

# Cement Industry

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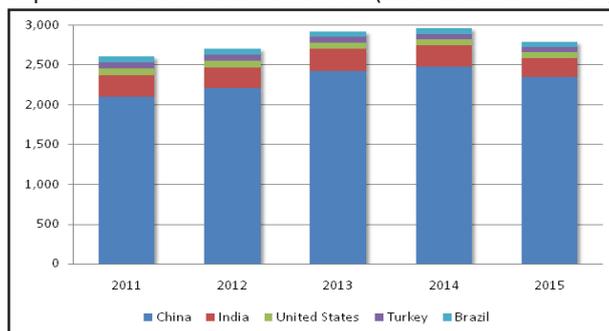
Cement is the prime ingredient used in the construction industry. Cement consumption has a direct correlation to economic growth and improvement in the living standards of society. Historically, growth in global cement trade has been lower than increase in world trade on account of high freight cost and availability of raw material.

World cement production stood at around 4.1b MT/annum in 2015. China represents the single largest producer of cement with 57% of global cement production followed by India (6%), USA (1.7%), Brazil and Turkey. Global cement consumption declined by over 2% during 2015 to around 4b MT/annum.

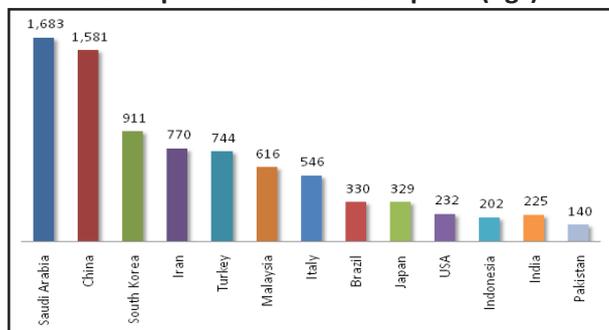
Decline in consumption is attributable to lower consumption in China, Russia, Europe and parts of Latin America. In the backdrop of slowdown in global growth forecast, geopolitical, commodity, and fiscal risks, cement consumption is projected to grow at a lower average growth rate of 2.4%<sup>1</sup> over the next five years. Growth is expected to be driven by United States, India, Nigeria, Pakistan, Vietnam and Colombia.

Pakistan has a well-developed cement industry with abundant raw material availability in the country. The country ranks amongst the top 5 exporters and 14th largest cement producer in the world. However, per capita cement consumption at 140kg is on the lower side as compared to most regional peers and vis-à-vis global average of 400kg. Lower per capita consumption in the country is reflective of significant room for future growth.

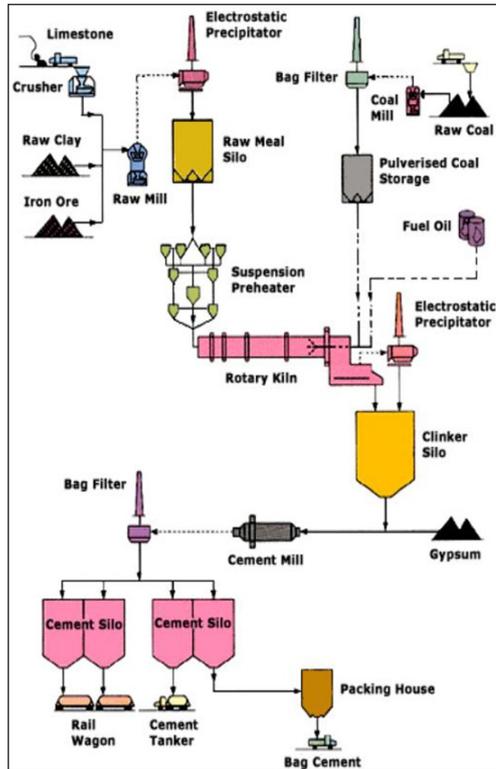
**Global Cement Production**  
Top Five World Cement Producers (million metric tonnes)



