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Executive summary



The global cement market is around USD 506 billion in 2024 and projected to reach ~USD 686 billion by 2032 at ~3.9% CAGR, with Asia Pacific contributing the majority of demand; decarbonization is the defining strategic theme as cement accounts for a material share of global CO₂, pushing CCUS, SCMs, and green products to the forefront.

- Industry structure globally is consolidated among large multinationals, while competitiveness is increasingly tied to low-carbon innovation, logistics intensity, and digital manufacturing, with growth skewed to emerging markets.
- India is the world's second-largest producer with ~8% of global installed capacity and strong limestone availability; the sector is predominantly private and semi-consolidated, offering scale, investability, and an expanding logistics footprint.
- India's installed capacity is ~600 MTPA with FY24 production of ~391 MT (~65% utilization); volumes remained resilient through election-related pauses, and medium-term demand is expected to outgrow global averages on the back of infrastructure and housing cycles.
- Near term, India demand is guided to ~445–450 MT in FY25 and ~475–480 MT in FY26, with utilization trending into the high-60s/low-70s as capacity is absorbed; over cycles, cement demand historically tracks GDP at ~1.1–1.2x, underscoring macro leverage.
- The value chain's energy intensity peaks in clinkering, making power & fuel and freight the two dominant cost levers; margin resilience hinges on WHRS, alternative fuels, renewables, optimized rail/port linkages, and grinding units near demand centres.
- Regional imbalances persist (e.g., South surplus vs East deficit), driving inter-regional trade, price dispersion, and the need for network reconfiguration; ongoing consolidation by national champions is designed to lift utilization and pricing discipline.

- Policy and sustainability tailwinds—public procurement nudges, BIS standards for blended cements, fly-ash utilization mandates, and R&D support—are accelerating green mix adoption and can open preferential demand channels while reducing clinker factor and emissions.
- Risk factors include input cost spikes (coal/pet coke, freight), pricing pressure amid capacity additions, and tightening environmental norms that raise capex/opex; execution of public capex and housing programs is the key catalyst for sustained volume growth.
- Bottom line: India is positioned to be a global demand driver with multi-year volume growth, while long-run returns will increasingly depend on decarbonization execution, logistics excellence, and disciplined capacity addition to navigate cost volatility and regulatory tightening.

Value Chain

Overview

- The value chain runs from limestone quarrying to final cement dispatch, with energy- and technology-intensive steps concentrated in the pyro-processing (clinker) stage. Uniformity of raw mix is ensured via pre-blending and homogenization to stabilize quality before high-temperature clinkering.

- Quarrying**

Limestone is extracted, raised, and transported to the plant as the core calcium source for clinker; this initiates the upstream mining link of the chain.

- Crushing**

Run-of-mine limestone is crushed to reduce size by breaking along natural planes of weakness, preparing feed for blending and grinding.

- Pre-blending and corrective mix**

Because limestone chemistry varies by location, different lots are layered and mixed to achieve uniform composition, avoiding quality fluctuations in finished cement.

Corrective materials such as iron ore and clay are added to reach the targeted raw mix chemistry before milling.

- Raw grinding and meal handling**

Raw materials are ground through coarse and fine grinding to increase surface area and reaction efficiency, producing “raw meal.”

The ground meal is conveyed to storage and homogenization silos to even out compositional variance prior to the kiln.

- Homogenization**

Blended raw meal is homogenized to maintain consistent kiln feed chemistry, supporting stable kiln operation and clinker quality.

- Clinker production (pyro-processing)**

Cement-to-clinker ratio for various types of cement

Type of cement	Minimum clinker requirement	Cement-to-clinker ratio
OPC	95%	1.05
PPC	60%	1.67
PSC	25%	4.00
Composite	35%	2.86

Source: CRISIL MI&A Research

Note: Proportion of clinker is for the best-case scenario. For example, OPC cement must contain at least 95% clinker as per BIS norms

Kiln system steps include drying, preheating, calcining, sintering (~over 1400°C), and cooling to form clinker, the fundamental intermediate for cement.

This stage is the most energy-intensive, making it central to cost, fuel strategy, and decarbonization initiatives.

- **Cement grinding**

Cooled clinker is ground with ~5% gypsum to control setting time and prevent flash setting, yielding Ordinary Portland Cement (OPC).

Supplementary cementitious materials (SCMs) like fly ash and slag are proportionately blended/grinded to produce PPC, PSC, and composite cements with lower clinker factor.

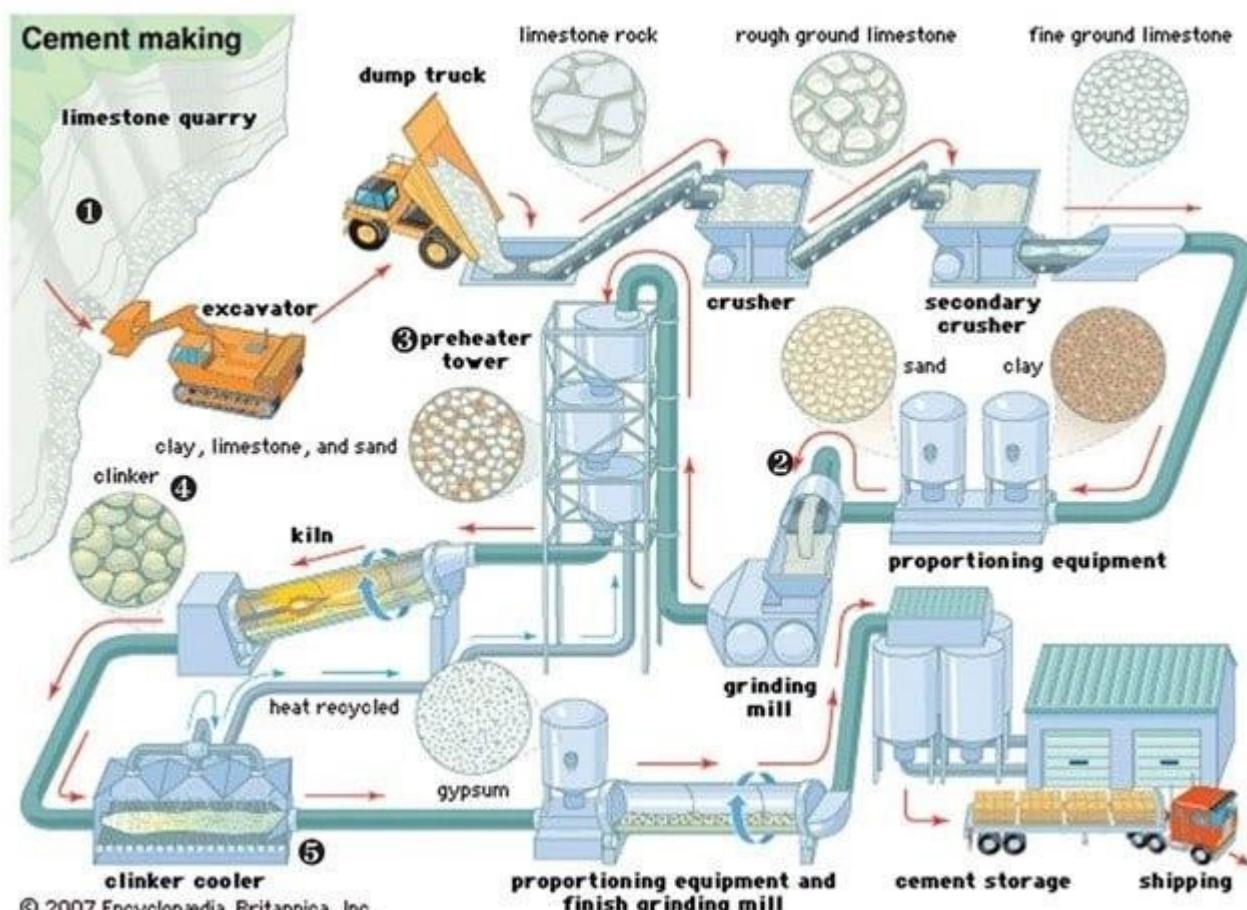
- **Storage, packing, and dispatch**

Finished cement is stored in silos, then packed and dispatched via road, rail, or sea, with mode selection affecting cost-to-serve and market reach.

- **Notes on economics and quality control**

Pre-blending and homogenization are critical to consistent kiln feed, reducing kiln instability and quality variability downstream.

Logistics and dispatch are integral to competitiveness due to cement's low value-to-weight, making location and mode optimization essential



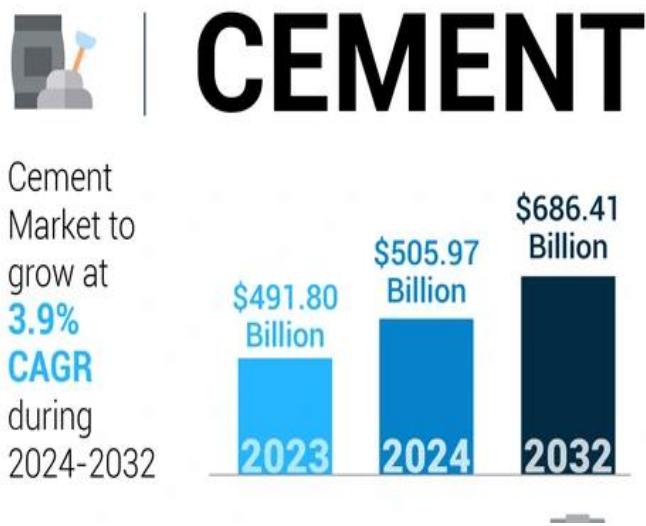
Global vs India Cement Industry

Global Cement Industry Snapshot

The global cement market size was valued at USD 491.80 billion in 2023. The market is projected to grow from USD 505.97 billion in 2024 to USD 686.41 billion by 2032, exhibiting a CAGR of 3.9% during the forecast period. Asia Pacific dominated the cement market with a market share of 62.54% in 2023. Moreover, the cement market size in the U.S. is projected to grow significantly, reaching an estimated value of USD 17.71 billion by 2032, driven by adoption of modern and advanced practices by the construction industry including precast concrete and 3D concrete printing will further boost cement consumption.

The sector is consolidated, dominated by **Holcim, HeidelbergCement, CRH, CEMEX, and InterCement**, and remains vital for housing and infrastructure. However, it contributes **~8% of global CO₂ emissions**, making decarbonization a central challenge.

Recovery from COVID-19 has been strong, supported by government infrastructure spending. Looking ahead, growth will center on **emerging markets**, while competitiveness will hinge on **green cement, alternative binders, and carbon capture technologies**.



India Cement Industry Snapshot

India is the second-largest cement producer in the world and accounts for over 8% of the global installed capacity. Of the total capacity, 98% lies with the private sector and the rest with the public sector. The top 20 companies account for around 70% of the total cement production in India. As India has a high quantity and quality of limestone deposits throughout the country, the cement industry promises huge potential for growth. In December 2024, cement volumes touched 37.2 million metric tonnes, marking a 4% rise compared to last year. In FY25(April to December), total volumes reached 319 million tonnes, up 3% year-on-year.

