

## **CHAPTER - II**

# **CONCEPT & METHODOLOGY**

## **II. CONCEPT AND METHODOLOGY**

**This chapter will present a bird's eye view of the objectives, importance, methodology and sampling, scope and limitations, presentation of the study and review of the literature that have been taken up :**

### **2.1 THE STUDY**

**A perusal of the present research work shows its concern with the ex-post fact study of growth activities in the cement industry in India especially in Andhra Pradesh. At the same time, the researcher also is going to study the future prospects of the industry by analysing growth trends in the industry and various infra-structural development programs taken-up by the central government as well as the state and the local governments in various parts of the country.**

**In this context an attempt is made in the present study to analyse the growth activities of Cement Industry, to forecast growth opportunities for this industry and to suggest some measures for eliminating the problems and paving a better way for the growth of cement industry in future.**

## **2.2 OBJECTIVES OF THE STUDY**

**The present research work has been undertaken with the following objectives.**

- 1. To analyse the growth activities of the Indian Cement Industry as well as Andhra Pradesh Cement Industry during the years 1985 to 1998.**
- 2. To study the growth trends in the installed capacity, production and consumption of cement in Andhra Pradesh.**
- 3. To study the cost of production and marketing activities of the Andhra Pradesh Cement Industry.**
- 4. To assess the growth trends in exports of cement.**
- 5. To forecast the industry's and select cement plants future prospects in the coming five years i.e., the period from 1998-99 to 2002-03.**
- 6. Finally, to suggest certain measures for the strengthening of the cement industry and to make appropriate clues regarding prospects of the industry.**

### **2.3 IMPORTANCE OF THE STUDY**

**The Indian Cement Industry is the fourth largest in the World with a turnover of over Rs. 18,000 crores. It comprises 59 companies with 117 large plants and above 311 mini-plants, enjoys the status of being the first industry to be liberalised sixteen years ago. The cement industry in India is a classic example of a sector that has reached self-sufficiency and gone beyond that as a result of favourable government policies and vigorous efforts on the part of the cement companies. Today, the cement industry is in a position to meet the entire domestic demand in style and also exports approximate 27 lakh tonnes of cement per annum to the world market.**

**India is the world's fourth largest cement producing country after China, Japan and the United States. Still the per capita consumption is very low at 82kg. in 1997-98 compared to the world average of 250kg. A new era started in the history of Indian Cement Industry during early eighties. The Government of India introduced partial decontrolled measures in February, 1982, total decontrolled measures in March, 1989 and delicensed policy in July, 1991 that lead to a rapid increase in the installed capacity from 61.55 million tonnes per annum in 1989-90 to 109.30 million tonnes in 1997-98.**

**Cement consumption growth is highly correlated to the GROSS DOMESTIC PRODUCT (GDP) growth and serves as a leading indicator.**

**Cement being low priced commodity item which has low margins and its bulky nature ensures that the supply is determined by the economical transportation. This led to the formation of regional market – the Western (Maharashtra, Gujarat, Madhya Pradesh), the Northern (Delhi, Haryana, Punjab, Himachal Pradesh, Jammu & Kashmir, Rajasthan, Uttar Pradesh), the Southern ( Andhra Pradesh, Tamil Nadu, Karnataka, Kerala) and the Eastern (Bihar, West Bengal, Orissa, Assam, Meghalaya). Madhya Pradesh cannot be strictly considered as part of the Western region as it supplies mostly to the North and East. And the concentration of limestone deposits in a few states has led to the formation of cement plant clusters at seven locations – Bilaspur, Satna, Chandrapur, Chanderia, Gulbarga, Nalgonda and Yerraguntla . These clusters account for 57 per cent of the installed capacity. The three states of Madhya Pradesh, Andhra Pradesh and Rajasthan contribute 26.7, 13.3 and 11.7 per cent of the capacity.**

**The Indian Cement Industry attained self-sufficiency in cement in 1989 after 84 years of its first establishment. India entered the world cement market scenario by exporting cement in 1989. From a meagre 78,000 tonnes in 1988-89, exports rose to 26,80,000 tonnes in 1997-98. For the past nine years, India has increased its world market shares with great style and exported cement and clinker to more than ten countries in various parts of the world.**

