: Handbook of electric vehicle charging infrastructure implementation by NITI Aayog – Version 1

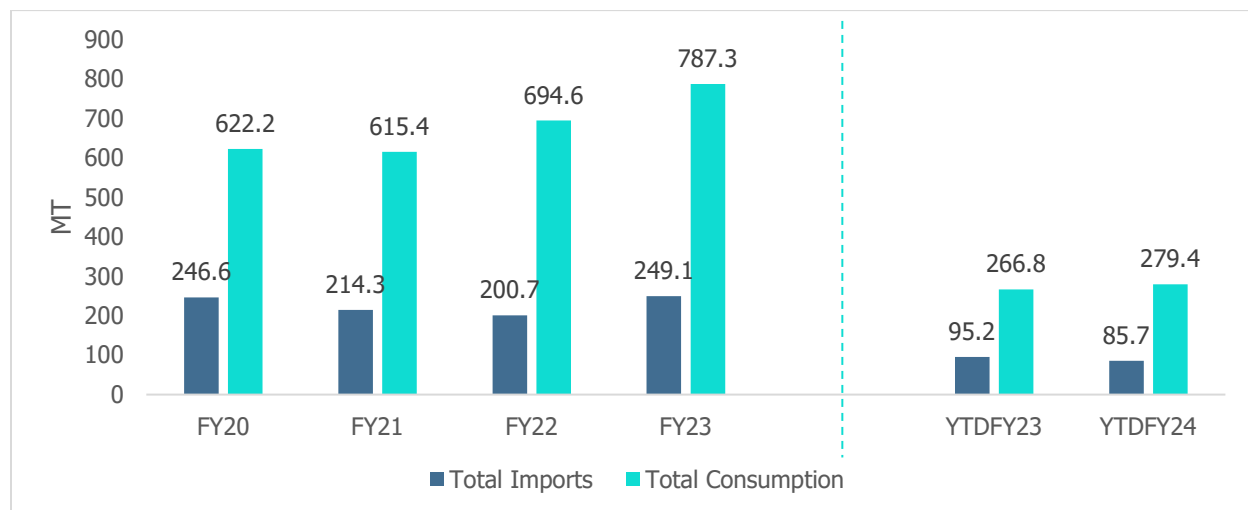
2.9 Major Challenges

1. Dependency on Coal Imports

Despite being one of the largest coal producers of coal in the world with substantial coal reserves, India is highly dependent on imports of high-quality coking coal to meet the demand of the steel industry, which requires specific grades of coal for the metallurgical process.

India’s coal imports accounted for about 32% of total coal consumption in FY23. Imports not only impact the cost of production but also strain the country’s foreign exchange reserves, making the sector vulnerable to global market fluctuations.

Chart 27: Total Coal Imports vs Total Consumption



Source: Ministry of coal

2. Need for Infrastructure Development

The coal sector has historically faced a number of issues ranging from infrastructure challenges, such as inadequate railway lines to inefficiency in coal handling facilities. These challenges can hinder the transport of coal from mines to power plants and other consumers.

With coal mining concentrated in the central, eastern, and southern parts of the country, transportation links with the main customers are of great importance. Of all the coal mined, 51% is transported by the state-owned Indian Railways and 23% by industry-owned networks. Coal is the largest single freight item handled by the railways, accounting for over 50% of total rail freight.

To strengthen India's energy security, the Ministry of Coal is actively working on the development of the National Coal Logistic Plan, which includes First Mile Connectivity (FMC) through railway siding near coal mines. The Ministry of Coal in association with the Ministry of Railways is constructing 13 railway lines for expansion of coal distribution capabilities. Furthermore, the Ministry of Coal in line with PM Gati Shakti is taking up 71 First Mile Connectivity (FMC) Projects with a capacity of 885 MT in 3 phases costing Rs. 26,000 cr. to develop multimodal connectivity.

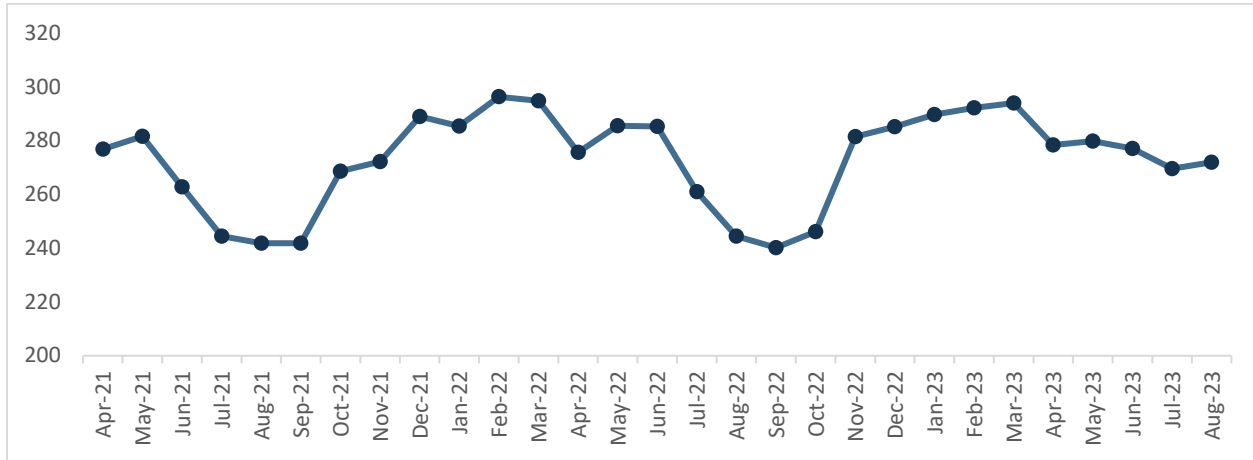
Moreover, the Ministry has already undertaken 51 FMC projects of 522 MT at an outlay of Rs 18,000 crore out of which 8 projects of 95.5 MT have been commissioned. These projects are targeted to be commissioned by FY2025 and an additional 19 FMC projects with a capacity of 330 MT will be implemented by FY2026-27.

The Ministry is also developing the Coal Logistics Policy and National Coal Evacuation Plan to address the challenges and reduce the cost of coal logistics in India. While the government is taking initiatives to augment the transportation infrastructure from coal mines, it has to keep pace with the increased domestic production and demand.

3. Unavailability of Sufficient Rakes

The availability of rakes has been a challenge for the coal mining industry which has led to delay in supply of coal to essential industries such as power. The railways have some constraints in coal evacuation from certain locations of the coal mines. This is majorly due to the distribution pattern of coal companies and far off locations of power plants from the pitheads. When rakes are dispatched to longer distances from the pithead they take longer to come back empty, hence the shortage. The average number of rakes available per day decreased by 3% y-o-y during Q1FY24 due to constraints in railway logistics.

Chart 28: Average Rake Availability – Monthly



Source: Ministry of Coal

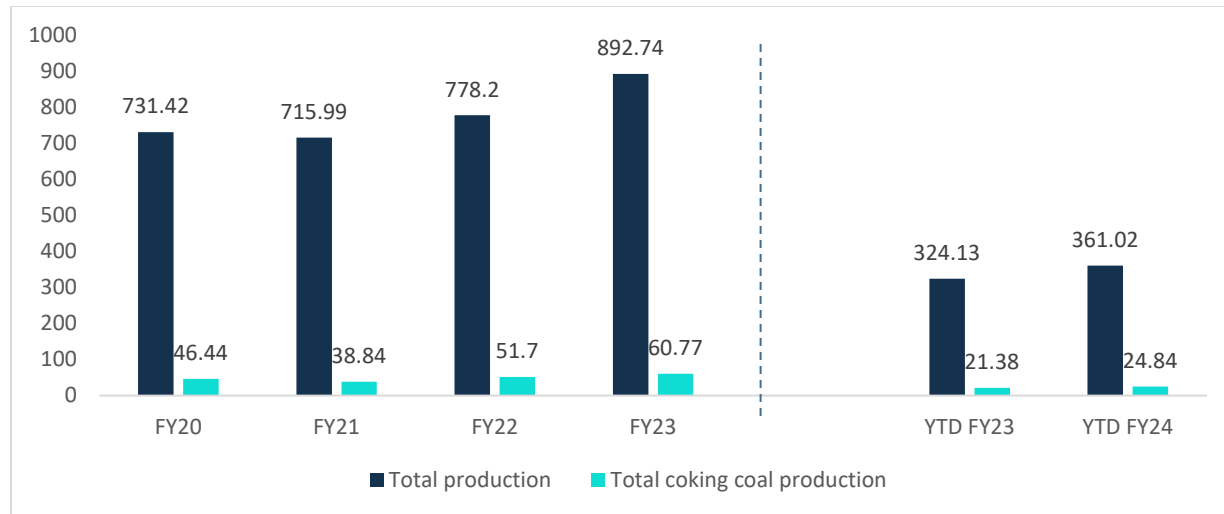
4. Coal Quality

A large part of India’s coal reserve is of Southern Hemisphere Gondwana coal, i.e., it has low calorific value and high ash content. Out of the total proven coal reserves, about 79% of coal is of this type, about 20% is of coking coal quality, and about 6% is of prime coking quality. This means that the average Indian power plant consumes more coal to generate a kWh as compared to when high quality is used.

The Government of India is taking various steps like the periodic re-gradation of coal mines, improved technology, first-mile connectivity for direct conveying of coal on the Belt from Coal surface/face to Rapid loading Silo, installation of Auto Analyzers, coal beneficiation, etc. These have led to substantial improvement of coal and the grade conformity has jumped from 51% in FY18 to 69% in FY23.

5. Lack of Domestic Coking Coal

Coking coal is used to produce coke and then used alongside iron ore and limestone to produce steel and cement, respectively. However, the domestic availability of coking coal is limited when compared with its consumption in India. Accordingly, India is largely dependent on imports for meeting coking coal demand.

Chart 29: Coking Coal Production vs Total Coal Production


Source: Ministry of coal

2.10 Government Policies and Regulations

The Government has been taking various initiatives to increase coal availability in India. These initiatives include auctioning of coal blocks for commercial mining, FDI under the automatic route, expansion of existing mines, opening of new mines under CIL and development of evacuation infrastructure.

- The Coal Mines (Special Provisions) Act, 2015-** This act was implemented to provide for allocation of coal mines and vesting of the right, title and interest in and over the land and mine infrastructure together with mining leases to successful bidders. This step was taken with a view of ensuring continuity in coal mining operations and production of coal, and for promoting optimum utilization of coal resources consistent with the requirement of the country in the national interest.

Currently, under the seventh round of coal block auction under the Act, which commenced in March 2023, about 103 fully explored, partially explored, coking, non-coking, lignite etc. coal mines are being offered. In this round, 35 bids have been received for 18 coal mines.

- Mineral Act Amendment 2020-** This act was implemented to regulate the development and mining of minerals in a sustainable and environmentally responsible manner. A number of amendments have been made to address the changing needs of the mineral sector and to improve the efficiency and effectiveness of the act.

Amendments made under this Act are:

- Ease of end-use restriction:** Prior to the amendment, companies acquiring Schedule II and Schedule III coal mines through auctions could use the coal produced only for specified purposes like power generation and steel production. After the amendment the companies are allowed to use the coal produced for any purpose, the amendment also removes a barrier to entry for new companies and foreign investors. This is expected to lead to lower costs and better-quality services for consumers, allowing companies to use the coal for any purpose.
- Amendment in eligibility criteria for participation in auctions:** As per the latest amendment in order to participate in auctions of coal and lignite blocks, participants need not possess any prior

coal mining experience in India. With this change in criteria the Government aims to attract increased investment from new participants and foreign investors.

- **Reallocation of earlier terminated coal mines:** As per the latest amendment, the earlier terminated coal mines under can be reallocated through auction or allotment at the discretion of the central government. This ensures continued benefit from resources in the mines that were otherwise left idle. The reallocation of these mines is expected to support growth in domestic coal production and increase efficiency of the coal sector.

Overall, the amendments made in the Mineral Laws (Amendment) Act, 2020 are a comprehensive set of reforms that are aimed at making the coal sector more competitive, efficient, investment-worthy, and transparent. These reforms are likely to benefit consumers, the environment and the economy.

• 'Mission Coking Coal', August 2021-

This was launched by the Government to provide a roadmap to increase the production and utilization of domestic coking coal in India by 2030. This was taken as measures under "Atmanirbhar Bharat" to reduce coking coal imports and to achieve 140 MT of coking coal production FY2030X. The following measures are taken under this initiative-

- **Auction of coking coal blocks-** 16 coking coal blocks has been allocated out of which 4 blocks were auction in FY23. This effort is projected to contribute 1.54MT to coking coal production.
- **Revival of abandoned mines-** Bharat Coking Coal Limited (BCCL) has been inviting agencies and companies to undertake coking coal extraction from abandoned or discontinued BCCL owned mines. LoA has already been issued to 4 mines and other 4 are under process.
- **Strategic Collaboration with SAIL-** Steel Authority of India Limited (SAIL) and BCCL have signed an MoU to supply 1.8 MT of washed coking coal.
- **Auction of Raw Coking Coal-** BCCL and Central Coalfields Limited (CCL) has organized auction in June 2023 while Tata Steel secured auction of 50,000 tonnes of raw coking coal from CCL.
- **Innovative Greenfield Washeries-** The ministry is encouraging establishment of Greenfields washeries or refurbishment of existing BCCL washeries to increase coking coal availability.

• Commercial Auction Scheme, 2020-

It was launched in 2020, under which commercial mines are auctioned on revenue sharing basis. Under this, a rebate of 50% on final offer would be allowed for quantity of coal produced before the production schedule date. Also, rebate of 50% on final offer was provided on coal gasification or liquefaction.

As on August, 2023, 86 coal mines have been successfully auctioned under the scheme. Details are as below:

Table 6: State wise Revenue Generated from Commercial Mines (in Rs Crores)

State	FY21	FY22	FY23
Chhattisgarh	28.8	14.9	481.5
Jharkhand	35.3	2.3	38.2
Madhya Pradesh	-	225.4	20.4
Maharashtra	-	52.9	9.0
Odisha	38.8	125.0	109.3
West Bengal	-	-	18.6
Assam	-	-	0.2
Total	102.9	420.5	677.3

Source: Press Information Bureau

• Permitting MDO/Open Market Sale-

The Ministry of Coal has engaged MDOs in coal mines, through open global tenders, and to ramp up domestic coal output to reduce dependence import. The contract period of engagement is for 25 years or life of mine whichever is less.

The state-owned coal miner is currently tracking a total of 15 greenfield projects for implementation through MDOs with investment of around Rs. 20,600 crores to be spent on land acquisition, rehabilitation and resettlement issues and railway sidings.

The MDOs would excavate and deliver coal to coal companies in line with the approved mining plan. MDOs is expected to lead to beneficial technology infusion, economically viable operations and increased production. Since contracts offered to them are on long-term basis, allied infrastructure at mine projects also would be developed by these private players. The players are expected to take care of land acquisitions, green clearances and coordination with State and Central Pollution Boards.

Coal India Limited (CIL) has issued letters of acceptance for 7 coal projects to be pursued through engagement of Mine Developer cum operator mode. Cumulatively, these projects have production capacity of close to 100 million tonne per year.

• Reopening of Discontinued Mines on Revenue Sharing Modal

There are many operational mines with appropriate volumes and sufficient mineable reserve which were closed for safety reasons and primarily due to unprofitable operations which resulted into difficulty in providing for the wages to the employees.

Discontinued mines results in large amounts of reserves not extracted. Therefore, Ministry of Coal is offering these mines in revenue Sharing model. This is an attempt to bring these abandoned mines back into operation. The private sector is expected to bring efficiency through lower overhead expenses and state-of-the art technology. Subsequently, CIL has offered 20 Mines in Tranche-I and 10 mines in Tranche-II to promote utilization of coal resources in the national interest.

• Imported Coal Blending Norms (Till H1FY24)

Blending of imported coal by power plants have been undertaken since 2009. After the Covid-19 pandemic, the power demand increased rapidly leading to higher demand in the thermal power plants. As a result, the coal stock depleted in the power plants. In December 2021, the power ministry advised the state Generation Companies (GENCOs) and Independent power producers (IPPs) to import coal at 4% by weight. During April 2022, there was 12% increase in coal consumption in power plants as compared year on year, so the ministry advised to import coal at 10% by weight in April 2022 to maintain sufficient stock till December 2022.

On January 2023, the power ministry directed the thermal power plants to import coal to achieve imported to domestic coal blending at the rate of 6% for the remaining period of FY23 and H1FY24. The move is targeted to reduce the coal shortfall in the power plants and build sufficient stock of coal.

As on March 2023, the total stock at thermal power plants in the country was 33.3 MT i.e. only 49% of the Normative stock requirement. The coal stocking norms of Central Electricity Authority mandate the power plants to maintain coal stock which varies from month to month basis. The stocking norms are 20 to 26 days in non-pithead plants and 12 to 17 days in pithead plants to ensure sufficient coal stock at power plants to meet demand.

• **Duty on Coal Imports**

Presently custom duty applicable to import of coal is 1% Basic Custom Duty and 1.5% of Agriculture Infrastructure and Development Cess (AIDC) totalling to 2.5%. The same was revised for a short duration with effect from 22nd May, 2022 exempting import duty on coal due to increased coal demand led by increased power demand in the country post- COVID. However, exemption of import duty on coal has been again withdrawn with effect from 19.11. 2022.

• **Free Trade Agreement- India Australia Economic Cooperation and Trade Agreement-**

Majority (96%) of India's import from Australia% consists of raw materials & intermediate goods. About 74% of Australia's export to India is coal out of which 71.4% is coking coal. Under the agreement, India has removed the 2.5% of import duty on high- grade Australian coal. India has also been offered zero duty access to 90% value of products from Australia which includes coal. India has also been offered concessions on Tariff lines of export interest to Australia on coking coal and thermal coal.

