INDIAN CEMENT INDUSTRY

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Indian Cement Industry

Second largest cement market
Demand: ~300 mio t

Past Cement demand growth of 5-7% p.a.

Effective Cement Capacity of 400 mio tpa

Overcapacity in short-medium term

75-85 players,
~230 cement plants
(150 IU's + 80 GU's)

PCC
India: ~225 kgs
World: ~585 kgs

17-18% players account for 70% capacity

Economic growth:
GDP growth of ~7 %
in 2016-17

38% urbanization by 2025 up from 31% in 2011 (~170 m people more in urban India)

Budgetary allocation of Rs. 3.96 lakh crores (USD 58 bn) for Infrastructure development in 2017-18

Rs 23,000 crore (USD 3.3 bn) allocated in 2017-18 under "Housing for All by 2022"

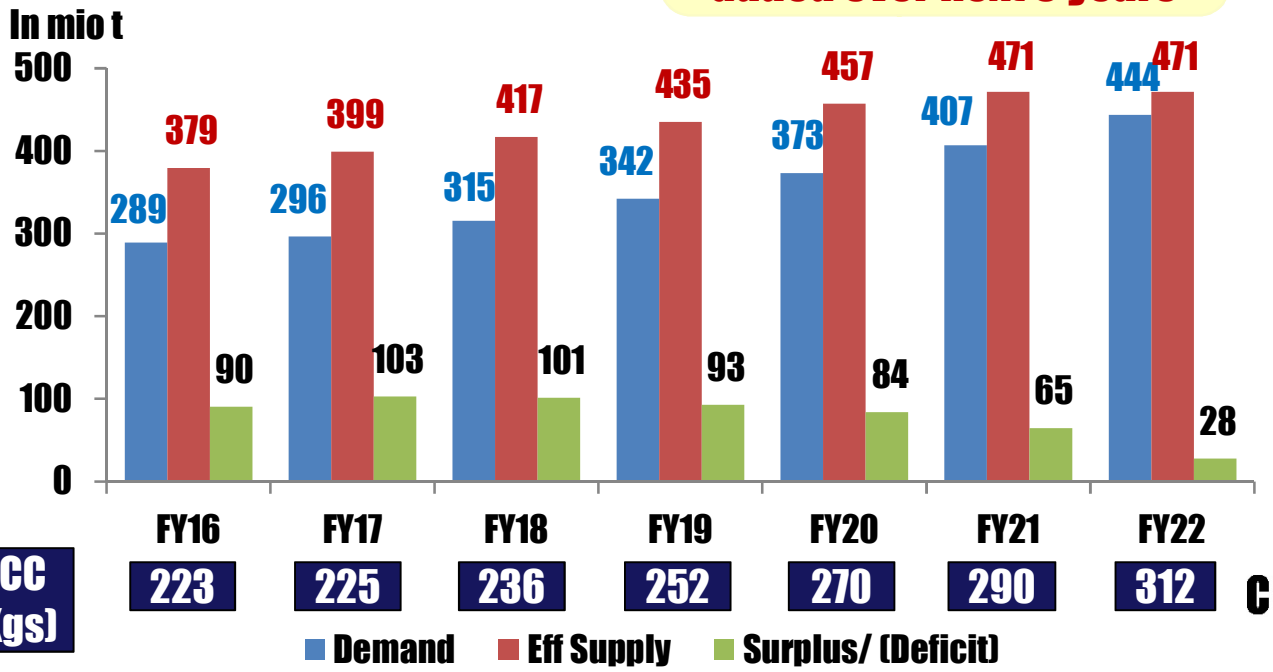
Rs. 50,000 cr (USD 7.3 bn) earmarked for 100 smart cities over 5 yrs (FY16-FY20)

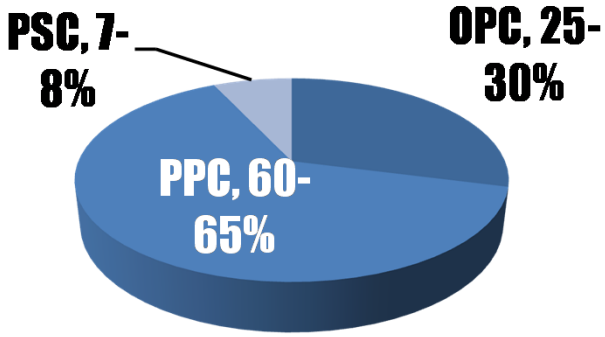
Cement Market Scenario

Traditionally past Consumption grew at a CAGR of 7-8% pa.

