JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

An Empirical Study on Issues & Challenges of Cement Industries

***Dr.Ravi. B.,** Associate Professor, Department of Studies in Commerce Vijayanagara Sri Krishnadevaraya University Post Graduate Centre, Nandihalli, Bellary District.

***Shambhulingappa. F. Nallanavar.,** Assistant Professor, Govt. First Grade College, Davangere and Research Scholar,Department of Studies in Commerce,Vijayanagara Sri Krishnadevaraya University,Bellary.

Abstract

This paper attempts to study key **Issues** and **Challenges** of Green Manufacturing for **Indian Cement** Industry: Modelling sustainable, environmentally conscious manufacturing processes, systems. Globally, there has been a growth in demand for construction material due to rapid urbanization. The growth primarily is expected from new housing however, restoration projects will also have a positive impact with both public and private restoration efforts growing. Technological advancements are also expected to further fuel this demand. The expansion of global cement market is hindered by stringent regulations and depleting fossil fuel reserves. Prices are under pressure across the world due to ongoing demand shortage since the 2008 financial crisis, while environmental regulation, sustainability concerns and the often negative image of the concrete industry are becoming major global issues.

In India, the cement sector is infamous for sunken investments in surplus capacities. This phenomenon breathes new life in the construction industry's slowdown. The Indian cement industry is sitting on 100 MT/year of excess production capacity. Despite strong growth of domestic consumption and export activities, India's cement market continues to experience the supply surplus with considerably low utilization rate of 70%. The latest forecast for cement demand growth is not more than 4% for the 2017-18 financial year.

The future of the Indian cement sector is faced with various challenges that hinder its advancement both in the domestic and global markets. These difficulties arise from both the supply side and the demand side of the market. The supply side factors include the increased production costs associated with employee salaries and

the global increase in the prices of energy. The demand side factors include the low domestic demand caused by the oversupply of houses given the current sentiments in the economy. However, specific areas throughout India have experienced growth without restrictions due to the existence of various supportive factors. It is expected that with time, there should be even more demand for constructions either for residential houses or commercial buildings which will boost the cement industry in India.

*Key words: **Cement** Industry; Green technologies, Carbon, global warming, Environmental Management.*

Introduction

The sector has been posting positive growth in recent times. The production has been increasing since 2008. However, the production of cement has been increasing at a decreasing rate since 2012. From 2012 till now, the CAGR is 5% while CAGR since 2008 was 6%. This implies that the years from 2012 to 2015 were years of poor cement demand, low production and weak prices. Another negative factor in cement production and the market is the introduction of the clean energy taxes on coal and pet coke. The resulting increase in pet coke prices will increase the cost of cement production which will, in turn, increase the prices in the market.

The Indian Saga Managing the Growth

The rate of increase of cost of employees as a percentage of total expenditure is increasing at a greater rate compared to employee productivity. This rate of increase has become a significant concern for some companies and these companies are now focusing on ways of improving employee skills to increase their productivity. The reason for increased cost of employees has been attributed to the fact that the number of on roll employees has been decreasing because most roles are being contracted out. Over the last few years, the profitability of most companies has been declining because the total revenue and operating revenue are increasing but not in the same proportion as total cost. The other reason for declining profitability is government regulations.

Objective:

This paper intends to explore and analyze **challenges in** Indian cement market stemming from the supply and demand sides. Also delving on sustainable, environmentally conscious manufacturing processes

Cement Manufacturing: Opportunities and Challenges

India is the 2nd largest cement producer in the world with a production capacity of 502 million tonnes per annum in 2018 & is expected to touch 550 million tonnes by 2020. However the per capacity consumption of cement in India is 195kg which is far less than the world average of 500kg & 1000kg of China. This certainly is a big opportunity for the cement companies in India to bridge the gap & in turn increase turnover.

However despite the overall outlook being positive, *the cement industry is facing a situation of over-capacity*. This is also coupled with the interventions by the Competition Commission of India & the populist State Governments, which has led to pressures of not increasing prices despite the increase in cost of raw material & process fuel. Shortage of domestic coal & increasing cost of imported coal is also adding to the overall increase in production cost. On the other hand cost of electricity in India is higher compared to any of the peer countries & captive power plant is not feasible for smaller companies. The logistics cost for cement is also high since a lot of the cement is still transported through road transport which pushes the cost of cement. The current Railways capacity is not adequate enough for transportation. All of these are clouding to a situation of higher costs & lower margins especially for the weaker players in the short term.