2.11 Industry Trends

• **Mine Developer and Operator (MDO)**

MDO method was appointed under the Coal Mining Agreement signed between the private players and PSU. It is operation of mines which provides balance of autonomy of mines between private players and PSUs. MDO mode is a concept of mine operation under which Government and private enterprises will work together to fulfil the country's energy needs. This undertakes activities including land acquisition, rehabilitation and resettlement, procurement of applicable permits, construction activities, setting-up of the mining plant infrastructure, setting-up of storage facilities, development of transportation and handling facilities, etc. for the coal mine. MDO is a contractor selected through competitive bidding and is regulated through statutory provisions.

During the operation period of a mine, the MDO takes care of the coal excavation operations and transportation to delivery points, for the mining operator on achieving the agreed upon level of production.

• **Commercial/ Captive Mine Auction**

Ministry of Coal has been conducting commercial auction of coal blocks since launch of Commercial Auction scheme in June, 2020. Till date 87 coal mines have been auctioned under this scheme since 2020. Overall, a total of 99 coal mines have been auctioned by Ministry of Coal for captive end uses and commercial mining since 2017. Till date, 55 mines have already got mine operation permission by the Ministry of Coal.

Details of the mine auctions are as follows-

State	No of Mines	PRC (MT)	Royalty and Taxes (Rs. Cr.)	Revenue Share (Rs.cr.)	Annual Revenue generated based on PRC of mines (Rs. Cr.)
Chhattisgarh	13	46	4552	3566	8118
Jharkhand	21	35	3477	1641	5118
Madhya Pradesh	21	25	3023	1910	4933
Maharashtra	9	6	624	216	840
Odisha	18	104	9126	4512	13638
Arunachal Pradesh	1	0	53	120	173
Assam	2	0	4	34	38
West Bengal	2	5	285	86	371
Total	87	221	21145	12086	33231

• Sustainable Development Policy of Coal companies-

The coal mining companies under the Ministry are taking various steps to promote sustainability in the mining and allied activities.

Coal India Limited - The CIL has come out with a Sustainable Development Policy (2013) under which the company focuses on – Environmental sustainability, Socio-cultural sustainability and Economic sustainability. This policy is committed to protect and conserve the biodiversity and ecological balance in the area surrounding the operations. Under this CIL commits to-

1. To adopt eco-friendly mining technologies
2. To conserve natural resources by reducing, reusing, recycling, redefining and replacing
3. To neutralize the effect of mining through proper mitigation techniques
4. To create income generations and skill development platforms
5. To ensure better infrastructure which includes water and health care.
6. To conduct business in an ethical and transparent manner.

CIL is also signatory to the UN coordinated Global Compact and has a broad level CSR and SD committee.

Singareni Collieries Company Limited - SCCL has a separate Environment Department to continuously monitor the compliance of environment norms and develop suitable mechanism for implementing environment protection measures and sustainability promotion. The company has an Environmental policy to develop best global practices to mitigate pollution, proper disposal, water recycling and bringing awareness among stake holders.

NLC India Limited - NLC India Limited is aimed to achieve environmental, socio-cultural and economic sustainability goals through its Corporate Environmental Policy, Code of Conduct, Fraud Prevention Policy, CSR Policy, Occupational Health and Safety Policy etc.

Apart from this, a Sustainability Development Cell is also created at the Ministry of Coal which focuses on maximizing the utilization of available resources in a sustainable manner and minimizing the effects of mining to take care of the surrounding eco-system. This cell is mandatory to be implement in all the coal companies and abide by it.

• **New Technologies -**

The target for FY24 coal production in India is 1 Billion Tonnes. To achieve the target and reduce dependency on coal imports, the coal companies have planned to employ various new technologies. These technologies are expected to impact the mining operations efficiency which includes safety and productivity, environmental protection, automation, improved underground communication, transportation, and emergency responses.

According to the "Technology Roadmap for Coal Sector" released by the Ministry of Coal, the scope for new technological implementation are as follows:

- To enable technology in coal mines for transformation across business value chain.
- To leverage "Digital Technology" as a catalyst for performance enhancement in the coal mines.
- To defining Coal sector's technology transformation ambition and prepare workforce in Coal Sector for Industry 4.0 Digital Technology.
- To increasing productivity, safety and sustainability and reduce environmental impact from conventional technologies to new technologies.

New technologies to be deployed in the coal companies are as below-

Technology	Description	Timeline
Underground Coal Mining		
Longwall Mining	Advantage of high recovery, lower operating cost, easier supervision	Till 2023-24
Continuous Miner	To cut coal in underground mine	Till 2023-24
R&D initiatives	To liquidate coal from deep underground mines and new backfilling technologies	Till 2023-24
Opencast Coal Mining		
In-pit crushing & conveying	Used in pit crushing of coal in high capacity opencast mines	Till 2025-26
Shovels & Dumpers	Upgradation of sizes	Till 2024-25
Highwall Mining	To be introduced in mines where coal is blocked in existing opencast mines and reached their final limit due to uneconomic stripping ratio due to constraints	Till 2024-25
Dozer- Rippers	For blast free removal of coal	Till 2024-25
Rippers	To cut overburden and coal by impact energy accumulation technology	Till 2024-25
Alternate Fuel Technology	Use of LNG and Hydrogen	Till 2029-30
Transportation		
Chair Lift Man Riding System, Free steered Vehicle	To transport men safely from underground mines	Till 2024-25
Conveyors and Multi Utility Vehicle	To transport coal from underground mines	Till 2025-26
Electric Infrastructure	Portable transport system for men from opencast	Till 2024-25
First Mile Connectivity	Eliminated road transportation of coal having capacity of 4MT and above, Creation of Mechanized conveyor system and computerized loading system (SILOs), 53 FMC Projects identified: 39 to be completed by FY 2024 under Phase I	Till 2024-25
Communication System		
Through the earth mine communication	Wireless radio system- Lower frequency signals	Till 2025-26

Leaky Feeder Systems	Involves single large transceiver on surface to communicate with miners	Phase 1- Till 2023-24, Phase 2- Till 2025-26
Safety systems		
Dust Suppression	Deployment of Mist spray canon for dust suppression in TOP 75 opencast mines.	Till 2024-25
Digital Mine's Safety	Safety Solution in all mines for consistent, real-time detection.	Till 2024-25

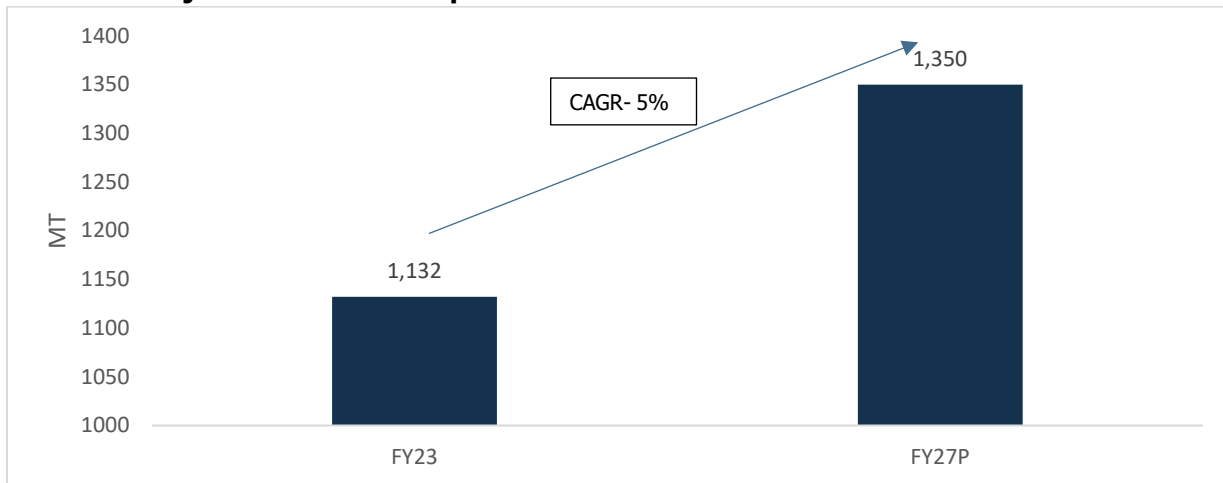
2.12 Outlook on Domestic Coal Consumption

The domestic coal consumption in India is expected to reach 1,350 MT in FY27 growing at a CAGR of 5% from 1,132 MT in FY23. Coal demand is expected to grow at a faster pace in FY24 supplemented by increased demand from the power generation sector. Consumption growth is subsequently expected to moderate from FY25 to FY27 due to increase in share of renewable energy in the power sourcing mix of the country.

Coal India is the largest producer of coal in India, it produced 703.2 MT in FY23 with total production of the country at 897.4 MT. Coal India had a capacity utilization of 85.8% in FY23 and has a installed capacity of 820MT as of FY23.

Power sector is expected to remain the largest consumer of coal along with the thriving end-user industries like steel and cement are expected to increase the demand.

Chart 30: Projected Coal Consumption



Source: Ministry of coal, CareEdge Research

Note: P- Projected

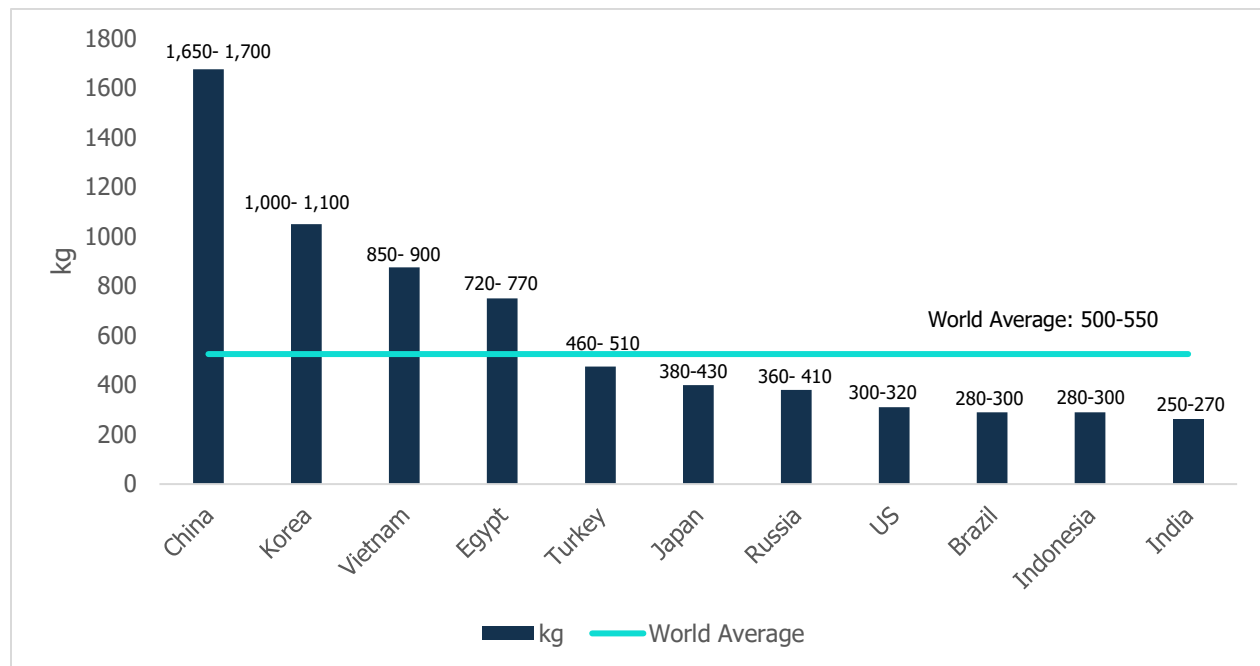
3 Indian Cement Industry

The cement industry is a core industrial sector in India. For a developing and transitioning economy such as India, cement as a commodity holds significant value. This is attributed to the immense infrastructure requirements of a growing and urbanizing country and its contributions by way of direct and indirect employment.

Also, the Government of India (GoI) has time and again emphasized its focus on infrastructure development with the announcement of several schemes, such as Housing for All and National Infrastructure Pipeline (NIP), to name a few schemes.

Further, the cement industry is indicative of the overall growth in the economy. Gypsum and cement products attracted Foreign Direct Investment (FDI) inflows totaling USD 5.5 billion from April 2000 to June 2023. Even though India is the second-largest producer of cement in the world, the market is highly underpenetrated. The per capita consumption of cement is only between 250-270 kg/per capita compared to the world average of 500-550 kg/per capita.

Chart 31: Per Capita Consumption of Cement



Source: Company Reports, CareEdge Research

The cement industry is dominated by domestic players. Also, the industry aligns with the changing environmental and social paradigms whether it is adopting new technologies or adhering to stricter environmental standards, including utilizing other industries’ waste produce.

In addition, the cement industry is an active participant in the circular economy. Cement manufacturers utilize alternate fuels and raw materials using advanced, environment-friendly technologies. Many industry players have also installed Waste Heat Recovery (WHR) units and are moving toward producing blended varieties of cement that consume less power per tonne.

3.1 Types of Cement

Ordinary Portland Cement (OPC):

Ordinary Portland Cement (OPC) is the most widely used type of cement in the construction industry. It is the basic form of cement that is commonly used for general construction purposes, offering a balance of strength and durability. OPC is manufactured by grinding clinker with gypsum or other additives to control the setting time.

Properties of OPC:

- **Strength:** OPC provides good compressive strength, making it suitable for a wide range of applications.
- **Versatility:** It can be used in various construction projects such as residential buildings, commercial structures, bridges, and more.
- **Setting Time:** The setting time of OPC can be adjusted by adding gypsum during the manufacturing process.

Applications:

- OPC is used in general construction applications where high early strength is not a critical requirement.
- It is commonly used in the production of concrete for foundations, columns, beams, slabs, and other structural elements.
- Suitable for mortar production in brickwork and plastering.

Portland Pozzolana Cement (PPC):

Portland Pozzolana Cement (PPC) is a type of blended cement that is manufactured by combining Ordinary Portland Cement (OPC) clinker with a pozzolanic material. The pozzolanic material, usually fly ash, is added to the cement during the grinding of clinker and gypsum. This blending imparts certain properties and benefits to PPC that make it suitable for specific construction applications.

Properties of PPC:

- **Workability:** PPC provides better workability and finishing properties compared to pure OPC.
- **Durability:** The presence of pozzolanic material enhances the long-term durability of concrete.
- **Reduced Heat of Hydration:** PPC generates less heat during the hydration process, making it suitable for mass concrete construction.
- **Improved Impermeability:** PPC can lead to a more impermeable concrete, reducing the risk of water ingress.

Applications:

- **Hydraulic Structures:** PPC is commonly used in the construction of dams, bridges, and other hydraulic structures due to its durability and resistance to sulfate attacks.
- **Mass Concrete:** Suitable for large concrete structures where reduced heat generation is important.

Residential and Commercial Construction: Used in various building elements such as foundations, columns, and slabs.

Portland Slag Cement (PSC):

Portland Slag Cement (PSC) is another type of blended cement, but unlike Portland Pozzolana Cement (PPC), it incorporates granulated blast furnace slag as the pozzolanic material. The slag is a byproduct of

the iron manufacturing process and is added to the cement during its production. PSC combines the properties of Ordinary Portland Cement (OPC) with the benefits of slag, resulting in a cement with specific advantages.

Advantages of PSC:

- **Durability:** PSC provides enhanced durability and resistance to aggressive environmental conditions, making it suitable for marine and coastal constructions.
- **Reduced Heat of Hydration:** Similar to PPC, PSC generates less heat during the hydration process, making it suitable for mass concrete works.
- **Improved Workability:** PSC concrete often exhibits better workability compared to plain OPC concrete.

Applications:

- **Marine Structures:** PSC is commonly used in the construction of marine structures, such as ports, harbors, and coastal structures, due to its resistance to chloride and sulfate attacks.
- **Mass Concrete Construction:** Suitable for projects where the heat generated during curing needs to be minimized, such as in dams and large foundations.
- **High-Performance Concrete:** PSC is preferred in applications requiring high-performance concrete with improved strength and durability.