**Apart from the exports, the domestic consumption also increases year by year at the growth rate of 9 per cent. This type of growth trends from both world and domestic market leads to open their cement plants increasing their capacities. The growth of cement industry is directly linked with the government policies as over three-fourth of inputs such as power, coal and transportation that are under the control of the Government. The government has taken number of favourable policies to uplift the cement industry. Apart from that, the Indian Cement Industry raised some demands such as zero duty on imported coal as against the current 15 per cent, duty free imports of inputs against exports, concessional excise duty for cement transport in bulk and removal of 8 per cent excise duty on ready mix concrete. If the government has shown positive attitude regarding the above demands, the cement industry is going to achieve tremendous growth in all aspects.**

**Cement Industry during the past several years has been a stable source of revenue to the government. Starting from an excise duty collection of Rs.170 crores in 1981-82, the revenue to the government from this source has been growing steadily reaching Rs.1887 crores in 1993-94, and this amount further increased to approximately Rs.2500 crores in 1996-97 strengthening the nations' exchequer.**

**Thus cement, a product of high importance, can make or mar the speed of the development of the country's economy and the shortage of cement is recognised as a vital constraint in all types of development and building activity.**

**The cement scene is fast changing and has entered into a phase of vigorous expansion, the pace and dimensions of which were quite unthinkable a few years back. The changing trends subsequent to decontrol have been commented upon by several experts on many occasions. But the triple wave of liberalisation, privatisation and globalisation has completely altered the basic paradigms of business operations, resulting in burgeoning economic growth of the nation and unprecedented growth of the industry that has to face many new challenges arising out of fast growth, in a poorly developed infra-structure facilities. Besides the conspicuous growth itself, the extent and scope of changes and basic shifts in the philosophy of production, marketing and distribution have been starting and enormous in proportions. The challenges facing the industry have also been more diversified and increased many fold, particularly due to the decreasing role of the government and the inevitable growing competition in the market scene due to cycles of fluctuations in the demand-supply balances. The failure of the public sector agencies in providing adequate infra-structure supports have led to a number of bottlenecks and have in their**

**turn, necessitated new dimensions to the responses of the industry to the market needs of the new era.**

## **2.4 METHODOLOGY AND SAMPLING**

**The present research study is based on the data collected from both primary and secondary sources.**

**A) The primary data is collected by**

- Well planned personal interviews with the top executives, managers, middlemen and holding discussions with all the parties concerned.**
- Personal interviews and holding discussions with the top officials of Cement Manufacturers Association (Major Plants) and Andhra Pradesh Mini-Cement Manufacturers' Association.**

**B) The secondary data is collected from**

- Published and unpublished company manuals, records, files, brochures etc.**
- data published by Economic Times Research Bureau, Kotharis hand book on Indian Industries, various books and journals on the subject along with the number of news paper clippings and journals.**

The views of top executives of the industry as well as cement manufacturers associations were elicited by way of well structured questionnaires. Managers, superiors and other middle level executives, dealers have also been interviewed to elicit information on the basis of non-structured schedules. Though, there were 36 cement plants in operation in Andhra Pradesh, three cement plants from each sector were selected at random for the purpose of study.

The secondary information was collected from the company manuals, journals, news paper clippings, cement manufacturers' associations' manuals, office records pertaining to the performance analysis, other technical and non-technical data relating to the project and statistics of the organisations etc.

#### **SAMPLING :**

A sample is a small specimen or separate part of the whole population representing its general qualities as far as possible. It is a smaller set selected from the population reflecting its characteristics. The sampling technique is a procedure for the selection of a sample from the given population. The term sampling refers to the investigation of a part of the whole population or universe.

Though there were about 18 major cement plants and 18 mini-cement plants in operation in the state, as it is not possible to cover all the plants, a sample of three cement plants from major sector and three cement plants from mini sector have been selected for the study on a stratified random sampling. The stratification of the cement plants was done on the basis of their nature of activities, as it is not possible to cover all the plants in the industry. So the researcher selected stratified random sampling. For studying the prospects of cement industry, the researcher used the "LEAST SQUARE METHOD" for forecasting the cement demand in Andhra Pradesh.