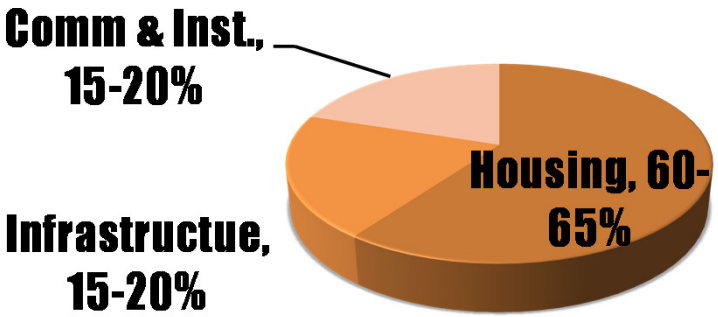
Around 70 mio tpa capacity expected to be added over next 5 years

Imports: 1-2 mio t
Exports: 5-6 mio t





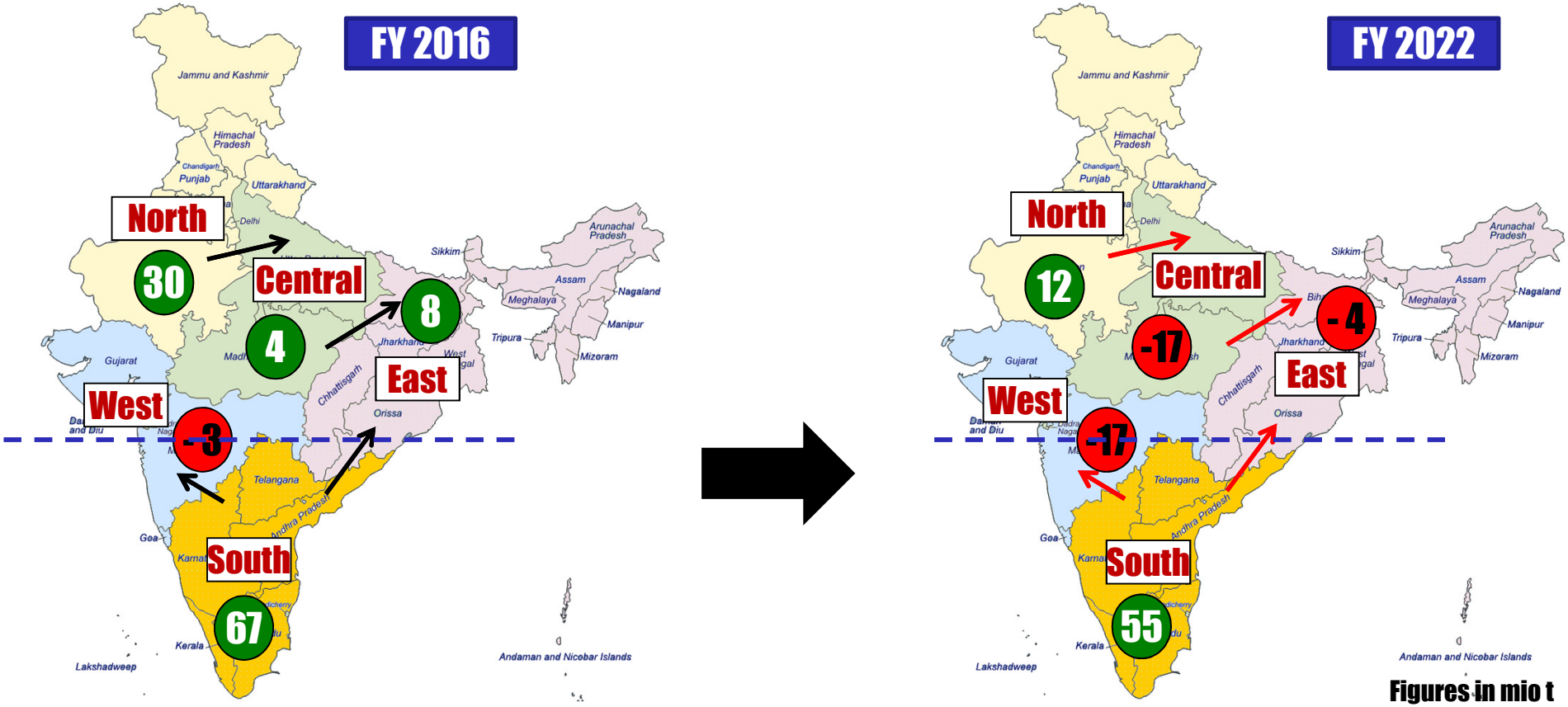
Product Mix



Customer Segmentation

Diminishing Demand-Supply gap as consumption is envisaged to grow at ~7% pa against expected 3-4% pa growth in capacity additions

