

Market review of Indian cement sector

For Kanodia Cement Limited
May 2025

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1. Overview of global and Indian economy

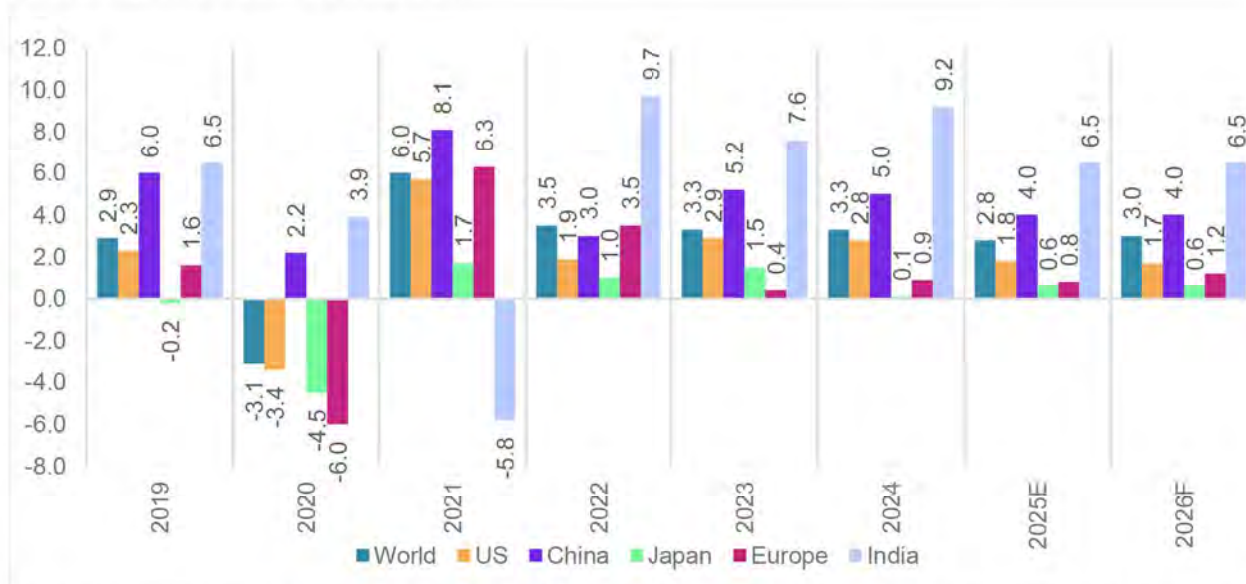
1.1 Review and outlook of Indian economy

The global economy is maintaining a steady pace, albeit with varying degrees of growth across different countries. In calendar year 2024, China's growth slowed to 4.8%, primarily due to a sharper-than-expected decline in consumption. This was a result of a delayed stabilisation in the property market and persistently low consumer confidence, which offset the positive effects of robust net export growth. In contrast, the euro area experienced subdued growth, mainly owing to ongoing weakness in manufacturing and goods exports, despite a recovery in consumption driven by rising real incomes.

In calendar year 2024, Japan's economic growth slowed, largely due to temporary supply disruptions, whilst the United States remained a notable exception, with its economy expanding at a rate of 2.8%. This growth was driven by strong consumption in the second half of the year. Against this backdrop, India is poised to emerge as a relatively strong performer, with real Gross Domestic Product (GDP) growth expected to reach 6.5% in fiscal year 2026. This growth is expected to be driven by a combination of factors, including a recovery in private consumption, investment, and exports.

The Indian economy's resilience and adaptability in the face of global challenges will be crucial in sustaining its growth momentum. As a result, India is likely to remain one of the fastest-growing major economies in the world. According to the first advance estimates of national accounts, India's real GDP is expected to grow by 6.5% in fiscal 2025. Growth in the first half of fiscal 2025 was supported by the agriculture and services sectors, with rural demand improving due to record Kharif production and favourable agricultural conditions. However, the manufacturing sector faced challenges due to weak global demand and domestic seasonal conditions. Private consumption remained stable, reflecting steady domestic demand.

Figure 1- World's GDP growth YoY%



Note: India numbers are on a fiscal-year (FY) basis (Apr-Mar), where 2025 would correspond to fiscal 2025; on calendar year basis (Jan to Dec) for other countries, Europe includes 44 countries

E: Estimated, F: Forecast

Source: International Monetary Fund (IMF) World Economic Outlook, January 2025, Number for India are as per NSO and Crisil Intelligence forecast for fiscal 2026

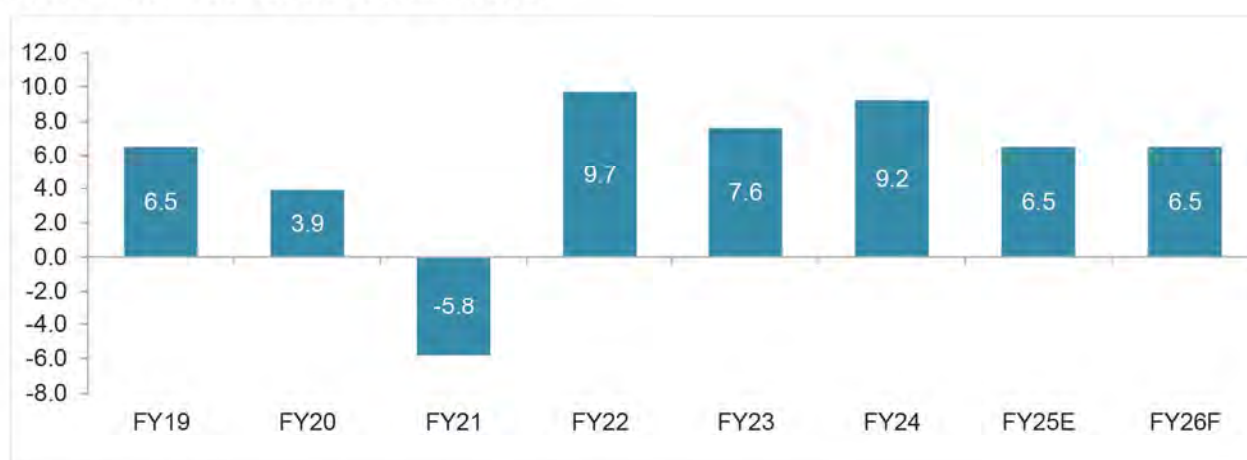
The Indian economy is one of the fastest-growing large economies, according to the IMF's World Economic Outlook, January 2025. Crisil Intelligence expects India's GDP to grow at 6.5% in fiscal 2026, driven by a combination of factors, including a recovery in private consumption, investment, and exports. The Indian economy's resilience and adaptability in the face of global challenges are expected to be crucial in sustaining

its growth momentum, enabling the country to remain one of the fastest-growing major economies worldwide.

In the post-pandemic era, India's economic indicators have exhibited a gradual improvement, driven by strong domestic consumption and a decreasing reliance on global demand. Despite prevailing global geopolitical instability, India has maintained its position as one of the fastest-growing economies globally, underscoring its resilience and adaptability in adversity. The country's ability to navigate global challenges has been a key factor in its success, and this is expected to continue in the future.

However, prevailing global uncertainties and geopolitical risks are expected to require careful monitoring and management to ensure the Indian economy remains resilient and adaptable in an increasingly complex and challenging global environment. The ability of the Indian economy to navigate these challenges and sustain its growth momentum is expected to be critical in maintaining its position as one of the fastest-growing major economies worldwide.

Figure 2- Real GDP growth % year-on-year



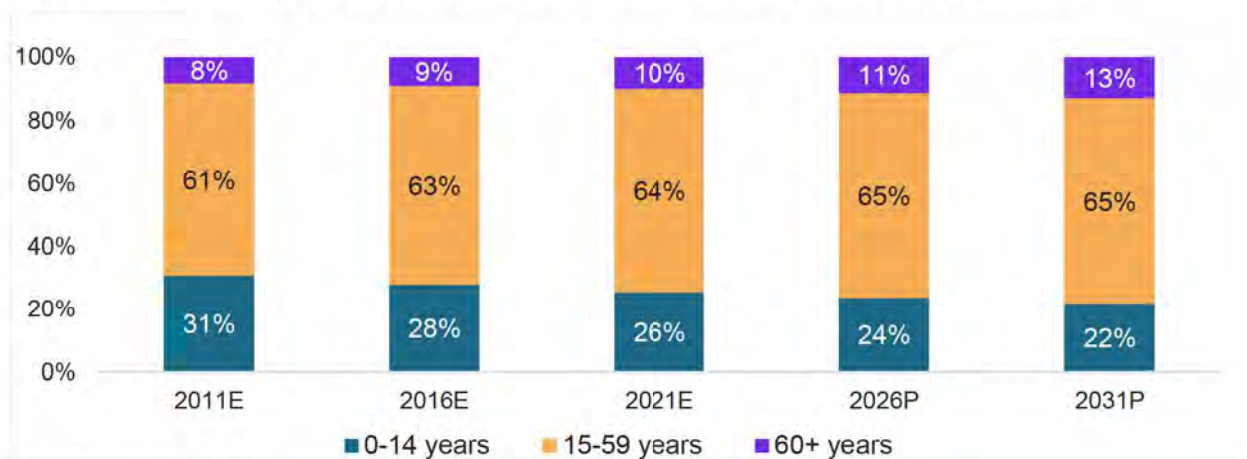
Note: E-Estimated, F: Forecast, India's numbers are on a fiscal-year (FY) basis (Apr-Mar).

Source: MoSPI, Crisil Intelligence

1.2 Demographics overview

With a population of over 1.4 billion, India surpassed China as the world's most populous country in 2023 and now accounts for more than 17% of the global population. Some of India's largest states are comparable to entire countries in terms of population. For instance, Uttar Pradesh, being the most populous state in the country, has population larger than that of whole countries like Germany and France. Maharashtra, India's second most populous state, is comparable to Japan, with a population of over 122 million. Similarly, Karnataka and Gujarat are comparable to the UK and Thailand, respectively. However, India ranks much lower in terms of nominal per capita income, which stands at approximately \$2,940. In comparison, China's and Japan's per capita incomes are four times and twelve times higher, respectively. Clearly, there is a significant opportunity for growth, with an extensive runway that underpins the country's structural growth potential.

Figure 3- India's demographic division (share of different age groups in population)



Note: E: Estimates, P: Projected

Source: Census of India 2011, Ministry of Health and Family Welfare, Crisil Intelligence

Out of India's total GDP, 60% is accounted for by consumption, which is growing rapidly due to the country's large youth population. With a median age of 28 years, India has one of the world's largest youth populations, significantly lower than China's median age of 39 years and Japan's median age of 49 years. As of March 2024, it is estimated that 64 % of India's population falls within the 15-59 age range. The large share of India's working population, combined with rapid urbanisation and rising affluence, shall support consumption and economic growth over the next several decades.

Urbanisation is a key driver of India's economic growth. It shall drive substantial investments in infrastructure development, which in turn will create jobs, develop modern consumer services, and increase the ability to mobilise savings. India's urban population has been consistently rising over the decades. According to the 2018 revision of World Urbanisation Prospects, the urban population is projected to be 36% of India's total population in 2023. The World Urbanisation Prospects also projects that the percentage of the population residing in urban areas in India will increase to 40% by 2030.

1.3 Budget allocation and capital outlay across major segments

Infrastructure segment

The central government's total budget for fiscal 2026 (Budget Estimate) is Rs 19.79 lakh crore, comprising: (i) total expenditure through the budget (Gross Budgetary Support - GBS), (ii) resources of public enterprises (Internal and Extra-Budgetary Resources - IEBR), and (iii) grants-in-aid for the creation of capital assets (Grants-In-Aid - GIA). This represents a 16.4% increase from the revised estimate for fiscal 2025.

The budgetary capital expenditure for infrastructure ministries, including the Ministry of Railways, Ministry of Road Transport and Highways, Ministry of Rural Development, Ministry of Housing and Urban Affairs, Ministry of Power, Ministry of New and Renewable Energy, Ministry of Jal Shakti, Ministry of Ports, Shipping and Waterways, Ministry of Civil Aviation, and the Department of Atomic Energy, is Rs 10.7 lakh crore, up 11.6% from the revised estimate for fiscal 2025.

Each infrastructure-related ministry will develop a three-year project pipeline that can be implemented through the Public-Private Partnership (PPP) mode. States are also encouraged to create similar pipelines. To support states in infrastructure development, an outlay of Rs 1.5 lakh crore is proposed for 50-year interest-free loans as capital expenditure and incentives for reforms.

In the second phase of the asset monetisation plan, the government aims to generate Rs 10 lakh crore by monetising a pipeline of assets between fiscals 2025 and 2030.

Table 1 – Budgetary allocations to core infrastructure ministries

Ministry/Department	FY25RE				FY26BE				FY26BE over FY25RE
	GBS (Rs crore)	IEBR (Rs crore)	GIA (Rs crore)	Total (Rs crore)	GBS (Rs crore)	IEBR (Rs crore)	GIA (Rs crore)	Total (Rs crore)	
Ministry of Railways	2,52,000	13,000	-	2,65,000	2,52,000	13,000	-	2,65,000	0%
Ministry of Road Transport and Highways	2,72,481	-	8,735	2,81,216	272,241	-	9,602	2,81,843	0%
Ministry of Rural Development	4	-	1,28,346	1,28,350	4	-	1,55,319	1,55,323	21%
Ministry of Housing and Urban Affairs	31,662	42,095	20,735	94,492	37,623	62,207	46,067	1,45,897	54%
Ministry of Power	1,127	70,710	14,775	86,611	658	85,838	17,075	1,03,572	20%
Ministry of New and Renewable Energy	7	31,701	15,134	46,843	7	35,460	24,508	59,975	28%
Ministry of Jal Shakti (Department of Water Resources, River Development and Ganga Rejuvenation)	323	2	14,361	14,686	556	2	17,413	17,971	22%
Ministry of Ports, Shipping and Waterways	1,342	8,509	681	10,532	1,761	7,123	846	9,731	(8%)
Ministry of Civil Aviation	102	3,913	656	4,670	70	4,194	301	4,565	(2%)
Department of Atomic Energy	12,497	12,585	905	25,987	11,978	13,131	964	26,073	0%
Total capex – Infrastructure ministries	5,71,544	1,82,514	2,04,328	9,58,386	5,76,900	2,20,955	2,72,095	10,69,949	12%
Total capex – Other ministries	4,46,885	1,99,927	95,563	7,42,375	5,44,190	2,10,636	1,55,097	9,09,924	23%
Grand total	10,18,429	3,82,441	2,99,891	17,00,761	11,21,090	4,31,591	4,27,192	19,79,873	16%

Note: Fiscal 2025RE: fiscal 2025 Revised estimates

'Revised Estimate' - is an estimate of the probable receipts or expenditure for a financial year, framed in the course of that year, with reference to the transactions already recorded and anticipated for the remainder of the year.

Fiscal 2026BE: fiscal 2026 Budgeted Estimates

'Budget Estimates' - are the detailed estimates of receipts and expenditure of a financial year

Source: Budget documents, Ministry of Finance

Roads & Railways

The overall gross budgetary outlay for the Ministry of Road Transport and Highways (MoRTH) more than doubled from Rs 1.28 lakh crore in fiscal 2019 to Rs 2.72 lakh crore in fiscal 2025RE. Against this backdrop, the roads and highways capex estimate for fiscal 2026 is expected to witness a sharp moderation in growth rate and is almost at par with fiscal 2025. The entire allocation of Rs 2.72 lakh crore is expected to be via GBS, as the IEBR limit has been completely eliminated to reduce the National Highways Authority of India's (NHAI) dependence on market borrowings. In line with the National Monetization Plan, NHAI's Total Asset Monetization Program has crossed Rs 1 lakh crore, which includes Rs 48,995 crore through the Toll-Operate-Transfer (TOT) model, Rs 25,900 crore through Infrastructure Investment Trusts (InvIT), and Rs 42,000 crore through securitization. NHAI has already identified and published an indicative list of 33 assets

to be monetised during 2024-25, which is expected to yield more than Rs 50,000 crore in the current fiscal. The MoRTH is expected to monetise assets worth Rs 40,314 crore in 2023-24, out of the total monetisation receipts of Rs 97,000 crore in the last financial year.

Furthermore, NHAI is expected to modify the Build-Operate-Transfer (BOT) model with fast-tracked clearances to award more projects, as the share of this model has dipped to negligible levels in recent years. Large developers are likely to be interested in BOT projects amidst dipping profitability in the Hybrid Annuity Model (HAM) due to competitive bidding. Notably, if successful, the shift towards the BOT model could reduce the funding burden on the Ministry, as 100% of the construction cost is borne by the developer in this model, which is expected to reduce the fiscal burden by around 10-15%.

The Railway capital expenditure is budgeted at Rs 2.65 lakh crore, which is exactly at par with fiscal 2025RE. Under the Railway Ministry, three key economic railway corridors have been announced under the PM Gati Shakti initiative: (i) energy, mineral, and cement corridors, (ii) port connectivity corridors, and (iii) high-traffic density corridors. These projects are aimed at facilitating multi-modal connectivity, thereby enhancing logistics efficiency and reducing operational costs by around 5-7%. The development of the three new rail corridors, along with the completion and full operationalisation of the Dedicated Freight Corridor (DFC), is expected to improve logistical efficiency and aid the government in achieving its target of reducing the overall logistics cost.

Table 2- Budgeted allocation for Roads and Railways

Segment	Budgeted outlay FY26 (Rs crore)	Revised estimates FY25 (Rs crore)	Increase/(Decrease) %
Ministry of Road Transport and Highways	2,81,843	2,81,216	0%
Ministry of Railways	2,65,000	2,65,000	0%

Source: Budget documents, Ministry of Finance

Metro and MRTS and Urban Rejuvenation Mission

The government intends to expand metro rail and other urban infrastructure projects, such as the Namo Bharat initiative, to more cities, with a focus on rapid urbanisation. To achieve this, the central government has allocated Rs 31,106 crore for FY26BE, which is approximately 26% higher than the Rs 24,601 crore allocated in FY25RE. As of July 2024, ~942 km of metro rail is operational in the country, while another ~893 km is under construction.

The Government of India launched the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) and the Smart City Mission (SCM) on 25 June 2015, with the aim of improving living conditions in 500 and 100 cities, respectively, across India. At least one city from every state or union territory was selected under the SCM to implement the concept of a 'smart city'. The goal was to be accomplished by improving infrastructure and services such as water supply, sanitation, energy, mobility, education, and healthcare. As of November 2024, out of a total of ~8,066 projects, ~7,352 projects have been completed, and a further ~714 projects are under various stages of execution.

Table 3- Budgeted allocation for Metro and MRTS and Urban Rejuvenation Mission

Segment	Budgeted outlay FY26 (Rs crore)	Revised estimates FY25 (Rs crore)	Increase/(Decrease) %
Metro & MRTS	31,106	24,601	26.44%
AMRUT and Smart Cities mission	10,000	8,000	25.00%

Source: Budget documents, Ministry of Finance

To further boost infrastructure spending, the government has approved a budget of Rs 10,000 crore in FY26BE for the development of over 500 smart cities. The focus is on providing adequate and clean water supply, sanitation, solid waste management, efficient transportation, affordable housing for the poor, reliable

power supply, robust IT connectivity, e-governance, safety and security of citizens, healthcare, and education.

Housing segment

The Pradhan Mantri Awas Yojana (PMAY) was introduced in 2015 to provide affordable housing for all by the end of 2022. Due to delays in completion, the timeline was revised to fiscal 2024 and 2025 for PMAY-Gramin (PMAY-G) and PMAY-Urban (PMAY-U), respectively. The announcement is expected to bring an additional three crore houses under the ambit of PMAY over the next five years is a positive development. For one, it will reduce the housing shortage in urban and rural areas. The incremental target will support the cement and building construction segments, too, as it will lead to incremental cement demand. It will also support other allied building and construction activities.

Under the PMAY-Urban 2.0 housing scheme, the construction of ~1 crore additional houses, or ~81% of the previous target of ~1.2 crore houses, over the next five fiscals was announced in Budget 2025. Further, it received a separate allocation of Rs 3,500 crore in Budget 2026. This is likely to revive interest in the weakening affordable housing segment, with developers increasingly shifting focus towards the premium and luxury segments in tier I and tier II cities.

The increase in the PMAY-Gramin target by 2 crore houses, or ~68%, from the previous target of ~3 crore houses, is also a positive development. Execution under the PMAY-Gramin scheme has been encouraging so far, with ~90% of houses constructed out of sanctioned units as of Sep'24.

While PMAY focuses on affordable housing, thereby catering to the low-income group, the announcement of enabling policies and regulations for efficient and transparent rental housing markets with enhanced availability would benefit eligible middle-class households who live in rented houses, slums, chawls, and other unauthorised colonies.

The government's continued focus on housing is expected to provide an impetus to the real estate sector as well as its stakeholders, such as developers, engineering, procurement and construction contractors, and allied industries such as steel, cement, etc.

Table 4- Budgeted Allocations to PMAY

Sr no	Segment	FY26BE	FY25RE	Growth in FY26BE over FY25RE (%)
		(Rs crore)	(Rs crore)	
1	PMAY Urban	19,794	13,670	45%
2	PMAY Urban 2.0	3,500	1,500	133%
3	PMAY Gramin	54,832	32,426	69%

Note: PMAY (G) figures include just the programme component

Source: Budget documents, Ministry of Finance

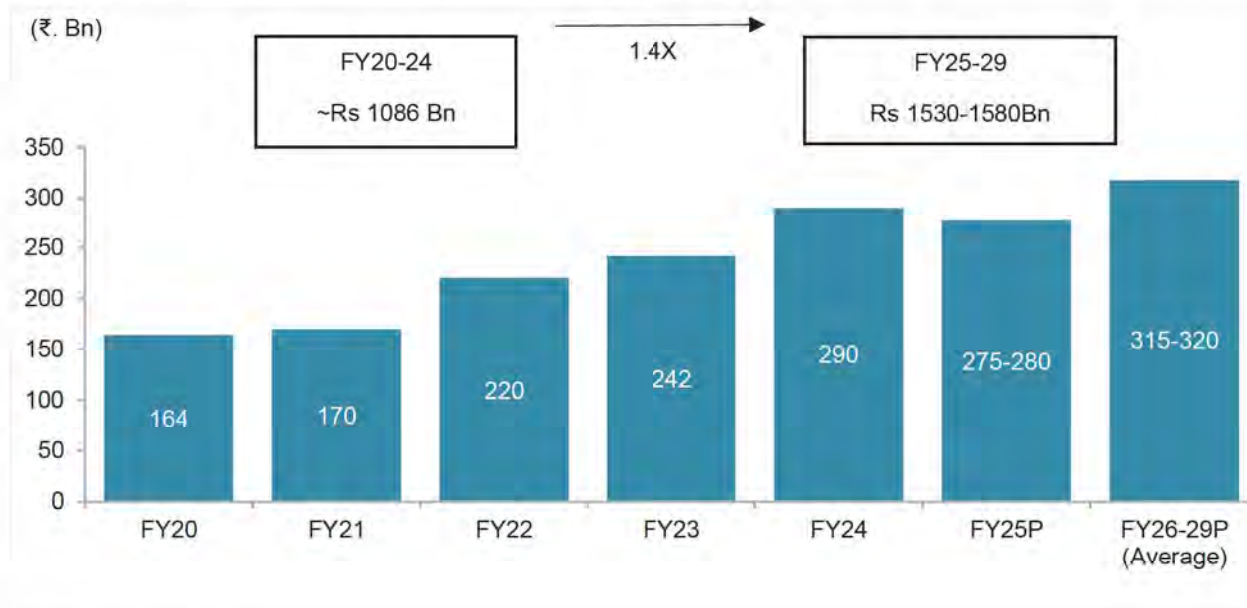
1.4 Expected capital expenditure in cement sector

The Cement Industry in India witnessed an investment of ~Rs. 1086 bn in the past five years (fiscal 2020-2024) with regards to adding new capacities, brownfield expansions, debottlenecking, and maintenance of existing plants. With demand recovering in the past three fiscals and increased competitive intensity, the players, especially the large ones, are implementing sizeable capex over the next five years with the aim to capture the market share. Robust demand has bolstered the balance sheets of large players and mid-sized players with strong market presence, prompting them to expand capacity on the back of healthy cash accrual and credit profile.

Over the next five years (fiscal 2025-2029), it is anticipated that around 210-220 million tonnes per annum (MTPA) of grinding capacities will come online, necessitating an investment of around Rs. 1530-1580 billion. This represents a significant increase, equivalent to about 1.4 times the capital expenditure incurred over the

previous five-year period. Given their strong balance sheets and high liquidity, a large part of this capex is expected to be incurred by the large players funded from their internal accruals.

Figure 4- Estimated investment in cement Industry in India



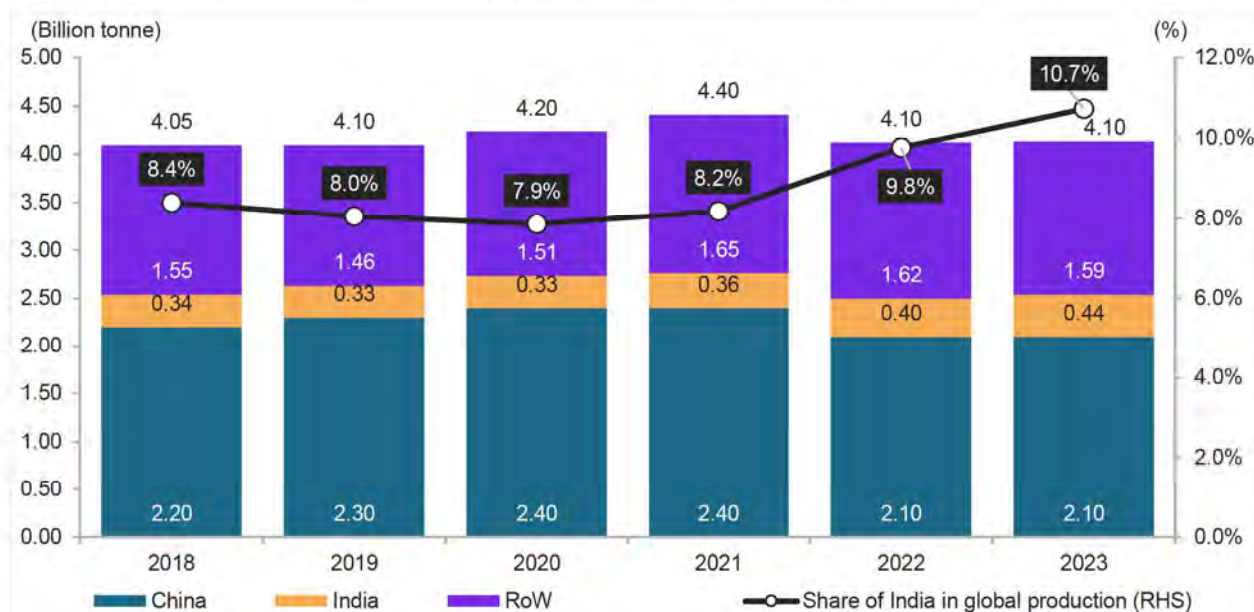
Source: Crisil Intelligence

2. Introduction to Indian cement industry

2.1 Global cement market

Global cement production in 2023 stood at ~4.1 billion metric tonne. The production growth had remained steady almost over the previous six years, with the highest production of 4.4 billion metric tonne recorded in 2021.

Figure 5 - Cement production comparison — India vs China and rest of the world (RoW)



Note: India's production data are on fiscal year (Apr-Mar) basis and that of others on calendar year basis; Data above column bars represent total cement production by world for that particular year

Source: United States Geological Survey – Mineral Commodity Summaries, Crisil Intelligence

China is the largest producer of cement globally, accounting for more than 50% of the overall cement production. A major portion of the cement produced in the country is consumed domestically. India comes a distant second, accounting for 7-10% of the world's production. India's share in world production peaked at around 11% in 2023.

During 2018-2023, developing nations such as India and Vietnam have been some of the fastest-growing economies in terms of cement produced. During this period, cement production in India logged a Compound Annual Growth Rate (CAGR) of 5.6% - the highest among the top seven cement-producing countries. In 2023, China remained the largest producer, accounting for 51% of the overall volume, with production ranging from 2.1-2.5 billion tonnes between 2018 and 2023.

Table 5- Share of top seven cement producing countries in global production

Country	CY 2018		CY 2023		CAGR 2018-23 (%)
	Production (million tonne)	Share (%)	Production (million tonne)	Share (%)	
China	2,200	53.80%	2,100	50.30%	-0.90%
India	335	8.40%	441	10.70%	5.60%
Vietnam	90	2.20%	110	2.60%	4.00%
United States	87	2.10%	91	2.20%	0.90%
Turkey	73	1.80%	79	1.90%	1.70%
Iran	58	1.40%	65	1.60%	2.30%

Brazil	53	1.30%	63	1.50%	3.50%
Others	1,193	29.30%	1,227	29.20%	0.50%
Total (rounded)	4,100		4,200		0.40%

Notes: India's production data are on fiscal year (Apr-Mar) basis and that of others on calendar year basis

US includes Puerto Rico

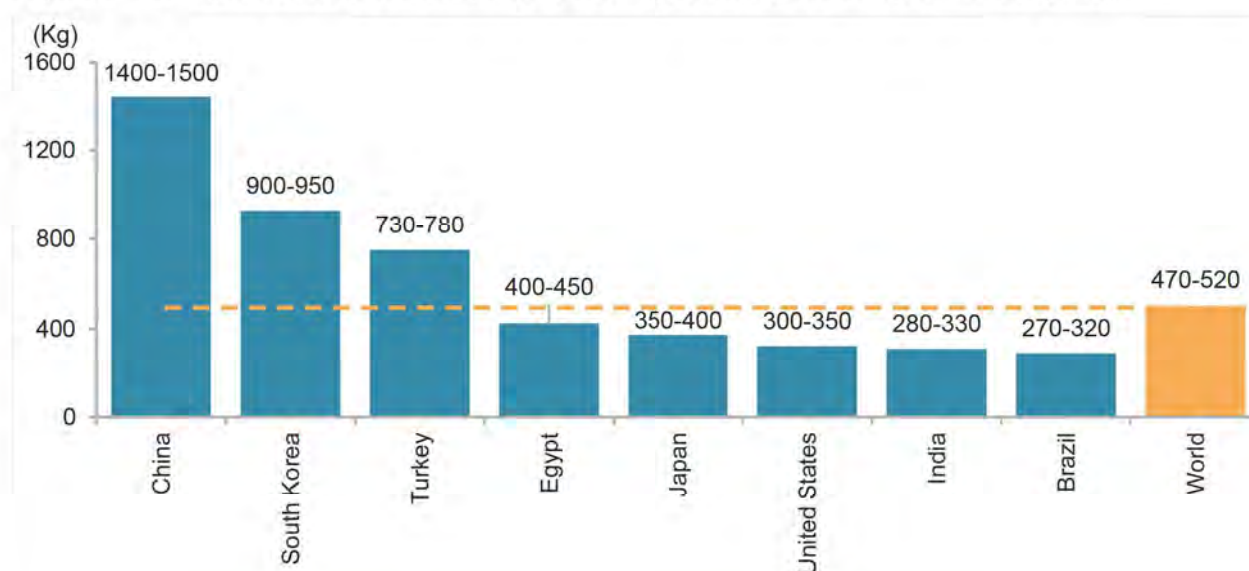
Others include Indonesia, Russia, Saudi Arabia, Egypt, Japan, Korea, Mexico and the remaining countries of the world

Source: United States Geological Survey-Mineral commodity summary, Crisil Intelligence

2.2 Comparison of per capita cement consumption

India's per capita cement consumption is expected to remain at a relatively low level, standing at 280-330 kg, which is significantly below the global average of 470-520 kg. The country's lower base of development, coupled with a higher proportion of its population residing in rural areas and relatively lower infrastructure development compared to developed nations, is likely to limit growth in per capita cement consumption. In contrast, China expects to maintain its position as the country with the highest per capita cement consumption, at 1,400-1,500 kg, followed by South Korea at 900-950 kg.

Figure 6- Per capita cement consumption of leading cement producing countries (2023)



Note: The figures are CRISIL estimates, arrived at by assessing various data points from sources such as United Nations Comtrade database (for trade data of cement), US Geological survey and world population estimates published by The World Bank

India's production data are on fiscal year (Apr-Mar) basis and that of others on calendar year basis

The US includes Puerto Rico

Source: United States Geological Survey-Mineral commodity summary, United Nations Comtrade database, The World Bank, Crisil Intelligence

India's cement industry is expected to experience substantial growth due to the country's relatively low per capita cement consumption of 280-330 kg. The government's focus on infrastructure and housing development, as seen in initiatives such as the National Infrastructure Pipeline, PM Gati Shakti, and Pradhan Mantri Awas Yojana, is driving construction activities and boosting cement demand. Furthermore, demographic trends, including a growing population, rising income, and urbanisation, as well as a housing shortage, are likely to support robust growth in the individual housing and real estate sectors. The government's efforts to promote affordable housing through subsidies will also stimulate construction in smaller towns and cities, potentially increasing demand by 5-7% annually.

Given the low base of development, which offers significant room for growth, India's per capita cement consumption is expected to increase by around 3-5% in the medium term. Notably, despite its relatively low per capita consumption, India is currently the second-largest consumer of cement globally, accounting for around 7-10% of worldwide consumption, after China.

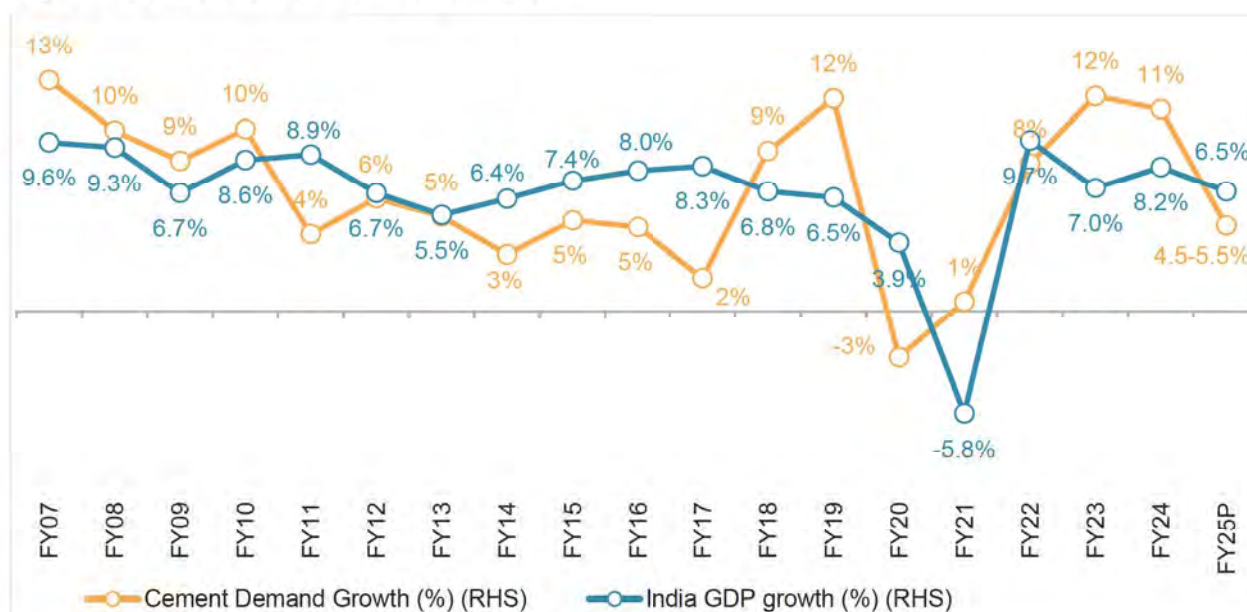
2.3 Cement demand to GDP growth multiplier

Cement demand is closely correlated with economic development and GDP trajectory, as infrastructure investments and construction activities, which are key components of GDP, are major drivers of cement demand. Rural housing, which is dependent on agricultural productivity, is also a key component of GDP and a determinant of cement demand.

Historical data indicates that between fiscals 2005 and 2009, average cement consumption grew at a rate 1.14 times that of GDP growth, supported by strong growth in the real estate sector. However, from fiscal 2010 to 2019, cement demand lagged behind, growing at only 0.89 times the rate of GDP growth, due to a slowdown in the real estate sector, quantitative tapering in 2013, demonetisation in November 2016, implementation of the Real Estate (Regulation and Development) Act (RERDA) and Goods and Services Tax (GST) in 2016/2017, a credit crisis in 2019, and the Covid-19 pandemic in late fiscal 2020. In fact, the cement demand-to-GDP multiplier fell into negative territory in fiscals 2020 and 2021, at 0.69x and 0.09x, respectively, due to the pandemic-induced economic slowdown.

However, the growth multiplier recovered rapidly in fiscal 2022 to approximately 0.87x, driven by a sharp recovery in cement demand due to pent-up demand, and further increased to around 1.74x in fiscal 2023, led by higher cement demand growth of around 12% year-on-year, despite GDP growth moderating to 7%. Notably, cement demand growth has remained higher than GDP growth during fiscals 2022-2024, led by post-pandemic demand recovery.

Figure 7- Cement demand-to-GDP multiple



Source: Crisil Intelligence, Industry

Table 6- Cement demand-to-GDP multiple

	FY05-09	FY10-14	FY15-19	FY20	FY21	FY22	FY23	FY24	FY25P
Multiplier	1.14	0.83	0.85	-0.69	-0.09	0.87	1.75	1.40	0.6-0.8

Source: Crisil Intelligence, Industry

Following a robust ~11% growth in cement demand in fiscal 2024, outpacing the ~8% GDP growth, the cement demand-to-GDP multiplier remained at a healthy level of 1.4x. However, Crisil Intelligence expects the multiplier to decrease in fiscal 2025 due to a high base effect. Cement demand is likely to moderate to

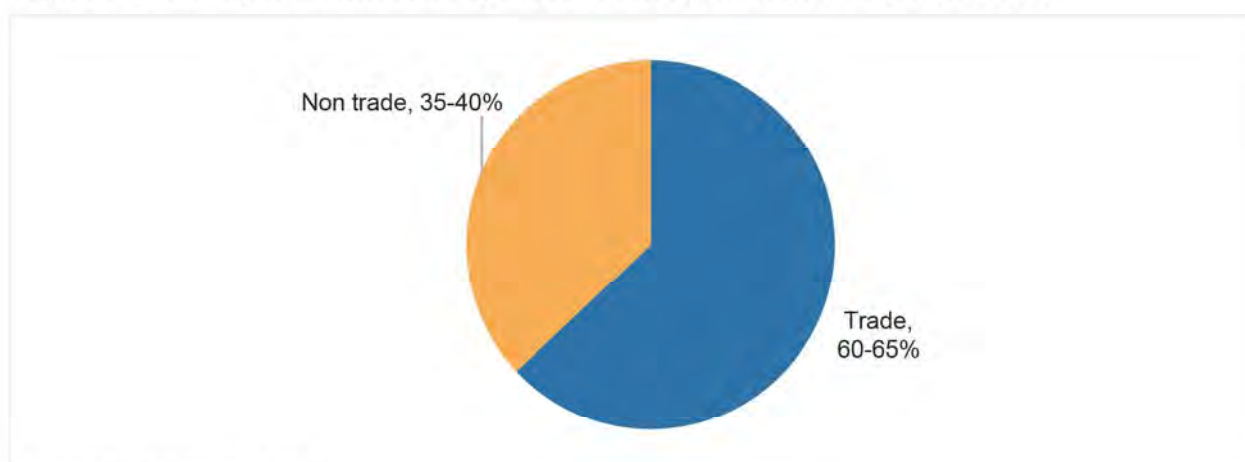
4.5-5.5% in fiscal 2025, while GDP growth is expected to slow down to around 6.5%, weighed down by high interest rates and a low fiscal impulse.

Segmentation by modes of sales

Cement is marketed under two mechanisms: trade and non-trade.

- **Trade:** The manufacturer directly sells cement through dealers and retailers, who sell to the end consumers. It is a more common and stable method of vending cement since the manufacturer does not have to take the liability for making sales pitch to the consumer directly. Also, it increases the manufacturers' reach. The dealer gets incentives to sell the product. Segments that fall under this mode are individual housing, PMAY-G and parts of infrastructure & industrial-commercial as well as other housing segments.
- **Non-trade:** Under this mechanism, the manufacturer directly sells to the consumer like a construction company for use in a project. Here, the dealer is not involved.

Figure 8- Break-up of cement sales by mode of sales (as per fiscal 2024 estimates)



Source: Crisil Intelligence, Industry

Higher profitability in trade segment makes it more attractive

Trade is preferred by manufacturers as it fetches higher realisations. While the manufacturer has to invest in a distribution channel, the returns are relatively higher. The difference between trade and non-trade price varies from Rs 30 to Rs 60 per bag for a manufacturer. The difference in prices is based on factors such as:

- **Region:** difference between trade and non-trade is highest in the southern region
- **Volume:** Higher the volume, higher the difference. For large-scale projects, buyers negotiate to get better prices
- **Project type:** For infra projects, prices are often fixed on a freight on road (FOR) basis. Often there is a pricing differential between trade and non-trade FOR prices to the tune of Rs 50-100 per bag
- **Relationship:** The relationship between the construction company and the cement manufacturer plays a key role in determining the quantum of discount

In fiscal 2024, first half witnessed healthy traction from housing segment which resulted in higher trade sales. However, with a focus to speed up execution of infra projects during second half of the fiscal (ahead of Lok Sabha elections in April/May'24), the share of non-trade segment increased sharply at an overall level. While non-trade cement is sold at a discount, it comes with several cost advantages as well, the key being:

- A large part of the non-trade cement is transported in the form of bulk cement, which helps in cutting freight as well as packaging cost
- Since the dealer is not involved, the company does not have to pay dealer commissions
- Further, the company has to spend less in setting up a dealer network

Despite the cost advantages, the trade segment is more attractive due to higher prices and consistency in the business. Additionally, the scale and distribution of trade segment well offsets the margins paid to dealers. Thus, it often leads to higher profitability. The difference in profitability in trade and non-trade segments varies from 100 bps to 300 bps. However, regional dynamics as well as difference in prices and volumes can lower the profitability gap and, in some regions, make non-trade segment more profitable than trade segment.

Realisations for cement players vary depending on a wide range of factors, including channel (share of trade/ non-trade), brand positioning and geographical market mix. Owing to high taxes on cement (the commodity is in the highest slab of GST) and high freight costs, there is a wide difference between the maximum retail price and ex-freight realisation for the industry.

Table 7- Trade and non-trade prices

Price/cost	Rs per bag (trade)	Rs per bag (non-trade)
Average realisation	220-225	213-218
Packaging cost	7-10	0
Freight	55-60	40-45
Average realisation including freight	284-289	255-260
GST @ 28%	78-83	70-75
Wholesaler margin	7	0
Dealer margin	9	0
MRP	383-388	328-333

Note: The prices exhibit regional as well as seasonal variations. The prices mentioned above indicate pan-India average price for fiscal 2024 for category A players.

Source: Crisil Intelligence, Industry

Cement bags are sold through either trade or non-trade channels (largely dependent on the customer segment — individual housing, infrastructure, commercial, and industrial) and the prices vary accordingly. Owing to orders of higher quantity, non-trade customers are usually able to get discounts of Rs 30-60 per bag on trade prices. The realisations from government orders are typically even lower since procurement is undertaken via bidding. For large-scale government projects, the prices are usually calculated on a FOR basis and are often Rs 60-80 lower per bag than trade prices.

In the trade channel, dealer and wholesaler margins are the highest, at Rs 8-10 per bag, in the eastern region due to heightened competition. In other regions, they are typically Rs 6-8 per bag. Moreover, when new players set up capacities or enter new markets, they increase dealer margins to Rs 10-15 per bag to penetrate the market quickly and gain market share. Dealer discounts, freight cost reduction, and bidding values determine the difference between trade and non-trade prices. These vary significantly across players and regions.