To increase the demand, cement prices have to be attractive for consumers. Higher prices always act as a disincentive & gives encouragement to substitute products to cement. However opportunity today for the cement manufacturers to reduce prices is low since by & large the cement industry is cost effective & profiteering is rare. *One of the possible solutions to lower prices can be by reducing the current GST rates for cement which is quite amazingly clubbed with the luxury items slab.* Cement being a mass consumable item & a product which is in sync with the progress of the nation through infrastructure & housing, the high rates may need a revisit. Another unique situation for the cement brands have been the advent of numerous brands smaller or bigger which has led to an increase in competition & lower market shares for all players since it is the share of the same pie & the pie's increase in size has been fairly slow. Hence for the numerous cement brands, branding & technical strategy becomes critical to get the share of mind of the consumers & the influencers. Cement being still a low involvement category for the consumers & no substantial product differentiation among various brands, TOMA or Top of the Mind Awareness becomes paramount. Hence to increase TOMA the cement brands are spending more on branding which is also increasing the overall cost for the manufacturers. *With the advent of technology more & more consumers are today aware about the various brands available in the market. They have started to make their own brand choice decisions which have led to demanding the brand upfront to the retailers just like any other mass consumable brands, hence limiting the role of push strategy, the cost of which is lower than a pull strategy.*

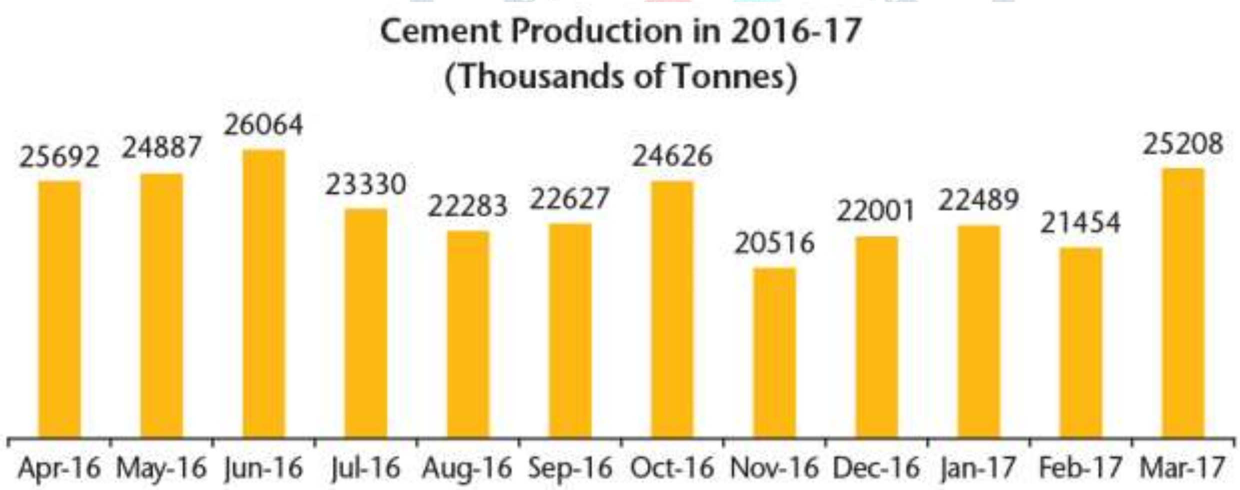
It should be a constant endeavor of Human Resource Department of any cement company to create a high performing organization. A structured and robust Performance Management System, building competencies, improving employee performance and development, and driving better business results. Cement industry can attract the best of people by designing & structuring Rewards, Accolades, and Flexible Compensation & Benefits. Creating the supportive culture in the organization wherein people are open to innovate. Performance Coaching & Counseling can trigger a growth mindset in the minds of the Employees. Employees are the biggest assets of the organization.

