

SECTOR OVERVIEW



Pakistan CEMENT SECTOR
JCR-VIS RESEARCH

March 2017

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**CEMENT SECTOR:
GLOBAL PROFILE**

KEY CHARACTERISTICS

A capital intensive industry

The cost of cement plants is usually above \$ 160M per million tones of annual capacity, with correspondingly high costs for modifications. The cost of a new cement plant is equivalent to around 3 years of turnover, ranking it as one of the most capital intensive.



Energy intensive industry

Each tonne of cement produced requires 60 to 130 kg of fuel oil or its equivalent, depending on the cement variety and the process used, and about 110 KWh of electricity. Energy on average constitutes around 40-60% of operating expenditure.



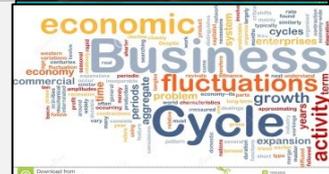
An Industry with homogenous products

Although produced from natural raw materials which vary from plant to plant, cement can be considered a standard product - there are only a few classes of cement.



Market parameters

Consumption of cement is closely linked to both the state of economic development in any given country or region and to the economic cycle.



Logistics and distribution network

Heavy reliance on logistical support and distribution network to function.



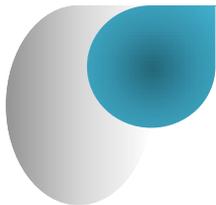
Raw Materials

The raw materials needed to produce cement (calcium carbonate, silica, alumina and iron ore) are generally extracted from limestone rock, chalk, clayey schist or clay.



SECTOR SNAPSHOT

Types of Cement: The cementing Material is generally classified into **2 category:**



Hydraulic (e.g. Portland Cement): set and become adhesive due to a chemical reaction between the dry ingredients and water.

Non – Hydraulic: will not set in wet conditions or underwater; rather, it sets as it dries and reacts with carbon dioxide in the air. It is resistant to attack by chemicals after setting.

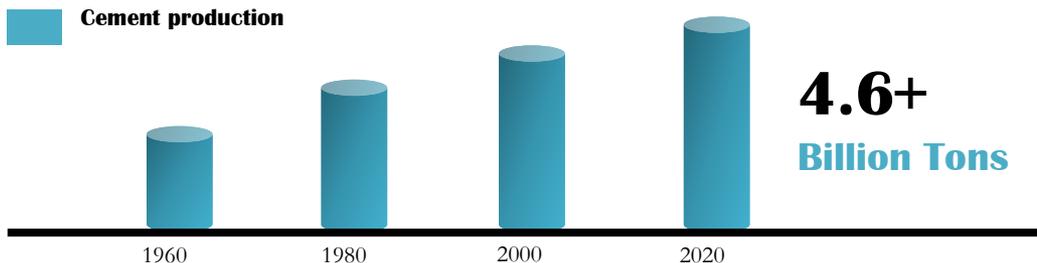
Competitive landscape and key vendors 2016



The global cement industry is **competitive** and contains numerous **global and regional players**

<u>Company</u>	<u>Capacity</u>
1. LafargeHolcim (Switzerland)	286.66 mt/year
2. Anhui Conch (China)	217.2 mt/year
3. CNBM Sinoma (China)	176.22 mt/year
4. Heidelberg (Germany)	121.11 mt/year
5. CEMEX (Mexico)	87.09 mt/year
6. Italcementi (Italy)	76.62 mt/year
7. China Resource (China)	71.01 mt/year
8. Taiwan Cement (Taiwan)	63.72 mt/year
9. Eurocement (Russia)	45.18 mt/year
10. Votorantim (Brazil)	45.02 mt/year

Current Global cement production in 2016



4.6+
Billion Tons

Global Employment



545,000+
employees (Cement & Concrete)

Human Resources

CEMENT MANUFACTURING PROCESS

STAGE I: QUARRY



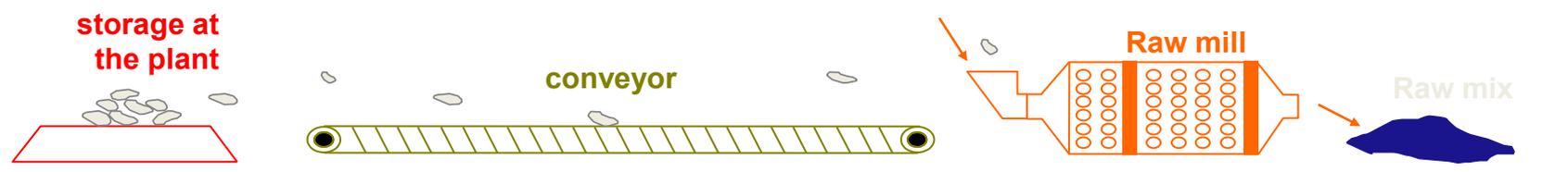
1. BLASTING: The raw materials that are used to manufacture cement (mainly limestone and clay) are blasted from the quarry.

2. TRANSPORT: The raw materials are loaded into a dumper.

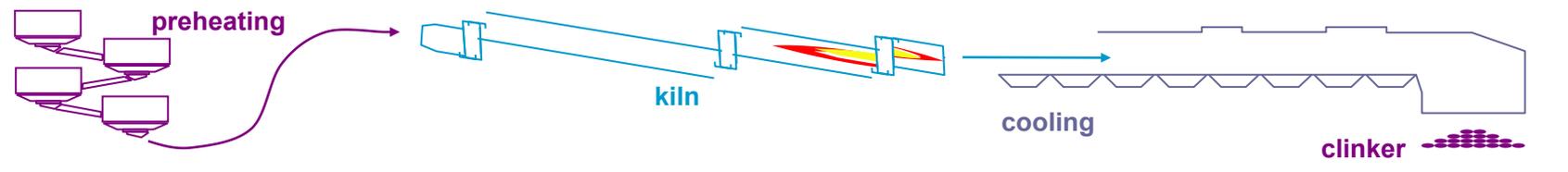


3. CRUSHING & TRANSPORTATION: The raw materials, after crushing, are transported to the plant by conveyor. The plant stores the materials before they are homogenized.

STAGE II: RAW GRINDING AND BURNING



4. RAW GRINDING : The raw materials are very finely ground in order to produce the raw mix.

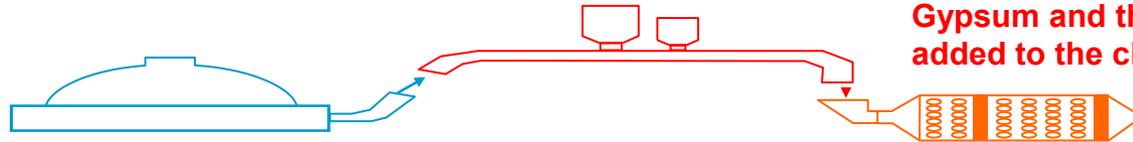


5. BURNING : The raw mix is preheated before it goes into the kiln, which is heated by a flame that can be as hot as 2000 °C. The raw mix burns at 1500 °C producing clinker which, when it leaves the kiln, is rapidly cooled with air fans. So, the raw mix is burnt to produce clinker : the basic material needed to make cement.

CEMENT MANUFACTURING PROCESS

STAGE III: GRINDING, STORAGE, PACKING, DISPATCH

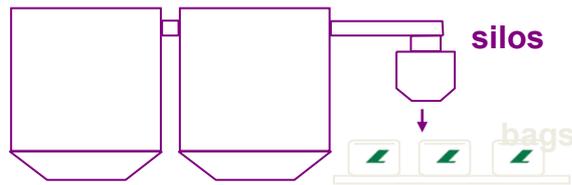
clinker storage



Gypsum and the secondary additives are added to the clinker.

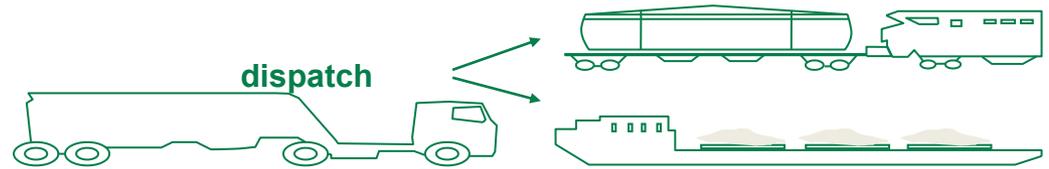
Finish grinding

6. GRINDING: The clinker and the gypsum are very finely grounded giving a “pure cement”. Other secondary additives and cementitious materials can also be added to make a blended cement.



silos

bags



dispatch

7. STORAGE, PACKING, DISPATCH: The cement is stored in silos before being dispatched either in bulk or in bags to its final destination.