2.4 Cost structure for the industry

2.4.1 Break-up of overall cost

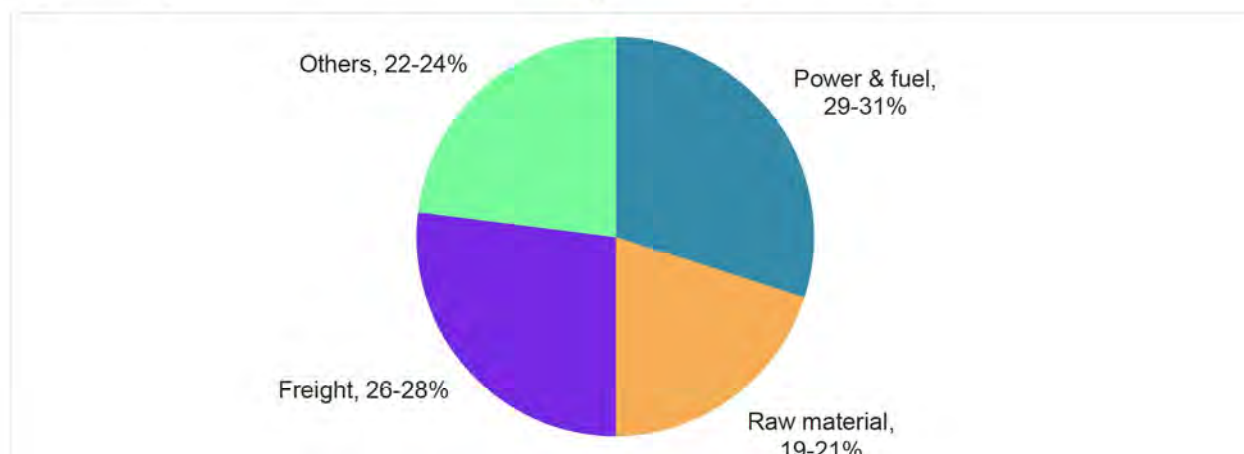
The cement industry is power-intensive, with the power requirement of cement plants varying in accordance with the heat treatment process used and type of plant (SGU or IU). Most of the raw material cost (which accounts for a large component of cement production cost), is incurred in procuring limestone. As cement is a low-value, high-volume commodity, transporting it also involves significant costs.

The major costs associated with cement production are on account of:

- Power and fuel
- Raw materials
- Freight expenses

- Other expenses

Figure 9- Major costs associated with cement production (Fiscal 2024)



Note: Sample set used to calculate cost of sales comprises 19 companies accounting for 75-80% of the industry sales; Other expenses include employee cost, packaging cost, administration expenses, repair and maintenance charges, etc.

Source: Crisil Intelligence

Power and fuel

The cement industry is power-intensive, with power and fuel costs accounting for 29-31% of the total expenditure of cement players. Coal is used to fire the kiln as well as to generate power for grinding the clinker. The power requirement of cement plants varies according to the heat-treatment process, i.e., dry process or wet process. Clinkerisation is an energy-intensive process as limestone is converted into clinker at high temperatures in a coal-fired kiln, which is part of an integrated plant. However, SGUs have no fuel requirements due to the absence of the clinkerisation process. They also have lower power requirements as clinker grinding (clinker to cement) and blending with other raw materials are less energy-intensive processes and account for only 15-20% of the total energy consumption of an integrated plant. Hence, a significant portion of the SGU's power requirement is met through grid power supplied by state electricity boards, as these plants have Power Purchase Agreements (PPAs) with state electricity boards.

Power purchase agreements allow players to receive stable and at times low-cost electricity with no upfront cost. They also hedge against energy price increases, improve the resiliency of operations without capital expenditure, and allow players to take advantage of renewable energy tax incentives. The Open Access model enables power consumers to buy relatively cheaper power directly from power producers (open market) at a relatively lower rate. However, a slew of additional charges in the Open Access model makes it less lucrative than the captive model, where players hold partial or full investments in the solar project for their own consumption.

Cement companies are increasingly opting for blended cement, captive renewable power plants, and WHRS to reduce their cost of production and meet their long-term emission targets.

Raw materials

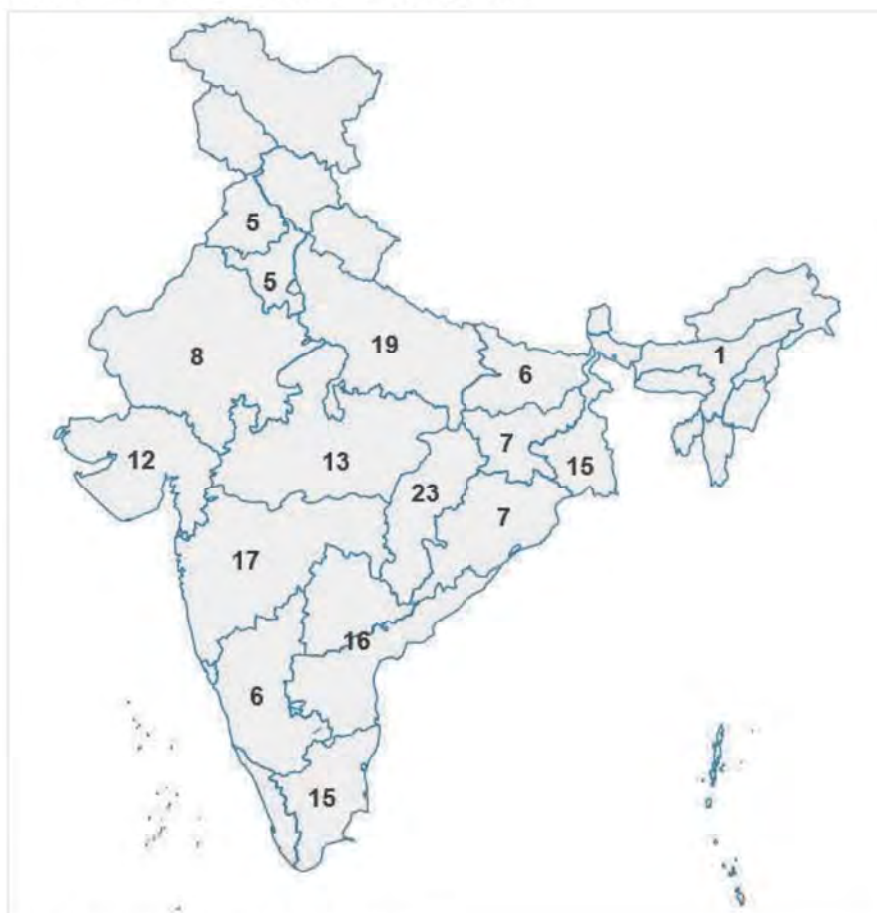
Raw material cost accounted for 19-21% of the total expenditure of cement players for fiscal 2024. Limestone constitutes a major share of this cost. Integrated cement plants are generally located near limestone quarries, as limestone cannot be transported economically over long distances. Limestone availability is largely confined to its cluster regions. Moreover, limestone is considerably bulky in nature, so it does not make economic sense to transport it over long distances. Hence, limestone is converted to clinker, and clinker is transported to satellite grinding units where it is ground with fly ash, slag, and gypsum to manufacture OPC and blended cements like PPC, PSC, and Composite cements.

Other raw materials used in the cement industry include fly ash, slag, and gypsum. Gypsum is available as a natural product and is also derived from seawater and chemical plants. It is mostly found in Rajasthan (which

accounts for more than 80%), followed by Jammu & Kashmir (which accounts for ~15%). A small portion of 5% is found in states such as Tamil Nadu, Gujarat, Himachal Pradesh, Karnataka, Uttarakhand, Andhra Pradesh, and Madhya Pradesh. Gypsum from Rajasthan is dispatched to cement plants in India, spread across Rajasthan, Gujarat, Madhya Pradesh, West Bengal, Uttar Pradesh, Bihar, Jharkhand, Chhattisgarh, and Himachal Pradesh. In terms of proportion, gypsum accounts for 4-5% of a tonne of cement.

Fly ash is a fine, glass-like powder recovered from gases created by coal-fired electric power generation in thermal plants. It primarily consists of silica, alumina, and iron. According to the Bureau of Indian Standards, for PPC, fly ash can account for 15-35% of the cement mass, while the BIS standard for slag cement (Portland blast furnace slag cement) allows slag to comprise 25-70% of the cement mass. Slag is a by-product of the steel-making process, produced during the separation of molten steel from impurities in steel-making furnaces and, like fly ash, is used as an additive in cement manufacturing.

Figure 10- State-wise no. of major thermal power plants



Source: Central Electricity Authority- March 2023, Crisil Intelligence

Chhattisgarh, Uttar Pradesh, Maharashtra, and AP-Telangana account for ~43%, i.e., 75 out of the major 175 Thermal Power Plants (TPPs) in India, which leads to an ample fly ash supply in these states as of fiscal 2023. Uttar Pradesh and Bihar combined have ~14% (25 TPPs) of the country's total number of thermal power plants. Uttar Pradesh boasts a significant presence of thermal power plants, with a total of 19 units, ranking second only to Chhattisgarh (having 23 TPPs) in terms of the number of such facilities. This signifies an ample availability of fly ash at low cost for cement manufacturers, making the production of blended cement quite lucrative. While being clinker-deficient states, Uttar Pradesh and Bihar have higher availability of fly ash, which makes it beneficial for cement players producing PPC cement.

However, unlike fly ash, the availability of slag in India is limited and is found mostly in the east, due to the concentration of steel plants in the region. The availability of raw materials is subject to supply disruptions

and price volatility caused by various factors, including commodity market fluctuations, freight rates, or changes in government policies.

Inward freight (the cost to transport fly ash/slag from thermal power plants/steel plants to satellite grinding units) forms a substantial portion of the total raw material cost for blended cement manufacturers. The cost of fly ash is minimal, as it is a waste by-product of thermal power plants, and in some of the northern, eastern, and central markets, cement companies are incentivised to lift fly ash from thermal power plants, and/or fly ash is sold at negligible prices to the companies. Hence, proximity to thermal power plants and steel plants is a major advantage for blended cement manufacturers. Plants are strategically situated close to sources of key raw materials, leading to savings in raw material costs. Chhattisgarh, Uttar Pradesh, Maharashtra, and AP-Telangana account for ~43% of the total thermal power plants in India, which leads to an ample fly ash supply in these states.

Freight costs

As cement is a low-value, high-volume commodity, freight costs constitute a significant proportion at 26-28% of the total expenditure of cement players.

There are three major modes of transport used by the cement industry: road, rail and sea. Rail is the preferred mode of transport for long-distance transportation due to lower freight cost. However, the availability of wagons and the extent of last-mile connectivity need to be taken into consideration. Road transportation is beneficial for short distances and bulk transportation, as it minimises secondary handling and secondary freight costs.

Currently, road is the most preferred mode, accounting for ~60% of the cement transported despite higher costs owing to pan-India availability and relatively lower costs involved in handling. Transportation by sea is the cheapest mode. However, only coastal players can take advantage of this mode, as they can transport clinker and cement more economically within the country and to other regions as well. Hence, a very small proportion of cement is transported by the sea route. In order to control freight costs, companies try to strategically locate plants close to raw material sources and end-user segments by opting for split location units.

Other expenses

Other costs include employee cost, packaging cost, administration expenses, and repair and maintenance charges. These account for 22-24% of the total expenditure. Other expenses have increased over the past 3-4 years, led by rising marketing expenses amid stiff competition.

Packaging expenses: Cement as a product is tricky to handle since it is a fine hygroscopic powdery material. Thus, the packaging of cement is an important factor for maintaining product quality. Packaging of cement has assumed strategic importance. To reduce outward freight cost, the players are setting up packaging units close to the bigger demand centres. While it does not reduce the lead distance, it helps lower freight cost through transportation of bulk cement.

Majority of the cement sales are through the trade segment, which accounts for 65-70% of pan-India sales and in the form of 50 kg bags. The most common form of cement packaging is HDPE (high-density polyethylene) bags, followed by paper bags, which are increasingly being used for premium cement brands. However, HDPE remains the most used material due to its price difference. HDPE bags cost Rs 10-15/ bag, less than half of the paper bags' cost of Rs 25-30/ bag.

Since cement is an inexpensive commodity, a Rs 10-15 difference per bag is important to the end user. Thus, replacing HDPE bags with paper bags has been difficult in India. Some regional players also use PP (polypropylene) bags since it is cheaper than HDPE, but the usage is limited. Most large cement players either have their own subsidiary manufacturing bags for them or have outsourced the same to contractors where the entire material procurement is controlled by the cement manufacturer. This helps the player keep

control over the quality. In terms of costs, the only variable remains the cost of HDPE, which moves in line with crude prices. Thus, cement players enjoy lower packaging costs whenever crude prices are subdued.

2.4.2 Logistic challenges in the industry

Advantages of clinker transport over long distance compared to cement transportation

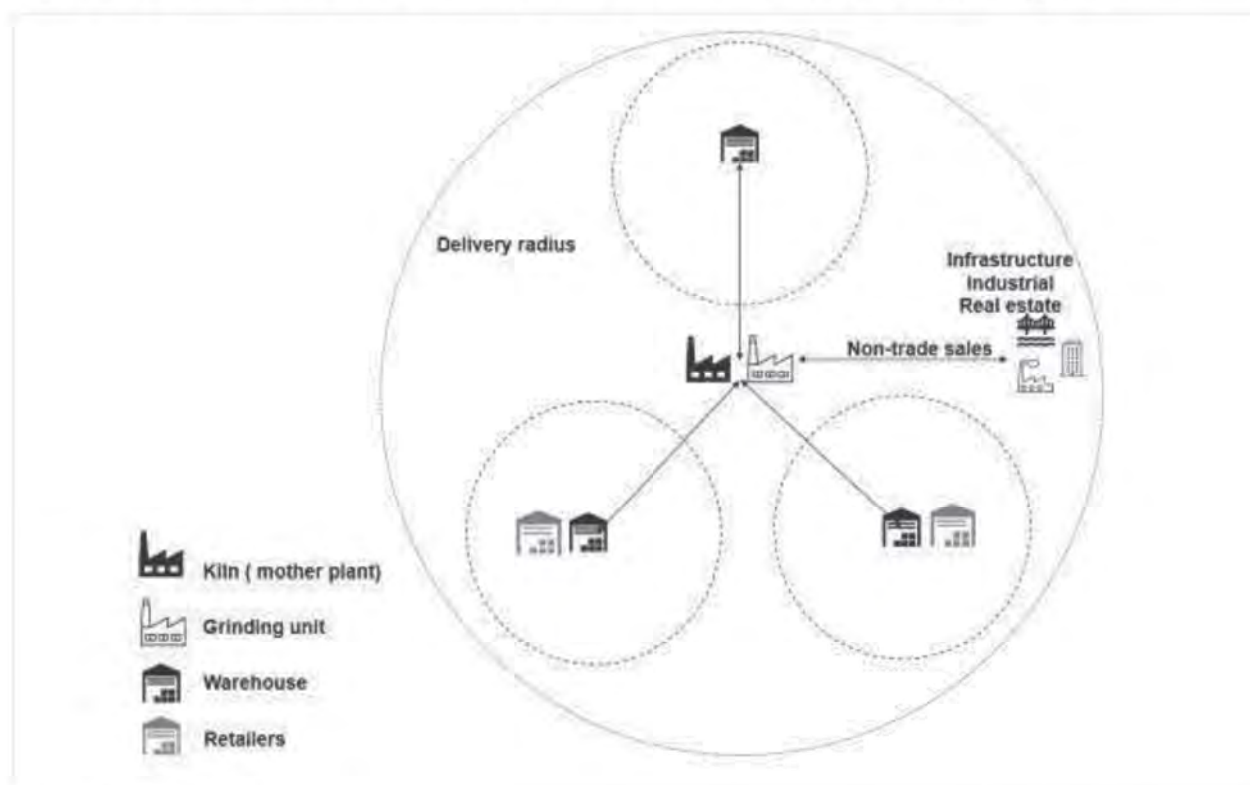
The cost of freight has long been a significant component for the cement industry. Companies often struggle to contain freight costs, particularly when pursuing volume growth. However, in the previous fiscal year, freight costs remained relatively stable, despite steady diesel prices, increased volumes, and improved lead distances resulting from new capacity additions.

Over the years, Indian cement companies have developed strategies to enhance freight efficiencies. In the past decade, cement manufacturers have invested heavily in improving their overall supply chain. Whilst improving supply-chain efficiencies is theoretically beneficial, it is challenging in practice. It is considerably easier to drive efficiencies in plant operations than in logistics, as the latter involves a vast network with demand spread across the country.

Inefficiencies in the supply chain arise when cement manufacturers compete to increase their market share. Conversely, when companies focus on improving their supply-chain efficiencies, their sales volume often takes a short-term hit. Players chasing volumes in the market typically end up with lower realisations per tonne and higher freight costs per tonne. Instead of rationalising their overall supply chain, cement players have largely focused on establishing satellite grinding units closer to demand centres, thereby reducing lead distances. This approach not only lowers overall freight costs but also increases market coverage without increasing lead distances.

The evolution of the strategies is illustrated in two scenarios below:

Figure 11- Cement distribution scenario 1: direct distribution from one integrated plant



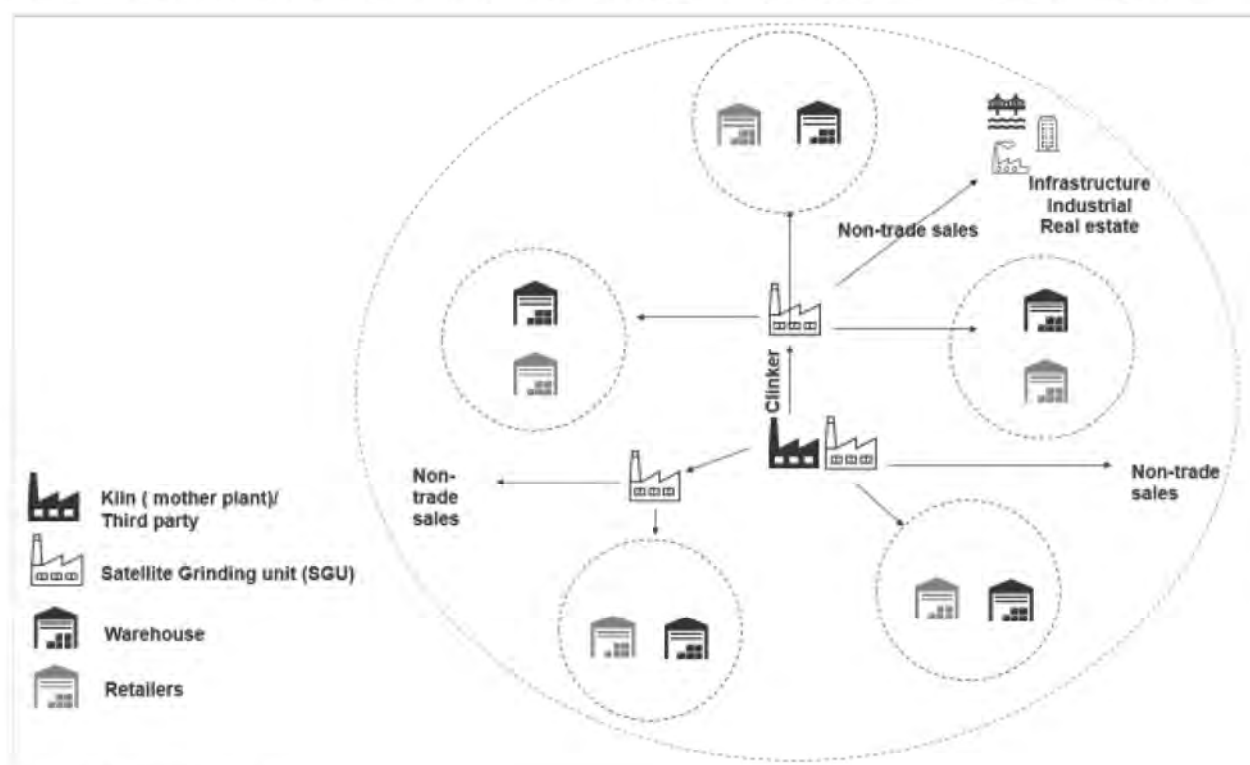
Source: Crisil Intelligence

Traditionally, cement manufacturers have adopted a strategy comprising a large integrated plant and several satellite grinding units. However, this setup has a significant drawback: the higher lead distance for cement

transportation, which has kept freight costs elevated over the years. Furthermore, this approach reduces geographical coverage if manufacturers aim to contain overall freight costs.

Moreover, with the increasing proportion of blending, the availability of fly ash and slag has become more critical, making it economical to set up satellite grinding units if coal-based power plants are near the demand centres. Establishing satellite grinding units is a more viable option, as clinker is easier to transport than fly ash. The cost of fly ash varies significantly depending on its geographical location and its chemical, physical, and mineralogical properties, such as lime content and the type of coal used (bituminous, sub-bituminous, or lignite). The primary cost associated with fly ash is transportation, as most power-generating plants are located far from satellite grinding units and main consumer areas. Consequently, satellite grinding units strategically located closer to fly ash sources benefit from lower inward freight costs and lower raw material costs.

Figure 12- Cement distribution scenario: One clinker unit and multiple satellite grinding units



Source: Crisil Intelligence

Over the past decade, cement manufacturers have largely transitioned to a model featuring a large integrated plant supported by satellite grinding units. By establishing plants near demand centres, they have been able to reduce outward freight costs, while setting up facilities adjacent to thermal power plants and large integrated steel plants has helped to limit inward logistics costs.

The introduction of satellite grinding units has eliminated the need for warehouses and stockists, as the distance between satellite grinding plants and major consumer areas has been reduced to less than 150 kilometres. This has enabled cement to be transported directly to the end-user's location or to the retailer's shop, resulting in significant savings on selling costs.

This strategy has not only reduced lead distances but also opened up new market opportunities. Southern-based players have established satellite grinding or packaging units in eastern and western regions to enter these markets. The eastern and western regions, particularly states such as West Bengal, Bihar, and Maharashtra, which have limited limestone deposits, have seen a significant increase in cement grinding capacity additions to meet local demand.

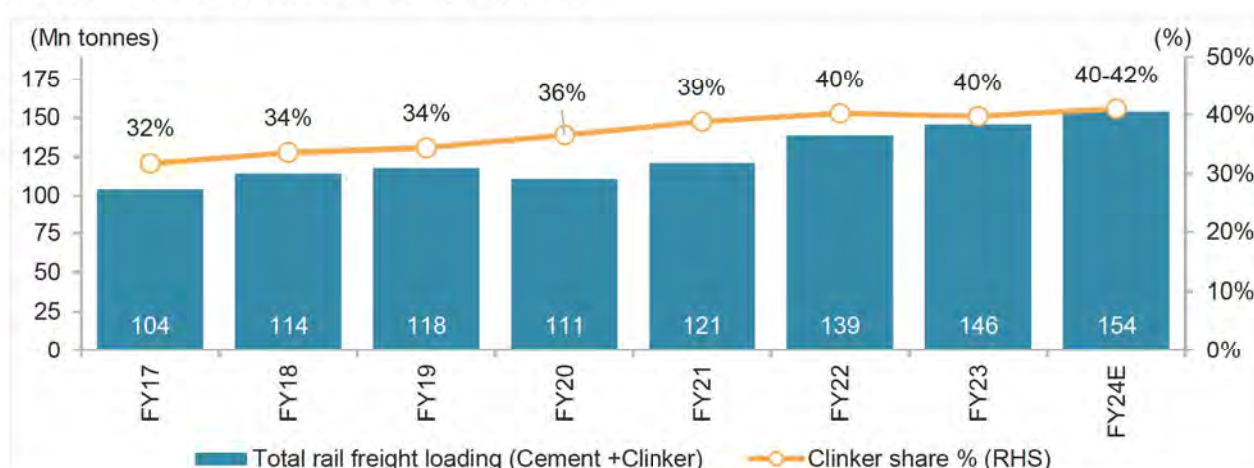
The impact of this strategy is evident in the gradual moderation of freight costs across the industry. Despite a more than 30% increase in diesel prices over the past five years, the freight cost per tonne has risen by only 5-10%.

Lower cost of clinker transportation leads to increased transportation of clinker

The increasing proportion of satellite grinding units has contributed to lower freight costs and the lower transportation cost of clinker compared to cement has also supported cost control measures. Although both materials are hygroscopic in nature, cement is typically transported in HDPE or paper packets, whereas clinker is transported in bulk, making it relatively easier to transport by rail. As a result, the share of clinker transport by rail has been increasing. This trend has led players to establish satellite grinding units near target markets, as transporting clinker over longer distances by rail has become more common.

The cost differential between road transport and rail transport is significant, at Rs 2.5 per tonne per kilometre, resulting in both inward and outward freight savings in the transportation and procurement of cement and clinker. This cost advantage has further reinforced the benefits of the satellite grinding unit model, enabling cement manufacturers to optimise their logistics and reduce their overall freight costs.

Figure 13- Clinker transportation through rail



Source: Crisil Intelligence, Railway Board (Indian Railways)

Note: Clinker share of fiscal 2023 & fiscal 2024 are Crisil estimates as cement and clinker rail freight tonnage not released by Indian Railways after Oct'2023.

Table 8- Cost of clinker transport

Mode of transport	Cost (per tonne per km)	Remarks
Rail	1.4-1.9	For distance greater than 300 kms
Road	3.0-4.0	For distance greater than 300 kms
Sea	1.0-1.5	For distance greater than 300 kms

Note: Rail fare includes clinker transport from mother plant to SGU excluding local freight to/from rail yards; loading and unloading charges not included for above modes

Key Challenges in transportation of cement

Transportation of cement and clinker has always been a major challenge for the cement industry. It has been a major cost component for players. Players have invested significantly to overcome this obstacle, but challenges remain.

- Demand is distributed:** Unlike most other industries, cement demand is distributed across the country. Hence, reaching every nook and corner of the nation is important. Setting up distribution network and transportation in difficult terrains adds to the cost.

- **Cement is hygroscopic in nature:** Cement and clinker are hygroscopic material. Hence, they have to be kept away from moisture. Though in dry seasons cement can be transported in open wagons, manufacturers prefer closed wagons for fear of exposure to water/moisture on the route. Availability of closed/covered wagons (Body Covered Pneumatic wagon series) has been an area of concern for most of the industries, thus limiting ability of the railways to transport the products. However, with the gradual implementation of dedicated freight corridor, movement through the railway route will increase further.
- **Cement is inexpensive compared to other commodities; hence freight cost is proportionately higher:** Cement is an inexpensive commodity compared to other commodities but freight cost per tonne per km for cement is largely similar to that of commodities such as steel or aluminium which are around ~10 and ~40 times pricier, respectively than cement. Thus, freight is a huge cost component for the industry.
- **Cement trucks are not used for other commodities:** Truck owners do not move any other commodity in vehicles that are used to transport cement and clinker. This is because these trucks will have cement and clinker traces stuck to them, making them infeasible for transportation of any other commodity.
While this not only leads to lower availability of trucks in the peak season (the fourth quarter of a fiscal) but also results in trucks returning empty from construction sites/warehouses. This, in effect, doubles the freight rates. Recently, truckers have started covering the body of the truck using tarpaulin while transporting cement in a bid to limit the damage and to keep the truck viable for transport of other materials such as food grains. However, this spikes the operating cost as well.
- **Dedicated fleet required to move cement through sea route:** Cement is moved only in dedicated closed bulk vessels. This increases investment required in such fleet. While the likes of Ambuja Cements Limited and UltraTech Cement Limited were early adopters of this mode of transport, players such as Penna Cement, Vicat Bharathi, and India Cements have also adopted this route.

2.5 SWOT analysis of Indian Cement industry

Strength	Weakness
Large market size: India is the second-largest cement producer in the world, with a large and growing market size. India's cement producing capacity stands at ~636 MTPA as of fiscal 2024. Government Support: The Indian government has been supportive of the cement industry, with initiatives such as the National Infrastructure Policy and the Housing for All scheme, which has supported cement demand over the years and will continue to do so. Technological Advancements: The Indian cement industry has adopted modern technologies, such as dry process kilns and waste heat recovery systems, which have improved efficiency and reduced costs. Low cost of production: India has a low cost of production due to the availability of raw materials, such as limestone, and low labour costs.	High energy cost: Industry is energy-intensive with power and fuel cost accounting for highest share in total cost component and high energy costs can erode profit margins. Cyclicality: Cement industry is highly cyclical in nature and depends largely on the economic growth of the country. There is a high degree of correlation between the GDP growth and the growth in cement consumption. Dependence on Monsoon: Demand from the rural housing segment (accounting for 33-35% of total cement demand) is heavily dependent on income from agriculture. Capital intensive: Cement industry is highly fixed capital intensive in nature and requires large sum of money to set up manufacturing plant. This also acts as an entry barrier for the new players.

	High competitive intensity: The industry is a highly competitive industry with many large players, thereby limiting pricing power of mid and small players. Also, many new players are entering and adding capacities in the market, which might augment pricing pressure and induce competition related pressures on profitability. Raw material prices: Companies operating only grinding units procure clinker from other cement manufacturers, thus at times from companies competing in the same market.
Opportunities	Threat
Growing Demand: The Indian government's focus on infrastructure development and housing is expected to drive demand for cement in the coming years. Increasing Urbanization: Urbanisation and rising per capita income is expected to provide impetus for better infra connectivity and development in the country, supporting cement demand over medium to long term. Sustainable Cement: The Indian cement industry has the opportunity to adopt sustainable practices, such as using alternative fuels and reducing waste, which can improve its environmental performance and reduce costs. Digitalization: The industry can leverage digital technologies, such as data analytics and artificial intelligence, to improve efficiency and reduce costs. Move towards asset light models: Cement manufacturers are gradually moving towards contract manufacturers in certain geographies where strategic advantages of owning an asset are low.	Environmental concerns: The cement industry is identified as one of the 17 categories of highly polluting industries. In cement production, large amounts of CO₂ are emitted. With higher focus towards sustainability and net-zero emissions, the government can play a pivotal role in facilitating the industry's transition towards greener practices by implementing green public procurement policies. Volatility of key input costs: Imported coal and pet coke are the key fuels used in captive power plant and clinkerisation kiln, respectively. Prices of these commodities are governed by global demand and supply and are volatile in nature. Any geo-political event impacting crude/coal prices to remain a key monitorable Cement substitutes: To reduce environmental impact, newer products are being tested and tried. While such technologies/products are at nascent stage in India, adoption of the same has started globally. It includes LC3 - new type of cement that is based on a blend of limestone and calcined clay; Geopolymers: shown to have similar strength and durability to Portland cement, but they have a much lower carbon footprint.

3. All India cement demand overview and outlook

3.1 Pan-India cement demand review and outlook

Figure 14- Cement demand review and outlook



F: Forecasted; Growth percentage for FY29F indicates CAGR of FY25-29 5 years period

Source: Crisil Intelligence

Domestic cement demand grew at a healthy ~6% CAGR over fiscal 2019 to 2024, despite pandemic-induced slowdown, majorly led by sustained government thrust on infrastructure and affordable housing. In fact, a large part of the growth was due to pre-election spending between fiscals 2018 and 2019 and a healthy uptick in fiscals 2022 and 2023, while in fiscals 2020 and 2021, demand was weak because of pandemic-induced lockdowns. On a low base, pan-India cement demand recovered by 8% in fiscal 2022 and accelerated further by ~12% in fiscal 2023, supported by strong demand for rural housing and infrastructure. A pre-election boost and healthy traction from infrastructure segment led to further 11% on-year growth in fiscal 2024.

Fiscal 2021: Cement demand was flat in fiscal 2021 after a dip in fiscal 2020. Production shutdowns, stalled construction activities and mass exodus of labour following the onset of the pandemic in the first quarter impacted cement demand. Supply chain and labour issues due to extended local lockdowns led to a sharp decline in demand by 30-31% in the first quarter, though pent-up and pre-monsoon construction demand in May and early June cushioned the fall. The moderate demand growth of 3-4% on-year in the seasonally weak monsoon period (June-September) surprised the cement industry positively because of construction activity in September, with migrant labourers returning and Covid-19 restrictions easing in urban areas. There was a gradual pick-up in infrastructure activity in the seasonally strong construction period of December to March because of improving government spending and a recovery in urban housing. A culmination of these factors led to robust demand growth in the second half of the fiscal, thus keeping overall demand flat on-year.

Fiscal 2022: Cement demand in the first half of the fiscal was impacted by the second wave of Covid-19, which slowed the growth momentum, though pent-up demand from the first quarter helped stabilise demand in the second quarter despite the onset of monsoon. In the third quarter, demand took an unexpected hit because of unseasonal rains, labour unavailability due to the wedding season, sand availability issues in some states, and due to festive season, translating into a decline of ~4% on-year. Demand recovered at a snail's pace in the fourth quarter, on a sequential basis, due to high construction cost of building materials.

Inflation hit commodities such as steel, aluminium and cement because of geopolitical tensions following the Russia-Ukraine conflict, leading to supply constraints and higher prices of crude oil-derived commodities. This sharply increased prices of building materials such as steel, cement and aggregates, discouraging construction. Thus, after growing in double digits in the first half of the year on a low base, demand was limited to only 8% on an annualised basis in the fiscal.

Fiscal 2023: Demand rose ~12% on-year. In the first quarter, demand logged a robust growth of ~18% on-year on a low base, on a pick-up in infrastructure activities as well as strong recovery in individual housing – both rural and urban. The second quarter witnessed some moderation sequentially on the back of seasonal weakness, but still grew ~9% on-year. Further, with the monsoon receding, inflationary pressures easing, real estate and affordable housing gaining traction, as well as pick-up in infrastructure project execution ahead of the general elections in 2024, demand grew a healthy ~10% on-year in the third quarter. The last quarter registered ~12% on-year growth, driven by continued traction from infra and housing projects ahead of the general elections. In fact, high construction costs, which impacted demand in the early months, cooled off somewhat in the second half of the fiscal. Volume was also supported by tailwinds from strong demand for rural housing and infrastructure. The individual housing segment, especially rural, which was expected to bear the brunt of inflation in the early months of the fiscal, fared well in the second half amid cooling construction costs, higher rural income owing to healthy yields, and increase in crop prices, indirectly supporting demand growth from the rural housing segment. Infrastructure continued its strong growth momentum, led by government spending, primarily across its flagship schemes such as PM Gati Shakti and the National Infrastructure Pipeline.

Fiscal 2024: The infrastructure segment had been the major demand driver, led by central government's higher spending on key infra sectors ahead of elections. In fiscal 2024, central government's capital expenditure had been ~28% higher for road ministry and ~52% higher for railways compared to previous fiscal. Capacity expansion plans of large players in capital-intensive sectors (steel and cement), implementation of the production-linked incentive (PLI) scheme, rising warehousing spaces and return to office/hybrid model drove demand from the industrial and commercial segments. On a high base of last fiscal, rural housing witnessed moderate growth momentum in fiscal 2024 due to impact of El Nino condition on agri profitability, although the rise in demand was supported by a higher shortage of houses and the government's push to attain a central scheme (PMAY-G) targets before elections. Growth from urban housing was supported by traction from real estate although growth was at a slower pace due to elevated interest rates and capital values. Also, the construction pace under PMAY-U slowed down as the scheme nears closure and the sanctions have already surpassed targeted levels. At an overall level, the pre-election boost to infra and housing and growth from I&C segment led to an overall rise of 11% in fiscal 2024 despite high base of previous fiscal.

Fiscal 2025: On two consecutive healthy bases, demand growth is expected to moderate to 4.5-5.5% in fiscal 2025. The moderation is largely due to a high base effect and a slowdown in construction activity during first half of the fiscal. This slowdown can be attributed to an extended heatwave, labour unavailability during the election period, and seasonal weakness. While Infrastructure segment to continue to remain key demand driver, sluggish government spending (~7% degrowth during H1FY25 compared to H1FY24) for key central ministries related to cement industry (roads, railways, urban housing and agriculture) to result in moderation in demand growth from infra segment. That said, the moderation is on a high base and the overall quantum of capex allocation is still high.

The government's focus on developing dedicated rail corridors for energy, mineral, and cement sector, UDAN scheme for airports, expansion of metro rail and Namo Bharat to more cities, ongoing NHAI and Bharatmala road projects should continue to support infrastructure demand given substantial headroom for capex roll outs in the second half of the fiscal, in order to meet budgeted targets.

Demand from the housing segment is expected to moderate to 3.5-4.5% largely owing to slowdown from urban housing segment due to elevated interest rates, capital value and excess supply of real estate in the market. However, demand to be supported by resurgence in rural housing owing to the expectation of

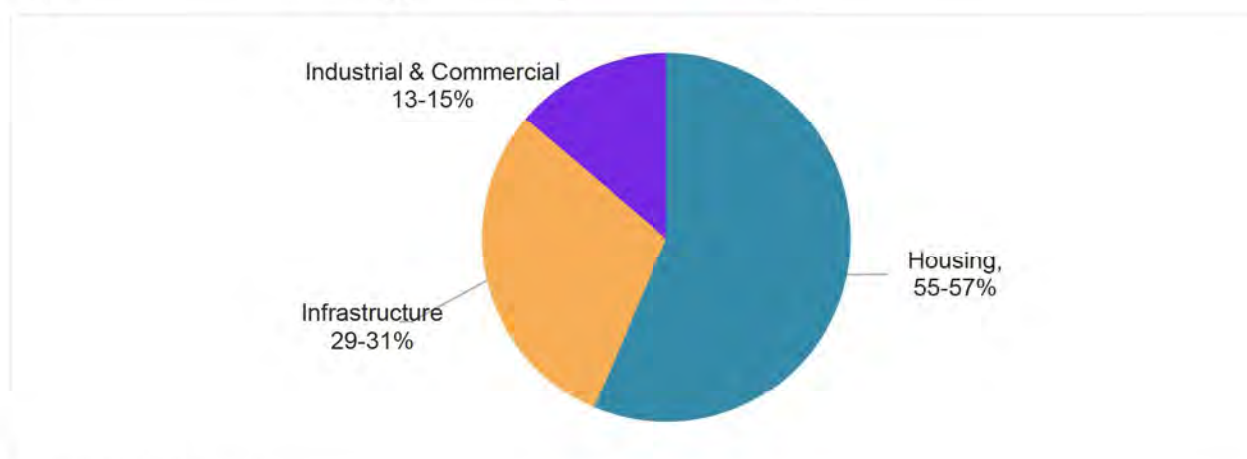
healthy crop profitability on the back of above-normal monsoon season. Further, on three consecutive healthy bases, growth from the Industrial and commercial (I&C) belt is expected to slow down, however, production-linked incentive (PLI) scheme, traction in commercial real estate and rise in private investments to continue to support traction from the segment. As a result, at an overall level demand growth is expected to moderate to a 4.5-5.5% rate in fiscal 2025.

Over the next five years, i.e., fiscals 2025 to 2029, Crisil Intelligence expects cement demand to clock a healthy 6.5-7.5% CAGR, moderately higher than ~6% CAGR in the previous five years. Growth will be driven by a raft of infrastructure investments and healthy momentum from housing segment. Initiatives undertaken by the Government of India, such as the Bharatmala Pariyojna, Sagar Mala, the Pradhan Mantri Awaas Yojana – Gramin and Urban, Atmanirbhar Bharat Abhiyan, Product Linked Incentive Scheme, Swachh Bharat Mission, Ude Desh ka Aam Naagrik (UDAN) for airports and metro projects along with the thrust on infrastructure will drive demand growth in the medium term for the cement industry in India. This presents a major opportunity for growth in the cement industry in India.

3.2 Demand segmentation by end user industry

As of fiscal 2024, the end-user sector mix in cement demand share mainly comprised housing (56-58%), infrastructure (29-31%), and industrial/commercial (13-15%).

Figure 15- Cement demand segmentation by end user industry

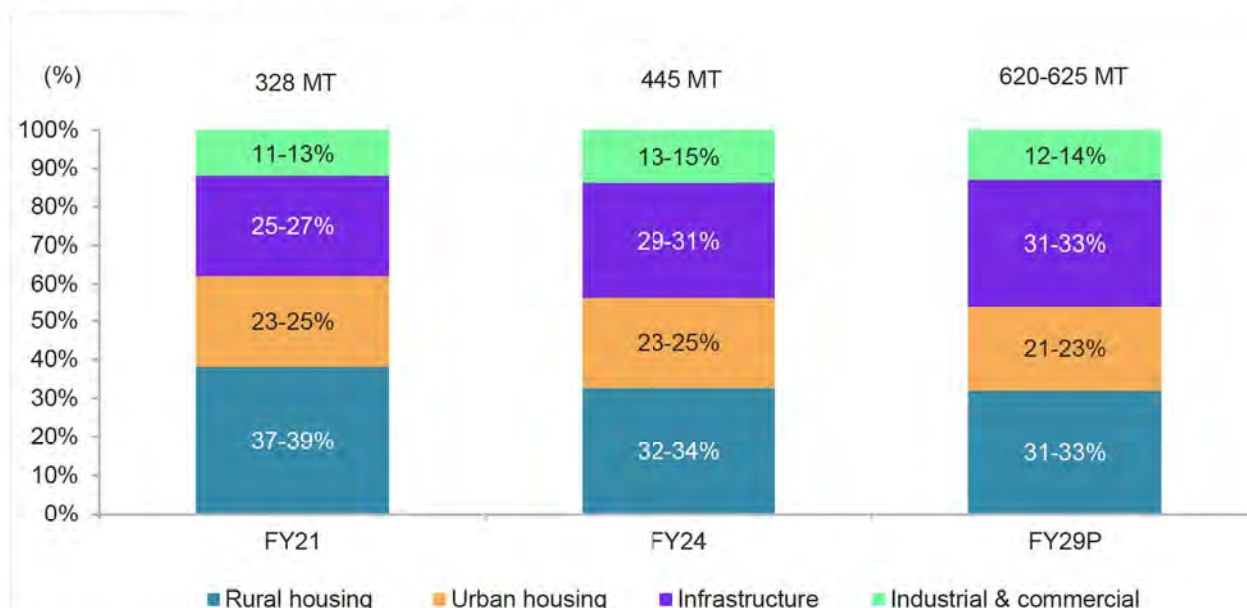


Source: Crisil Intelligence

Over the past five years, while the share of housing and industrial/commercial segment in overall cement demand declined, the share of infrastructure segment increased. The decline in the share of the housing sector in the cement demand pie was because of the sector buffeted by slow economic growth, weak demand, buyer unaffordability and high inventory.

However, following the pandemic, demand for real estate, especially urban housing, rose sharply in fiscal 2021, as work-from-home mandate boosted demand for increased floor space, incomes stabilised, customer preference shifted to home ownership from rental, and the cost of buying declined. Lower concretisation, rising wages, and continued traction in rural housing demand through PMAY, especially during peak of Covid-19, led to higher share of cement demand from rural housing (32-34%) in total cement consumption as well. Hence, overall housing share in cement demand stood at 56-58%.

The share of the infrastructure segment in cement demand has been rising over the past decade as well, because of a surge in the Central government's capex towards the sector. In fact, the sector's share in overall cement demand more than doubled to 29-31% in fiscal 2024 from 11-13% in fiscal 2013.