Challenges Facing the Cement Industry Today

Industry Today Goods and Services Tax

Taxes have a negative impact on producers since they increase the costs of production. Contrary to the market expectations, the Indian Government introduced costly goods and services tax which directly affects the overall profitability of firms. Nevertheless, the taxation structure is also designed in ways such that cement materials that are below a certain threshold are subjected to lesser taxes. It is expected that this measure will partly contribute to a reduction in the total costs to reduce the prices of cement in the market.

Other than the introduction of the goods and services tax, the cement industry is likely to experience a reduction in the logistical costs. Restructuring in the sector will see the reduction in the number of warehouses needed by cement companies. The nature of the logistics will change such that one person that previously handled different warehouses will only handle one big warehouse without changing the functions of his/her job profile. While the cement sector will experience a decline in the cost of production, these changes are likely to impact the logistics sector negatively.



Demonetization

The Indian economy, like any other economy in the world, is subject to the cases of monetization. Despite the increased demand for cement from the increased construction activities of the black money holders in the short run, the long-term impacts are adverse. The oversupply of houses means that the unit prices decline. A decline in the unit price of houses implies that the demand for new houses becomes low directly affecting the demand for cement. Therefore, cement companies will experience low sales hence, reduced profits.

Human Capital

In the Indian cement industry today, we have seen that companies are facing a challenge in managing their human capital. With the ageing population, an increasing bulge can be observed at the mid management level.

This has led to a significant rise in the employee cost vs. the growth in the top line and bottom line of the firms. This will only become accentuated in the coming years as the bulge grows and the costs inflate. Another factor contributing to the rise in expenses is the outsourcing of some critical production processes for creating process efficiencies. The contractual labour comes at a cost which has not been justified in the short-term for the companies.

Managing the Human Capital

Efficient management of human capital is a fundamental part of the overall corporate strategy in creating shareholder's value. Today, the management of human capital is one of the most important and challenging aspects of overall financial management. Efficient HCM increases firm's growth opportunities and return to shareholders. Even though firms are traditionally focused on long-term capital budgeting and capital structure, the recent trend is that many companies across different industries focus on HCM efficiency.

The cement companies that are listed on the stock exchange have been selected as the sample for the study. The attempt has been made to understand the existence of a relationship between growing employee cost to the firms and factors such as — salary increase budgets, talent attrition, performance linked payout, organization structure and the wage cost ratio across levels of management.

Salary Increase – Crushing Numbers

A survey on salary increase conducted by Aon shows a dip in the number of projected salary increase across major sectors for the financial year 2017. The survey indicated that consistent 9-10% average increase in the last five years had dipped significantly with sectors whose transactions are not cash-driven remaining unaffected. In line with the expectations, the sectors that have reacted most aggressively are real estate, infrastructure, building materials, cement and metals.

The cement sector has shown a decrease from 9.8% in 2016 to 7.6% in 2017. There has been no correlation with the salary increases and inflation numbers. While CPI is considered at the time of increment cycle, the final numbers are more dependent on business and industry performance. The real wage increases (inflation adjusted) have been decreasing over the years.

The top two ratings indicate that the performance distribution curves are tighter with the lesser population. About the increases given, the companies are also taking a more aggressive approach towards the bottom rated performers. The cement industry shows more socialistic tendencies as the delta between the top performer and the average performer is just 1.36 times as compared to an all India delta of 1.8 times. There is a real risk of losing key talent because the demographics have shifted to include millennia's as a large part of the workforce and the availability of jobs has been rapidly increasing.

Executive Compensation

Employee compensation has become a major concern across all industries. In the last three years, the cement industry has witnessed five times increase in the wage ratio movement between the average labour compensation and average CEO compensation. This ratio gives way to the question on the effectiveness of CEO compensation in driving business. On analyzing the strength of the relationship between data over the last five years, it was observed that the Pearson Correlation Coefficient between Revenue and CEO compensation is 0.51. This shows a positive correlation between business results and executive compensation; however, it is not as strong as one would expect.

