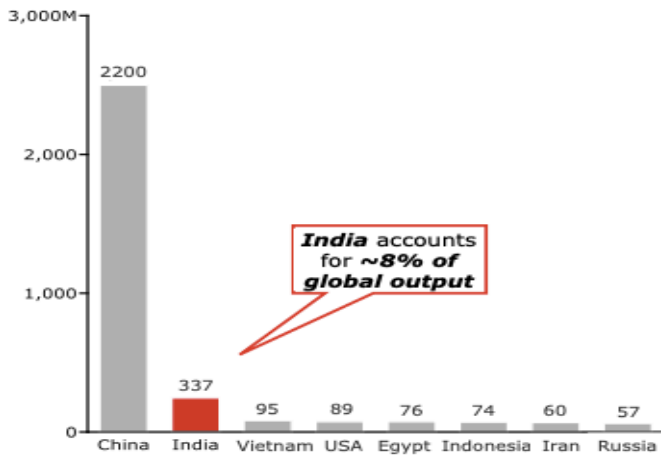


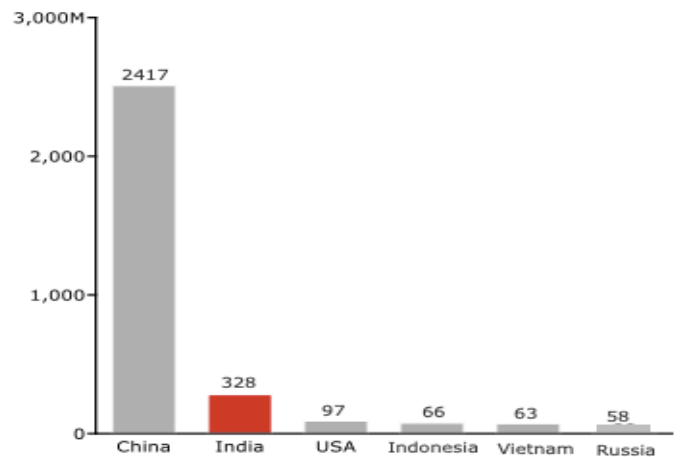
CEMENT INDUSTRY

GLOBAL OVERVIEW

INDIA IS WORLD'S SECOND LARGEST PRODUCER AND CONSUMER OF CEMENT AFTER CHINA



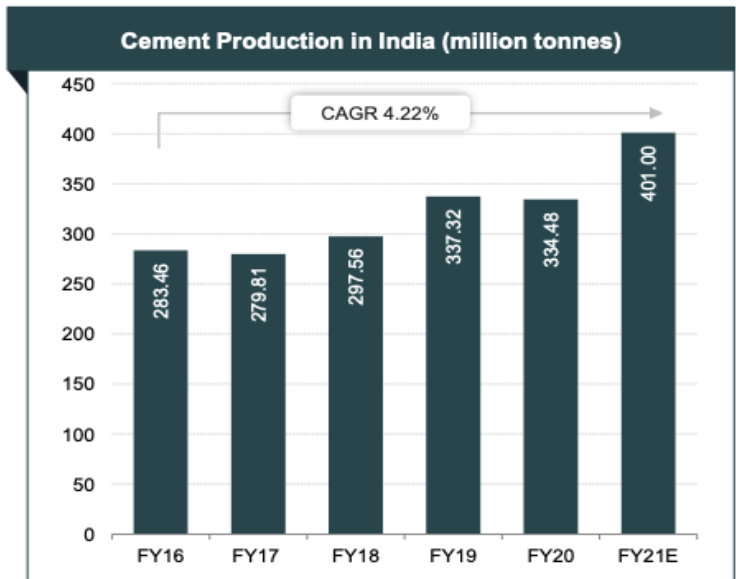
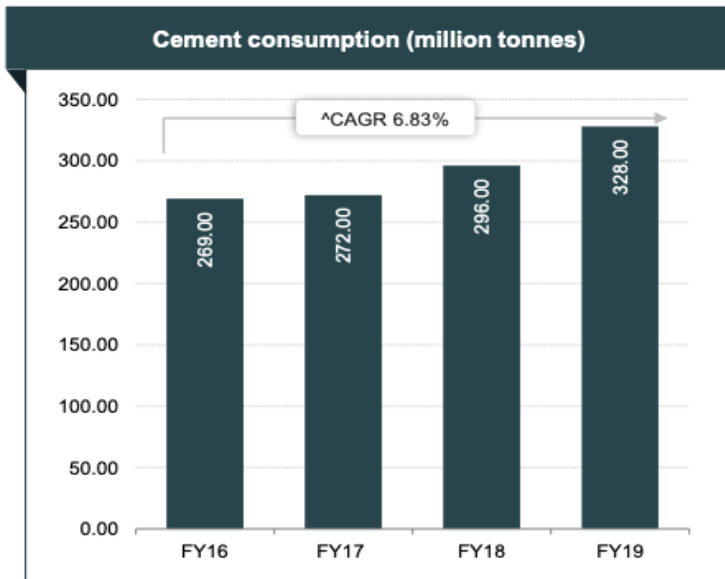
CEMENT PRODUCTION