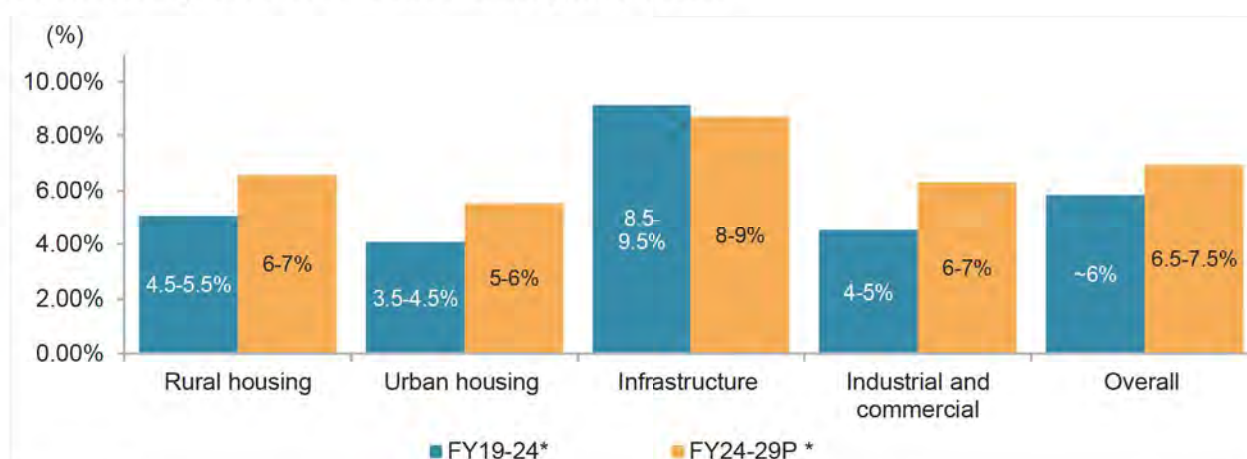
Figure 16- Sectoral mix of cement demand


Note: Boxes above the bar represent total demand in million tonnes in that fiscal year

Source: Crisil Intelligence, Industry

While share of housing segment is expected to marginally contract over the next five years (fiscals 2025 to 2029), it will continue to remain a key contributor, backed by a lower concretisation rate in the country (which means high potential for cement demand growth). Even as housing will be the key volume contributor, infrastructure will expand its share, with the government focusing on infrastructure spending through its flagship schemes, such as PM Gati Shakti, and rising investments in roads, railways, metros, airports, and irrigation. The segment's share is expected to increase to 31-33% in fiscal 2029. The Central government's focus on roads, railways, urban infrastructure, and irrigation will boost infrastructure investments.

On the other hand, the share of the industrial and commercial segment is expected to remain almost at par with marginal decline to 12-14% in fiscal 2029. Recent government initiatives, such as the PLI scheme and Atmanirbhar Bharat, focus on multimodal logistics, warehousing, hybrid model of working and rising capex owing to a long-term positive demand outlook are expected to support demand from the industrial segment.

Figure 17- Segment-wise cement demand growth outlook


Note: *CAGR

Source: Crisil Intelligence

Table 9- Segment-wise cement demand growth outlook

Segmental growth	FY24	FY24-29P*
Rural housing	7-8%	6-7%
Urban housing	8-9%	5-6%
Infrastructure	18-19%	8-9%
Industrial and commercial	11-12%	6-7%
Overall	11%	6.5-7.5%

Source: Crisil Intelligence

Note: * Indicates CAGR for the period

Thus, in the longer run, cement demand will be driven by the infrastructure segment, which has been key driver in the past as well. Growth in the industrial and commercial segment is expected to be supported by government initiatives, such as the PLI schemes and Atmanirbhar Bharat, focus on multimodal logistics, warehousing, hybrid model of working and rising capex.

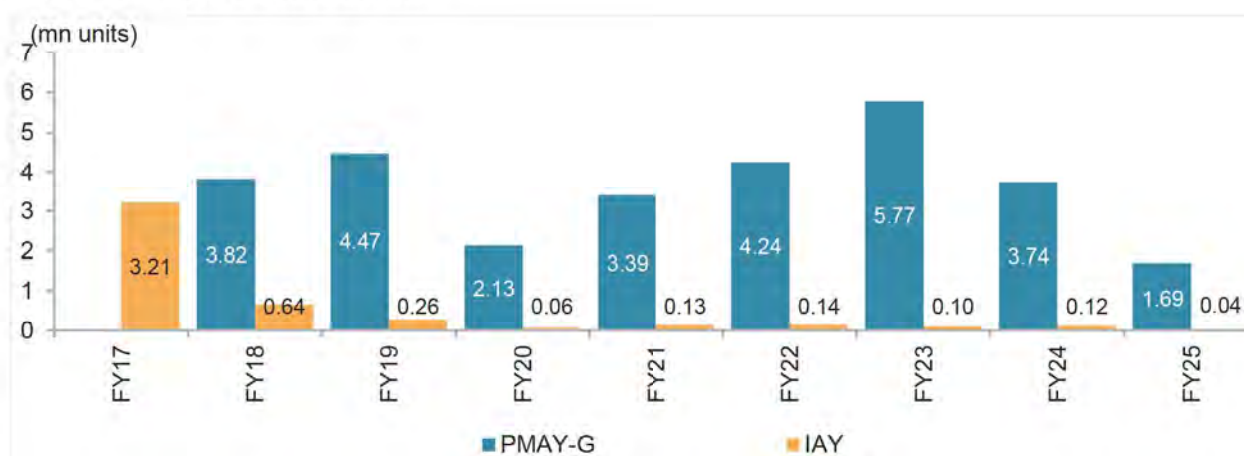
The housing segment would continue its healthy growth trajectory, with rural housing outpacing the urban segment on the back of a lower development base and a continued rise in the concretisation of kuccha houses.

Hence, Crisil Intelligence expects cement demand to log a CAGR of 6.5-7.5% over the next five years, moderately higher than the ~6% CAGR during the past five years driven by a number of infrastructure investments and healthy momentum from industrial and commercial segment.

3.2.1 Housing

Rural housing demand

In order to achieve the target of Housing for All in rural areas, the Ministry of Rural Development implemented Pradhan Mantri Awaas Yojana- Gramin (PMAY-G) with effect from April 2016 to construct 29.5 million houses. The Union Cabinet further approved implementation of additional 20 million houses over fiscal 2025 to fiscal 2029. As of March 2025, a total of ~33.2 million units have been sanctioned, of which, construction of ~27.4 million have been completed (completion rate of ~83% of the total sanctioned units). As many as ~5.7 million units are under construction. Execution pace under PMAY-G moderated in fiscal 2025, due to fund diversion during elections, followed by slower construction pace during erratic monsoon. However, it is expected to ramp up in fiscal 2026 on account of rise in sanctions in later half of fiscal 2025.

Figure 18- PMAY-G construction


Source: Pradhan Mantri Awaas Yojana- Gramin; IAY: Indira Gandhi Awaas Yojna

The announcement in budget 2025, to bring 20 million additional houses under the ambit of PMAY-Gramin scheme over the next five years, will support demand from the housing segment in the long run.

Further, the actual shortage remains well above the deficit identified at 29.5 million units and will continue to drive demand even beyond fiscal 2026. Hence, in the longer run, rural housing is expected to grow by healthy 6-7% CAGR over the next five years, supported by lower development base and continued concretisation of kutchha houses.

Urban housing demand

PMAY-U is an affordable housing scheme under implementation from 2015. It seeks to achieve the objective of Housing for All by 2022. However, The scheme has been extended to beyond 2024. The scheme comprises four components: (i) in situ rehabilitation of existing slum dwellers (using the existing land under slums to provide houses for slum dwellers) through private participation; (ii) credit-linked subsidy scheme for economically weaker sections and low- and middle-income groups; (iii) affordable housing partnership with states/union territories /cities, including private sector and industries; and (iv) subsidy for beneficiary-led individual house construction.

The PMAY-U programme witnessed healthy construction in fiscals 2019 and 2020, but lost momentum in fiscal 2021 as urban construction was adversely impacted by the pandemic-induced lockdown. While ~1.55 and ~1.44 million units were constructed in fiscals 2019 and 2020, respectively, ~1.26 million were constructed in fiscal 2021, despite the pandemic, as construction pace was healthy in the second half. In fiscal 2022, construction momentum slowed down further to ~1.03 million units due to weak execution in the second quarter. In fiscal 2023, construction pace recovered with fast-paced and steady execution of ~1.62 million units during the fiscal.

Construction pace moderated in fiscal 2024 with ~0.95 million units built after witnessing the fast-paced execution in fiscal 2023. After moderate pace of execution in fiscal 2024, the pace of construction remained steady in fiscal 2025. As of March 2025, ~9.1 million houses have been constructed, while ~2.1 million houses are under various stages of construction (completion rate of ~77% of the sanctioned units). The sanctioning under the scheme has remained muted during fiscal 2025 as it has already surpassed targeted houses, with around 11.9 million houses sanctioned as of March 2025. However, with under-construction units of ~2.1 million houses as of March 2025, execution is expected to pick up pace in fiscal 2026, while funding pace remains monitorable.

Figure 19- PMAY-U construction



Source: Ministry of Housing and Urban Affairs

3.2.2 Infrastructure

Within infrastructure, roads have been the largest contributor to cement demand, followed by railways, irrigation, and urban infra. There has been a sharp rise in the capex spending towards infrastructure. In fiscal 2024, the Central government's capital expenditure has been ~28% higher for the road ministry and ~52% higher for railways compared to previous fiscal. Infrastructure to continue its strong momentum, led by the

government's spending, primarily across its flagship schemes, such as PM Gati Shakti and the National Infrastructure Pipeline. Projects focusing on port connectivity, tourism infrastructure and amenities on islands, including Lakshadweep, to also support the infra segment along with ongoing metro construction, and development of airports. While the infrastructure segment is expected to remain a key demand driver, only a marginal rise of 4% in capex for core infrastructure ministries for fiscal 2025BE over fiscal 2024RE is expected to slow down demand growth of the infrastructure segment to 6-7% in fiscal 2025. The government's focus on developing dedicated rail corridors for the energy, mineral and cement sectors, higher budget allocation for metro, UDAN scheme for airports, expansion of metro rail and Nammo Bharat to more cities, ongoing NHAI and Bharatmala road projects continued to support infrastructure demand in fiscal 2025. With the budgeted amount for fiscal 2026 (BE) remaining unchanged from fiscal 2025 (RE), the pace of growth in road construction will be contingent upon the pace of execution of previously awarded projects.

Roads-NHAI: Bharatmala Pariyojana, an umbrella project of the Central government launched in 2015, aims to improve efficiency in the roads sector. It is expected to supersede the National Highways Development Project (NHDP) and envisages the construction of 83,677 km of highways under the following categories: national corridor (north-south, east-west, and Golden Quadrilateral), economic corridor, inter-corridor roads, and feeder roads. Bharatmala, along with the schemes currently undertaken, requires a total outlay of Rs 6.9 trillion. The roads and highways capex growth for fiscal 2025 had witnessed a sharp moderation in growth rate and was only higher by 3% vis-à-vis fiscal 2024RE. Similar to the fiscal 2024, the entire allocation of Rs 2,72,000 crore was via GBS as the IEBR limit was completely eliminated in order to reduce the NHAI's dependence on market borrowings. The budgetary allocation of Rs 1,70,226 crore towards the NHAI for fiscal 2026 has remained flattish vis-à-vis fiscal 2025RE.

The Phase I target is ~34,800 km: 24,800 km of various categories of roads and 10,000 km of residual NHDP projects at a cost of Rs 5.35 lakh crore. As of February 2025, ~26,425 km has been awarded and ~19,826 km has been completed (~57% completion of target). The balance projects are targeted for awarding by fiscal 2026/27. In fiscal 2024, awarding momentum has been marred by various roadblocks. Phase-1 has witnessed significant cost overrun on account of costlier land acquisition and high inflation. As a result, execution pace moderated in fiscal 2025.

Figure 20- National highways construction (km)

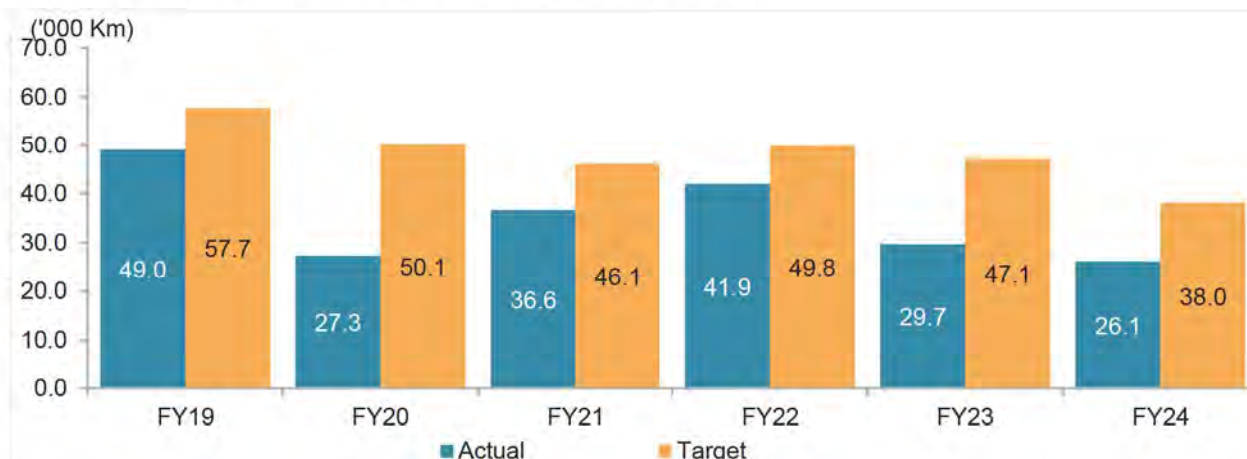


Source: Ministry of Road Transport and Highways, Crisil Intelligence

Roads - PMGSY: The Pradhan Mantri Gram Sadak Yojna (PMGSY) seeks to provide all-weather road connectivity to all eligible unconnected habitations, existing in the core network in rural areas of the country. PMGSY-I was launched in 2000, and 97% of the target was achieved. Under PMGSY-II, 75% of the target was achieved. The target for PMGSY-III is 40% lower than the length of roads constructed over the past five fiscals. Execution under PMGSY improved in fiscal 2022 as ~41,971 km was constructed against a revised target of ~50,000 km (~84% completion rate). The original target of ~61,700 km was revised downward to ~50,000 km. In fiscal 2023, a target of 47,171 km was set under the scheme, of which, ~29,700 km has been

constructed. Further out of a lower target of ~38,000 km set for fiscal 24, around 26,100 km has been constructed during the year (~69% achievement). Going ahead, the pace of execution is expected to moderate further in fiscal 2025 since the budgetary allocation for PMGSY has been lower by 29% for FY2025BE over FY2024RE.

Figure 21- Actual road construction v/s target under PMGSY



Source: PMGSY, Crisil Intelligence

Dedicated Freight Corridor (DFC): these corridors are intended to help the Indian Railways regain lost freight share by cutting the turnaround time between importing and consuming destinations, compelling cement industries to realign their logistics strategies. Thus, roads that have outperformed railways over the past decade will lose some share to railways once DFCs are commissioned.

The DFC project is estimated to cost Rs 124,005 crore for the eastern (1,337 km) and western (1,506 km) sectors. As per the project details, the Western DFC covers 1,504 km, linking Jawaharlal Nehru Port Trust near Navi Mumbai, Maharashtra, to Dadri, Uttar Pradesh, passing through Vadodara, Ahmedabad, Palanpur, Madar, Phulera and Rewari. The Eastern DFC covers 1,337 km, connecting Ludhiana, Punjab, to Dankuni near Kolkata, West Bengal, passing through Haryana, Bihar, Uttar Pradesh, and Jharkhand. Both routes account for more than 20% of the pan-India primary freight in billion tonne kilometre (BTkm) terms. Container traffic (~65% of the Western DFC) and bulk commodities (~89% of the Eastern DFC), which dominate the freight carried on these routes, are expected to shift to railways. As of April 2024, 2,741 kms out of 2,843 km have been commissioned (~91% physical progress and 88% financial progress was achieved under both EDFC and WDFC). ~100% of land acquired for WDFC. EDFC all routes have been commissioned while WDFC completion targets are delayed up to December 2024. Further new routes of ~4358 kms have been proposed.

Urban infrastructure: Urban infrastructure includes construction-intensive mass rapid transit system (MRTS), bus rapid transit system (BRTS), water supply and sanitation (WSS) projects, smart cities, and related infrastructure development. Investment in India's urban infrastructure is driven by government schemes such as AMRUT, Swachh Bharat, Clean Ganga and Jal Jeevan Mission. WSS projects, metro construction in major Indian cities, and commencement of work on 105 smart cities have boosted urban infrastructure investment in the past five years.

Metro and MRTS and Smart City Mission

The government intends to expand metro rail and Namo Bharat to more cities with focus on rapid urbanisation. For this, central government has allocated Rs 24,932 crore for FY25BE against Rs 23,104 crore in FY24RE (7.9% higher). As of August 2024, ~1018 km of metro rail is operational in the country while another ~945 km is under construction.

The Government of India launched Smart City Mission (SCM) on June 25, 2015, to improve living conditions in 100 cities across India. At least one city from every state/union territory was selected under the SCM to implement the concept of a 'smart city'. The goal was to be accomplished by improving infrastructure and services such as water, sanitation, energy, mobility, education and health.

To further push infrastructure spending, the government has approved a budget of Rs 10,400 crore in FY25BE for the development of over 100 smart cities. The focus is on adequate and clean water supply, sanitation, solid waste management, efficient transportation, affordable housing for the poor, power supply, robust IT connectivity, e-governance, safety and security of citizens, health and education. As of July 2024,, nearly 73% projects have been completed and remaining 27% projects are under implementation.

PM Gati Shakti Master Plan: PM Gati Shakti National Master Plan (NMP) was launched on 13th October 2021 for providing multimodal connectivity infrastructure to various economic zones. PM Gati Shakti National Master Plan provides a comprehensive database of the trunk & utility infrastructure, ongoing & future projects of various Infra structure and Economic Ministries/Departments of Central Government and States/UTs. This data is integrated with the GIS-enabled PM Gati Shakti platform, there by facilitating the integrated planning, designing, and monitoring of the Next Generation infrastructure projects on a single portal.

Economic Zones like textile clusters, pharmaceutical clusters, defence corridors, electronic parks, industrial corridors, fishing clusters, agri zones etc. are being mapped for integrated infrastructure planning and make Indian businesses more cost competitive. This will boost economic growth, attract foreign investments while de-risking investments by visualizing the connectivity, and enhance the country's global competitiveness in export markets.

While the development of integrated infrastructure development is addressed through the PM Gati Shakti NMP, efficiency in services (like processes, digital systems, and regulatory framework) and human resources is addressed by the National Logistics Policy, 2022 through its Comprehensive Logistics Action Plan (CLAP). NMP and National Logistics Policy together provide a framework for creating a data-driven decision support mechanism for an efficient logistics ecosystem aimed at reducing logistics costs and enhancing logistics efficiency in the country.

PM Gati Shakti is a Whole-of-Government approach adopted to facilitate integrated planning of multimodal infrastructure through collaboration among the concerned Ministries. As of Dec 2023, the Logistics Division of DPIIT has conducted 62 Network Planning Group (NPG) meetings to assess the comprehensive area-based socio-economic development of infrastructure projects.

Table 10- Infrastructure targets for 2025

Ministries	Parameter	Target
Ministry of Roads, Transport and Highways	Total Length of NH in the country (in kms) to be built	2,00,000
Ministry of Railways	Total cargo capacity to be achieved in the country (in million tonnes)	1,600
Ministry of Civil Aviation	Total no. of Airports/ Heliports/Water/ Aerodromes to be built in the country	220
Ministry of Ports, Shipping and Waterways	Total cargo capacity to be achieved in ports (in MMTPA)	1,759
Ministry of Petroleum and Natural Gas	Total length of pipelines to be built (in kms)	34,500
Ministry of Power	Total transmission networks to be built (in circuit kms)	4,54,200
Ministry of Renewable Energy	Total Capacity to be achieved (in GW)	225
Department of Telecommunications	Total no. of Gram Panchayats to be connected	2,600,00

Source: Ministry of Commerce & Industry, GOI

National Infrastructure Pipeline: The government launched the National Infrastructure Pipeline (NIP) with a forward-looking approach and with a projected infrastructure investment of around Rs. 1,11,00,000 crore during FY20-25 to provide high quality infrastructure across the country. The NIP has been made on a best effort basis by aggregating the information provided by various stakeholders including line ministries, departments, state governments and private sector across infrastructure sub-sectors identified in the Harmonised Master List of Infrastructure. To draw up the NIP, a bottom-up approach was adopted wherein all projects costing greater than Rs 100 crore per project under construction, proposed greenfield projects, brownfield projects and those at the conceptualisation stage were sought to be captured. During the fiscals 2020 to 2025, sectors such as energy (24%), roads (18%), urban (17%) and railways (12%) amount to ~71% of the projected infrastructure investments in India. The NIP currently has 8,964 projects with a total investment of more than Rs. 108,00,000 crores under different stages of implementation.

3.2.3 Industrial and Commercial

The industrial segment was significantly impacted by the Covid-19 pandemic. The depressed utilisation and stretched financials of players led to the deferral of planned capex for fiscals 2021 and 2022, as companies looked to conserve cash in uncertain times. However, rapid post-pandemic cement demand recovery, continued economic growth and softening commodity prices propelled players to go on a capex spree in fiscal 2023 and fiscal 2024 leading to healthy industrial growth during the period. Cement demand from the industrial and commercial segment has grown by healthy ~13% and ~12% in fiscal 2023 and fiscal 2024 respectively. Further, on two consecutive healthy base, demand growth from Industrial and Commercial (I&C) segment is expected to moderate and grow by 4.5-5.5% in fiscal 2025. Demand to be supported by the implementation of PLI scheme, higher investments in warehouses and data centres and hybrid working model. Additionally, rising demand for commercial real estate owing to the development of IT/ITes industry, the establishment of MNCs & Global Capability Centres (GCCs) and corporate offices, etc will support demand growth in the long run.

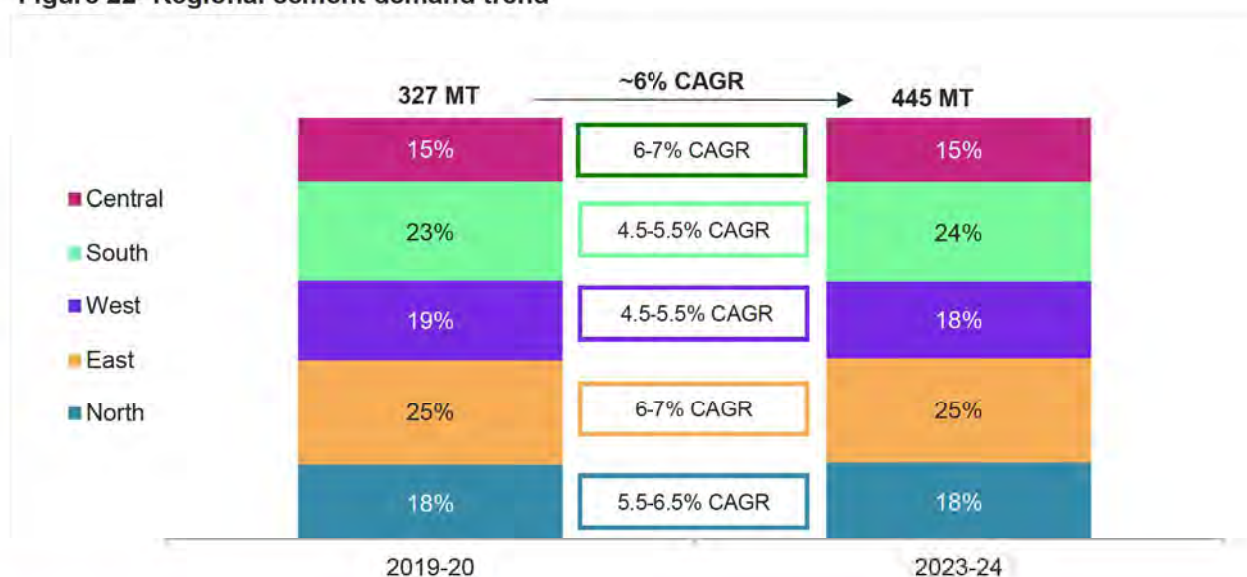
4. Regional demand overview and outlook

4.1 Overview of regional demand

Over the past five years (fiscals 2020-2024), the eastern region (Odisha, Bihar and West Bengal), followed by the central region (Uttar Pradesh and Madhya Pradesh) saw strong demand growth, led by a surge in infrastructure construction and rural housing. Moreover, the eastern region witnessed the highest growth since it was less affected by Covid-19-led demand disruptions as it is a rural concentrated region.

Overall, cement demand logged a healthy CAGR of ~6% over the five-year period, mainly dragged down by the economic slowdown in fiscal 2020 and Covid-19 disruptions in fiscal 2021.

Figure 22- Regional cement demand trend



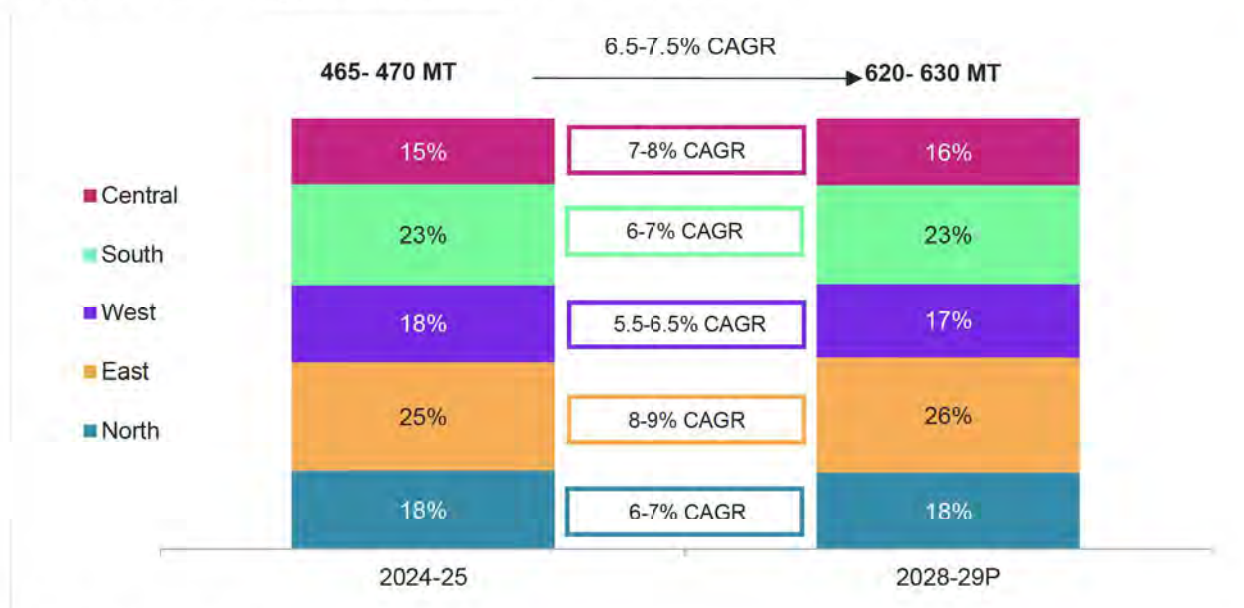
Source: Crisil Intelligence

Note: Regional break up of key states –

North: Delhi, Haryana, Rajasthan; **East:** Bihar, Jharkhand, West Bengal, Odisha, All 8 north eastern states; **West:** Maharashtra, Gujarat, Goa; **South:** Andhra Pradesh-Telangana, Karnataka, Tamil Nadu, Kerala; **Central:** Madhya Pradesh, Uttar Pradesh

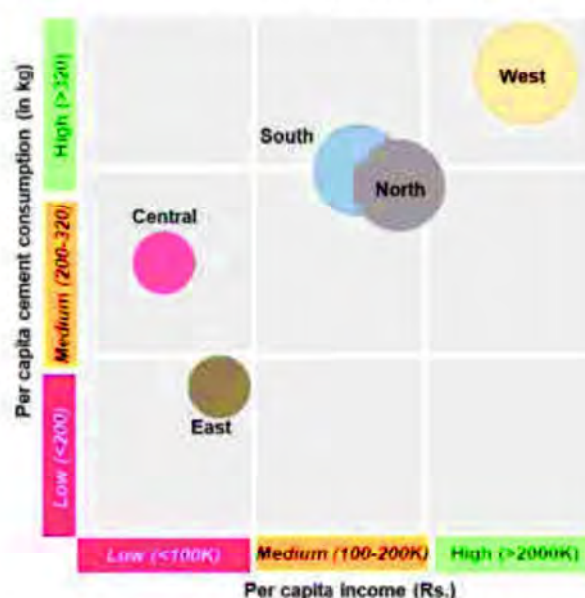
Crisil Intelligence expects cement demand to log a slightly higher 6.5-7.5% CAGR between fiscals 2025 and 2029. During this period, the eastern and central regions, which have a higher housing shortage and a lower base in terms of per capita cement consumption, are expected to exhibit robust growth, followed by the north and south. Demand in the southern region will be supported by real estate and urban housing projects, and road and irrigation infrastructure projects. Central vistas project, metro projects in Delhi and Gurgaon will continue to support demand in the north. The western region is expected to witness moderate growth but likely to grow at a faster rate compared with the previous five fiscals. This region has high-budget infrastructure projects under execution (Mumbai-Ahmedabad bullet train, multiple expressways and metro projects in Mumbai) but already has the highest per capita cement consumption, which will limit the demand growth potential.

Figure 23- Shift in region-wise demand over next five years



Source: Crisil Intelligence

Figure 24- Region-wise per capita income vs per capita cement consumption



Source: Crisil Intelligence, Ministry of Statistics and Programme Implementation (MoSPI), 2011 Census

Eastern and central regions to outperform others in the medium term

Continuing the past decade's trend, the eastern (including north-east) and central regions will continue to drive cement demand in India in the medium term, led by the government's thrust on infrastructure and housing, coupled with a low base of development. Per capita income and per capita cement consumption in these two regions are well-below pan-India numbers, thereby providing significant potential upside. Though the northern, western and southern regions comprise the more industrialised states, demand growth has been relatively low in the past; they are expected to continue lagging the other two regions in the future as well.

Further, the eastern and central regions account for over a third of the rural housing shortage, according to the 2011 census. Although the shortage has lessened over the years on the back of central and state government schemes such as PMAY-G and Biju Pucca Ghar Yojana in Odisha, it remains high.

North: Demand outlook to marginally improve in longer term

Review (fiscal 2020-2024): Infrastructure projects and affordable housing helped cement demand log 5.5-6.5% CAGR in the northern region over fiscals 2020-2024. Demand from metro projects in and around the National Capital Region (NCR) and construction by the NHAI and border roads in Rajasthan continued to support demand during the period. The projects included the DFC in Haryana; metro projects in Delhi and Gurgaon; smart-city-related development in Delhi, Rajasthan and Haryana; and several road and highway projects. In addition, affordable housing continued to support demand growth.

Table 11- Cement demand review and outlook for the northern region

Region	Housing	Infrastructure	Commercial/industrial	FY20-24	FY24	FY25P	FY25-29P
North				5.5-6.5%	12%	5.5-6.5%	6-7%

 Moderate growth less than 7%  Healthy growth above 7%

Source: Crisil Intelligence, Industry

Outlook (fiscal 2025-2029): Crisil Intelligence estimates growth to moderate in fiscal 25 to 5.5-6.5% on two consecutive high base years. Also, impact of heat wave during the first quarter to limit demand growth. Various infrastructure projects -- roads, metros, DFC, etc. will support growth in the region in this fiscal along with traction from real estate. Over fiscals 2025-2029, Crisil Intelligence expects cement demand in the region to log a 6-7% CAGR growth. Key infrastructure projects in the region such as metro projects in Delhi, Gurugram (Gurugram-Alwar metro); smart-city-related development in Delhi, Rajasthan (Jaipur and Udaipur) and Faridabad (Haryana); several road and highway projects, etc., will drive cement demand in the region. Real estate development in key existing and emerging pockets will gradually support demand as well. However, demand for housing in the region is expected to remain moderate on account of low levels of housing shortage and higher levels of pucca/ concrete houses.

West: Infrastructure and real estate to support demand growth

Review: Cement demand growth witnessed a modest CAGR of 4.5-5.5% over the past five years, owing to swaying demand and the pandemic's impact in fiscal 2021. After a healthy uptick in fiscal 19, the growth declined in fiscal 20 owing to the high base and floods that affected rural areas and infrastructure construction, reducing demand in Maharashtra and Gujarat. In fiscal 2021, demand declined a further 1-3% since the region was the hardest hit by the first wave of Covid-19. In fiscal 22 and 23, the region witnessed recovery on a low base of two consecutive years and due to a pickup in real estate after a reduction in stamp duty, low interest rates, customer preference for individual homes, and pickup in infrastructure projects. In fiscal 24, demand grew further by ~12% even after rebounding sharply in the two previous fiscal years largely led by urban housing and real estate pickup.

Table 12- Cement demand review and outlook for the western region

Region	Housing	Infrastructure	Commercial/industrial	FY20-24	FY24	FY25P	FY25-29P
West				4.5-5.5%	13%	5.5-6.5%	5.5-6.5%

 Moderate growth less than 7%  Healthy growth above 7%

Source: Crisil Intelligence, Industry

Outlook: Demand growth to moderate in fiscal 2025 to 5.5-6.5% in anticipation of temporary slow-down in funding for infra projects post Lok Sabha elections. However, healthy traction gained from infra and housing projects in Maharashtra ahead of state elections in Nov 2024. In the longer run, Crisil Intelligence expects cement demand in the west to log a 5.5-6.5% CAGR over the forecast period, higher than the growth seen in the previous five years. Development of infrastructure, such as urban infrastructure projects (metros,

expressways, national highways), state roads in Gujarat, the Mumbai-Ahmedabad bullet train, multiple expressways and healthy traction in demand for real estate and urban affordable housing to support demand in the region.

East: Social infrastructure and housing development to boost demand

Review: With 6-7% CAGR during fiscals 2020-2024, cement demand in the eastern region (along with central region) outpaced that in most other regions. State governments' focus on development in the region and the low-base effect (east is one of the lowest cement-consuming regions in the country) drove the growth. The demand picked up during the period, driven by healthy growth in affordable housing under the PMAY-G, strong rural demand, smart city-related construction, and IHB. However, some slowdown was witnessed in fiscal 20 and 21 on the back of demand destruction in Odisha due to cyclone Fani and a slowdown in construction in Bihar and Jharkhand due to an acute water shortage. After continued slowdown during fiscal 22 as well, demand rebounded sharply in fiscal 23 largely propelled by traction under rural housing, specially under PMAY-G. Rural housing remains the key demand driver in the region amid a higher housing shortage. Although, fiscal 24 witnessed relatively lower demand growth owing to sand and aggregate availability issue as well as funding issue in West Bengal and Bihar during second half of the fiscal.

Table 13- Cement demand review and outlook for the eastern region

Region	Housing	Infrastructure	Commercial/industrial	FY20-24	FY24	FY25P	FY25-29P
East	↑	↑	↑	6-7%	9%	5-6%	8-9%

 Moderate growth less than 7%
 Healthy growth above 7%

Source: Crisil Intelligence, Industry

Outlook: In fiscal 2025, growth is expected to moderate to 5-6% in line with post-election moderation in demand. Also, moderate slowdown expected post assembly elections in Odisha during Q1FY25 which will limit further demand uptick. In the longer run, rural housing (IHB and PMAY-G) and infrastructure (roads and railways) development should propel healthy cement demand during fiscals 2025-2029. Demand in this region is expected to log 8-9% CAGR during the period, supported by lower base of development in north-eastern region. With the lowest per capita cement consumption in the country and a 30-35 million housing shortage identified in the region, Crisil Intelligence expects demand for cement to remain healthy in the long term. Further, an uptick in infrastructure investments is also expected via key projects, such as metro development in Kolkata, Patna and Ranchi; several road and rail connectivity projects in the north-east; smart-city-related development in Odisha (Bhubaneswar), West Bengal (Newtown Kolkata), Jharkhand (Ranchi), Bihar (Bhagalpur), and Chhattisgarh (Raipur); and several other road and highway projects. Industrial demand is also expected to be healthy on the back of investments by the government and private players in the railways, power, cement and steel sectors. Also, fund announcement and allocation under Purvodaya scheme in Union Budget 2025 for eastern states to augur healthy demand over medium term.

Central: Housing and infrastructure development to drive healthy growth

Review: Over the five-year period, cement demand logged a strong 6-7% CAGR in the region. Demand growth remained healthy in fiscal 19, however, the region witnessed a slowdown during fiscal 20 and 21 on account of previous two healthy base, water scarcity in Bundelkhand and flooding in MP. Although, in fiscal 22 and 23 pre-election spending in Uttar Pradesh with a slew of infrastructure projects under execution, majorly roads, airports, and metro, supported the demand revival in the region and grew at a healthy rate. In fiscal 24 demand witnessed another year of healthy growth owing to infrastructure construction, a pick-up in urban housing development in Uttar Pradesh and healthy rural housing demand in Madhya Pradesh.

Outlook: On two consecutive healthy bases, demand growth is expected to moderate to 4.5-5.5% in fiscal 2025. Fund diversion during elections caused temporary slowdown of infra projects leading to demand

moderation. Excess rainfall in various regions of Uttar Pradesh and Madhya Pradesh also hampered construction activities during the second quarter of the fiscal. Further, lower budgeted state spending for the year in MP will limit growth. However, during fiscals 2025-2029, cement demand in the region is expected to log healthy 7-8% CAGR, moderately higher than growth seen in the previous five years. Key infrastructure projects in the region, such as metro projects in Bhopal, Meerut, Agra and Indore; smart-city-related development in Madhya Pradesh (Bhopal, Indore and Jabalpur) and Uttar Pradesh (Lucknow); road and highway projects; irrigation projects and the waterway project across Varanasi-Haldia will back cement demand. Further, housing demand in the new emerging pockets of Meerut (after metro linkage to the NCR) and Aligarh, and development in the key centres of Indore, Bhopal and Noida will continue to boost demand. With higher housing shortage and lower developmental base of infrastructure, region to witness healthy growth from housing and infra segment, while growth from commercial and industrial segment is expected to be moderate. Lower presence of corporate hubs/MNCs to limit growth from commercial segment.

Table 14- Cement demand review and outlook for the central region

Region	Housing	Infrastructure	Commercial/industrial	FY20-24	FY24	FY25P	FY25-29P
Central				6-7%	12%	4.5-5.5%	7-8%

 Moderate growth less than 7%  Healthy growth above 7%

Source: Crisil Intelligence, industry

South: Demand growth over medium term to be supported by infrastructure projects

Review: The southern region clocked in CAGR of 4.5-5.5% during the past 5 years. The region was most severely impacted during fiscal 20 and 21 amidst disruptions in demand due to general and assembly elections, the cancellation of several awarded projects, the stalling of construction work in Amaravati and stricter lockdowns and related labour and supply-chain disruptions due to Covid-19 leading to a sharp decline. Going forward, demand recovery was faster in Andhra Pradesh and Telangana led by government spending on housing and infrastructure projects. In fiscal 22 and 23, the demand rose sharply on a low base, driven by a pickup in infrastructure execution and housing projects across southern states. In fiscal 24, growth momentum continued its healthy pace led by traction from infrastructure project executions, primarily roads, expressways, metros, etc.

Outlook: In fiscal 2025, growth is expected to only marginally inch up by 2-3% on two consecutive healthy bases. Formation of new state government in AP/Telangana, heavy rains and floods in Kerala and Tamil Nadu and sand issues in Karnataka, negatively impacted demand in first half of the fiscal. Although, over fiscals 2025-2029, the demand in the region is expected to log a 6-7% CAGR. States with poor growth in the past, such as Tamil Nadu and Karnataka, are expected to witness an upward bias on the back of growth in the state infrastructure segment. Expressways, such as Chennai-Tiruchirapalli expressway, Namma Metro construction in Bengaluru, Kochi metro, irrigation projects, etc, would drive incremental cement demand during the next five years. Allocation of ~Rs. 15,000 crores for developmental projects in Amravati under the Purvodaya scheme to also aid demand growth over medium term.

Table 15- Cement demand review and outlook for the southern region

Region	Housing	Infrastructure	Commercial/industrial	FY20-24	FY24	FY25P	FY25-29P
South				4.5-5.5%	12.5%	2-3%	6-7%

 Moderate growth less than 7%  Healthy growth above 7%

Source: Crisil Intelligence, industry

Table 16- Summary of regional cement demand growth

Region	Housing	Infrastructure	Commercial/Industrial	FY20-24	FY24	FY25P	FY25-29P
North	↑	↑	↑	5.5-6.5%	12%	5.5-6.5%	6-7%
West	↑	↑	↑	4.5-5.5%	13%	5.5-6.5%	5.5-6.5%
East	↑	↑	↑	6-7%	9%	5-6%	8-9%
Central	↑	↑	↑	6-7%	12%	4.5-5.5%	7-8%
South	↑	↑	↑	4.5-5.5%	12.5%	2-3%	6-7%

↑ Moderate growth less than 7% ↑ Healthy growth above 7%

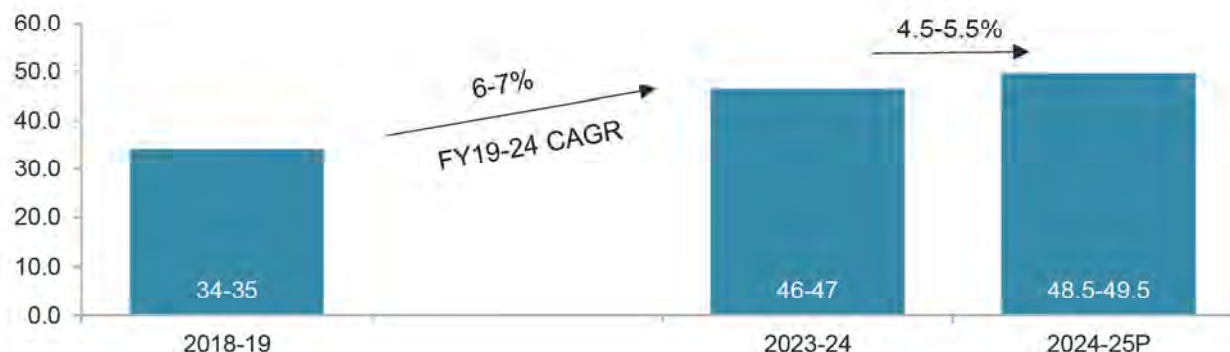
Source: Crisil Intelligence, industry

4.2 State-wise demand review and outlook

4.2.1 Uttar Pradesh

Figure 25- Cement demand review for Uttar Pradesh

(million tonnes)



Source: Crisil Intelligence

Uttar Pradesh's cement demand is estimated to reach 46-47 million tonnes in fiscal 2024. The state's cement demand has grown at a healthy 6-7% CAGR between fiscals 2019 and 2024. After experiencing flattish growth in fiscal 2021 due to pandemic-induced disruptions, demand surged in fiscal 2022, driven by robust government spending ahead of state elections in the fourth quarter. Although pandemic-related uncertainties limited growth during the latter half of the fiscal, demand growth momentum picked up pace in fiscal 2023, driven by the mitigation of sand and coarse shortage issues in the state.

The demand growth momentum continued in fiscal 2024, driven by higher traction in the infrastructure and housing segments. The central government's emphasis on projects such as the Ganga expressway, metro projects in Agra, Lucknow, and Kanpur, ahead of general elections, contributed to robust demand despite a high base.