Source: <http://www.lafarge.com/en>

ENVIRONMENTAL IMPACT

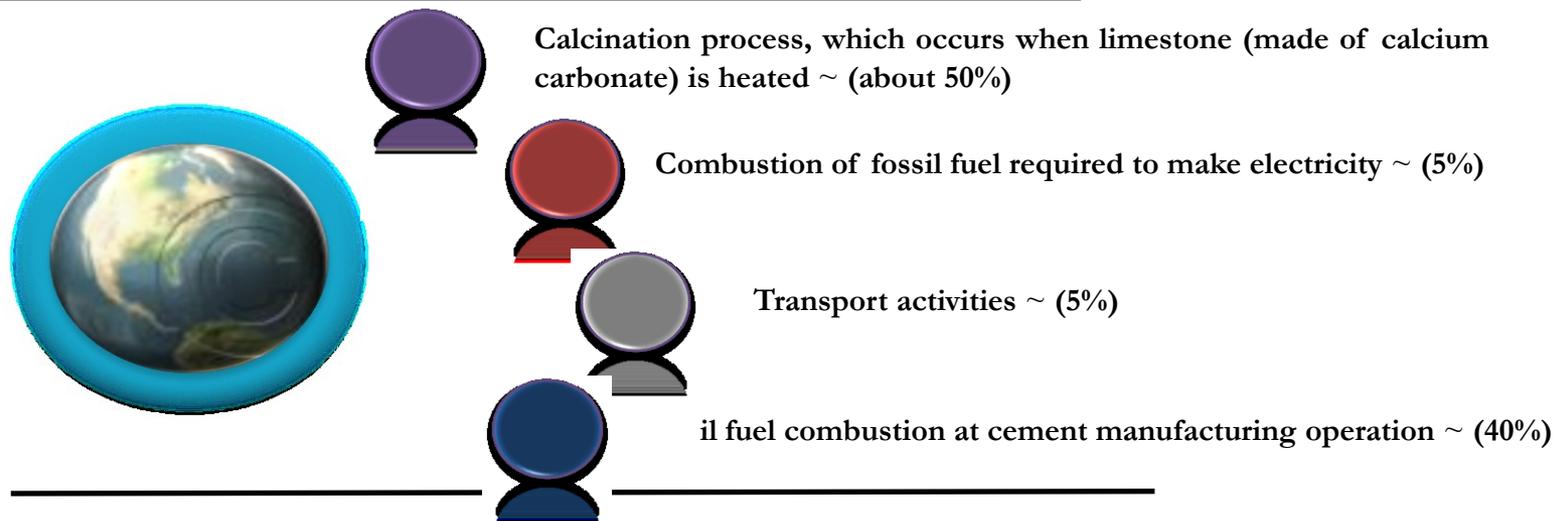


- The production of cement releases greenhouse gas emissions both directly and indirectly:
- The direct emissions of cement occur through a chemical process called *calcination*, which occurs when limestone (made of calcium carbonate,) is heated. This process accounts for ~50% of all emissions from cement production.
 - Indirect emissions are produced when fossil fuel is burned to heat the kiln. Kilns are usually heated by coal, natural gas, or oil, and the combustion of these fuels produces additional CO₂ emissions. This represents around 40% of cement emissions.
 - Finally, the electricity used to power additional plant machinery, and the transportation of cement, represents another source of indirect emissions and account for 5-10% of the industry's emissions.

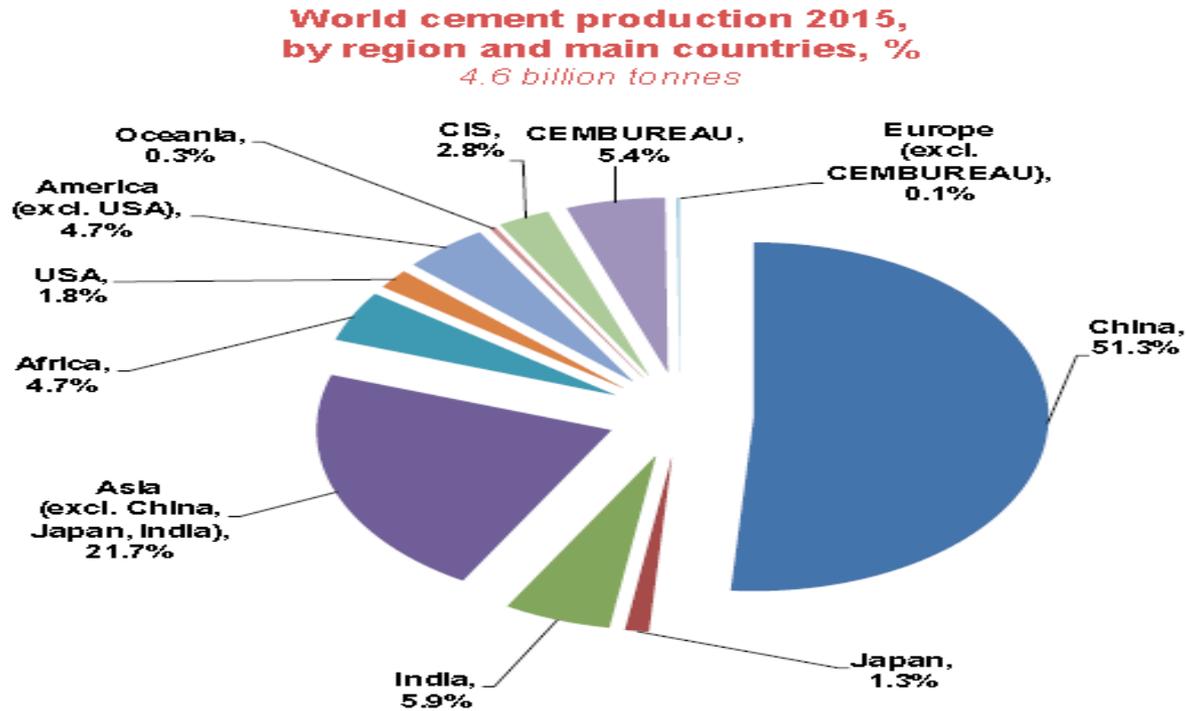
Source: <http://blogs.ei.columbia.edu/2012/05/09/emissions-from-the-cement-industry/>

ORIGINATION OF CEMENT RELATED GREENHOUSE GASSES (GHG)

Cement industry accounts for 5% of global greenhouse gasses (GHG):



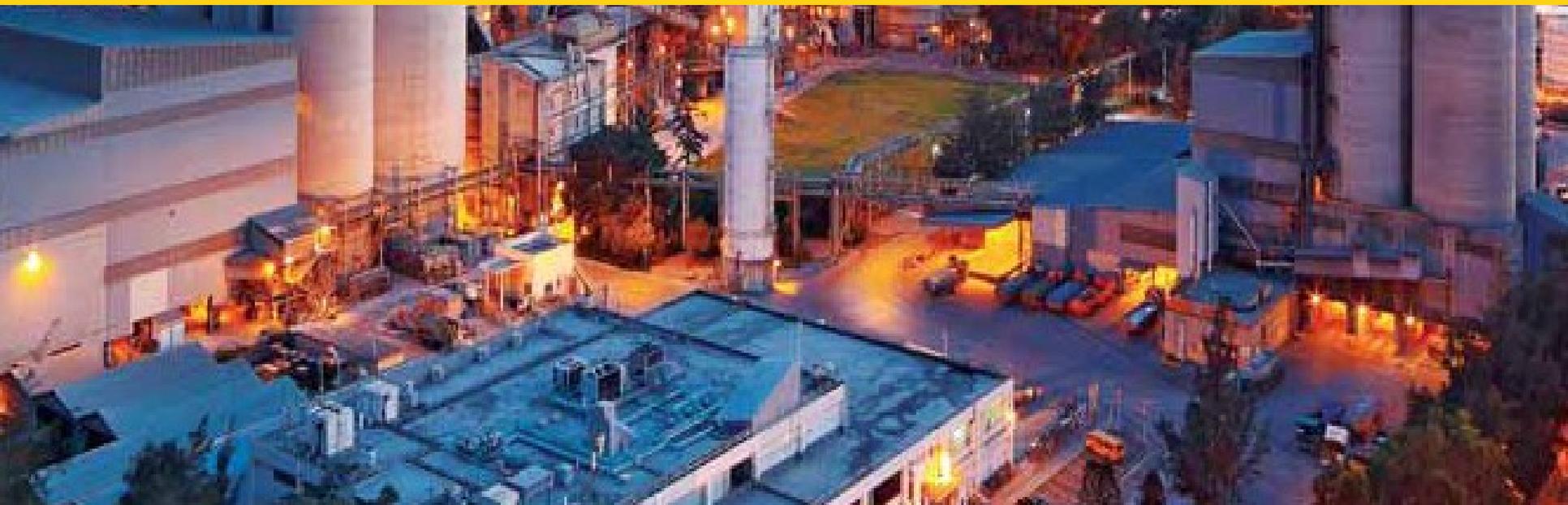
GLOBAL PRODUCTION



Source: <http://www.cembureau.be/about-cement/key-facts-figures>



PAKISTAN CEMENT SECTOR: OVERVIEW



SNAPSHOT OF PAKISTAN'S CEMENT SECTOR

Rs. 250+
Billion Sales

38+
Million tons of
dispatches

5.8+
Million tons of
export of cement &
Clinker

24 players
Operating in the
industry

140 kg
Per Capita
Consumption

Operational capacity
44+
Million tons Clinker
46+ Million tons
Cement

COMPARATIVE ANALYSIS OF PER CAPITA CEMENT CONSUMPTION

World Average Cement Consumption:

400 Kg per Capita (2016)



Saudi Arabia, 1,683



China, 1,581



Turkey, 744



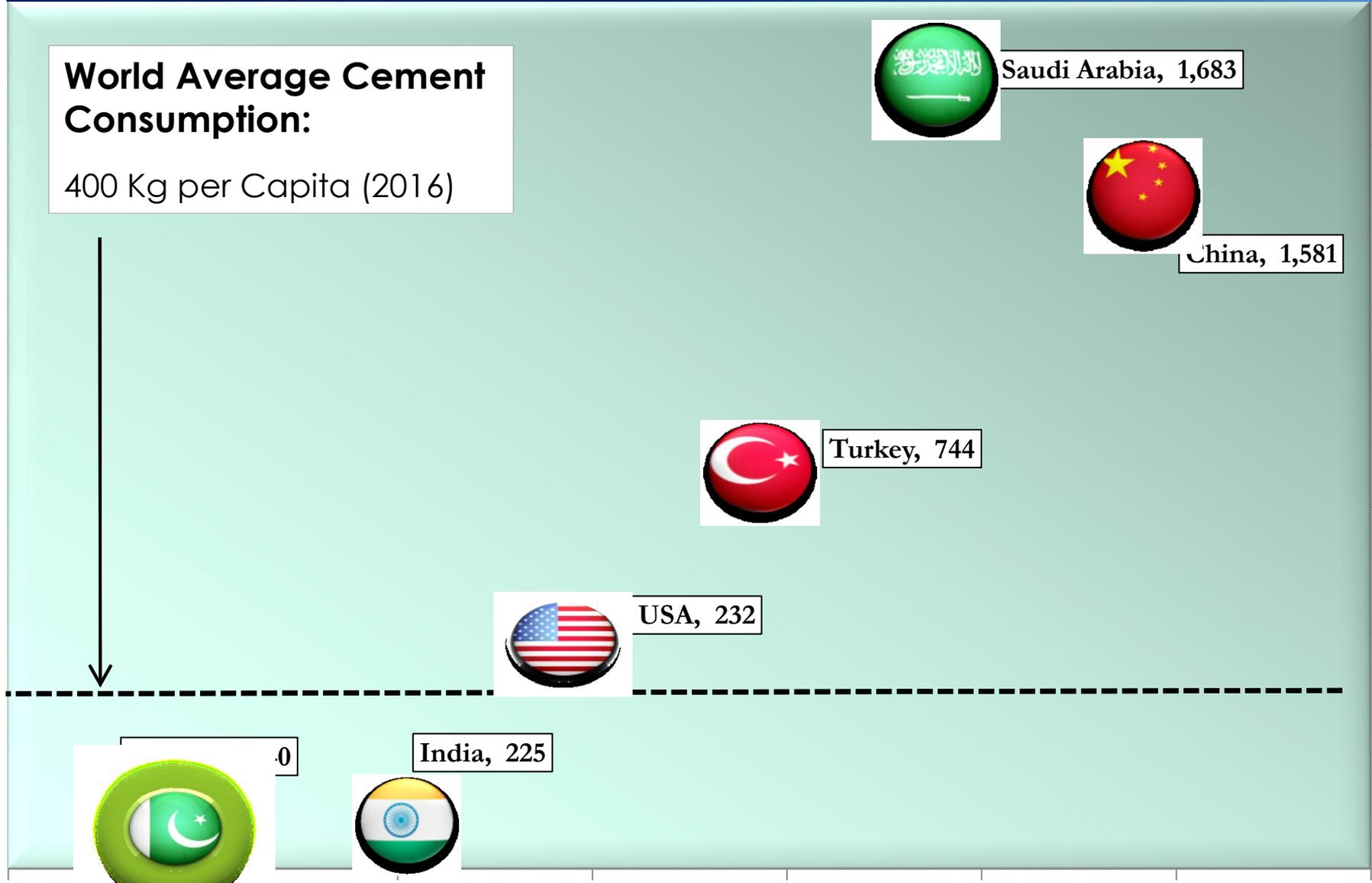
USA, 232



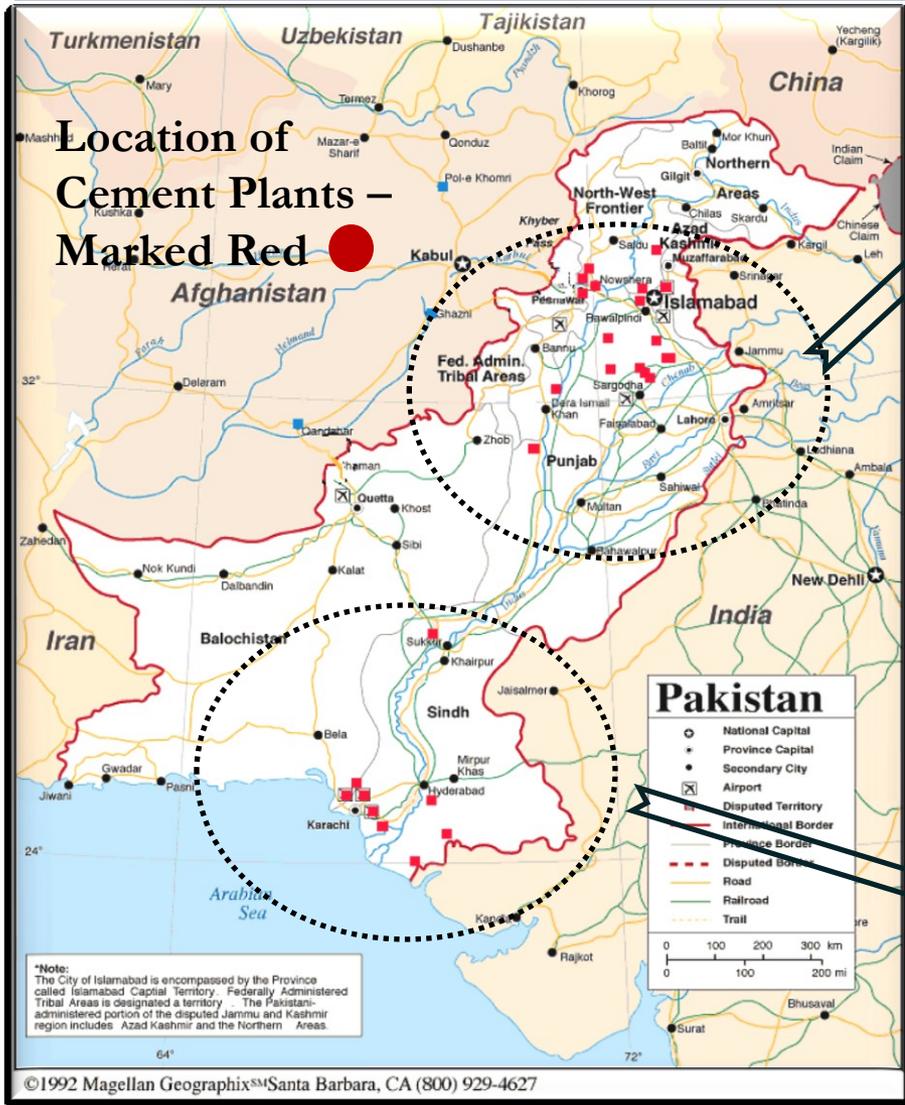
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India, 225



LOCATION OF CEMENT PLANTS



North

- There're 19 cement units operating in North.
- North Zone includes provinces of Punjab, Khyber Pakhtunkhwa, Azad Kashmir, Gilgit-Baltistan and parts of Balochistan while South Zone includes provinces of Sindh and Balochistan.

South

- There're 5 cement units operating in South zone.
- South Zone comprise provinces of Sindh and Baluchistan.

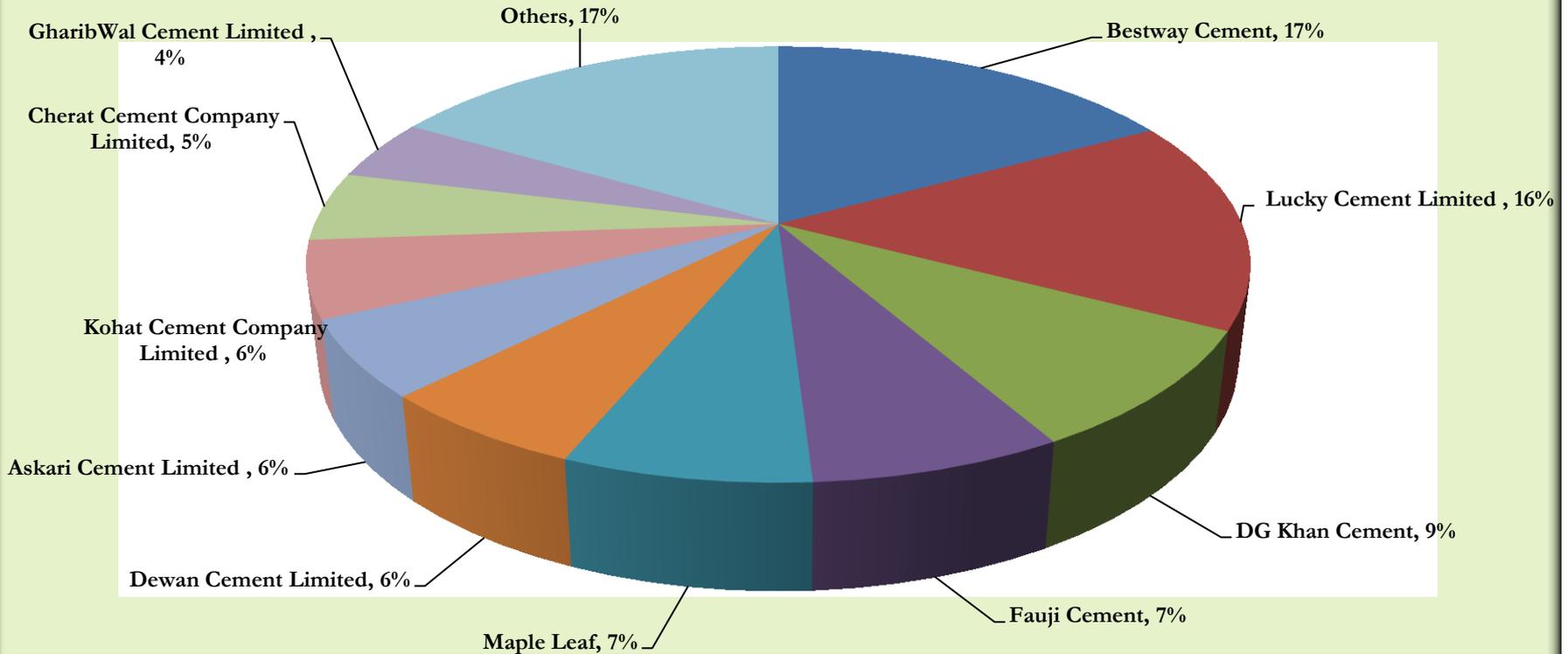
MARKETING ARRANGEMENT

- The industry operates under a marketing arrangement whereby there is understanding on pricing between cement players and a quota is assigned to each player based on installed capacity.
- The arrangement is rewritten based on additional capacities that come online.
- The marketing arrangement has matured considerably and has been a key element of cement sector profitability.
- JCR-VIS believes that players with higher efficiencies and presence & access to export markets will be able to remain competitive in the absence of marketing arrangement.