3.2 Raw Materials for Cement available in Gujarat

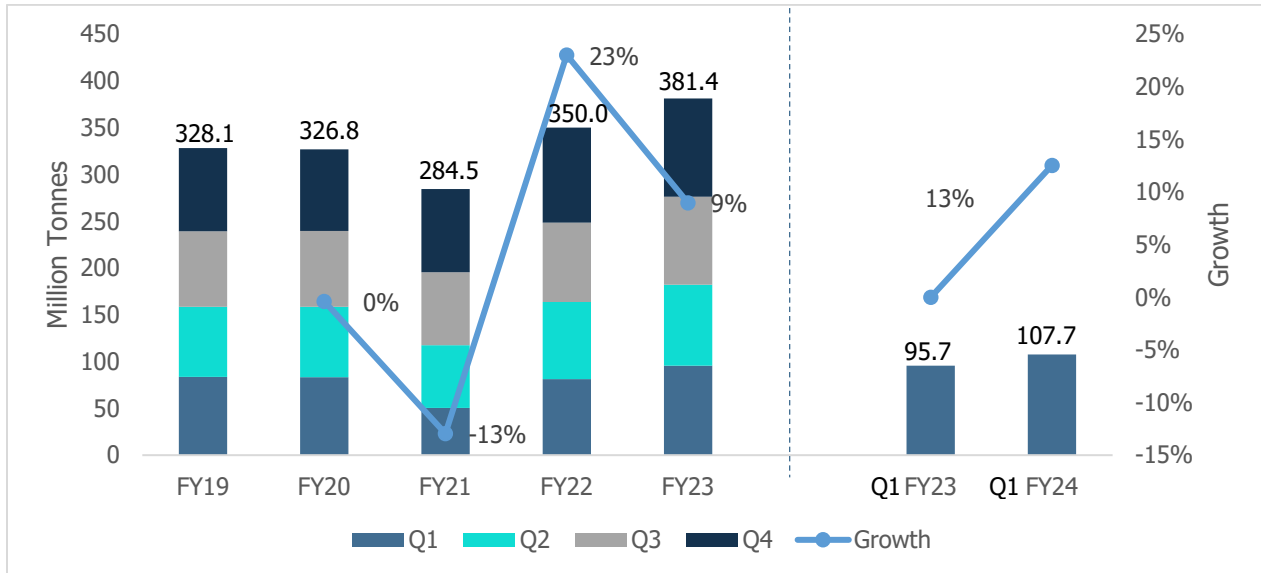
Gujarat, a state in western India, is well-endowed with natural resources, including limestone, which is a primary raw material for cement production. The availability of cement raw materials near Gujarat contributes to the growth of the cement industry in the region. Some of the key raw materials for cement production that are available or commonly found near Gujarat include:

- **Limestone:** Gujarat is known to have significant limestone deposits, and the state is a major producer of limestone in India. Limestone is a key raw material used in various industries, including cement, steel, and chemical manufacturing. Various regions in Gujarat, including the Saurashtra and Kutch regions, are known for limestone deposits. According to commissioner of Geology and Mining Gujarat the total estimated reserve of Limestone is 11,987 Million Tonnes, out of which 7,982 in Kutch, 1,499 Million Tonnes in Junagadh & Porbandar and rest is available across Gujarat.
- **Gypsum:** Gujarat is known to have significant reserves of gypsum. Gypsum is a mineral that is commonly found in sedimentary rocks and is widely distributed around the world. In Gujarat, gypsum deposits are often associated with sedimentary formations. The Kachchh region in Gujarat is known for having substantial gypsum deposits. Additionally, gypsum deposits may be found in other parts of the state, contributing to the availability of this mineral. According to commissioner of Geology and Mining Gujarat the estimated reserve in Gujarat are 3.376 Million Tonnes. Out of which, 0.14 Million Tonnes in Junagadh district, 1.16 Million Tonnes in Jamnagar district and 2.07 Million Tonnes in Kachchh district.
- **Other raw materials** which are available in Gujarat are Fly Ash and Blast furnace slag, Clay and Silica which are used in the productions of cement.

3.3 Production

Cement production grew by CAGR of 3.84% from FY19 to FY23 due to overall increase in demand. It grew by 8.9% y-o-y in FY23 after witnessing an all-time high growth of 23.0% y-o-y in FY22. The jump was on account of the government’s infrastructure push through various schemes. In Q1FY24, the cement production grew by 13% compared to Q1FY23.

Chart 32: Domestic Cement Production

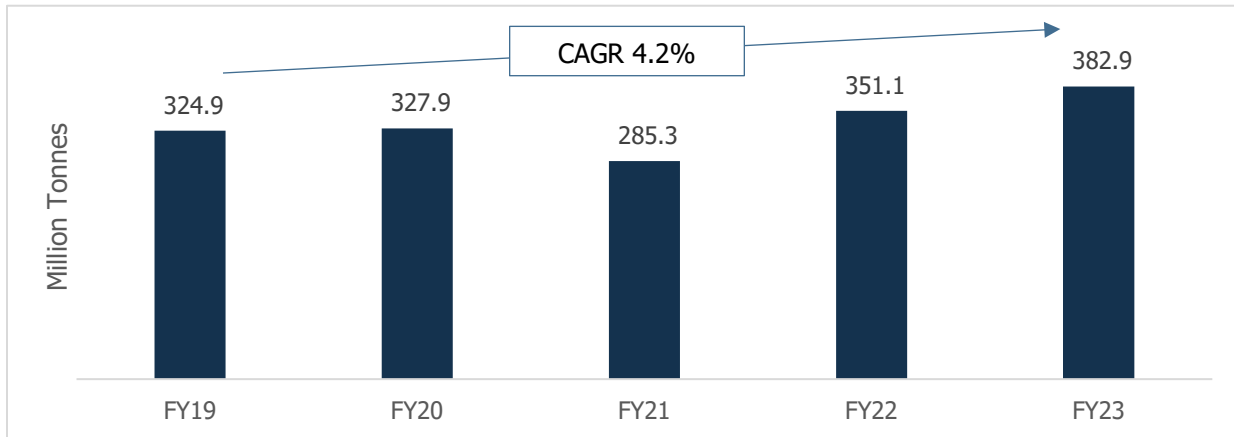


Source: CMIE, CareEdge Research

3.4 Consumption

Cement consumption grew at a CAGR of 4.2% from FY19 to FY23 from 325 MT in FY19 to 383 MT in FY23. There was a 13.0% y-o-y decline in consumption in FY21 to 285 MT on account of the pandemic outbreak. Subsequently, the consumption picked up in FY22 and FY23 demonstrating y-o-y growth of 23.1% and 9.1%, respectively.

Chart 33: Domestic Cement Consumption



Source: CMIE, CareEdge Research

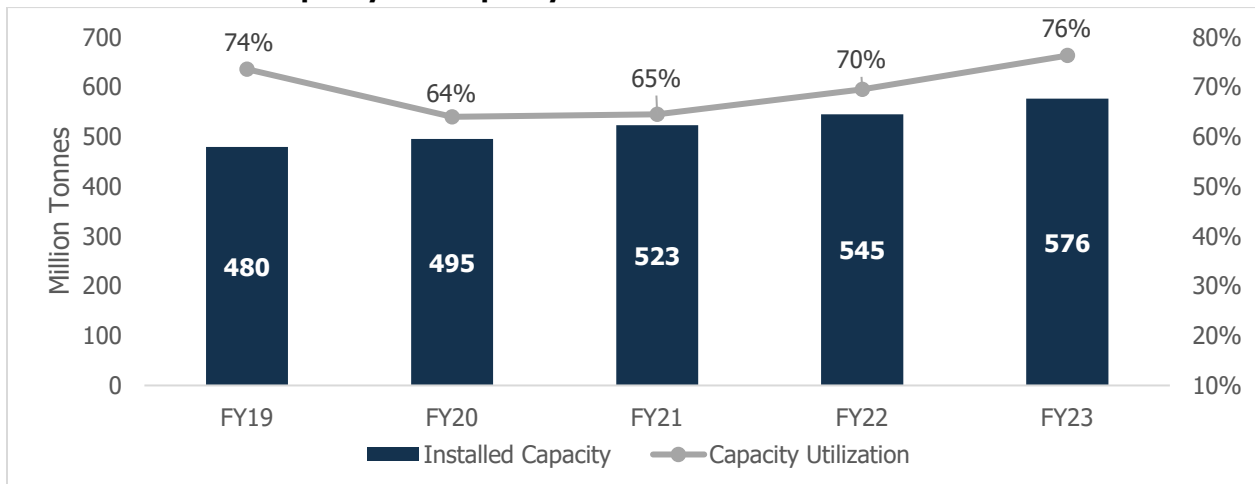
3.5 Installed Capacity

The domestic installed capacity grew at a CAGR of 5.1% from FY19 to FY23. Annually, the cement players have been adding capacity in the range of 15 to 30 MT for the last five years backed by strong demand for the commodity.

The cement players maintained a capacity utilization rate of around 70% from FY19 to FY23 except in FY21 & FY22, where the capacity utilization was around 65%. In FY23, the capacity utilization peaked at 76%.

The increased capacity utilization is attributable to the growing demands, given the government's push for infrastructure and affordable housing and the revival of corporate capital expenditure.

Chart 34: Installed Capacity and Capacity Utilization of Cement Sector

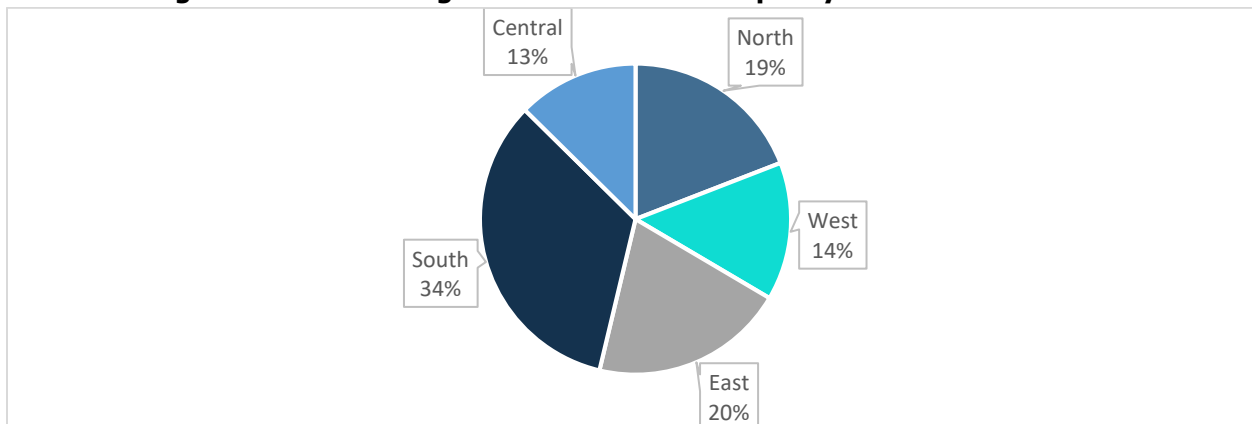


Source: CMIE, CareEdge Research

The installed capacity differs region-wise. The Southern region accounts for the highest share in installed capacity at 34%, since it accounts for more than one-third of India's limestone deposits. It is followed by

the Eastern region with a share of 20% and Northern region with a share of 19%. Whereas the Western and Central regions account for 14% and 13% share of the installed capacity, respectively.

Chart 35: Region-Wise Percentage Share in Installed Capacity as of FY23



Note:

North region includes installed capacities in J&K, Punjab, Haryana, Himachal Pradesh, Uttarakhand and Rajasthan

South region includes installed capacities in Andaman Nicobar Islands, Andhra Pradesh, Karnataka, Kerala, Tamil Nadu and Telangana

Central region includes installed capacities in Madhya Pradesh and Uttar Pradesh

East region includes installed capacities in Bihar, Chhattisgarh, Jharkhand, Odisha, West Bengal, Assam, Meghalaya, Sikkim, Arunachal Pradesh, Nagaland, Manipur and Mizoram.

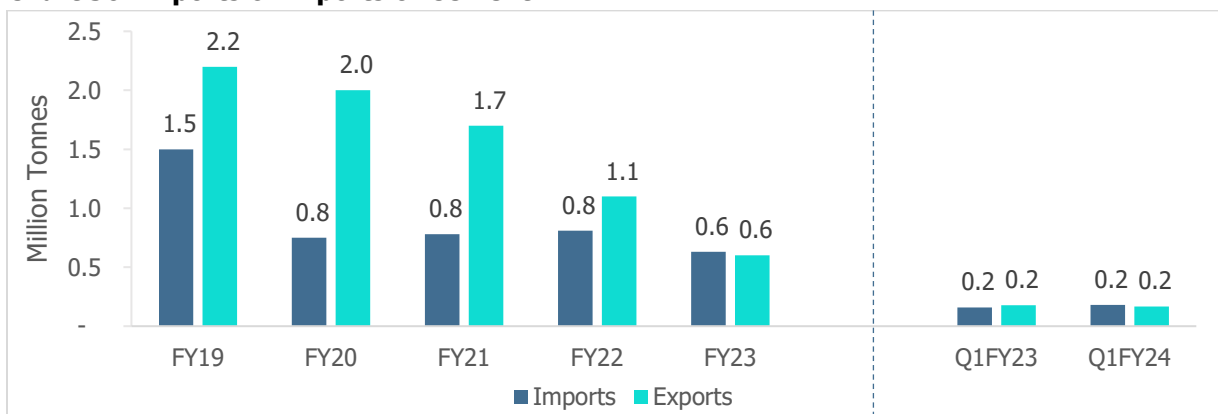
West region includes installed capacities in Gujarat and Maharashtra

Source: Industry Sources, CareEdge Research

3.6 Trade Scenario

India has remained a net exporter of cement during the last five years. Exports declined from 2.2 MT in FY19 to 0.6 MT in FY23. Similarly, imports also contracted from 1.5 MT in FY19 to 0.6 MT in FY23. In Q1FY24 imports & exports have been flat on a y-o-y at 0.2 MT.

Chart 36: Exports & Imports of Cement

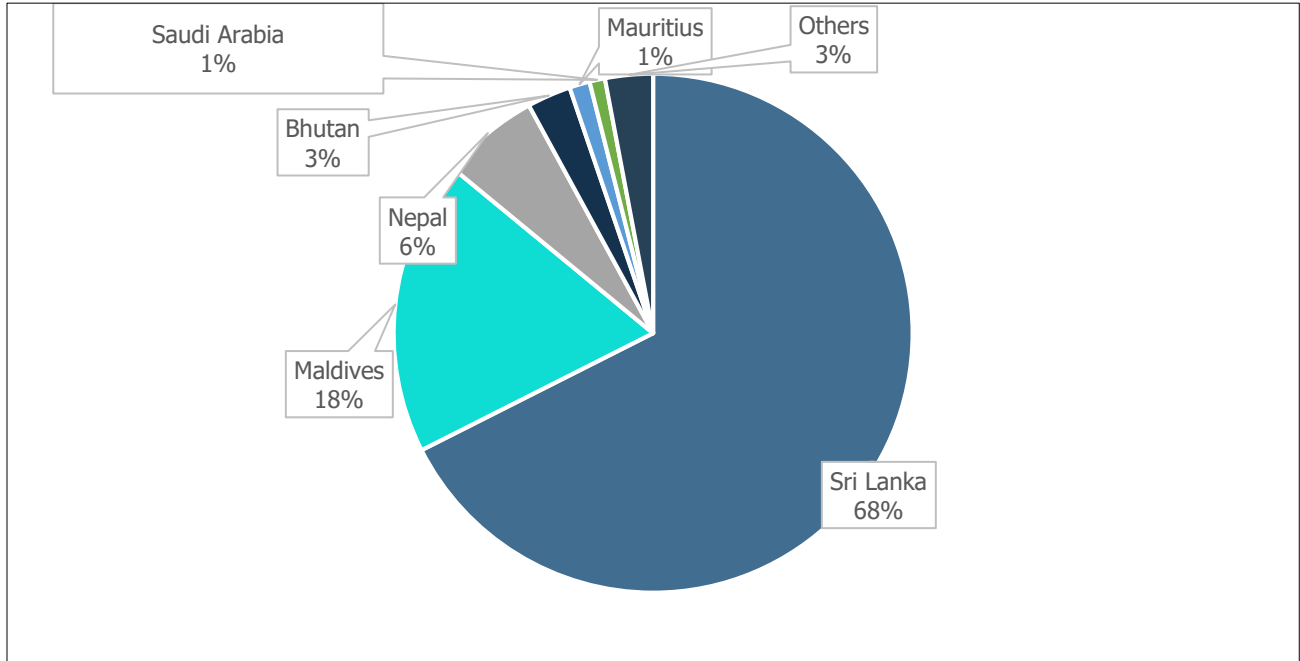


Source: CMIE

India majorly exports cement to the neighboring country Sri Lanka, which accounts for 68% of Indian exports, followed by Maldives with the second-highest share of 18%.

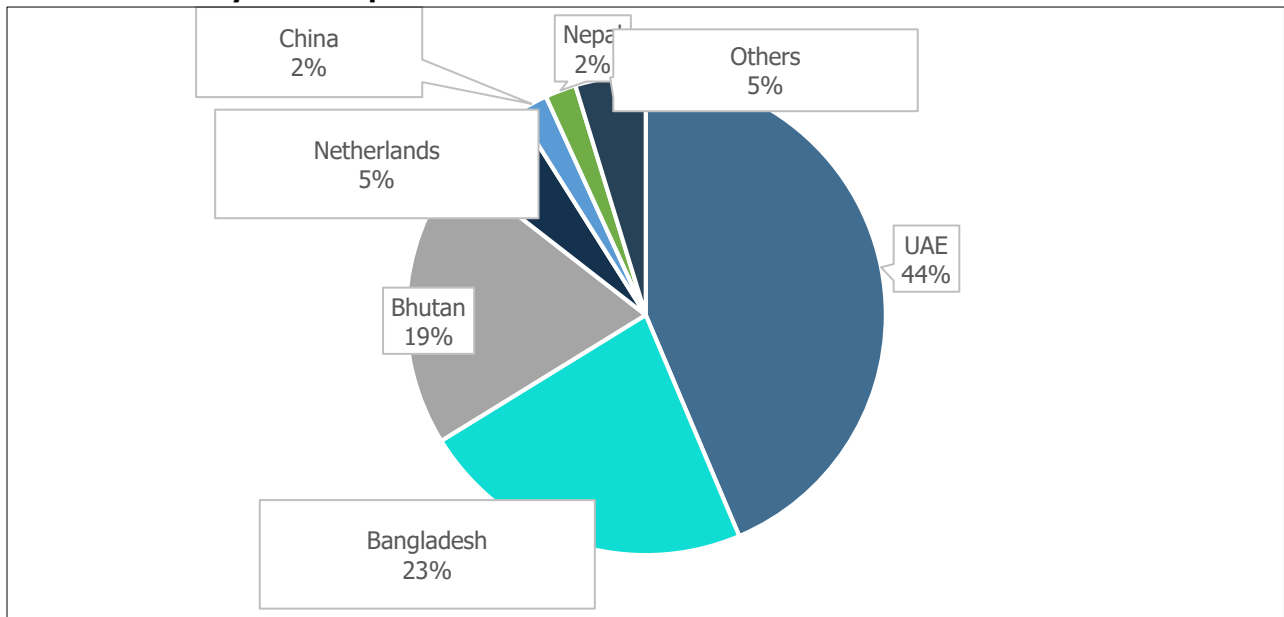
Whereas India imports cement majorly from the UAE, which accounts for a share of about 44% in total cement imports, followed by Bangladesh at 23% and Bhutan at 19%.