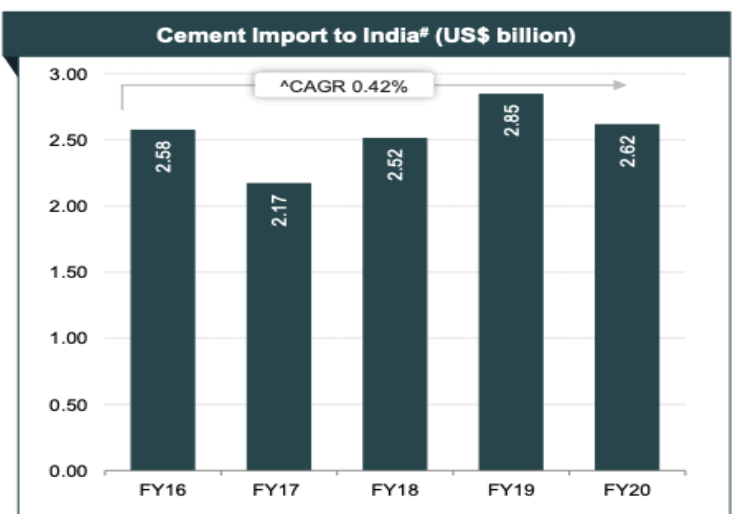
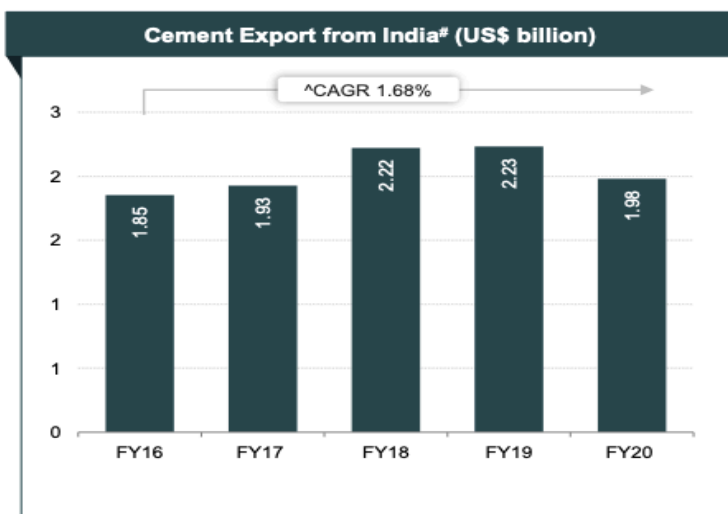
CEMENT CONSUMPTION

- China is currently facing a deficit and relying on imports from other countries such as Vietnam, UAE to meet their demand for cement. This is because the newly announced laws do not permit cement production beyond a certain capacity owing to the environmental impacts of producing cement
- India constitutes 8% of the world's total output in FY20. The global output stands at ~5000 mn tonnes and led in terms of production by China (~45%). The production outstrips consumption and is used for the purpose of exports
- The current capacity stands at 545 mn tonnes (FY20). It grew at ~22 mtpa for FY19 and FY20 and is expected to follow the same pattern in upcoming years due to the increased demand for cement, both domestic and international