**Per Capita Cement Consumption (Kgs)**



<sup>1</sup> <http://www.pr.com/press-release/641881>



### Cement Production Process

The most critical step in the manufacturing process takes place in the huge rotary kiln. Raw material is fed into one end of the kiln, either directly or via a pre-heated system, and pulverized coal is burnt at the other end. The raw meal slowly cascades down the inclined kiln towards the heat and reaches a temperature of about 1450°C in the burning zone where a process called clinkering occurs. The nodules of clinker drop into coolers and are taken away by conveyors to the clinker storage silos. The gas leaving the kiln is cleaned by electrostatic precipitators prior to being discharged into the atmosphere.

The cement mills use steel balls of various sizes to grind the clinker, along with a small quantity of gypsum to a fine powder, which is then called cement. Without gypsum, cement would flash set and quickly hardens when water is added. Gypsum is therefore required to control setting times. The finished cement is stored in silos where further blending ensures consistency.

Cement is dispatched either in bulk or packed in 50 kg bags and distributed from the factory in road vehicles. The 50kg bags are either packed directly onto trucks or

can be palletized. The pallets can be covered by a layer of plastic to offer further protection.

### Structure of the Industry

The cement industry of the country can be divided into two separate regions; North & South Zone. 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. There are 19 and 5 cement units in the North and South Region, respectively. Players in the North Zone represent around four fifth of the total rated capacity.

Both North and South zones have their separate demand-supply dynamics. Players operating in the South Market have the opportunity to tap a number of export markets thus providing greater room for revenue diversification. However, with a number of key export markets (Nigeria, Tanzania, Mozambique, Iraq, Ethiopia and DR Congo) for South players undergoing local capacity expansion, reliance on imports may reduce affecting dispatches, going forward. Export of South players has already been impacted due to anti-dumping duty imposed by South Africa in FY15.

Given the stronger local demand in North Zone, reliance on exports is lower; export potential for players in the North Zone is limited mainly to Afghanistan where influx of cheaper Iranian cement and limited construction activity due to withdrawal of allied forces has contributed to decline in exports.

### Demand

In Pakistan, infrastructure projects and the housing sector are the key drivers for consumption of cement. Going forward, consumption of cement from these two sectors is projected to increase.

#### Housing Sector

- Increasing urbanization with urban areas having lower number of people per household vis-à-vis rural areas creating additional demand for housing units
- Significant backlog of housing units estimated at 9 million units and announcement of various plans by the government to address this shortfall
- New affordable mega housing projects (Bahria Town, DHA, and LDA City)

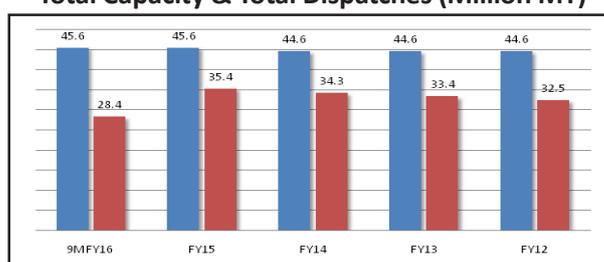
### Infrastructure

- Infrastructure projects worth \$9.8b are planned to be undertaken under China Pakistan Economic Corridor
- Spending for infrastructure projects as per allocations made under Public Sector Development Programs particularly for construction of dams, roads and bridges.
- Large infrastructure projects include Gwadar Airport, Gwadar Deep Sea Port, Hydropower project of around 10,000MW capacity and Karachi-Lahore Motorway.

### Capacity Utilization

Production capacity of cement manufacturers has more than doubled over the last decade to 45.6m MT/annum (FY06: 20.8m MT/annum). In terms of installed capacity top 5 cement manufacturers (Lucky, Bestway, D.G. Khan, Fauji & Maple Leaf) comprised 58% of total installed capacity. Average capacity utilization over the last decade has ranged from 73% to 89% and has witnessed steady increase with significant growth noted in the ongoing year (9MFY16). With highest ever monthly dispatches of 3.58m tons during March'2016, capacity utilization stood at a healthy 95%.