Chart 37: Country-Wise Export Mix of Cement in FY23



Source: CMIE

Chart 38: Country-Wise Import Mix of Cement in FY23

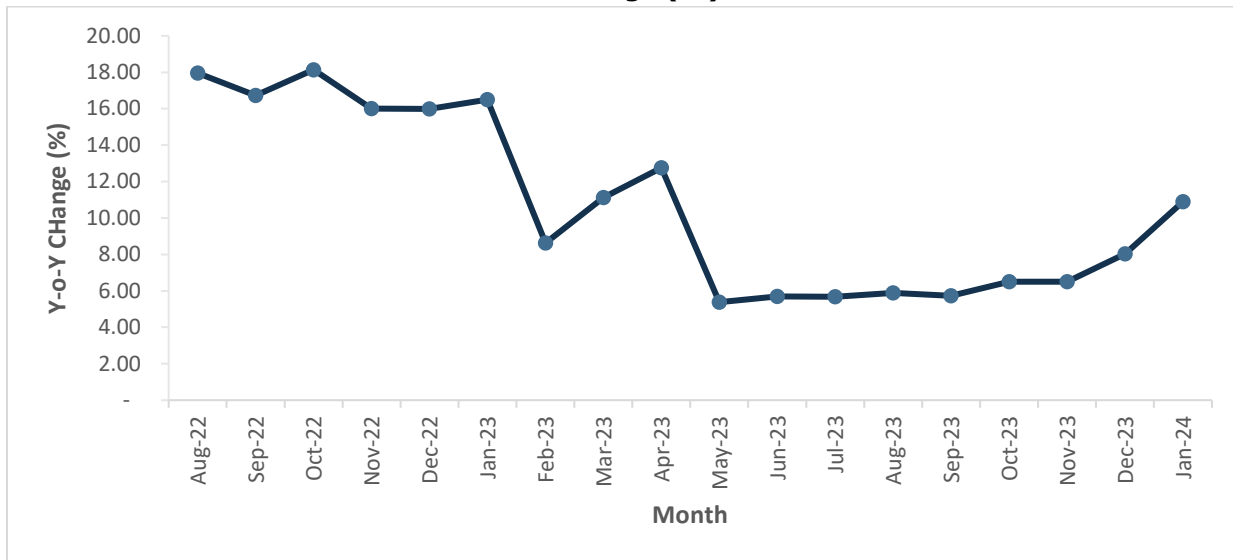


Source: CMIE

3.7 Cement Price Movement

Cement Prices continue to rise on Y-o-Y basis on account of increased raw material costs historically due to rise in Inflation and supply chain disruption. Price increase started in 2022 with Russia- Ukraine conflict which led to increase in cost of Petcoke, Brent Crude and international coal prices. Due to pressure on margins the cost was passed to consumers which has led to increase in cement prices in India. Below chart shows Y-o-Y change in percentage terms.

Chart 39: Cement Price Movement Y-o-Y Change (%)

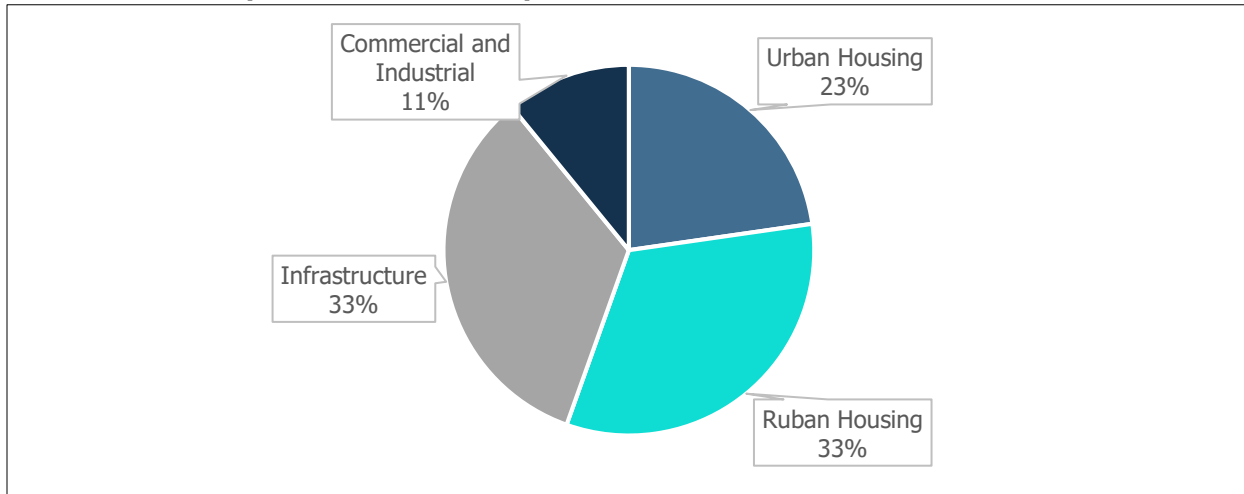


Source: CMIE

3.8 Demand Drivers

The cement demand is strongly tied to the broader economic expansion, especially in the housing and infrastructure sectors. Approximately 56% of this industry's demand stems from the housing sector, encompassing affordable housing initiatives. The government's substantial investments in infrastructure development, including road construction, railways, highways, rural development, and transportation projects like metro rail, are favourable indicators for the cement industry.

Chart 40: Break-up of Cement Consumption



Source: Company Reports, CareEdge Research

• **Government’s Focus on Infrastructure & Real Estate Development**


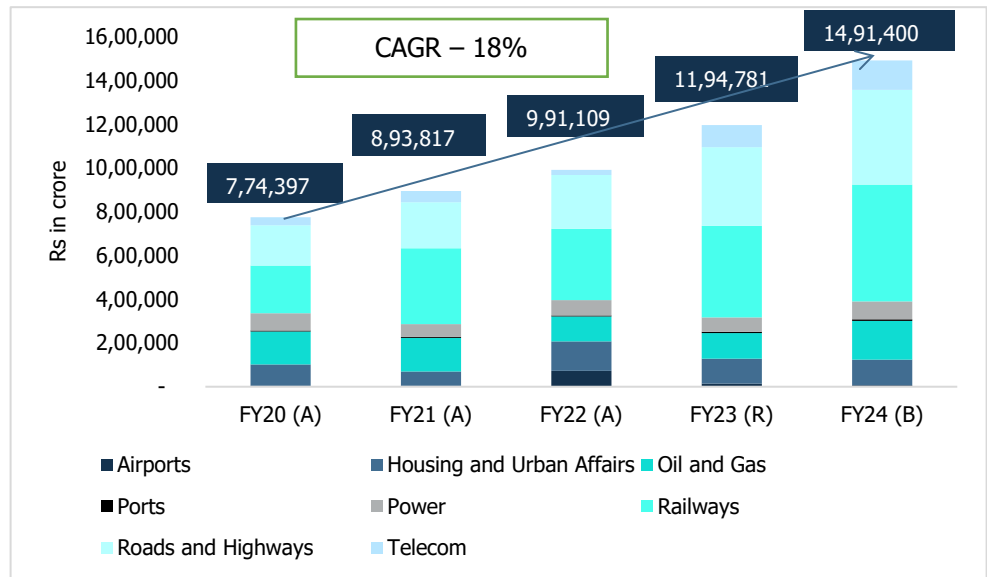
Segments	
 <p>Construction and Infrastructure</p>	<p>In the Union Budget 2023-24, the government continued its focus on infrastructure development with the allocation of Rs 10,00,000 crore toward infrastructure capital expenditure, an increase of 33% over allocation under the Union Budget 2022-23. Total allocation toward infrastructure, including investments in public enterprises, stood at Rs. 14,91,400 crore, an increase of 24.8% over revised estimates of 2022-23.</p> <ul style="list-style-type: none"> • The government has expanded the National Infrastructure Policy (NIP) to 7,400 projects from 6,835 projects and announced plans for the National Monetization Pipeline and Development Finance Institution (DFI) to improve the financing of infrastructure projects. • The NIP covering rural and urban infrastructure, entails investments to the tune of Rs. 111 lakh crore, which is being undertaken by the central government, state governments and the private sector during FY20-25. • Moreover, the alignment of PM Gati Shakti National Master Plan and NIP will aid in debottlenecking hurdles for faster execution of projects. • The budget towards infrastructure grew on a CAGR of about 18% in the past five years from FY20 to FY24.

Chart 41 : Budget Allocation Towards Infrastructure*



Source: Union Budget 2022-23

Note: A – Actual budget; R- Revised budget; B- Budgeted

*Including investments in public enterprises



Road Infrastructure

- India’s road infrastructure has seen consistent improvement in the last few years. For instance, connectivity has improved and road transportation has become a focus of rapid development.
- Total highway construction in India during the period FY23 was 10,993 km compared to 10,457 km in FY22, indicating a construction run rate of 30 km per day.
- The highway construction activity remained flat in FY23, mainly due to a decline in project awarding activities by 2.8% to 12,375 km in FY23 compared to 12,731 km in FY22.
- This slowdown can be attributed to an increase in input cost, longer-than-usual monsoon, and problems related to land acquisition and environmental clearance.
- About 12,000 km of highways are expected to be constructed in FY24 at an estimated capital expenditure of Rs 4 lakh crore.



Residential Real Estate

- In FY23, the residential real estate market witnessed steady growth with increased sales momentum supported by past inventory levels and continued new project launches specifically in the affordable and mid-size segments.
- The housing market in general is seeing growth due to an increase in commercial activities, the need for upgraded infrastructure and living spaces, and an improved economic scenario.
- Growth in various sectors like BFSI and e-commerce segment, increase in savings due to the work-from-home trend in the last 2 years, and growing demand for better spaces to live have led to an increase in first-time home buyers. Also, there has been a rise in the mid-segment housing projects due to increased urbanization and per capita income.
- Government initiatives like Pradhan Mantri Awas Yojna (PMAY), the Urban Development Plan and the digitization of land records have also added to the growth in the sector. The rural and urban housing construction under the Pradhan Mantri Awas Yojana has gained traction in FY23.
- Under the PMAY scheme of the Union Ministry of Housing and Urban Affairs, more than 1.19 crore houses have been sanctioned under the PMAY-Urban, out of which 77.02 lakhs have been completed as of September 25, 2023, and the rest are under construction.
- In addition to that, about 2.94 crore houses have been sanctioned under PMAY-Gramin out of which 2.45 crore have been completed.



Commercial Real Estate

- In FY23, the commercial real estate market witnessed booming demand from office and retail segments, backed by strong growth in the e-commerce industry and India emerging as the fastest-growing business and IT hub.
- The demand for office space will be driven by the expansion of the co-working segment, an increase in hiring across various sectors like e-commerce, services, etc., and increased connectivity due to the augmentation of infrastructure and overall sound economic growth in India
- The absorption of commercial real estate in India is expected to remain healthy in the near to medium term.



Airport Infrastructure

- India has seen significant growth in the airport infrastructure sector with investments from both the government and private sector. The country has become the third-largest domestic civil aviation market in the world and has immense potential to grow further.
- The Ministry of Civil Aviation (MoCA) envisages 100 new airports to be built in the country over the next 10 to 15 years. To further improve regional air connectivity, the government has announced the revival of 50 additional airports, heliports, water aerodromes, and advanced landing grounds and allocated Rs 3,113 crore in the Union Budget 2023-24.
- Further, the government has envisaged an investment of more than Rs. 1,43,000 crore in airports under the National Infrastructure Pipeline (NIP) over a period of 5 years.

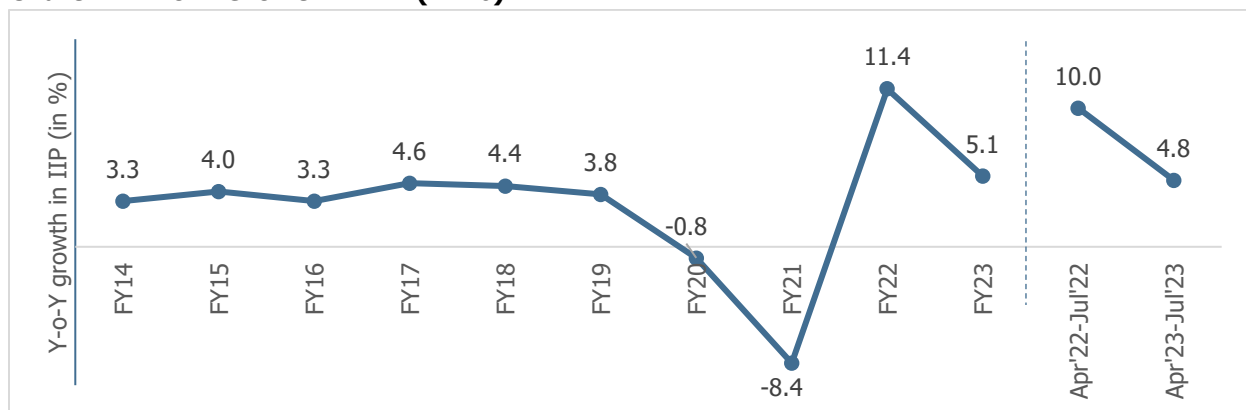
• **Growth in Industrial Sectors**

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 was aided by the strong 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.

Driven by favourable government policies and initiatives such as Make in India and Performance Liked Incentives the industrial sector is expected to record healthy performance in the near to medium term, thereby providing a stimulus to cement demand.

Chart 42: Y-o-Y Growth in IIP (in %)



Source: MOSPI

- **Cement Consumption Gap**

Despite being the world's second-largest cement producer, India lags behind the global average in cement consumption. This indicates significant growth potential. Historical trends demonstrate that as the country undergoes development, infrastructure is a key focus of the government, which leads to rise in cement demand.

3.8.1 Growth drivers in Gujarat

Gujarat has experienced significant growth in the cement industry due to various factors. Several drivers contribute to the growth of the cement sector in the state:

- **Infrastructure Development:** The demand for cement in Gujarat is closely linked to infrastructure development projects. The state has been witnessing substantial investments in infrastructure, including roads, bridges, ports, and urban development. The development of smart cities and industrial corridors has further boosted the demand for construction materials, including cement.
- **Industrialization:** Gujarat is known for its industrial growth, and the establishment of various industries has led to a rising demand for commercial and industrial infrastructure. The construction of factories, warehouses, and industrial estates contributes to the growth.
- **Urbanization and Real Estate:** Gujarat has seen rapid urbanization, with the growth of cities and towns. The construction of residential complexes, commercial spaces, and infrastructure associated with urbanization has driven the demand for cement.
- **Government Initiatives:** Government initiatives and policies promoting infrastructure development, affordable housing, and industrial growth contribute significantly to the demand for cement. Schemes like Pradhan Mantri Awas Yojana (PMAY) and Swachh Bharat Abhiyan drive construction activities, creating a positive impact on the cement industry.
- **Port and Maritime Activities:** Gujarat has several major ports, contributing to trade and commerce. The development of port infrastructure and maritime activities requires substantial construction, contributing to the demand for cement.
- **Investments in Key Sectors:** Investments in sectors such as petrochemicals, textiles, and manufacturing have spurred economic growth in Gujarat. The establishment of new industries and expansion of existing ones lead to increased construction and infrastructure requirements, driving cement consumption.
- **Proximity to Raw Materials:** Gujarat's proximity to raw materials like limestone, which is a key component in cement production, has been an advantage for the cement industry. Easy access to raw materials contributes to cost-effectiveness and production efficiency.
- **Government Support:** Supportive government policies, ease of doing business, and a favorable regulatory environment play a crucial role in the growth of the cement industry.

3.9 Challenges

The cement industry in India has witnessed systematic and gradual advancement over the years. Alongside this, there are several challenges faced in the current scenario in the cement industry.

Below are some of the key challenges:

- **Inability to fully pass on the increase in input prices:** The domestic demand for cement is price-sensitive. Accordingly, the cement players have been unable to pass on the increase in input prices fully to the end-users. In FY23, the sharp increase in coking coal prices led to an increase in production costs. However, the players were unable to take any significant price hikes, which led to a 590-bps y-o-y decline in the EBITDA margins. This remains a risk to the profitability of cement players.

- **Environmental Regulations:** The cement industry is a major contributor to air pollution and greenhouse gas emissions. Stringent environmental regulations have been put in place to reduce emissions, which require significant investments in cleaner technologies and pollution control measures. The cement industry is required to comply with various environmental acts and regulations covering different spheres of the environment like emissions of air pollutants, consumption of water, generation and discharge of trade effluents, utilisation and storage of hazardous waste, noise generation, and utilisation of forest land and wildlife areas. Compliance with these regulations can be costly and challenging.
- **Energy Costs:** The cement manufacturing process is energy-intensive, and the industry is highly dependent on fossil fuels. Energy cost represents almost 30% to 35% of the overall expenses of manufacturing cement. Therefore, it is critical for the industry to explore the latest technologies and alternative ways of becoming energy-efficient. Moreover, fluctuating energy prices and the need to reduce carbon emissions have put pressure on cement manufacturers to adopt alternative energy sources and more energy-efficient technologies.
- **Logistics and Transportation:** The cement industry relies heavily on the efficient transportation of raw materials and finished products. Poor infrastructure and transportation bottlenecks can lead to delays and increased costs. Furthermore, poor road infrastructure and vehicle movement restrictions on routes passing through villages and towns, add to delays and underutilisation of logistics assets, incurring more input costs.
- **Land Acquisition and Permitting:** Setting up new cement plants or expanding existing ones often requires acquiring land and obtaining various permits and approvals. Land acquisition can be time-consuming and may face opposition from local communities concerned about environmental impacts.
- **Technological Upgradation:** To stay competitive and meet environmental standards, cement manufacturers must continuously invest in modernizing their production processes. This requires substantial capital expenditure and technical expertise.
- **Skilled Labor Shortage:** Cement manufacturing requires a skilled workforce. Finding and retaining skilled labour can be a challenge, especially in remote or rural areas where many cement plants are located.