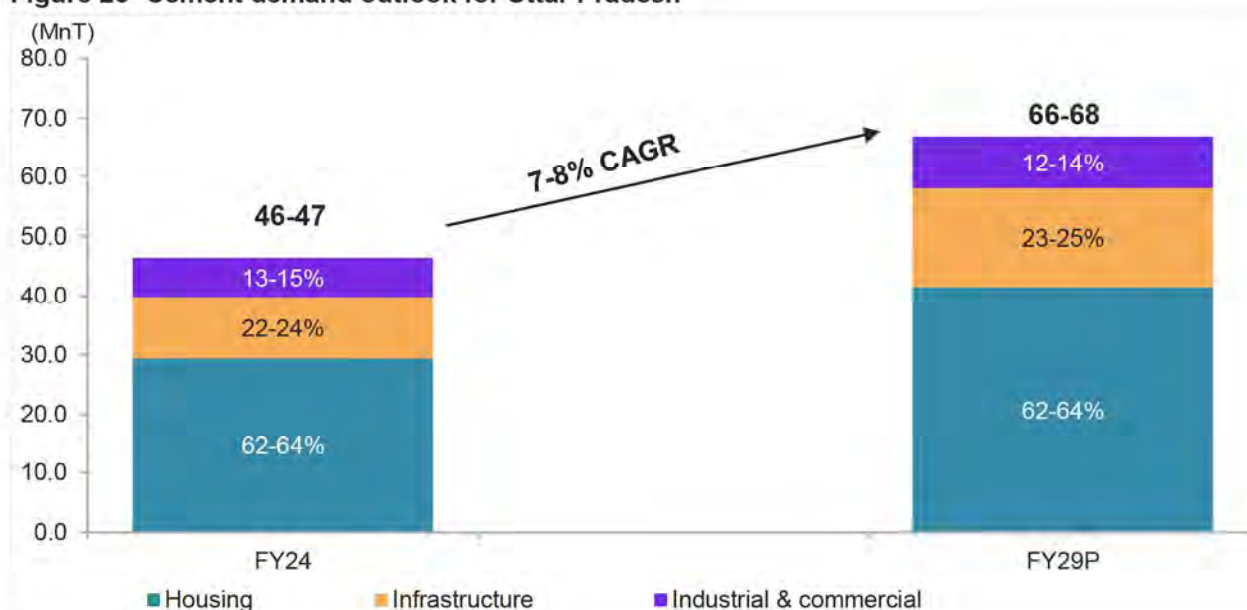
The housing sector accounts for 62-64% of the state's demand, with Individual House Building (IHB) contributing 70-75% to total housing demand. The remaining demand comes from affordable housing and

real estate. Demand from the housing sector increased at 5-6% over the past five years (fiscal 2020-2024). Rural housing grew at a relatively faster pace, led by the PMAY-G and IHB, and was further bolstered by the conversion of kuccha to pucca houses and large-scale reverse migration in the state during the pandemic years.

The infrastructure segment expanded at a healthy 9-10% CAGR over the past five years, driven by the state's focus on infrastructure development, particularly roads and expressways, such as the Yamuna expressway, Bundelkhand expressway, Purvanchal expressway, Delhi-Meerut expressway, and the Delhi-Mumbai Industrial Corridor. The state has also seen significant investment in metro projects, including those in Agra, Lucknow, Kanpur, Noida, and Meerut, as well as airports, such as the Noida Jewar airport. With approximately 1,974 km of expressway under construction and 1,225 km of operational expressway as of September 2024, the state has earned the nickname "Expressway Pradesh". Additionally, around 16,177 km of PMGSY roads were constructed between fiscals 2020 and 2024, accounting for approximately 10% of pan-India construction under the scheme, indicating healthy traction in road construction in the state.

Demand from the industrial/commercial segment grew at a sturdy 4-5% over the past five years, driven by the commercialisation of the Noida/Greater Noida region, with various companies opening offices due to better connectivity and infrastructure development.

Figure 26- Cement demand outlook for Uttar Pradesh



Source: Crisil Intelligence

Crisil Intelligence expects cement demand in Uttar Pradesh to grow at a robust 7-8% CAGR over the next five years to reach 66-68 million tonne in fiscal 2029, led by affordable housing and metro and roads development from the infrastructure segment.

Table 17- Segmental cement demand review and outlook for Uttar Pradesh

Segment	Demand growth (FY20-24)	Demand growth (FY24-29P)
Housing	5-6%	7-8%
Infrastructure	9-10%	8-9%
Industrial & commercial	4-5%	5.5-6.5%
Overall	6-7%	7-8%

Source: Crisil Intelligence

Housing

The demand for housing is expected to remain robust, driven by the continued focus on affordable housing. IHB is likely to remain a major demand driver in the state, led by rising urbanization, a higher housing shortage,

and the conversion of kuccha to pucca houses. Under the PMAY-G scheme, approximately 3.58 million units have been constructed out of 3.64 million sanctioned units as of September 2024, with an additional 0.06 million units under construction. The state accounts for around 14% of pan-India rural housing construction under the scheme and ranks first, along with Madhya Pradesh and Bihar. The allocation of new state targets under the announcement of additional PMAY houses in the Union Budget 2024-25 is expected to further boost demand from the rural housing segment. As a result, the state holds immense potential for cement demand from rural housing. The rise in urbanization and increase in concretization are expected to continue to lead to traction in the urban housing segment. Due to limited options and high property prices in Delhi and Gurgaon, the real estate markets of Noida and Greater Noida have gained focus, given the better infrastructure and connectivity in the region.

Infrastructure

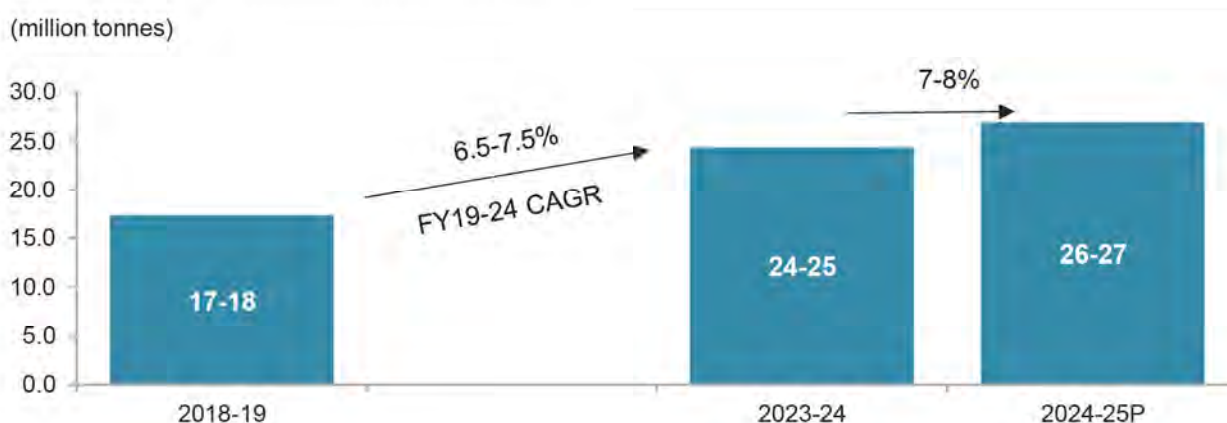
Under the Bharatmala Pariyojana program, 4,800 km (7% of the pan-India target) of roads are to be constructed in phases 1 and 2. Various mega expressways are under construction, including the 594-km Ganga Expressway, 91-km Gorakhpur Link Expressway, and 63-km Kanpur-Lucknow Expressway, among others. Around 46 km of metro line work is under construction in the state, with an additional 36 km approved as of June 2024. The Delhi-Meerut Rapid Rail Transit System (RRTS) is also being completed, with 42 km of the total 82 km route already operational. More than 50% of the work on the remaining route has already been completed. Other infrastructure projects include the construction of Phase 1 of the Film City near the Yamuna Expressway, the rejuvenation of the Ayodhya Dham Railway Station, and others. The government is also investing Rs 950 crore to develop a defence corridor, with work worth Rs 187 crore already completed and an additional Rs 537 crore under construction. Phase 1 of the Ayodhya International Airport was completed in December 2023, while Phase 2 construction is yet to begin. The government has set a target to complete 14 irrigation projects, including the Madhya Ganga Canal Phase-II, Arjun Sahayak irrigation project, and Saryu Nahar Pariyojana, by 2025.

Industrial and Commercial

The industrial and commercial segment is expected to witness healthy growth, driven by a sharp demand revival post-pandemic, and is likely to see further investments going ahead. The construction of expressways, metros, and airports in the state is expected to be a game-changer for the Noida and Greater Noida commercial real estate markets, as connectivity improves in the region.

4.2.2 Bihar

Figure 27- Cement demand review for Bihar



Source: Crisil Intelligence

Bihar has been one of the fastest growing markets in India, clocking 6.5-7.5% CAGR over the past five years to reach 24-25 MTPA in fiscal 2024. Rapid development of infrastructure along with concretisation of rural as well as urban houses boosted cement demand in the state. However, cement demand was stagnant in fiscal

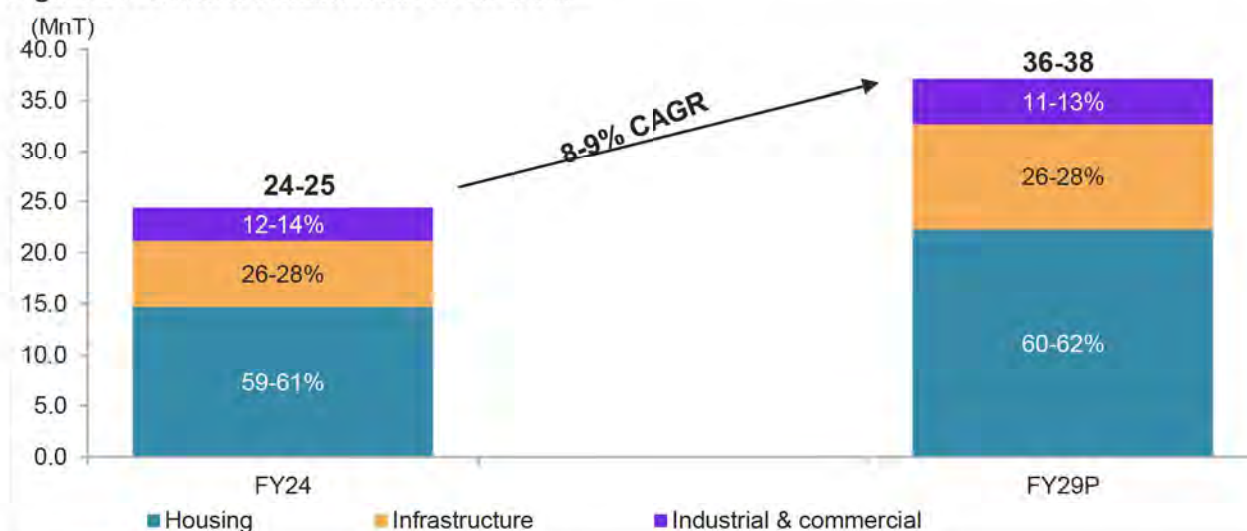
2021 as demand dropped in the past three quarters after witnessing sharp growth in the first quarter on a low base. Heavy monsoon in the second quarter, unseasonal rainfall in the third quarter and prolonged sand scarcity issues limited demand growth in the fiscal. However, continued traction in affordable housing and pick-up in roads and bridges construction on the back of improved government spending prevented any fall in demand and led to flattish demand growth in fiscal 2022. Demand rebounded sharply in fiscal 2023, amidst improved sand availability in the state. Continued traction from affordable housing- and pickup in roads and bridges construction on back of improved government spending supported demand growth. Further, demand growth moderated in FY24 but still hovered at healthy levels largely supported by traction from housing in H1FY24. However, various issues such as aggregate availability and transporter's strike in H2FY24 impacted demand momentum limiting further growth during the fiscal. In fiscal 2025 demand is expected to moderately bounce back by 7-8% and clock a higher than average growth compared to Pan-India owing to rise in state spending by ~9% during 5MFY25 compared to 5MFY24 and focus on rural housing.

The housing segment is the key demand driver in the state, accounting for close to ~60% of the total cement demand as of fiscal 2024. Housing shortage in the state is estimated at ~8 million, with over ~5 million kaccha houses. Rapid execution under PMAY-G in the state has led to steady demand from the housing segment.

The infrastructure segment recorded robust CAGR of 10-11% in the state over the past five years, led by steep rise in state capital outlay towards water supply, sanitation and roads. The rapid pace of NHAI construction along with over 9037 km of PMGSY construction over fiscals 2020-24 (~6% of pan-India construction under the scheme) aided demand from the infra segment in the state. State expenditure on transport also increased by around 7.5% CAGR in last five years. State has built ~25 major bridges in last 5 years majority of them over Ganga river.

Stable political scenario and robust services growth led to surge in investments and resultant steady growth from the industrial and commercial segment as well.

Figure 28- Cement demand outlook for Bihar



Source: Crisil Intelligence

Crisil Intelligence expects cement demand in Bihar to increase at 8-9% CAGR over the next five years to reach 36-38 million tonne in fiscal 2029, on the back of healthy traction from the rural housing and infrastructure segments.

Table 18- Segmental cement demand review and outlook for Bihar

Segment	Demand growth (FY20-24)	Demand growth (FY24-29P)
Housing	5.5-6.5%	8-9%
Infrastructure	10-11%	8.5-9.5%
Industrial & commercial	6.5-7.5%	6-7%
Overall	6.5-7.5%	8-9%

Source: Crisil Intelligence

Housing

Like most states in the eastern region, the housing segment in Bihar is largely drive by IHBs, contributing close to half the demand in the state. Continued focus of central and state government on housing in the state, along with improvement in rural income is expected to lead to healthy growth of 8-9% CAGR from the segment. High share of kutchha and semi-pucca houses in the state (40-45%) will also aid demand growth on the back of increasing concretisation. Rural housing dominates in the state from cement demand point of view. IHB and PMAY to remain key demand levers in medium term amidst higher housing shortage. As of Sep-24, 3.80 million units have been sanctioned by the state government of which ~3.65 million units have been constructed (~96% completion rate). Around ~0.14 million units are under various stages of construction. Announcement of new state target under the scheme to remain positive monitorable.

Infrastructure

Demand from the infrastructure segment is expected to shoot up, led by improvement in road, bridges and railways construction in the state. Under Bharatmala Pariyojana, 1,670 km (3% of pan-India target) of roads are to be constructed in phases 1 and 2. Major ongoing projects include construction of Gorakhpur- Siliguri Expressway passing through 10 districts of Bihar and expected to increase by 2025. Land acquisition process ongoing for Amas Darbhanga expressway. In Union Budget 2024-25, GOI announced multiple road projects in the state worth Rs 26000 crore rupees such as Patna-Purnea Expressway, Buxar-Bhagalpur Expressway, Bodhgaya, Rajgir, Vaishali and Darbhanga spurs, and additional 2-lane bridge over river Ganga at Buxar.

Special allocation of Rs. ~58,000 crore for various projects in Bihar along with Purvodaya scheme in union budget 2025 to provide healthy boost to state demand. Patna Metro Phase-1 with 2 lines of 22 kms is under construction and further 9 km has been approved. The first section of Phase 1, which includes 5 stations, is expected to be operational by March 2025. Meanwhile, the entire Phase 1 is likely to be completed by 2027. In Jun'24, state cabinet granted approval for new metro projects in Gaya, Muzaffarpur, Darbhanga and Bhagalpur. Feasibility report and DPR preparation to be followed in near term.

Industrial and commercial

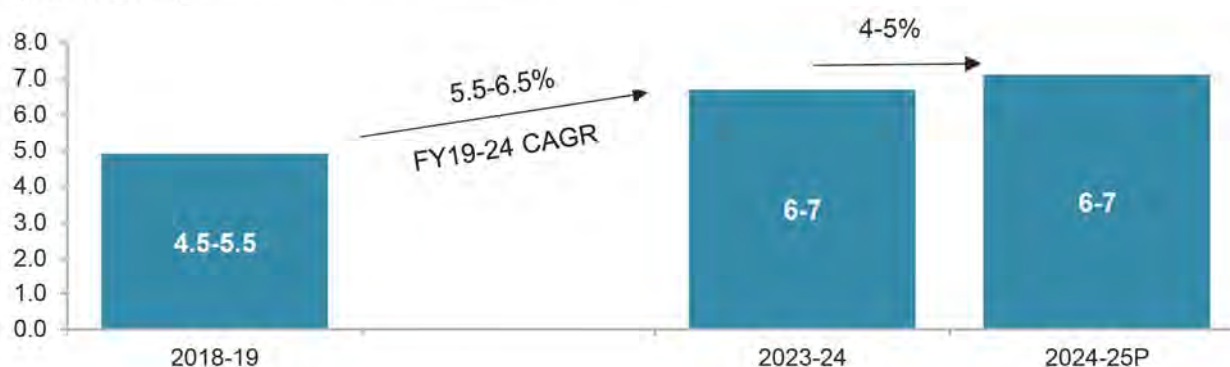
The industrial and commercial segment is also expected to witness healthy growth as industrial capex picks up in the state. Also, completion of the Eastern Dedicated Freight Corridor is likely to lead to investments in warehousing. Increased urbanisation will also lead to pick up in commercial demand, especially in Patna.

4.2.3 Delhi

Delhi's cement demand in fiscal 2024 stood at 6-7 million tonnes. Cement demand in the state has grown at a healthy 5.5-6.5% CAGR over fiscals 2019-24. State witnessed negative growth during fiscal 2020 as the region battled with stringent pandemic related curbs and limitations, hampering construction momentum. Demand gradually improved in fiscal 2021 and rebounded sharply in fiscal 2022 and fiscal 2023 with pent up demand post Covid-19 disruptions. Further, on high base of fiscal 2023, demand witnessed healthy growth in fiscal 2024 largely propelled by pre-election infra push and execution of roads, airport, industrial corridors, parliament redevelopment project, etc. as well as traction from commercial real estate. Construction of central vistas projects, major expressways and highways also supported demand growth in the state during the year.

Figure 29- Cement demand review for Delhi

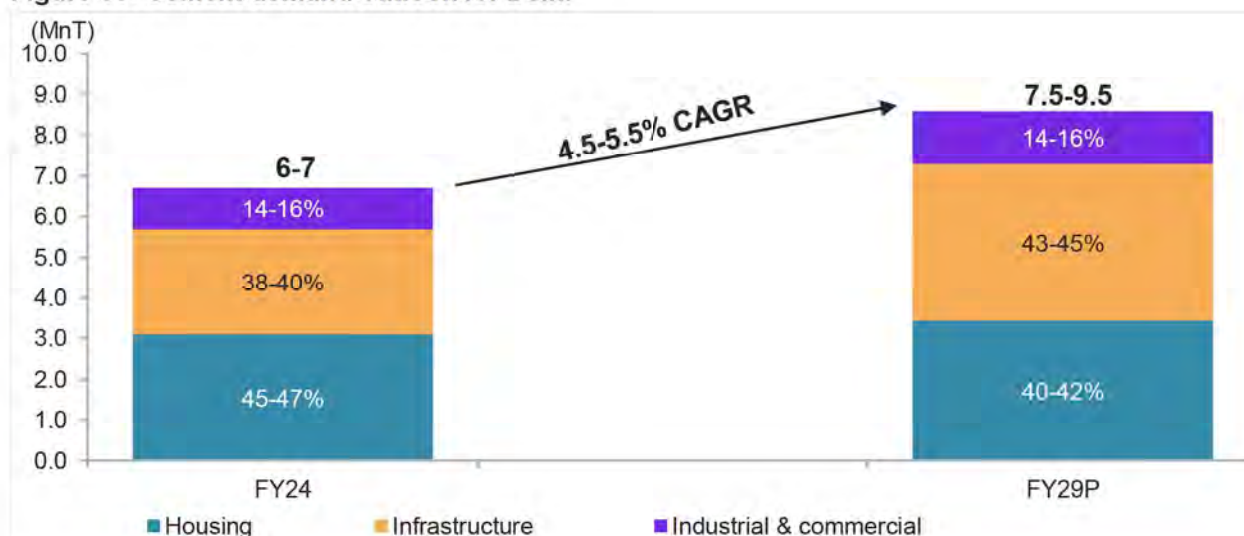
(million tonnes)



Source: Crisil Intelligence

The housing sector accounts for 45-47% of the demand in the state with higher demand from real estate. Demand from housing increased at moderate 3-4% in the past five years (fiscal 2020-2024). Urban housing grew at relatively better pace than rural housing. Share of rural housing is negligible in the state with quite low housing shortage identified under the segment. Growth from this segment has been subdued with degrowth in past 5 years. Additionally, no targets have been set by government under centrally sponsored scheme of PMAY-G. Urban Housing segment witnessed moderate growth in the last 5 years, limited by slowdown in real estate market and high inventory levels. However sharp recovery in sales was seen in fiscal 2023 and fiscal 2024. Housing segment in the state is highly saturated and demand comes from real estate, renovation, modernisation and re-development of existing houses.

Infrastructure led cement demand has grown robustly by 10-11% in the last 5 years (fiscal 2020-2024) on back of metro development and road projects. State capital outlay for transport witnessed robust growth of ~30% during the 5-year period. Share of demand from infra segment has increased from ~32% in fiscal 19 to 38-40% in fiscal 24. Various projects under Central Vista project propelled healthy growth. New phase of Delhi metro, Delhi-Meerut expressway, Delhi-Panipat road, redevelopment project of Chandni chowk, etc. supported demand growth from infrastructure segment.

Figure 30- Cement demand outlook for Delhi


Source: Crisil Intelligence

Demand from industrial/commercial has remained healthy at 5.5-6.5% in the last 5 years. Hybrid model of work and reopening of offices has led to renewed focus on commercial sector in the last two fiscals.

However, demand from industrial segment remains tepid in the state as it majorly comes from warehousing segments.

Crisil Intelligence expects cement demand in Delhi to grow at a moderate pace of 4.5-5.5% CAGR over the next five years to reach 7.5-9.5 million tonne in fiscal 2029. Demand growth to remain moderate on account of saturation and high base of development already existing in the state.

Table 19- Segmental cement demand review and outlook for Delhi

Segment	Demand growth (FY20-24)	Demand growth (FY24-29P)
Housing	3-4%	2-3%
Infrastructure	10-11%	6.5-7.5%
Industrial & commercial	5.5-6.5%	4.5-5.5%
Overall	5.5-6.5%	4.5-5.5%

Source: Crisil Intelligence

Housing

Demand from the housing segment to marginally inch up by 2-3% supported by growth in urban housing. Urban housing to grow moderately on wheels of real estate and redevelopment projects while elevated interest rates and capital appreciation to limit significant growth. On contrary, rural housing growth is expected to remain flattish with lower share of kuccha houses in the state. Also, no traction from central schemes of PMAY-U and PMAY-G to keep demand in check.

Infrastructure

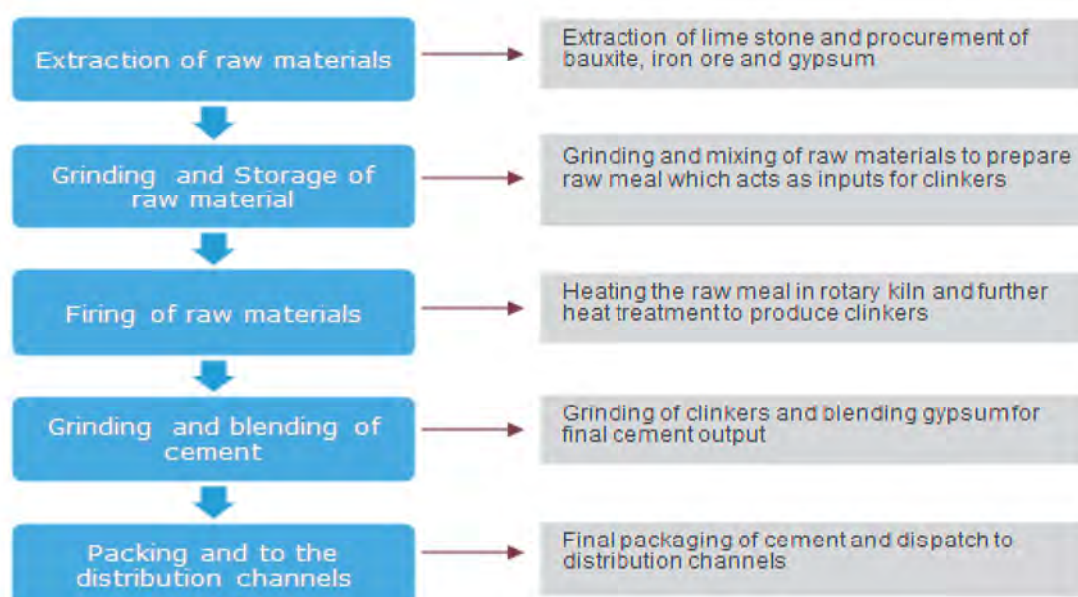
Demand from infra to grow in next 5 years by 6.5-7.5% on high base. Negligible traction under NHAI/PMGSY, robust existing infra base, etc to limit any uptick. However, ongoing infra projects like Delhi metro phase-IV, RRTS, PWD works, expressways and state focus on education and health infra to support demand from infra segment. Delhi Metro Rail (Phase IV) of 65 km is under construction as of Jun'24 and is estimated to be completed by 2026. Major other projects under construction include Chandni Chowk redevelopment, Barapullah Phase III, new waste management plants in places like Burari; shopping complex at Gandhi Maidan, 100 crores redevelopments of 5 iconic markets like Lajpat Nagar, Sarojini Nagar, Kamla Nagar, Kirti Nagar and Khari Bawli, etc.

Industrial & Commercial

In the next 5 years, industrial and commercial segment to grow by ~4.5-5.5% on a moderate base. Demand from commercial spaces to be limited due to saturation and lower availability of free space left in the state.

5. Cement production process

Figure 31- Stages of cement manufacturing



Source: Crisil Intelligence

5.1 Stage I: Manufacturing clinker

Limestone is a key input to produce clinker, to which additives such as bauxite, iron ore, and gypsum are added to manufacture cement. The grades of limestone and proportion of additives used determine the quality of cement produced. Similarly, the choice of fuel depends on availability, cost, and process efficiency. Players are also considering using alternatives generated from agro waste, waste oils, animal meal, rice husk, etc to address the shortage in these inputs and their rising prices.

Step1: Limestone mining, exploration, drilling and blasting

In limestone benching, the quality of input is assessed and compared with benchmarks before the additives are mixed. The benched limestone is then drilled and blasted into small pieces.

Step 2: Crushing

The limestone is crushed to make particles suitable for blending and storage. After this, all raw materials, including additives are ground. The fineness depends on the process requirement and the grinding mill used.

Step 3: Pre-homogeneous stage

In this stage, crushed limestone is packed and transported for stacking in piles. The stacked limestone is then reclaimed by a reclaimer, which transports the limestone to a hopper, where additives such as silica, alumina, and iron ore are added to make the mixture uniform to reduce chemical variations in limestone.

Step 4: Raw mill grinding

Here, the raw meal, comprising limestone, clay, and additives, is finely ground (so that it *reacts fully*) before being burnt in the kiln. There are two types of mills – while vertical roller mills are used for large capacities, ball roller mills are used by smaller plants.

Step 5: Blending and storage

The raw meal/feed is stored in the first silo while continuously blended in the second silo. The feed could also be simultaneously blended and stored in one large silo, wherein blending is done through a series of orifices in the base, with limited fluidisation.

Step 6: Pre-heating stage and kiln

Post blending, the raw meal is heated in a preheater, followed by a rotary kiln to ensure better product quality. Preheater consists of vertical cyclone chambers, where the raw material passes through and meets hot gases from the kiln.

The shape and size of the kiln is also central to cement-making. The kiln is lined with refractory bricks for insulation throughout high-heat zones. The kiln is cylindrical and slightly inclined (by 3-4 degrees) and completes 2-4 revolutions per minute.

The solid material passes down *towards the flame*. Gas, oil, or pulverised coal is used to ignite the flame at the lower or front-end of the kiln. The formation of clinker involves multiple processes, beginning with evaporation of water, thermal decomposition of clay minerals, calcite formation, liquid formation, and finally, formation of clinker.

The clinker then passes into a cooler, before being ground further. The heat is reclaimed and recycled to the kiln as secondary combustion air. Other gases reclaimed from the suspension pre-heater, pre-calciners and the cooler are used as primary combustion air in the kiln. Excess air from the cooler is cleaned and released into the atmosphere.

Introduction of pre-calcination increases clinker output by 2.0-2.5 times and aids the use of low-calorific value coal, as well as various agricultural and industrial combustible wastes. Systems have been developed to use fuels like lignite and petcoke, and other alternatives.

5.2 Stage II: Clinker to cement

Grinding and blending

Cement is produced in a separate grinding mill by grinding cooled clinker with gypsum. Depending upon the grade and the type of cement being manufactured, blast-furnace slag, fly ash, natural pozzolanas, etc, or limestone are also added to the clinker. The mixture of clinker, gypsum and fly ash/ slag is then ground into a fine and homogenous powder in a ball mill/vertical roller mill/roller press. The cement is stored in silos before being dispatched either in bulk or as bags.

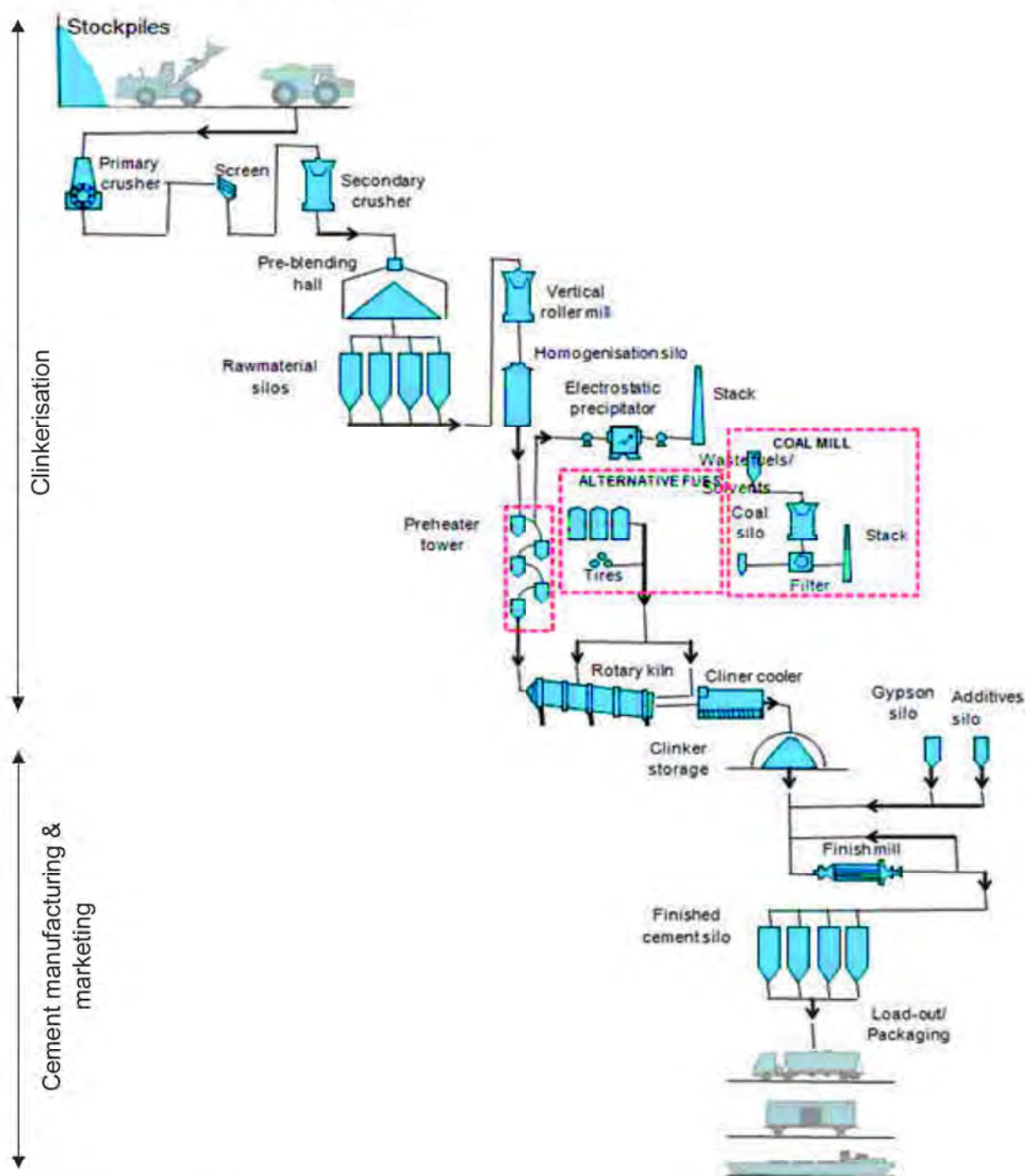
Step 1: Grinding

Ball mills: Ball mills are cylindrical rotating grinding machines that use steel balls to crush and grind materials like clinker and gypsum into the fine powder needed for cement production. Ball mills can operate in either open or closed circuits, with open circuits grinding material directly and producing coarser products, while closed circuits recirculate material for finer grinding and higher efficiency. **Closed circuit systems:** cement plants use a closed-circuit system, where material from the grinding mill is taken to an air separator or a classifier. Here, based on the particle's size, the mass is separated into a 'fine product' stream and a 'coarse reject' stream. The 'coarse reject' stream is then reground. The diameter of the mill is up to 4.5 metres, with a length-to-diameter (L/D) ratio of ~3. The 'coarse reject' stream is recirculated at a rate similar to that of the clinker feed.

The closed-circuit grinding system is more efficient than the open circuit system, as the rejected particles can be re-circulated, and power consumption is also lower (especially for higher compression cement).

Thus, closed-circuit grinding systems consume 35-40 kWh/tonne. In case of higher compression cement variants, which harden rapidly, such as the OPC-43 and OPC-53 grades, 3-5% of energy is saved, as compared to the open circuit grinding system, where the energy consumption is 55 kWh/tonne.

Figure 32- Cement manufacturing process



Source: Crisil Intelligence, Industry

Vertical Roller Pre-Grinding Mill (VRPM): This technology acts as a pre-grinder, reducing particle size before feeding material to the main mill, most commonly a ball mill. VRPM improves grinding efficiency and increases mill capacity while consuming significantly less energy.

Vertical roller mill (VRM): This is another breakthrough in the grinding process. Besides a higher drying capacity, the VRM consumes 20-30% less power as compared to ball mills.

High pressure grinding rolls (HPGRs): HPGRs operate in different modes: open circuit, pre-treatment with circulation, pre-treatment with de-agglomeration, and recirculation and closed circuit. Such installations could increase capacity by up to 200% and consume 30-40% less power compared to ball mills.

Horizontal roller mill: This is capable of producing uniform raw meal and has advantages in processing raw materials containing higher % of quartz. However, this technology system is yet to be adopted in India.

Separator: The material passes through a dynamic separator which separates fine material from the coarse material. Fine material is then stored in the cement silo as final product and the coarse material is recirculated in the ball mill circuit for finer grinding.

Step 2: Blending

In the past few years, blended cement is gaining popularity over OPC because of advantages such as higher output at lower cost, less requirement of limestone, etc. Further, concerns regarding quality and properties of blended cement have decreased, with the product being accepted across India now. The increased acceptance is a positive for cement makers as they can produce more cement with the current clinker capacity by increasing the blending ratio. Typically, there are two types of blending materials:

Fly ash

Fly ash is a finely divided residue from thermal power plants resulting from the combustion of pulverised bituminous coal or sub-bituminous lignite, which comprise inorganic mineral constituents of coal and organic matter that are not fully burnt. It is generally grey in colour and refractory in nature. Owing to its *pozzolanic properties*, fly ash can be mixed with clinker to form Portland pozzolana cement (PPC). When fly ash is added to cement, it improves its strength and durability and reduces carbon dioxide emissions. However, cement manufacturers can only use up to 35% fly ash in every tonne of cement as per Bureau of Industrial Standards (BIS) norms.

Slag

Slag, which is produced as waste material in steel plants, is the next best blending material. Slag is a non-metallic product, comprising glass containing silicates of lime and other bases, and is obtained as a by-product while manufacturing pig iron. Granulated slag is used to manufacture Portland slag cement.

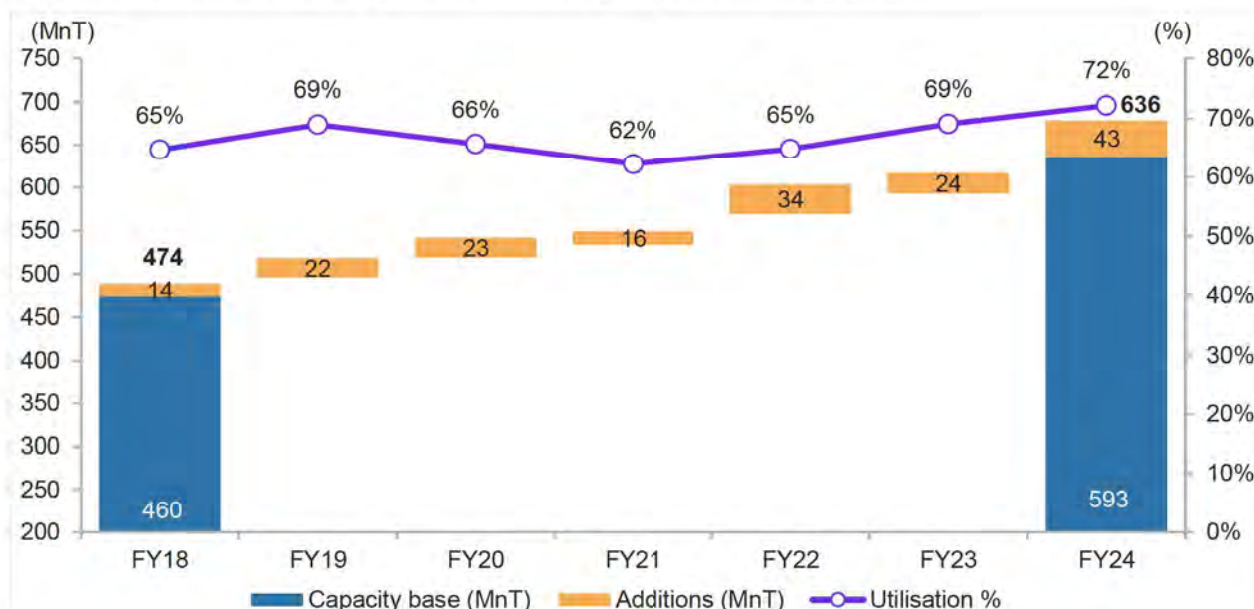
Slag cement can be used for all plain and reinforced concrete constructions, and mass concrete structures, such as dams, reservoirs, swimming pools, river embankments, bridge piers, etc. It is advantageous to use slag cement where low heat of hydration and resistance to alkali-silica reaction are preferred for structures in environments where there are chemical and mildly acidic waters.

Slag adds strength and durability to concrete. It also improves concrete's plastic properties, such as workability and finishing. Slag is environment friendly as well, as is it a recycled material. Also, for each cubic yard of concrete in which it replaces Portland cement, slag cement significantly reduces power consumption and greenhouse gas emissions. The BIS has capped the maximum usage of slag in cement at ~70% in every tonne of cement.

6 All India cement supply overview and outlook

6.1 Pan-India Supply review

Figure 33- Historical capacity additions and capacity utilisation trend



Source: Crisil Intelligence

Fiscal 2021: The cement industry, already struggling amid the economic slowdown in fiscal 2020, was hit hard by the Covid-19 pandemic. Many cement manufacturers delayed their capex plans with no capacity additions undertaken in the first half to focus on cash in hand. With a sharp demand revival, backed by affordable housing and government expenditure on infrastructure in the latter half of the year, cement companies started resuming capex despite the pressure of overcapacity and rising input costs. Around 16 MTPA capacity was added in fiscal 2021, taking the total installed base to 535 MTPA. Despite lower capacity additions during the year, utilisation dropped to ~62% since cement demand was still impacted by pandemic-induced disruptions.

Fiscal 2022: Capacity additions announced on the back of strong demand growth in fiscals 2018 and 2019 came online in the second half of fiscals 2021 and 2022, mounting pressure on the already low utilisation levels. Around 34 MTPA capacity was added in fiscal 2022, taking the total capacity base to 569 MTPA. With a sharp recovery in demand, operating rates rose from 62% to 65% during the year.

Fiscal 2023: After healthy additions in fiscal 2022, capacity addition moderated to ~24 MTPA in fiscal 2023 (inclusive of grinding and integrated units). Higher input costs, led by rising power, fuel and freight prices, which rose further in the first half of 2022, affected profitability, thereby slowing down capex plans. However, strong demand growth led by infrastructure and housing propelled healthy additions during the year as well as strong operating rates of ~69%.

Fiscal 2024: In fiscal 2024, the cement industry added ~43 million tonnes (MT) of cement grinding capacities, inclusive of grinding and integrated units, as against ~24 MT added in fiscal 2023, as players' profitability rebounded in lieu of easing cost pressures which in turn led to higher cash accruals for the capex spending during the fiscal. Healthy demand growth led to rise in utilization level to ~72% despite rise in capacity additions.

Player-wise capacity growth

The Indian cement industry is highly fragmented and competitive, with the presence of a few large players and several medium and small players.

Large and mid-sized players have used both organic and inorganic routes to grow. While UltraTech Cement Limited has undertaken the maximum capacity additions in absolute terms, other large players such as Dalmia Bharat Limited and Shree Cement Limited have added capacity aggressively as well. Among the mid-sized players, JK Cement Limited, JK Lakshmi Limited, JSW Cement Limited and The Ramco Cements Limited have undertaken healthy capacity growth, led by organic expansion to newer regions.

Table 20- Player-wise installed cement grinding capacity (top 10 players)

MTPA	FY14	FY19	FY23	FY24
UltraTech Cement Limited	54.0	109.4	127.0	140.8
Ambuja Cements Limited	28.0	29.7	31.5	78.9*
ACC Limited	30.5	33.4	36.1	
Shree Cement Limited	17.5	37.9	46.4	53.4
Dalmia Bharat Limited	22.8	26.5	38.6	44.6
Nuvoco Vistas Corporation Limited	11.0	11.8	23.6	25.0
The Ramco Cements Limited	15.5	16.7	22.0	23.1
JK Cement Limited (India - grey cement)	7.5	10.5	20.7	22.3
JSW Cement Limited	5.5	12.8	16.6	20.6
Birla Corporation Limited	8.5	15.4	19.3	20.0
JK Lakshmi Cement Limited.	7.7	12.5	14.0	16.5
Industry	395.0	496.0	593.0	636.0

Note: Only domestic operations have been considered for UltraTech Cement Limited and Shree Cement Limited. The company-wise installed base is mentioned. For fiscal 2024 Capacity of Ultratech excludes cement capacity of Kesoram Industries. Within the Adani Group, Ambuja Cements Limited capacity includes cement capacity of ACC Limited and Sanghi Industries.

Source: Company annual reports and publications

Table 21- Trend in share of top 5 players

Capacity in MT	FY14	FY19	FY23	FY24
UltraTech Cement Limited	54.0	109.4	127	140.8
Ambuja Cements Limited	28.0	29.7	31.5	78.9*
ACC Limited	30.5	33.4	36.1	
Shree Cement Limited	17.5	37.9	46.4	53.4
Dalmia Bharat Limited	22.8	26.5	38.6	44.6
Nuvoco Vistas Corporation Limited	-	-	-	25.0
Share of Top 5 Players	39%	45%	47%	54%

Note: Only Domestic operations have been considered for UltraTech Cement Limited and Shree Cement Limited. Prior to fiscal 2024, ACC Limited, Ambuja Cements Limited, UltraTech Cement Limited, Dalmia Bharat Limited and Shree Cement Limited considered in top 5 players; Top 5 players share of 47% till FY23 does not include Nuvoco Vistas Corporation Limited. In fiscal 2024, Nuvoco Vistas Corporation Limited is included in top 5.