INDUSTRY PRODUCTION CAPACITY

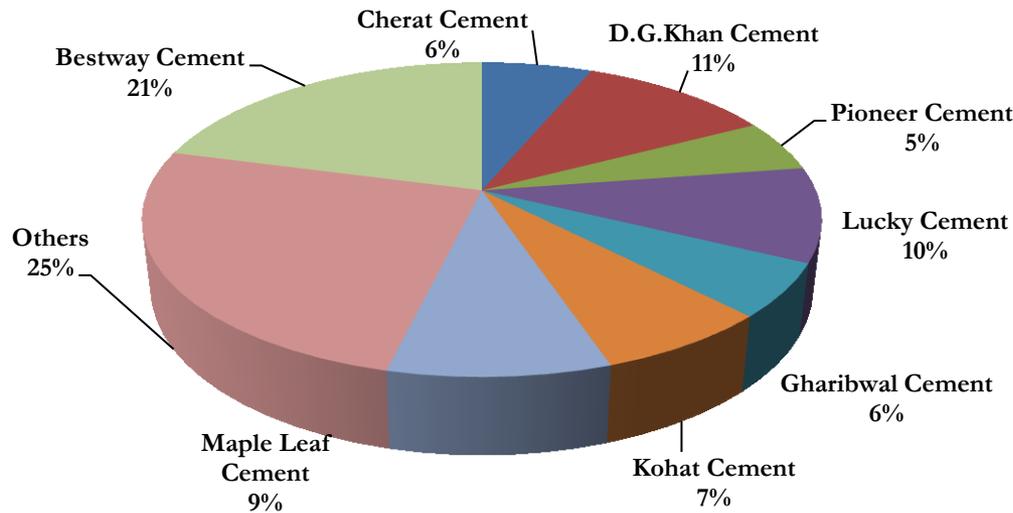
Top 10 Players In the Cement Industry



Operational Capacity (2016)	Projected Capacity (2021)
46.9m Tons	72.4m Tons

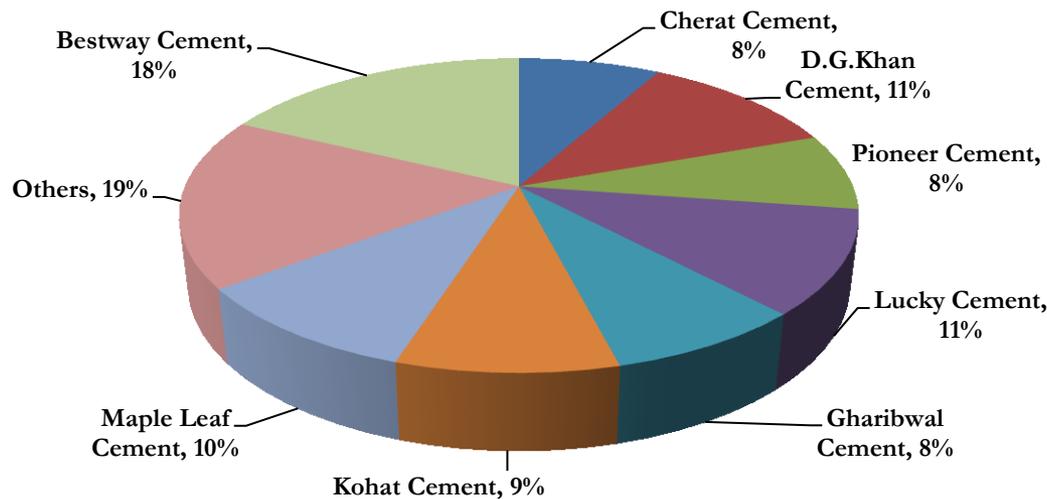
COMPANIES & EXPANSION PLANS IN THE CEMENT SECTOR (NORTH) – CAPACITY GIVEN IN MILLION TONS

EXISTING CAPACITY IN CEMENT SECTOR (2016)



-) *Players – 14*
 -) *Operational Capacity – 38m Tons*

AFTER CAPACITY EXPANSION (2021)

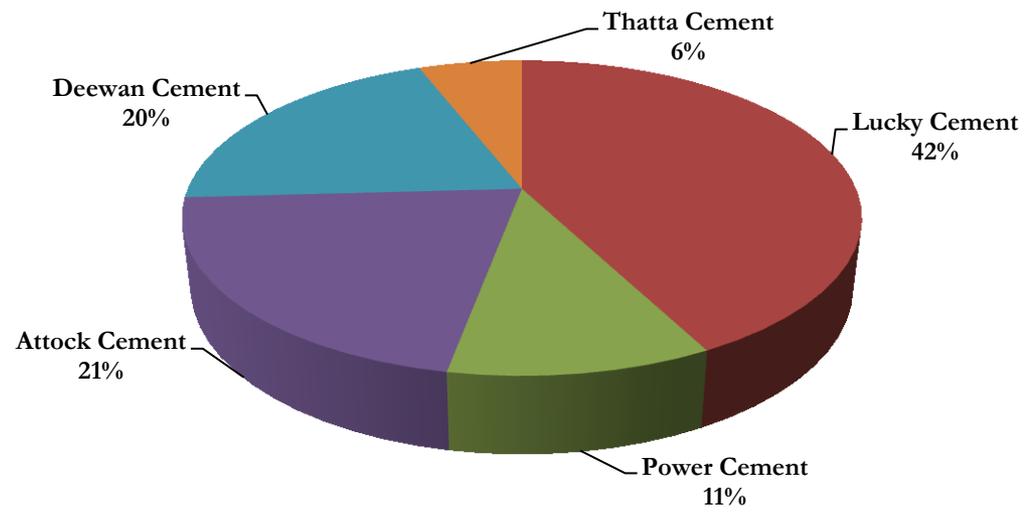


-) *Players – 14*
 -) *Operational Capacity – 56m Tons*
 -) *Additional capacity represents 47% of existing capacity*

Existing Capacity & Expansion (South)

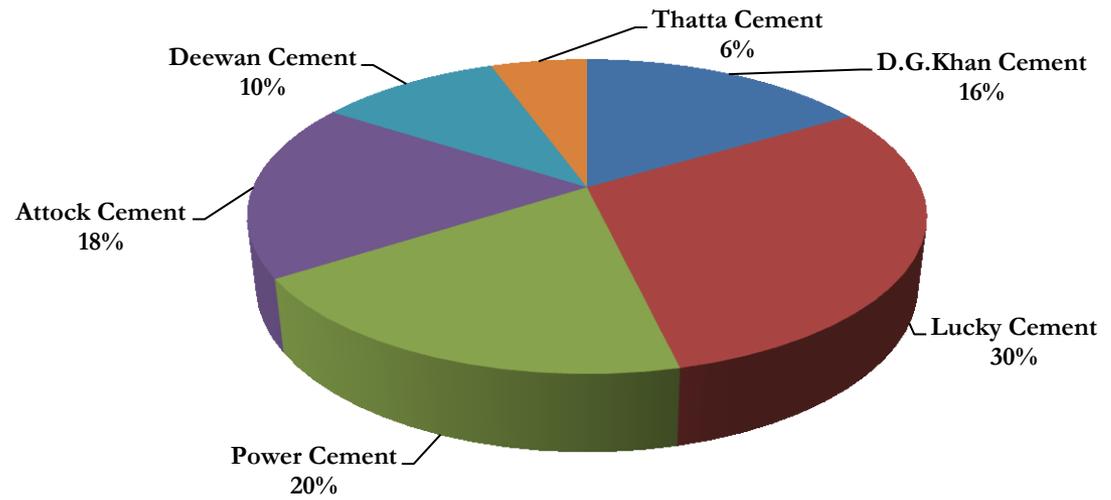
COMPANIES & EXPANSION PLANS IN THE CEMENT SECTOR (SOUTH) – CAPACITY GIVEN IN MILLION TONS