	Revenue	PAT	EPS	Net Profit Margin
Adjusted R	0.229	0.131	0.821	0.293
F	8.757	4.946	11.61	8.786
Significance	0.006	0.035	0.004	0.004

Attrition – Quarrying Talent

While the numbers for FY16 have been one of the lowest in the last few years, this is likely to change in the coming years. Attracting and retaining good talent may become a challenge in the coming times as a recovery for the sector, on the whole, may take time. As the demographics have shifted to include millennia's as a large part of the workforce, and the availability of jobs has been rapidly increasing, there is a real risk of losing key talent. The major risk will be seen in the jobs that are fungible across industries.

Attrition	Revenue	GDP	Salary Increases
Adjusted R Squared	0.02523	0.95485	- 0.44597
F - Test	1.05176	0.02309	0.383155
Significance F	0.49196	0.90399	0.647141

Regarding the correlation of attrition with business metrics, the GDP has the closest relation with attrition.

Variable Pay – Clinking Expectations

In an attempt to justify the additional employee costs while simultaneously driving a meritocratic culture, manufacturing companies in general and more recently, the cement companies in particular, have been moving towards a pay mix leaning towards higher variable pay even at lower levels of management.

The junior management has seen an increase in the proportion of variable pay to total fixed pay. The proportion is observed to be increasingly higher at higher levels of management going as high as 30% at the top and senior management.

This is a double-edged sword as though the organization manages to control employee costs in the unstable environment; the employee productivity may suffer from the high degree of uncertainty in what promises to be a hard to control future.

The Human in the Resources

The organizational structure in cement is witnessing a bulge in the middle management. This bulge is the result of a decade-long concentration of incumbents at the same level due to reasons such as – close approaching retirement, undefined roles and responsibilities, the disparity in internal grade structures, etc. The industry has seen an increase in capacity by a CAGR of 19% in the last five years. However, the capacity utilization is about 70%-72% of the total capacity today. This resonates with the trend seen – higher growth rate of employee cost vis. a vis. the growth rate of the revenue. The employee compensation cost in the industry has grown at twice the rate of growth of the industry's top line.

A study conducted on some respondents from the sector shows that three-fourths of the workforce regards pay, recognition and benefits as the most important criteria in selecting employers. However, it is these hygiene factors that are also responsible for the dissatisfaction amongst employees. Another key finding was that employees who are happy about their employers' positions on social issues are more likely to be engaged.

Conclusion

The Indian cement market faces challenges stemming from the supply and demand sides. However, the upside is that there has been a growing demand in construction and the housing market due to rapid urbanization which is expected to continue a boost in sales. The increase in domestic demand gives more hope to producers, but setbacks such as increasing monetization effects and the introduction of goods and service taxes are still affecting the Indian cement market in negative ways in the immediate short time horizon. The issue of salary checks should be addressed to reduce the overall production costs.

The cement industry really needs to focus on driving a more performance-oriented and cost effective pay strategy. The need is to leverage on the optimism of India Inc. on better business outlook in the coming years and to drive growth within the industry by producing to full capacity, while having a control on employee costs. The increasing employee cost can be curtailed by easing up the bottleneck created at the mid management level within the cement industry bodies today. Finally, the Indian cement sector requires the strategies for the exploitation of new global markets and the balancing of the economy to prevent influences of demonetization as well as taxes and conducting salary checks to cut the costs of production, increase profit margins and spur growth in the long run.