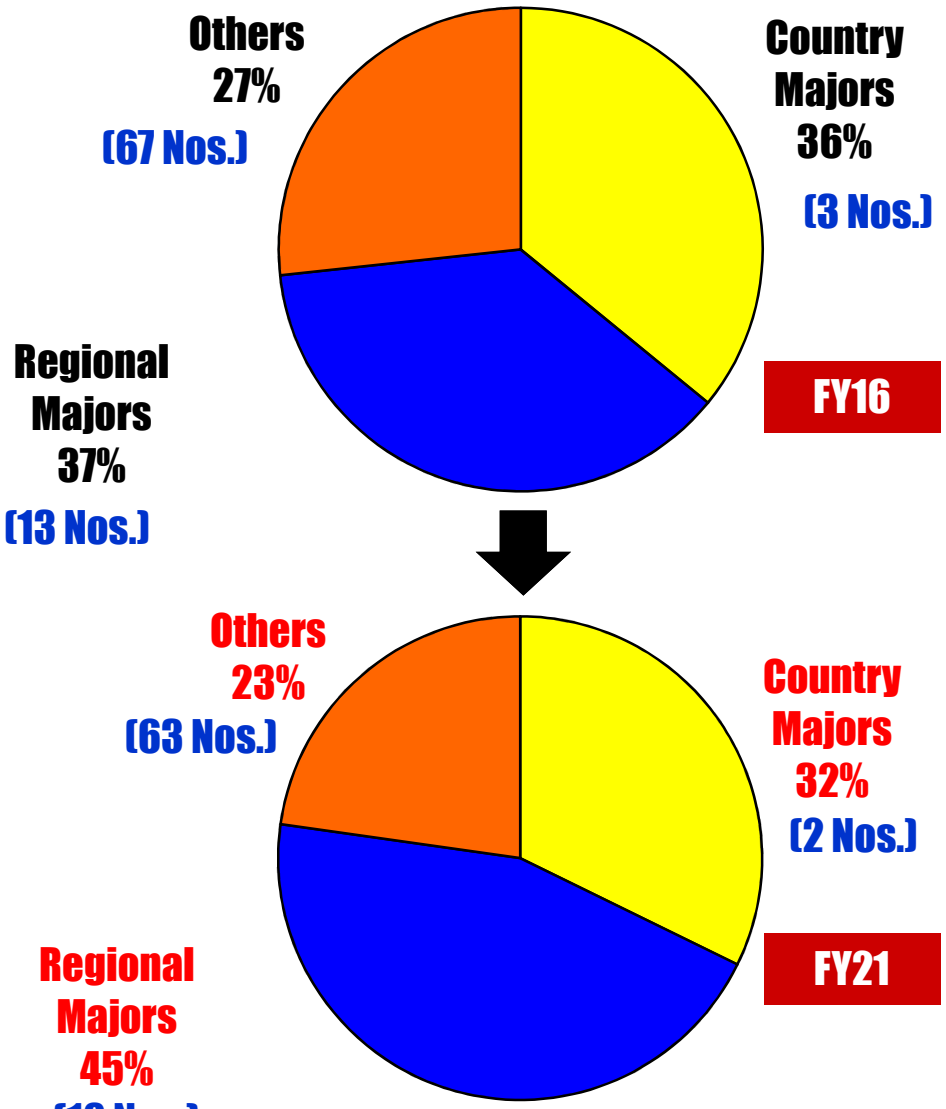
Demand & Supply at Regional Level



Figures in mio t

Demand/ Supply	North	Central	West	South	East	India
Demand (FY16)	52	48	55	76	58	289
Supply (FY16)	82	52	52	143	66	395
Surplus/ (Deficit) (FY16)	30	4	(3)	67	8	106
Demand (FY22)	79	75	86	116	92	447
Supply (FY22)	91	58	68	171	87	475
Surplus/ (Deficit) (FY22)	12	(17)	(17)	55	(4)	28

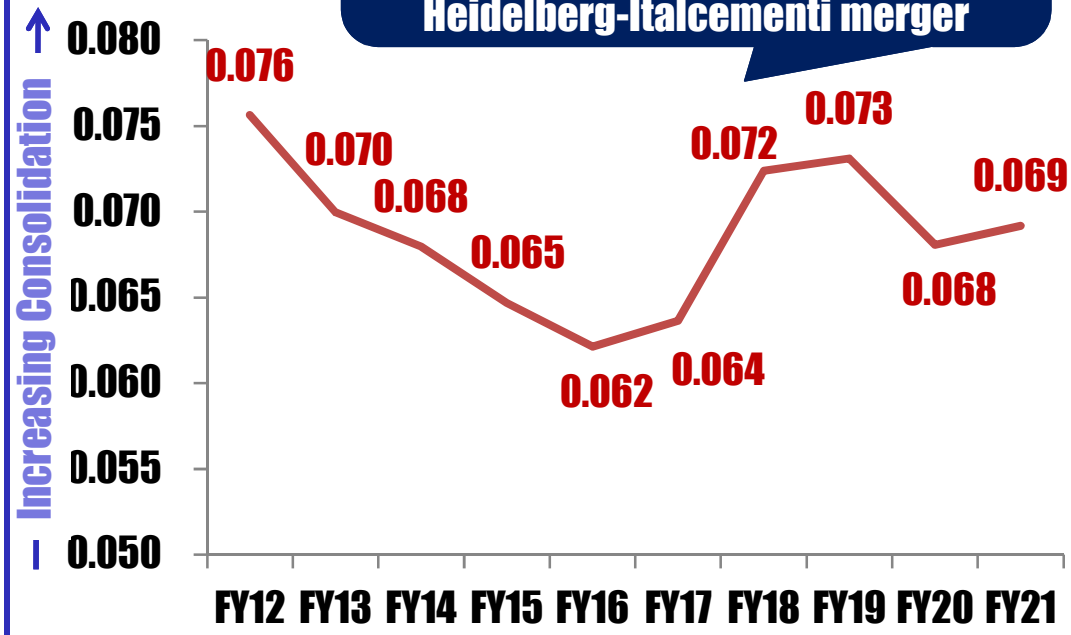
Cement Market Scenario



(Indicates number of players)

Capacity Ownership

Increase due to UltraTech -Jaypee, Birla Corp-Reliance, Nirma-Lafarge, Orient-Jaypee & Heidelberg-Italcementi merger