3.10 Government Policies and Regulations

The government has from time to time announced schemes with regards to infrastructure development including affordable housing which augurs well for the cement industry. The central government continues to focus on increasing capex outlay to spur growth in light of the 2024 general elections. The infrastructure CapEx for FY2023-24 (Budget Estimate) at Rs. 10 lakh crores is almost three times of the capital expenditure in FY2019-20. The Government also increased outlay on railways and included plans for 50 new airports in the Union Budget 2023-24.

The capex increase is in line with the central government's aim to make growth more inclusive as investment in infrastructure and productive capacity have a multiplier effect on economic growth. The public sector capex has focused on improving the connectivity within the country, with the allocation towards highways and railways surging from 35% of total infrastructure capex in FY18 to 64% in FY24.

Some of the measures undertaken by the government are stated below:

a. PM GatiShakti

This scheme was launched in October 2021. The PM GatiShakti - National Master Plan for Multi-modal Connectivity is primarily a digital platform to bring several ministries together to ensure integrated planning and coordinated implementation of infrastructure connectivity projects. The approach under this scheme will be driven by 7 engines:

- Roads
- Railways
- Airports
- Ports
- Mass transport
- Waterways
- Logistics infrastructure

In the Union Budget 2022-23, the government announced that projects pertaining to these 7 engines in the National Infrastructure Pipeline will be aligned with PM GatiShakti framework.

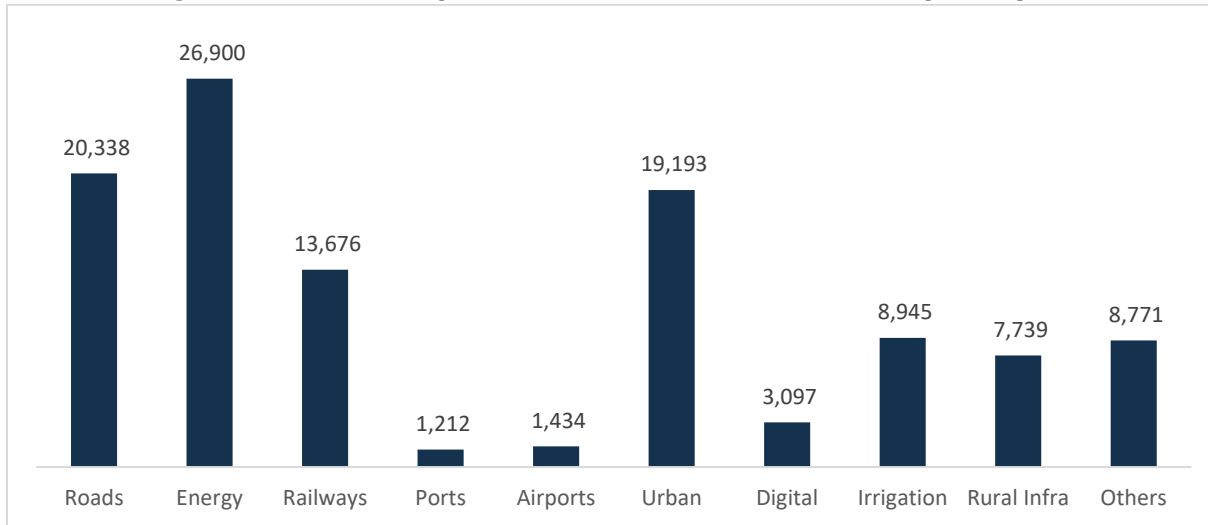
In addition, PM GatiShakti will also include infrastructure developed by State governments as per the GatiShakti Master Plan. Further, assistance will be provided to states for PM GatiShakti related investments and other capital expenditure through allocation of Rs 1 lakh crore through 50-year, interest-free loans to states. This assistance will be beyond the normal borrowings allowed to the States.

Some other initiatives as part of PM GatiShakti announced in the budget include target to expand National Highways network by 25,000 km, master plan for expressways to be formulated, contracts for multimodal logistics parks in four locations to be awarded, 100 cargo terminals to be developed in next 3 years, innovative ways of financing metro projects, development initiative for North East (PM-DevINE) etc.

Prime Minister announced a National Master Plan as a critical tool for integrating economic and infrastructural planning and development. Under PM GatiShakti 100 infrastructure gap projects have been prioritised for development in FY2023-24 with Rs 75,000 crore allocated to it.

b. National Infrastructure Pipeline (NIP)

NIP was launched in December 2019 with a focus on infrastructure development in order to enable the country to achieve its target of USD 5 trillion economy by FY2025. A taskforce was created to set up the pipeline. In the final report submitted by the task force in April 2020, the pipeline covers multiple sectors such as urban infrastructure, renewable and conventional energy, roads and railways that constitute nearly 71% of the projected total capex of Rs 111 trillion. It also includes investments in other sectors such as rural infrastructure, ports, airports among others. The proposed investments will be implemented by both the government and the private sector.

Chart 43: Segment-Wise Breakup of NIP Investments over FY20-25 (Rs. Bn)


Source: Report of the Task Force, NIP, CareEdge Research

During FY20-25, sectors wise breakup of NIP investment is with energy contributing the highest at Rs 26,900 Bn around 24% of the total plan followed by roads Rs. 20,338 Bn at 18%, urban Rs. 19,193 Bn at 17%, and railways with an investment of Rs. 13,676 which contributes 12% amount to ~71% of the projected infrastructure investments in India.

b. Pradhan Mantri Awas Yojana (PMAY)

PMAY was launched in June 2015 under the 'Housing for All' initiative to provide low cost affordable housing to urban and rural poor.

Under PMAY-Urban scheme, a pucca house will be provided to economically weaker sections/low income group (EWS/LIG) and middle-income group (MIG) categories including the slum dwellers. As of September 2023, more than 1.18 crore houses have been sanctioned under the PMAY-U, out of which more than 77.02 lakhs have been completed and the rest are under construction. The Mission has been extended up to 31st December 2024.

Under PMAY – Gramin scheme, a pucca house will be provided to all rural homeless and those households living in kutcha and dilapidated houses. Against a revised estimate of Rs.48,422 Crore for FY 2022-23, an amount of Rs. 28,520 crore has been released under PMAY-G as on 31st January 2023. A total of 3.13 Crore houses have been completed as on 27th September, 2023, under this scheme.

Numerous significant projects within the Pradhan Mantri Awas Yojna (PMAY) are expected to reach completion during the current fiscal year. In the Union Budget for 2024, the allocation for PMAY was increased to a total of Rs. 79,590 crore.

3.11 Industry Trend

Some of the key industry trends in the Indian cement sector are mentioned below:

• Industry Consolidation

The cement industry has seen consolidation in the past few years. Some of the recent transactions include:

- Acquisition of Holcim Group's 63.11% stake in Ambuja Cement (which holds 50.05% in ACC Limited) and 4.48% direct stake in ACC Limited in September 2022.
- Dalmia Cement's acquisition of Jaiprakash Associates' cement plants (under approval)

The consolidations are expected to enable the resultant entities to have better economies of scale and operating synergies thereby improving market reach, efficiency and profitability.

• ESG Initiatives

Optimising Specific Energy Consumption

The energy efficiency within the cement industry is measured as a combination of two factors – thermal-specific energy consumption and electrical-specific energy consumption. Currently, about 99% of the Indian cement companies have transitioned to a water-efficient dry process technology, thereby conserving a significant fraction of energy in drying the raw mix. The implementation of process optimisations, installation of the latest generation of clinker coolers, grinding systems, multichannel burners, and digitalisation have enhanced the energy efficiency of the cement industry.

Waste Heat Recovery System (WHRS)

According to the Ministry of New and Renewable Energy (MNRE), the Indian Cement Industry has the highest potential (amongst identified sectors) to generate 1,100 MW (2016 estimates) of clean energy through the installation of WHRS. This capability continues to grow proportionately with increased cement manufacturing capacity, bringing it close to 1.3 GW at current production capacity levels. At full potential, WHRS would help replace the energy requirement equivalent to 8.6 million tonnes of coal, resulting in emissions savings of 12.8 million tonnes of CO₂ (MtCO₂) by the Indian cement industry.

Green Growth Initiatives

The Indian cement industry has been implementing significant technological measures to reduce emissions. The industry has voluntarily devised a Low Carbon Technology Roadmap aimed at reducing its direct CO₂ emission intensity by 45% by 2050 from a 2010 baseline. Over the years, the Indian cement industry has developed blended types of cement to the extent of 73% in 2017 compared to 28% in 1992.

Some of the initiatives by the cement companies are as below:

- Major cement companies plan to invest around Rs. 55 billion toward renewable energy in the next couple of years. The companies plan to add 537 MW of green power, including Solar and Waste Heat Recovery Systems (WHRS), during the period.
- In August 2023, the corporate renewable energy solutions provider Vibrant Energy signed an agreement with UltraTech Cement to provide 21.60 MW of wind projects in Maharashtra. The project will deliver green power to UltraTech Cement's multiple facilities in Maharashtra. The project is likely to generate about 72 million units of green power on an annual basis, which would help UltraTech Cement reduce its carbon footprint.

- In October 2022, UltraTech announced that it has been granted Environmental Product Declaration (EPD) certificates for four of its cement products, which are Ordinary Portland Cement (OPC), Portland Pozzolana Cement (PPC), Portland Slag Cement (PSC), and PCC (Portland Composite Cement).
- Dalmia Cement (Bharat) Limited and Carbon Clean Solutions have teamed up to build the cement industry’s largest Carbon Capture Plant. The carbon capture plant is a large-scale facility of 500,000 tonnes per year of carbon capture in Tamil Nadu, India. Further, Dalmia Cement signed a Memorandum of Understanding with Carbon Clean Solutions Limited (CCSL) the U.K., a leader in low-cost carbon dioxide separation technology to provide technology and operational services for the plant based on its patented CDRMax Technology.

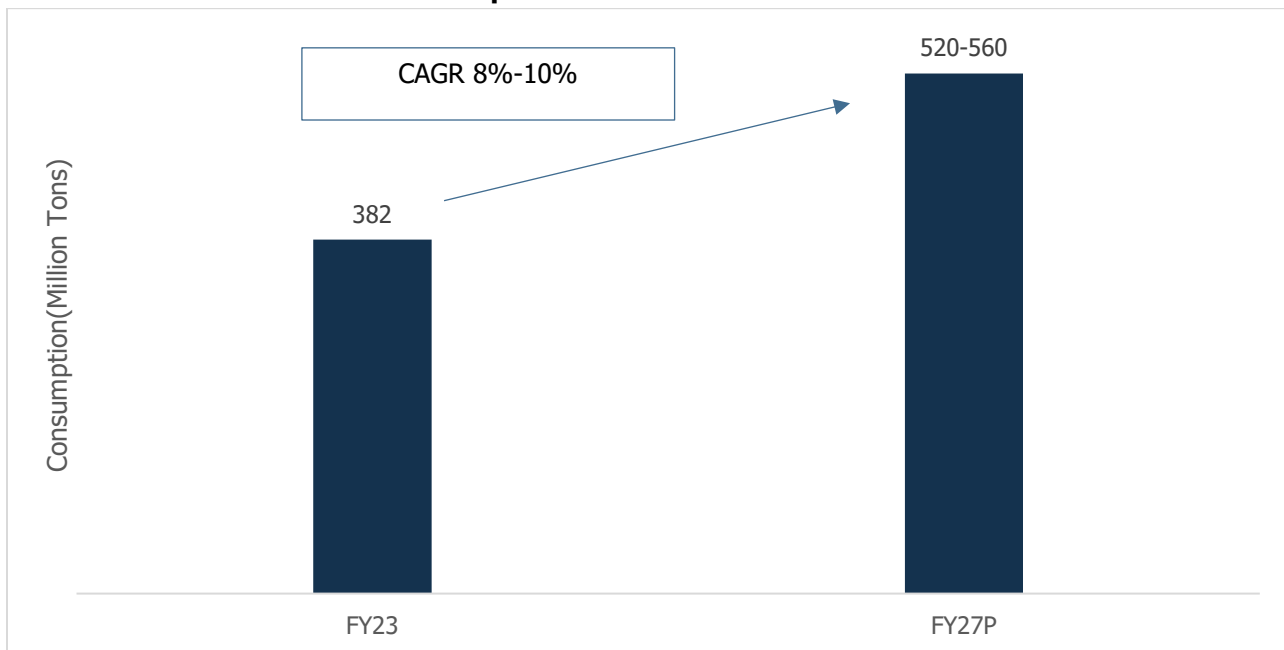
• Digitalization and Automation

Cement manufacturers are investing in digitalization and automation to enhance operational efficiency, reduce energy consumption, and optimize production processes. This trend includes the use of IoT (Internet of Things) sensors, AI (Artificial Intelligence), and data analytics.

3.12 Outlook

The cement demand is expected to grow by a CAGR of 8-10% over FY23-27 to reach 520-560 MT driven by a growing government push for infrastructure development especially in the rural segment, urban housing growth, and public infrastructure developments like metros, NHAI, smart cities, etc., in different regions of India.

Chart 44: Domestic Cement Consumption Outlook



Note: P- Projected; Source: CareEdge Research

The central government is expected to continue its infrastructure focus in FY24 as it is the pre-election year. The announced CapEx of Rs. 10 lakh crores for 2023-24 (Budget Estimate) is almost three times the capital expenditure in FY2019-20 and is focussed towards the development of highways, internal road connectivity, and railways.

Similarly, the government has increased the allocation to the PM Awas Yojana, with budgetary allocation higher by 66% for FY24, which will further support strong cement demand. The private CapEx is also expected to pick up in the coming years with the support of rising domestic demand and policies like the PLI scheme announced by the government for 13 manufacturing sectors.

Moreover, increased spending on infrastructure & real estate and low per capita consumption of cement augur well for India's cement industry. The domestic cement volumes are expected to witness steady growth in the medium term with Central and Eastern regions witnessing higher traction.

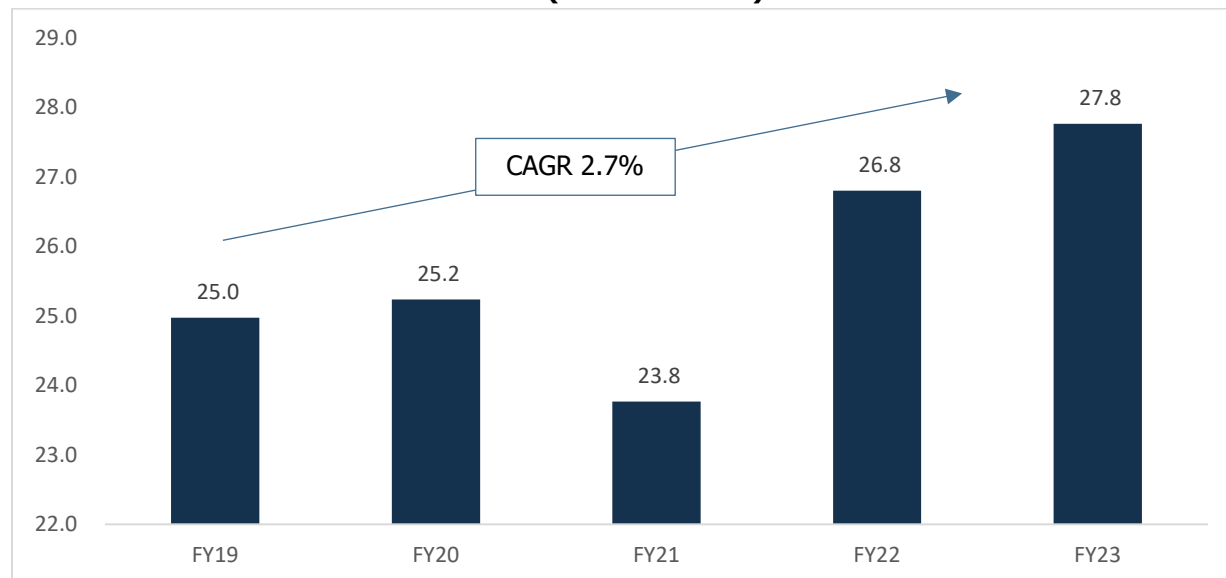
Accordingly, the long-term outlook of the industry is expected to be driven by infrastructure impetus provided by the government as evidenced by continuously increasing budgetary allocation.

Several schemes have been announced to aid the development and improvement of public infrastructure - roads, highways, metros and railways, airports, ports, logistics infrastructure, etc., and initiatives like PM Gati Shakti, National Infrastructure Pipeline (NIP), Urban Rejuvenation Mission: AMRUT, and Smart Cities Mission. In addition, schemes such as Pradhan Mantri Awas Yojana (PMAY), particularly aimed at affordable housing, are likely to drive the low-cost housing segment.