#### **TABULATION:**

The next task of the researcher on being armed with the data was to process the information. This has been done by analysing the available data in a scientific manner and by interpreting the analysis so as to render the thesis work rather broad based.

The tabulation is employed for the data processing. After processing and tabulating the data, the researcher went to the final analysis and interpretation of the data. This helped in to draw important conclusions.

**The analysis and interpretation was carried on absolutely independently without being influenced in any way. It is through such integrity the researcher could get at the actual facts and present the true picture.**

## **2.5 SCOPE AND LIMITATIONS OF THE STUDY**

**The researcher proposes to study as extensively as possible, the “GROWTH AND PROSPECTS OF CEMENT INDUSTRY IN ANDHRA PRADESH” to find out the growth and developmental activities in all aspects like installed capacity, production, consumption, marketing and cost of production, also the prospects for the period of 1998-2003. However, the study does not cover the financial problems of the industry like profitability, capital structure and liquidity etc. Further the study is limited to the period of 13 years i.e., 1985 to 1998. The researcher has decided to take only three cement plants in major cement industry sector and three mini-cement plants in Andhra Pradesh. Hence the present study will be based on the basis of the sample selected for the study. The researcher was unable to collect the data regarding mini-cement plants before 1990 because of non-availability.**

## **2.6 PRESENTATION OF THE STUDY**

**Cement Industry has in the recent times, gone through kaleidoscopic changes after a long period of near stagnation.**

- 1. The study has been divided into seven chapters. The first chapter deals with the clear picture about the cement industry in India.**
- 2. The second chapter deals with the objectives, methodology, sampling, scope, limitations and review of the literature.**
- 3. The third chapter concentrates on brief introduction or profiles of the select cement plants i.e., three plants from major cement plants sector and three plants from mini-cement plants sector in Andhra Pradesh.**
- 4. The fourth chapter concentrates on the growth and developmental activities of the cement industry in Andhra Pradesh.**
- 5. The fifth chapter deals with the cost of production and marketing activities of the select cement plants in Andhra Pradesh.**
- 6. The sixth chapter deals with the prospects of the cement industry in India in general and that of Andhra Pradesh in particular and also the select cement plants.**
- 7. The seventh chapter presents observations and suggestions on the growth, development and prospects of the cement industry in India as well as in Andhra Pradesh.**

## **2.7 REVIEW OF THE LITERATURE**

**The changing policies of the Indian Government towards the industrialisation of the country at a rapid pace created interest in the**

**industrialists and academicians to study the industrial scenario of present India.**

**The study of industries is connected with various considerations like the availability of raw materials, the demand for the finished products, the importance and the problems faced by the industries. A good number of surveys on cement industry have been carried out since independence and also on various aspects like working, growth and prospects, productivity, industrial relations, size, technology, location, performance and problems of the industry.**

**Kamat and Shyam Janardhan<sup>1</sup> made an attempt to study the political economy of 'Suppressed Markets' : controls, rent-seeking and interest-group behaviour in the Indian Sugar and Cement industries. This thesis examines the economic consequences of controls in what are for convenience called 'suppressed markets'. Suppressed Markets are markets where the imposition of regulations and controls result in distortion to market behaviour and where alternative mechanisms are developed as a substitute**

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- 1. Shyam Janardhan, Kamat, The Political Economy of 'Suppressed Markets': Controls, Rent-seeking and Interest Group behaviour in the Indian Sugar and Cement Industries, Simon Fraser University, Canada, 1986.**

**for free market activity.**

**The first part of this thesis examines consumer and producer behaviour in “partially suppressed” markets where government controls are imposed in a manner that attempts to replace market forces in a designated subset of a total market for a commodity, leaving “free” market forces to operate in the residual subset.**

**The second part of the thesis investigates economic behaviour in “completely suppressed” markets where government price and quantity controls are applied to the complete output of the industry, both on the demand and supply side. Demand and supply functions for the Indian Cement Industry, a typical example of a completely suppressed market, are then estimated for the 1951-82 period. The magnitude of output black marketed is estimated by an in-direct procedure using input-output coefficients. Interest group behaviour in the Indian Cement Industry is also examined. Controls in such markets result in the development of black markets and other directly unproductive profit-seeking activity.**