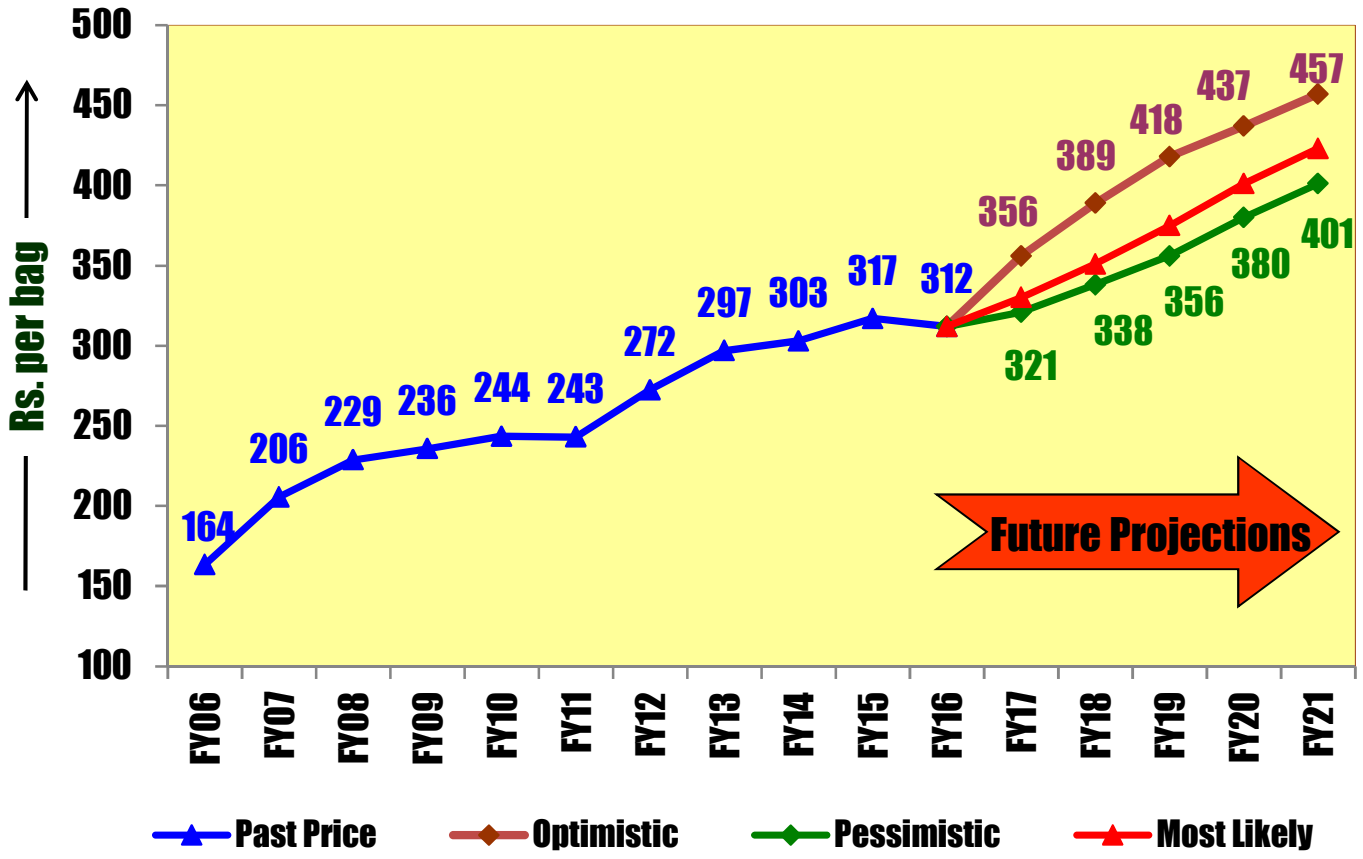


The index is seen to be falling till FY16 and then shows a sudden jump in FY17 due to four major acquisitions and a JV, indicating consolidation in the industry. Thereafter, it falls again to FY13 levels.

Herfindahl Index

Simulated Price Forecast

Prices in past have grown at a rate of 5-7% pa. Future prices likely to increase by around 6% pa under Most Likely Scenario.



After Demand – Supply gap, rising input materials' prices is seen to have the most significant impact on Cement Price

Modeling with 40 variables, e.g.

- ✓ Cement Spend
- ✓ Demand - Supply Gap
- ✓ Industry Consolidation
- ✓ Return Expectations of Investors
- ✓ Past Cement Prices
- ✓ Price Elasticity of Demand
- ✓ CAPEX for Capacity Creation
- ✓ Availability of Input Materials
- ✓ Price Indices
- ✓ Differential Costs of Delivery