Massive Scale and Production

Global Rank: India produces ~320 million tonnes annually (8% of global output), trailing only China (50%). Installed capacity stands at 600 MTPA, with FY24 production at 391 MTPA (65% utilization).

Resilience Amid Challenges: Despite a Q1 FY25 slowdown (2-3% growth) due to election-related construction pauses, the industry anticipates 6-7% volume growth for FY25, outpacing global stagnation (0% CAGR).

Soaring Demand and Growth

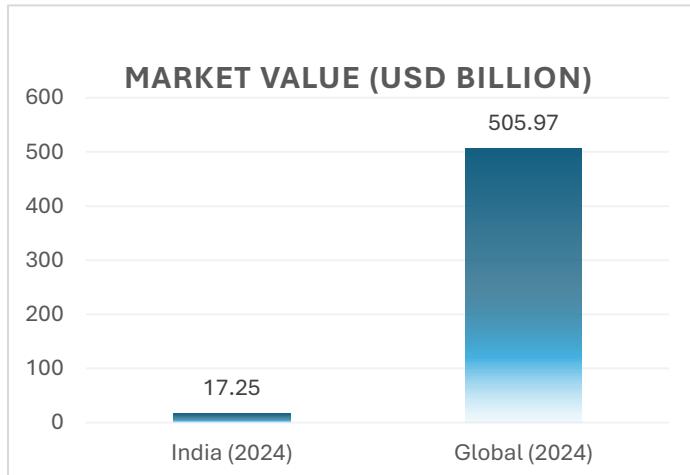
Projections: Demand is set to reach 445-450 million tonnes in FY25 (4-5% growth), 475-480 million tonnes in FY26 (6-7%), and 450.78 million tonnes by FY27, driven by India's USD 1.4 trillion infrastructure push (e.g., PMAY, Bharatmala).

Real Estate Synergy: India's real estate market, valued at Rs. 24 lakh crore (US\$ 300 billion) in FY24, is projected to hit Rs. 112 lakh crore (US\$ 1.3 trillion) by FY34 and Rs. 449 lakh crore (US\$ 5.17 trillion) by 2047, cementing India's role as a global demand driver.

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Metric	India (2024)	Global (2024)	Comparison Notes
Market Value (USD Billion)	17.25	505.97	India represents ~3-4% of global value, despite higher production share due to lower domestic prices.



Contribution to GDP

The cement industry supports economic growth through infrastructure and construction, but its direct GDP contribution is modest compared to broader sectors like manufacturing or services. Cement demand has a strong correlation with GDP growth. Long term average cement demand growth in India has been at 1.1-1.2x of GDP growth over last 30 years. The cement to GDP growth rate varies depending upon industry specific issues such as demand, supply and pricing power. Over last four years, despite Covid-19 disruption.

India Contribution: Directly contributes 1.20% to India's GDP, supporting over 1 million jobs. Indirectly, it boosts growth via government capex (e.g., ₹11.11 lakh crore or 3.4% of GDP in 2024-25 for infrastructure)

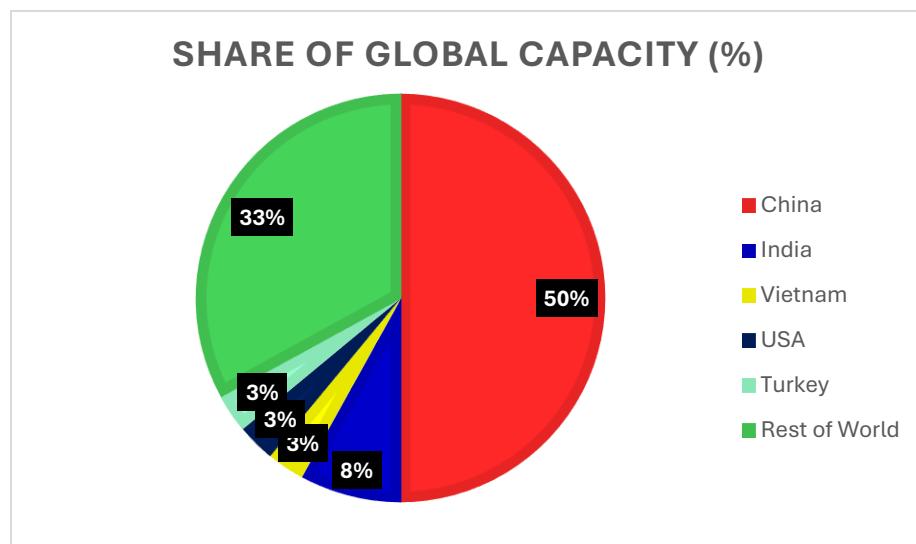
Metric	India (% of GDP)	Global (Estimate %)
Direct GDP Contribution	1.2	0.5-1

Production Shares (Top Countries & Companies)

The global cement industry exhibits a high degree of concentration at the national level, with China dominating production capacity. The Indian market is semi-consolidated, with a few large players controlling a majority of the market share.

Global Production Landscape: China's massive industrialization has made it the undisputed leader, accounting for approximately half of the world's cement capacity. This scale gives it significant influence over global technology trends and equipment manufacturing. Following China, India holds a firm second position with about 8% of global capacity. Other significant producers include Vietnam, the USA, Turkey, and Indonesia, each playing a crucial role in their respective regional markets.

Country / Region	Share of Global Capacity (%)
China	50%
India	8 %
Vietnam	3%
USA	3%
Turkey	3%
Rest of World	33%



Overview of Indian Cement Industry



The Indian cement industry is the **second-largest in the world**, with an installed capacity of over **600 million tonnes per annum (MTPA)** as of 2025. It plays a pivotal role in the country's economic development, being closely linked to infrastructure, housing, and industrial growth. The sector accounts for nearly **8% of global cement production** and is a key contributor to India's GDP and employment.

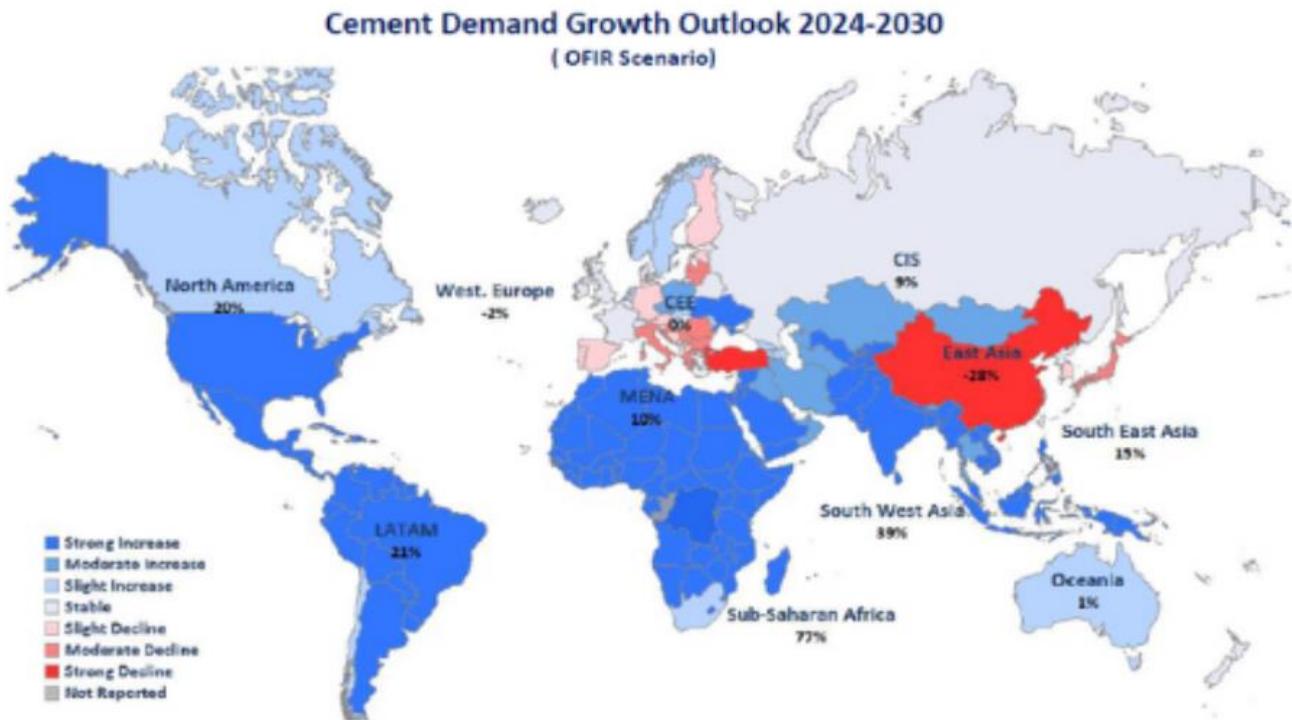
Demand Drivers: The industry is heavily driven by government spending on infrastructure (roads, railways, ports, smart cities), rising urbanization, and robust housing demand. The government's initiatives such as *Pradhan Mantri Awas Yojana*, *Bharatmala*, and *Smart City Mission* provide a strong long-term growth runway.

Industry Structure: The sector is **highly consolidated**, with large players like **UltraTech Cement**, **Shree Cement**, **Ambuja Cements**, and **ACC** commanding a significant share. While scale offers pricing power and efficiency, the industry remains regionally fragmented due to high logistics costs.

Challenges: The industry faces pressure from **volatile fuel prices**, high energy intensity, and **environmental regulations** due to its carbon footprint. Overcapacity in certain regions also leads to pricing pressure.

Outlook: With India targeting to become a **\$5 trillion economy** and focusing on infrastructure-led growth, cement demand is expected to grow at **6–7% CAGR** in the medium term. Transition toward **green and blended cements** is set to reshape the industry, aligning with global sustainability goals.

Cement Consumption



NB: Details of % by countries are available for our subscribers



Global backdrop: Consumption growth is uneven. India and parts of MEA are in expansion, while several mature regions are flat or declining. This divergence strengthens India's medium-term demand visibility.

India trend: Consumption is on a multi-year uptrend, anchored by housing (urban apartments + rural/self-construction) and public infrastructure (roads, rail/metro, bridges, water, urban renewal). Temporary slowdowns around monsoon or elections typically normalize as execution restarts.

Run-rate and cadence: Near-term growth generally falls in the mid- to high-single digits. Seasonality (Jun–Sep softness) and policy/event timing can shift monthly prints, but the quarterly/annual trajectory remains upward.

GDP linkage: Over cycles, cement consumption tends to grow slightly faster than GDP because of urbanization, household formation, infrastructure catch-up, and industrial/logistics corridors.

Per-capita runway: India's per-capita cement use remains below mature markets, leaving substantial headroom as affordable housing, Tier-2/3 city expansion, and warehousing/industrial parks scale up.

End-use mix:

- Housing: Largest share; steady base from affordable and mid-income projects plus self-construction.
- Infrastructure: Second pillar; highways, metro/rail, airports, ports, and water projects keep demand resilient across cycles.
- Industrial/commercial: Warehouses, factories, and offices add a cyclical layer tied to private capex and credit conditions.