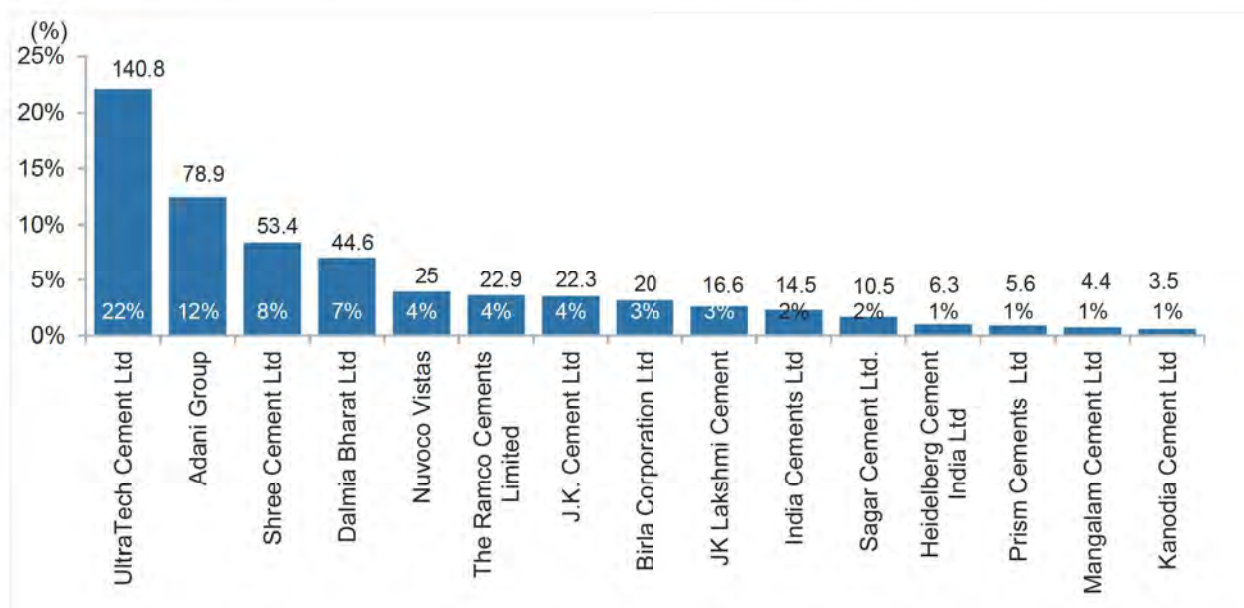
*In fiscal 2024, Ambuja Cements Limited and ACC Limited capacity of 78.9 MTPA includes cement capacity of Sanghi Industries

Source: Company annual reports and publications

Market share of cement players based on capacity

The share of the top five players in the industry has grown to ~54% (as of FY2024), led by consolidation and higher organic growth by large players. Their share has grown from around 45% back in fiscal 2019 led by a spree of capacity acquisitions, especially by Adani group, UltraTech Cement Limited, Nuvoco Vistas Corporation Limited and Dalmia Bharat Limited. The top five players have gained market share both at a capacity and sales level at the cost of mid- and small-sized players.

Figure 34- Player-wise market share based on domestic capacity of key players in the industry as of fiscal 2024

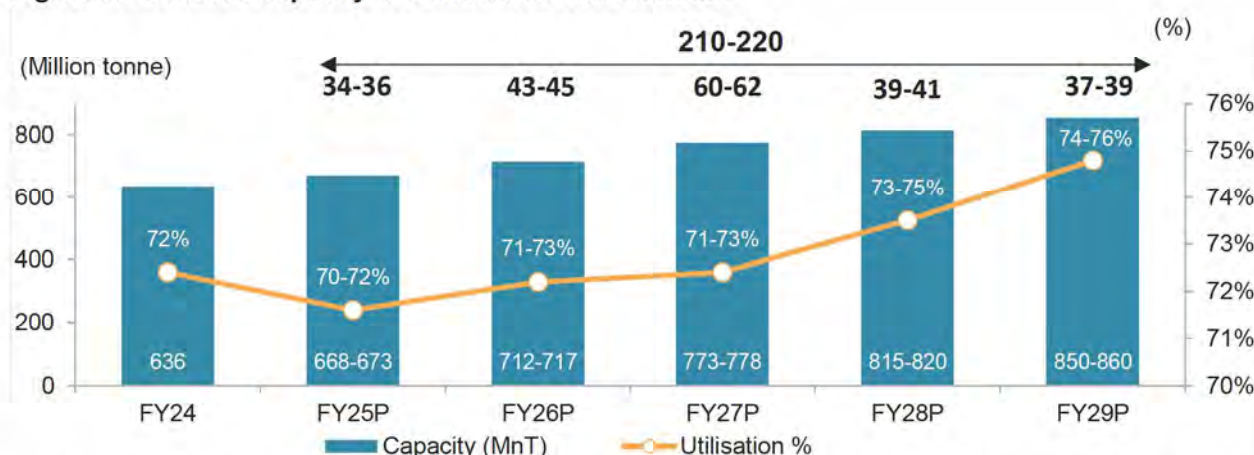


Note: Data label above the bars represent capacity in MTPA (Million Tonnes Per Annum); Data based on FY2024 capacity. Adani group includes Ambuja cements Limited, ACC Limited and Sanghi Industries

Source: Company annual reports, Industry

6.2 Pan-India Supply outlook

Figure 35- Installed capacity and utilisation rates outlook



Note: Boxes above the bar represent capacity addition for that fiscal; Commissioning year of new capacities is as per Crisil Intelligence estimates based on directions provided by companies

Source: Crisil Intelligence, company reports and publications

Crisil Intelligence expects the cement industry to add 210-220 MTPA of grinding capacities between fiscals 2025 and 2029. The industry added ~34 MT of grinding capacity in fiscal 2022. However, higher input costs in the form of elevated power and fuel prices in early fiscal 2023 dented profitability, leading to lower cash flows and capex slowdown. Hence, relatively lower capacity of ~24 MT was added in fiscal 2023. With rebound in profitability and higher cash accruals in fiscal 2024, players further added ~43 MT during the year.

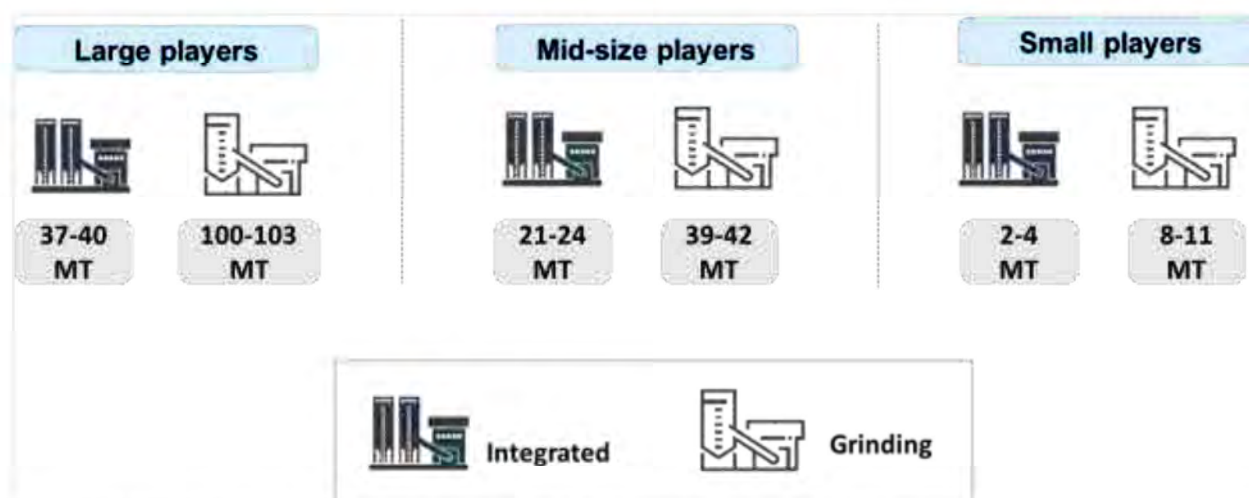
In fiscal 2025, Crisil Intelligence expects the operating rates of cement players to marginally lower to 70-72%, after having risen to ~72% in fiscal 2024. Utilisation levels improved in fiscal 2024 from ~69% in fiscal 2023 and ~65% in fiscal 2022, amidst a healthy demand uptick. Utilisation levels breached 70% mark for the first time in past decade. Higher utilisation levels were supported by strong tailwind of higher demand from

housing and infra segment despite capacity additions of ~43 MT during FY24. However, with expected moderation in demand growth on account of post-election slowdown coupled with 34-36 MT of capacity additions in fiscal 2025, operating rates are expected to slightly lower but still remain healthy at 70-72% level.

That said, improving demand expectations in the medium term and efforts to gain higher market share has triggered a wave of new-capacity announcements, especially by large players. Despite higher supply, rising demand to support operating rates and elevate to 74-76% in the coming five fiscals.

In fiscal 2024, the installed capacity totalled ~636 MTPA. Assuming 210-220 MT of capacity additions, the total installed capacity is projected at 850-860 MTPA by fiscal 2029. Out of the total upcoming capacities, share of satellite grinding units to be higher with around 148-153 MT new grinding units as against 62-67 MT of Integrated units.

Figure 36- Integrated and grinding capacity additions by the manufacturers (fiscal 2025 -2029)



Note: Large (capacity ≥ 25 MTPA); medium (capacity: 8-24 MTPA); small (capacity: <8 MTPA)

Source: Crisil Intelligence

6.3 Key challenges in setting up cement capacities in India

Greenfield plants are becoming more difficult to set up than brownfield

Longer gestation: The gestation period for setting up an integrated greenfield unit is 3-4 years, while that of a brownfield unit is 1.5-2.5 years. Greenfield units take longer to get started because of extended land acquisition-related timelines. On the other hand, brownfield plants have lower gestation because of availability of land, and lesser time required for securing environment-related approvals and processes such as conducting environmental impact assessment/environment management plan study, appraisal by the ministry committee, and public hearing.

Inadequate limestone reserves: Post amendment in the Mines and Minerals (Development and Regulation) Act (MMDR), mines can be leased only through bidding by respective state governments. As the process is only carried out once or twice a year and is nullified in the absence of sufficient bidders (usually 3), securing limestone reserves has become difficult.

Long list of approvals required: Further, the applicant must get the mining plan approved by Indian Bureau of Mines (IBM) and secure environment clearance from MoEFCC for mines of area greater than 50 hectares. It also must get approval of other authorities such as Central Ground Water Board (CWGB).

Land acquisition issues: Since logistics costs are a significant part of overall costs, a plant should not be located away from a limestone mine for economic operations. Acquisition of land in proximity to a mine is a

challenging task, particularly where the land is fertile. Similarly, acquisition of land from government can become a tedious process, especially in cases where the land involved falls in the forest category. In certain cases, greenfield plants have received opposition from local communities, impacting progress of work. Usually, these problems are not found in brownfield plants.

Relatively higher funding required: Higher capex is required per tonne for greenfield, which necessitates higher funding/lending. Moreover, as gestation periods tend to be long and entry into the market is difficult for new players, these projects are perceived as being risky by lenders and therefore entails tough lending terms. That said, capex or investment costs required for setting up a plant varies significantly based on whether it is an integrated/grinding unit, as well as the nature of expansion (greenfield/brownfield).

Table 22- Capex requirement for cement manufacturing (per tonne basis)

Type	Costs per tonne of capacity for Grinding plant (in Rs.)	Costs per tonne of capacity for Integrated plant (in Rs.)
Greenfield	3,000-4,000 per tonne	6,000-7,000 per tonne
Brownfield	1,500-2,500 per tonne	4,000-5,000 per tonne

Source: Industry, Crisil Intelligence

Compared to integrated units, setting up satellite grinding units is a relatively more straightforward and efficient process. This is attributed to several key advantages, including:

- A shorter gestation period (18-24 months), excluding time for environmental clearances which enables faster project implementation and quicker time-to-market
- Further, as satellite grinding units of capacity less than 1 MTPA are exempt from obtaining clearances from the Ministry of Environment, Forest, and Climate Change (MoEFCC), these projects are usually completed faster than large-size projects
- Lower capital expenditure, reducing the financial burden and risk associated with project development
- Faster land acquisition and approval processes, minimizing delays and bureaucratic hurdles

These advantages collectively make satellite grinding units a more attractive and viable option for companies seeking to expand their production capacity and enter new markets.

6.4 Emerging trends in the domestic cement industry

6.4.1 Rising share of Satellite Grinding Units (SGUs) vis-à-vis Integrated Units (IUs)

The cement industry is undergoing a significant transformation with the expansion of SGUs by manufacturers. This strategy offers several benefits, including:

Reduced overall logistics cost

The cement industry is characterised by high freight costs, which form a substantial part of total expenditure. Transporting cement bags, bulk cement or fly ash is more expensive on a per kilometre basis than transporting clinker. To optimise the overall logistics cost, companies have started setting up satellite grinding units (SGUs) closer to consumption centres by balancing the following:

Reduced primary freight costs (IGU to consumption centres), as cement no longer needs to travel from the mother plant, covering distances of up to 300-700 km (or higher for states in central India without integrated plants)

Reduced secondary freight costs (wholesalers to consumption centres), SGUs enable direct transportation of cement to local consumers within a 50-150 km radius, reducing trans-shipments. Additionally, consumers can collect cement directly from SGUs, eliminating secondary freight costs

Reduced inward freight costs of fly ash and slag, as the blending proportion increases, the availability of fly ash and slag becomes more critical. At times, establishing SGUs near coal-based

power plants (the source of fly ash) helps lower inward freight costs and enhances overall profitability, as clinker is easier to transport than fly ash

- **Efficient supply chain by eliminating the need for warehouses**, the introduction of SGUs has eliminated the need for warehouses, as the distance between these units and major consumer areas has been reduced to under 200 kilometres. As a result, cement can be transported directly to the end-user's location or to retailers' shops, reducing selling costs and working capital requirements. This avoids loading and unloading charges, spillages and damages at the warehouse. Fresher cement delivery to the end consumer due to lower handling also helps in commanding a better realisation.

Micro-marketing and location flexibility

SGUs offer higher location flexibility compared to integrated units, as they can be situated near target markets. This also opens up opportunities in new markets. Companies have established satellite grinding or packaging units in central, eastern, and western regions to enter these markets. The eastern and western regions, particularly states such as West Bengal, Uttar Pradesh, Bihar, and Maharashtra, which have limited limestone deposits, have seen a significant increase in cement grinding capacity additions to meet local demand.

Furthermore, companies can strategically locate SGUs in states that promote industrial development and benefit from various state subsidies and incentives available for supplies within the state (e.g., SGST reimbursements).

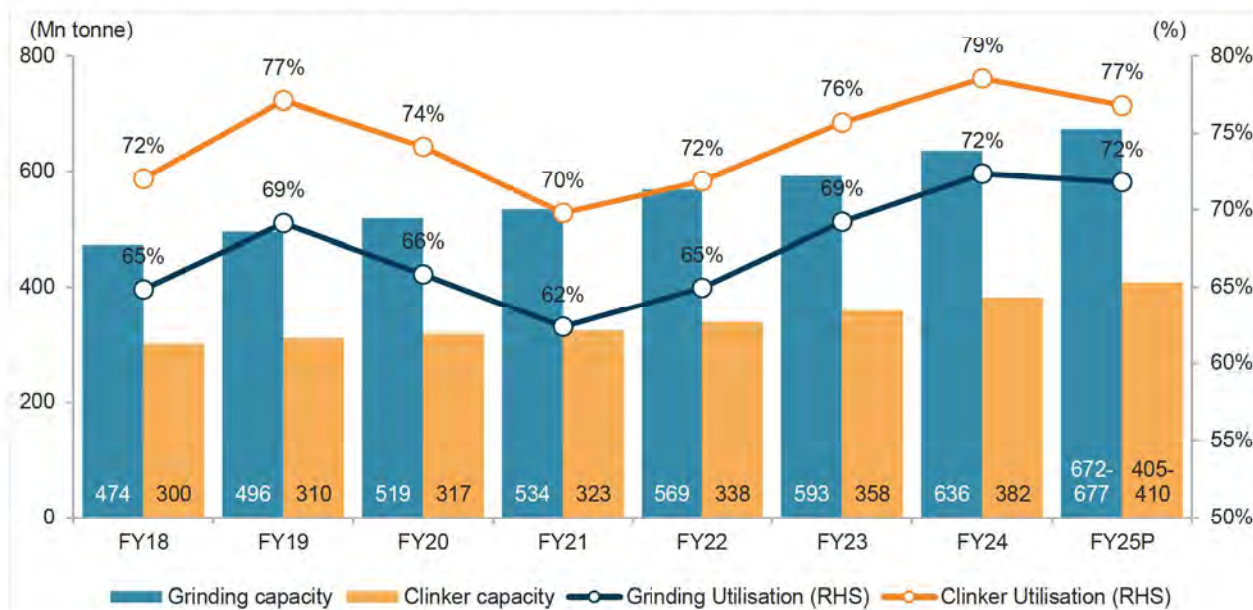
Lower capex requirement and related risks

SGUs can help in focusing on micro-markets where an IU is not viable. Setting up SGUs requires lower capital expenditure compared to integrated units, due to lower land area and plant equipment requirements. This, in turn, reduces the financial burden and risks associated with project development.

The clinkerisation process is energy-intensive, as limestone is converted into clinker at high temperatures in a coal-fired kiln. However, SGUs have lower power requirements, as clinker grinding (clinker to cement) and blending with other raw materials are less energy-intensive processes, accounting for only 15-20% of the total energy consumption of an integrated plant. Thus, while establishing SGUs require lower considerations towards emissions and power supply.

The impact of the above is evident in the moderation of freight costs, despite a 30% increase in diesel prices over the past five years. Freight costs per tonne have risen only 5-10%, as well as reduced distribution costs, have contributed to overall savings in total costs, enhancing profitability for players with SGUs.

The trend of establishing SGUs is expected to continue, with the central and eastern regions likely to witness the highest grinding capacity addition between fiscals 2025 and 2029. The gap between grinding and clinker utilisation is expected to shrink, driven by healthy grinding capacity addition and moderate clinker addition, amidst lower clinker usage and higher blended cement consumption. Blending rates are set to rise further, driving up grinding utilisation.

Figure 37- Trend in industry capacity utilisations for cement and clinker


Source: Crisil Intelligence

Table 23- Key player-wise no. of SGUs & Integrated units, cement and clinker capacities as of fiscal 2024

Players	No. of satellite grinding units	No. of Integrated plants	Total Cement capacity (MTPA)	Total Clinker capacity (MTPA)
UltraTech Cement Limited	24	29	140.8	NA
Adani Group (Consolidated)	19	18	78.9	NA
Shree Cement Limited	11	5	53.4	33.4
Dalmia Bharat Limited (Consolidated)	5	9	44.6	22.6
Nuvoco Vistas Corporation Limited (Consolidated)	6	5	25	13.5
The Ramco Cements Limited (Consolidated)	6	5	23.1	15.9
J K Lakshmi Cement (Consolidated)	4	3	16.5	9.9
J K Cement (Consolidated)	6	5	22.3	14.5
Birla Corporation (Consolidated)	4	4	20.0	NA
Total	85	83	424.7	109.8

Note: Only domestic operations have been considered for UltraTech Cement Limited and Shree Cement Limited. The company-wise installed base is mentioned. FY24 Capacity of Ultratech excludes cement capacity of Kesoram Industries. Adani Group capacity includes cement capacity of Ambuja Cements Limited. ACC Limited and Sanghi Industries.

Source: Company annual reports and publications

Table 24- Key player-wise upcoming no. of SGUs & Integrated units, cement and clinker capacities (fiscal 2025-2029)

Players	No. of satellite grinding units	No. of Integrated plants	Cement capacity-SGUs (MTPA)	Cement capacity-Integrated (MTPA)	Total Cement capacity (MTPA)	Total Clinker capacity (MTPA)
UltraTech Cement Limited	13	6	26	15.6	41.6	NA
Adani Group (Consolidated)	8	4	16.8	3.2	20	11

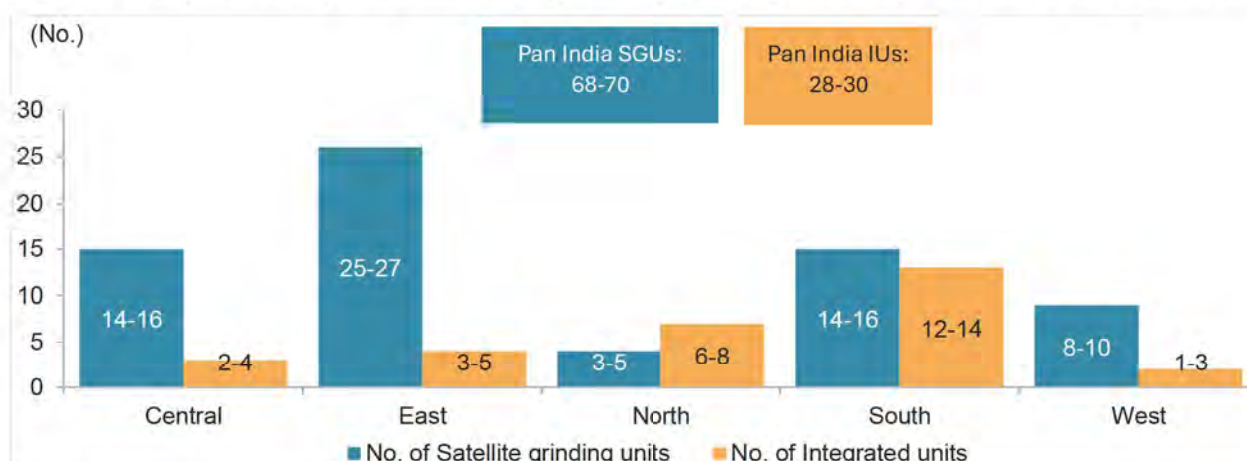
Shree Cement Limited	2	3	6.4	12	18.4	8.8
Dalmia Bharat Limited (Consolidated)	1	3	0.5	4.4	4.9	4.5
Nuvoco Vistas Corporation Limited (Consolidated)	-	-	-	-	-	-
The Ramco Cements Limited (Consolidated)	-	1	-	1.5	1.5	3.2
J K Lakshmi Cement (Consolidated)	4	2	4.8	6.1	10.9	3.3
J K Cement (Consolidated)	5	-	8	-	8	-
Birla Corporation (Consolidated)	1	-	1.4	-	1.4	-
Total	34	19	63.9	42.8	106.7	30.8

Note: Consol.- Consolidated operations including subsidiaries

Only domestic operations have been considered for UltraTech Cement Limited and Shree Cement Limited. The company-wise installed base is mentioned and includes capacity additions through expansion, de-bottlenecking and reclassification. Within the Adani Group, Ambuja Cements Limited has additional projects of ~16 MTPA clinker expansion and ~21 MTPA of cement expansion at various stages. Details for the same is yet to be disclosed by the company.

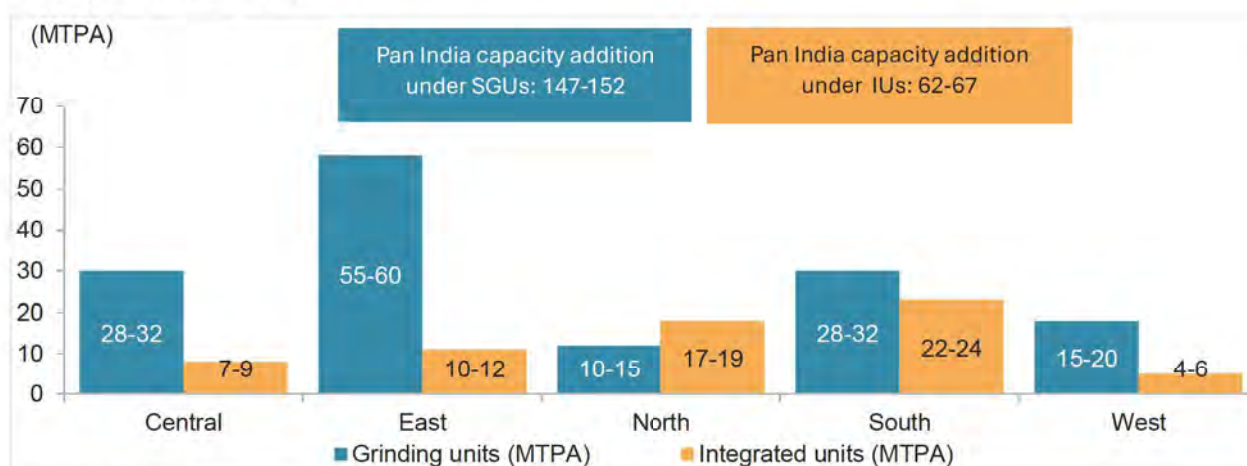
Source: Company annual reports and publications

Figure 38- Region-wise split of number of upcoming grinding and integrated units (fiscal 2025-2029)



Source: Crisil Intelligence

Figure 39- Region-wise split of upcoming cement capacity additions under grinding and integrated units (fiscal 2025-2029)



Source: Crisil Intelligence

6.4.2 Blending ratio to continue rising over the near term

The major types of cement products are: • Ordinary Portland Cement (OPC) • Portland Pozzolana Cement (PPC) • Portland Slag cement (PSC) • Portland Composite Cement (PCC)

- **OPC:** One of the most widely used cements globally, OPC is a hydraulic cement that becomes water-resistant once curing is complete with water. It is primarily used as a construction material for building houses (structures such as beams, slabs, columns, footings, etc), bridges, pavements, and so on. Additionally, it is used for various purposes, including the production of concrete and mortars. OPC is manufactured by inter-grinding gypsum and clinker. The key characteristics of OPC are its quick setting properties and ability to reach optimal strength quickly, thereby increasing the speed of construction. OPC can also be blended with other mineral admixtures to form blended cement, such as PPC and PSC
- **PPC:** This type of Portland cement is characterised by the presence of Pozzolana particles, such as fly ash and volcanic ash, which are added to OPC in a ratio of 15% to 35%, as specified by the Bureau of Indian Standards (BIS). Due to the presence of Pozzolana particles, PPC becomes a cement that uses less clinker but has the durability and strength while increasing the settling time. As it uses a lower concentration of clinker, it is less expensive and more environmentally friendly than OPC. PPC is used in the construction of residential buildings, masonry mortars, hydraulic structures, dykes, sewage pipes, dams, etc
- **PSC:** This blended cement is created with a combination of 35-70% blast furnace slag, 25-65% clinker, and 3-5% gypsum, as specified by the BIS. Slag is essentially a non-metallic product comprising more than 90% glass with silicates and alumino-silicates of lime. Due to its low heat of hydration, it is considered the best cement to use for mass construction. It is used in the construction of all types of residential, commercial, and industrial projects, dams, and other mass concrete works, water-retaining structures, concrete roads, and flyovers, etc
- **PCC:** It is a mixture of high-quality clinker, fly ash, granulated slag, and gypsum. The typical range of these components is clinker (35% to 65%), fly ash (15% to 35%), granulated slag (20% to 30%), and gypsum (3% to 5%). For composite cement, the BIS allows slag and fly ash to comprise 40-65% of cement mass. It reduces the carbon footprint by utilising industrial by-products, enhances resistance to chemical attacks and cracking, and provides better workability and long-term performance. High-strength cement, enhanced durability and sustainability, reduction of concrete bleeding and segregation, and increased safety of structures are a few benefits of composite cement

Table 25- Types of cement and their characteristics

	OPC		PPC		PSC		Composite	
Raw material proportion	Clinker	95%	Clinker	60-65%	Clinker	25-65%	Clinker	35-65%
	Gypsum	5%	Gypsum	4-5%	Gypsum	3-5%	Gypsum	3-5%
			Fly-ash	15-35%	Slag	35-70%	Fly-ash	15-35%
							Slag	20-30%
End uses	IHB (Individual House Builders), roads, bridges, beams, columns		Residential & Commercial		Housing, dams, marine structures, sewage pipes		Eastern/coastal	
Minimum clinker requirement	95%		60%		25%		35%	
Environmental benefits	Low		Medium		High		High	

Note: Proportion of clinker is the minimum clinker requirement. For example, OPC must contain at least 95% clinker as per BIS norms.

Source: Crisil Intelligence

The proportion of blended cement (PPC, PSC, and Composite cements) has been rising, with the share of PPC being the highest. By blending low-cost additives, such as fly ash or slag (waste by-products of thermal power plants and steel plants, respectively), in substitution of natural resources like limestone with OPC, cement producers can lower power, fuel, and raw material costs, thereby improving their overall profitability. As these waste products are used to replace energy-intensive clinker, the main contributor to CO₂ emissions in cement manufacturing, blended cements are less carbon- and energy-intensive, thus helping to lower carbon emissions. Hence, the use of blended cement instead of traditional cement makes sense environmentally and economically, making it a profitably viable and cost-effective option for cement players.

The production of PSC is concentrated in the eastern and southern regions. This is due to the greater number of steel plants in the region, leading to a higher availability of slag, as proximity to steel plants is important for the supply of slag. The western, central, and northern regions have a higher share of PPC compared to the eastern and southern regions.

Fly ash: Fly ash is a finely divided residue resulting from the combustion of pulverised bituminous coal or sub-bituminous lignite in thermal power plants, comprising inorganic mineral constituents of coal and organic matter that are not fully burnt. It is generally grey in colour and refractory in nature. Owing to its pozzolanic properties, fly ash can be mixed with clinker to form PPC. When fly ash is added to cement, it improves its strength, durability, and reduces carbon dioxide emissions. However, cement manufacturers can only use up to 35% fly ash in every tonne of cement, as beyond this level, it is not allowed as per BIS norms.

Slag: Slag, produced as a waste material by steel plants, is the next best blending material. Slag is a non-metallic product comprising glass containing silicates of lime and other bases and is obtained as a by-product while manufacturing pig iron. Granulated slag is used to manufacture Portland Slag Cement. Slag cement can be used for all plain and reinforced concrete constructions, mass concrete structures such as dams, reservoirs, swimming pools, river embankments, bridge piers, etc. Slag adds strength and durability to concrete. Slag cement also improves concrete's plastic properties, such as workability and finishing. Slag is also environmentally friendly, as it is a recycled material, and for each cubic yard of concrete in which it replaces Portland cement, slag cement significantly reduces power consumption and greenhouse gas emissions. The BIS has capped the usage of slag in cement at about 70%.

Other raw materials used in the cement industry include fly ash, slag, and gypsum. Gypsum is available as a natural product, also derived from seawater (used for specific applications like white cement production) and chemical plants. It is mostly found in Rajasthan (which accounts for more than 80%) followed by Jammu & Kashmir (which accounts for ~15%). Gypsum is also imported from Oman, Bhutan, Iran and UAE.

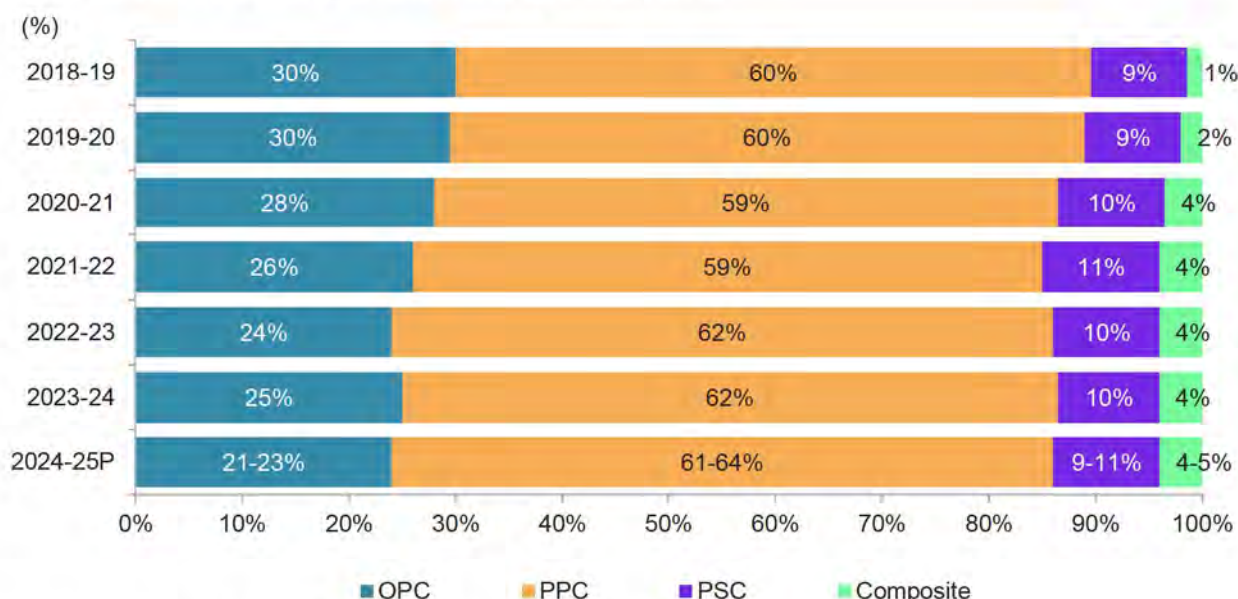
Inward freight forms a substantial portion of raw material costs for blended cement manufacturers, as transportation costs are a major cost component. In fact, fly ash is sold at minimal prices in few eastern, northern and central markets, but inward freight costs take overall raw material costs higher. Hence, proximity to thermal power plants and steel plants can create a major advantage for blended cement manufacturers.

The blending ratio has risen due to higher acceptance and applications of blended cement, such as PPC, PSC, and composite cement. Besides faster growth in the east, permission to use PPC in state Public Works Department (PWD) works has been driving the increase in the blending ratio. Along with a rise in demand for PPC cement, demand for composite cement is gaining momentum, leading players to convert to composite cement production. However, slag and composite cement will be confined to regions where steel plants are located, as being a low-cost commodity, it becomes unviable to transport it over longer distances.

The blending ratio for the cement industry has risen to 1.46 in fiscal 2024 (based on a sample covering 70% of the industry's production) from 1.41 in fiscal 2019, owing to the rising usage of PPC, PSC, and Composite cement, where the proportion of blending material is higher. However, the blending ratio marginally declined in fiscal 2024 due to higher usage of OPC cement in infrastructure projects. The share of OPC inched up in fiscal 2024 compared to the decline witnessed in fiscal 2023 and fiscal 2022 (2% each), majorly due to the

infrastructure boost received during the pre-election year, which led to higher usage of OPC cement, given its nature of durability and strength.

Figure 40- Consumption split of different types of cement

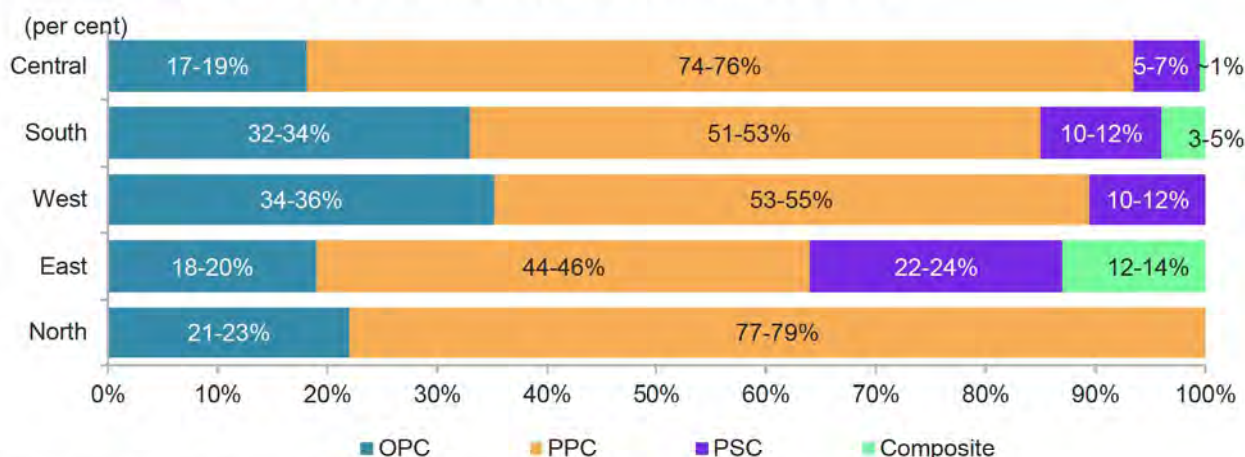


Note: P: Projected; OPC: Ordinary Portland Cement; PPC: Pozzolana Portland Cement; PSC: Slag cement

Source: Industry, Crisil Intelligence

We expect the share of blended cement to rise further in fiscal 2025 to lower production costs and cut emissions by blending low-cost additives, such as fly ash or slag, in the substitution of energy-intensive natural resources, such as limestone. Further, with a higher focus on environmental aspects, players will continue to push blended cement to meet emission norms targets and cut production costs. Thus, in the long run, Crisil Intelligence estimates the blending ratio to improve, led by a shift towards PPC, PSC, and composite cement.

Figure 41- Region-wise share of different types of cement (fiscal 2024)



Note: OPC: Ordinary Portland Cement; PPC: Pozzolana Portland Cement; PSC: Slag cement

Source: Industry, Crisil Intelligence

At the regional level, the usage of OPC cement is highest in the west and south, followed by the north. Being a region dominated by the infrastructure segment, the share of OPC cement in the west is estimated to be at 34-36%. However, due to the lack of availability of slag, the share of PSC cement is lower, while that of composite cement is negligible. A similar trend has been observed in the south, although a minimal amount of composite cement is also used in the housing segment. In the north, only OPC and PPC types are

predominantly used because of the higher share of the infrastructure segment, coupled with the lower availability of slag in the region. On the other hand, in the eastern and central regions, the share of OPC is relatively lower, since the housing segment holds a significant proportion in overall demand segments. Also, with the presence of steel plants in the eastern belt, the availability of slag is abundant, leading to the highest share of PSC and composite cement.

6.4.3 Renewable power addition

Coal-fired power plants have dominated the Indian power generation landscape, with large manufacturing industries also relying on coal-based captive power plants. However, manufacturers have been shifting to clean energy sources, especially wind and solar, due to falling capital costs and government incentives for setting up renewable capacities, as well as a sharpened focus on lowering carbon emissions.

Coal and lignite-based capacity additions, which stood at approximately 89 GW over fiscals 2013 to 2017, resulted in significant capacity build-up, particularly in the private sector. Consequently, falling plant load factors due to unutilized capacities and rising debt because of under-construction and stuck projects impacted capacity additions of power generation companies (GENCO's). Therefore, incremental coal-based additions plunged over the past few years, with only approximately 21 GW added over fiscal 2018 to fiscal 2024.

However, a large constraint to growth in power from coal-based power plants will be the increasing supply from renewable energy sources. The Indian government has set a target of 500 GW of non-fossil-based energy by 2030 to achieve energy security and its climate-change commitments. The share of renewable energy in total installed power capacity has increased from approximately 35% in fiscal 2019 to approximately 47% in fiscal 2025 and is expected to increase to approximately 60% by fiscal 2029, reaching 435-445 GW.

Lower power demand and the government's focus on increasing the share of renewables in the country's energy mix are likely to prod GENCO's to go slow on new conventional capacity addition plans over the subsequent years as well. Also, fresh project announcements are limited, as players are opting for the inorganic route for expansion, given the availability of assets at reasonable valuations.

Still, the inherent flexibility of coal-based capacities to quickly scale up or down generation to meet variations in demand will support capacity additions in the medium term, as renewable capacities will take time to cope with this flexibility. Coal capacity additions, though, are expected to be driven entirely by central and state companies, as major private GENCO's have announced ambitious targets to add renewable energy capacities, signalling a decisive shift.

Cement players have been employing the same strategy. Most large and mid-sized players have been investing heavily in renewable capacities, not only to limit carbon emissions but also to lower the cost of energy. The top 15 cement players in India, accounting for close to 80% of total grinding capacity, have added close to 600 MW of renewable capacities over the past decade (FY14-24), along with considerable investment in waste heat recovery systems (WHRS). In fact, renewable energy capacity addition has grown rapidly over a low base, with the total installed base reaching approximately 1550 MW in fiscal 2024 from approximately 350 MW in fiscal 2017. Most of the additions were, however, in the solar space, with wind providing support as well. Several players, such as UltraTech Cement Limited, have set a target to completely shift to renewable energy by 2050.

The share of renewable and WHRS in the total power mix has gone up significantly for these players, from a meagre 16-17% in fiscal 2010 to 38-40% in fiscal 2024. While the focus on WHRS has sharpened over the years, leading to a sharp pickup in its share from 3-4% in fiscal 2010 to 16-18% in fiscal 2024, there has been a fresh focus on renewable energy over the past few years. The share of renewables is only likely to increase going forward, with extensive investments in both solar and wind power plants and is likely to cross the 60% mark over the next five years.

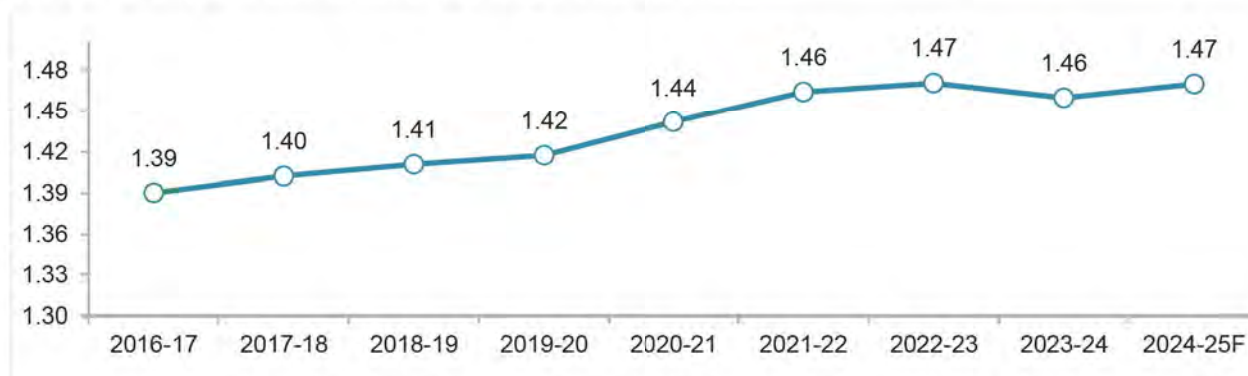
Over the past five years, integrated cement companies have been increasingly opting for captive power plants to reduce their cost of production and dependence on grid power, as their coal-fired kiln has a high power requirement due to the clinkerisation process, where limestone is converted into clinker. However, SGUs have lower power requirements, as clinker grinding and blending are less energy-intensive processes and account for only 15-20% of total energy consumption of an integrated plant.

Blended cements, such as PPC, PSC, and PCC typically consume 10-15% lower power per tonne, as fly ash/slag, which are already in a ground/powdered state, consume lesser power. Similarly, due to lower clinker requirements in PPC and PSC, thermal energy consumed per tonne is also lower. Hence, SGU's power requirement is met through grid power supplied by state electricity boards, an open access model, or captive/contracted sources of power. Conventionally, players rely on state electricity boards for their power requirements. The open access model enables power consumers to buy relatively cheaper power directly from power producers (open market) at a relatively lower rate. However, a slew of additional charges in the open access model makes it less lucrative than the captive model, where players hold partial/full investments in the solar project for their own consumption.

6.4.4 Cement to clinker ratio (clinker factor) rises to an all-time high

The cement-to-clinker ratio has risen over the years in line with the rise in share of blended cement. Players have taken several steps to ensure lower utilisation of clinker, not only to bring down the cost of production but also to meet their ESG/emission targets. Further, better availability of fly ash, on the back of improved transportation of the same, has helped players increase the cement-to-clinker ratio to an all-time high of 1.47 in fiscal 2023.

Figure 42- Trend of clinker factor of Indian cement industry



Note: F: Forecasted

Source: Industry, Crisil Intelligence

The cement-to-clinker ratio for the cement industry was 1.46 in fiscal 2024 (based on a sample covering ~70% of the industry's production) from 1.41 in fiscal 2019, owing to the rising usage of PPC, PSC and PCC, where the proportion of blending material is higher. However, the cement-to-clinker ratio marginally declined in fiscal 2024 due to the higher usage of OPC cement. The share of OPC inched up in fiscal 2024, majorly due to the infrastructure boost received during the pre-election year, which led to higher usage of OPC cement, given its nature of durability and strength.

Near term outlook for clinker ratio

We expect the cement-to-clinker ratio to rise back to 1.47 times in fiscal 2025 as players focus on blended cement in the post-election year. PPC, PSC, and PCC help players to lower their production costs and cut emissions by blending low-cost additives, such as fly ash or slag, in substitution of the energy-intensive natural resource, limestone. Thus, players have started using differential pricing for blended and OPC cement. Further, with a higher focus on environmental aspects, players will continue to push blended cement to meet emission norms targets and cut production costs. Thus, in the long run, the blending ratio is expected to improve, led by a shift towards PPC, PSC, and PCC.