EXISTING CAPACITY IN CEMENT SECTOR



-) *Players – 5*
 -) *Operational Capacity – 8.5m Tons*

AFTER CAPACITY EXPANSION IN 2021

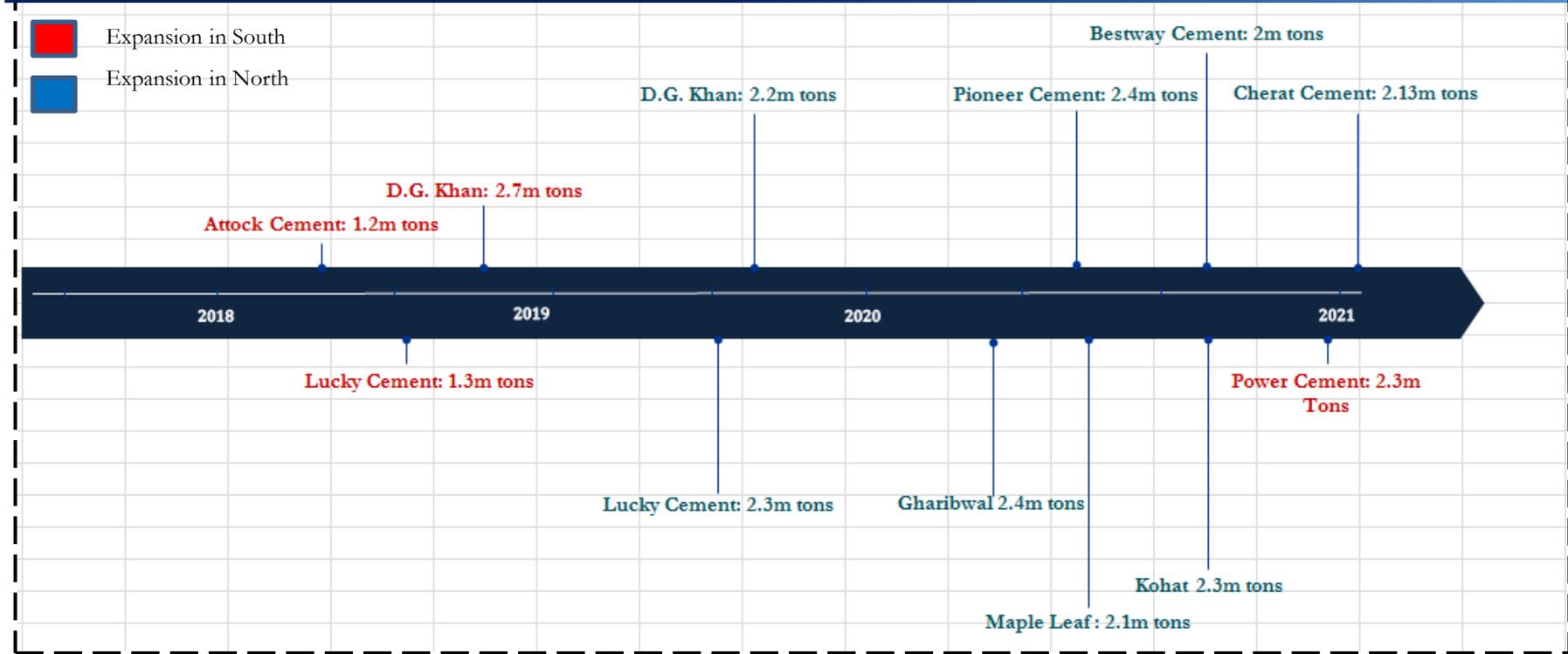


-) *Players – 6*
 -) *Operational Capacity – 16.4m Tons*
 -) *Additional capacity represents 93% of existing capacity*

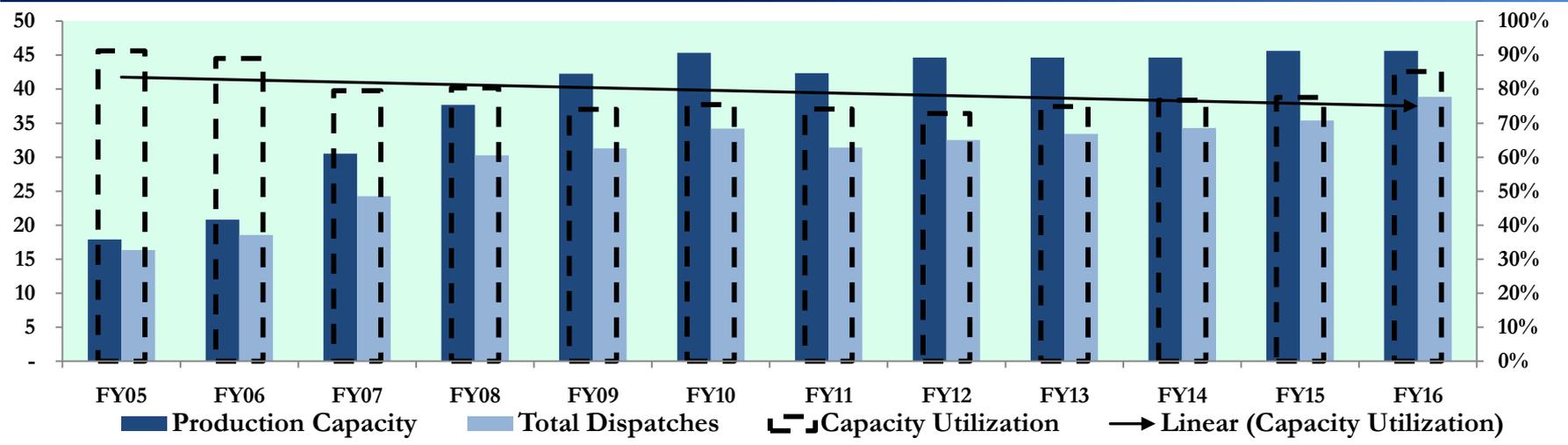
RATIONALE FOR EXPANSION

- Barring few small players, almost all cement players have announced expansion.
- Rationale for expansion includes
 - Favorable demand outlook
 - Retain market share
 - Compete in terms of efficiencies

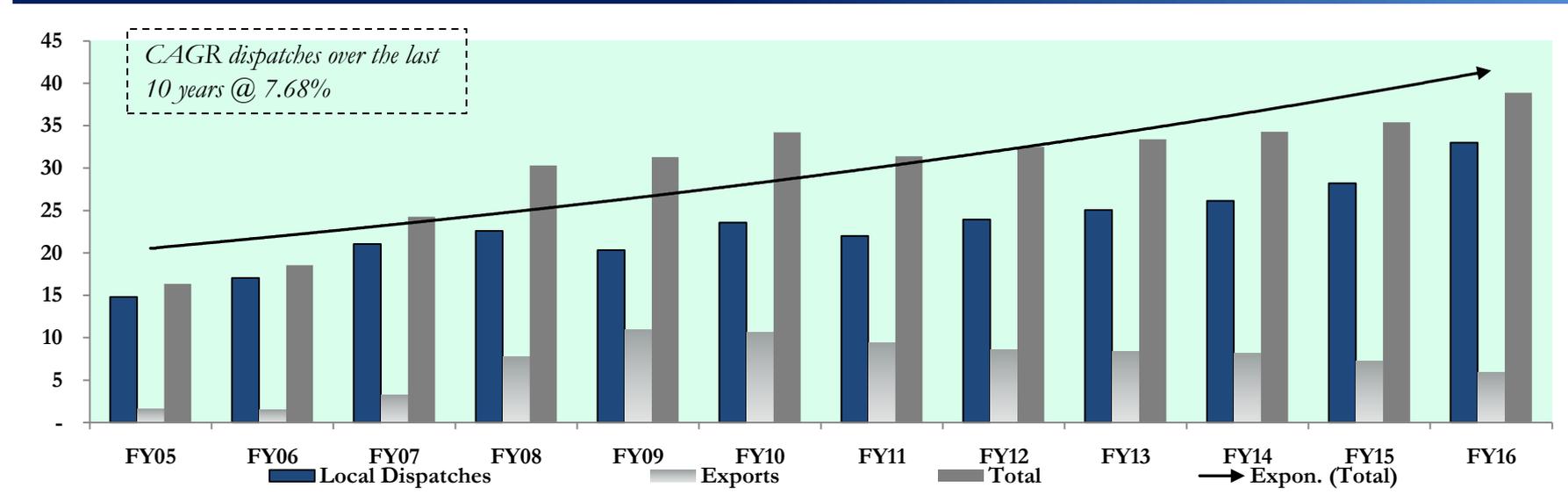
TIMELINE OF EXPANSION PLAN



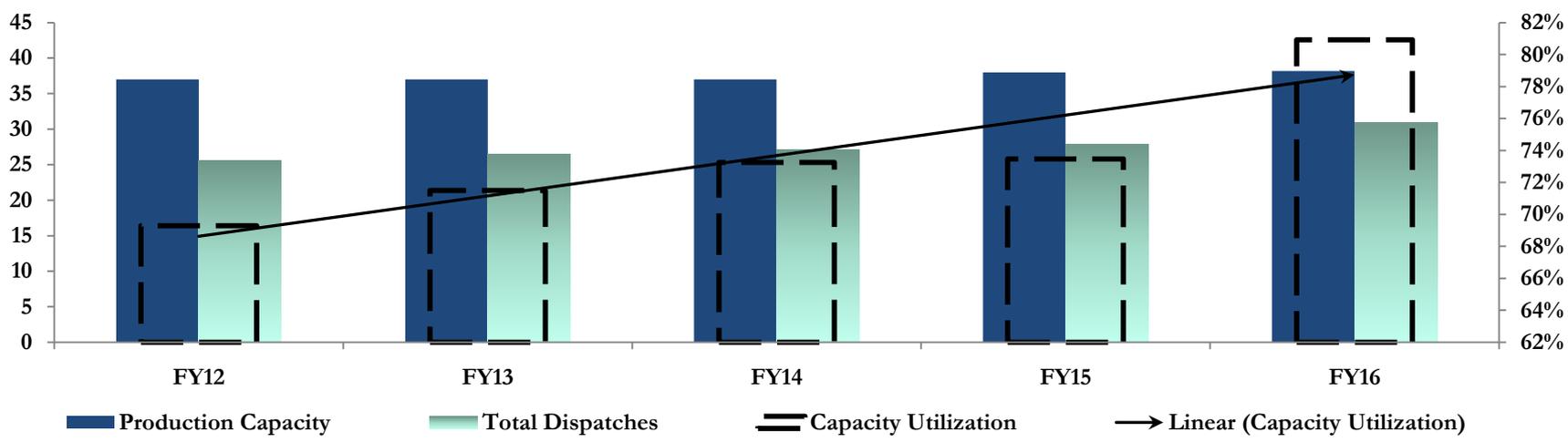
CAPACITY UTILIZATION IN PAKISTAN'S CEMENT SECTOR – MILLION TONS