Price and elasticity: Elevated prices after the post-pandemic cost spike can defer smaller, price-sensitive projects in the short run. However, large public works and ongoing residential needs usually sustain overall volumes.

Regional flows: Consumption is concentrated near growth corridors, but capacity is not. Surplus states ship to deficit states; improving rail/coastal links and new grinding units near cities reduce landed cost and smooth local availability.

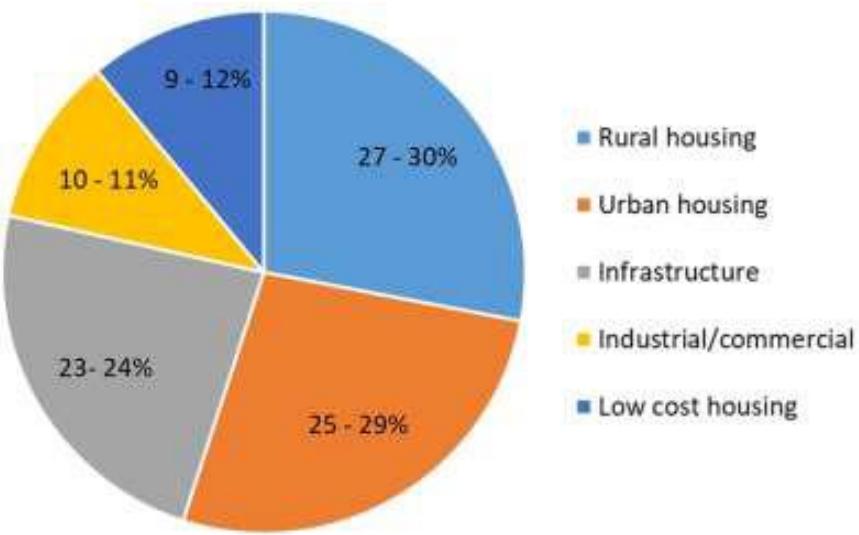
Product mix shift: Blended cements (PPC/PSC/composite) and calcined-clay blends are gaining share, lowering clinker factor while meeting performance needs. This enables the same end-use consumption to be served with lower carbon intensity and often better cost stability.

Trade as a safety valve: If domestic supply tightens, imports can backfill to keep projects running; if demand softens locally, exports help maintain plant utilization. This flexibility reduces the risk of sharp consumption disruptions.

What the global map adds: It visually shows that India sits inside the strongest global demand pocket through 2030. Use it to preface the section: “India’s consumption momentum is part of a wider regional upswing, even as some large markets remain flat.”

Bottom line: India’s cement consumption is set to grow steadily, with occasional seasonal/policy pauses, supported by housing and infrastructure, enabled by better logistics and a rapid shift to lower-clinker products. This combination underpins a durable multi-year demand profile.

Demand Drivers



Demand outlook

- Industry demand is tracking toward 550–600 MTPA around 2025, supported by housing, commercial builds, and industrial projects.
- Growth is broad-based, with steady public spending and private real estate/industrial activity providing the backbone.

Housing and real estate

Government push for affordable housing and urban expansion keeps residential construction active across Tier 1–3 cities and rural areas.

The real estate market's long runway (rising household formation, improving finance access) supports sustained cement offtake.

Public infrastructure

Higher budgeted spend on roads, highways, and transport boosts multi-year demand visibility.

Multimodal connectivity plans (e.g., integrated transport corridors) and city programs (smart cities, urban upgrades) lift cement needs across regions.

Regional demand (FY24 context)

Demand was strongest where large infra and housing pipelines are under execution; corridors with metro/rail, highways, airports, and water projects saw faster offtake.

States clearing investment proposals and industrial parks recorded incremental regional demand.

Industrial development

Stronger economic activity drives factories, warehouses, and data centers, adding to core demand from housing/infra.

New investments by large cement players and manufacturers signal capacity creation, local employment, and downstream construction activity—reinforcing regional cement pull.

Sustainability and product shifts

Green/low-clinker cements (PPC/PSC/composite and emerging calcined-clay blends) are gaining acceptance, helping projects meet cost and carbon goals without sacrificing performance.

Evolution of Cement Industry



Early Global Developments

The cement industry is one of the world's largest and most important basic industries, second only to steel in construction materials. Its role in infrastructure, housing, and industrial development makes it a backbone of modern economies.

The foundations of modern cement were laid by **John Smeaton** in the 18th century, who pioneered the use of *hydraulic lime* while working on harbors and bridges.

Later, in **1824**, **Joseph Aspdin** patented *Portland Cement* in England, marking the beginning of modern cement.

By the late 19th century, cement production spread globally, with major advances in Europe and North America.

Introduction of Cement in India

India entered the *cement era* in **1914**, when **Indian Cement Company Ltd.** began manufacturing cement at Porbandar, Gujarat.

Even earlier, in **1904**, a small unit was set up in Madras by **South India Industrial Ltd.**

Initially, only *artificial Portland cement* (as per British standards) was produced. The company marketed in Mumbai, Karachi, and Madras and soon became successful.

Imported cement from England was costly, but rising domestic demand, availability of raw materials, cheap labor, and government support helped the industry expand.

Key Early Units Established

1915: Katni, Madhya Pradesh

1916: Lakeri, Rajasthan

During **World War I**, production from Indian plants was controlled by the British government. After the war, six more units were launched.

By **1924**, India's production reached **2,67,000 tons**, but price wars and high imports led to closures of several indigenous units. This forced stakeholders to seek tariff protection, although early British measures were limited.

Institutional Growth and Pre-Independence Developments

1925: Formation of the **Cement Manufacturers Association**.

1927: Establishment of the **Concrete Association of India**.

1930: Launch of the **Cement Marketing Company of India**, introducing a quota system.

1936: Formation of the **Associated Cement Companies (ACC)**, a landmark event uniting major producers.

By 1947, India had **24 factories**, of which **19 remained with India** after partition, producing **2.1 million tons** annually. Partition caused demand-supply disruptions, with Pakistan facing surplus supply issues while India faced demand shortages.

Post-Independence Expansion

After Independence, cement was recognized as a critical industry for nation-building.

1948: The government introduced the **Cement Expansion Scheme**, encouraging new factories in Bagalkot, Jaipur, Orissa, Travancore, etc.

By **1951**, India had **22 units** with installed capacity of **3.3 million tons**.

Cement was declared an **essential commodity**, bringing pricing and distribution under strict government control.

In successive **Five-Year Plans**, capacity expansion was a top priority. By the end of the First Plan, capacity rose to **5.4 million tons**.

Government Decontrol and Liberalization

The industry operated under tight government control for decades. However, policy changes transformed its structure:

Partial decontrol in 1982: Cement manufacturers could sell part of their output in the open market at market prices.

Complete decontrol in 1989: Cement prices were fully deregulated, marking the liberalization era.

These steps boosted private investment, improved competition, and led to rapid modernization of plants.

Modern Era and Global Position

Post-liberalization, large companies like **Ultratech, Ambuja, Shree Cement, and ACC** expanded aggressively, supported by advanced technology and foreign collaborations.

Environmental and sustainability initiatives emerged, such as blending cement with fly ash and slag, waste heat recovery, and alternative fuels.

India is now the **second-largest producer of cement in the world after China**, with an annual production exceeding **350 million tons** and contributing around **8% of global capacity**.



Demand & Supply Analysis

Cement demand and supply (Pan-India)

Big picture: India's cement demand is on a steady uptrend, led by housing and public infrastructure (roads, rail/metro, bridges, water, urban upgrades).

Short dips around monsoon or elections are temporary and bounce back as projects resume.

Growth rhythm: Near-term demand typically grows in the mid- to high-single digits. As fresh capacity gets absorbed, industry utilization is expected to move into the high-60s to low-70s range.

Regional reality:

South has the highest capacity and often runs surplus, sending cement to other regions.

East has a much smaller capacity base and frequently runs deficit, drawing inflows from neighbouring regions.

West/North/Central are mixed, with local surpluses or shortfalls depending on project timing and clinker linkages.

Price and margin pulse: Prices can be choppy when competition rises or capacity ramps up. Costs for power, fuel, and freight are the biggest margin levers, so companies focus on waste-heat recovery, alternative fuels, renewables, and smarter logistics to protect profitability.

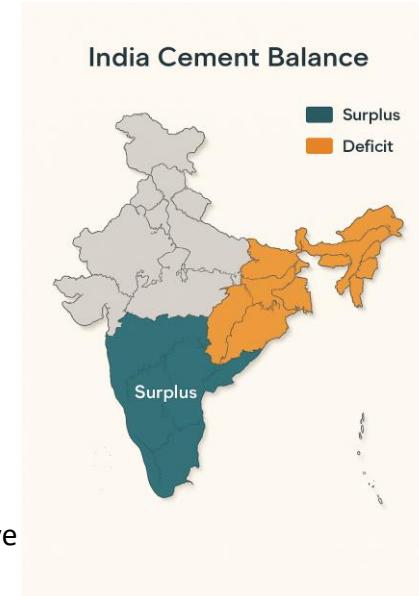
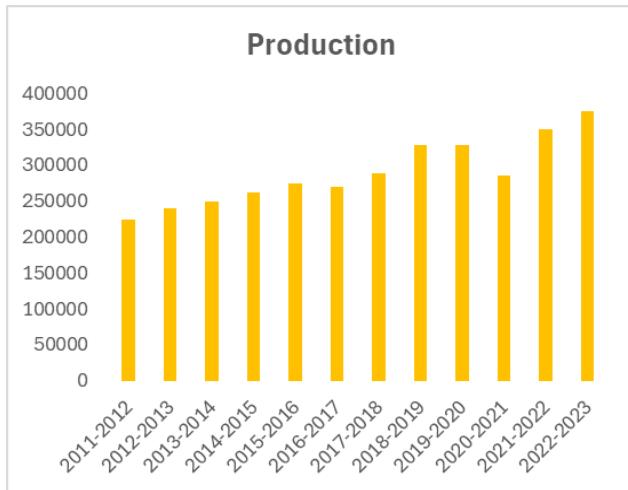


Table 2: Production and Consumption of Cement in India ('000 million tonnes)

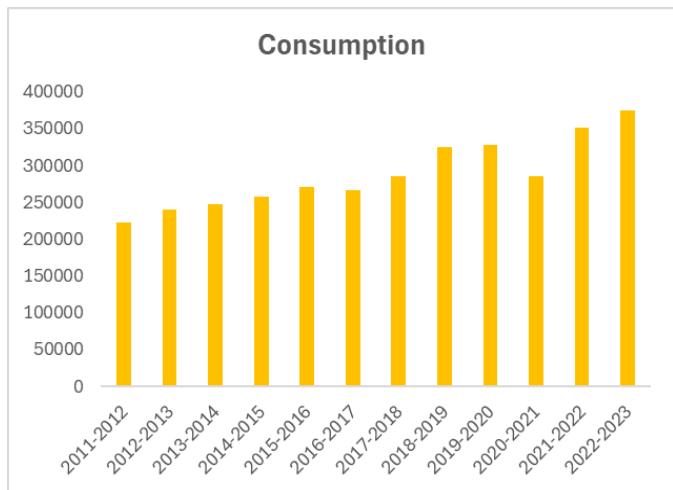
Year	Production	Consumption
2011-12	223,500.00	222,378.70
2012-13	240,614.00	240,387.60
2013-14	249,826.00	247,480.30
2014-15	261,338.00	257,412.60
2015-16	273,857.00	271,243.50
2016-17	270,375.00	266,823.50
2017-18	287,964.00	284,721.20
2018-19	327,722.00	324,927.90
2019-20	327,266.00	327,928.90
2020-21	284,913.00	285,308.90
2021-22	350,595.00	351,071.90
2022-23	374,558.50	375,190.70

Source: CMIE, Infomerics Economic Research

Cement Production in India (Million Tones)



Cement Consumption in India (Million Tones)



What leaders are doing:

Debottlenecking and adding grinding units close to demand centres to lower delivered cost.