Limestone Reserves

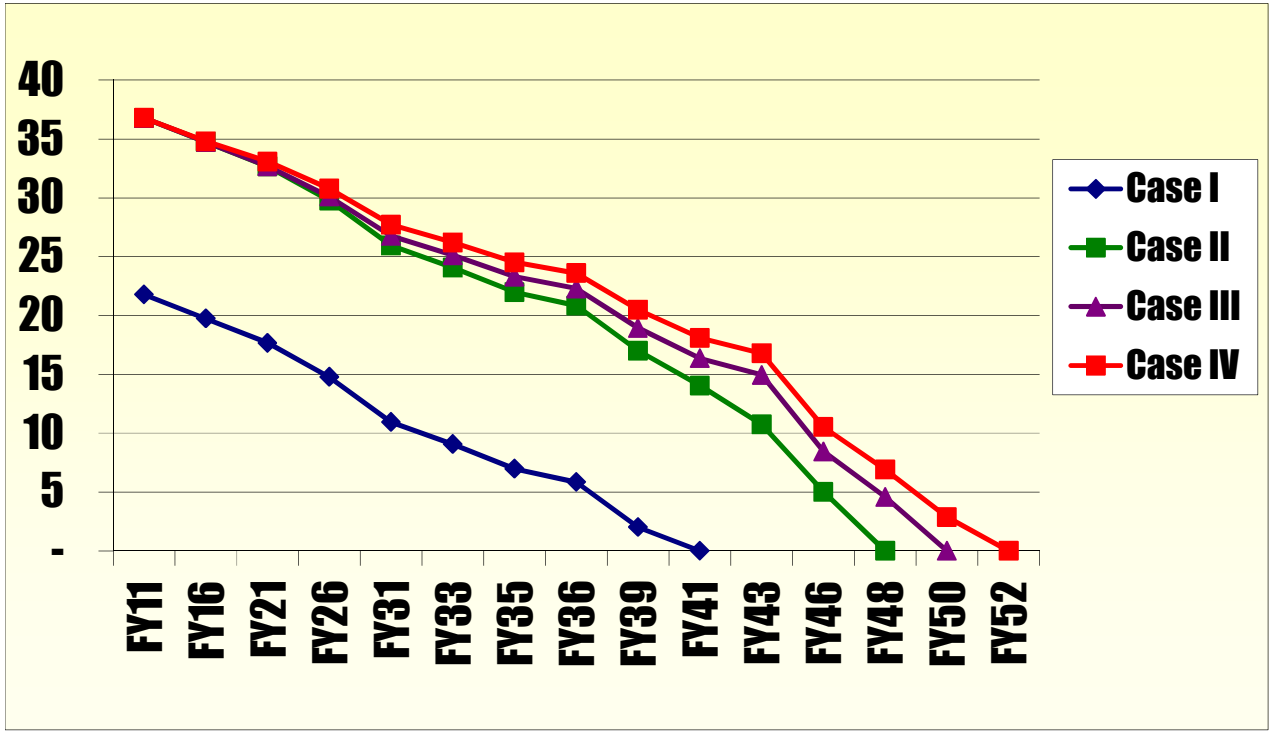
Total Deposits
50 bio t

Individual Deposit > 50 mio t
CaO > 42%
45 bio t

In Forest Land
4 bio t

Statutorily Blocked
19 bio t

Exploitable Reserves
22 bio t



- **Case - I : Current product mix with current limestone reserve**
- **Case - II : Current product mix with increased exploitable limestone**
- **Case - III : Case II with 100% blended cement beyond 2023**
- **Case - IV : Case III with lower demand growth**

Blending Material

Fly Ash

- ✓ Approx. 60-65% cement sold in India is fly ash based i.e. PPC
- ✓ Total installed capacity of coal based thermal power plants in India is around 133,000 MW (i.e. ~170 mio tpa of fly ash generation)
- ✓ 40 mio tpa of fly ash is currently utilized by the cement industry
- ✓ An additional 80 mio tpa is expected to be available by 2020 against an incremental requirement of 20 mio tpa

Slag

- ✓ Approx. 7-8% cement sold in India is PSC (Portland Slag Cement)
- ✓ Current slag generation is more than 18 mio tpa
- ✓ 10 mio tpa of slag is utilized by the cement industry
- ✓ Incremental requirement of slag in Indian cement industry is 6 mio tpa by 2020