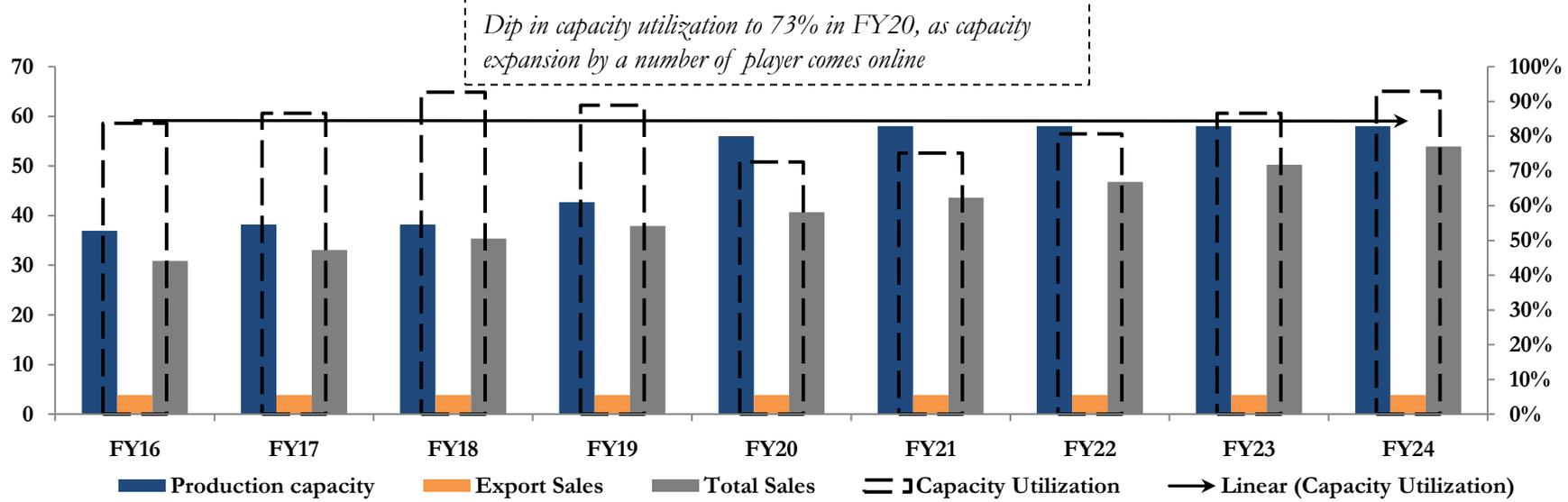
DISPATCHES IN PAKISTAN'S CEMENT SECTOR – SALES GIVEN IN MILLION TONS



CAPACITY UTILIZATION (NORTH) –MILLION TONS



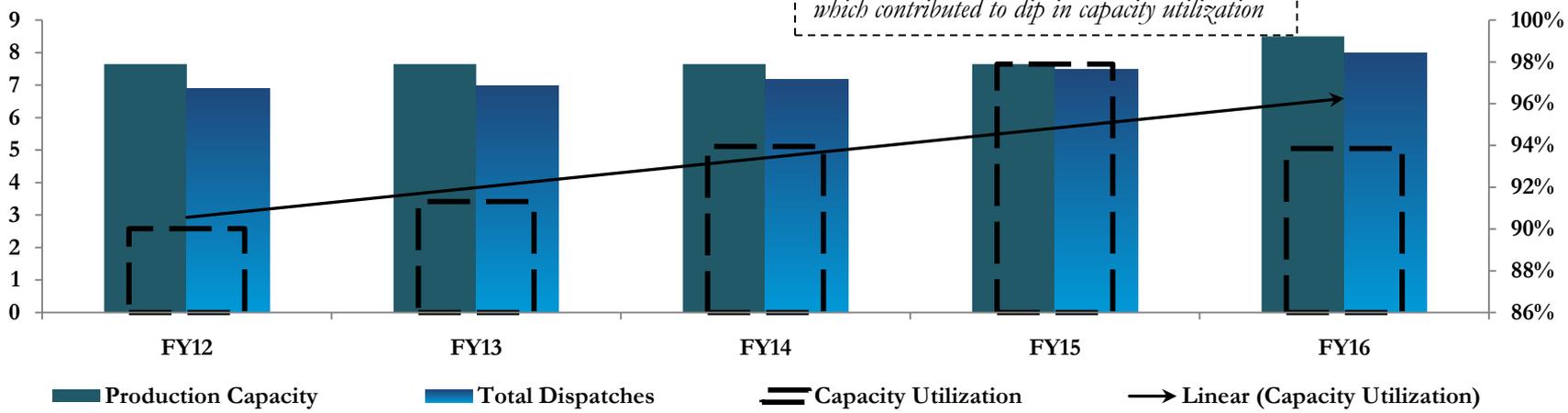
PROJECTED CAPACITY UTILIZATION (NORTH) –MILLION TONS



Capacity Utilization (South)

CAPACITY UTILIZATION (SOUTH)–MILLION TONS

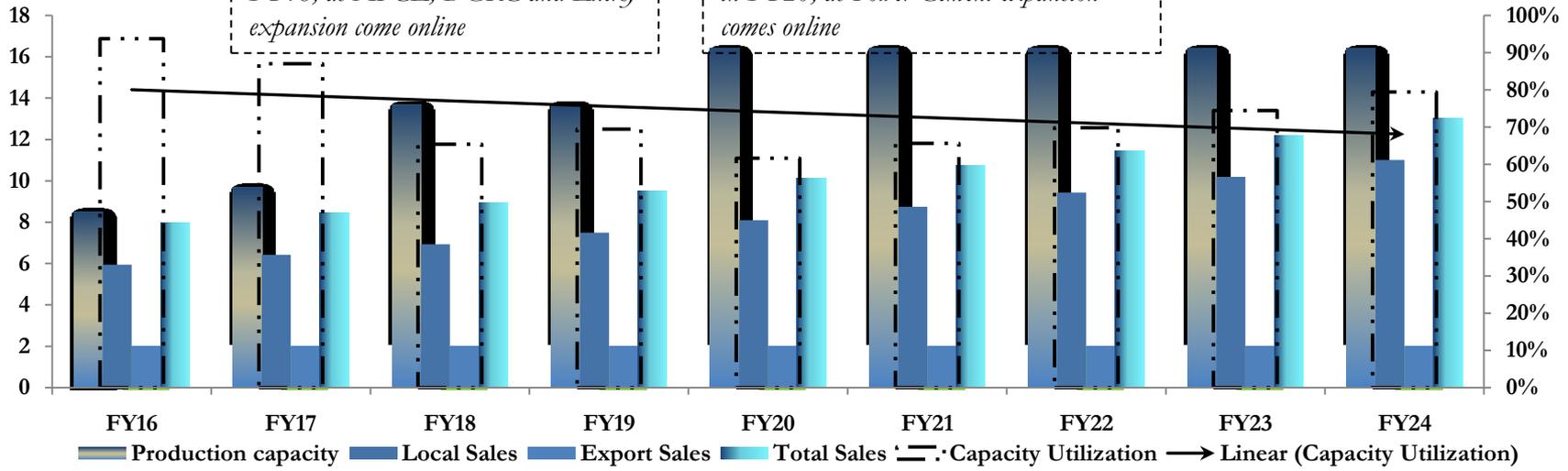
Dewan Cement increased capacity in FY16, which contributed to dip in capacity utilization



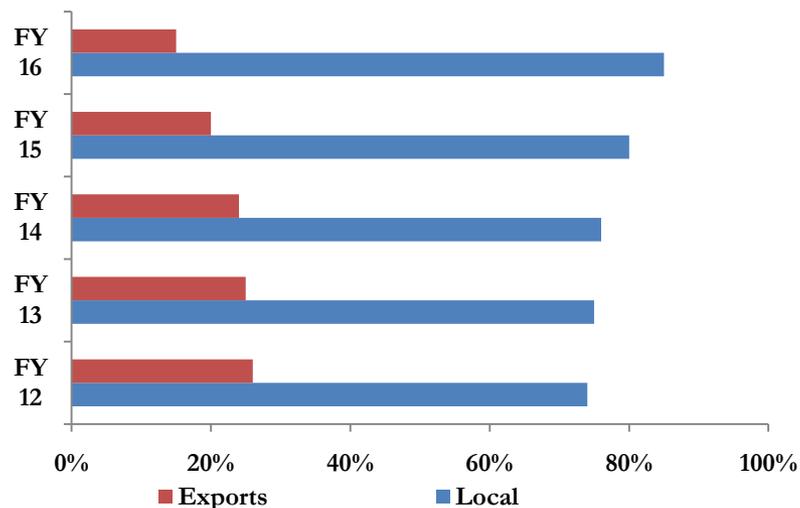
PROJECTED CAPACITY UTILIZATION (SOUTH)–MILLION TONS

Dip in capacity utilization to 65% in FY18, as APCL, DGKC and Lucky expansion come online

Further dip in capacity utilization to 62% in FY20, as Power Cement expansion comes online