**Mohyee El-Din Yaseen Ayoub’s<sup>2</sup> work relates to The Economies of Saudi Cement Industry. The main objective of this thesis has been to study**

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**2. Ayoub, Mohyee El-Din Yaseen, The Economies of Saudi Cement Industry, Rensselaer Institute, Saudi Arabia, 1987.**

**and investigate the role of cheap energy and its impact on the productivity and capital accumulation in the cement industry in Saudi Arabia.**

**This study aims to answer various questions regarding various issues such as the overall impact of lower-priced energy on cement production and on the productivity of the industry, the implications of cheap energy for productivity of inputs, the possibilities of substitution among inputs, the effect of cheap energy on the cost of manufacturing cement, and the extent to which the advantage of low-priced energy is helping the cement industry in terms of choice of technology.**

**This thesis presents evidence on the hypothesis : capital and energy are complements and capital and labour are substitutes. It provides evidence that cheap energy helps industry-expansion and capital-accumulation.**

**Al-Hindawi, Munzer<sup>3</sup> has submitted his dissertation with the title of “Technology transfer, Ideology of the state and Economic Development in the third world : A case study from Syria with special reference to the cement Industry”.**

**This thesis examines the relationship between technology-transfer and economic development in the Third-World. It suggests that the key factor**

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**3. Al-Hindawi, Munzer, Technology Transfer, Ideology of the State and Economic Development in the Third World : A case study from syria, with special reference to the cement industry, University of Lancaster, 1990.**

**affecting this relationship is the ideological orientation of the state.**

**The thesis is divided into two parts. The first part investigates the liberal and socialist approaches towards technology transfer and economic development. The second part involves a specific case study : the development of the cement industry in Syria. This part examines how the changes in the ideological orientation of the state has affected the process of technology transfer and the subsequent impact of the technology on the economic development of the country.**

**Garcia-Rojas Alarcon, Jorge Gabriel<sup>4</sup> made an attempt to study the neoclassical production function and the market structure : An application to the Mexican Cement Industry from 1963 to 1983.**

**This study provides an overview of the neoclassical theory of production as well as topics on market structure. It analyses transportation costs, pricing and economies of scale that determine production concentration and emphasizes the need of studies that would analyse possible effects if a North American Free Trade Area is implemented among the U.S.A., Canada and Mexico.**

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**4. Garcia-Rojas Alarcon, Jorge Gabriel, Overview of the Neoclassical Production Function and the Market Structure : An application to the Mexican Cement Industry from 1963 to 1983, Rice University, 1991.**

**The Mexican cement industry is used as an example of a sector with diverse industrial organisation schemes, where the production process results in a trade-off between energy-saving technologies and pollution wreckage. Labour, capital and material inputs are considered in the case study where various policy simulations signal some distortions that controlled input markets have on output, efficiency and productivity during the 1963-1983 period on the cement industry of Mexico.**

**Aranoff, Gerald<sup>5</sup> has submitted to report to the City University of New York. The principal hypothesis of this is that the U.S. Cement Industry for the 60's and 70's illustrates Clark's concept of too strong competition. This paper presents a definition of under-capacity for evaluating to strong competition. The paper considers that the mainstream academic view has mischaracterised the cement industry 1909-1946. The paper offers evidence that in the 60's and early 70's cement profit margins were inadequate and were the proximate cause of reduced investment with consequences of severe capacity shortages 1972-1973 and 1978-1979.**

**This paper also explains the economies of product pricing with**

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**5. Aranoff, Gerald, Three Essays on Technology and Competition; Applications of John M. Clark's concepts to the cement industry; Transfer Pricing and Product Pricing, City University of New York, 1991.**

diagrams and numerical examples and economic theory for pricing in a simple manufacturing model. Other topics discussed in this paper were advantages of price discrimination, cost-plus pricing and behavioural impact of accounting methods on pricing.

Tallant, Drury John<sup>6</sup> submitted his report with the title of “Privatisation in a Developing Economy : Lessons from the Turkish Cement Industry”.