Expanding national footprints to reduce regional dependence and smooth pricing.

Increasing green energy usage to cut fuel volatility and emissions.

Capacity pipeline: Large groups are targeting multi-year capacity additions (through both organic and M&A routes) to capture demand, strengthen logistics, and improve cost positions.

Product mix shift: Blended/composite cements (fly ash, slag) and calcined-clay blends are gaining share, reducing clinker factor while meeting performance needs. This helps serve the same demand with lower carbon intensity and often more stable costs.

Trade and transport: Rail/coastal shipping move volumes from surplus to deficit regions. If needed, imports backfill tight spots and exports support utilization during soft patches, keeping supply aligned with live project demand.

Watch-list items: Pace of government capex execution, rural and affordable housing traction, monsoon impact on sitework, energy and freight trends, and the ramp-up/absorption of newly commissioned capacity.

Cost Break-Up

Power intensity

Cement is highly power- and heat-intensive. The pyro stage (preheating, calcination, sintering, cooling) drives most of the energy need, so power/fuel cost swings directly hit margins.

Plants reduce this burden through waste-heat recovery systems, alternative fuels (AF/RDF/biomass), and higher kiln efficiency; even small gains in thermal and electrical kWh/ton materially lower unit costs.

Raw materials (limestone-led)

Limestone is the dominant raw material and the biggest driver of the raw mix cost; quality and quarry proximity matter for both chemistry and landed cost.

Secure, long-life mining leases and efficient blasting/crushing reduce cost per ton; consistent raw mix also improves kiln stability, cutting rework and energy waste.

Freight and logistics

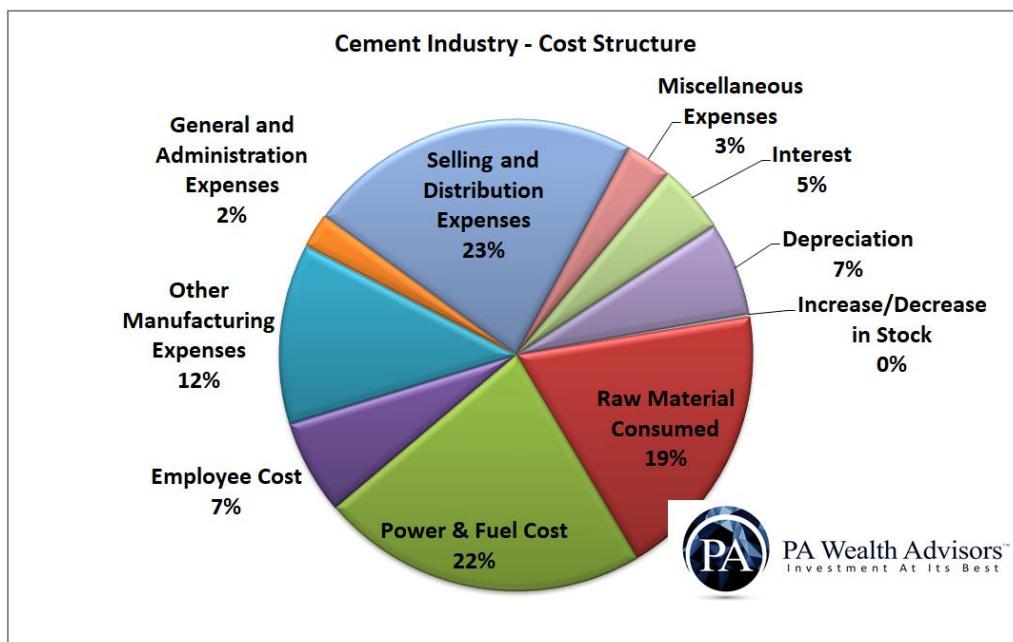
Cement has low value per ton but high volume, so moving it long distances is expensive and erodes realization.

Network design focuses on proximity grinding near demand centres, rail/coastal shipping for trunk movement, and optimized last-mile road dispatch to lower the cost-to-serve.

What this means for strategy

Winning cost structure = efficient energy + secure limestone + smart logistics.

Investment priorities: WHRS/renewables and AF for energy, mine planning for limestone, and multimodal logistics with grinding units close to consumption hubs.



Power & Fuel

The cement industry is power-intensive, with power and fuel cost accounting for 30-32% of the total cost of sales of cement players. Coal is used to fire the kiln as well as to generate power for grinding the clinker.

Raw material

Raw material cost accounted for 18-20% of the cost of sales of cement players for the first three quarters of fiscal 2024. Limestone constitutes a major share of this cost.

Freight

As cement is a low-value, high-volume commodity, freight costs constitute a significant proportion at 25- 27% of the total cost of sales. 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.

Other costs

Other costs include employee cost, packaging cost, administration expenses, and repair and maintenance charges. These account for 23-25% of the cost of sales. Other expenses have increased over the past 3-4 years, led by rising marketing expenses amid stiff competition.

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 MI&A Research, industry

Annual profitability trend (Cost & margin as % of revenue)

	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25F
Raw material cost	12.77%	13.62%	13.67%	14.46%	16.40%	17.78%
Power & Fuel cost	19.89%	18.23%	23.54%	29.66%	24.89%	22.61%
Freight cost	22.42%	22.20%	22.61%	22.23%	22.15%	22.31%
Other Cost	23.35%	20.99%	19.79%	19.50%	19.01%	18.45%
Margins	21.6%	25.0%	20.4%	14.2%	17.6%	18-20%

Source: CRISIL MI&A Research, industry

Government Initiatives Supporting Green Cement

1. Public Procurement Policies:

The Indian government is encouraging the use of eco-friendly materials, including green cement, in public infrastructure projects such as roads, government buildings, and public housing under schemes like the Smart Cities Mission and Pradhan Mantri Awas Yojana (PMAY). These policies help create market demand for green cement and promote sustainable construction practices.

2. Tax Incentives and Subsidies

India provides various fiscal incentives to support the production of blended and low-carbon cements. For example, manufacturers using industrial by-products such as fly ash and slag as partial clinker replacements benefit from tax concessions and lower electricity tariffs under the GST regime, promoting cost-effective green cement production.

3. Research and Development Support

The Indian government supports research and development through institutions like the Ministry of New and Renewable Energy (MNRE), the Bureau of Indian Standards (BIS), and the Council of Scientific and Industrial Research (CSIR). Funding is provided to develop low-carbon cement technologies, use of alternative raw materials, and innovations in energy-efficient kiln designs.

4. Standards and Regulatory Frameworks

The Bureau of Indian Standards (BIS) has introduced and regularly updates standards such as IS 1489 and IS 15643, which govern the use of blended cement and sustainable construction practices. This regulatory framework ensures that green cement products meet quality and environmental performance benchmarks.

5. Promotion of Circular Economy Practices

The government encourages the use of industrial by-products (fly ash, slag) in cement manufacturing through mandates in environmental regulations. For instance, under the Fly Ash Utilization Programme, thermal power plants are required to supply fly ash to the cement industry, promoting waste reuse and reducing reliance on clinker.

SWOT & TOWS Analysis

Strengths

- **High demand base** – Cement is a key input for infrastructure, housing, and industrial development.
- **Economies of scale** – Large integrated players achieve cost efficiencies in production and distribution.
- **Strong entry barriers** – High capital intensity, regulatory clearances, and logistics complexity protect incumbents.
- **Backward integration** – Many companies secure limestone, power, and captive logistics, reducing input cost volatility.
- **Established distribution networks** – Dense dealer and retail networks ensure market penetration.

Weaknesses

- **High energy and raw material dependence** – Fuel (coal, petcoke) and power costs form ~30–40% of expenses.
- **Overcapacity in some regions** – Leads to price competition and lower realizations.
- **Low differentiation** – Cement is largely a commodity product, with limited branding edge.
- **Working capital intensity** – Inventory stocking and receivables strain cash flows.
- **Environmental impact** – High CO₂ emissions and regulatory scrutiny increase compliance burden.

Opportunities

- **Government infrastructure push** – Road, housing, and smart city projects drive sustained demand.
- **Urbanization and real estate growth** – Rising middle-class housing demand boosts retail cement consumption.
- **Green cement & sustainability initiatives** – Opportunity to develop blended/eco-friendly products, attract ESG-focused investors.
- **Export potential** – Neighboring developing markets with infrastructure gaps present opportunities.
- **Technological adoption** – AI, automation, and alternative fuels can improve efficiency.

Threats

- **Raw material and fuel price volatility** – Global coal/petcoke price swings impact margins.
- **Intense competition** – Regional oversupply pressures pricing and profitability.
- **Substitute materials** – Rise of steel, glass, and prefabricated technologies in construction.
- **Regulatory tightening** – Carbon tax, emission norms, and mining restrictions.
- **Economic cycles** – Cement demand highly sensitive to GDP growth, interest rates, and construction activity.

TOWS Matrix

SO Strategies (Use Strengths to Exploit Opportunities)

- Leverage strong distribution & scale to capture government infrastructure demand.
- Utilize backward integration to competitively price eco-friendly cement for green projects.
- Build brand strength in retail segment by offering premium “sustainable” cement variants.

WO Strategies (Overcome Weaknesses by Using Opportunities)

- Invest in renewable energy/alternative fuels to reduce cost dependence on coal/power.
- Diversify product portfolio with value-added blended cements to reduce commoditization.
- Use technology (AI-driven logistics, energy efficiency) to cut working capital strain.

ST Strategies (Use Strengths to Minimize Threats)

- Use economies of scale to weather raw material volatility through bulk procurement.
- Expand exports into deficit regions to reduce domestic oversupply risk.
- Deploy strong capital base for R&D in low-carbon cements to pre-empt regulatory risks.

WT Strategies (Minimize Weaknesses & Avoid Threats)

- Rationalize capacity additions to avoid overcapacity in cyclical downturns.
- Hedge energy and raw material costs to reduce margin volatility.
- Form industry consortiums to lobby for favorable carbon-credit policies.