**Total Capacity & Total Dispatches (Million MT)**



**Table 1: Capacity Utilization - North**

Year	Capacity (Million Tons)	Total Dispatches (Million Tons)	Capacity Utilization
9MFY16*	37.99	22.49	78.93%
FY15	37.99	27.91	73.47%
FY14	36.99	27.09	73.24%
FY13	36.99	26.45	71.49%
FY12	36.99	25.63	69.28%

\* Annualized

Capacity utilization for South Zone players is higher vis-à-vis North Zone due to better positioning to tap export markets. Export dispatches represent around one-third of total dispatches for South players vis-à-vis one-tenth for players in the North Zone. With higher local demand and better retention prices, local dispatches for South Zone have depicted an uptick in the ongoing year. However, it is unlikely that major players in the South Zone will completely do away with exports, despite the significantly lower retention prices, on account of diversification benefits.

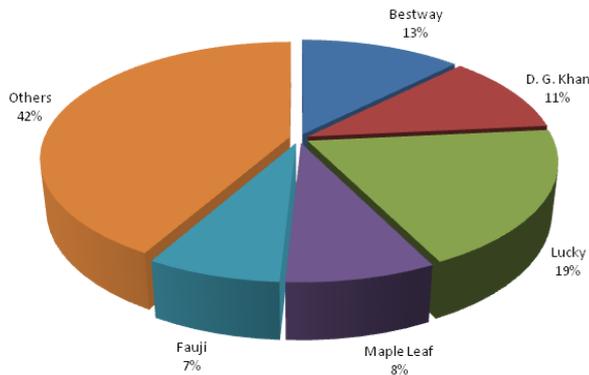
**Table 2: Capacity Utilization - South**

Year	Capacity (Million Tons)	Total Dispatches (Million Tons)	Capacity Utilization
9MFY16*	7.65	5.86	102.1%
FY15	7.65	7.49	97.90%
FY14	7.65	7.19	93.97%
FY13	7.65	6.99	91.35%
FY12	7.65	6.89	90.04%

\* Annualized

### Dispatches and Sales Mix

In terms of dispatches, top 5 cement players represent 58% of total dispatches. Lucky Cement represented the largest share in dispatches during FY15 followed by Bestway Cement (BWCL).

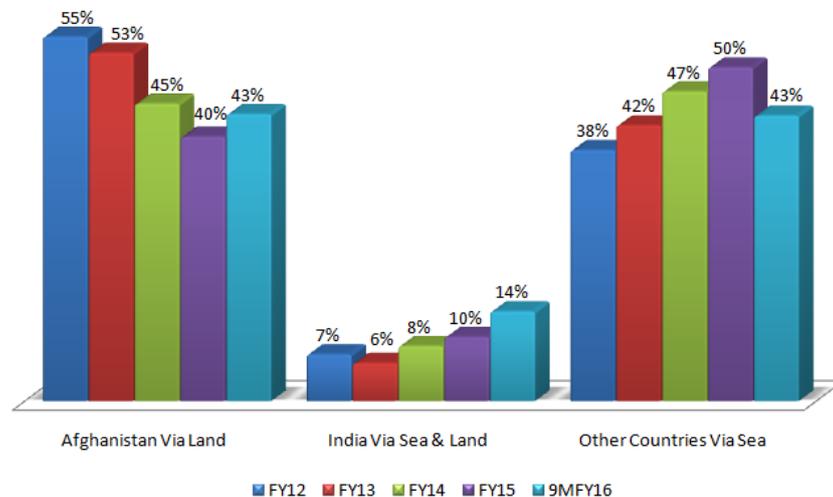


Given the strong local demand, proportion of local sales in total dispatches has increased from 75% during FY13 to 84% during 9MFY16. Apart from increase in local demand, decline in proportion of export sales is attributable to imposition of anti-dumping duty on exports to South Africa along with slowdown in dispatches to Afghanistan. Threat of imports to local dispatches is also mitigated due to high freight cost of imports from China while cement from Iran although being competitive has not been

able to make major inroads in the local market due to comparatively lower quality. Recent lifting of ban on export of Saudi Arabian cement is also expected to have limited impact on local dispatches given the high transportation cost.