DOMESTIC CONSUMPTION AND PRODUCTION

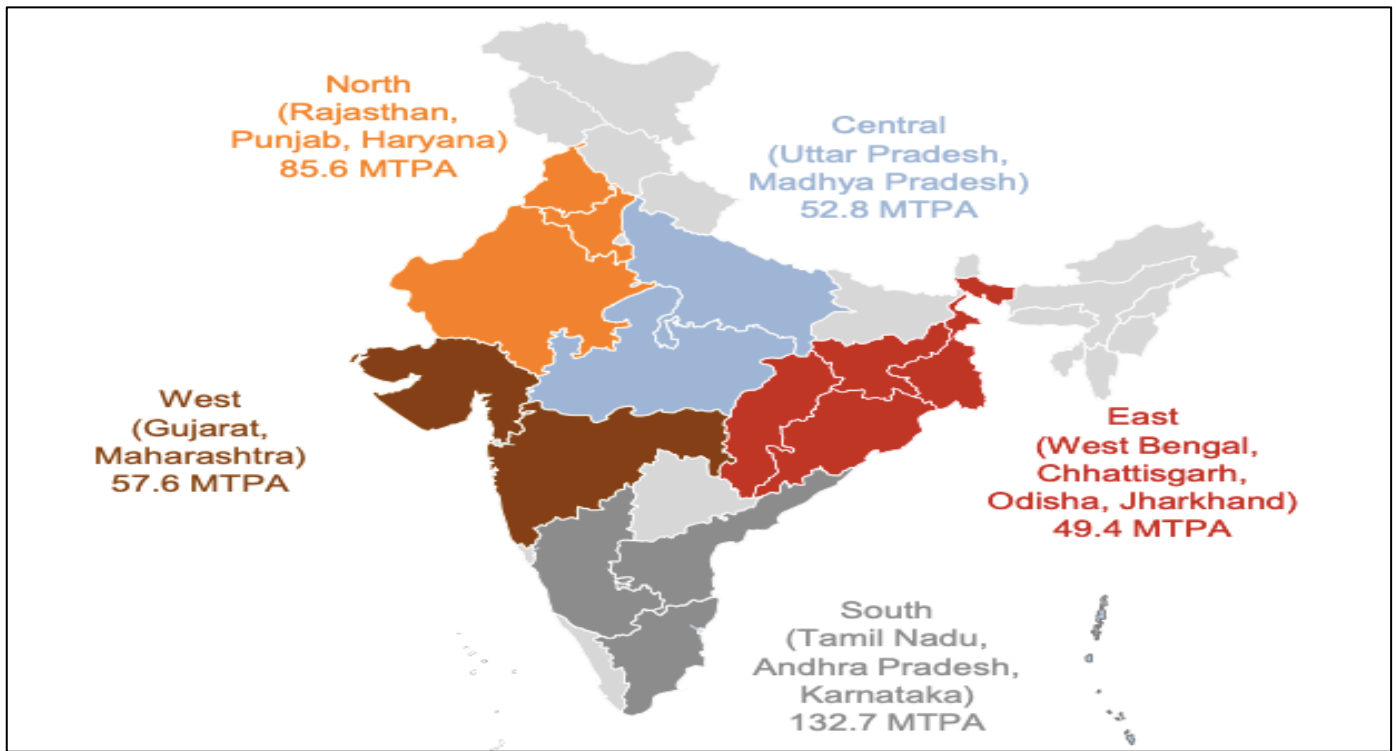


CEMENT EXPORTS AND IMPORTS



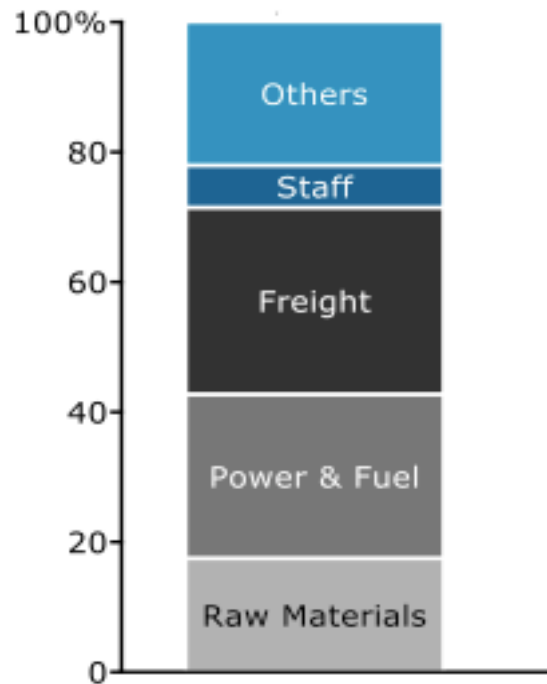
- India's consumption has been growing at a compounded rate of 6.83% over the last 4 years. This has been supported by rise in government spending on infrastructure including smart cities as well as independent projects for building roads, railways, irrigation facilities, ports etc.
- Apart from the same, the government has also increasingly shifted its focus to providing affordable housing facilities in both urban and rural regions since 2017 under Pradhan Mantri Awaz Yojana- Gramin and Urban
- India imports roughly 7.7% of its cement production from Pakistan, Bangladesh etc. This is due to the low cost associated with such cement units. Cement imported from Pakistan costs 15% lesser than cement produced in India and thus comprises of 75% of the total cement imported by India
- Apart from this, India exports around 2.4% of the total cement produced to Sri Lanka, Bhutan, Maldives etc.
- India's imports comprise mainly of coal (important raw material for cement production) due to lack of domestic sufficiency

INSTALLED CAPACITIES AND KEY MARKETS



- A look at the distribution pattern of cement factories reveals that they are mainly concentrated along the Vindhayan ranges—running from eastern Rajasthan to Jharkhand where abundant supply of good quality limestone is available.
- In fact limestone deposits have acted as big magnets for attracting cement factories and rarely a factory in this region is situated at a distance of over fifty kilometres from the limestone quarries. The vast northern plain, on the other hand, is devoid of limestone deposits and does not support cement factories to any appreciable extent.
- It is for this constraint of raw material that 86 per cent of the factories and 75 per cent of the production capacity is found in Madhya Pradesh, Chhattisgarh, Andhra Pradesh, Rajasthan, Gujarat, Tamil Nadu, Karnataka and Bihar.
- The main buyers of Indian cement are Sri Lanka, Bangladesh, Myanmar, Indonesia, Malaysia, Nepal, Pakistan, Middle East countries and South-East Asian countries. The exports to these countries are likely to increase as they do not have appreciable deposits of limestone and cannot develop cement industry on their own.