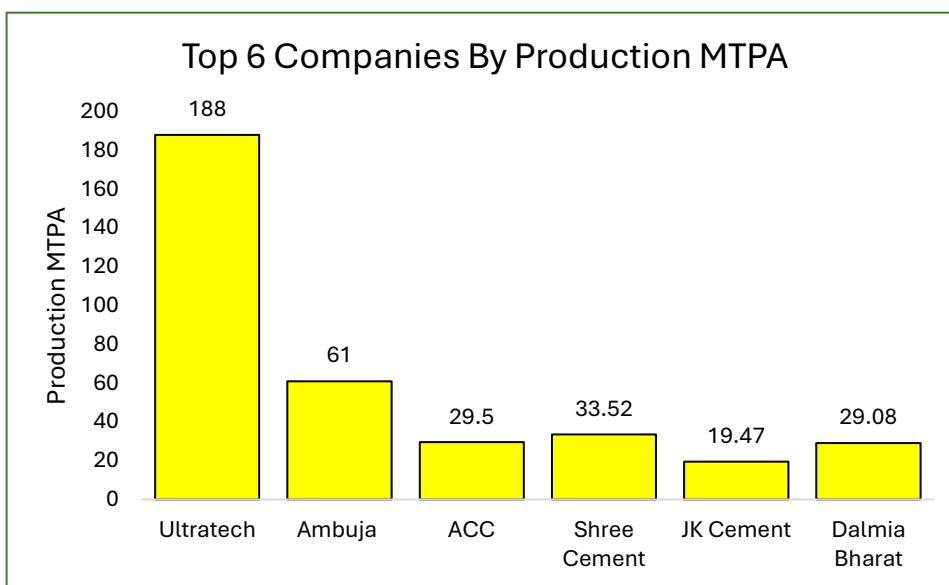
Competitive Landscape & Market Share

India is the second-largest cement producer in the world and accounts for over 8% of the global installed capacity. Of the total capacity, 98% lies with the private sector and the rest with the public sector. The top 20 companies account for around 70% of the total cement production in India. As India has a high quantity and quality of limestone deposits throughout the country, the cement industry promises huge potential for growth.

In December 2024, cement volumes touched 37.2 million metric tons, marking a 4% rise compared to last year. In FY25(April to December), total volumes reached 319 million tons, up 3% year-on-year.

In FY23, the market size of India's cement industry reached 3.96 billion tons and is expected to touch 5.99 billion tons by FY32, exhibiting a CAGR of 4.7% during FY24-FY32. India's cement production reached 374.55 million tons in FY23, a growth rate of 6.83% YoY.

According to ICRA, the cement sector is expected to add approximately 43 to 45 MTPA in FY26, up from 32–35 MTPA in FY25.



The Indian cement industry is projected to grow at a CAGR of 5.1% from 2025 to 2030, driven by expansion in residential, infrastructure, commercial, and industrial sectors.

Indian port traffic for cement in the period of Apr-Nov'24 saw an increase at 4.82 million metric tonnes

The Indian cement industry projects an 8% increase in sales by CY25, fuelled by government infrastructure investments, although it faces challenges such as reduced sales realization in CY24.

The Indian cement sector's capacity is expected to expand at a compound annual growth rate (CAGR) of 4-5% over the four-year period up to the end of FY27. It would thus begin the 2028 financial year at 715-725 MT/year in installed capacity.

In FY25 (April to November), India's cement production reached approximately 282.57 million tonnes, reflecting a 3.1% increase compared to the same period in the previous fiscal year.

India's cement consumption stood at 445 metric million tonnes (MMT) in FY24 and is expected to rise to 670 Metric million tones (MMT) by 2030, driven by robust infrastructure and housing demand.

Cement consumption is expected to reach 450.78 million tonnes by the end of FY27.

At present, the installed capacity of cement in India is 600 MTPA with a production of 391 MTPA.

The Indian cement industry is proceeding with expansion plans and capacity additions, despite dampened demand expected to persist through the first half of FY25. Cement giants foresee a modest 6-7% volume growth this fiscal year, even though the period has begun with a pricing downturn.

The cement sector saw a modest growth of 2-3% in Q1FY25, primarily due to a slowdown in construction during the Lok Sabha elections. However, ICRA projects a 7-8% growth for FY25, driven by strong demand in infrastructure and housing.

According to ICRA, cement demand is expected to stay strong, with volumes likely to grow by 4–5% to around 445-450 million tonnes in FY25, and by 6–7% to 475–480 million tonnes in FY26.

Moody's notes growing cement demand will accelerate consolidation, with top 10 players acquiring 140 MT over five years, worth Rs. 89,000 crore (US\$ 10.4B). UltraTech and Ambuja to continue targeting weaker regional firms.

In CY24, the cement sector in India witnessed a significant increase in mergers and acquisitions, with more than ten deals announced, representing the highest level of activity since CY14. The total value of these transactions surpassed US\$ 3.5 billion, largely fuelled by major players such as UltraTech Cement and Adani-promoted Ambuja Cements, especially within the South Indian market.

FDI inflows in the industry, related to the manufacturing of cement and gypsum products, reached Rs. 51,130 crore (US\$ 5.98 billion) between April 2000-March 2025.

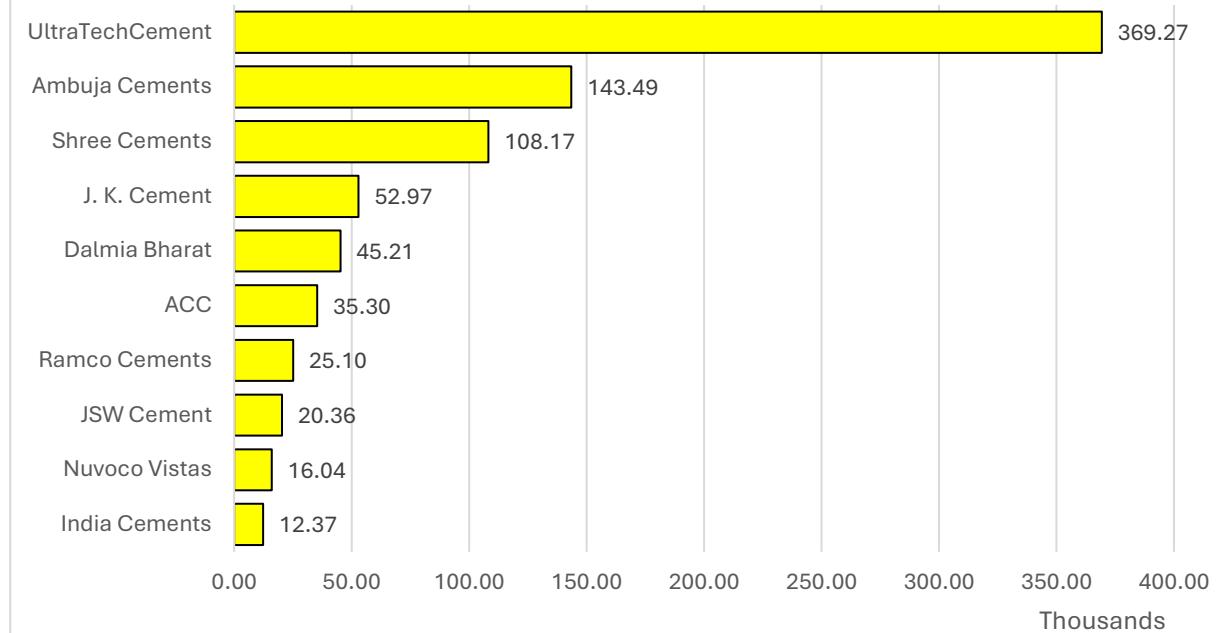
Indian cement makers plan to invest around Rs. 1.25 lakh crore (US\$ 14.63 billion) between FY25 and FY27 to add 130 million tones of grinding capacity about 20% more than current levels.

The National Council for Cement and Building Materials (NCB) has signed two memorandum of understandings (MoUs) to boost sustainability in cement. One with GCCA India promotes joint research on net-zero goals, while the other with AIC-Plasmatech aims to apply Thermal Plasma Torch Technology for cleaner, more efficient production.

According to Confederation of Real Estate Developers' Associations of India (CREDAI), the market size of the real estate sector in India is projected to reach Rs. 112 lakh crore (US\$ 1.3 trillion) by FY34 and Rs. 449 lakh crore (US\$ 5.17 trillion) by 2047. Currently, the Indian real estate market is valued at Rs. 24 lakh crore (US\$ 300 billion).

At a high-level Investor Roundtable organized by Invest UP, UltraTech Cement announced an investment of Rs. 1,981 crore (US\$ 231 million) to expand operations in Aligarh, Shahjahanpur, and Tanda. This reflects the state's investor-friendly policies and commitment to industrial development.

Top 10 Companies By Market Cap



UltraTech Cement has received approval to acquire approximately 8.69% stake in Star Cement for a total consideration of up to Rs. 851 crore (US\$ 98 million). The board of UltraTech has agreed to purchase up to 3.70 crore shares, in addition to other applicable charges.

UltraTech commissioned 17.4 MTPA of new capacity across India in FY25, including its first bulk terminal in Lucknow with a 1.8 MTPA handling capacity.

UltraTech added 269 MW of renewable power in Q4 FY25, taking its total green energy capacity to 1.36 GW, including 342 MW from waste heat recovery. This now meets around 46% of the company's power requirements.

Dalmia Cement is set to establish a new cement plant in Madhya Pradesh with a production capacity of 4 million tonnes, involving an investment of Rs. 3,000 crore (US\$ 345 million). This facility will be the first in the country to operate entirely on 100% renewable energy. Dalmia Bharat enhanced renewable energy consumption to 39% in Q2 FY25, with plans to increase it to 45% by the end of FY25 & is targeting an interim capacity of 75 million tonnes by FY27 as part of its ongoing growth strategy.

Shree Cement is planning to invest Rs. 800 crore (US\$ 92.1 million) to set up a cement plant in North-East Bihar with an annual capacity of 2 million tonnes. The company signed an MoU with the Bihar government during the Bihar Business Connect 2024 summit.

In April 2025, Shree Cement added two new grinding units in Etah and Baloda Bazar, boosting its total cement capacity to 62.8 MTPA.

Ambuja Cement Ltd (ACL) has announced an investment of approximately Rs. 1,600 crore (US\$ 184.2 million) to establish a cement grinding unit in Warisaliganj, located in the Nawada district of Bihar.

Ambuja Cements crossed the 100 MTPA capacity mark in FY25, becoming the world's ninth-largest cement maker. With ongoing expansions and the integration of Orient Cement, it now targets 118 MTPA by FY26 and 140 MTPA by FY28.

Adani-led Ambuja Cements added 299 MW of renewable energy in FY25, aiming for 1,000 MW by June 2026. It also processed 20.88 million tonnes (MT) of waste-derived resources, reinforcing its circular economy efforts.

JSW Cement increased its total installed capacity to 20.6 million tonnes per annum (MTPA) with the commissioning of an additional 2 MTPA at its Salboni unit.