7 Regional supply overview and outlook

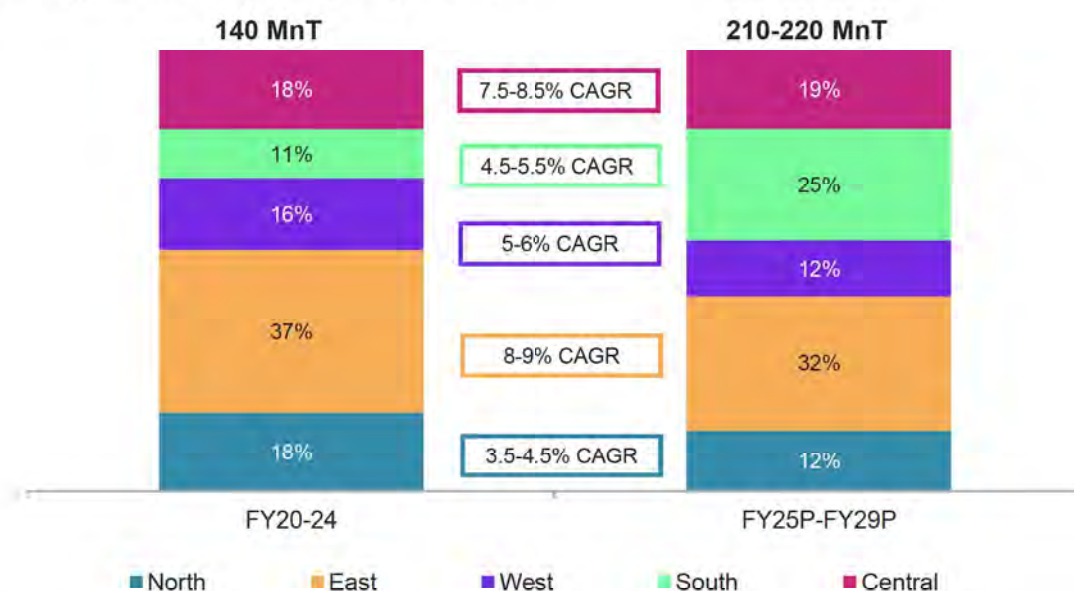
7.1 Regional supply dynamics

Over fiscals 2020-2024, the northern, eastern and central regions collectively comprised ~73% of overall capacity additions. The eastern region has seen the largest share of capacity additions in recent years, led by the rapid expansion by Nu Vista Limited (formerly Emami Cement, now a wholly owned subsidiary of Nuvoco Vistas Corporation Limited), Dalmia Bharat Limited, JSW Cement Limited, The Ramco Cements Limited and Shree Cement Limited, which helped these companies gain share in a fast-growing market.

Over fiscals 2025-2029, the east and south are expected to drive capacity additions, followed by the central, northern and western region.

Improving demand outlook over the medium term and the push to gain market share have triggered a wave of capacity addition announcements from cement manufactures, especially large players. Over fiscals 2025-2029, Crisil Intelligence expects the industry to add 210-220 MTPA of grinding capacities, taking the country's total installed capacity to 850-860 MTPA by fiscal 2029.

Figure 43- Regional break-up of capacity additions

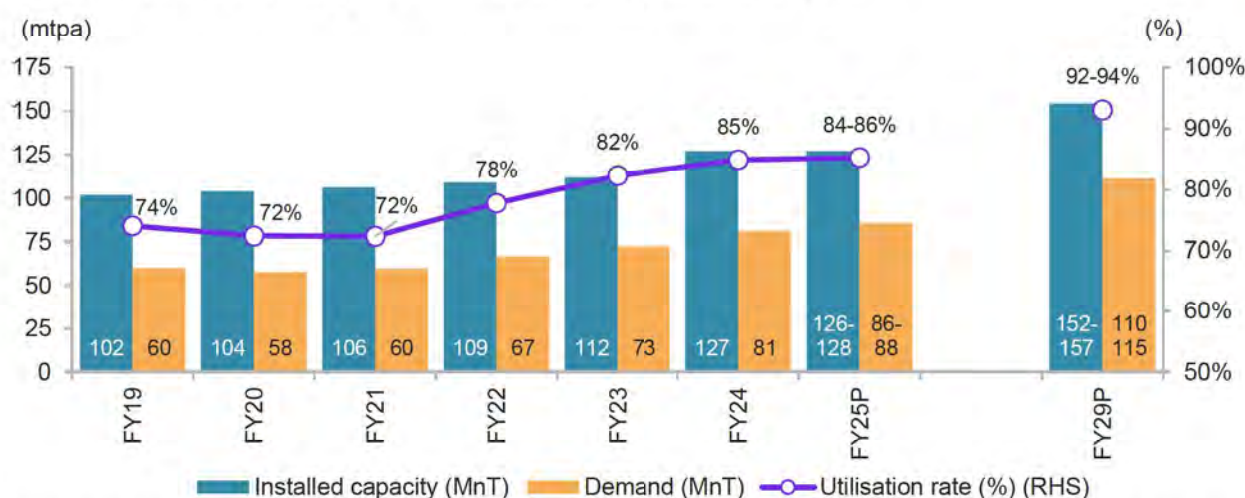


Note: CAGR per cent in boxes represent supply CAGR growth from FY25-29 period

Source: Crisil Intelligence, industry

7.1.1 Capacity, demand-supply balance and utilisation in the northern region

In fiscal 2021, utilisation was stable, despite the pandemic-caused lockdowns as demand recovered in the second half of the fiscal. However, utilisation improved in fiscal 2022, with few capacity additions and robust demand revival on the back of government spending and pick-up in construction, leading to ~78% utilisation levels in the region. In fiscal 2023, utilisation levels picked up pace and reached ~82% amid lower capacity addition. In fiscal 2024, utilisation further improved to ~85%, despite the rise in capacity additions, majorly due to healthy demand growth. In fiscal 2025, despite demand moderation, operating rates are expected to remain stable majorly due to no new capacity addition expected in the region during the fiscal. Although, these levels are expected to remain elevated compared to other regions in the coming 5 years amid a positive demand outlook and lower capacity additions.

Figure 44 - Demand–supply and utilisation rates for northern region


Note: Capacity utilisation is basis effective capacity – considering on the date of commissioning of the plant; capacity utilisation is calculated with production in the region divided by effective capacity and does not take into consideration inter-regional movement

Source: Crisil Intelligence, industry

7.1.2 Capacity, demand-supply balance and utilisation in the western region

The west was the most impacted region in fiscal 2021, due to stringent lockdowns leading to production shutdowns. As a result, utilisation rate declined to ~65% from a high of ~72% in fiscal 2020. However, in fiscal 2022, ~10 MT capacity was installed in the west, which limited the rise in utilisation levels, despite healthy demand, leading to ~68% utilisation rate. Utilisation levels remained almost stable in fiscal 2023 and improved to ~72% in fiscal 2024 due to healthy demand growth. Further, in fiscal 2025, utilisation levels are expected to remain rangebound owing to moderation in demand as well as lower inbound cement movement from the south (Karnataka) and north, leading to lower cement supply. Going forward, these levels are expected to improve to 78-80% on account of the slower pace of capacity additions over the next five years and healthy growth in demand.

Figure 45 - Demand–supply and utilisation rates for western region


Note: Capacity utilisation is basis effective capacity – considering on the date of commissioning of the plant; capacity utilisation is calculated with production in the region divided by effective capacity and does not take into consideration inter-regional movement

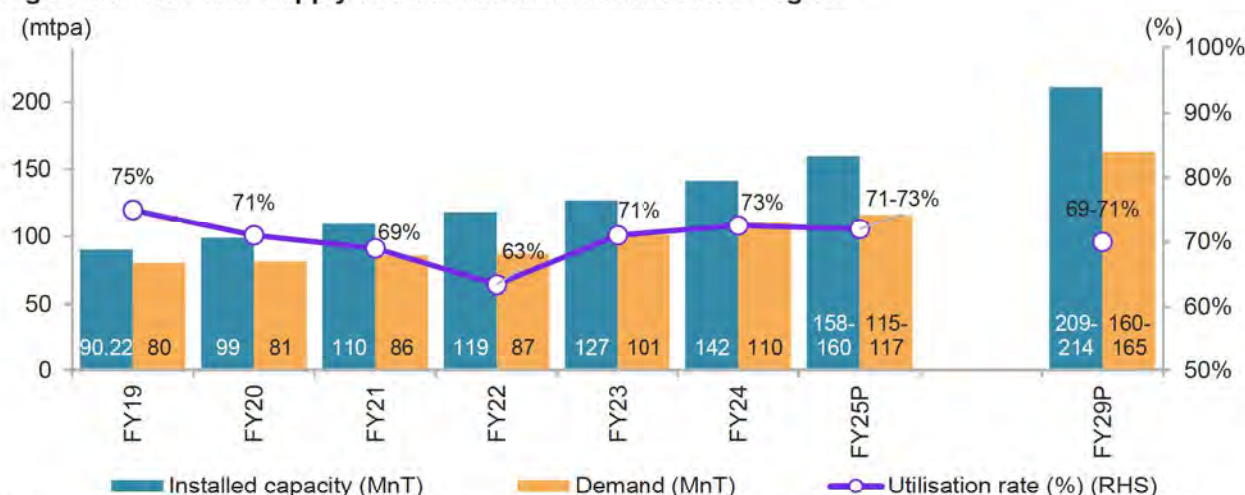
Source: Crisil Intelligence, industry

7.1.3 Capacity, demand-supply balance and utilisation in the eastern region

The eastern region was able to better tackle the pandemic owing to a large share of rural areas and lesser congested urban settlements. Demand support from rural housing and government-led infrastructure projects led to healthy production. Hence, utilisation rate declined to ~69% in fiscal 2021. However, with positive

demand outlook amid low per capita cement consumption and healthy government spending, many players announced capacity addition plans in fiscal 2021. This put pressure on utilisation levels, which dropped to ~63% in fiscal 2022 amid higher capacity additions and weak demand due to sand issues and untimely rainfall. However, in fiscal 2023, utilisation rebounded to 71% on the back of robust demand growth on a low base, supported by the traction in rural housing, infra push, lower per capita consumption and higher housing shortage. In fiscal 2024, the operating rate improved to 73%, although limited by slow demand momentum during the second half of the fiscal. In fiscal 2025, it is expected to inch down to 71-73% amidst higher capacity addition in pipeline.

Figure 46 - Demand–supply and utilisation rates for eastern region



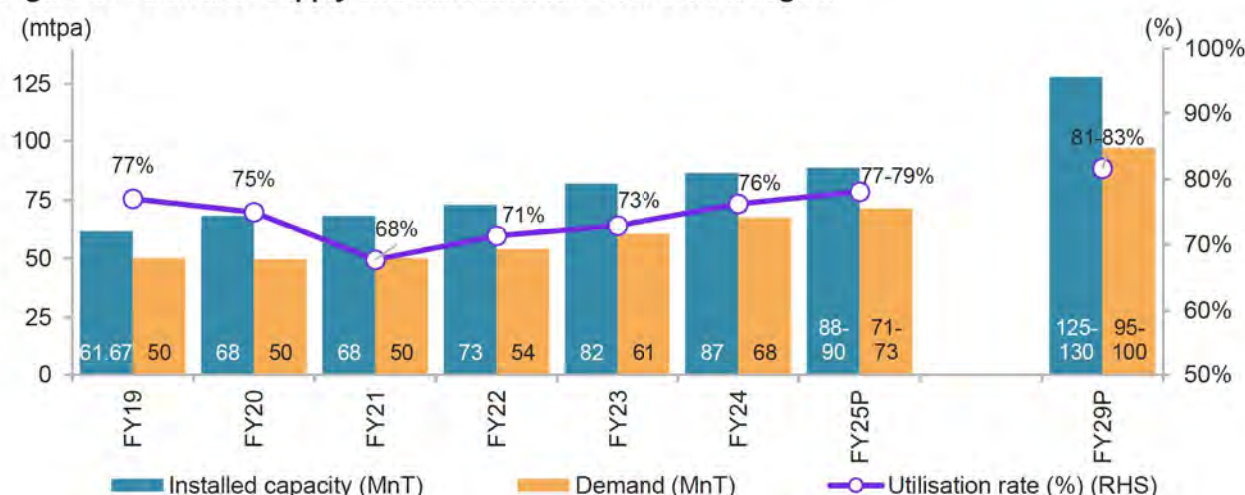
Note: Capacity utilisation is basis effective capacity – considering on the date of commissioning of the plant; capacity utilisation is calculated with production in the region divided by effective capacity and does not take into consideration inter-regional movement

Source: Crisil Intelligence, industry

7.1.4 Capacity, demand-supply balance and utilisation in the central region

In the central region, capacity utilisation reached lows of ~68% in fiscal 2021 due to production shutdowns in the first quarter. However, it recovered in fiscal 2022 to reach ~71%, as demand rebounded on the back of pre-election spending in Uttar Pradesh and pick-up in housing and construction activity. Thereafter, in fiscal 2024, it improved to 76% on account of healthy traction from rural housing and infra segment coupled with lower capacity addition during the year (~4.5 MT added). In fiscal 2025, utilisation levels are expected to improve moderately due to lower capacity addition expected in the current fiscal. In the longer run it is expected to improve and operate at 81-83% level till fiscal 2029 due to strong demand prospects in the region.

Figure 47 - Demand–supply and utilisation rates for central region

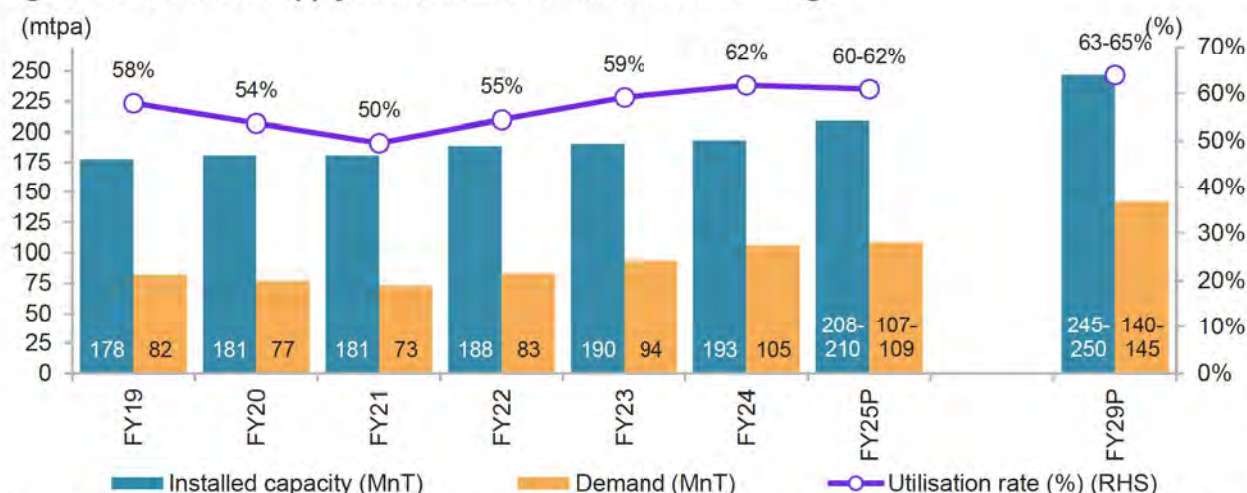


Note: Capacity utilisation is basis effective capacity – considering on the date of commissioning of the plant; capacity utilisation is calculated with production in the region divided by effective capacity and does not take into consideration inter-regional movement
 Source: Crisil Intelligence, industry

7.1.5 Capacity, demand-supply balance and utilisation in southern region

Capacity utilisation in the south is the lowest, owing to a wide gap between capacity and production over the years, further aggravated by a slump in demand. Post Covid-19 slump, enhanced demand from the infrastructure and housing sectors and moderate capacity additions propelled utilisation to improve to ~59% in fiscal 2023. In fiscal 2024, the region breached the 60% mark for the first time in a decade as demand growth accelerated. The region is expected to continue to witness low-capacity utilisation compared with other regions. Utilisation rates are projected to marginally inch down in fiscal 2025, although rise to 63-65% level over fiscal 2029 from now owing to healthy demand but limited by higher capacity additions in the region.

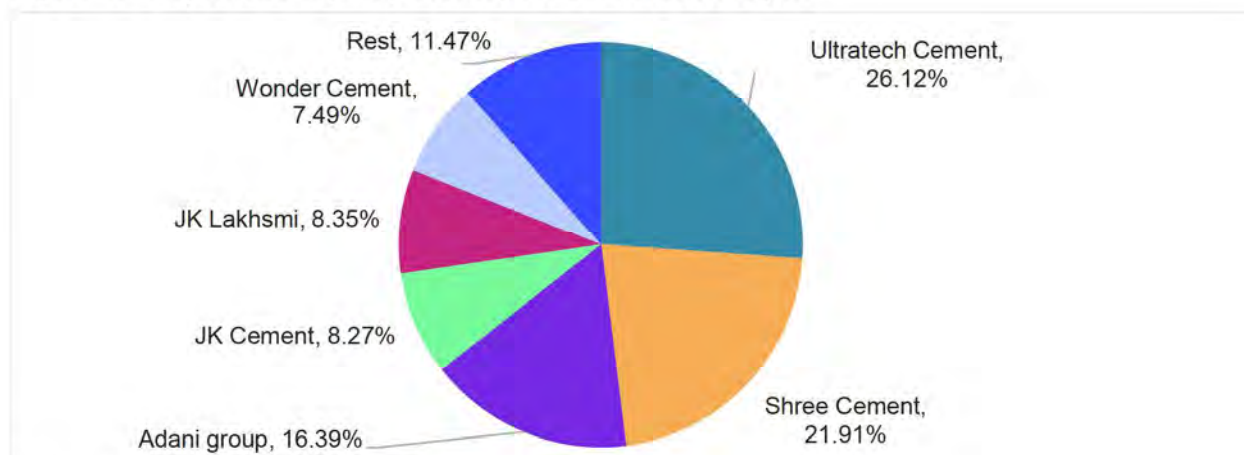
Figure 48 - Demand-supply and utilisation rates for southern region



Note: Capacity utilisation is basis effective capacity – considering on the date of commissioning of the plant; capacity utilisation is calculated with production in the region divided by effective capacity and does not take into consideration inter-regional movement
 Source: Crisil Intelligence, industry

7.1.6 Regional capacity break-up (As of FY2024)

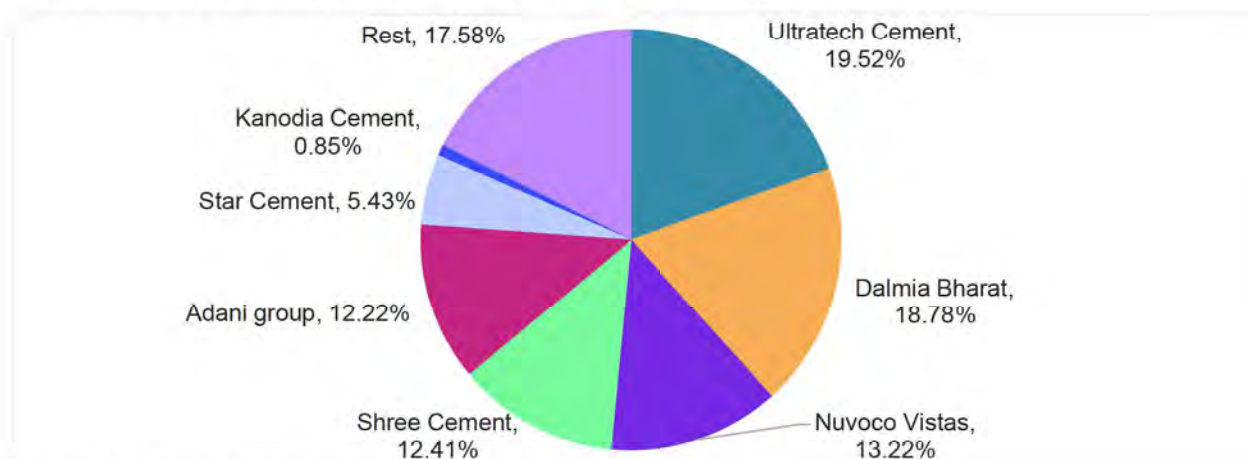
Figure 49- Player wise capacity breakup for the northern region



Source: Crisil Intelligence, Company reports

The northern region is the most consolidated region of the country with the top five players/groups accounting for over 81% of the total capacity in the region. Shree Cement Limited and UltraTech Cement Limited are the two largest players in the region as of FY2024.

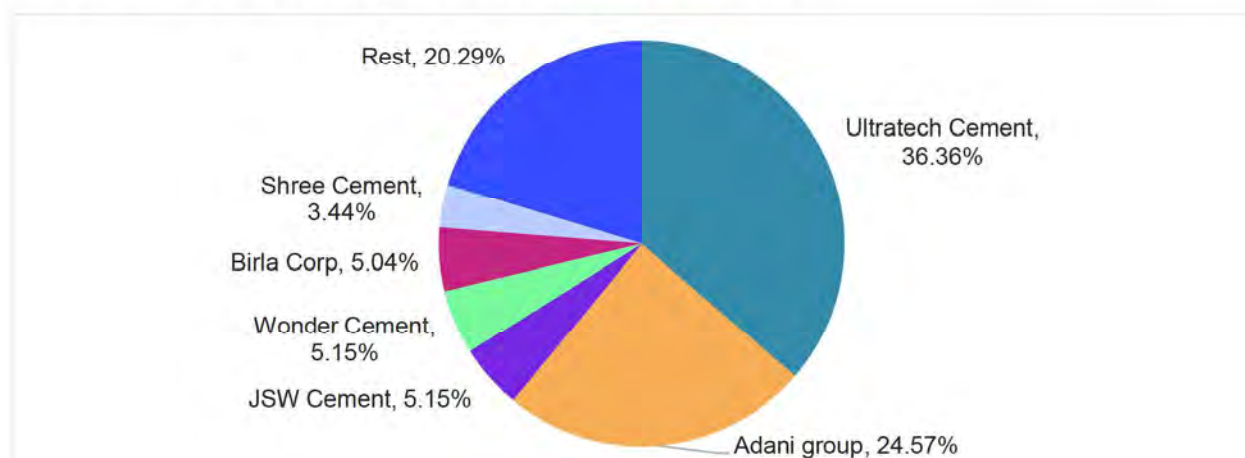
Figure 50- Player wise capacity breakup for the eastern region



Source: Crisil Intelligence, Company reports

The eastern region is largely dominated by the top five players in India with lower presence of mid-sized and small players. The top five players account for ~76% of the capacity in the region. The region has very few local players barring the northeast, where most are multi-regional players. Kanodia Cement Limited has 1 unit in the region of 1.2 MTPA capacity, accounting for ~0.85% of the installed capacity in the region.

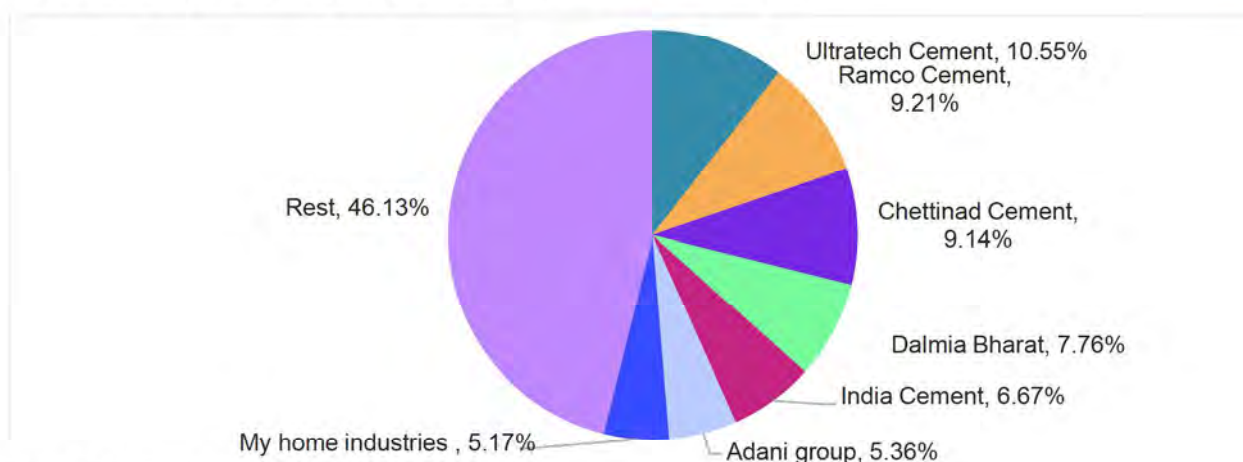
Figure 51- Player wise capacity breakup for the western region



Source: Crisil Intelligence, Company reports

The western region is one of the most competitive regions in the country along with the South. Further, the region receives a lot of inbound material from the North and South, making it even more competitive. UltraTech Cement Limited is by far the largest player in the region, accounting for 36% of the total capacity.

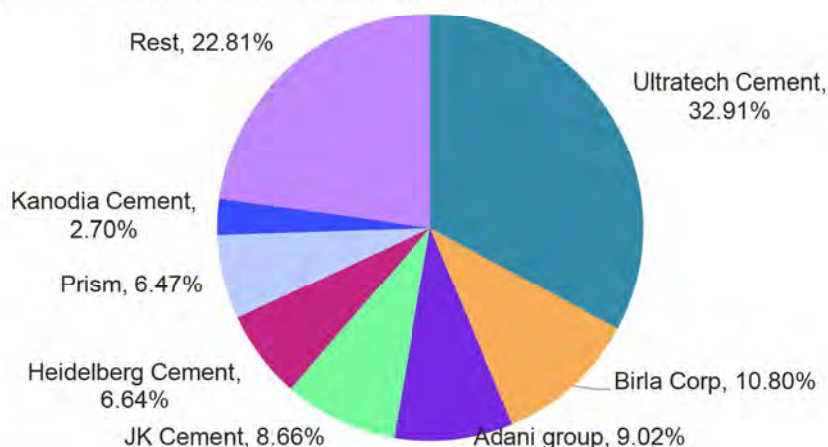
Figure 52- Player wise capacity breakup for the southern region



Source: Crisil Intelligence, Company reports

The southern region is the most competitive in the country with over 34 players. Unlike the other four regions, no player holds more than 15% capacity in the region. UltraTech Cement Limited is the largest player with just 11% of the total capacity in the region. The market is dominated by several mid-sized regional players such as The Ramco Cements Limited, Chettinad Cement Corporation Private Limited, India Cements Limited, Kesoram Industries, My Home industries.

Figure 53- Player wise capacity breakup for the central region



Source: Crisil Intelligence, Company reports

The central region is quite consolidated, but it receives a lot of inflows from the northern region. Players have started setting up split grinding in the region (especially UP) to curb cement inbound and limit lead distance. UltraTech Cement Limited is the largest player in the central region as well with ~33% market share by capacity. Kanodia Cement Limited has most of its capacity in the region with 2.34 MTPA as of fiscal 2024 accounting for ~2.70% market share in the region.

7.2 State-wise supply review and outlook

7.2.1 Uttar Pradesh

Figure 54- Cement supply review for Uttar Pradesh



Source: Crisil Intelligence

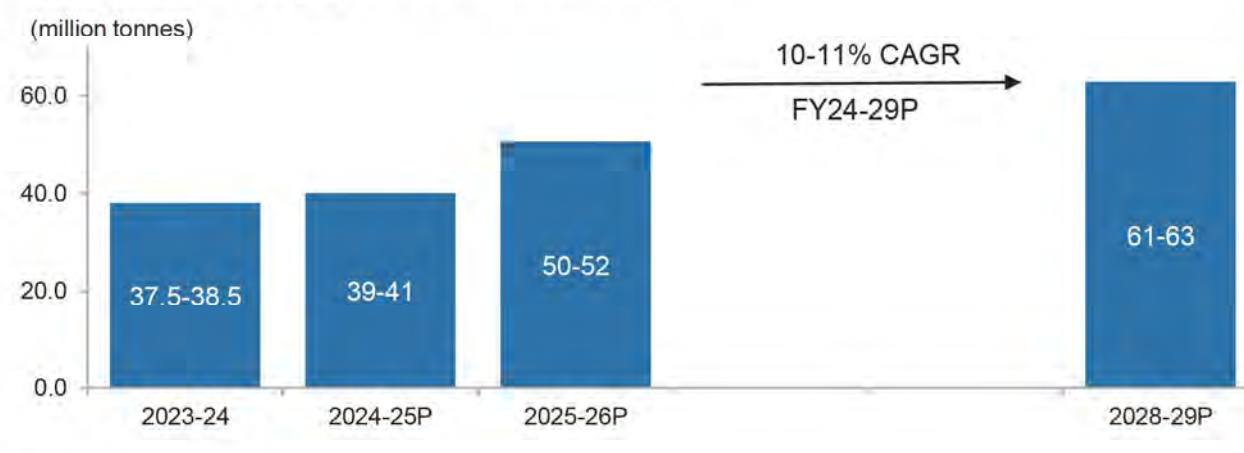
Uttar Pradesh holds close to 6% of India's total cement grinding capacity at 37.5-38.5 MTPA vis-à-vis ~10% of the total cement demand of the country as of fiscal 2024. In the past five years (fiscal 2020-2024), ~15 million tonnes of capacity additions took place in the state with no capacity addition in fiscal 2021 amid the pandemic-induced disruptions. However, demand recovered sharply from fiscal 2022 onwards with pick-up in execution of infrastructure projects - roads, expressways, metros, airports, etc, and traction in IHB demand leading to rise in supply. Around ~7 million tonne of capacity were added in fiscal 2023 and fiscal 2024. With healthy demand growth witnessed over past 5 years, players have added higher capacity resulting in higher incremental capacity compared to incremental demand. With higher demand as against supply in the state, UP has been a net importer of cement with inflow of cement from surrounding states. This makes UP a cement deficit state.

Uttar Pradesh has witnessed capacity additions to the tune of ~15 MTPA over the last five years.

Table 26- Key capacity additions in Uttar Pradesh (fiscal 2020-2024) All units added have been grinding units

Player	Location	Capacity (MnT)	Year
UltraTech Cement Limited	Bara, Allahabad	2.0	2019-20
JK Cement Limited	Aligarh	1.5	2019-20
Heidelberg Cement India Limited	Jhansi	0.6	2019-20
Adani group (ACC Limited)	Tikaria	1.6	2021-22
UltraTech Cement Limited	Bara, Allahabad	2.0	2021-22
Kanodia Cement Limited	Amethi	1.5	2022-23
UltraTech Cement Limited	Dalla	1.3	2022-23
JK Cement Limited	Hamirpur	2.0	2022-23
JK Cement Limited	Aligarh	0.5	2022-23
Wonder Cement	Aligarh	2.0	2023-24

Source: Crisil Intelligence, Company publications

Figure 55- Cement supply outlook for Uttar Pradesh


Source: Crisil Intelligence

Uttar Pradesh is the most populous state in India, accounting for ~16.44% of the country's population, as per Census 2011. The state holds close to 6% of India's total cement grinding capacity at 37.5-38.5 MTPA as of fiscal 2024. Uttar Pradesh in the central region has traditionally been an importer of cement from other regions. However, its dependence on production from other regions such as the north (Rajasthan) has reduced drastically following capacity addition in the state over the past few years. The trend is expected to continue with further increase in cement capacity. (However, most of these capacities would be in satellite grinding units as there is scarcity of limestone in the state. Hence, it would need to depend on clinker produced outside the state (Madhya Pradesh, Chhattisgarh and Rajasthan). Also, companies prefer adding more grinding units in demand-prone regions as it is easier and cheaper to transport clinker than transporting cement. This reduces the lead distance as well as freight rates. The region lacks limestone clusters, resulting in a significant reliance on clinker transport from integrated plants located in other states, approximately 600-800 km away. However, with presence of thermal power plants, the region is having sufficient availability of fly ash, the 2nd major raw material (upto~35% by weight of cement) for PPC cement manufacturing. This makes transportation of clinker to the region, followed by blending and grinding at Satellite Grinding Units (SGUs) as the preferred method of cement manufacturing. Consequently, the industry has traditionally been characterized by regional players catering to local markets, largely through SGUs.

Furthermore, under the Uttar Pradesh Industrial Investment and Employment Promotion Policy, 2022, industrial units, including cement units are entitled to fiscal incentives. These incentives include a 100% exemption from stamp duty in the Bundelkhand and Poorvanchal regions, and a 75% exemption in the Madhyanchal region. Additionally, industrial units are eligible for 100% of net SGST refund starting with an annual ceiling of 5% to 25% and a total ceiling of 80%-300% of the eligible capital expenditure (ECI).

Table 27- Subsidy/incentive details for industrial investments in Uttar Pradesh

Admissible incentive	Category	Gautam Buddha Nagar & Ghaziabad districts	Madhyanchal & Paschimanchal region	Bundelkhand & Purvanchal region
Stamp duty exemption	Large/Mega/Super Mega/Ultra Mega	50%	75%	100%
Net SGST reimbursement - Annual Ceiling as % of Eligible Capital Investment	Large	16%	18%	20%
	Mega	7%	17%	25%
	Super Mega	6%	14%	21%
	Ultra Mega	5%	13%	19%

	Large	80%	90%	100%
Net SGST reimbursement - Overall Ceiling as % of Eligible Capital Investment	Mega	80%	200%	300%
	Super Mega	80%	200%	300%
	Ultra Mega	80%	200%	300%
% of net SGST Refund	Large/Mega/Super Mega/Ultra Mega	100%		

Note: Ceiling is as % of Eligible capital investments. Eligible Capital Investment (ECI) means the Capital Investment as has been made by an industrial undertaking in its Eligible Investment Period after the Effective Date of the policy.

Source: Uttar Pradesh Industrial Investment & Employment Promotion Policy 2022

Table 28- Category definition for Subsidy/incentive details for industrial investments in Uttar Pradesh

Categories	Capital Investment	Period of net SGST reimbursement (in years)
Large	Above ₹50 Cr but below ₹200 Cr	6
Mega	₹200 Cr or above but below ₹500 Cr	12
Super Mega	₹500 Cr or above but below ₹3,000 Cr	14
Ultra Mega	₹3,000 Cr or above	16

Source: Uttar Pradesh Industrial Investment & Employment Promotion Policy 2022

These policy measures provide a strong incentive for cement manufacturing players to establish plants in the region, thereby promoting industrial growth and development. However, as demand is expected to grow sharply in the state on account of housing shortage and plethora of infrastructure projects under execution such as various Expressways, metros (Kanpur, Agra, Meerut, Lucknow), International airports, etc., incremental cement demand will marginally outpace incremental supply over the years. Hence, players are looking to install grinding capacity to the tune of 24-26 MTPA over fiscal 2025-2029.

Table 29- Key capacity additions in Uttar Pradesh (fiscal 2025-2029P) – All are grinding units

Player	Location	Capacity (MnT)	Fiscal Year
JK Cement Limited	Prayagraj	2.0	2024-25
Adani group	Salai Banwa	2.4	2025-26
Shree Cement Limited	Etah	3.0	2025-26
UltraTech Cement Limited	Shahjahanpur	1.8	2025-26
JK Cement Limited	Hamirpur	1.0	2025-26
JSW Cement Limited	Uttar Pradesh	2.5	2025-26
JK Cement Limited	Prayagraj	1.0	2026-27
JK Lakshmi Cement Limited	Prayagraj	1.2	2026-27
UltraTech Cement Limited	Aligarh	2.70	2026-27
Kanodia Cement Limited	Pratapgarh	2.50	2026-27
Kanodia Cement Limited	Sikandarpur, Bulandshahr	2.50	2027-28
Birla Corporation Limited	Prayagraj	1.4	2027-28

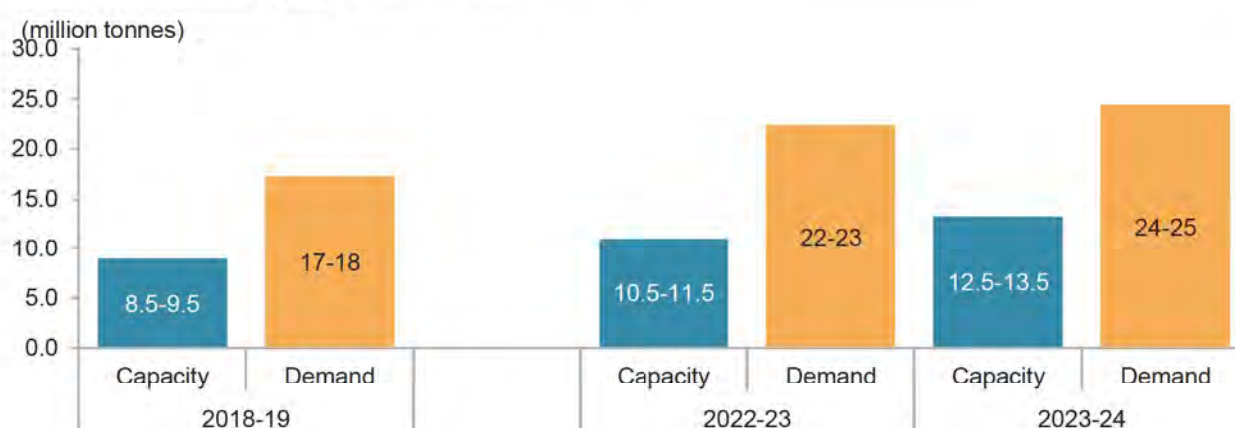
Note: Year of commissioning is as per Crisil Intelligence estimates

Source: Crisil Intelligence, company filings

7.2.2 Bihar

Bihar holds close to 2% of India's total cement grinding capacity at 12.5-13.5 MTPA vis-à-vis accounting for ~5% of the total cement demand as of fiscal 2024. In the past five years (FY20-24), close to ~3 million tonnes of capacity additions took place in the state with no capacity addition in fiscal 2021 amid pandemic-induced disruptions. After muted growth in fiscal 2022, demand recovered in fiscal 2023 and 2024 on the back of pick-up in infrastructure development, mainly roads and bridges and traction in rural housing, leading to ~2.2 million tonnes of capacity addition in fiscal 2024. As incremental cement demand stemming from housing and infrastructure projects outpaces incremental supply over the years, players have installed grinding capacity in the state to meet the expected rise demand. With higher demand as against supply, state has been in cement deficit, making it a net importer of cement.

Figure 56- Cement supply review for Bihar



Source: Crisil Intelligence

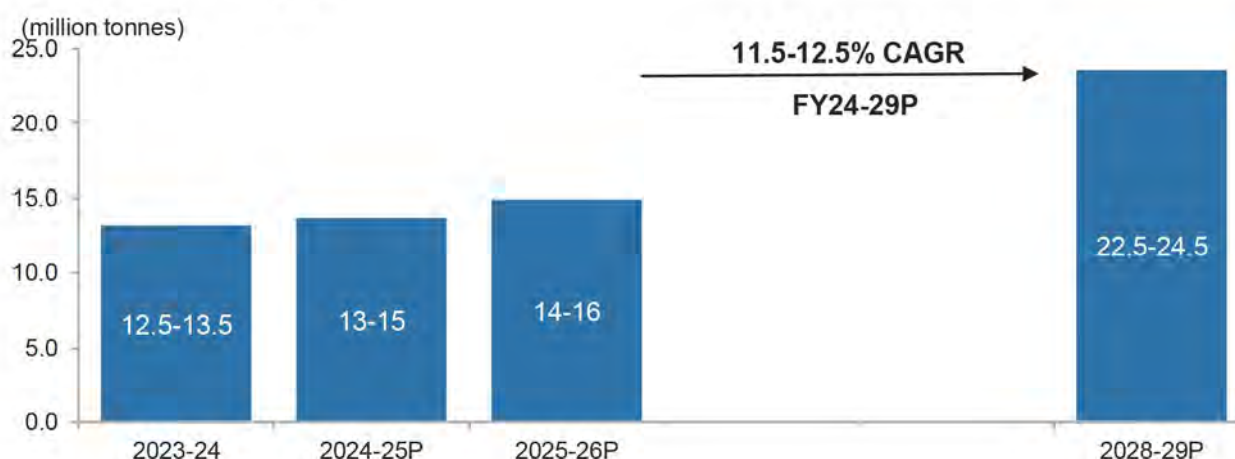
Bihar has witnessed capacity additions to the tune of ~3 MTPA over the past five years.

Table 30- Key capacity additions in Bihar (fiscal 2020- 2024) - All units added have been Grinding units

Player	Location	Capacity (MnT)	Year
UltraTech Cement Limited	Pataliputra	0.6	2021-22
UltraTech Cement Limited	Pataliputra	2.2	2023-24

Source: Crisil Intelligence, Company publications

Figure 57- Cement supply outlook for Bihar



Source: Crisil Intelligence

Bihar, a densely populated state, accounts for ~8.59% of India's total population as per Census 2011. Bihar is a net importer of cement, and its demand is largely fed by supply from Chhattisgarh and West Bengal, with some imports from Jharkhand, Madhya Pradesh and Odisha as well. Even the satellite grinding units located in the state are largely dependent on other states for clinker requirement, which is why capacity additions in Bihar have been limited in the past despite surge in demand. The state also exports cement to eastern Uttar Pradesh, and Nepal which further increases its dependence on imports. The region lacks limestone clusters, resulting in a significant reliance on clinker transport from integrated plants located in other states, approximately 600-800 km away. However, with presence of thermal power plants, the region is having sufficient availability of fly ash, the 2nd major raw material (upto~35% by weight of cement) for PPC manufacturing. This makes transportation of clinker to the region, followed by blending and grinding at Satellite Grinding Units (SGUs) as the preferred method of cement manufacturing. Consequently, the industry has traditionally been characterized by regional players catering to local markets, largely through SGUs.

However, for accelerated industrial development of the state, Bihar Industrial Incentive Policy-2011 has been implemented. Under this policy, there are provisions for granting incentives such as, 100% exemption from Stamp Duty and Registration Fees during the pre-production phase, capital subsidy for industrial units, inclusion of entry- tax in the re-imbursement of 80% of VAT, incentive also to existing units for Captive Power Generation / Diesel Generating sets and subsidy on non-conventional sources of energy production, etc. For large industries, all new units will be entitled to avail 80% reimbursement against the admitted VAT amount deposited in the account of the Government, for a period of ten years. The ceiling for this reimbursement will be 300% of the capital Invested. The policy further states that once GST is implemented, the incentive will be payable under that arrangement. These policy measures provide a strong incentive for cement manufacturing players to establish plants in the region, thereby promoting industrial growth and development.

Table 31- VAT reimbursement (on GST post implementation) under Bihar Industrial Incentive Policy-2011

Category	Reimbursement against VAT (on GST post implementation)	Period	Ceiling of reimbursement
Large industries (New units)	80%	10 years	300%

Source: Bihar Industrial Investment Policy 2011

Although, as incremental cement demand arising from housing and infrastructure projects will outpace incremental supply over the years, players are looking to increase the state's capacity by installing grinding capacity to the tune of 9-11 MTPA over the next five years.

Table 32- Key planned capacity additions in Bihar (fiscal 2025-2029) –All are grinding units

Player	Location	Capacity (MnT)	Fiscal Year
Dalmia Bharat Limited	Kalyanpur	0.5	2024-25
JK Lakshmi Cement Limited	Madhubani	1.2	2025-26
JK Cement Limited	-	3.0	2026-27
Adani group	Warisaliganj	2.4	2026-27
UltraTech Cement Limited	-	3.3	2027-28

Note: Year of commissioning is as per Crisil Intelligence estimates

Source: Crisil Intelligence, company filings

Thermal power plants located in Uttar Pradesh and Bihar

Chhattisgarh, Uttar Pradesh, Maharashtra and AP-Telangana accounts for ~43%, i.e. 75 out of total major 175 TPPs in India which leads to ample fly ash supply in these states as of fiscal 2023. Uttar Pradesh and Bihar combined, have ~14% (25 TPPs) of country's total no. of thermal power plants. Uttar Pradesh boasts a significant presence of thermal power plants, with a total of 19 units, ranking second only to Chhattisgarh

(having 23 TPPs) in terms of the number of such facilities. This signifies ample availability of fly ash at very low cost for cement manufacturers, making production of blended cement quite lucrative. While being cement deficient states, Uttar Pradesh and Bihar has higher availability of fly ash which makes it beneficial for cement players producing PPC/PSC/PCC.