References

1. Hewlett, Peter (2003). Lea's Chemistry of Cement and Concrete. Butterworth-Heinemann. p. Ch. 1. ISBN 978-0-08-053541-8. Archived from the original on 1 November 2015.
2. "Natural Cement Comes Back" Archived 25 April 2016 at the Wayback Machine, October 1941, Popular Science
3. Stanislas Sorel (1867). "Sur un nouveau ciment magnésien". Comptes rendus hebdomadaires des séances de l'Académie des sciences, volume 65, pages 102–104.
4. Walling, Sam A.; Provis, John L. (2016). "Magnesia-based cements: A journey of 150 years, and cements for the future?". Chemical Reviews. 116 (7): 4170–4204. doi:10.1021/acs.chemrev.5b00463. ISSN 0009-2665. PMID 27002788.
5. McArthur, H.; Spalding, D. (1 January 2004). Engineering Materials Science: Properties, Uses, Degradation, Remediation. Elsevier. ISBN 9781782420491.
6. "How Cement Mixers Work". HowStuffWorks. 26 January 2012. Retrieved 2 April 2020.
7. Glasser F. (2011). Application of inorganic cements to the conditioning and immobilisation of radioactive wastes. In: Ojovan M.I. (2011). Handbook of advanced radioactive waste conditioning technologies. Woodhead, Cambridge, 512 pp.
8. Abdel Rahman R.O., Rahimov R.Z., Rahimova N.R., Ojovan M.I. (2015). Cementitious materials for nuclear waste immobilization. Wiley, Chichester 232 pp.
9. Holland, Terence C. (2005). "Silica Fume User's Manual" (PDF). Silica Fume Association and United States Department of Transportation Federal Highway Administration Technical Report FHWA-IF-05-016. Retrieved 31 October 2014.
10. Kosmatka, S.; Kerkhoff, B.; Panerese, W. (2002). Design and Control of Concrete Mixtures (14 ed.). Portland Cement Association, Skokie, Illinois.
11. Gamble, William. "Cement, Mortar, and Concrete". In Baumeister; Avallone; Baumeister (eds.). Mark's Handbook for Mechanical Engineers (Eighth ed.). McGraw Hill. Section 6, page 177.
12. U.S. Federal Highway Administration. "Fly Ash". Archived from the original on 21 June 2007. Retrieved 24 January 2007.
13. U.S. Federal Highway Administration. "Silica Fume". Archived from the original on 22 January 2007. Retrieved 24 January 2007.

14. Justnes, Harald; Elfgren, Lennart; Ronin, Vladimir (2005). "Mechanism for performance of energetically modified cement versus corresponding blended cement" (PDF). Cement and Concrete Research. 35 (2): 315–323. doi:10.1016/j.cemconres.2004.05.022. Archived from the original (PDF) on 10 July 2011.
15. Bye G.C. (1999), Portland Cement 2nd Ed., Thomas Telford. pp. 206–208. ISBN 0-7277-2766-4
16. Zhang, Liang; Su, Muzhen; Wang, Yanmou (1999). "Development of the use of sulfo- and ferroaluminate cements in China". Advances in Cement Research. 11: 15–21. doi:10.1680/adcr.1999.11.1.15.
17. "NEXTPREVIOUS When to use Fiber Mesh or Wire Mesh". Port Aggregates. 31 December 2019. Retrieved 12 April 2021.
18. "Plaster / Stucco Manual" (PDF). Cement.org. 2003. p. 13. Retrieved 12 April 2021.
19. "Using cement based products during winter months". sovchem.co.uk. 29 May 2018. Archived from the original on 29 May 2018.
20. Scrivener, K.L., Crumbie, A.K., and Laugesen P. (2004). "The Interfacial Transition Zone (ITZ) between cement paste and aggregate in concrete." Interface Science, 12 (4), 411–421. doi: 10.1023/B:INTS.0000042339.92990.4c.
21. H. F. W. Taylor, Cement chemistry, 2nd ed. London: T. Telford, 1997.
22. "Draeger: Guide for selection and use of filtering devices" (PDF). Draeger. 22 May 2020. Archived (PDF) from the original on 22 May 2020. Retrieved 22 May 2020.
23. Rodgers, Lucy (17 December 2018). "The massive CO2 emitter you may not know about". BBC News. Retrieved 17 December 2018.
24. "Making Concrete Change: Innovation in Low-carbon Cement and Concrete". Chatham House. 13 June 2018. Archived from the original on 19 December 2018. Retrieved 17 December 2018.
25. Hargreaves, David (March 2013). "The Global Cement Report 10th Edition" (PDF). International Cement Review. Archived (PDF) from the original on 26 November 2013.
26. Coal and Cement. World Coal Association Archived 8 August 2011 at the Wayback Machine
27. Concrete: the most destructive material on Earth The Guardian 31.8. 2019
28. "CO2 emissions by fuel, World, 2018".
29. "If the cement industry were a country, it would be the third largest emitter in the world". 13 September 2018.
30. Cement's basic molecular structure finally decoded (MIT, 2009) Archived 21 February 2013 at the Wayback Machine
31. "EPA Overview of Greenhouse Gases". 23 December 2015.