COST PER TON OF CEMENT



*Others include purchase of traded goods, changes in inventory and other expenses

- Due to the heavy volume of cement as well as the raw materials used for production, the freight cost comes out to be around 30% of the total cost of production. Companies are trying to optimize on this front, by locating primary production units closer to source of raw material and final products closer to the market. Since clinker is easier to transport than bags of cement, the grinding units are located close to final destinations where the ready-mix concrete is converted into cement
- Cost of cement production has increased over the years with the 5% advance tax on the import of raw material from cement along with the 3% tax on distribution of cement
- The domestic market is a highly competitive one. Government has waived off advance tax and corporate tax from entities operating in economic zones. This has made the already competitive market more unstable as the remaining players are faced with huge costs and unfair competition
- India imports relatively cheaper cement from Pakistan against the cement produced domestically by private players (10-15% cheaper)
- The country's cement industry is self-sufficient and well capable of catering to the domestic demand, with capacity utilization as low as 65%. Also, the maintenance of these factories due to their underutilization involves a huge cost and resultantly impacts the price of cement produced
- The Indian private players are faced with cheaper imports as well as implementation of GST~ 28%, further hiking the cost of cement produced

MARKET DYNAMICS

98% of the production capacity lies with the private sector

Top 20 companies in the private sector constitute 70% of total cement produced in India

210 large cement plants (410 mt) along with 350+ mini plants (11.1 mt)

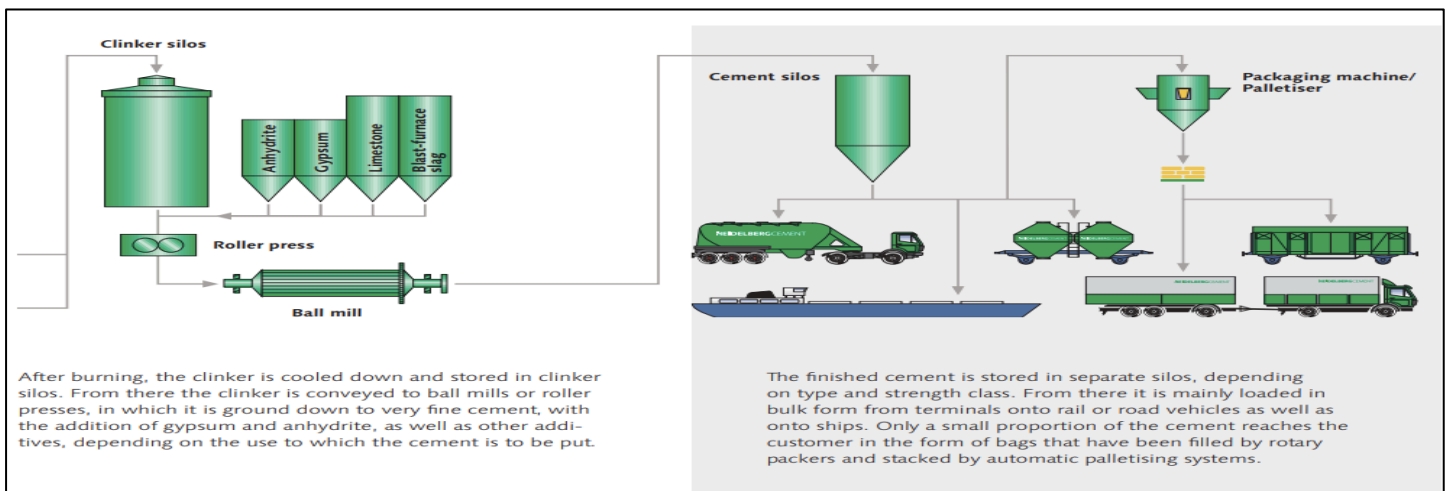
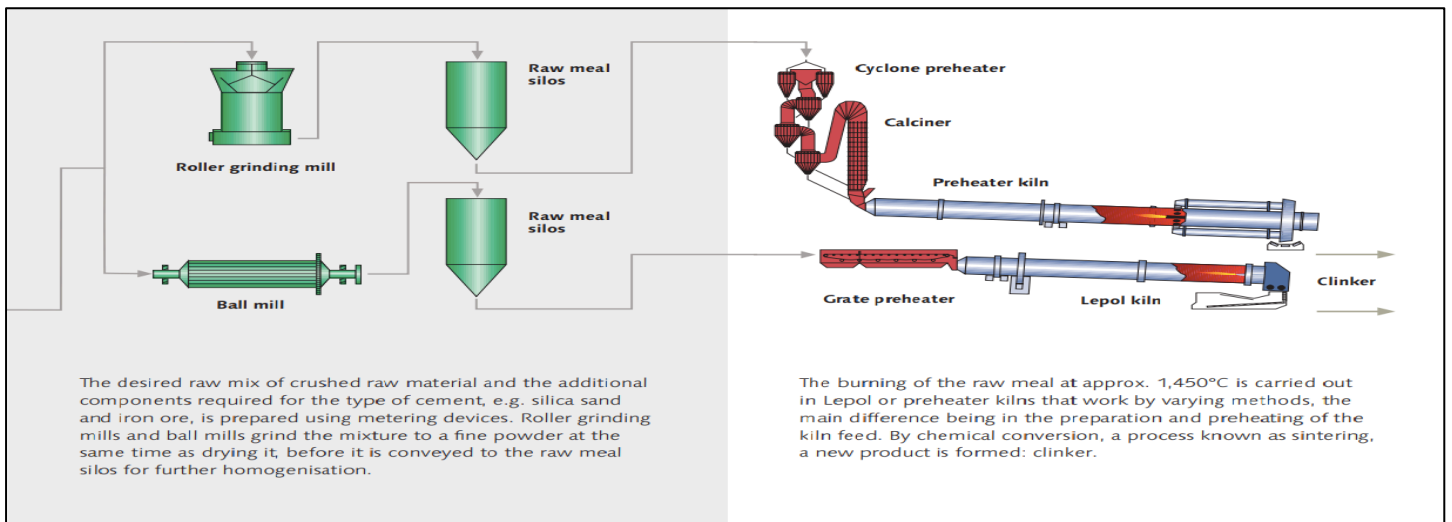
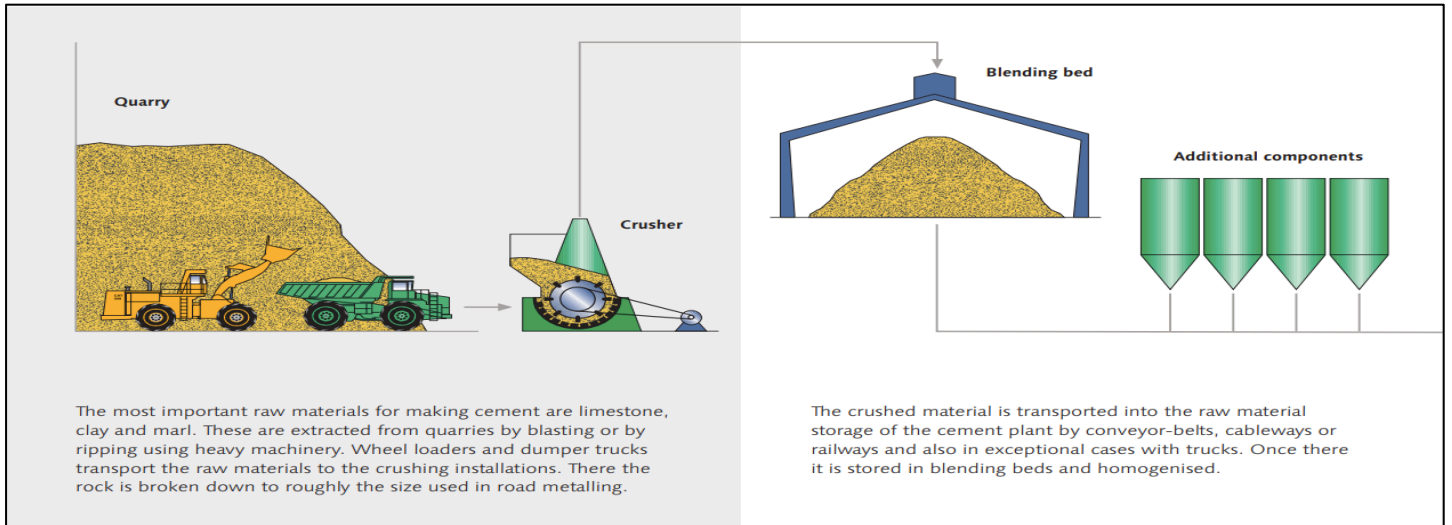
Largely concentrated around states having limestone deposits- Andhra Pradesh, Rajasthan, Tamil Nadu