Figure 58- Thermal power plants located in Uttar Pradesh and Bihar



Source: Central Electricity Authority- March 2023, Crisil Intelligence

8. Pricing overview and outlook

8.1 All-India pricing trends

Cement prices rose ~3% on-year in fiscal 2023 to Rs 391 per 50 kg bag, as players tried to cushion profitability amidst high-cost pressures. Further, as crude and coal prices started witnessing correction, cost pressures declined for industry players. Power and fuel cost that had sharply increased had begun to decline in line with fall in crude and coal prices during the first half of fiscal 2024. Costs continued to follow the downward trend and eased further. As a result, despite strong demand momentum, players were unable to implement hikes in order to capture a larger market share amidst rising competition. Hence, on a consecutive healthy base, prices declined 2% during fiscal 2024 at Rs 384 per 50 kg bag.

Figure 59 - Pan-India trend in cement prices



Note: P- Projected; Prices are retail selling prices for category A players (dealer prices for <25 bags) and are inclusive of GST and dealer margins

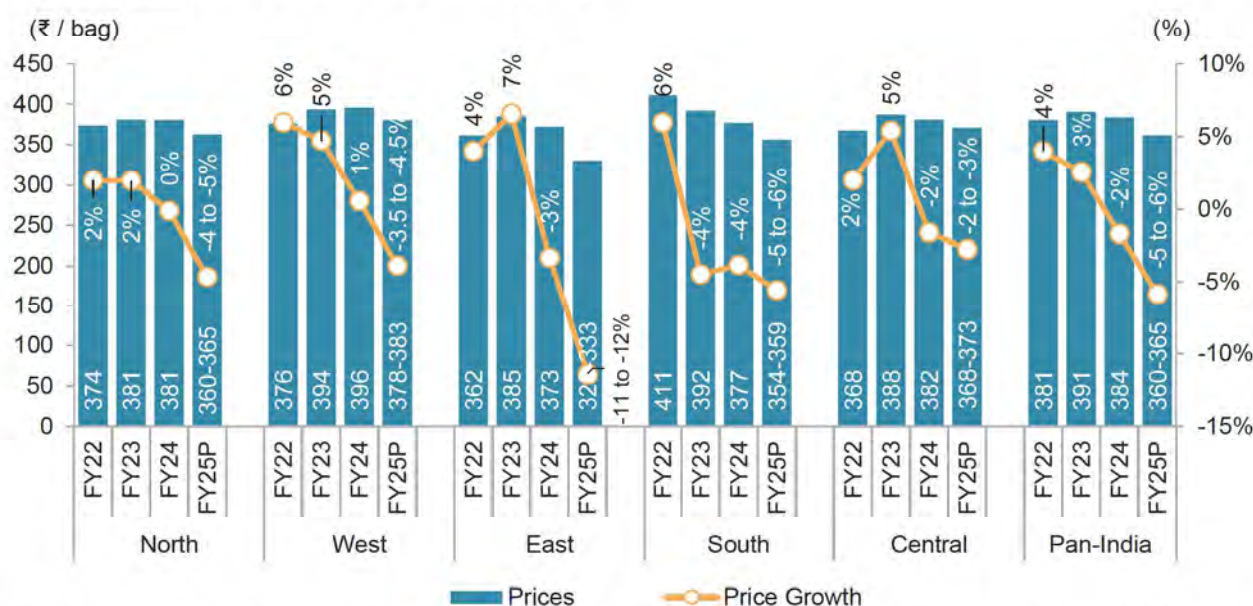
Source: Industry, Crisil Intelligence

Going forward in fiscal 2025, Crisil Intelligence expects cement prices to decline further by 5-6% at Rs. 360-365 per bag in line with moderation in demand growth and rising competitive intensity. Also, the entry of new players into already competitive markets, inorganic expansion by large players, and continued capacity addition will be deterrents to price competitiveness and keep prices under pressure.

8.2 Regional price trends

Cement prices in the northern region, which rose by 2% in fiscal 2023 to battle cost pressures, remained stable in fiscal 2024 majorly due to robust capacity addition to the tune of ~15 MTPA, the highest additions in the region in the last decade. Prices are projected to further dip by 4-5% in fiscal 2025 due to higher supply in the region with a ramp-up in the previous fiscal's capacity additions and moderation in demand growth on a high base.

After soaring by ~5% on-year in fiscal 2023, cement prices in the infra-dominated west marginally increased further by ~1% in fiscal 2024 due to a healthy pick-up in demand. However, prices are expected to decline by 3.5-4.5% in fiscal 2025 on two consecutive healthy bases, coupled with moderation in demand. However, with no new capacity expected to be installed in the current fiscal, the utilization level is expected to marginally improve which will limit any significant price downfall.

Figure 60- Region-wise trend in cement prices


Note: P- Projected; Prices are retail selling prices for category A players (dealer prices for <25 bags) and are inclusive of GST and dealer margins

Source: Industry, Crisil Intelligence

In fiscal 2023, cement prices in the eastern region rose by ~7% on-year, the highest rise across regions, despite high prices in fiscal 2022 amid robust demand growth on the back of rural housing and government infrastructure projects. However, a strong momentum of capacity additions and intense competition in the region led to a price decline of 3% in fiscal 2024. Additionally, the slowdown in demand momentum during H2FY24 due to sand availability issues also supported the price drop. Further in fiscal 2025, Crisil Intelligence expects the downfall to continue with a sharp 11-12% decline as players try to capture market share in the region and capacity addition is expected to keep competitive intensity on the higher side.

In the southern region, cement prices witnessed a dip of ~4% on-year in fiscal 2023 on a very high base. Also, robust capacity additions in the east and north limited outbound shipments from the south, leading to oversupply and further weakening of prices. With the lowest utilization level of ~62%, the region further experienced a price drop of 4% in fiscal 2024. In fiscal 2025, Crisil Intelligence expects prices to remain under pressure with the highest share of capacity (after the eastern region) expected to be onboarded in the region in the current fiscal leading to higher competitive intensity.

Cement prices in the central region witnessed healthy ~5% on-year growth in fiscal 2023, with a pick-up in demand owing to government spending on infrastructure projects and housing, as well as higher input costs. However, a further price rise was truncated by an increase in supply in the region on the back of additional capacities onboarded and limited supply to the East, which is a key outbound region. Thus, prices dwindled by 2% in fiscal 2024 on a high base. In fiscal 2025, prices are expected to further dip by 2-3% in line with softening cost pressures and expected moderation in demand growth.

8.3 Price differential between base and premium brands

India has over 25 large and medium cement players and more than 50 smaller ones. Cement brands are largely categorised as A, B, and C. The categories are based on the prices of the brands in the respective regions. A-category brands are 2-4 brands with the highest prices in a particular city. B-category brands fall under the next range of prices, which is lower than A-category brands' prices. The brands across the categories may vary per city. The categorisation is not based on the sales volume of the brands but only on the selling prices in the respective cities. RSP (Retail Selling Price) are sales prices for sales of 10-25 bags from the retail counter and are ex-counter prices. The prices are date-stamped in nature.

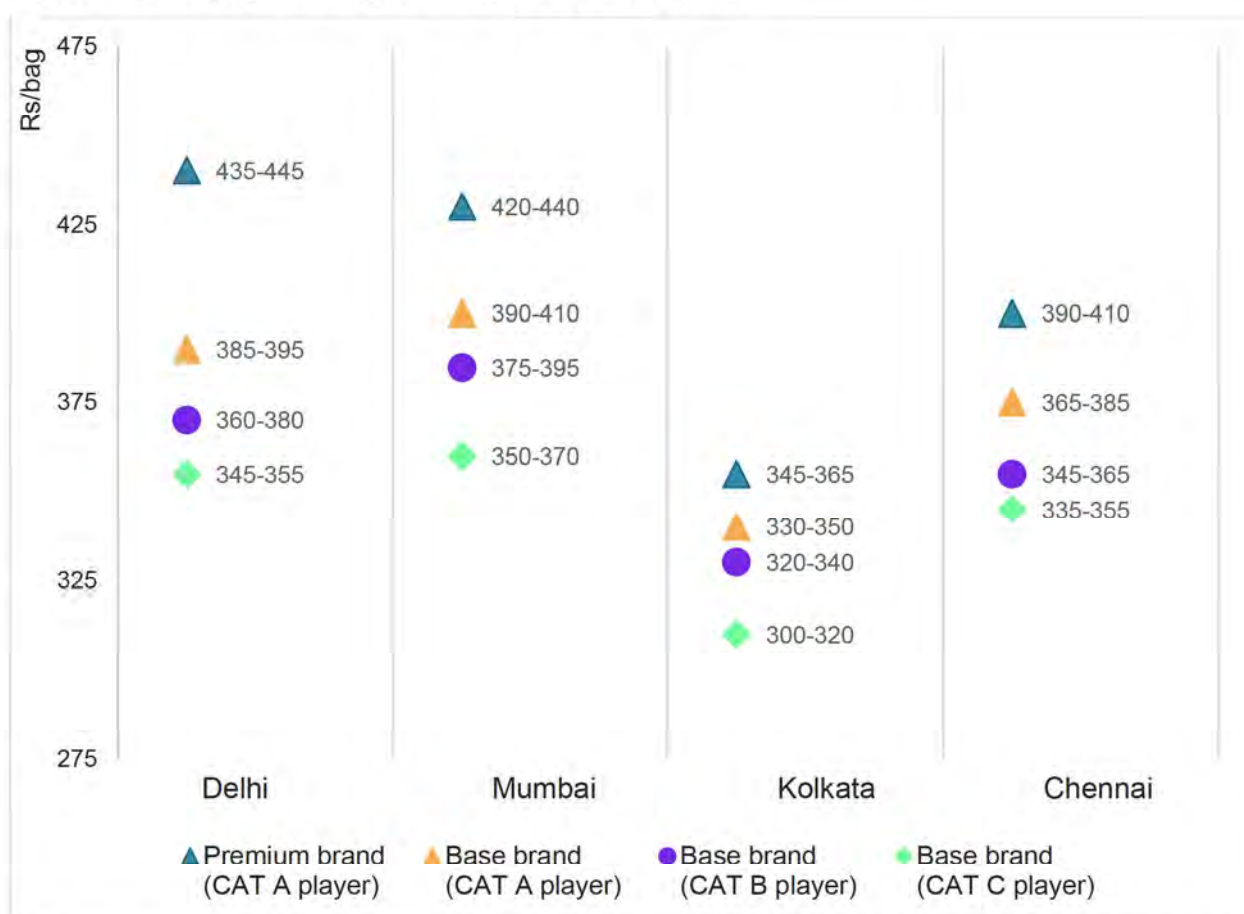
Premium brands rule the market in terms of pricing

The Indian cement industry has more than 70 active players and more than 200 recognised brands, thus giving consumers a wide range of options. This results in huge variation in prices of premium products of category A companies and those of base brands of category C players in the same market. Premium brands are market leaders in prices and usually enjoy a premium of up to Rs 100/bag over category C brands in the same market. The price differential is even wider with smaller, localised regional brands.

Category A players have been trying to push the sales of their premium brands in the market to cash in on the higher margins. The premium brands of category A players usually sell at Rs 40-60/bag higher than the base brand of the same company.

The wide difference in prices prompted category B players to launch premium products as well. However, these products compete against the base brands of category A players and are often sold at a discount to them. Despite these market dynamics, the base brands of category A players continue to command a premium in the market and remain market leaders in the category.

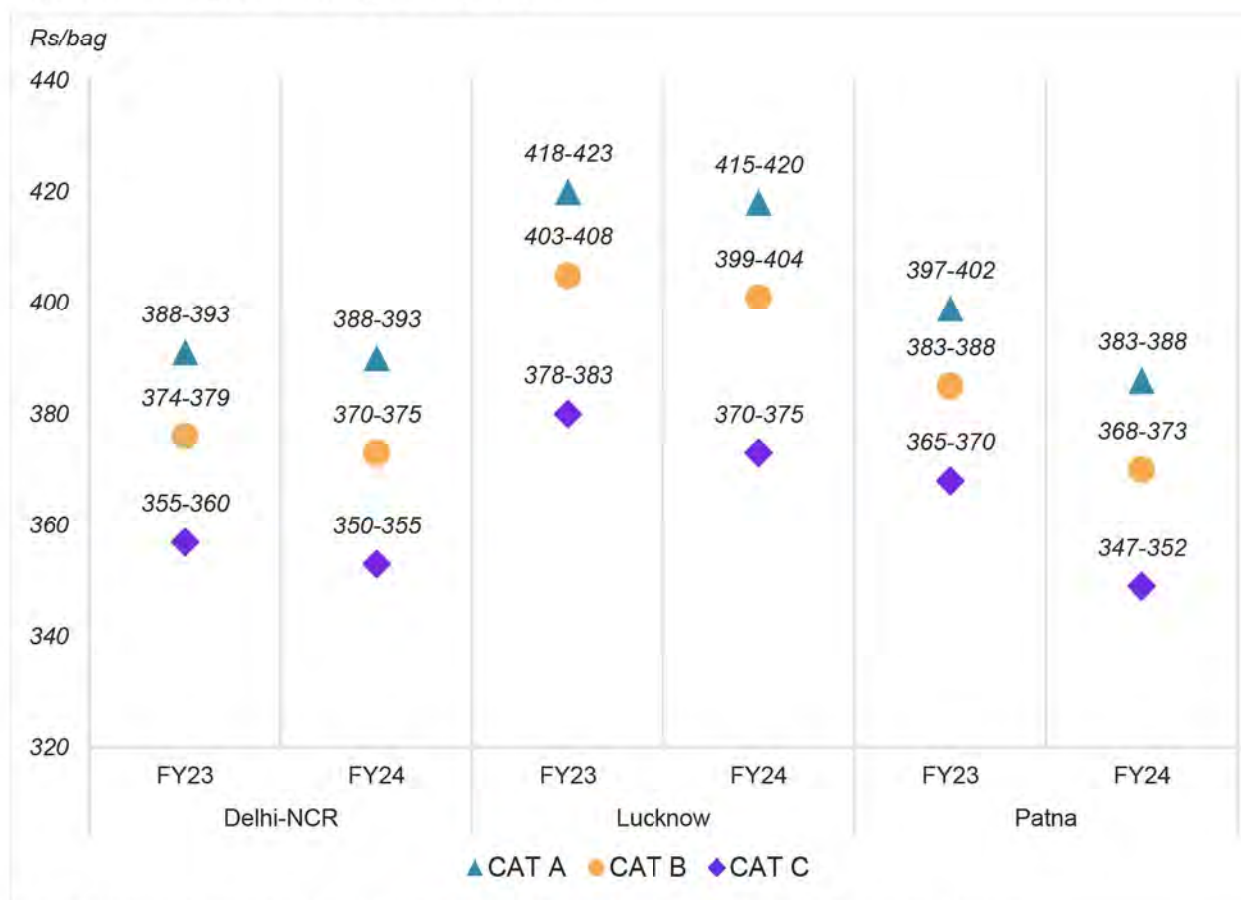
Figure 61- Category-wise region-wise prices (Fiscal 2024)



Note: Prices are average retail selling prices (dealer prices for <25 bags) for fiscal 2024 and is inclusive of GST and dealer margins
 Source: Crisil Intelligence, Industry

8.4 Price differential between category-wise players in Uttar Pradesh and Bihar

Price difference between the base brands of category A and category B players varies from region to region. In the central and eastern regions, the differential largely ranges between Rs 20 and Rs 40 per bag depending on the city and player. While the price difference between the base brand of category A players is minuscule (usually less than Rs 5/bag), prices of various brands of category B players usually differ in the Rs 10-30 range.

Figure 62- Category-wise city-wise prices


Note: Prices are retail selling prices (dealer prices for <25 bags) and are inclusive of GST and dealer margins

Source: Crisil Intelligence, Industry

8.5 Key brands across regions

Along with the premium and base brands of the top 4-6 players, there are several other brands belonging to mid and small-sized players that dominate the regional markets.

Figure 63- Important cement brand across regions


Source: Crisil Intelligence, Industry

9. Consolidation trends in cement industry

The sector has witnessed consolidation with large cement makers taking over regional heavyweights, and struggling companies being taken over through competitive bidding under the Insolvency and Bankruptcy Code (IBC).

Over the past five years, the sector witnessed an unparalleled surge in mergers and acquisitions, resulting in the transfer of 106-108 MTPA of capacity, of which 95-97 MTPA have been acquired by large players¹. On the other hand, large players have installed only 51-53 MTPA of capacities via organic route. Companies have been preferring inorganic way of expansion over organic route due to longer gestation period involved in setting up new plants, which can take three to four years. Additionally, it makes it simple to enter an established market, expanding their geographic reach. Inorganic approach to expansion eliminates the entire hassle of finding the site, purchasing land and delays in regulatory approvals. The top five players have been gaining market share over the last five years through various acquisitions.

9.1 Key deals in the cement industry in recent years:

Nuvoco-Emami (July 2020)

In fiscal 2020, Nuvoco Vistas Corporation Limited of the Nirma Group bought Kolkata-based Emami Cement for an enterprise value of Rs 5,500 crore. Emami operated one integrated unit in Risdah, Chhattisgarh, and one satellite grinding unit each in West Bengal, Bihar and Odisha with a total cement grinding capacity of 8.3 MTPA. The acquisition was completed in July 2020

Adani- Lafarge Holcim (May 2022)

The Adani group's \$ 10.5 bn acquisition of the Indian cement business of Lafarge-Holcim (ACC-Ambuja combine) is the largest deal in the past 5 years. Adani acquired ~68 MTPA capacity, making it the second largest cement manufacturer in the country. Ambuja Cements Limited has 14 cement plants and 4,700 employees. ACC has 17 cement plants and 78 ready mix concrete factories. It employs 6,000 people.

Dalmia- Jaiprakash Associates (Dec 2022)

Dalmia Bharat Limited has entered into a binding framework agreement to acquire cement, clinker and power plants from Jaiprakash Associates Limited. in Dec-2022. Overall consideration to be paid for this acquisition will be Rs 5,666 crore. The assets have a total cement capacity of 9.4 million tonnes, clinker capacity of 6.7 million tonnes and thermal power plants of 280 MW. The said plants are in Madhya Pradesh, Uttar Pradesh and Chhattisgarh. The transaction is in process and subject to due-diligence, requisite approvals from lenders and Joint Venture partners of Jaiprakash Associates and other regulatory authorities.

Ultratech- Kesoram (Nov 2023)

Ultratech Cement Limited announced acquisition of cement business of Kesoram Industries Limited having capacity of 10.8 MTPA, at a deal value of ~Rs. 7,600 crores. The demerger of the cement business of Kesoram Industries into UltraTech Cement is expected to be complete by the end of this fiscal year. The transaction would add over 7 million tonnes (MT) cement production to UltraTech's kitty. The deal translated to enterprise value per tonne of ~Rs 7040.

Ambuja- Sanghi Industries (Dec 2023)

In Dec'23 Ambuja Cements Limited completed acquisition of Sanghi Industries at an enterprise value of Rs 5,185 crore. Ambuja Cements Limited also executed a trade (in on and off-market trade) to acquire 54.5 per cent of the voting share capital from the promoters of Sanghi Industries.

¹ Note: Large (capacity ≥ 25 MTPA); medium (capacity: 8-24 MTPA); small (capacity: <8 MTPA)

Ultratech- India Cements (April-July 2024)

In April'24, UltraTech Cement Limited entered into an agreement with India Cements Limited to acquire its 1.1MTPA satellite grinding unit in Parli in Maharashtra. Further in June 2024, Ultratech acquired a 23 per cent non-controlling stake in India Cements Limited. Lately, in July 2024, UltraTech enters a pact with India Cements Limited to buy additional 32.72% stake for Rs. 3,954 crore and company received CCI nod in December 2024. This makes UltraTech Cement the majority shareholder in the south based cement manufacturer with a holding of 55% of the total shares. India Cements Limited has a total capacity of 14.45 MTPA of grey cement. Of this, 12.95 MTPA is in the South (particularly Tamil Nadu) and 1.5 MTPA is in Rajasthan.

Ambuja- Penna Cement (June 2024)

In Jun'24, Adani owned Ambuja Cements Limited entered into a binding agreement to acquire 100% stake in south-based Penna Cement at an enterprise value of Rs. 10,400 crores. The transaction includes the acquisition of 14.0 million tonne per annum cement capacity of which 4 MTPA is under construction.

Other deals

In March'23, Sagar cements acquired 95% stake in Andhra cements at a deal value of Rs. 762 crores. Further, NCL Industries acquired 100% ownership of Vishwamber Cements through share purchase agreement. Also, in June'23, JK Cement Limited secured in-principle approval from its board of directors to enter into a share purchase agreement for 100% of shares in Toshali Cements. Later in Nov'23, Ultratech acquired Burnpur cement with cement grinding capacity of ~0.54 MTPA at deal value of Rs. 170 crores. In Jan'24, ACC Limited acquired remaining stake of 55% in Asian Concretes and Cements Pvt Limited having capacity of 2.8 MT at deal value of ~Rs. 425 crores. Ambuja Cements Limited also acquired My Home Group's 1.5 MTPA cement grinding unit in Tuticorin in Tamil Nadu.

Taking into account the capex plans of the large players, the cement industry is on the road to becoming more competitive, with more consolidations expected. Indeed, while most of the stressed assets have been acquired over the past five years, Crisil Intelligence anticipates an acceleration in consolidation where other relatively weak mid-size and small assets will be the focus.

Table 33- Key deals in the industry

Acquirer	Seller	Nature of deal	Region	Acquired Capacity (MTPA)	Deal value (Rs bn)	Deal month
Nuvoco Vistas Corporation Limited	Vadraj Cement	Sale of 100% stake	West	6	18	Apr-25
Ambuja Cements Limited	Orient Cement Limited	Sale of 46.8% stake	South, West	8.5	81	Oct-24
Ultratech Cement Limited	India Cements Limited	Sale of 55% stake	South, North	14.45	58	Jul-24
Ambuja Cements Limited	Penna Cement	Sale of 100% stake	South, West	14	104	Jun-24
Ambuja Cements Limited	My Home Group	Sale of assets	South	1.5	4.13	Apr-24
Ultratech Cement Limited	India Cements Limited	Sale of assets	West	1.1	3.15	Apr-24

ACC Limited	Asian Concretes & Cements Pvt Limited	Sale of remaining 55% stake	North	2.8	4.25	Jan-24
Ultratech Cement Limited	Kesoram Industries	Sale of 100% stake	South	10.8	76	Dec-23
Ultratech Cement Limited	Burnpur Cement Limited	Sale of 100% stake	East	0.54	1.7	Nov-23
Ambuja Cements Limited	Sanghi Industries Limited	Sale of 56.74% stake	West	6.1	50	Aug-23
JK Cement Limited	Toshali Cements	Sale of 100% stake	East	0.633	1.57	Jun-23
NCL Industries	Vishwamber Cements Limited	Sale of 100% stake	South	-	0.162	May-23
Sagar Cements	Andhra Cements	Sale of 95% stake	South	3	7.62	Mar-23
Dalmia Bharat Limited	Jaiprakash Associates	Sale of assets	East and Central	9.4	57	Dec-22
Adani Group	ACC and Ambuja (Holcim Group)	Sale of 63.1% stake in Ambuja Cements Limited (that owns 50% stake in ACC) and 4.5% in ACC Limited	Pan-India	68	814	May-22
Anjani Portland Cement	Bhavya Cements	Sale of 82.51% stake	South	1.4	6.07	Jun-21
Nuvoco Vistas Corporation Limited	Emami Cements	Sale of 100% stake	East	8.3	55	Jul-20
Ultratech Cement Limited	Century	Transfer of cement assets to Ultratech	Central, East, West	11.4	Share swap	Oct-19
Ultratech Cement Limited	Binani	Sale of 100% stake	North, Central, south	6.25	79.5	Nov-18
Dalmia Bharat Limited	Kalyanpur Cements	Sale of 100% stake	East	1.1	3.5	Jan-18
Dalmia Bharat Limited	Murli Industries	Sale of 100% stake	West	3	4	Dec-17
Dalmia Bharat Limited	OCL	Transfer of cement assets of Dalmia with its subsidiary OCL	East	6.7	Issue of 1 share of Dalmia Bharat Limited for every 2 shares of OCL	Nov-16
Nirma	Lafarge India	Sale of 100% stake	East, North	11	93	Jul-16
Ultratech Cement Limited	Jaiprakash Associates	Sale of cement plants	North, Central, South	21.2	166	Feb-16

Birla Corporation	Reliance Cements	Sale of 100% stake	Central, West	6.6	48	Feb-16
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Source: Crisil Intelligence, Industry publications

9.2 IBC proceedings of major cement companies

Table 34- Current IBC proceedings of major cement companies

Sr no.	Name of Corporate Debtor	Status as of April-2025
1	Jaiprakash Associates (Jaypee Cement Corporation Limited)	Under CIRP
2	Bharat Hitech (Cements) Private Limited	CIRP closure through settlement
3	Vadraj Cement Limited	Resolution Plan approved (Successful Resolution Applicant- Nuvoco Vistas Corporation Limited)
4	Virgo Cements Limited	Resolution Plan approved (Successful Resolution Applicant- PRAG India)
5	Jammu and Kashmir Cements Limited	CIRP -Claims admitted
6	RaniSagar Cement Company Limited	CIRP dissolution- Corporate debtor not a going concern given that it holds no assets
7	Aanchal Cement Limited	CIRP closure through withdrawal- Corporate Debtor freed from CIRP and Board of directors restored to its original position

Note: CIRP- Corporate insolvency resolution process. CIRP is the process of resolving the corporate insolvency of a corporate debtor in accordance with the provisions of the Insolvency and Bankruptcy Code. As of March 2025

Source: Insolvency and Bankruptcy Board of India, Crisil Intelligence

10. Player profiles and comparative benchmarking

10.1 Player profiles

Kanodia Cement Limited

Incorporated in 2009, Kanodia Cement Limited (KCL) is one of the pioneers in contract manufacturing of cement. It is one of the few players in the industry having a unique combination of both, business-to-business contract manufacturing for cement brands ("Contract Manufacturing Model") as well as production and marketing of its own consumer brands ("Business-to-Consumer model"). Kanodia Cement Limited has established itself as a preferred contract manufacturing partner for marquee cement brands, operating through cement sale and purchase agreements with them. Additionally, it also produces & markets cement under its own brands in the Western UP and NCR markets. Its portfolio of own brands includes both base and premium brands like "Concrete Gold – Ultra Strong", "Concrete Gold", "BIGCEM Premium Plus", "BIGCEM", "HBM Gold", "HBM", "Bluestar Classic Cement" and "Bluestar Cement".

Table 35- Details of manufacturing units operated by KCL

S. No	Plant Name	Location	Region / State	Production Capacity (MTPA)	Commencement of Commercial Production (Calendar year)
1,2,3	Kanodia Cement Limited (KCL) - 3 units	Sikandrabad	Western Uttar Pradesh	0.84	2011 2013 2016
4	Kanodia Infratech Limited (KIL) - 1 Unit	Bhabhua	Bihar	1.2	2016
5	Kanodia Cem Private Limited (KCPL) Unit 1 - 1 Unit	Amethi	Eastern Uttar Pradesh	1.5	2022
Total present capacity				3.54	

Note: KCL is the holding company; KIL and KCPL are 100% subsidiaries of KCL

Source: Kanodia Cement Limited

The company has a 2.68% and 0.82% market share by capacity in central and eastern region respectively on a consolidated basis as of December 2024, specifically the company accounts for 5.85% of the total capacity in Uttar Pradesh and a notable 9.23% in Bihar despite these being fragmented markets. Company has expansion plans of 5 MTPA in Uttar Pradesh, leading to total capacity of 7.34 MTPA in the state resulting in rise in market share to ~12% by fiscal 2029. Operating under both models of B2B and B2C, the company has unique advantage in key markets of UP and Bihar.

Table 36- Key performance Indicators for Kanodia Cement Limited

Operational	Units	9M 2024-25	2023-24	2022-23	2021-22
Installed Grinding Capacity	MTPA	2.66*	3.54	3.17**	2.04
Cement Sales - Contract Manufacturing Model	MMT	1.45	1.52	1.00	0.72
Cement Sales - Business to Consumer Model	MMT	0.15	0.23	0.17	0.22
Total Cement Sales Volume	MMT	1.60	1.74	1.18	0.94
Capacity Utilisation	%	60.23%	49.23%	37.13%	46.10%
Financials					
Revenue from Operations	INR Mn	7,195.62	8,879.07	6,652.78	4,884.54
Revenue from Operations Growth	%	NA	33.46%	36.20%	NA

Operating EBITDA	INR Mn	1,301.71	1,528.36	916.55	667.17
PBT	INR Mn	1,285.38	1,467.55	760.69	570.71
PAT	INR Mn	982.38	1,138.38	554.74	403.55
Operating EBITDA margin	%	18.09%	17.21%	13.78%	13.66%
PBT margin	%	17.86%	16.53%	11.43%	11.68%
PAT margin	%	13.65%	12.82%	8.34%	8.26%
Total equity	INR Mn	4,941.64	3,959.79	2,821.14	2,268.77
Net Debt	INR Mn	(687.62)	(923.45)	584.51	1,050.35
Basic EPS	Rs	13.17	15.27	7.43	5.38
Net Asset Value per Share	Rs	66.27	53.10	37.83	30.33
Operating metrics					
Realisation per tonne	Rs / tonne	4,278.60	4,722.14	5,099.14	4,694.23
Operating EBITDA	Rs / tonne	814.06	876.94	779.90	709.53
Cost of sales	Rs / tonne	3,685.90	4,217.67	4,881.00	4,485.16
Ratios					
ROE	%	29.43%	33.58%	21.80%	20.83%
RoCE	%	35.18%	36.47%	21.43%	22.25%
Net debt by EBITDA	Times	-0.53	-0.60	0.64	1.57
Net debt by Networth	Times	-0.14	-0.23	0.21	0.46
Fixed Asset Turnover Ratio	Times	2.75	2.58	2.55	3.80

Note:

1. Utilisation is calculated based on capacity and production data; ROE and RoCE ratios have been annualised for 9MFY25
2. *Effective capacity calculated for 9M FY25 period (Full year capacity*9/12)
3. **KCPL unit started production in FY23 so weighted average capacity has been considered for FY23.
4. Net debt for Kanodia Cement Limited is calculated as: Long term borrowings + Short term borrowings – (cash and cash equivalents, bank balances, current investments and other non-current financial assets (bank deposits with remaining maturity of more than twelve months).

Source: Kanodia Cement Limited

JK Cement Limited (Consolidated)

JK Cement Limited is an affiliate of JK Group. The company had grey cement capacity of ~22.34 MTPA and white cement capacity of ~2.50 MTPA as of fiscal 2024. Its grey cement manufacturing units are based in Mangrol, Nimbahera and Gotan in Rajasthan and Muddapur in Karnataka, and grinding units are located in Jharli, Haryana and in Aligarh, Uttar Pradesh. It also has a ~3.10 MTPA white cement plus wall putty facility in the UAE. The company has 82.30 MW of WHRS capacity and 100.64 MW of renewable power generation capacity as of fiscal 2024.

Table 37- Key performance Indicators for JK Cement Limited (Consolidated)

Operational	Units	9M 2024-25	2023-24	2022-23	2021-22
Installed Grinding Capacity -Grey Cement	MTPA	18.26*	22.34	20.67	14.67
Grey Cement Sales Volume	MTPA	12.54	16.77	13.17	11.72
White cement & Putty Sales Volume	MTPA	1.62	1.64	1.59	1.43
Total Sales volume		14.16	18.41	14.76	13.15
Capacity Utilisation	%	NA	81.00%	87.00%	79.00%
Financials					
Revenue from Operations	INR Mn	82,979.70	15,560.00	97,201.99	79,908.19
Revenue from Operations Growth	%	NA	18.89%	21.64%	20.96%
Operating EBITDA	INR Mn	12,622.90	20,598.00	13,143.05	14,824.10
PBT	INR Mn	6,044.30	11,791.10	6,312.92	10,131.24
PAT	INR Mn	5,108.40	7,899.30	4,190.80	6,792.11
Operating EBITDA margin	%	15.21%	17.82%	13.52%	18.55%
PBT margin	%	7.28%	10.20%	6.49%	12.68%
PAT margin	%	6.16%	6.84%	4.31%	8.50%

Network	INR Mn	NA	53,216.40	46,423.53	42,906.36
Net Debt	INR Mn	NA	42,656.40	39,265.38	33,200.56
Basic EPS	Rs	64.81	102.35	55.17	87.90
Net Asset Value per Share	Rs	NA	694.61	606.56	559.72
Operating metrics (Blended)					
Cement Realisation	Rs / tonne	NA	6,098.29	6,434.48	5,975.79
Operating EBITDA	Rs / tonne	891.45	1,118.85	890.45	1,127.31
Cost of sales	Rs / tonne	4,968.70	5,158.17	5,695.05	4,949.36
Ratios					
ROE	%	NA	15.86	9.38	16.98
RoCE	%	NA	14.97	9.81	15.55
Net debt by EBITDA	Times	NA	2.07	2.99	2.24
Net debt by Network	Times	NA	0.80	0.85	0.77
Fixed Asset Turnover Ratio	Times	NA	1.35	1.33	1.29

Note:

1. Utilisation and basic EPS is as reported and published by company
2. *Effective capacity calculated for 9M FY25 period (Full year capacity*9/12)
3. NA-Not Available, as certain datapoints were not reported or disclosed by the company in their annual reports/quarterly financials/investor presentation as available

Source: Company annual report and publication

JK Lakshmi Cement Limited (Consolidated)

JK Lakshmi Cement Limited is a part of the JK Organisation. This industrial house is over hundred and thirty-five years old and have operations in India and abroad with presence in the fields of tyre, cement, paper, power transmissions, sealing solutions, dairy products and textiles. The company was established in 1982, with an integrated plant in Rajasthan's Sirohi district with 0.5 Mn MT total capacity. The company specializes in manufacturing cement, gypsum plaster and ready-mix concrete (RMC). The company has presence in the country's northern and western regions. At a consolidated level, JK Lakshmi has seven plants located across the states of Rajasthan, Gujarat, Haryana, Odisha and Chhattisgarh with total capacity of ~16.50 MTPA (including ~4.70 MTPA of its wholly owned subsidiary Udaipur Cement Works Limited) as of fiscal 2024.

Table 38- Key performance Indicators for JK Lakshmi Cement (Consolidated)

Operational	Units	9M 2024-25	2023-24	2022-23	2021-22
Installed Grinding Capacity	MTPA	12.38*	16.50	13.90	13.90
Cement Sales Volume	MTPA	8.53	11.99	11.42	10.99
Capacity Utilisation	%	78.00%	86.00%	85.00%	82.00%
Financials					
Revenue from Operations	INR Mn	42,950.00	67,884.70	64,515.00	54,198.90
Revenue from Operations Growth	%	NA	5.22%	19.03%	14.65%
Operating EBITDA	INR Mn	5,133.80	10,521.50	8,387.10	9,507.10
PBT	INR Mn	1,843.10	7,238.80	5,345.00	6,533.70
PAT	INR Mn	1,088.20	4,878.70	3,691.10	4,775.80
Operating EBITDA margin	%	11.95%	15.50%	13.00%	17.54%
PBT margin	%	4.29%	10.66%	8.28%	12.06%
PAT margin	%	2.53%	7.19%	5.72%	8.81%
Net Worth	INR Mn	NA	33,570.30	28,408.80	25,318.90
Net Debt	INR Mn	NA	13,826.00	9,551.50	6,438.30
Basic EPS	Rs	9.83	40.10	30.48	39.39
Net Asset Value per Share	Rs	NA	270.81	238.28	212.90
Operating metrics					
Realisation per tonne	Rs / tonne	NA	5,661.37	5,649.04	4,929.60
Operating EBITDA	Rs / tonne	601.85	877.52	734.42	865.07

Cost of sales	Rs / tonne	4,433.32	4,784.25	4,914.88	4,066.59
Ratios					
ROE	%	NA	15.74	13.74	20.59
RoCE	%	NA	17.25	14.44	19.40
Net debt by EBITDA	Times	NA	1.31	1.14	0.68
Net debt by Networth	Times	NA	0.41	0.34	0.25
Fixed Asset Turnover Ratio	Times	NA	1.70	1.93	1.65

Note:

1. Utilisation and basic EPS is as reported and published by company
2. *Effective capacity calculated for 9M FY25 period (Full year capacity*9/12)
3. NA-Not Available, as certain datapoints were not reported or disclosed by the company in their annual reports/quarterly financials/Investor presentation as available

Source: Company annual report and publication

Nuvoco Vistas Corporation Limited (Consolidated)

Nuvoco Vistas Corporation Limited is the part of the Nirma Group conglomerate, entered the cement sector in 2014 by establishing a new cement plant in Nimbol, Rajasthan. The company expanded by acquiring Lafarge India Limited in 2016 and later changed its name to Nuvoco Vistas Corporation Limited in 2017. It offers a diversified business portfolio in three business segments: Cement, Ready-Mix Concrete (RMX), and Modern Building Materials (MBM). As of fiscal 2024, the company is spread across 85 locations with 11 cement manufacturing plants having total capacity of 25 MTPA. Company caters to the eastern and northern region with 5 integrated, 5 grinding and one blending unit.

Table 39- Key performance Indicators for Nuvoco Vistas Corporation Limited (Consolidated)

Operational	Units	9M 2024-25	2023-24	2022-23	2021-22
Installed Grinding Capacity	MTPA	18.75*	25.00	23.82	23.82
Cement Sales Volume	MTPA	13.70	18.77	18.80	17.83
Capacity Utilisation	%	NA	75.30%	78.90%	75.00%
Financials					
Revenue from Operations	INR Mn	73,144.20	107,328.90	105,861.70	93,180.30
Revenue from Operations Growth	%	NA	1.39%	13.61%	24.43%
Operating EBITDA	INR Mn	8,203.80	16,237.10	12,103.80	14,967.00
PBT	INR Mn	(1,972.60)	2,059.30	(2,394.40)	509.00
PAT	INR Mn	(1,437.00)	1,473.70	158.60	320.80
Operating EBITDA margin	%	11.22%	15.13%	11.43%	16.06%
PBT margin	%	-2.70%	1.92%	-2.26%	0.55%
PAT margin	%	-1.96%	1.37%	0.15%	0.34%
Net Worth	INR Mn	NA	89,835.20	88,390.00	88,212.20
Net Debt	INR Mn	NA	40,299.00	44,140.50	50,642.20
Basic EPS	Rs	(4.02)	4.13	0.44	0.93
Net Asset Value per Share	Rs	NA	251.53	247.48	246.98
Operating metrics					
Realisation per tonne	Rs / tonne	NA	5,614.64	5,472.86	5,081.92
Operating EBITDA	Rs / tonne	598.82	865.06	643.82	839.43
Cost of sales	Rs / tonne	4,740.18	4,853.05	4,987.12	4,386.61
Ratios					
ROE	%	NA	1.65	0.18	0.40
RoCE	%	NA	5.89	2.04	4.31
Net debt by EBITDA	Times	NA	2.48	3.65	3.38
Net debt by Networth	Times	NA	0.45	0.50	0.57
Fixed Asset Turnover Ratio	Times	NA	1.10	1.07	0.94

Note:

1. Utilisation and basic EPS is as reported and published by company

2. *Note: Effective capacity calculated for 9M FY25 period (Full year capacity*9/12)
 3. NA-Not Available, as certain datapoints were not reported or disclosed by the company in their annual reports/quarterly financials/Investor presentation as available
- Source: Company annual report and publication

Birla Corporation Limited (Consolidated)

Birla Corporation Limited is the flagship Company of the M.P. Birla Group. The Company is primarily engaged in the manufacturing of cement as its core business activity. It has presence in the jute goods industry as well. The Company has acquired 100% shares of Reliance Cement Company Private Limited (Reliance Cement), a subsidiary of Reliance Infrastructure Limited (RIL). After this acquisition, Reliance Cement has become a wholly-owned material subsidiary of Birla Corporation Limited. This acquisition provides Birla Corporation Limited with the ownership of high-quality assets, taking its total capacity to ~20 MTPA as of fiscal 2024. The Cement Division of Birla Corporation Limited has 10 plants at eight locations.

Table 40- Key performance Indicators for Birla Corporation Limited (Consolidated)

Operational	Units	9M 2024-25	2023-24	2022-23	2021-22
Installed Grinding Capacity	MTPA	15.00*	20.00	20.00	20.00
Cement Sales Volume	MTPA	12.80	17.79	15.84	14.22
Capacity Utilisation	%	87.10%	89.00%	81.00%	92.00%
Financials					
Revenue from Operations	INR Mn	63,995.80	96,627.20	86,822.70	74,612.20
Revenue from Operations Growth	%	NA	11.29%	16.37%	9.96%
Operating EBITDA	INR Mn	6,833.90	14,376.00	7,720.10	11,100.10
PBT	INR Mn	496.50	5,731.50	364.60	5,691.90
PAT	INR Mn	386.20	4,205.60	405.00	3,985.90
Operating EBITDA margin	%	10.68%	14.88%	8.89%	14.88%
PBT margin	%	0.78%	5.93%	0.42%	7.63%
PAT margin	%	0.60%	4.35%	0.47%	5.34%
Net Worth	INR Mn	NA	66,738.10	59,808.40	60,488.90
Net Debt	INR Mn	NA	29,981.40	36,607.30	34,555.20
Basic EPS	Rs	5.02	54.61	5.26	51.76
Net Asset Value per Share	Rs	NA	866.66	776.67	785.51
Operating metrics					
Realisation per tonne	Rs / tonne	NA	5,095.21	5,096.83	4,841.30
Operating EBITDA	Rs / tonne	533.90	808.09	487.38	780.60
Cost of sales	Rs / tonne	4,465.77	4,623.45	4,993.85	4,466.39
Ratios					
ROE	%	NA	6.65	0.67	6.91
RoCE	%	NA	9.11	3.66	8.25
Net debt by EBITDA	Times	NA	2.09	4.74	3.11
Net debt by Networth	Times	NA	0.45	0.61	0.57
Fixed Asset Turnover Ratio	Times	NA	1.10	1.13	1.15

Note:

1. Utilisation and basic EPS is as reported and published by company
2. *Effective capacity calculated for 9M FY25 period (Full year capacity*9/12)
3. NA-Not Available, as certain datapoints were not reported or disclosed by the company in their annual reports/quarterly financials/Investor presentation as available

Source: Company annual report and publication

Heidelberg Cement India Limited (Consolidated)

Heidelberg Cement India Limited is a subsidiary of Heidelberg Cement Group, Germany. The Company has its operations in Central India at Damoh (Madhya Pradesh), Jhansi (Uttar Pradesh) and in Southern India at Ammasandra (Karnataka). HeidelbergCement, AG entered India in 2006 with the acquisition of erstwhile

Mysore Cement, Cochin Cement and a JV with Indorama Cement. Post the restructuring and expansion at its Central India plants, its installed capacity increased to ~6.3 MTPA as of fiscal 2024.