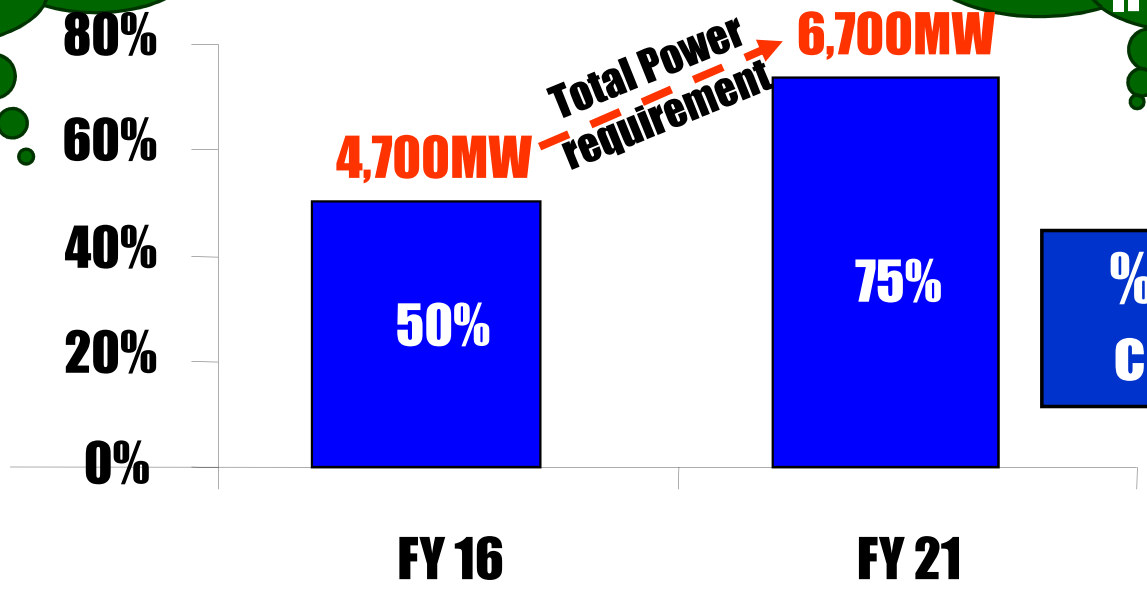
Power

Waste heat recovery for power generation

Mega thermal plants as IPP/ captive use

Greater use of wind/ tidal/ solar power

Contracting alliances with IPPs



% Plants using captive power

Approximately 2,000 MW of CPP Capacity would need to be created

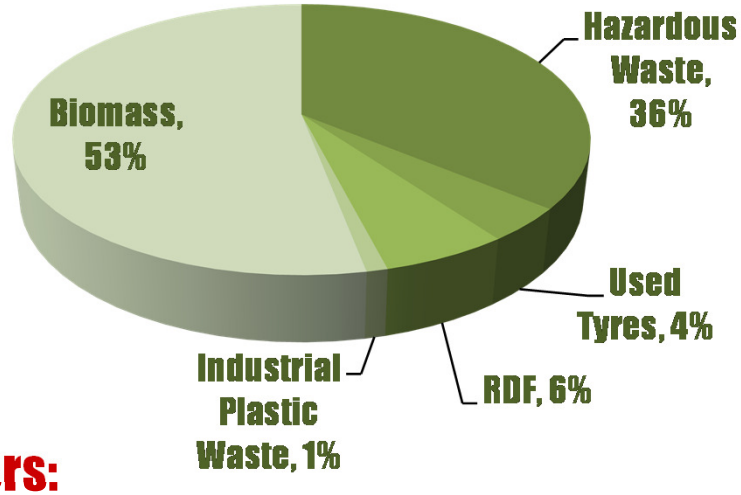
Fuel

Coal

- ✓ Most of the coal deposits in India are in Eastern belt.
- ✓ Coal rich states are Madhya Pradesh, Chhattisgarh, Jharkhand, Orissa, North East, Maharashtra, Andhra Pradesh.
- ✓ Indian Cement industry uses >25% imported coal
- ✓ Usage of imported coal expected to increase, especially in coastal regions.

Alternate Fuel

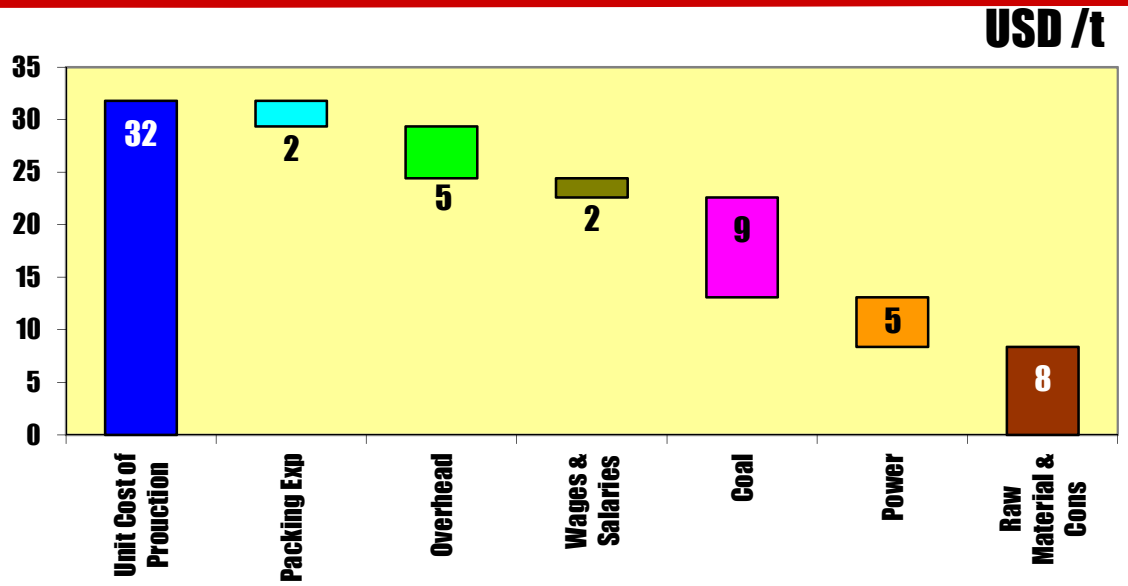
- ✓ Present usage in India is ~3,00,000 tpa.
- ✓ Present thermal substitution is approx. 1%.