3.13 Overview of the Clinker Segment

Clinker is an intermediate product used in manufacturing of cement. It is a mix of limestone and minerals that have been heated in a kiln. The Clinker production in India has grown at a CAGR of 2.7% from 25 MT in FY19 to 27.8 MT in FY23

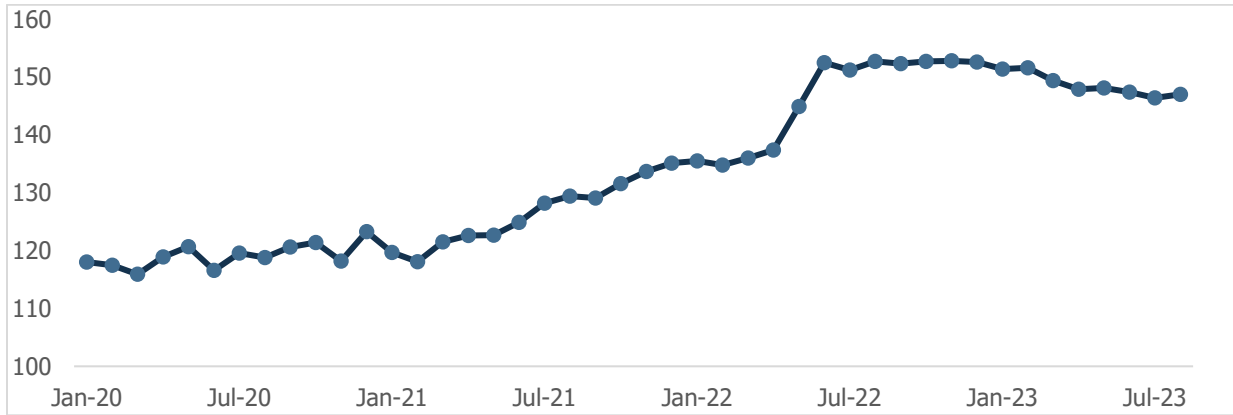
Chart 45: Production of Clinker in India (Million Tonnes)



Source: CMIE

The prices of clinker have been on a rise with an increase of 13.6% in the past 2 years.

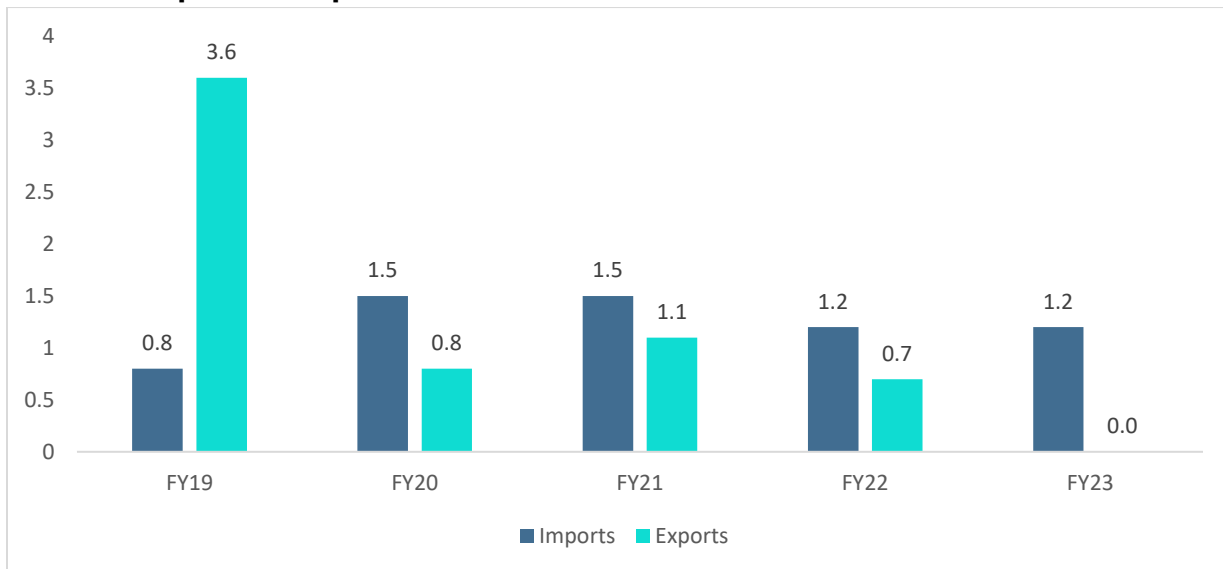
Chart 46: WPI of Clinker: Base Year 2011-12



Source: CMIE

Clinker exports have declined from 3.6 MT in FY19 to just 4,000 Tonnes in FY23 while India imports around 1-1.5 MT of clinker per year.

Chart 47: Import and Export trend for clinker



Source: CMIE

4 Overview of the Global Cement Market

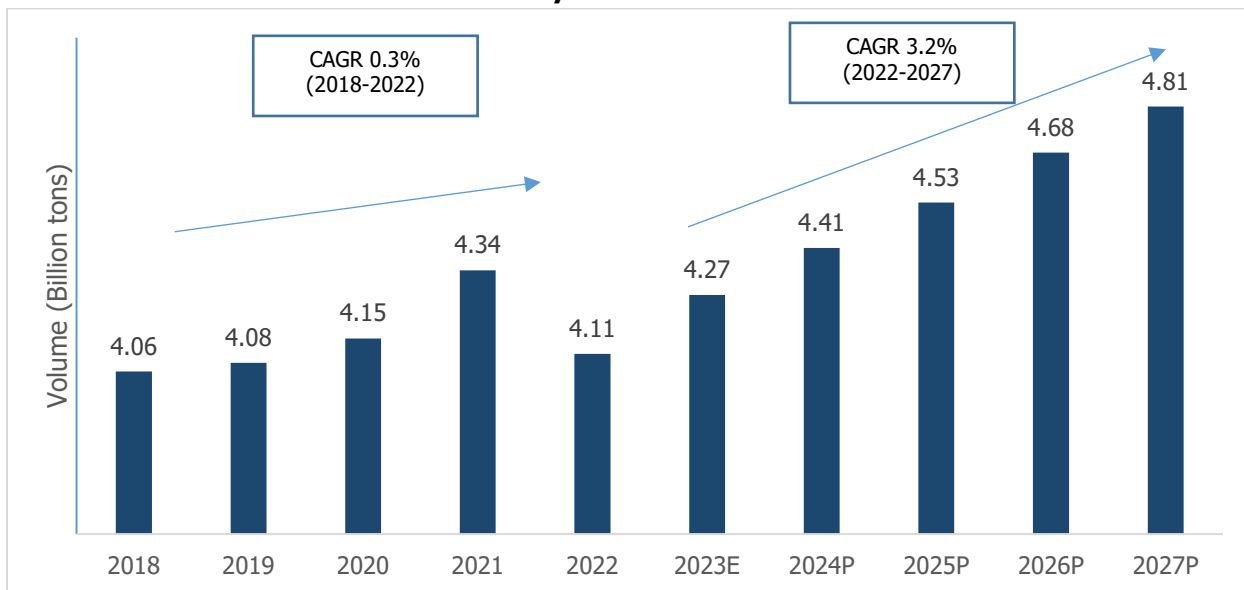
4.1 Market Trend

The world consumes over 4 billion tons of cement annually. In the past five years, cement consumption has increased from 4.06 billion tons in 2018 to 4.11 billion tons in 2022. In addition, the global cement industry’s market size has witnessed notable expansion in the past five years (2018-2022).

The global cement sector is witnessing robust growth driven by rapid urbanization, infrastructure development, favorable government initiatives & policies, rising disposable incomes, and increasing construction activities, especially in emerging economies.

In the short-medium term, the growing residential constructions across the Asia-Pacific region and the growing infrastructural activities in the Middle East & Africa region are among the factors expected to fuel the market demand. By the year 2027, the consumption is forecasted to reach 4.81 billion tons.

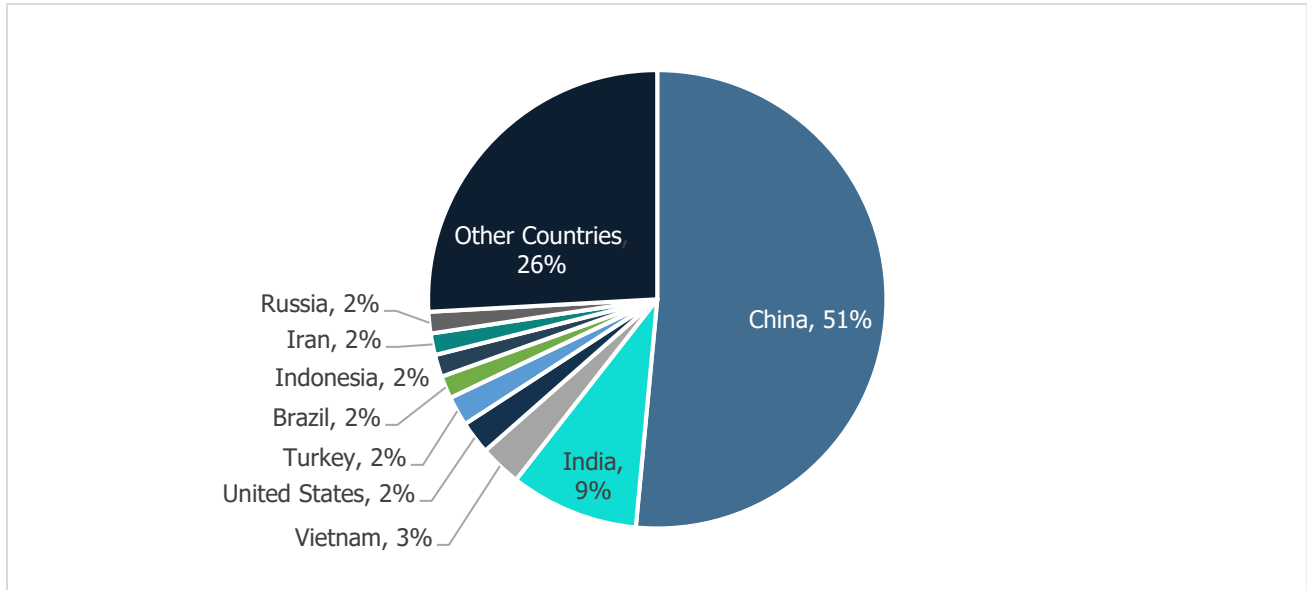
Chart 48: Global Cement Market Size – By Volume



Source: U.S. Geological Survey - Mineral Commodity Summaries (January 2023), CareEdge Research

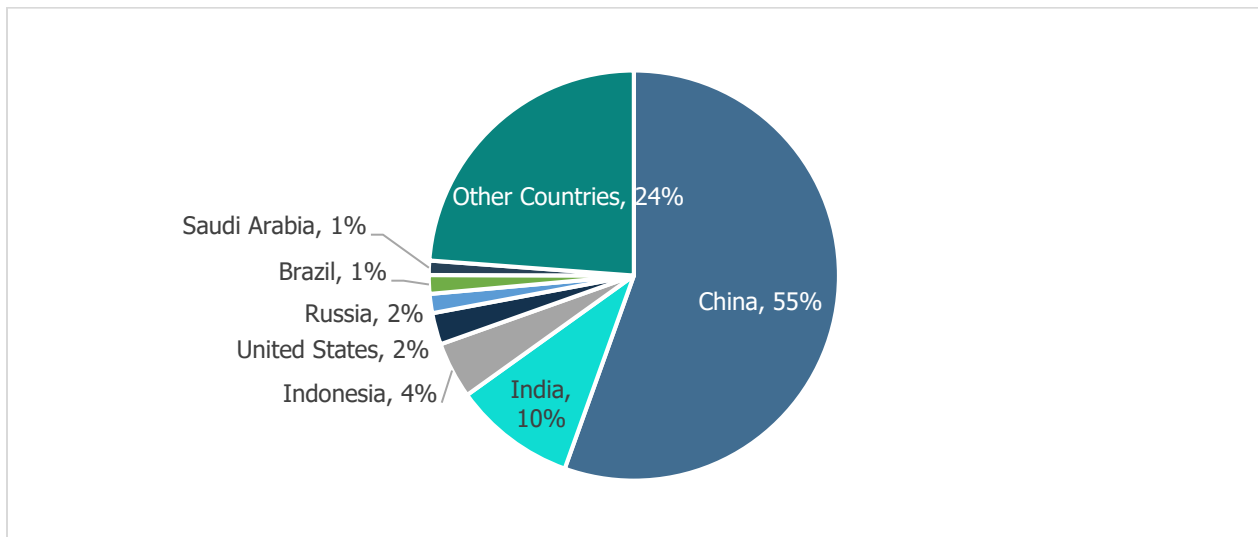
While China continues to dominate the world's cement production and accounted for a share of more than 50% in CY22, India accounted for the second-largest share at about 9.3% followed by the United States, Russia, and Egypt. In terms of cement consumption, China and India continued to claim the top two positions, followed by Indonesia, the United States, and Russia.

Chart 49: World Cement Production Ranking in 2022



Source: U.S. Geological Survey - Mineral Commodity Summaries (January 2023), CareEdge Research

Chart 50: World Cement Consumption Ranking in 2022

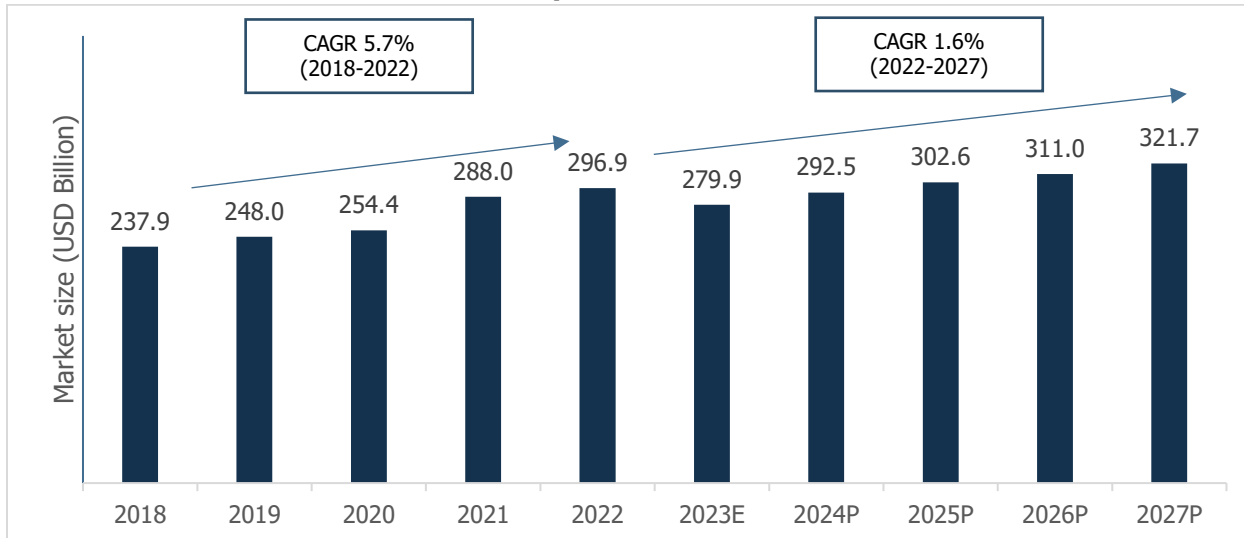


Source: Maia Research, Careedge Research

The global cement market size was estimated at USD 296.8 billion in 2022, registering a 5.7% CAGR in the past five years. Cement prices also soared from 59 USD per ton in 2018 to 72 USD per ton in 2022. Factors like geopolitical tensions, sticky inflation, and high energy prices led to increased input costs, which were shifted to the consumers.

In the forecast period 2022-2027, the global cement market is expected to register a 1.6% CAGR to reach the market size of USD 321.7 billion by 2027.

Chart 51: Global Cement Market Size – By Value



Source: Maia Research, Careedge Research

4.2 Investment Trend in Infrastructure

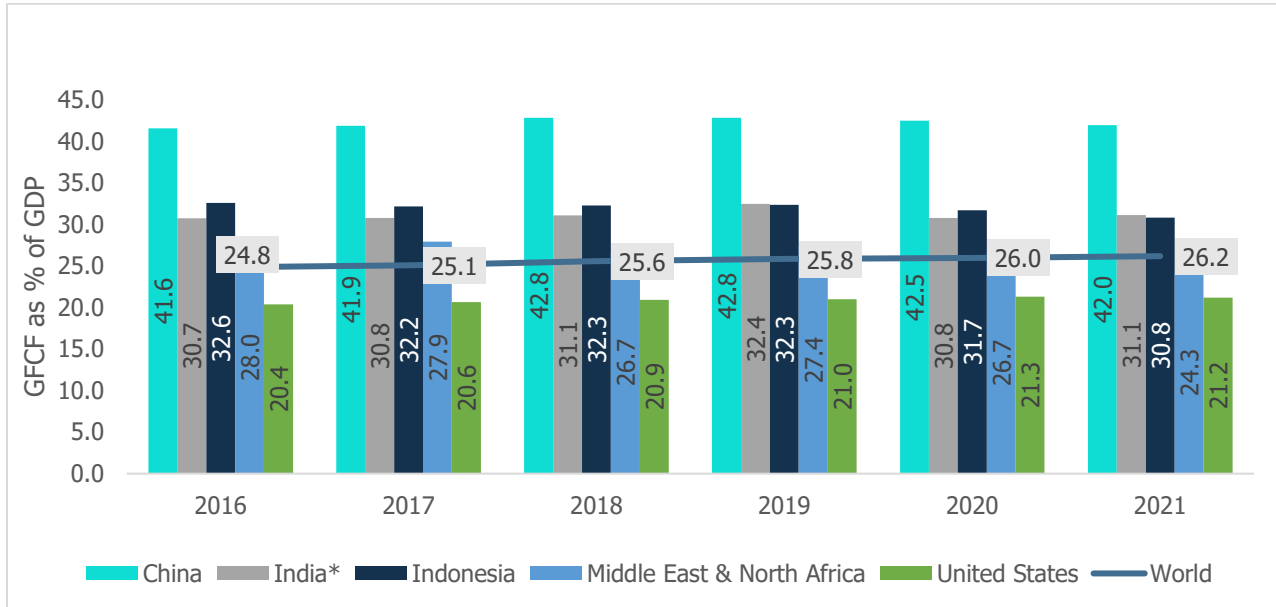
Increasing investment in the construction segment is one of the key factors for the sector's growth. With the population growing, the demand for residential construction has increased resulting in increased cement demand. The rising need for better public infrastructure and non-residential buildings is significantly supporting the cement market.