Table 41- Key performance Indicators for Heidelberg Cement India Limited (Consolidated)

Operational	Units	9M 2024-25	2023-24	2022-23	2021-22
Installed Grinding Capacity	MTPA	4.70*	6.26	6.26	6.26
Cement Sales Volume	MTPA	3.26	4.81	4.39	4.78
Capacity Utilisation	%	NA	NA	69.01%	75.88%
Financials					
Revenue from Operations	INR Mn	15,364.20	23,657.80	22,381.00	22,969.60
Revenue from Operations Growth	%	NA	5.70%	-2.56%	8.52%
Operating EBITDA	INR Mn	1,487.80	3,167.20	2,488.50	4,345.50
PBT	INR Mn	762.50	2,268.10	1,357.70	3,351.30
PAT	INR Mn	563.00	1,677.50	991.70	2,522.60
Operating EBITDA margin	%	9.68%	13.39%	11.12%	18.92%
PBT margin	%	4.96%	9.59%	6.07%	14.59%
PAT margin	%	3.66%	7.09%	4.43%	10.98%
Net Worth	INR Mn	NA	14,698.30	14,613.90	15,652.40
Net Debt	INR Mn	NA	(4,296.80)	(3,181.80)	(1,919.10)
Basic EPS	Rs	2.48	7.40	4.38	11.13
Net Asset Value per Share	Rs	NA	64.86	64.49	69.07
Operating metrics					
Realisation per tonne	Rs / tonne	NA	4,884.99	5,013.55	4,677.91
Operating EBITDA	Rs / tonne	456.38	658.46	566.86	909.10
Cost of sales	Rs / tonne	4,256.56	4,260.00	4,531.32	3,896.26
Ratios					
ROE	%	NA	11.45	6.55	16.49
RoCE	%	NA	14.35	9.52	18.79
Net debt by EBITDA	Times	NA	-1.36	-1.28	-0.44
Net debt by Networth	Times	NA	-0.29	-0.22	-0.12
Fixed Asset Turnover Ratio	Times	NA	1.63	1.47	1.44

Note:

1. Utilisation is calculated based on capacity and production data. Basic EPS is as published by company
2. *Effective capacity calculated for 9M FY25 period (Full year capacity*9/12)
3. NA-Not Available, as certain datapoints were not reported or disclosed by the company in their annual reports/quarterly financials/Investor presentation as available

Source: Company annual report and publication

Prism Johnson Limited (Consolidated)

Prism Johnson Limited is one of India's integrated building materials companies, offering a wide range of products from cement and ready-mixed concrete to tiles and bath products. With cement production capacity at 5.6 MTPA as of fiscal 2024 at Satna in Madhya Pradesh, Prism Cement remains a prominent cement manufacturer in central India. Key regions served by the company include eastern Uttar Pradesh, Madhya Pradesh and Bihar.

Table 42- Key performance Indicators for Prism Johnson Limited (Consolidated)

Operational	Units	9M 2024-25	2023-24	2022-23	2021-22
Installed Grinding Capacity	MTPA	4.20*	5.60	5.60	5.60
Cement Sales Volume	MTPA	4.64	6.58	5.92	5.22
Capacity Utilisation	%	NA	108.00%	NA	92.00%
Financials					
Revenue from Operations	INR Mn	53,070.70	75,875.10	73,605.20	63,063.20

Revenue from Operations (Cement segment)	INR Mn	21,260.00	33,182.00	30,299.80	24,076.00
Revenue from Operations Growth	%	NA	3.08%	16.72%	12.87%
Operating EBITDA	INR Mn	2,308.60	4,889.70	3,608.30	5,231.90
Operating EBITDA (Cement segment)	INR Mn	1,180.00	3,441.00	2,634.00	3,701.00
PBT	INR Mn	(1,721.50)	(828.90)	(1,806.00)	680.70
PAT	INR Mn	(759.00)	1,619.30	(1,577.30)	439.50
Operating EBITDA margin	%	4.35%	6.44%	4.90%	8.30%
PBT margin	%	-3.24%	-1.09%	-2.45%	1.08%
PAT margin	%	-1.43%	2.13%	-2.14%	0.70%
Net Worth	INR Mn	NA	16,434.30	14,627.60	15,955.40
Net Debt	INR Mn	NA	6,612.90	10,539.60	11,411.80
Basic EPS	Rs	(0.98)	3.60	(2.05)	1.82
Net Asset Value per Share	Rs	NA	27.59	23.97	26.28
Operating metrics (Cement segment)					
Realisation per tonne	Rs / tonne	4,581.90	5,042.86	5,118.21	4,612.26
Operating EBITDA	Rs / tonne	254.31	522.95	444.93	709.00
Cost of sales	Rs / tonne	4,327.59	4,519.91	4,673.28	3,903.26
Ratios					
ROE	%	NA	10.43	(10.31)	2.82
RoCE	%	NA	4.13	0.48	8.00
Net debt by EBITDA	Times	NA	1.35	2.92	2.18
Net debt by Networth	Times	NA	0.40	0.72	0.72
Fixed Asset Turnover Ratio	Times	NA	2.49	2.54	2.17

Note 1:

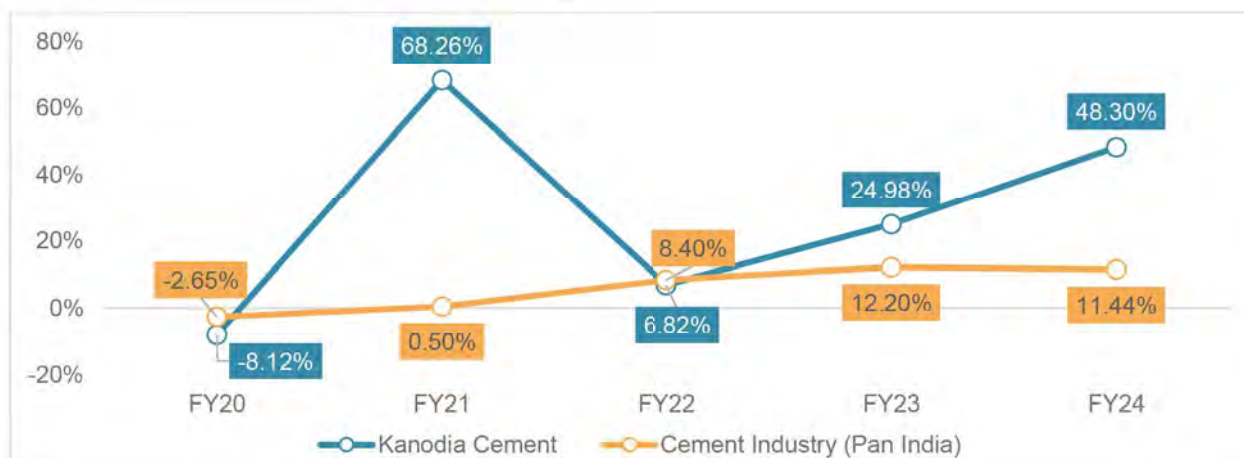
1. Utilisation and basic EPS is as reported and published by company
2. *Effective capacity calculated for 9M FY25 period (Full year capacity*9/12)
3. NA-Not Available, as certain datapoints were not reported or disclosed by the company in their annual reports/quarterly financials/Investor presentation as available

Source: Company annual report and publication

10.2 Financial and operational benchmarking

Comparison of industry volume growth and company volume growth (fiscal 2020-2024)

Figure 64- Cement industry volume growth (fiscal 2020-2024)



Note: Industry growth covers volume growth at Pan India level which is different from Industry group

Source: Kanodia Cement Limited, Crisil Intelligence

In FY20, pan-India cement demand saw an unprecedented demand drop of ~3% in fiscal 20 after two stellar years of growth led by post-election slowdown, labour scarcity and floods in many parts of the country. Also,

an unparalleled nationwide shutdown starting from last week of March in wake of Covid-19 pandemic also affected demand. The company also witnessed demand de-growth of ~8% led by a sharp decline in investments in infrastructure, especially roads and highways, by central and state governments in Uttar Pradesh post general and assembly elections in the state. Also, lower sanctioning under PMAY-G, metro construction, etc. in Bihar market affected state cement demand.

Cement industry witnessed most tumultuous transition between fiscal 20 and fiscal 21 on back of pandemic led nationwide lockdown followed by mass migration of labour from construction sites, due to which construction activities came to a standstill. However, sustained demand from rural housing coupled with gradual recovery in urban housing, real estate and government push to infra in later half of the fiscal supported demand to surpass pre-pandemic levels of fiscal 20 with a flattish demand growth of ~1% in fiscal 21. In such turbulent times, Company grew its sales volume by robust ~68% against flattish industry demand growth of ~1% primarily supported by steady revival in housing and infra segments in UP and Bihar. In Bihar, lower covid incidence, pre-election government spending ahead of assembly elections and pickup in funding towards rural schemes led to healthy demand uptick. In Uttar Pradesh, despite seeing higher COVID cases in select pockets, demand improved significantly led by traction in affordable housing due to return of migrant labour to their natives. Hence, the company could capture rising demand from both the states during post-pandemic recovery and surpass pre-covid volume levels (fiscal 2019) by almost ~0.3 million tonnes by fiscal 2021.

While the industry was still reviving from the first covid wave, a severe second covid wave hit the country in Q1 of fiscal 2022. However, the industry quickly recovered from second covid wave despite higher covid intensity on back of pent-up demand across segments and as construction activities were permitted in most of the regions. However, an unprecedented demand slump was witnessed in Q3 on back of extended rainfall, sand issues driving down annual growth rate to ~8% for fiscal 2022 vis-à-vis earlier expectations of 10-12% on a low base. The company registered healthy sales volume growth of ~7% during the fiscal as capex spending in Uttar Pradesh with a plethora of infra projects under execution, majorly roads, airports, as well as metro construction supported demand growth in the region. However, elections in last quarter of the fiscal as well as severe sand scarcity issues in Bihar during Oct-Dec'2021 period limited company's volume growth to ~7% v/s industry demand growth of ~8% for the fiscal.

Fiscal 2023 saw a 12% year-over-year increase in cement demand, driven by a resurgence in infrastructure activities and a strong recovery in individual housing, both in rural and urban areas. Initially, high construction costs had dampened demand, but as inflationary pressures eased in the second half of the fiscal year, the real estate and affordable housing sectors gained momentum. Additionally, the execution of infrastructure projects ahead of the 2024 general elections further boosted demand, resulting in a healthy 12% year-over-year growth.

Following a sluggish demand trend in fiscal 2022, Bihar witnessed a sharp rebound in demand during fiscal 2023, primarily driven by a pickup in rural housing construction, particularly under the Pradhan Mantri Awas Yojana-Gramin (PMAY-G) scheme, which was fuelled by increased fund releases. Rural housing remains a key driver of demand in the region, given the significant housing shortage. In Uttar Pradesh, revival in house building and pre-election spending on infrastructure projects, including roads, airports, and metro systems, contributed to a strong demand revival. The growth in Bihar and UP was largely driven by an 18% and ~33% increase in state capital expenditures, respectively, resulting in a remarkable 25% sales volume growth for the company, significantly higher than industry's ~12% growth. The company also commissioned a 1.5 MTPA grinding unit at Amethi (Eastern UP) which supported volume growth during the year.

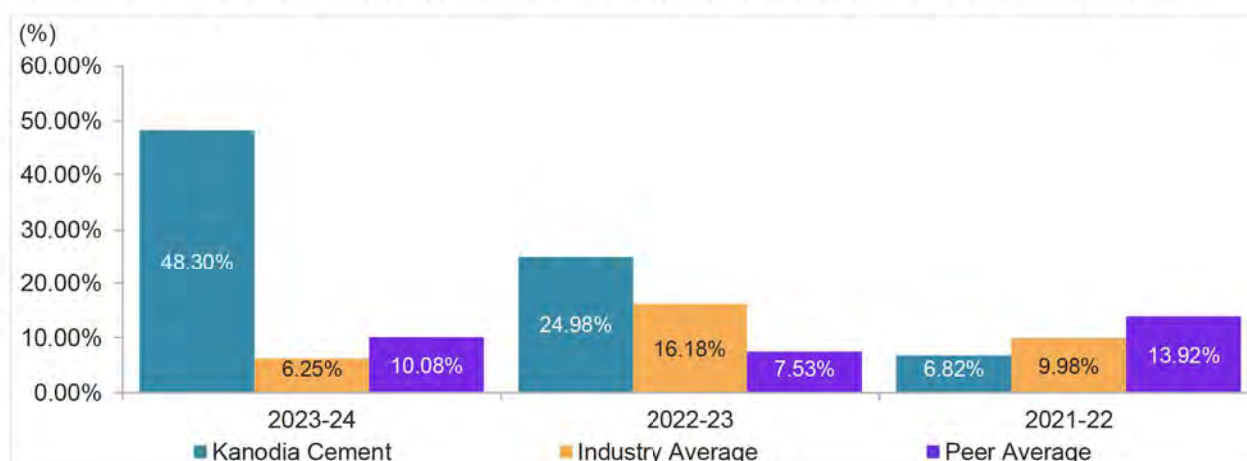
Cement demand experienced a significant 11% surge in fiscal 2024, driven primarily by increased government spending, rapid infrastructure project execution ahead of the Lok Sabha elections, and a boost in housing construction activities during a drier monsoon season. Additionally, assembly elections in five states contributed to healthy pre-election demand. However, demand slowed down in the second half of the fiscal year due to regional factors such as heavy rainfall in the south, NGT bans, extreme winters in the north, and sand/aggregate availability issues in the east, as well as various state elections. Despite these

challenges, the industry achieved an 11% year-over-year growth in fiscal 2024, driven by a strong push to meet year-end targets and increased traction ahead of the election deadline.

The company outperformed the industry, recording a 48% growth in sales volume compared to the industry's 11% growth. This was largely driven by sustained momentum in infrastructure construction and a pickup in urban and rural housing development in Uttar Pradesh. While the eastern region, including Bihar, experienced relatively moderate demand growth in fiscal 2024 due to sand and aggregate availability issues and funding constraints in the second half of the fiscal year, the company still achieved a robust 48% volume growth.

Sales Volume growth (%)

Figure 65- Sales volume growth for Kanodia Cement Limited, Peer group and Industry group

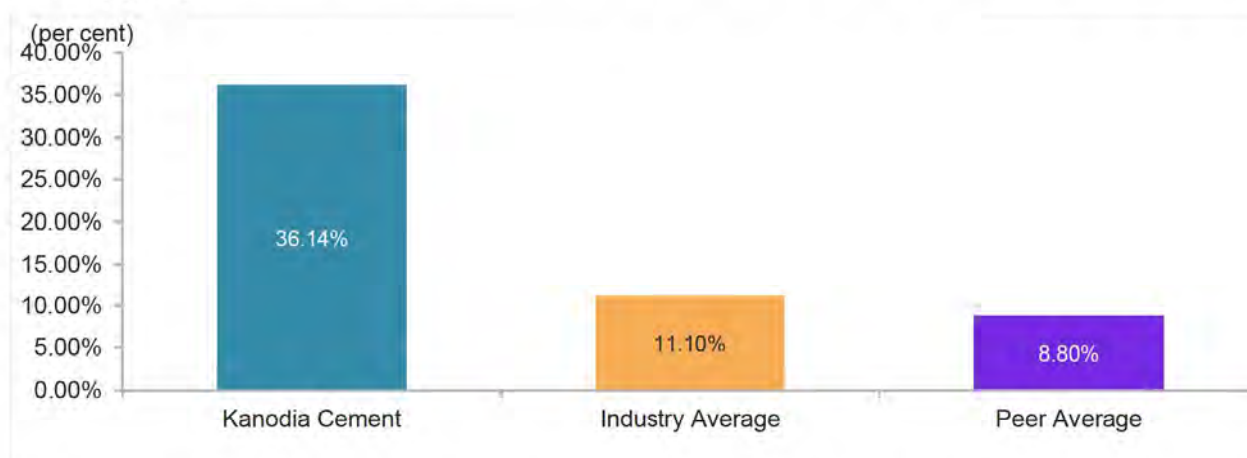


Note: Above data is on consolidated basis for Kanodia Cement, Industry and Peer group; Industry average and peer average has been defined in the notes at the end of this section

Source: Kanodia Cement Limited, Company Annual report and publications

Sales Volume CAGR FY22-24 (%)

Figure 66- Sales volume CAGR fiscal 2022-2024 growth for Kanodia Cement Limited, Peer group and Industry group



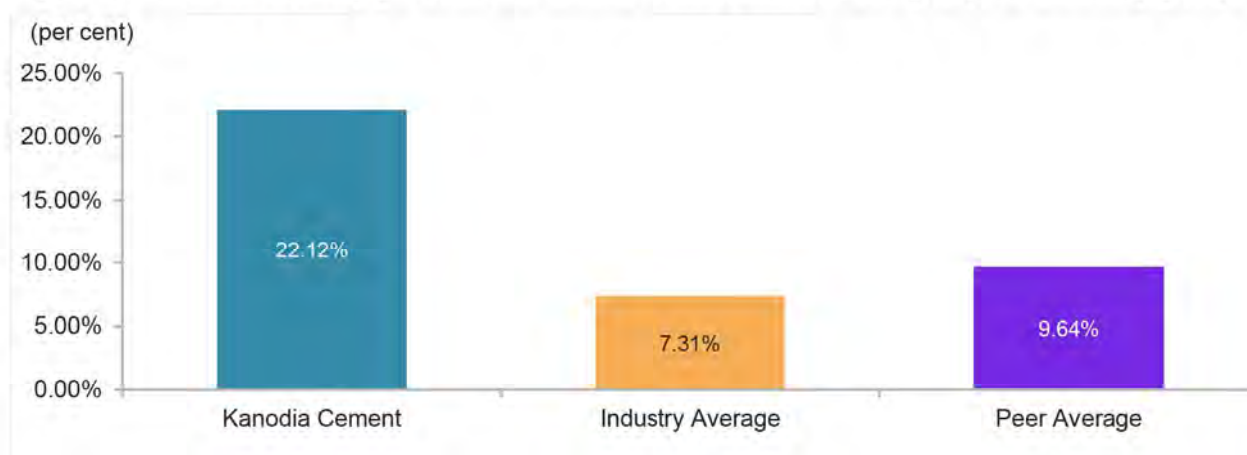
Note: Above data is on consolidated basis for Kanodia Cement Limited, Industry and Peer group; Industry average and peer average has been defined in the notes at the end of this section

Source: Kanodia Cement Limited, Company Annual report and publications

Kanodia Cement Limited has outpaced industry group and peer group with 36.14% sales volume CAGR in past 3 years (FY22-24).

Installed capacity 10-year growth (FY14-24 CAGR)

Figure 67- Installed capacity growth for Kanodia Cement Limited, Peer group and Industry group



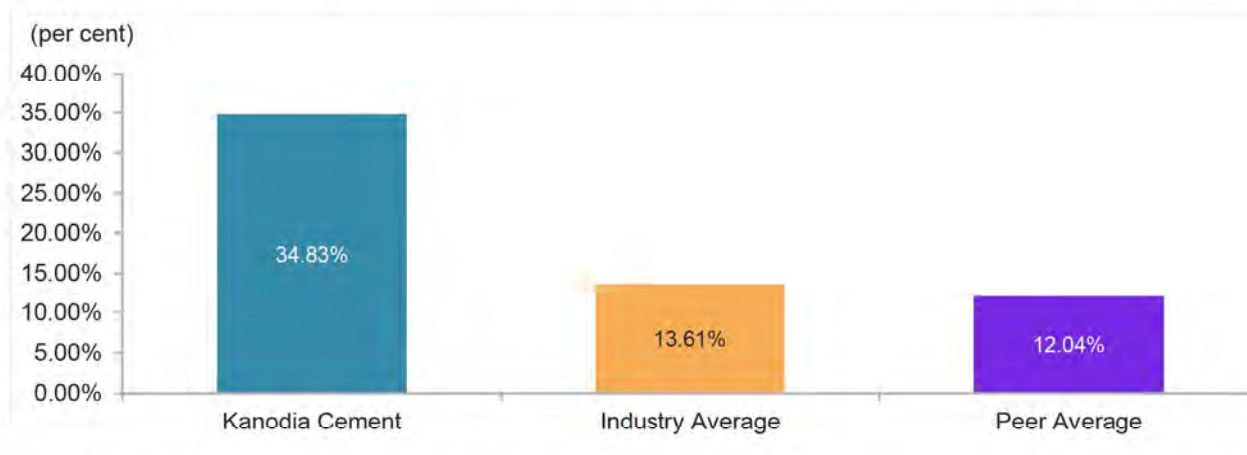
Note: Above data is on consolidated basis for Kanodia Cement Limited, Industry and Peer group; Industry average and peer average has been defined in the notes at the end of this section

Source: Kanodia Cement Limited, Company Annual report and publications

The Kanodia Cement Limited's journey began with a single 0.3 MTPA SGU which commenced production in 2011, and as of September 2024, it has expanded to operate five SGUs with an aggregate cement grinding capacity of 3.54 MTPA. The company has increased its installed manufacturing capacity at 22.12% CAGR from FY14-FY24, significantly outpacing the industry and peer group average of 7.31% and 9.64% respectively

Revenue from operations growth (FY22-24 CAGR %)

Figure 68- Revenue from operations growth for Kanodia Cement Limited, Peer group and Industry group



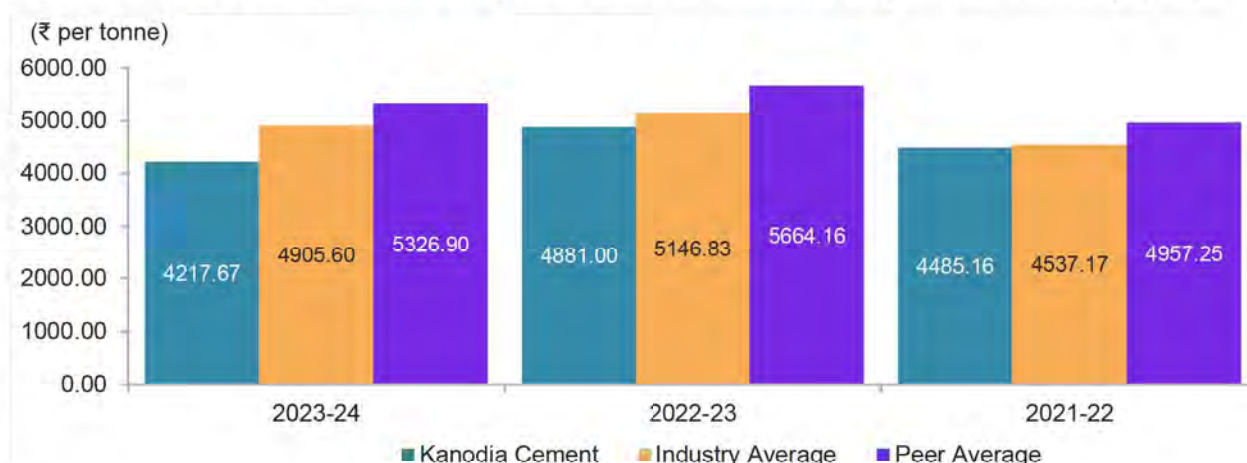
Note: Above data is on consolidated basis for Kanodia Cement Limited, Industry and Peer group; Industry average and peer average has been defined in the notes at the end of this section

Source: Kanodia Cement Limited, Company Annual report and publications

Kanodia Cement Limited has achieved higher revenue from operations CAGR of 34.83% from Fiscal 2022 to Fiscal 2024 compared to industry and peer group. Revenue from operations growth of Kanodia Cement Limited has outpaced the industry and peer average during the period.

Cost of sales (Rs/tonne)

Figure 69- Cost of sales per tonne for Kanodia Cement Limited, Peer group and Industry group

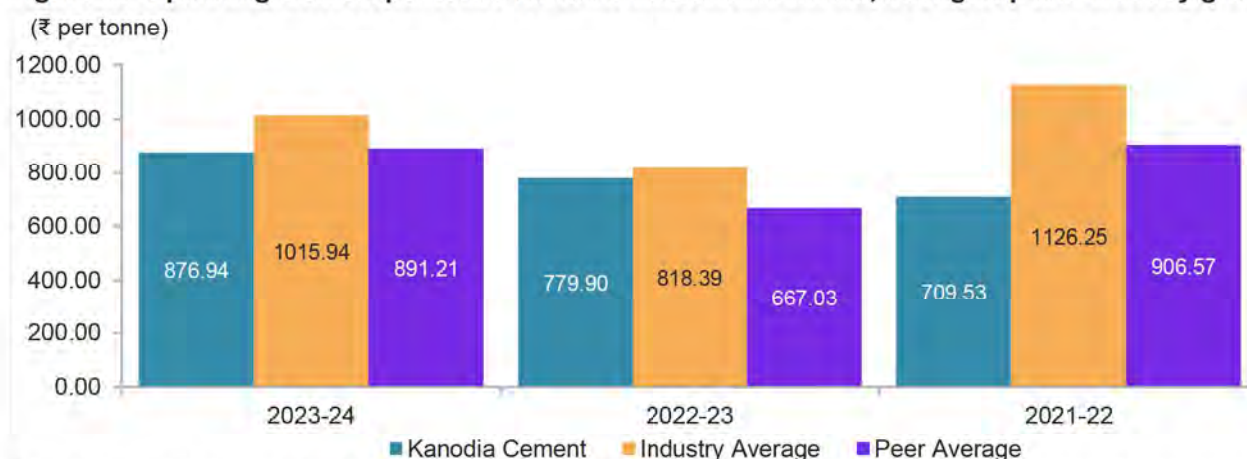


Note: Above data is on consolidated basis for Kanodia Cement Limited, Industry and Peer group; Industry average and peer average has been defined in the notes at the end of this section. Data for Kanodia Cement Limited includes B2B sales which is ex-factory, thus freight outward is minimal in B2B sales.

Source: Kanodia Cement Limited, Company Annual report and publications

Operating EBITDA per tonne (Rs/tonne)

Figure 70- Operating EBITDA per tonne for Kanodia Cement Limited, Peer group and Industry group



Note: Above data is on consolidated basis for Kanodia Cement Limited, Industry and Peer group; Industry average and peer average has been defined in the notes at the end of this section

Above EBITDA per tonne is operating profit per tonne before Depreciation, interest and taxes, excluding other income

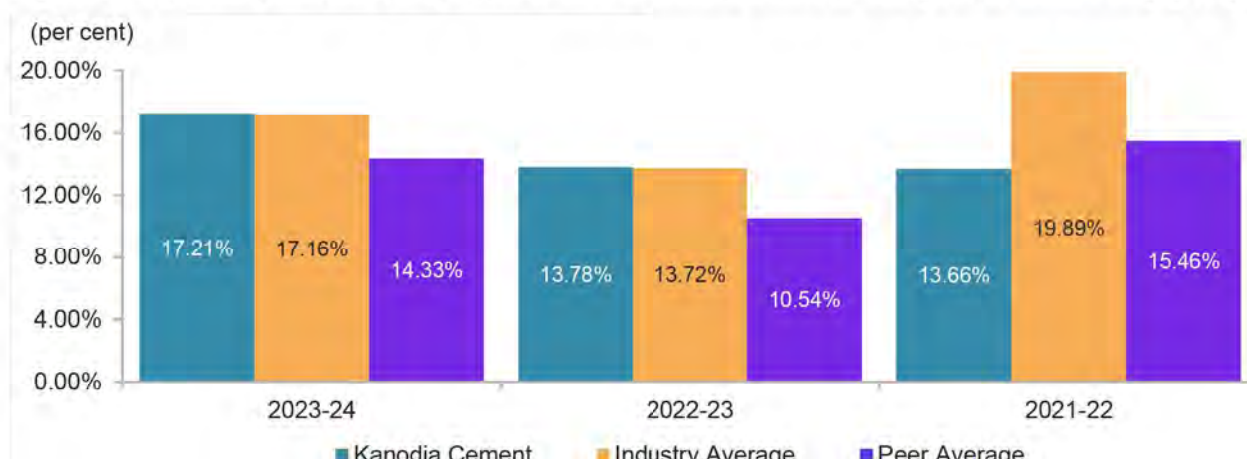
Source: Kanodia Cement Limited, Company Annual report and publications

Kanodia Cement Limited, under the contract manufacturing model, receives fixed lease rental & grinding charges for the Bihar unit as per the contract terms irrespective of the cement quantity supplied and has minimum offtake guarantees for the Eastern UP unit. This arrangement largely fixes the absolute returns of the company and therefore operating EBITDA per tonne has inverse relationship with the volume offtake.

Kanodia Cement Limited operates satellite grinding units in the states of UP and Bihar only, however industry and peer group includes companies having both clinker and grinding units, spread across multiple states.

Operating EBITDA margin (%)

Figure 71- Operating EBITDA margin for Kanodia Cement Limited, Peer group and Industry group



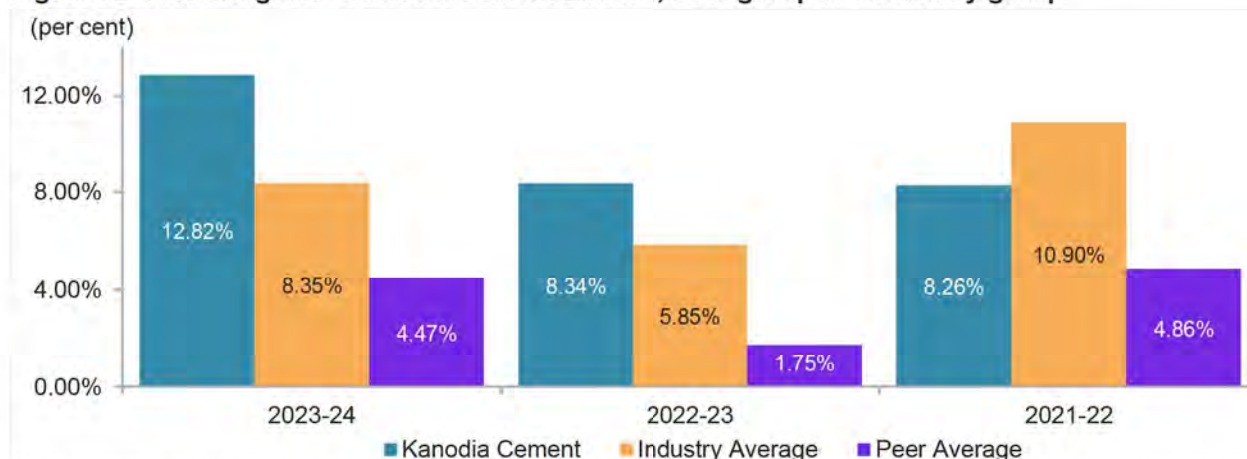
Note:

- Above data is on consolidated basis for Kanodia Cement Limited, Industry and Peer group; Industry average and peer average has been defined in the notes at the end of this section
 - Above EBITDA margin is operating profit margin before Depreciation, interest and taxes, excluding other income
- Source: Kanodia Cement Limited, Company Annual report and publications

Despite being a relatively smaller player in terms of installed capacity, Kanodia Cement Limited has achieved a consolidated operating EBITDA margin of 17.21% in fiscal 2024. The company sales are predominantly on ex-factory basis, which does not include the outward freight component.

Profit After Tax (PAT) margin (%)

Figure 72- PAT margin for Kanodia Cement Limited, Peer group and Industry group



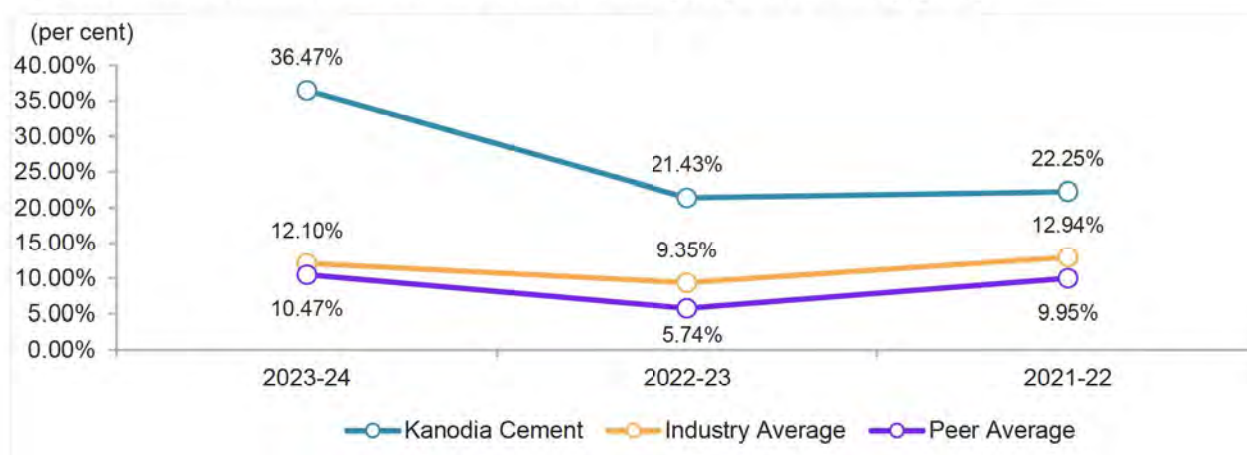
Note: Above data is on consolidated basis for Kanodia Cement Limited, Industry and Peer group; Industry average and peer average has been defined in the notes at the end of this section

Source: Kanodia Cement Limited, Company Annual report and publications

Kanodia Cement Limited is amongst the handful net debt free companies in the cement industry and has a lower capex intensity, leading to significantly better PAT margins as compared to industry and peer group. Further, KCPL (Eastern UP entity) is currently benefiting from lower tax (under the Section 115BAB under the Income Tax Act. This section provides certain tax advantages for newly set-up manufacturing companies).

Return On Capital Employed (ROCE) (%)

Figure 73- ROCE for Kanodia Cement Limited, Peer group and Industry group

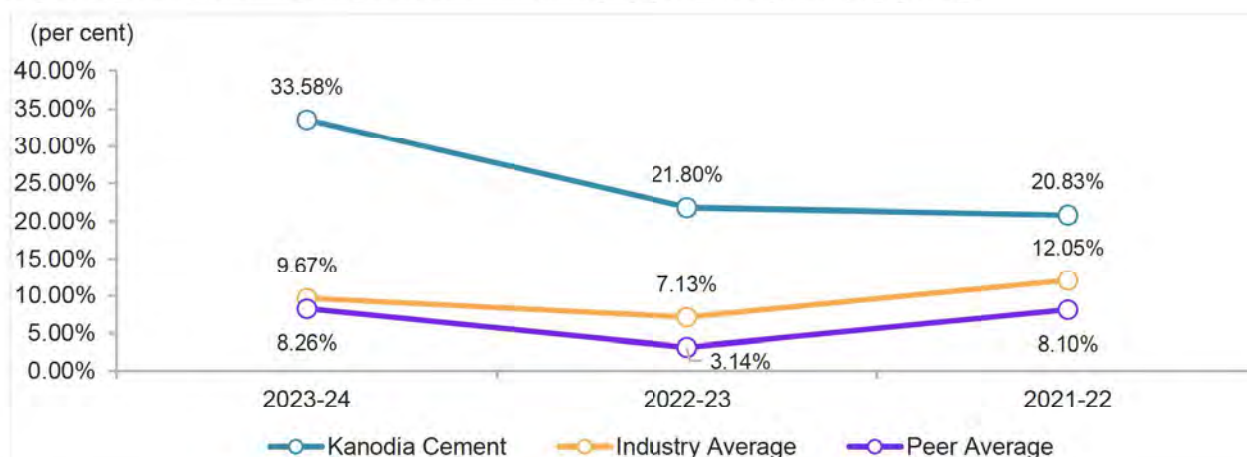


Note: Above data is on consolidated basis for Kanodia Cement Limited, Industry and Peer group; Industry average and peer average has been defined in the notes at the end of this section

Source: Kanodia Cement Limited, Company Annual report and publications

Return On Equity (ROE) (%)

Figure 74- ROE for Kanodia Cement Limited, Peer group and Industry group



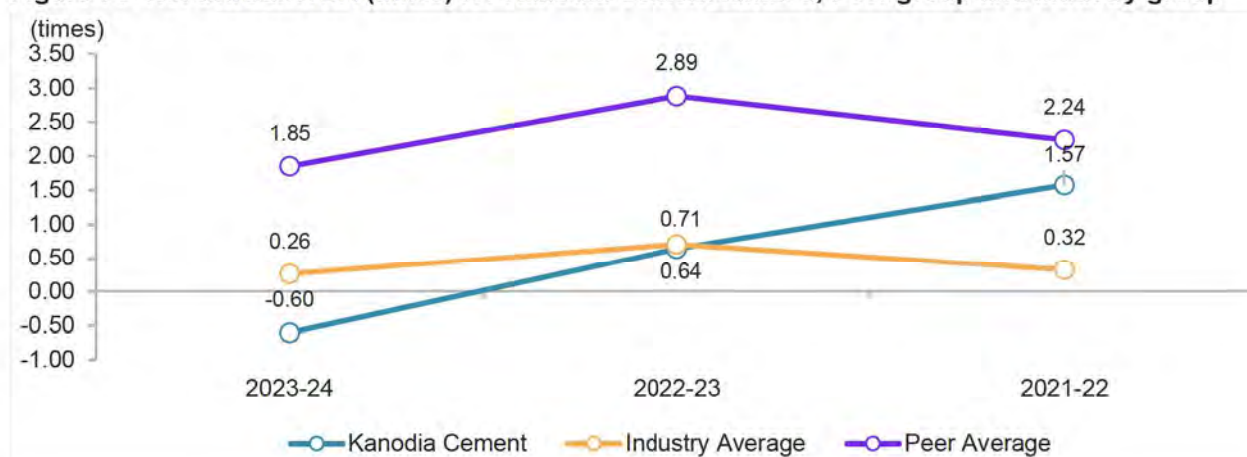
Note: Above data is on consolidated basis for Kanodia Cement Limited, Industry and Peer group; Industry average and peer average has been defined in the notes at the end of this section

Source: Kanodia Cement Limited, Company Annual report and publications

Kanodia Cement Limited has higher return ratios (ROE & ROCE) as the company incurs capex only on SGUs while other players have both Integrated Units & SGUs. The company also has competitive advantages in capex cost. Thus, with healthy net income, lower capex and net-debt free status, return ratios of the company are relatively higher than industry and peer group.

Net debt/EBITDA (times)

Figure 75- Net debt/EBITDA (times) for Kanodia Cement Limited, Peer group and Industry group



Note:

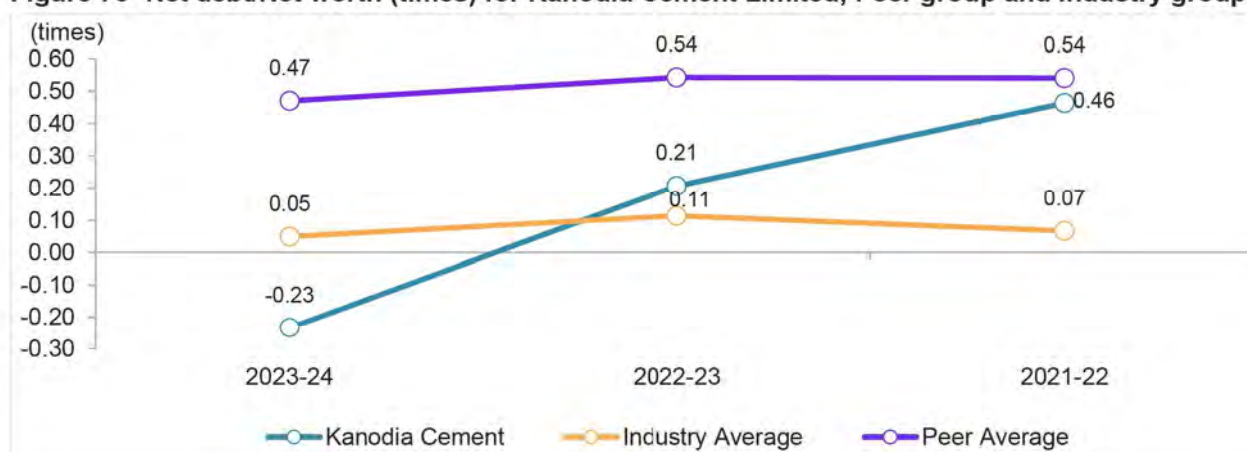
- Above data is on consolidated basis for Kanodia Cement Limited, Industry and Peer group; Industry average and peer average has been defined in the notes at the end of this section
- Net debt for Industry and Peer group is calculated as: Long term borrowings + Short term borrowings – (cash and cash equivalents, bank balances, current investments and other non-current financial assets (bank deposits with remaining maturity of more than twelve months)
- Net debt for Kanodia Cement is calculated as: Long term borrowings + Short term borrowings – (cash and cash equivalents, bank balances, current investments and other non-current financial assets (bank deposits with remaining maturity of more than twelve months).

Source: Kanodia Cement Limited, Company Annual report and publications

Kanodia Cement Limited has negative Net debt/EBITDA ratio, being one of the few net-debt free companies in the cement industry as it has lower capital expenditure requirements for setting up satellite grinding units along with positive operating cash inflow as of March 31, 2024, the company is completely Net debt free with significant treasury reserves.

Net debt/Net worth (times)

Figure 76- Net debt/Net worth (times) for Kanodia Cement Limited, Peer group and Industry group



Note:

- Above data is on consolidated basis for Kanodia Cement Limited, Industry and Peer group; Industry average and peer average has been defined in the notes at the end of this section
- Net debt for Industry and Peer group is calculated as: Long term borrowings + Short term borrowings – (cash and cash equivalents, bank balances, current investments and other non-current financial assets (bank deposits with remaining maturity of more than twelve months)
- Net debt for Kanodia Cement Limited is calculated as: Long term borrowings + Short term borrowings – (cash and cash equivalents, bank balances, current investments and other non-current financial assets (bank deposits with remaining maturity of more than twelve months).

Source: Kanodia Cement Limited, Company Annual report and publications

Notes for player profiles and comparative benchmarking section:

1. All financials have been taken as reported by companies in their annual report.
2. Financial data for FY24 is as per financial statements of Annual reports. Otherwise, financial data taken as per quarterly results.
3. Operating income includes net sales and other related income like subsidy income, trading income, etc.
4. Cement realisation is calculated based on revenue from sale of products divide by sales volume.
5. CAGR calculation for FY22-24 is calculated on base year of fiscal 2022

Table 43- Formulas used for calculations:

Key parameter/Ratio	Formula
Net Debt	Net debt for Industry and Peer group is calculated as: Long term borrowings + Short term borrowings – (cash and cash equivalents, bank balances, current investments and other non-current financial assets (bank deposits with remaining maturity of more than twelve months)) Net debt for Kanodia Cement Limited is calculated as: Long term borrowings + Short term borrowings – (cash and cash equivalents, bank balances, current investments and other non-current financial assets (bank deposits with remaining maturity of more than twelve months))
Return on Equity (RoE)	PAT / Average of Net worth. Treasury adjustments are not being made to net worth. Net worth = Share Capital + Reserves & Surplus.
Return on Capital Employed (RoCE)	(Profit Before Tax + Interest & Finance charges – Interest Capitalised)/Average capital employed. Average capital employed is calculated by averaging the opening and closing balance of capital employed. Capital employed = Tangible Net worth + Total debt + Deferred Tax Liabilities
Realisation per tonne	Revenue from sale of products divide by sales volume.

Company set for Peer group: 6 companies accounting for 14-16% of Pan-India capacity as of fiscal 2024. Consolidated financials are considered for the companies in this set.

Since comparable companies having only satellite grinding units are not available, following companies having operations in similar geographies are considered, although having both clinker and grinding units.

Nuvoco Vistas Corporation Limited, JK Cement Limited, Prism Johnson Limited, JK Lakshmi Cement Limited, Birla Corporation Limited, Heidelberg Cement India Limited

Company set for Industry Average: 18 companies accounting for 75-80% of Pan-India cement manufacturing capacity, irrespective of backward integration, as of fiscal 2024

Ambuja Cements Limited-(Consolidated), Birla Corporation Limited -(Consolidated), Dalmia Bharat Limited-(Consolidated), Deccan Cements Limited, Heidelberg Cement India Limited, India Cements Limited -(Consolidated), JK Cement Limited -(Consolidated), JK Lakshmi Cement Limited-(Consolidated), Orient Cement Limited, Prism Johnson Limited-(Consolidated), Sagar Cements Limited -(Consolidated), Saurashtra Cement Limited. -(Consolidated), Shree Cement Limited-(Consolidated), Shree Digvijay Cement Co. Limited. -(Consolidated), Star Cement Limited-(Consolidated), The Ramco Cements Limited-(Consolidated), UltraTech Cement Limited -(Consolidated), Nuvoco Vistas Corporation Limited– (Consolidated)

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