JSW Cement plans to invest Rs. 3,000 crore (US\$ 351 million) in a new plant in Rajasthan's Nagaur district, featuring a 3.3 MTPA clinker unit, 2.5 MTPA grinding unit, and an 18 MW waste heat recovery system. The

Ramco Cements Ltd (TRCL) plans to invest around Rs. 1,800 crore (US\$ 210 million) in FY26–FY27, funded through a mix of debt and internal accruals. The investment will support project expansions and land acquisition in Bommanahalli, Karnataka. They have increased their cement capacity to 24.4 million tonnes per annum (MTPA) by Q4 FY25, up from 23.1 MTPA in FY24.

The Mumbai-Ahmedabad Bullet Train Corridor is significantly boosting the cement and construction industry, utilizing around 20,000 cubic meters of cement daily equivalent to eight 10-story buildings. This project, spanning 508 km with multiple stations and tunnels, has generated substantial employment, with about 20,000 workers engaged daily.

Karnataka approved investment proposals worth Rs. 17,183 crore (US\$ 2.01 billion) in cement manufacturing, which are expected to generate around 12,500 jobs.

In October 2023, the real estate sector received the second-highest PE/VC investments at US\$ 601 million across six deals.

In April 2023, the infrastructure and real estate asset class recorded US\$ 3 billion in PE/VC investments, an 82% increase y-o-y and a 3% increase over March 2023.

PE/VC investments in real estate and infrastructure witnessed a sharp growth of 27%, at US\$ 13.7 billion in December 2022 as compared to US\$ 10.7 billion in December 2021.

The Indian cement industry is expected to continue to grow rapidly and reach an installed capacity of 850 million t/a by 2030 and 1350 million t/a by FY50.

UltraTech Cement projects a 7-8% growth in cement demand for FY25, driven by increased construction activities, leading to a rise in industry capacity utilization to 72% and the addition of 35-40 million tonnes of capacity, primarily in eastern and southern India.

JSW Group initiates IPO process for JSW Cement, aiming to raise Rs. 6,000 crore (~US\$ 723 million), potentially the largest in the sector, with an array of bankers enlisted. Plans include diluting 10-15% stake, with further dilution over two years for capacity expansion to 60 MTPA.

Shree Cement announces US\$ 844 million (Rs. 7,000 crore) investment for 12 million tonnes capacity expansion in India, including clinker manufacturing plants in Rajasthan and Karnataka, along with cement plants in Rajasthan, Uttar Pradesh, and Karnataka by March 2025.

UltraTech Cement Limited pledged Rs. 1,000 crore (US\$ 120.3 million), while Star Cement committed Rs. 650 crore (US\$ 78.3 million) on the inaugural day, December 13, of the Bihar Business Connect-2023 Global Investors Summit at Gyan Bhawan, Patna. 15 prominent companies in general manufacturing also signed Memorandums of Understandings.

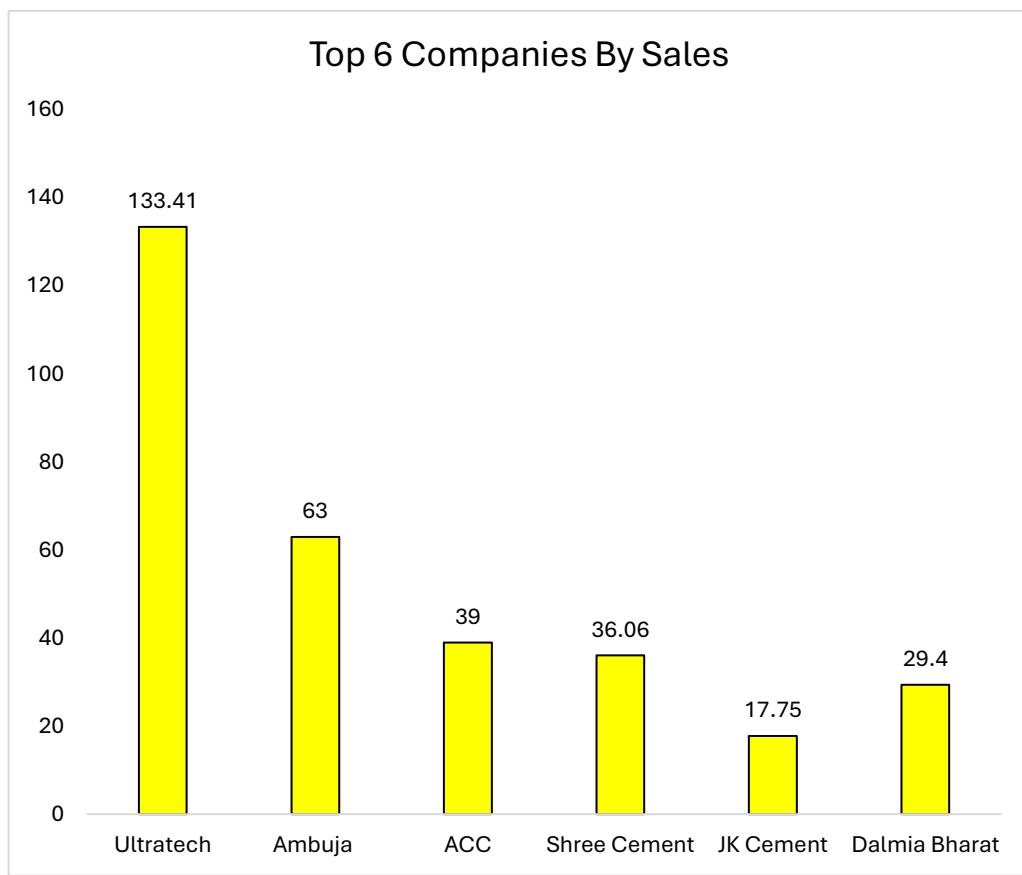
In June 2023, Shree Cement announced four planned capacity expansion projects that aim to increase its installed cement production capacity by 20% to 55.9 MT/year.

In June 2022, UltraTech Cement approved Rs. 12,886 crore (US\$ 1.65 billion) capital expenditure to increase capacity by 22.6 million tonnes per annum (MTPA) through brownfield and greenfield projects.

UltraTech Cement announced a collaboration with UCLA's Institute for Carbon Management (ICM) to implement ZeroCAL technology, which aims to reduce nearly 98% of CO₂ emissions from cement production; this partnership will establish a demonstration plant at UltraTech's integrated cement manufacturing unit.

India's cement production was expected to range between 380-390 million tonnes in FY23, a growth rate of 8-9% year-on-year (yoY).

Cement production increased by 1.9% in June 2024 over June 2023. Its cumulative index increased by 0.3% during April-June, 2024-25 over the corresponding period of the previous year.



Ramco Cements proposed a Rs.1,403 crore (US\$ 168 million) capacity expansion, including a Rs. 1,250 crore (US\$ 149 million) investment to double the capacity at its Kalavatala plant in Andhra Pradesh and an additional Rs.153 crore (US\$ 18.34 million) for a 10 MW waste heat recovery system in Tamil Nadu; the expansion aims to increase clinker capacity to 6.3 MTPA and cement capacity to 3 MTPA, with the total installed capacity reaching 19 MTPA for clinker and 26 MTPA for cement by FY26.

Adani Group will set up two new cement manufacturing plants, 15,000 MW of renewable power projects, and a data centre in Andhra Pradesh.

In November 2023, ACC received a renewed licence for its Rajasthan limestone mine, allowing it to increase its extraction of limestone there to 1.5 million tonnes per year.

In December 2023, UltraTech Cement concluded an agreement to acquire Kesoram Cement from Kesoram Industries for US\$ 912 million.

In October 2023, UltraTech Cement announced planned new capital expenditure (CAPEX) investments worth US\$ 1.56 billion to grow its production capacity, beginning in the 2026 financial year.

In October 2023, Dalmia Bharat announced a planned investment of US\$ 10.9 million in a grinding unit expansion at its 1 million tonnes/year Banjari cement plant in Bihar.

An MoU was signed between Star Cement Limited and the Government of Assam for an investment worth Rs. 1,400 crore (US\$ 170.9 million) for setting up a Cement Grinding unit in Guwahati and another Cement Grinding unit in Cachar and AEC Block and other construction manufacturing units in Guwahati.

Ramco Cements is planning to invest a total of US\$ 91.3 million towards growing its capacity in FY24. Its planned investments consist of US\$ 15.8 million in an expansion to its Haridaspur grinding plant in Odisha and US\$ 75.5 million in the acquisition of land in Bommanalli, Karnataka, on which to establish a limestone mine.

Bihar Chief Minister Mr. Nitish Kumar laid the foundation for a Rs. 1,600 crore (US\$ 191 million) cement grinding unit by Ambuja Concrete in Nawada. The 6 MTPA project will create 250 direct and 1,000 indirect jobs, with the first phase expected by December 2025.

Dalmia Cement (Bharat) is planning to invest US\$ 560 million following the signing of a memorandum of understanding (MoU) with the Assam government on the construction of a new cement plant in

As per the Union Budget 2025-26, the government approved an outlay of Rs. 2,87,333 crore (US\$ 33.08 billion) for the Ministry of Road Transport and Highways i.e., 3% higher as compared to the previous budget. Additionally, the budget allocated Rs. 11.2 lakh crore (US\$ 129.04 billion) for Infrastructure sector. To promote increased private sector involvement, the government has put forward a range of proposed initiatives.

The government approved an outlay of Rs. 1,99,107 crore (US\$ 26.74 billion) for the Ministry of Road Transport and Highways, and this step is likely to boost the demand for cement.

Several government schemes such as MGNREGA, PM Garib Kalyan Rozgar Abhiyan and state-level schemes such as Matir Srisht (West Bengal) and public work schemes (Jharkhand) have aided demand

On January 8, 2024, ACC Ltd, a subsidiary of Adani-owned Ambuja Cement, completed the acquisition of the remaining 55% stake in Asian Concretes and Cements Private Ltd (ACCPL) for Rs.425.96 crore (US\$ 50 million), increasing ACC's total cement production capacity to 38.55 MTPA. This acquisition raises the Adani Group's overall cement capacity to 77.40 MTPA, with plans to expand to 106 MTPA by FY26.

In October 2021, Prime Minister, Mr. Narendra Modi, launched the 'PM Gati Shakti - National Master Plan (NMP)' for multimodal connectivity. Gati Shakti will bring synergy to create a world-class, seamless multimodal transport network in India. This will boost the demand for cement in the future.

Growth in the Infrastructure and real estate sector, post-COVID-19 pandemic, is likely to augment the demand for cement in 2022. The industry is likely to add an ~8 MTPA capacity in cement production.

India's export of panel cement, clinkers, and asbestos cement products stood at Rs. 5,099 crore (US\$ 587.71) million in FY24 while the imports were Rs. 1,442 crore (US\$ 166.50 million) for the same period.