Further, Gross Fixed Capital Formation (GFCF), a measure of the net increase in physical assets has witnessed considerable growth over the years. The proportion of GFCF to GDP is a good measure of expenditure incurred towards construction in an economy.

The world economy spends about 26% of its GDP towards construction while, major cement-consuming countries like China, India, and Indonesia, spend more than the global average.

On the other hand, the United States spends slightly less than the global average. This increase in spending towards construction bodes well for the global cement market in the upcoming years.

Chart 52: Gross Fixed Capital Formation (% Of GDP) Trend for Major Cement Consuming Countries



Note: * For India fiscal year has been considered; Source: World Bank, MOSPI, CareEdge Research

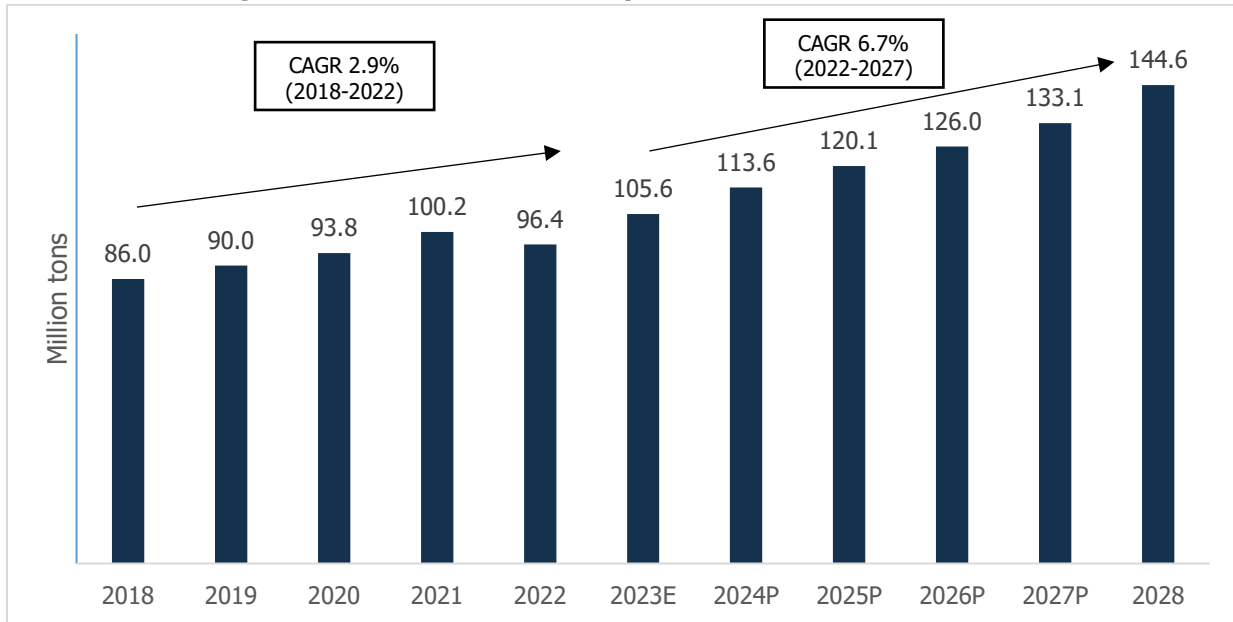
4.3 Cement Demand in Gulf Cooperation Council

The Cooperation Council for the Arab States of the Gulf, also known as the Gulf Cooperation Council (GCC), is a regional political and economic union of six nations: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE).

The cement consumption in GCC increased from 86 million tons in 2018 to 96.4 million tons in 2022. The Gulf region is witnessing massive urbanization and infrastructural development, which augurs well for the cement market since cement is an essential construction material.

Moreover, the hospitality sector has raised its investment in the Gulf nations to increase the supply of hotel rooms, as the country continues to diversify its economy from oil & gas to travel and tourism. For the forecast period 2022-2027, the market is anticipated to register a CAGR of 6.7% in volume terms.

Chart 53: Gulf Region Cement Market Size – By Volume



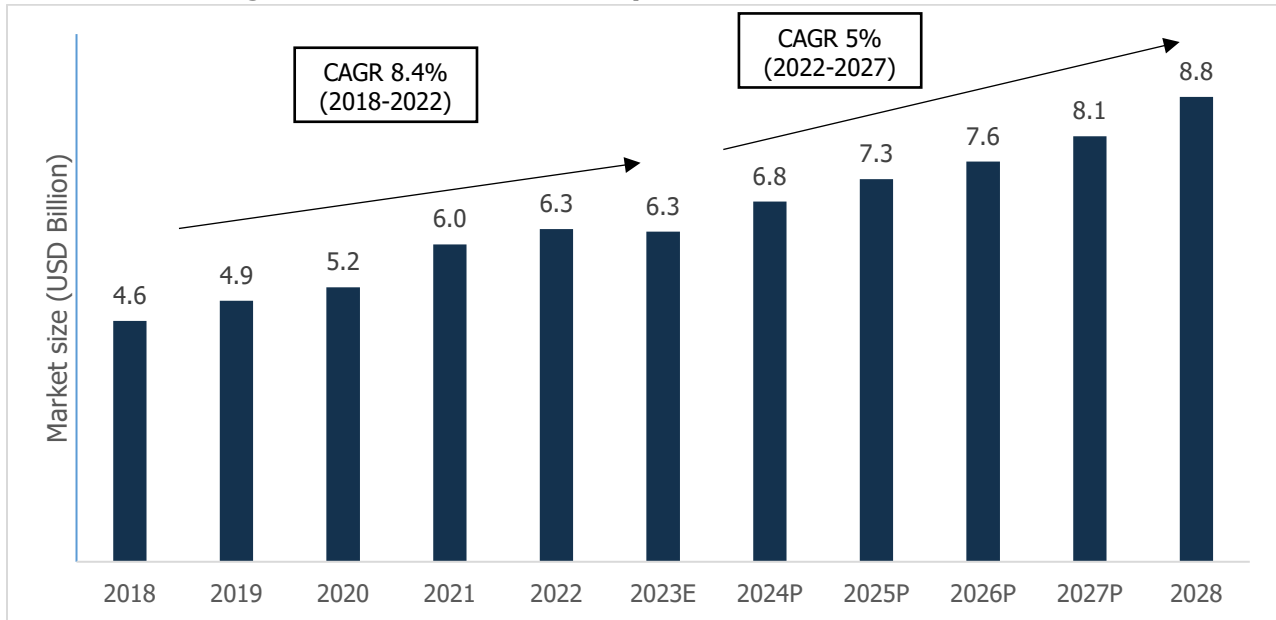
Source: Maia Research, Careedge Research

In the coming years, the construction industry in the Gulf market is expected to continue to grow, offering ample opportunities for cement suppliers. The GCC has a large portfolio of projects, including expansion of oil & gas industry capacity, new residential and commercial real estate, upgrades to transport, power, and water systems, major industrial development, and energy transition. Active international energy markets, high revenues from oil & gas exports, and inflows of foreign investment will help improve national finances and enable Gulf countries to support robust construction activities.

In the past five years (2018-22), the Gulf region’s cement market has witnessed strong expansion with a notable CAGR of 8.4% to USD 6.3 billion in 2022 from USD 4.6 billion in 2018. This growth is attributed to rapid infrastructural developments and growing tourism. The demand for cement in this region is largely backed by the giga projects boom.

Supported by strong infrastructure projects in pipeline along with high-speed rail and renewable energy projects at the forefront, the cement market is anticipated to register a CAGR of 5% in value terms for the forecast period 2022-2027.

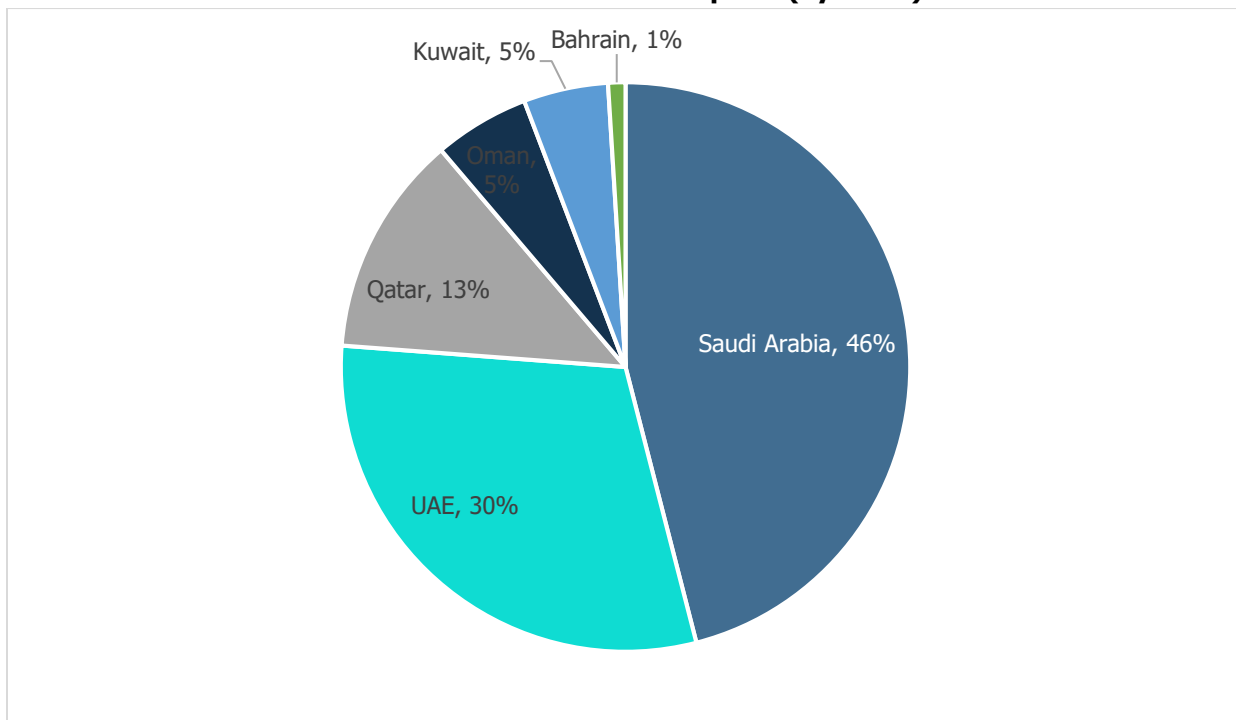
Chart 54: Gulf Region Cement Market Size – By Value



Source: Maia Research, Careedge Research

Saudi Arabia accounts for largest share in cement consumption by value with 46%, followed by UAE 30%, Qatar 13%, Oman 5%, Kuwait 5%, and Bahrain 1%.

Chart 55: Share of Gulf Countries in Cement Consumption (by value)



Source: Maia Research, Careedge Research

Major Demand Drivers in Gulf Region

Saudi Arabia

- **Saudi Arabia**, the largest and most populous country in the GCC, currently has more than 5,200 construction projects underway. These projects are worth USD 819 billion, accounting for 35% of the total value of active projects in the GCC. Saudi Arabia's construction surge is driven by significant investment in transport, renewable energy, housing, and tourism projects.
- The country plans to reduce its dependence on oil, diversify its economy, and develop its public services sectors.
- The USD 500 billion **NEOM city project** is an important part of the Saudi Vision 2030 plan. The prefabricated construction market in Saudi Arabia is expected to grow in the coming years due to the lack of affordable housing in the Kingdom due to population growth and expatriate inflow. The Saudi Arabian government is also developing green infrastructure and mixed-use development concepts.

UAE

- In the **UAE**, tourism construction in Dubai will boost the construction industry. The UAE government is focused on investing in energy and infrastructure, including transport, utilities, decarbonization, renewable & nuclear power generation, and addressing ongoing water shortages. The government's significant commitment and resources have resulted in many projects and opportunities for construction and engineering companies in the UAE.
- Significant projects include Abu Dhabi National Oil Company's (ADNOC) Al-Nouf seawater treatment plant, Dubai Municipality's plans to build a strategic sewer tunnel, and other construction projects such as the Mina Rashid Redevelopment in Dubai, and the Dubai International Financial Center Expansion 2.0.
- The UAE construction industry stakeholders are increasingly interested in adopting alternative financing models such as public-private partnerships (PPPs) for construction projects. For example, Abu Dhabi's USD 14 billion "Ghadan 21" accelerator program is being implemented through the purchase of more than USD 2.72 billion in infrastructure cooperation projects in various sectors such as education, municipal engineering, and transportation industries.

5 Transport Sector in India

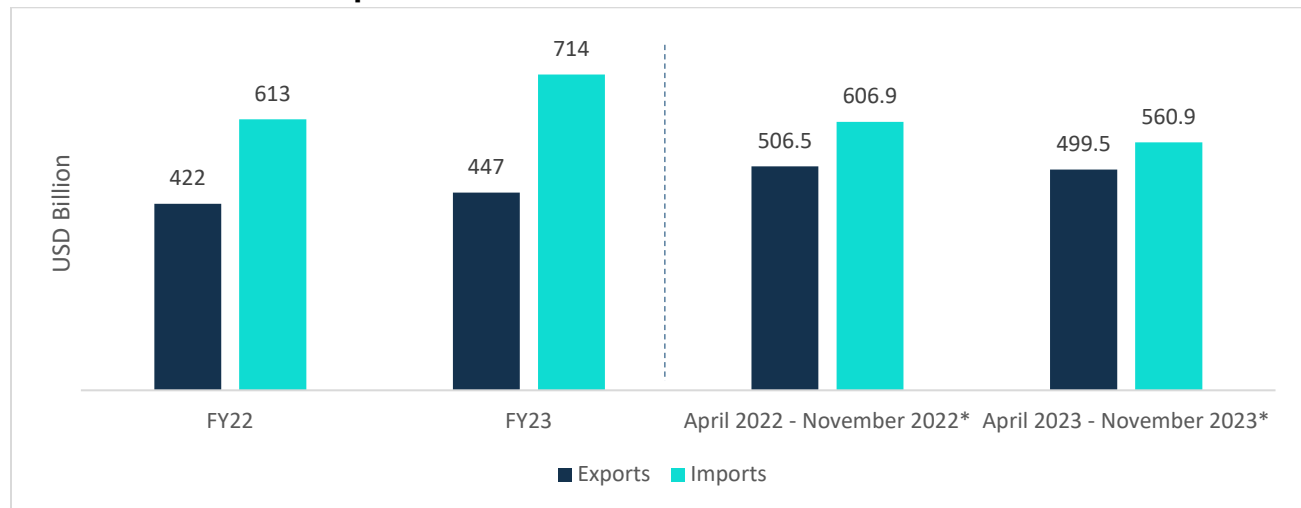
The transport sector is the backbone of India's economy. It has been one of the fastest-growing industries in India, given the strong movement of goods and the e-commerce-led surge in domestic consumption. The transport of raw materials and finished goods forms one of the key processes in supply chain management. Accordingly, the growth in logistics and freight movement across the country is an indicator of the supply chain management industry's growth.

Merchandise Trade grew at a Moderate Pace during April 2023-July 2023

Merchandise exports have registered the highest-ever annual exports of USD 447.46 billion with 6.03% y-o-y growth during FY23. Imports also increased by 16.5% y-o-y to USD 613 billion during FY23.

However, for the period April 2023-November 2023, exports declined by 1.4% to USD 499.5 billion exports while imports declined by 7.6% to USD 560.9 billion.

Chart 56: Merchandise Export



Source: Ministry of Commerce & Industry

Road Continues to be the Preferred Mode for Transporting Goods

According to the Ministry of Railways, more than 60% of the national freight is carried by roads. This is because of the broader road network, lower cost of loading and unloading, and ease of movement as it allows door-to-door transportation.

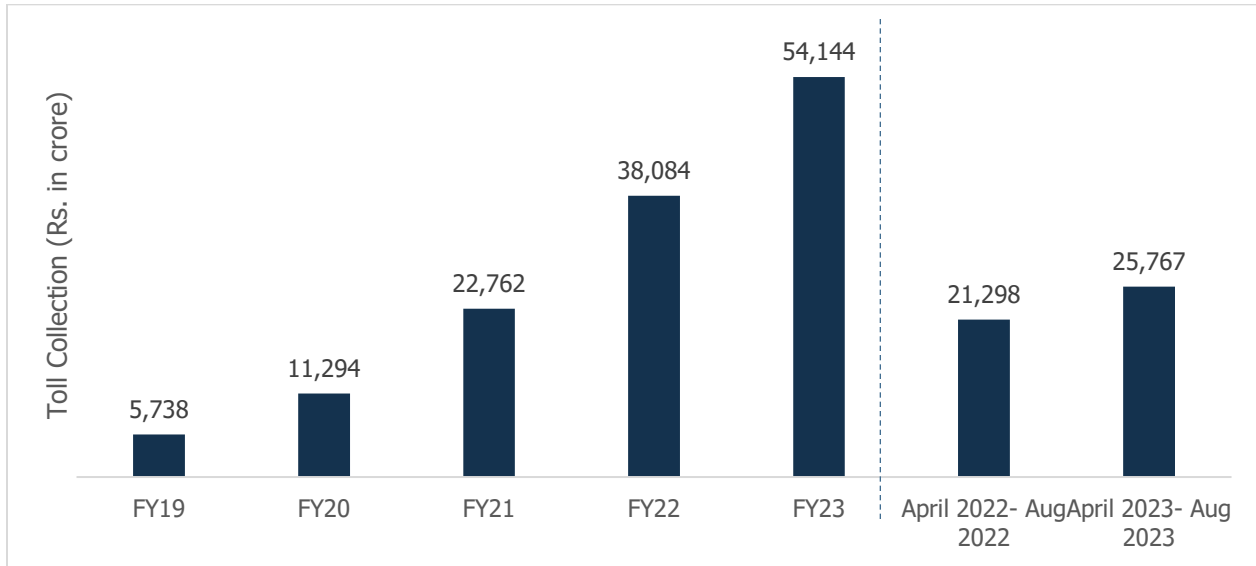
The highway construction activity remained flat in FY23, mainly due to the decline in project awarding activity by 1.6% to 7,497 km during 11MFY23 as compared to 7,618 km for the same period in FY22. This slowdown can be attributed to increased input costs, longer-than-usual monsoons and problems related to land acquisition and environmental clearance.