- The cement market operates more or less as an oligopoly, with majority of the production concentrated with the top 20 companies, offering a wide range of products over different segments and prices
- Provides employment to more than 1 mn people directly or indirectly in infrastructure, commercial and housing activities or projects
- GDP to demand multiplier gives an idea of the stage of development the economy is at: Change in cement demand/ Change in GDP= 0.5 for FY20, expected to be negative for FY21
- The sector is largely dominated by private players and they 98% share of the cement market

CYCLICITY IN CEMENT INDUSTRY

- The production of cement is completely dependent on 2 factors:
 - 1) Demand for cement (domestic + international)
 - 2) Month of production
- The latter happens to be highly relevant since the production of cement is dependent on climate. This is because most of cement production facilities are built as open-air facilities. Due to the same, the production levels fall down drastically during monsoons (July- September). Climate is what determines the material used, the time frame for construction and the durability and longevity of the constructed building
- Cement production usually tends to peak during the month of March. This was the reason why despite having a healthy year, most of the cement producers witnessed decline in revenues for FY20 since March was hit by Covid and featured with a complete lockdown

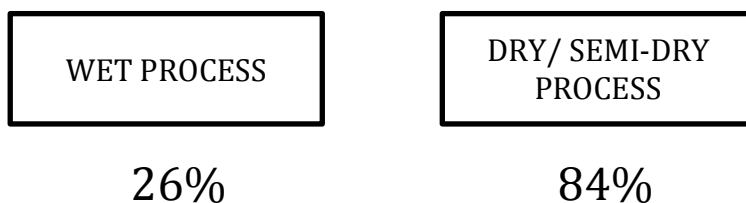
PRODUCTION PROCESS



BOTTLENECKS

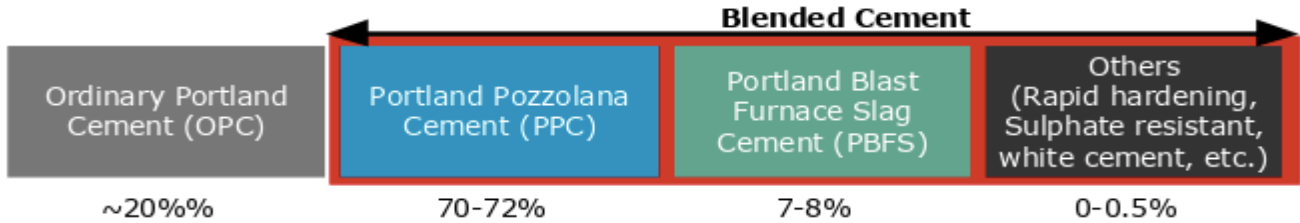
- **Availability of limestone:** Limestone is the most important input used in the cement production cycle. Its major reservoirs can be found in Rajasthan, Andhra Pradesh, Karnataka, Madhya Pradesh, Gujarat, Meghalaya, Telangana. This has been a contributing factor for disproportionate distribution of cement production in the country; with the eastern and northern regions perpetually in deficit against the western and southern regions
 - **Transportation Costs:** 71% of the total output comes from western and southern regions against a consumption of 57%. Northern and eastern region comprise the remaining 29% of total output against their consumption of 43%. This leads to heavy transportation costs of cement
 - **Power cuts and costs:** Cement industry is power intensive in nature and is highly susceptible to any shortage in power. Power and fuel constitute more than 20% of the production cost and thus administered hike in prices impacts the industry's cost structure
 - **Taxes:** Newly introduced advance tax increases the cost of import of raw materials for cement production by 5%. This is in addition to the 3% tax at source on raw materials used for production
-

PROCESSES



- The wet process of cement manufacturing refers to grinding raw material into slurry after mixing with water and then feeding them into the wet process kiln for drying and calcination and finally forming clinker. The slurry's water content is usually between 32%-36%. In addition, the raw material slurry can also be dehydrated into raw material blocks and put into the kiln to calcine clinker. This method is called the semi-wet process, which still belongs to the cement wet process production
- The dry process of cement manufacturing means that after raw materials with different particle sizes are dried, broken and ground into powders of certain fineness, they will be sent into the dry process kiln for calcining, finally forming clinker. Besides, the raw material powder can also be made into raw material balls by adding a proper amount of water and then be directly sent to the Lepol kiln for calcining. This method is called a semi-dry process, which belongs to the cement dry process production

PRODUCT SEGMENTATION

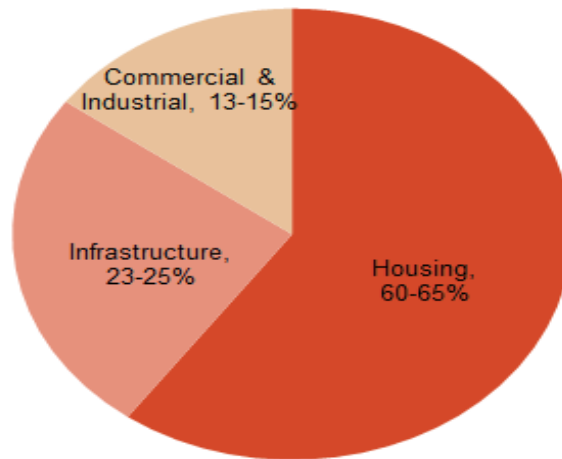


- 1) **Ordinary Portland Cement:** This is the most common type of cement which is extensively used. It has good resistance to cracking and dry shrinkage but less resistance to chemical attack. OPC is not suitable for the construction work which is exposed to sulphates in the soil. They are widely used for the construction of high-rise buildings, roads, dams, bridges, flyovers. ideal for the construction of residential and industrial complexes
- 2) **Portland Pozzolana Cement:** The pozzolana is a material which is formed due to the volcanic eruptions. It is a siliceous material having about 80% clay in it. Pozzolana cement is manufactured by mixing 30% of pozzolana to Ordinary Portland cement clinkers. This type of cement is used in construction of dams and weirs
- 3) **Portland Blast Furnace Slag Cement:** A Portland cement mixed with a designated amount of ground granulated blast-furnace slag. The latent hydraulic property of the blast-furnace slag gives excellent long-term strength. Used for structures meant for water retaining such as retaining wall, rivers, ports, tunnels for improvement in impermeability

DIFFERENCE BETWEEN OPC AND PPC CEMENT

	OPC Cement	PPC Cement
Components	Limestone, gypsum etc.	OPC Cement+ Pozzolanic material
Strength	Initial strength is higher	Initial strength is lower
Setting time	Lower	Higher
Durability	Less durable	More durable
Costs	Costlier	Cheaper