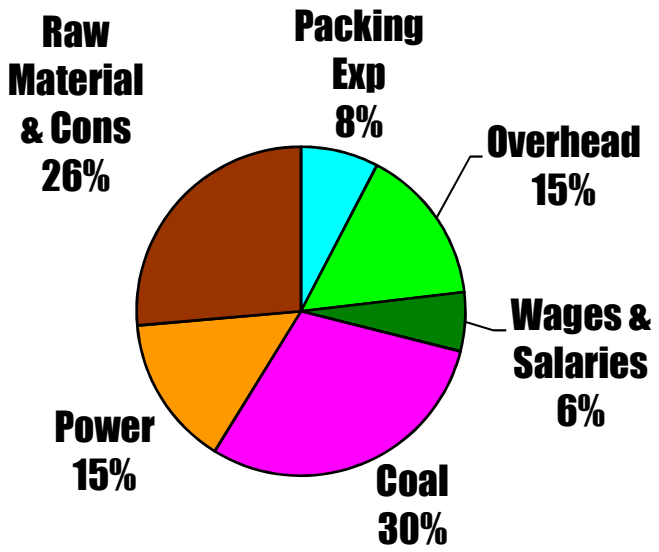


- ✓ Barriers:
  - **Technical:** Non-uniform quality and lack of collection & pre-processing facilities.
  - **Financial:** High investment cost and high transportation & collection cost.
  - **Policy & Regulatory:** No clear policy and lengthy approval process for trial runs.