Year	(Dispatches M. Tons)			Percentage	
	Local	Exports	Total	Local	Exports
FY12	23.95	8.57	32.52	74%	26%
FY13	25.06	8.37	33.43	75%	25%
FY14	26.15	8.14	34.29	76%	24%
FY15	28.21	7.20	35.41	80%	20%
9MFY16	23.94	4.41	28.35	84%	16%

While exports to Afghanistan have declined by 35% over the last two years (FY13-FY15), Afghanistan still represents the largest export destination representing 43% (FY12: 55%) of total exports. Other major export destinations during the ongoing year include India, Srilanka and African countries.



### 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 marketing arrangement has matured considerably and has been a key element of cement sector profitability. Historically, profitability of cement players witnessed pressure, particularly those with lower efficiencies and limited export dispatches, in periods when marketing arrangement was absent. 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. In case if the marketing arrangement is re-written based on additional capacities, players with efficient plant will benefit.

### Expansion

As per research conducted by CEMTEC, Pakistan is amongst the three Cement Hotspots in the world where demand is expected to grow at its fastest. Given the favorable demand outlook and in order to enhance efficiencies, four cement manufacturers (Lucky Cement, D.G. Khan Cement, Cherat Cement and Attock Cement) have announced expansion with additional capacities coming online representing roughly 16% of existing capacity. Moreover, other local cement manufacturers/ Chinese investor have shown interest in expansion and setting new cement plants. Additional capacities may pose a risk to the marketing arrangement currently in place; industry players anticipate growth in domestic demand to cater to additional capacities, over time. With capacity expansion in the North representing only one-tenth of additional capacity, risk to marketing arrangement is limited in the backdrop of increasing demand. However, expansion in the South represents over 50% of existing capacity which may be a threat to marketing arrangement.

### New Cement Plants

Company	Plant Capacity (m MT per annum)	Project Cost	Region	Expected Completion Year	Plant Manufacturer
DG Khan Cement	2.68	\$ 300m	South	2018	FLSmidth (Danish cement plant manufacturer)
Lucky Cement	2.42	\$ 200m	North	2018	Chinese plant with European lines
Attock Cement	1.26	\$130m	South	2017	M/s Hefei Cement Research and Design Institute (HCRDI), China. Vertically integrated cement mills have been ordered from renowned German suppliers
Cherat Cement	1.3	\$ 120m	North	2017	M/s Tianjin Cement Industry Design and Research Institute Company Limited (TCDRI) - China

### Financial Profile

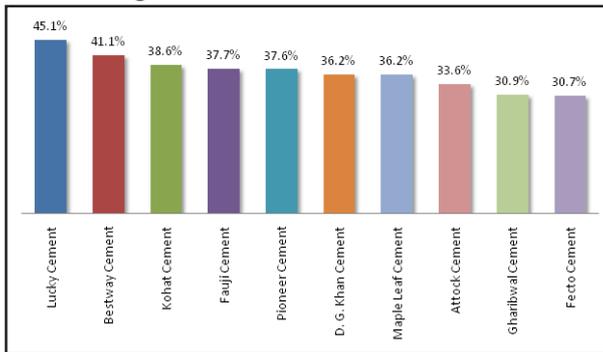
Financial profile of the sector has posted notable improvement across all key parameters including profitability, liquidity and capitalization. Key reasons for the improved performance during FY15 and in the ongoing year has been growth in dispatches and improved gross margins.