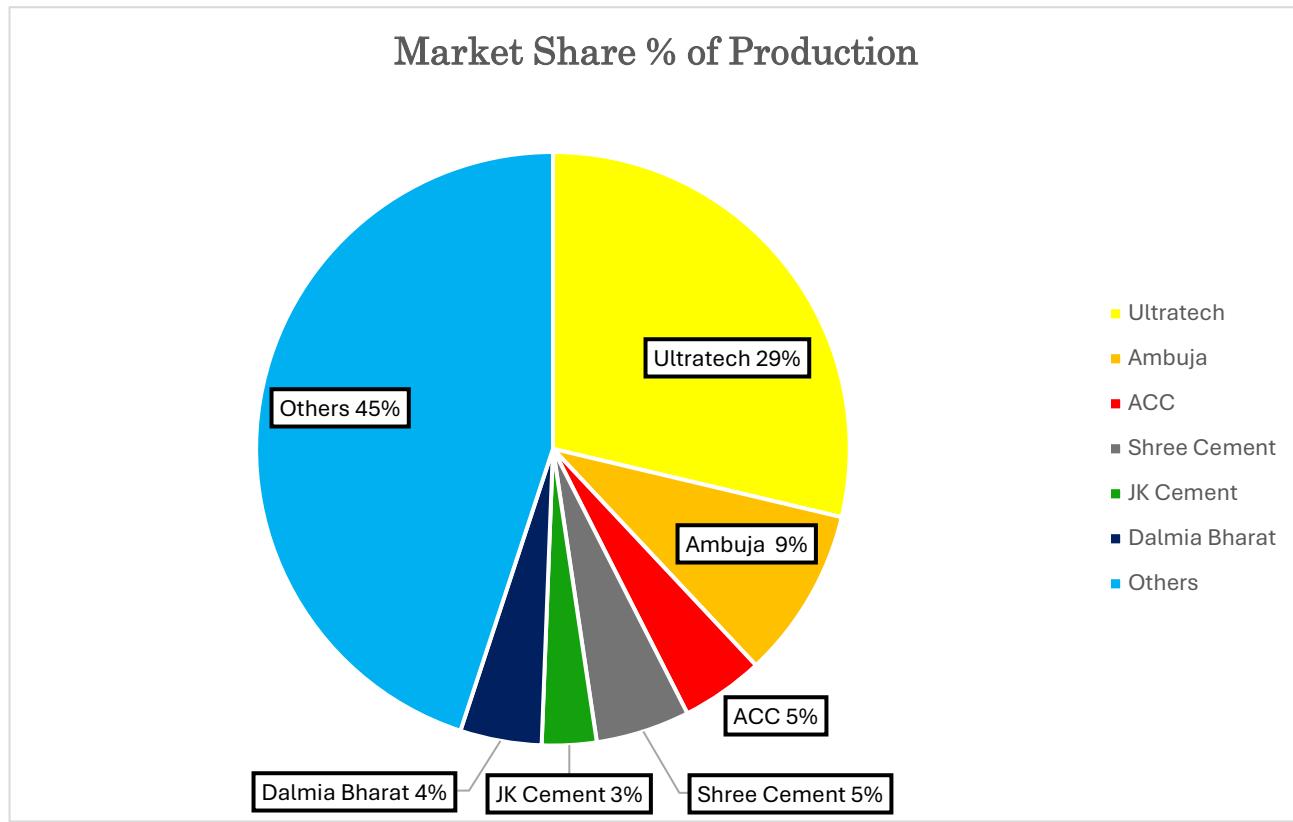
As per DGCIS, India's export of Portland cement, aluminous cement, slag cement, supersulphate cement and similar hydraulic cement stood at US\$ 587.71 million (Rs. 4,894 crore) in FY24 while the imports were US\$ 166.50 million (Rs. 1,386 crore)

As per DGCIS, India's export of panel cement, clinkers, and asbestos cement products stood at Rs. 5,845 crore (US\$ 685.12 million) in FY25, while the imports were Rs. 1543 crore (US\$ 181.23 million) for the same period.

The Government of India is strongly focused on infrastructure development to boost economic growth and is aiming for 100 smart cities. The Government also intends to expand the capacity of railways and the facilities for handling and storage to ease the transportation of cement and reduce transportation costs. These measures would lead to increased construction activity, thereby boosting cement demand.

The future outlook of the cement sector looks on track with the pandemic easing out.

In the next 10 years, India could become the main exporter of clinker and grey cement to the Middle East, Africa, and other developing nations of the world. Cement plants near the ports, for instance, the plants in Gujarat and Visakhapatnam, will have an added advantage for export and will logically be well-armed to face stiff competition from cement plants in the interior of the country. India's cement production capacity is expected to reach 550 MT by FY25. The cement demand in India is estimated to touch 419.92 MT by FY27 driven by the expanding demand of different sectors, i.e., housing, commercial construction, and industrial construction.



Regulations & Manufacturing Process of Cement Industry

Key Regulatory Bodies

MoEFCC (Ministry of Environment, Forest and Climate Change)

Sets national environmental policies and rules for air, water, waste, and climate that industrial plants must follow.

Grants environmental clearances for new plants and expansions, including conditions on emissions, water, land, and biodiversity.

CPCB (Central Pollution Control Board)

Issues national standards for emissions, effluents, noise, and environmental monitoring for industries like cement.

Supervises State Pollution Control Boards, runs inspections, and can direct corrective action for non-compliance.

BIS (Bureau of Indian Standards)

Publishes product and process standards for cements (OPC, PPC, PSC, composite), testing methods, and quality marks.

Ensures cement sold in India meets safety, quality, and performance specifications through certification.

Mines Ministry (Ministry of Mines)

Frames policies and oversees allocation/leases for minerals like limestone, the key raw material for cement.

Regulates mining operations, conservation, and sustainable mineral development in coordination with states.

SPCBs (State Pollution Control Boards)

Enforce environmental rules at state level—grant Consent to Establish/Operate, monitor emissions/effluents, and inspect plants.

Take action on violations, require mitigation measures, and track compliance with MoEFCC/CPCB norms locally.

Environmental norms (CO₂, SO_x, NO_x, dust, green energy mandates).

In India, environmental regulation of the cement industry is overseen by the Central Pollution Control Board (CPCB) and the State Pollution Control Boards (SPCBs), which carry out routine inspections of cement plants and limestone quarries to monitor compliance with emission standards. The CPCB also conducts checks through its environmental surveillance squads. Cement companies are required to follow the Corporate Responsibility for Environmental Protection (CREP) charter and comply with regulations under the Ministry of Environment, Forest and Climate Change (MoEFCC). These laws address critical issues such as air and water pollution, noise control, use of forest land, trade effluent discharge, and wildlife protection.

The main legislations applicable to the industry include:

- Water (Prevention & Control of Pollution) Cess Act, 1977
- Air (Prevention & Control of Pollution) Act, 1981

- Environment (Protection) Act, 1986
- Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2008
- Forest (Conservation) Act, 1980
- Factories Act, 1948
- Wildlife (Protection) Act, 1972
- Mines Act, 1952

Mining Laws

In order to take measures to secure critical mineral supply chains for the country, provide simpler regulatory regime, increase ease of doing business and resolve issues related to important minerals like Limestone, Dolomite and Laterite the Ministry of Mines has proposed amendment in the MMDR Act, 1957.

Limestone is a minor mineral only when “used in kilns for manufacture of lime used as building material”. Otherwise, it is a major mineral.

A rule was added in 2021 that allows a company that mines minerals for its own use (captive lessee) to sell up to 50% of the minerals it produces in a year, after it has fulfilled the needs of its own plant. To do this, the company also has to pay an extra amount mentioned in the law (Sixth Schedule).

So basically: “Use what you need for your own plant, then you can sell half of the rest if you pay the extra charges.”

BIS cement quality standards.

1. Legal Foundation

Cement quality in India is governed under the Bureau of Indian Standards Act, 1986.

Any cement manufactured or sold in India must comply with BIS-specified standards, ensuring uniformity, safety, and reliability.

2. Scope of Regulation

BIS covers all types of cement sold in India – from Ordinary Portland Cement (OPC, IS 269) to advanced variants like Composite Cement (IS 16415:2015) and Microfine OPC (IS 16993:2018).

The list demonstrates India’s diverse cement portfolio, tailored for infrastructure, structural, refractory, and specialized industrial applications.

This wide scope also means manufacturers must invest in R&D and quality labs to meet evolving BIS standards.

3. Institutional Oversight

Appropriate Authority = Central Govt. officer (min. Under Secretary) or State Govt. officer (General Manager, DIC).

This dual-level oversight (Centre + State) ensures uniform enforcement but may also create bureaucratic overlaps → sometimes delays in approvals/quality checks.

4. Key Stakeholders

Manufacturer = anyone producing or claiming to produce cement.

Dealer = anyone trading or distributing cement.

This expands regulatory compliance beyond just production → to supply chain accountability (e.g., even dealers must ensure BIS-marked cement).

Standardization Impact

BIS specifies "Specified Standards" for each cement type.

Ensures quality consistency across India → beneficial for large infra projects (bridges, highways, metro, dams).

But also raises compliance costs for small players who may find it hard to maintain BIS labs/testing facilities.

6. Strategic Implications

With the shift to blended cements (PPC, PSC, Composite Cement), BIS standards are evolving towards low-carbon, sustainable alternatives.

This regulatory push supports India's net zero targets while nudging companies like Ultratech, Shree Cement, Dalmia towards green cement.

Labour & factory safety acts.

The Indian cement industry operates under strict labour and safety regulations, including the Factories Act, 1948, the Mines Act, 1952, and the Occupational Safety, Health and Working Conditions Code, 2020. These laws mandate safe working conditions, dust and emission control, health check-ups, and protective gear—critical in plants where workers face risks from dust, heat, and heavy machinery. For companies, compliance is more than a legal requirement; it improves efficiency, reduces absenteeism, and lowers reputational and regulatory risks. From an investor's view, strong safety practices enhance operational continuity, workforce stability, and ESG profile, supporting sustainable long-term margins.

Taxation & Financial Regulations

Customs Duties: Import duties on machinery and raw materials; export duties in some cases.

Corporate Taxes: Applicable as per Income Tax Act, 1961.

Waste Management:

Regulations on co-processing waste, fly ash utilization, and hazardous waste disposal.

Energy Efficiency:

Perform, Achieve, Trade (PAT) Scheme under National Mission on Enhanced Energy Efficiency – sets energy intensity targets for cement plants.

Carbon Emissions:

Cement is a carbon-intensive sector, subject to carbon trading norms and global pressure (Paris Agreement targets).

Mining & Raw Material Regulations

Mines & Minerals (Development and Regulation) Act (MMDR): Governs limestone and gypsum mining.

Environmental Clearances: Needed for mining leases.

Royalty & Mining Taxes: Levied by state governments.

Competition & Market Regulations

Competition Commission of India (CCI): Monitors cartelization and price fixing (cement industry has faced penalties in past).

Consumer Protection Act, 2019: Ensures fair trade practices in pricing and marketing.

Sustainability & ESG Regulations

Corporate Social Responsibility (CSR): Mandatory spending under Companies Act, 2013.

ESG Reporting: Increasingly required for listed cement companies.