During April-August 2023, about 3,196 km of the road were constructed, which is 9.7% higher than the previous corresponding period. On the other hand, the projects awarded for the same period witnessed a decline of 35% to 1,756 km from 2,706 km in the previous year.

Revenue from toll collection increased by about 29% y-o-y in FY23 to Rs 49,077 crore. During April 2023-August 2023, the toll collection registered a 21% increase to Rs. 25,767 crore compared to the previous corresponding period collection of Rs. 21,298 crore.

The toll collection revenue has grown multi-fold over the last few years indicating the crucial role of roadways in India’s supply chain and logistics industry.

Chart 57: Toll Collections across the Nation

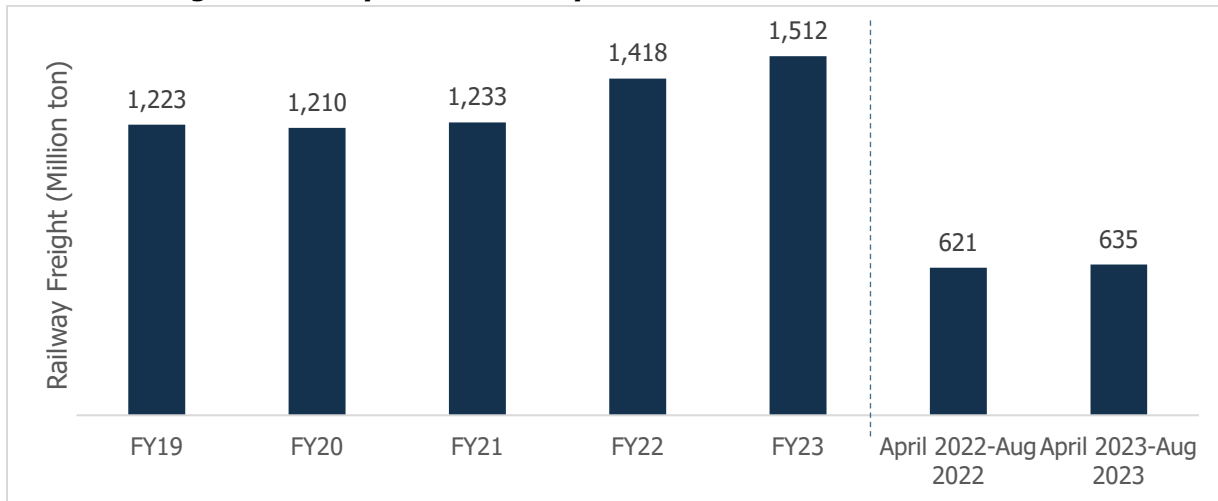


Source: NPCI- National Payments Corporation of India

Indian Railways achieved the Highest-Ever Freight Loading in FY23

Indian Railways loaded 1,512 Million Tonnes (MT) freight in FY23, up from 1,418 MT in the previous financial year. This is the highest-ever loading by the Indian Railways during a fiscal and is the first time that over 1,500 MT of freight has been carried. Over the period of the last 7 years, the freight carried by Railways has seen a steady y-o-y growth, except for the pandemic period. During April 2023- August 2023, the Indian railway loaded 635 MT freight, 2.2% higher than the previous corresponding period.

Chart 58: Freight carried by Indian Railways



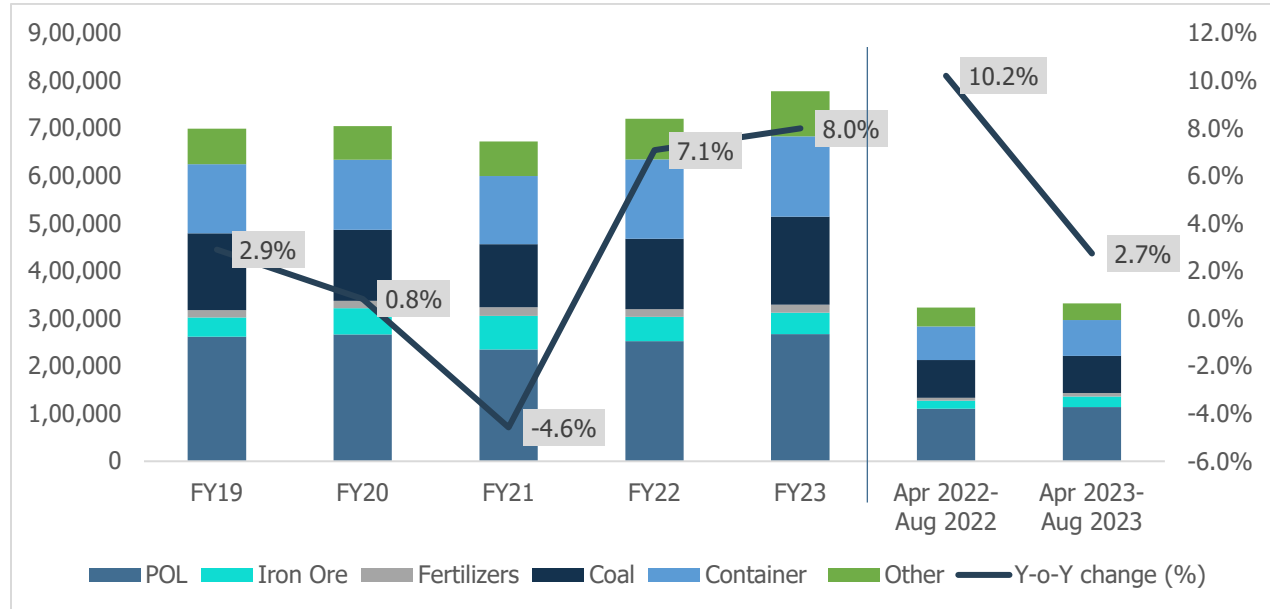
Source: Indian Railways

Cargo Movement in Indian Ports

In FY23, Indian port traffic at 12 major ports grew by around 8% y-o-y.

During YTD FY24 (April-August 2023), the cargo traffic at major Indian ports grew by ~2.7% y-o-y.

Chart 59: Commodity-wise Cargo Traffic volumes at All Major Ports ('000 Tonnes)



Source: CMIE

Note: Others includes Salt, Cement, Sugar, Newsprint, Edible Oil and Food grains

Traffic Movement in Airlines

In FY23, the aviation industry in India witnessed a significant 73% year-on-year increase in passenger traffic compared to FY22, led by 62% growth in domestic passengers and 158% growth in international passengers. This substantial growth can be attributed to a combination of a low-base effect caused by the pandemic-related restrictions in FY22, administration of multiple doses of vaccine across the world, and the overall revival of the global economy.

The passenger traffic has been steadily approaching the levels observed before the onset of the pandemic, primarily driven by the growth in tourism and trade activities. In contrast to the strong growth in passenger traffic, the cargo segment of the aviation industry witnessed a relatively stagnant performance in FY23.

The cargo traffic remained flat during this period, indicating that the growth in the aviation industry was primarily driven by the surge in passenger demand, rather than significant developments in cargo transportation. During the period April 2023-August 2023, passenger traffic registered a growth of 23% compared to the previous corresponding period. While cargo traffic was at the same level.

Table 7: Aviation Traffic

	Passenger Traffic ('000 nos)			Cargo Traffic ('000 tonnes)		
	Total	Domestic	International	Total	Domestic	International
FY19	3,44,700	2,75,219	69,481	3,562	1,362	2,200
FY20	3,41,051	2,74,507	66,544	3,329	1,326	2,003
FY21	1,15,380	1,05,252	10,128	2,474	953	1,521
FY22	1,88,891	1,66,803	22,088	3,141	1,180	1,961
FY23	3,27,283	2,70,344	56,940	3,152	1,288	1,865
FY23 v/s FY22 (% growth)	73%	62%	158%	0%	9%	-5%
5MFY23	1,25,099	1,03,799	21,300	1,347	554	793
5MFY24	1,53,495	1,25,898	27,596	1,347	540	806
% Growth	23%	21%	30%	0%	-3%	2%

Source- CMIE

Government Support – A Catalyst of Logistic Sector Growth:

The availability of good transport infrastructure is one of the key enablers for the growth of the supply chain management industry as it has a significant bearing on transportation time and cost. The government's thrust on infrastructure development, as demonstrated by continuously increasing allocation under the budget, significantly improved the railway, road, and airport infrastructure. Further, the allocation for key infrastructure sectors was increased for the third consecutive year under the Union Budget 2023-24.

Table 8: Budgetary Allocation to Key Infrastructure Sectors

Budget Allocation (In crores)	FY20 (A)	FY21 (A)	FY22 (A)	FY23 (R)	FY24 (B)
Airports	3,647	4,089	71,918	9,364	3,113
Ports	1,569	1,388	1,528	1,793	2,219
Railways	69,972	1,12,159	1,35,242	1,62,312	2,41,268
Roads and Highways	78,249	99,159	1,23,551	2,17,027	2,70,435

R: Revised, B: Budgeted; Source: Budget Documents

Outlook

The outlook of the transport sector is positive in the near-medium term. The industry will be a key beneficiary of economic growth as it is a key enabler for most industries. The Government of India has introduced various initiatives such as Make in India, PLI scheme, Atmanirbhar Bharat, etc., which are expected to boost manufacturing activity. Driven by these factors, total freight volumes in India are expected to almost double by 2031 compared to 2019 levels, as estimated under the National Rail Plan released by the Ministry of Railways.

Further, India's competitiveness in global exports is also expected to increase due to government initiatives and strategies, such as China Plus One adopted by global companies, which will lead to increased export

volumes. Also, the government has set a target of USD 2 trillion for export by 2030 compared to USD 770 billion worth of exports in FY23.

Such factors will support the growth of the supply chain industry in India. However, high inflation may have a near-term impact on the growth of key end-user industries and is a key monitorable.

6 Peer Benchmarking – Coal and Cement Trading

The following are the key payers engaged in the trading of coal and cement in India:

Table 9: Business Overview of key peers

Name of the Company	Business Overview
1. Vasuki Global Industries Limited	Vasuki Trade Link Private Limited is a private company incorporated in India on November 15, 2016. It is based in Rajkot, Gujarat. The company is engaged in the business of trading and supplying a wide range of products, including coal, coke dust, fly ash, petroleum coke, gypsum, slag, charcoal, etc. It also provides screening and processing services for coal.
2. Aditya Birla Global Trading (India) Private Limited	Aditya Birla Global Trading, formerly known as Swiss Singapore Overseas Enterprises Pte Ltd. (SSOE), is a bulk commodity trading solutions provider and logistics player. It offers sourcing and marketing of physical commodities like coal, petroleum products, sulphur, iron & steel, fertilizers, agro products, and tea. The company was incorporated in India in April 2013, with its headquarters in Kutch, Gujarat.
3. Delta Global Private Limited	Delta Global Private Limited is a private limited company incorporated in India on March 4, 2013. It is based in Ahmedabad, Gujarat. The company is engaged in the business of importing, trading and marketing industrial fuels such as steam coal (coking and non-coking) and petroleum coke.
4. Agarwal Coal Corporation Private Limited	Agarwal Coal Corporation Private Limited (ACCPL) is a coal importer and supplier in India. It was founded in 1974 and is headquartered in Mumbai, Maharashtra. ACCPL procures coal from Indonesia, South Africa, India, the USA, and Australia. It has operations spread across twenty ports in India, with a network of 18 branch offices. ACCPL supplies coal to a wide range of industries, including power generation, steel, cement, and textiles.
5. Turnrest Resources Private Limited	Turnrest Resources Private Limited (TRPL) is a private limited company incorporated in India on April 20, 2017. It is based in Ahmedabad, Gujarat. The company is engaged in the business of trading, leaning, pulverizing, sizing, grading, and compressing coal.
6. Green Gold Global Resources Private Limited	Green Gold Global Private Limited was incorporated in India on September 25, 2020. It is based in Indore, Madhya Pradesh. The company is engaged in the business of trading in coal, minerals and metals, and other commodities. Key business activities include trading in coal, minerals and metals, and other commodities.
7. Maheshwari Logistics Limited	Incorporated in 2006, Maheshwari Logistics Limited is engaged in providing logistics services, supplying non-coking coal, manufacturing kraft paper, waste paper collection, and trading in a variety of papers. It has a coal screening plant at Vapi, Gujarat which also has its headquarters, for the sizing of imported and indigenous coal to cater to the specific requirements of its customers in terms of size.
8. Saurashtra Cement Limited	The company was incorporated in 1956 in Rajkot, Gujarat. The Mehta group's Indian arm comprises of "Saurashtra Cement Limited" marketing cement under the brand name "HATHI". Their markets are located in

Name of the Company	Business Overview
	Gujarat, Maharashtra, Rajasthan, Madhya Pradesh, the West Coast of India and overseas markets in Africa, the Indian Ocean and Middle East countries.
9. Agarwal Industrial Corporation Limited	The company is an integrated Petrochemical Company majorly focused on Bitumen and its product. The company has over 25 years of experience with its corporate office in Mumbai, Maharashtra.

Benchmarking Based on Financial Parameters:

Key financials of the players engaged in coal and cement trading are given below:

Table 10: Comparison of Financial parameters (Rs Crores)

Key Peers	Revenue from Operations			EBITDA			PAT		
	FY20	FY21	FY22	FY20	FY21	FY22	FY20	FY21	FY22
Vasuki Global Industries Limited	467.2	515.4	908.4	8.2	13.9	29.6	2.8	6.2	14.9
Aditya Birla Global Trading (India)Private Limited	4,305.4	3,635.8	5,329.7	59.3	85.2	258	39.0	55.4	185.7
Delta Global Private Limited	699.7	727.5	513.2	5.4	8.7	15.2	1.7	5.0	8.8
Agarwal Coal Corporation Private Limited	4,628.3	3,963.0	7,421.3	291.7	301.9	780.2	121.5	204.2	479.5
Turnrest Resources Private Limited	175.6	222.4	692.0	5.7	8.2	43.5	1.6	2.9	25.0
Green Gold Global Resources Private Limited	NA	495.1	2281.3	NA	34.6	138.3	NA	26.2	101.8
Maheshwari Logistics Limited	758.6	670.4	1,034.7	53.4	44.8	54.5	14.7	9.3	17.1
Saurashtra Cement Limited	616.6	686.0	1,450.9	117.7	126.9	79.9	56.5	72.3	23.1
Agarwal Industrial Corporation Limited	790.0	905.0	1,602.0	49.0	73.0	110.0	26.0	22.0	39.0

Source: Company's Annual reports

Note:

- Standalone financials have been considered
- Annual reports of FY2023 are not available
- Green Gold Global Resources Private Limited was incorporated in September 2020, hence FY20 financials are not available

Table 11: Comparison of Key Ratios:

Key Peers	Operating Profit Margin (%)			Net Profit Margin (%)			ROCE			Current Ratio			Interest Coverage Ratio			D:E Ratio		
	FY 20	FY 21	FY 22	FY 20	FY 21	FY 22	FY 20	FY 21	FY 22	FY 20	FY 21	FY 22	FY 20	FY 21	FY 22	FY 20	FY 21	FY 22
Vasuki Global Industries Limited	1.7	2.7	3.3	0.6	1.2	1.6	45.6	42.4	56.0	1.2	1.2	1.3	2.0	3.0	4.8	0.2	0.6	0.5
Aditya Birla Global Trading (India) Private Limited	1.4	2.3	4.8	0.9	1.5	3.5	37.4	39.8	62.4	1.1	1.2	1.3	4.1	8.5	29.9	1.0	0.4	0.6
Delta Global Private Limited	0.8	1.2	3.0	0.2	0.7	1.7	51.0	19.1	36.4	1.0	1.3	1.2	1.8	4.8	5.1	1.4	4.2	1.3
Agarwal Coal Corporation Private Limited	6.3	7.6	10.5	2.6	5.2	6.5	38.8	34.4	47.4	1.4	1.5	1.5	1.8	12.8	8.3	2.2	1.6	2.0
Turnrest Resources Private Limited	3.3	3.7	6.3	0.9	1.3	3.6	21.1	40.3	54.2	1.8	1.3	1.4	1.8	2.0	4.5	3.2	4.3	3.0
Green Gold Global Resources Private Limited	NA	7.0	6.1	NA	5.3	4.5	NA	32.3	71.0	NA	1.5	1.6	NA	90.3	73.4	NA	1.5	0.1
Maheshwari Logistics Limited	7.0	6.7	5.3	1.9	1.4	1.7	19.4	14.0	16.6	1.5	1.7	1.6	1.9	1.7	2.3	1.0	0.9	1.1
Saurashtra Cement Limited	19.1	18.5	5.5	9.2	10.5	1.6	23.7	22.0	6.9	1.3	1.7	1.2	24.2	28.0	7.7	0.4	0.4	0.4
Agarwal Industrial Corporation Limited	8.0	7.0	7.0	3.0	5.0	4.0	17.0	20.0	22.0	1.4	1.6	1.6	6.0	7.0	9.0	0.5	0.6	0.5

Source: Company reports, CareEdge Research

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