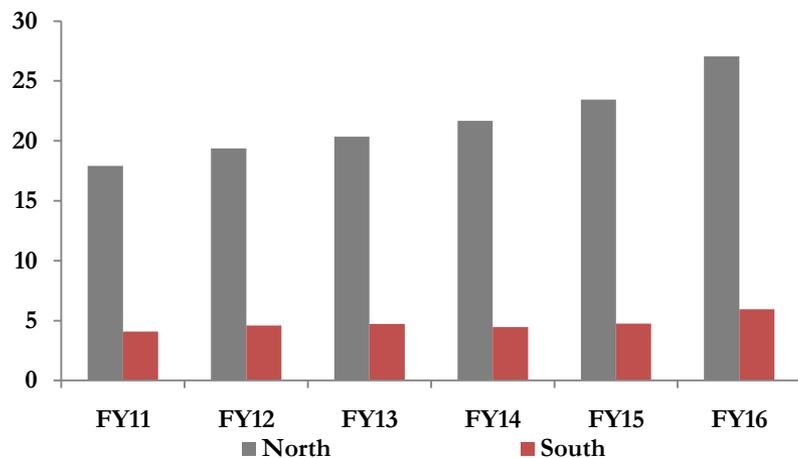


SALES MIX - LOCAL VS. EXPORTS

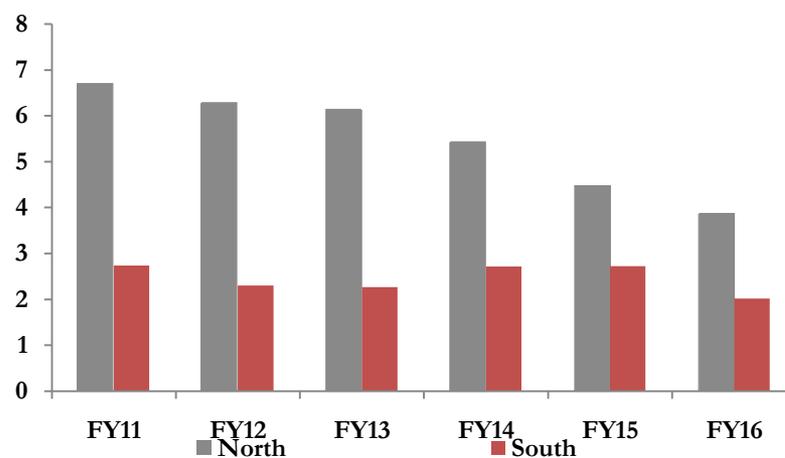


- Increasing proportion of local sales due to favorable demand dynamics.
- Imposition of anti dumping duty on exports to South Africa along with slowdown in dispatches to Afghanistan has resulted in declining exports.
- Emerging export markets now include Sri Lankan and African Markets.

BREAKUP OF LOCAL SALES - MILLION TONS



BREAKUP OF EXPORT SALES - MILLION TONS



BUSINESS RISK

■ Business risk profile of the sector is supported by:

1. Healthy demand outlook due to infrastructure and housing projects

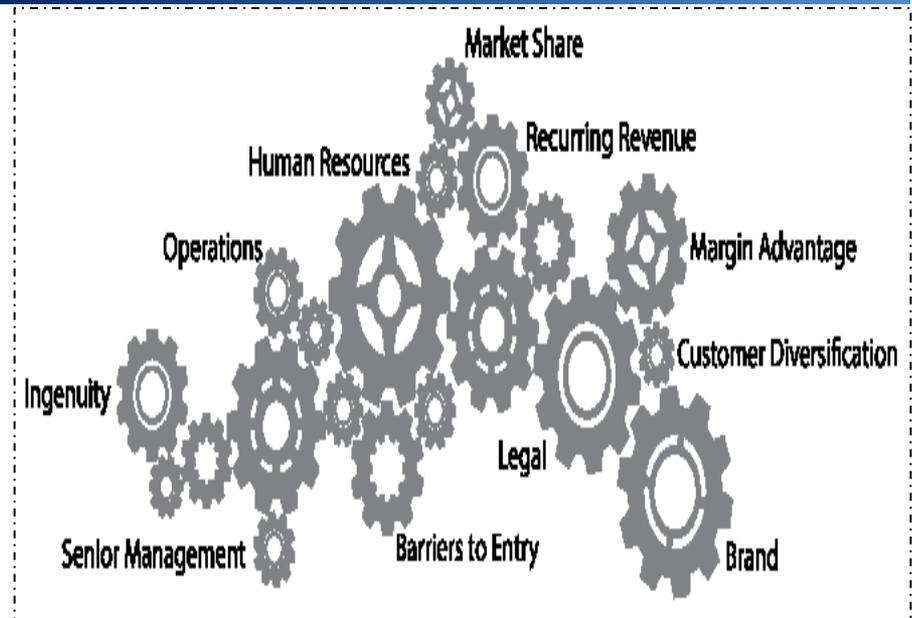
2. Mature marketing arrangement resulting in:

■ Strong pricing power (increase of Rs. 34/bag passed to consumers due to change in FED regime)

■ Pass through of increase in cost

■ Lower fuel and power cost supported by declining FO and coal prices. Recent increase in coal prices is expected to be passed to consumers

3. Capacity expansion to further improve efficiencies and margins



RISK FACTORS

- A. Lower than projected growth in demand due to adverse developments on CPEC front and delay in infrastructure projects
- B. Collapse of marketing arrangement. Industry players believe chances of the same are remote due to capital commitment of key players and planned closure of inefficient lines.
- C. Inability to pass significant increase in input prices
- D. Declining exports
- E. Taxes and regulatory duties



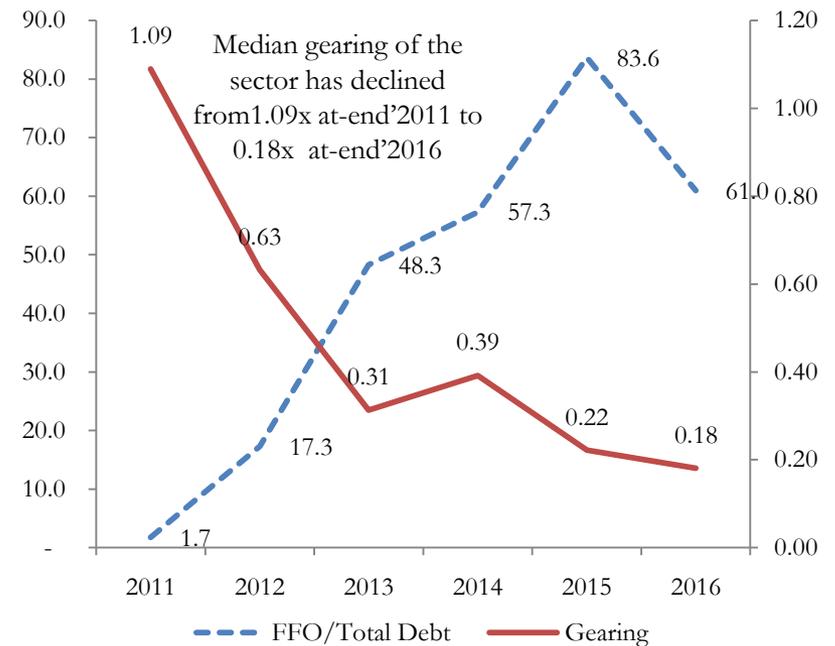
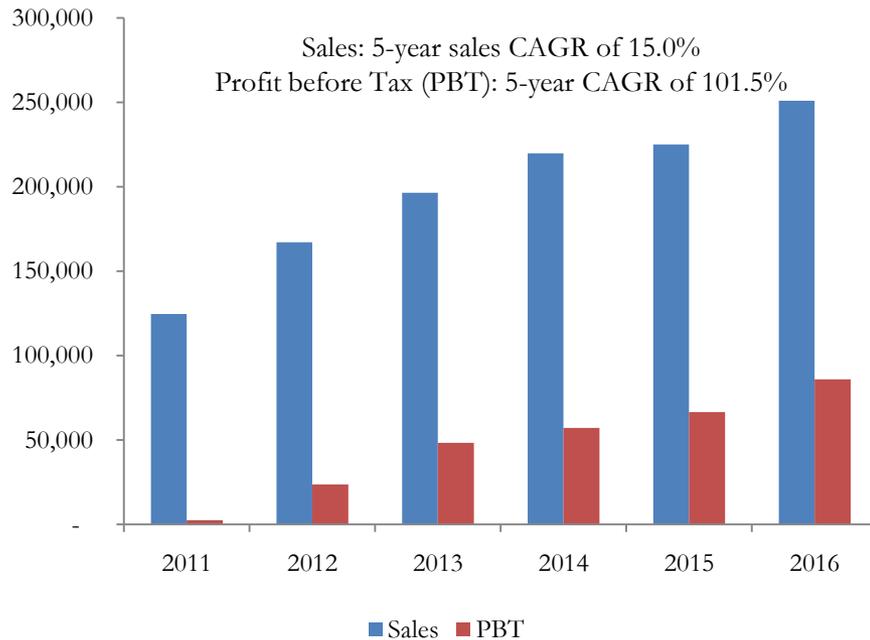