Net sales of the sector depicted a growth of 4% during FY15 on the back of higher dispatches while retention prices remained around prior year level. Gross margin for the industry improved to 38% (FY14: 36%) for FY15 and have ranged between 30%-45% for major players. Gross margins are a function of dispatches, retention prices, cost of fuel and power and raw & packaging material

consumed. Cost of fuel and power is the single largest component representing around half of cost of sales. Power cost is a function of efficiency of cement plant, cost of input prices (coal, gas, FO or grid) and capacity utilization (continuous running of plant also contributes to higher gross margins). 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. Players undergoing expansion will have better efficiencies given the lower electricity and coal consumption of new plants.

Gross margins for industry players have been favorably impacted by significant decline in input prices (coal and FO). Coal and Furnace Oil prices have declined by 28% and 67%, respectively over the last 21 months (June'2014 till end-March'2016). While recent decline in tariff is expected to result in higher margins for grid based cement manufacturers, they are still at a significant disadvantage given the sizeable difference in prices vis-a-vis indigenous power. (As of March'2016, Grid based generation cost: Rs. 12.75/KWh; Coal based generation cost: Rs. 7/KWh; Gas based generation cost: Rs. 8/KWh; FO based generation cost: Rs. 7.25/KWh).

**Gross Margins of Cement Manufacturers for FY15**

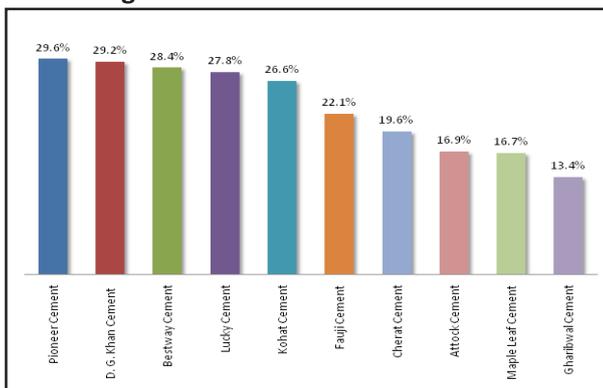


Resultantly, players with gas, coal and FO based power generation have higher margins vis-à-vis grid based cement manufacturers. As per industry players, chances of passing decline in cost to consumers is limited given that the sector has continued to benefit the government which charges federal excise duty and sales tax at retail price.

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. Resultantly, borrowings and finance cost is limited with players generally having healthy cash balances & liquid assets on balance sheet.

Low interest rate environment has also benefitted leveraged cement manufacturers in terms of

**Net Margins of Cement Manufacturers for FY15**



declining finance cost. Moreover, players who are partly funding expansion through borrowings will also benefit from low interest rate environment. Given the healthy cash flows, a number of cement players had significantly reduced borrowings to Rs. 47.6b (2013: Rs. 54.7b) at end-Dec.' 2014. However, increase has been noted in 2015 on account of borrowings undertaken by cement manufacturers to fund acquisition (Bestway Cement) and expansion (Cherat Cement). With increase in equity base, leverage and gearing indicators have declined on a timeline basis. Moreover, on account of

improving cash flows, infection ratio of the banking sector for cement related exposures has come down to 12.8% (2014: 19.5%; 2013: 25.3%) at end-December'2015. Net margins were recorded highest for Pioneer Cement followed by DG Khan Cement, BWCL and Lucky Cement. Pioneer cement's net margins were recorded the highest on account of a one-time gain on settlement of foreign loans.

During 1HFY16, net sales of the sector depicted a growth of 7% on the back of higher dispatches. This alongwith increase in gross margins from to 42% (1HFY15: 36%) in 1HFY16 has translated into a 31% growth in profit before tax for the period (1HFY16 vis-à-vis 1HFY15). Going forward, strong demand outlook and high margins is expected to continue to support profitability of the sector. Any adverse developments on the CPEC front, delay in infrastructure projects (particularly hydropower projects) and significant increase in input prices may pose risk to future profitability growth of the sector.

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