Renewable Energy Use: Incentives for waste heat recovery, alternative fuels, and green cement.

Manufacturing Process

Overview of Manufacturing Steps

Mining → Crushing → Raw meal → Clinkerization → Grinding → Packaging.

Process Types

Wet process vs Dry process (efficiency difference).

Modern technologies (WHR, AI in quality control).

Cost Structure

Raw materials (~40%), Fuel & Power (~30%), Logistics (~15%), Labour & Others.

Environmental Footprint

0.8 ton CO₂ per ton cement.

Waste management, recycling, use of alternative fuels.

Efficiency & Technology Trends

Ultratech, Dalmia, Ambuja → adopting green cement, WHR, digitalization.

Industry moving towards **PPC & PSC** instead of OPC.

Impact Analysis

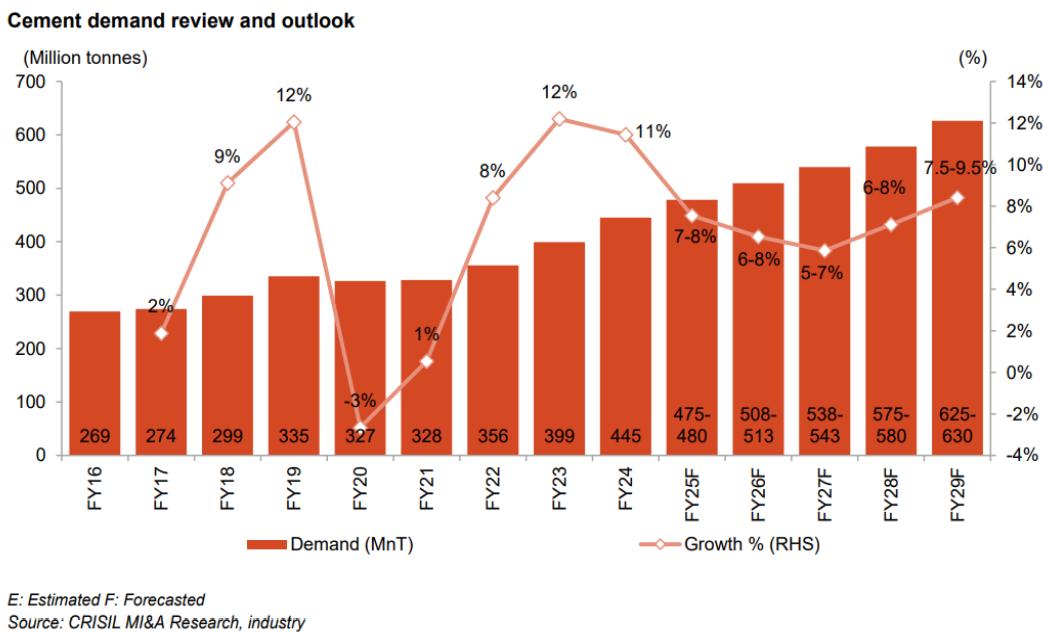
Efficiency reduces cost & emissions.

Sustainability compliance gives competitive edge.

Process innovation = higher margins + ESG investor attraction.

Trend Analysis

4.1 Pan-India cement demand review and outlook



Fiscal 2022

Demand grew ~8% YoY, despite Covid-led disruptions.

H1 impacted by second Covid wave, though pent-up demand provided support.

Q3 decline (~4% YoY) due to unseasonal rains, labour unavailability, sand shortage, festive season.

Inflation in steel, aluminium, cement (Russia–Ukraine conflict impact) raised construction costs, curbing demand.

Overall growth restricted, though recovery visible in H2.

Fiscal 2023

Strong recovery with ~12% YoY growth.

Q1: Robust ~18% growth on a low base, infra push, and housing recovery.

Q2: Moderated growth (~9%) due to seasonal weakness.

Q3: 10% growth, supported by infra execution and easing inflation.

Q4: 12% growth, driven by infra & housing ahead of 2024 elections.

Rural housing demand revived with higher rural incomes and cooling costs.

Infra growth sustained via PM Gati Shakti, NIP, PMAY.

Fiscal 2024

Demand rose ~11% YoY, led by infrastructure capex surge.

Infra spending: +28% in roads, +52% in railways over FY23.

Industrial & commercial growth from PLI, warehousing, real estate, hybrid workspaces.

Rural housing: Moderate growth (El Niño impact on agri profits), supported by PMAY-G targets.

Urban housing: Growth slowed by high interest rates and near-closure of PMAY-U.

Overall demand resilient due to pre-election boost + strong infra push.

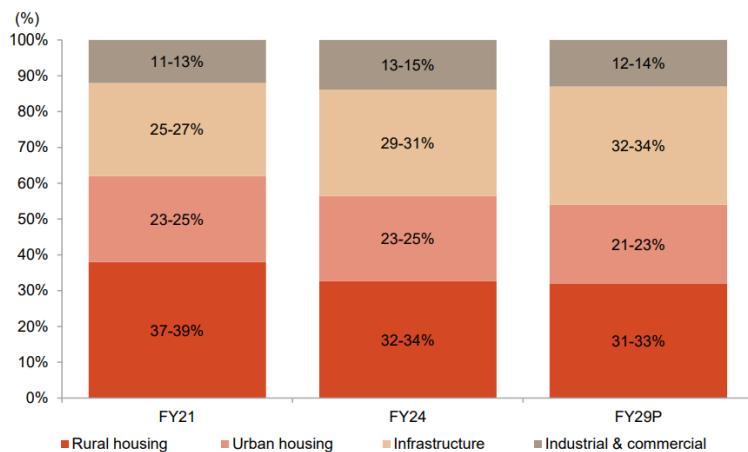
Fiscal 2025 (Estimate)

Growth expected to moderate to 7–8% after two high-growth years.

Infra to remain key driver, though capex rise only +4% YoY in core ministries.

Supportive projects: Dedicated rail corridors, metro expansion, UDAN airports, Bharatmala/NHAI roads.

Sectoral mix



Source: CRISIL MI&A Research, industry



Housing demand:

Rural: 6–7% growth expected, aided by above-normal monsoon & higher farm income.

Urban: Stable but capped by steady interest rates and weaker PMAY-U execution.

I&C segment growth to moderate, though PLI + private investments sustain momentum.

Fiscal 2025–2029 (Outlook)

Cement demand CAGR: 6.5–7.5%, higher than the past 5 years (~6%).

Growth anchored by infrastructure investments + housing momentum.

Key policy drivers: Bharatmala, Sagarmala, PMAY-G, Atmanirbhar Bharat, PLI, Swachh Bharat, UDAN, metro projects.

Presents strong long-term opportunity for the cement industry in India.

1. Ordinary Portland Cement (OPC)

Most widely used hydraulic cement; water-resistant after curing.

Manufactured by inter-grinding clinker and gypsum.

Key properties: Quick setting, fast strength gain → accelerates construction.

Uses: Concrete, mortar, beams, slabs, columns, bridges, pavements.

Can be blended with admixtures to make PSC and other blended cements.

2. Portland Pozzolana Cement (PPC)

Produced by adding 15–35% pozzolana (fly ash, volcanic ash) to OPC (as per BIS).

Advantages: Durable, cost-effective, eco-friendly (less clinker use).

Provides higher long-term strength and chemical resistance.

Applications: Marine works, dams, sewage pipes, hydraulic structures, masonry mortars, dykes.

3. Portland Slag Cement (PSC)

Blend of 35–70% slag, 25–65% clinker, 3–5% gypsum (as per BIS).

Slag: Non-metallic by-product rich in silicates and alumino-silicates.

Key property: Low heat of hydration → ideal for mass construction.

Uses: Dams, water-retaining structures, roads, flyovers, residential, commercial, and industrial projects.

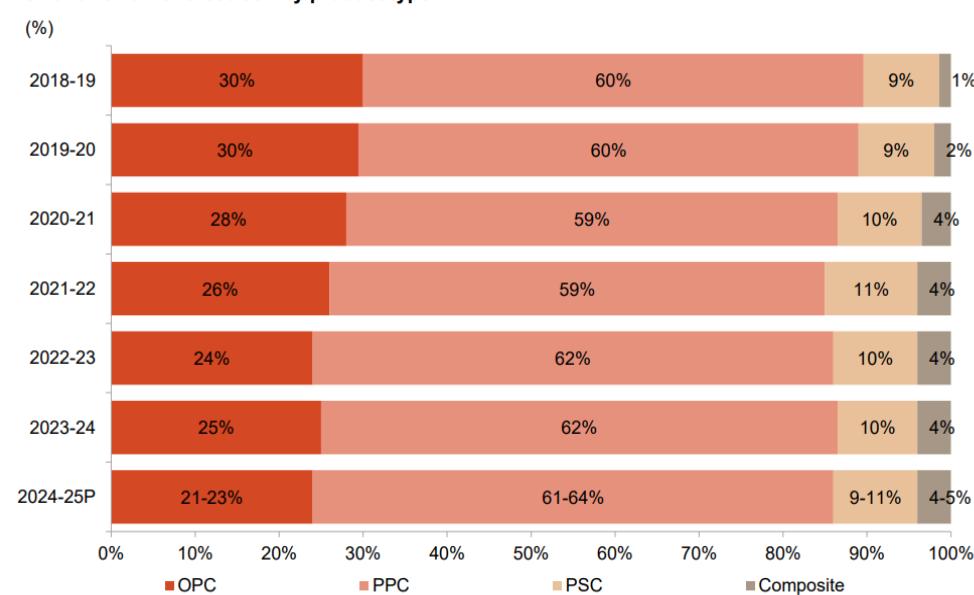
4. Composite Cement

Mix of clinker (35–65%), fly ash (15–35%), slag (20–30%), gypsum (3–5%).

BIS allows 40–65% slag + fly ash in composition.

Applications: Versatile use in concrete structures with focus on sustainability and cost-efficiency.

Demand review and outlook by product type:



Conclusion

India's cement industry is set to grow steadily over the next few years, powered by housing and multi-year public infrastructure, with utilization drifting higher as new capacity is absorbed.

Regional imbalances will persist (South surplus, East deficit), but proximity grinding, stronger rail/coastal links, and hub-and-spoke dispatch will narrow delivered costs and smooth price volatility.

Cost discipline will define winners: power, fuel, and freight remain the biggest levers, so WHRS, alternative fuels, renewables, kiln efficiency, and smarter multimodal logistics are non-negotiable.

The product mix will keep shifting toward blended and lower-clinker cements, aligning with cost and carbon goals and increasingly favored in procurement—this becomes a competitive moat, not just compliance.

Consolidation and capacity additions by large players should lift network reach and pricing discipline, provided expansions are sequenced with demand and supported by efficient clinker-grinding logistics.

Near-term prints can remain choppy due to monsoon, election timing, or input-cost swings, but the medium-term trajectory is positive: housing, infra, and industrial build-out form a durable demand base.

Strategic takeaway: Growth is likely, but returns will diverge—players that execute on decarbonization, logistics excellence, and disciplined capex will compound advantages as the cycle matures.