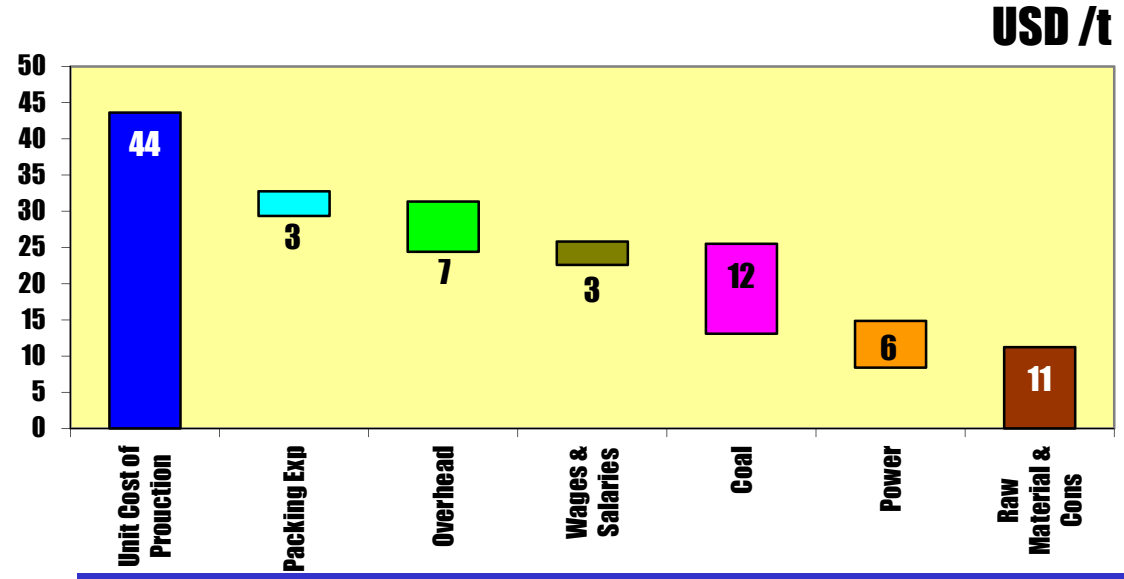
Operating Cost

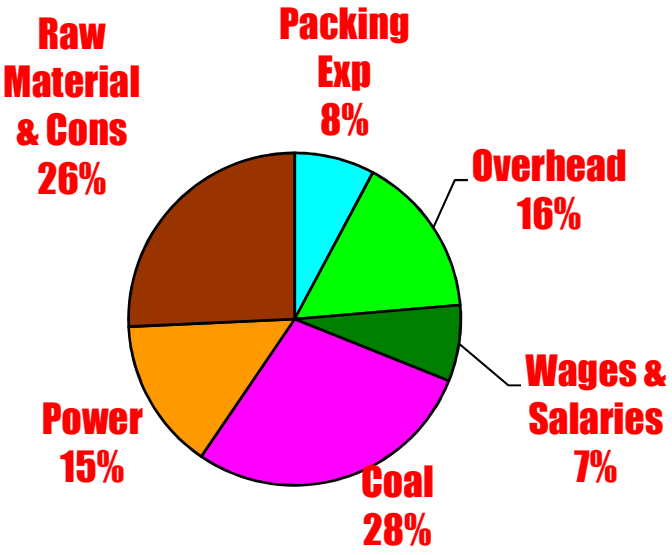
FY16





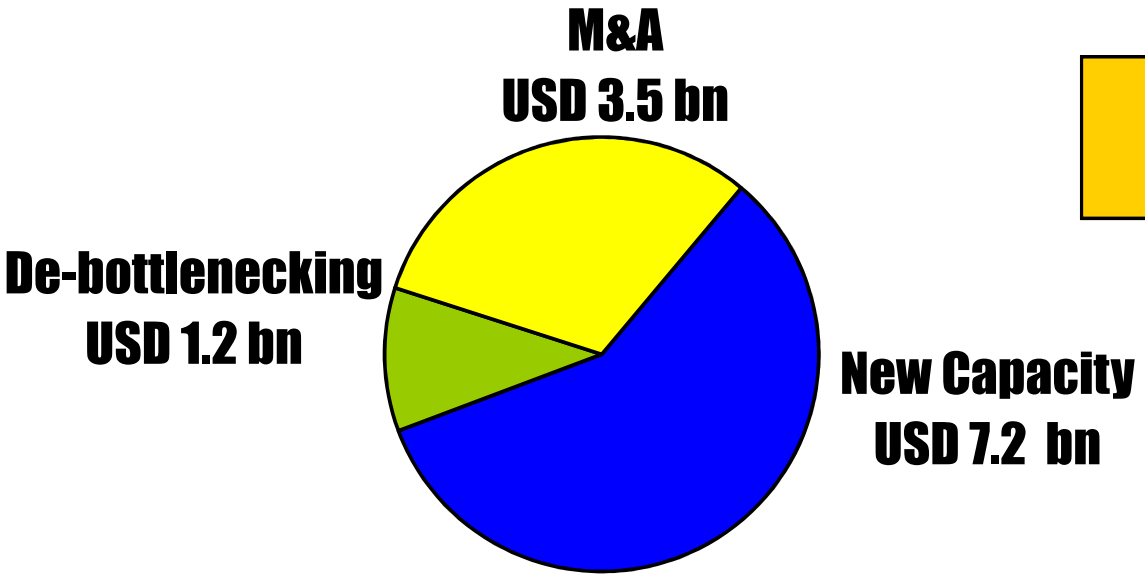
FY21



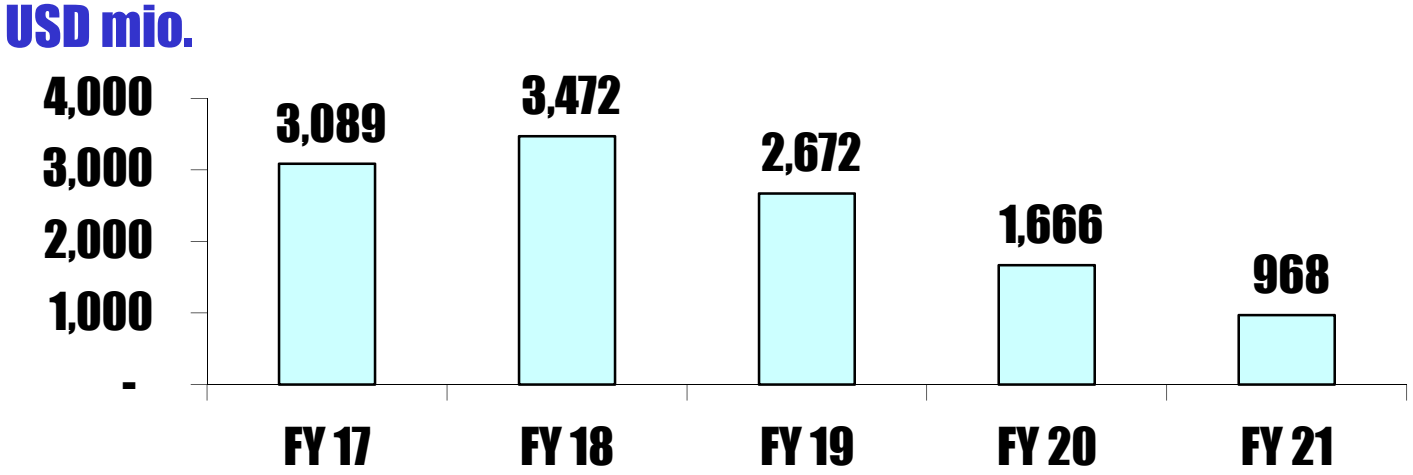


Unit operating costs (PPC) to increase by about ~35% over the period

Investment



Total Investment
USD 11.9 bn



Unit Investment Costs could increase by 8-10 % over the period

The Challenges of Tomorrow

- ✓ **Dwindling Natural Resources :** Limited limestone, fossil fuel and water resources. Life of cement grade limestone reserves is estimated to be around 40 years more.

- ✓ **Increasing Costs:** Energy efficiencies, equipment availability and input material costs have been the major focus areas for cost reduction in the past. However, recently freight (both inwards and outwards) has also become a focus point.

  The potential also exists for reducing costs in non-equipment related domains, e.g. material inventories, consumable consumption rates, financial expenses, etc.

- ✓ **Increase in Gestation Period:** The gestation period in the future is likely to be in the range of 5-7 years, due to prolonged pre-project activities like Mines Auction, Land acquisition and statutory clearances.

  Industry players could attempt to bring down actual construction time by employing more steel in civil engineering structures.

- ✓ **Low Capacity Utilization:** Present industry capacity utilization is in mid 70's; this is likely to start improving and touch 90% in FY22.

- ✓ **Increasing Revenue:** Till capacity utilizations remain sub-optimal, need to finds ways to enhance revenue – increase ex-gate price/ optimise distribution, etc.

Opportunities

- ✓ **Favorable Demand-Supply balance by FY 23:** Demand is likely to overtake supply in next 6-7 years.

  Typically, greenfield plant commissioning can take 5-6 years from planning stage; now is the **time to plan** to take advantage of forthcoming deficit situation. Brownfield expansion takes +2 years.

- ✓ **Limestone paucity:** Limestone resources are **limited and valuable**.

- ✓ **Growing demand:** India has **immense growth potential**. The future of cement market is likely to remain buoyant in medium to long term.

- ✓ **Price:** **Prices have held up**, despite lower capacity utilisation. This is likely to continue even in the future.

Currently, Indian Cement Industry is bottoming out and is likely to start improving in next 1 – 2 years.

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THANK YOU