PAKISTAN CEMENT SECTOR: FINANCIAL ANALYSIS

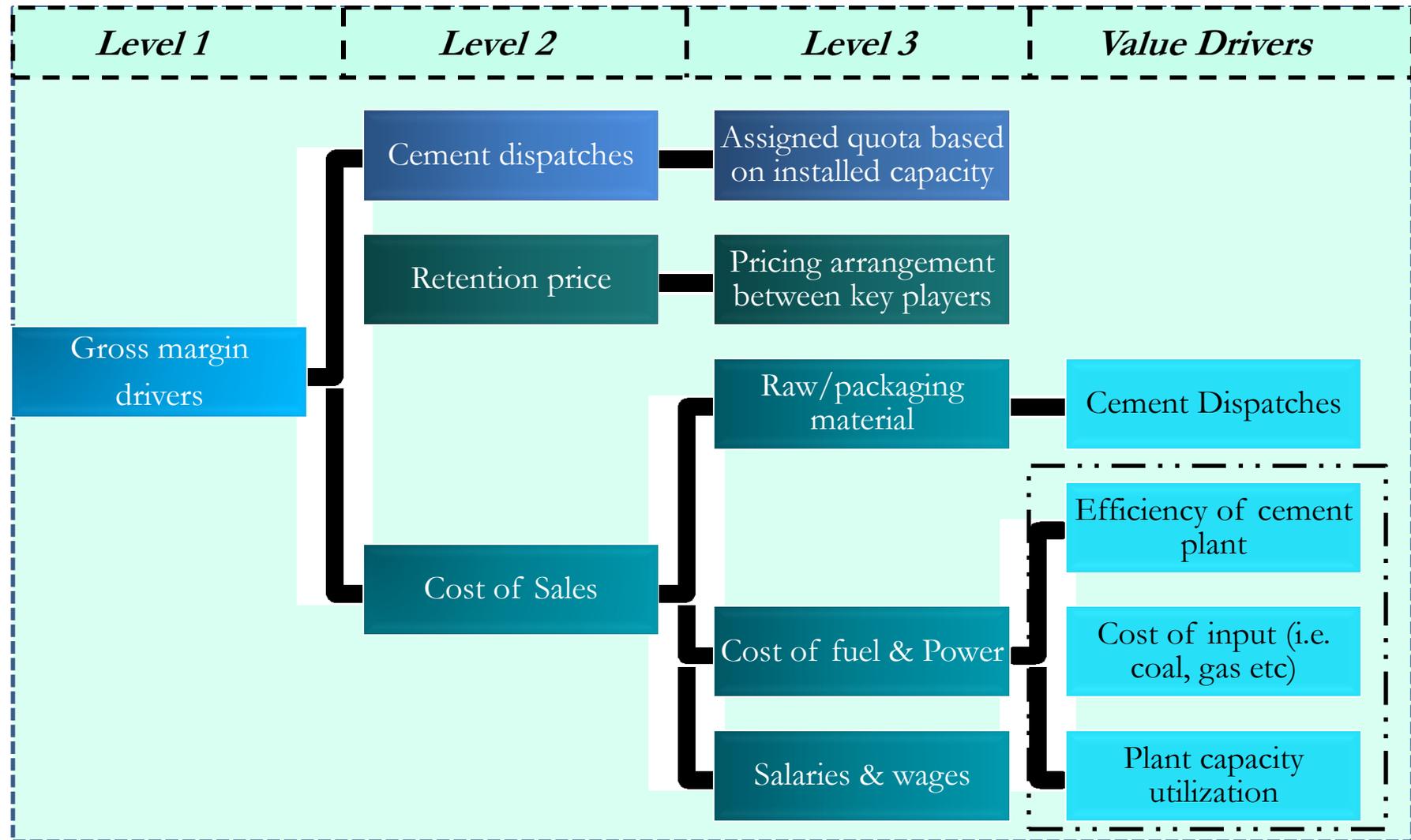


FINANCIAL PROFILE FOR THE OUTGOING YEAR

- Financial profile of the sector has posted notable improvement across all key parameters including profitability, liquidity and capitalization.
- Key reasons for the improved performance has been growth in dispatches and improved gross margins.
- Decline in coal and furnace oil prices has also facilitated in improved gross margins



CRITICAL DRIVERS OF PERFORMANCE FOR CEMENT SECTOR



CRITICAL DRIVERS OF PERFORMANCE FOR CEMENT SECTOR

Main gross margin drivers

Capacity Utilization

- Cost of fuel and power is the single largest component representing around half of cost of sales.
- Power cost is dependent on efficiency of cement plant, cost of input prices (coal, gas, FO or grid) and capacity utilization.

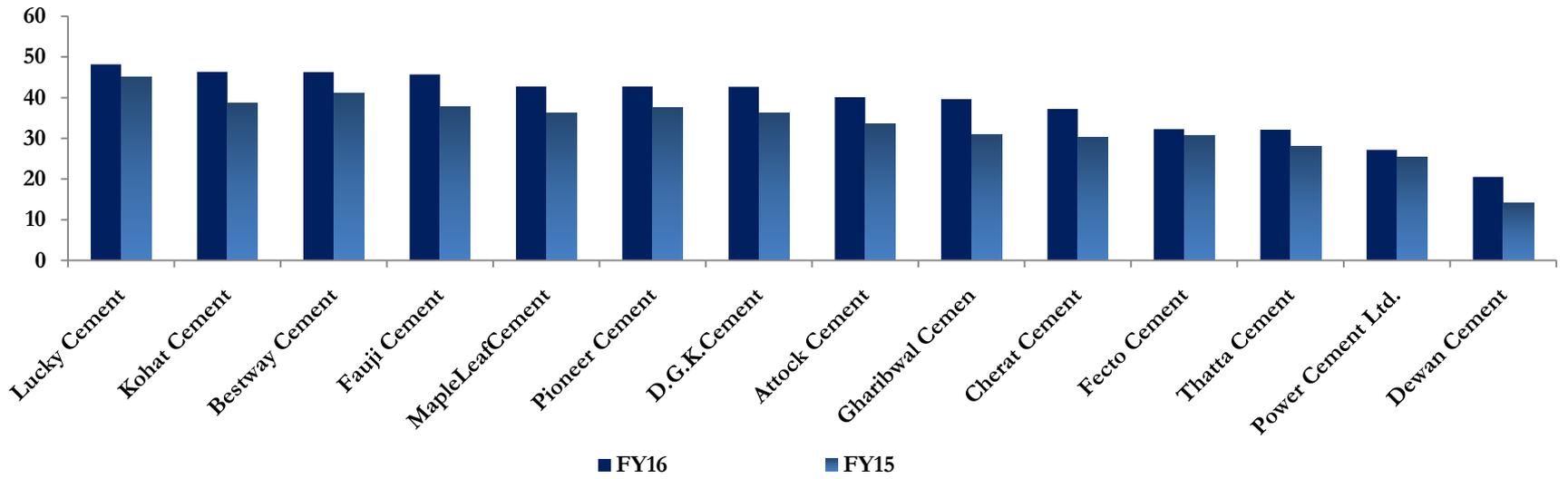
Retention Prices

Efficiency

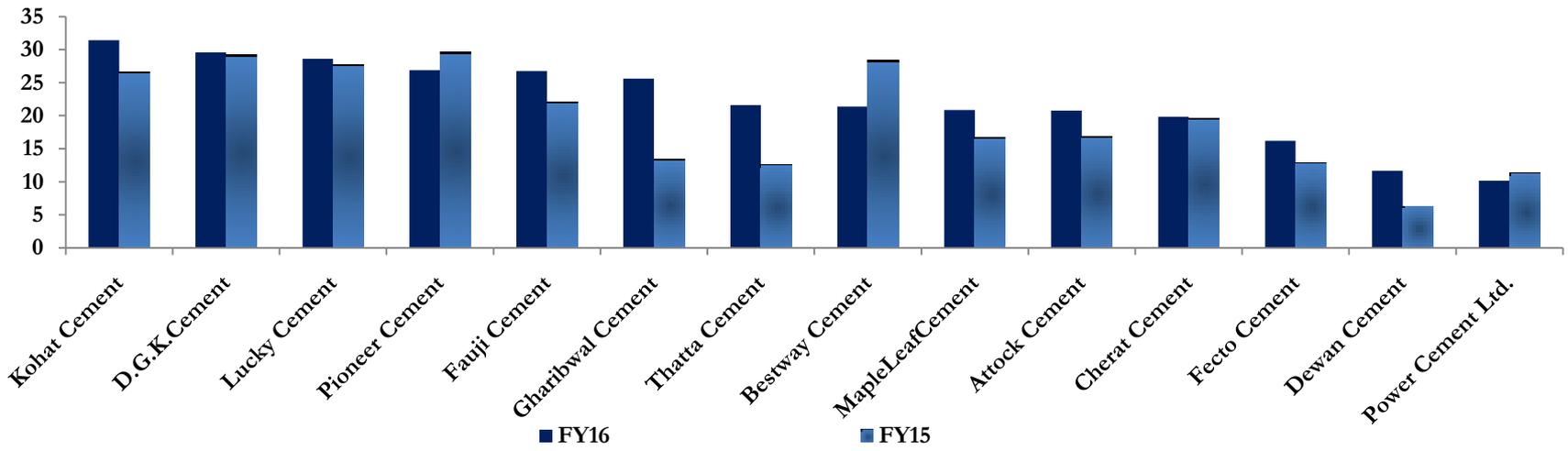
- Efficiency of cement plant is a function of Kcal coal consumption per kg of clinker and electricity consumption in KWh per ton of cement.
- For top-tier players, coal consumption is around 800 Kcal per kg of clinker and electricity consumption is 100 KWh per ton of cement, respectively.
- Expansion will result in better efficiencies given the lower electricity and coal consumption of new plants.

Cost of fuel and Power

GROSS MARGIN (%)



NET MARGIN (%)



BORROWING PROFILE

- Borrowings undertaken by cement manufacturers are a function of working capital requirements and to fund expansion.
- With business in the South Zone being undertaken largely on cash basis with major portion of sales to large dealers, working capital requirements are limited for players in the South Zone vis-à-vis the North Zone where sales are largely on credit terms.
- Despite expected increase in borrowings to fund expansion, gearing levels are expected to remain within manageable levels on account of sizeable retained earnings.