SECTORAL MIX



CURRENT STATUS

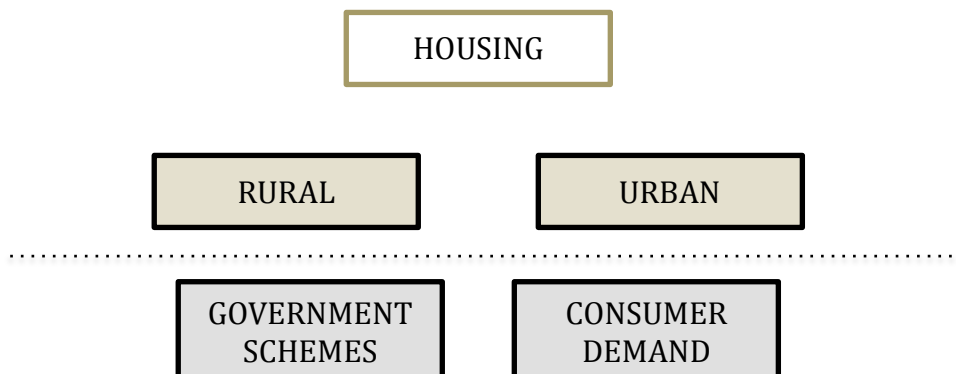
- **Demand downfall:** Cement demand growth is expected to witness an unprecedented contraction of 10-13% in fiscal 2021 following lockdown measures taken by Indian government to curb the spread of global pandemic in the country. Demand momentum suffered the brunt of pan-India shutdown in late Q4FY20 as well as further ahead as construction activities came to grinding halt
- **Timeline:** With lockdown imposition from March-end, April was a complete demand 'washout' period amid supply chain disruptions, extended local lockdowns and unavailability of labor dampening demand scenario, however pent-up and pre-monsoon construction demand in May and early June cushioned further decline in demand. Demand to weaken further with onset of seasonally weak period of monsoon in June, which culls end-use construction demand across regions
- **Government expenditure:** Lower capital expenditure by government, given diversion of funds towards health and public welfare (government-led projects account for 35-40% of cement demand) will weigh on demand growth
- **Government schemes:** PMAY-U to see slowdown as beneficiaries are likely to curtail expenses. Infrastructure development as well as real estate construction to see revival albeit at a snail's pace. PMAY-G is expected to see pick-up as it utilizes its potential to engage rural workforce and drive employment. Also, urban housing and infrastructure remain laggards due to muted government spending and labour scarcity in major markets
- **Business sentiment:** Weak business sentiment and labor availability issues continue to derail construction execution despite unlocking of construction and commercial activities in most regions of the country. Already fragile real estate and private individual housing demand to be impacted as consumer

sentiment remains weak. Weak demand in current fiscal propels industry players to delay capital expenditure in order to reserve cashflows and strengthen their balance sheets in these tumultuous times

- **Commercial and Industrial segment:** Commercial and Industrial segment demand to weaken as well amid delayed capital expenditure plans and increased acceptance of work from home
- **Real estate:** Real estate sector had already been hit for some time due to the issues with land acquisition and funding problems. The sector was loaded with excess inventory, especially buildings and dealer holdings due to stalled projects and delayed possessions. Property prices had been at an all time high. As of January 2019, about 9.43 lakh units worth Rs 7.77 lakh crore with 41 months of inventory were stuck in various stages of the project cycle across top 8 cities
- Demand is likely to recover post festive season with receding monsoon, return of migrant workers and pick up in urban infrastructure activity with easing of pandemic caseloads
- **Price changes:** In fiscal 2021, prices elevated in Q1FY21 as players struggle to survive on the profitability front in wake of Covid-19 led revenue loss. Gradually with onset of monsoon in seasonally weak second and third quarters, price is expected to loose momentum. Also with reviving demand, prices to take a setback as players scuffle to gain market share. Demand recovery to meet with government funding challenges and delayed restoration of construction activities in the current fiscal.

FUTURE OUTLOOK

HOUSING (60-65%)



RURAL HOUSING

1) Government Schemes:

Pradhan Mantri Awaas Yojana- Gramin (PMAY-G)

- Launched in November 2016 with the target of housing for all by the year 2022
- The scheme targeted construction of 29.5 mn houses with all basic amenities by the year 2022
- In terms of progress, the center created 8.7 mn houses between FY 2017 and 2019 and another 2.3 mn by FY 2020

Currently, the scheme has gained traction as a lot of areas are still under lockdown and people are advised not to gather. Hence, not on government's priority list currently since there has been a diversion towards health and safety

2) Rural Income:

- Organic growth in income: Rural areas have been less affected by the pandemic and have been blessed with steady rural income on back of healthy rabi productivity. This is further couple with the recent announcement regarding increase in MSP of wheat.
- MGNREGA: There has been an increase in crop procurement and government fund allocation through the scheme, hence boosting the incomes of farmers further. Higher acreage, productivity and government procurement to aid growth in field crop profitability. While MGNREGA has also played a vital role in providing employment to the millions of migrant labours returning to their villages from cities, particularly during the lockdown imposed due to coronavirus. Highest ever allocation of more than 1 lakh crore has been made under the scheme after allocating an additional ~Rs. 40,000 crore to the earlier budget estimate of Rs. 61,000 crore.
- Mass exodus of labourers to their natives propelled them to build their own houses in absence of any other job amid construction lockdown

URBAN HOUSING

While real estate will continue to post a sedate run in the current fiscal on back of pandemic led disruptions, Individual Home Builders (IHB) demand and commercial activity in tier III/IV cities will also be hard hit amid lockdown extension with construction spending getting delayed. Real estate execution to slowdown in fiscal 2021 with extension in RERA deadlines. Persistent high inventory levels, though, continues to plague urban housing, and consequently cement demand growth.

Government Schemes:

Pradhan Mantri Awas Yojana – Urban (PMAY- U)

Meanwhile, ~1.44 million houses were constructed under Pradhan Mantri Awas Yojana (PMAY)-Urban in fiscal 2020 while ~2 million housing units were grounded for construction as of March 30, 2020. However, revision of total housing shortage in urban areas to 16.4 million from the previous estimate of 20 million will slow demand beyond fiscal 2023 as the government is on track to complete the revised target by fiscal 2023. In fact, against a target of 11.2 million houses, 10.5 million houses are already sanctioned, out of which 3.5 million units have been constructed, 3.1 million units are under construction, and 3.9 million units are awaiting financial clearance, as of June 2020. Compared with last year, while houses constructed decreased by ~4%, houses grounded declined by ~20% and houses sanctioned dropped by ~29% on y-o-y basis in fiscal 2020.

INFRASTRUCTURE (23-25%)

Infrastructure capital expenditure is expected to decline this fiscal as more funds will be diverted towards health and social sectors. Budget estimates for infrastructure capex fell for the first time in FY21; spending by

states is, in any case, seen stagnant during the year. Over fiscal 2021 and 2025, infrastructure investments are expected to grow at 10-11% CAGR, with road sector being the critical investment driver amongst the infrastructure segments.

- **Smart Cities:** Government has budgeted 100 smart cities since 2015, involving 5100+ projects within these cities. The budget for FY21 allocated Rs. 6000 cr+ for this purpose as well as announced 9 new smart cities including Moradabad, Saharanpur etc. These cities hold huge potential for cement consumption due to construction of roads, housing facilities, hospitals, schools, malls and other amenities and have been aggressively pushed by the government since 2017
- **Roads:** Road project investments are expected to grow at a modest pace and drive cement demand after witnessing a speed-bump decline of 7-10% in FY21 owing to the Covid-19 pandemic due to the lockdown impacting construction activities and migration of labour. Recovery to be seen in FY22 led by increased execution of projects and high-value projects such as expressways.
- **Railways:** The central government announced a planned outlay of Rs 1.61 trillion for the Indian Railways in the Union Budget 2021, 3% higher than the preceding year's revised estimate of Rs 1.56 trillion. However meeting the capex target of ~1.61 trillion for the year will be an uphill task thanks to revenue loss due to limited passenger services during the lockdown. The government had proposed an investment of Rs 8.5 trillion in railways from fiscal 2016 to fiscal 2020. However, the overall capital expenditure during this period was Rs. 5.76 trillion. Railways have been investing big time in upgrading existing infrastructure and building new one with government providing bulk of the funds. The railways have also kicked off a Rs 30,000 crore privatization plan by inviting private companies to run passenger trains on 109 pairs of routes.

- **Urban infrastructure:** The government's thrust in urban infrastructure is driven by government schemes such as AMRUT, Swachh Bharat, Clean Ganga and Jal Jeevan mission. Water supply and sanitation (WSS) projects and metro construction in major Indian cities are expected to boost urban infrastructure investment in the next five years.
- **Irrigation:** In fiscal 2016, the central government converged irrigation schemes under the Pradhan Mantri Krishi Sinchayee Yojana to expand the area under cultivation by 2.85 million hectares in fiscal 2017, and by 8 million hectares by 2020, outlining a spending target of Rs 500 billion until 2020. The key schemes converged are Accelerated Irrigation Benefits Programme, Integrated Watershed Management Programme, On Farm Water Management, and Per Drop More Crop.

Investment in the sector is expected to rise in the next five years, owing to the push from state governments to increase irrigation penetration in states. However, investments to decline in fiscal 2021 as states would divert some of their funds towards healthcare expenditure owing to COVID while migration of labour would also lead to loss of construction days. It is expected that a majority of the irrigation projects stalled for want of funds will resume work post the increased budgetary allocation towards irrigation.

COMMERCIAL & INDUSTRIAL (13-15%)

- Based on analysis of eight key sectors, it is estimated that construction investment in the industrial segment will post a marginal fall with Rs. 1.87 trillion between fiscals 2021 and 2025, from Rs 1.99 trillion during fiscals 2016 to 2020. Major industrial sectors were already operating below optimum utilization levels and the Covid-19 pandemic has led to a further fall in utilisations across industries due to the lockdown and depressed buyer sentiment. The depressed utilisations and stretched financials of players would lead to deferral of planned capex for FY 21 slipping into FY22 as companies look to conserve cash in uncertain times.
- The sector is Expected to follow the same pattern due to increased acceptance of work from home and digital means of communication
- Investment in the oil and gas segment is expected to rise due to the government's plans to increase the length of natural gas pipelines and setting up of new gas distribution centres across cities. Also, construction of big production fields was expected to start in fiscal 2021 however players delay capex plans in wake of Covid-19 disruptions.

CREDESCENCE CAPITAL

(Investment Club of IIM Lucknow)

MAJOR PLAYERS

COMPANY	MARKET SHARE	CAPACITY (mtpa)	PLANTS
UltraTech Cement Ltd	21.40%	102.75	54
Ambuja Cements Ltd	6.20%	29.65	13
ACC Ltd	6%	28.4	92
Shree Cement Ltd	5.80%	28	14
Dalmia Bharat Ltd	5.50%	26.5	4
Birla Corporation Ltd	3.20%	15.5	10
India Cements	3%	15	10
Ramco Cements	3%	15	9
Orient Cement Ltd	1.60%	8	3
Heidelberg Cement India Ltd	1.10%	5.4	3