This dissertation analyses the Turkish Cement Industry’s 41 firms and focuses on the 18 privatisations completed between 1989 and the end of 1992. Privatisation is analysed in terms of its effects on economic efficiency, and for its potential impact on larger, more general business conditions such as secure property rights.

Niefer, Mark James<sup>7</sup> made an attempt to observe the energy price shocks and plant level productivity : A study of the cement industry. Obsolescence of capital caused by energy price shocks has long been posited as a cause of the slowdown in U.S. Productivity growth during the 1970’s.

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6. Tallant, Drury John, **Privatisation in a Developing Economy : Lessons from the Turkish Cement Industry, Cornell University, 1994.**

7. Niefer, Mark James, **Energy Price Shocks and Plant Level Productivity : A study of the cement industry, State University of New York, 1994.**

**This work examines plant level data in the cement industry for evidence of capital obsolescence following the energy price shocks of the 1970's.**

**Salas, Osvaldo <sup>8</sup> has submitted his dissertation to the Goteborgs University with the title of "Efficiency and Productivity change: A Micro Data case study of the Colombian Cement Industry".**

**The objective of this monograph is to study technical and structural change, efficiency and productivity in the Colombian Cement Industry for the period 1968-1988. This thesis is organised into seven chapters. Chapter 1 Outlines the framework this study. In chapter 2, the Colombian economy is briefly described. Chapter 3 discusses the methodology of the study. The characteristics of the Colombian cement Industry are extensively studied in Chapter 4. A very detailed description of the data used in this work is also included. In Chapter 5, a analysis of the Colombian Cement Industry is carried out by using the short-run production function approach. In Chapter 6, he analyse the issues of efficiency and productivity. The analysis is based on the application of a frontier production function. Chapter 7**

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**8. Salas, Osvaldo, Efficiency and Productivity Change: A Micro Data case study of the Colombian Cement Industry, Goteborgs University(Sweden), 1994.**

consists of a summary and presents a comparison of the results of the two different methods applied in this study.

Apart from the above, M. M. Mehta <sup>9</sup> made early attempts on the studies of size, location and integration of various industrial units like iron and cement. In his study, he concentrated on the study of various sizes of the industrial units and their advantages and disadvantages, locational advantages to the industries and gave the clues about the optimum size of the industrial unit as well as the best location for the establishment of an industrial unit etc.

Vijaya Raju, S.,<sup>10</sup> submitted his dissertation to the Nagarjuna University with the title of "Industrial Relations in Cement Industry of coastal Andhra Pradesh". In his study, he observed the various causes, which severely affect the relationship between employers and employees particularly in the cement plants located in coastal Andhra Pradesh. His dissertation also highlighted the measures to improve the relationship

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9. Mehta, M.M ., Structure of Indian Industries, Popular Bombay, 1955,  
P: 187.

10. Vijaya Raju , S., Industrial Relations in Cement Industry of Coastal Andhra Pradesh-A study of Workers' Management and Union Management Relations, Nagarjuna University, 1986.

between the workers and management and union and management.

Authored by R. Parthasarathy, the Secretary General of Cement Manufacturers' Association (CMA), and S.M. Chakravarthy , <sup>11</sup> former Secretary General of CMA, the book, Indian Cement Industry : Emerging Trends, is an elaborate study on the sector, tracing the graduation of the industry from the times of decontrol to date. It provides an insight into the problems faced by the industry owing to the inadequacy of infrastructure facilities in the country and into the new approaches for solving them. This book highlights the various strengths and weaknesses of the cement industry but also tries to give the ways to overcome the problems, and how it can upgrade to meet the challenges of liberalisation.

Jethra, B.D. and Lahiry, S.C. <sup>12</sup> made an attempt to study the problems and prospects of the cement industry. In his article, he has mentioned the various problems faced by the industry namely coal, power, raw materials, transport etc., and also the future action plan required by the

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11. Parthasarathy,R. Chakravarthy,S.M. Indian Cement Industry: The Emerging Trends, The Contact Advertising and Communication, 1810, Gyani Baza, Kotla Mubarakpur, New Delhi.

12. Jethra , B.D. Lahiry, S.C. Cement Industry : Problems and Prospects, Yojana, September 30 1994 , Vol. 38 , No :17, PP:4-7.

cement industry to improve the situation. This article also highlighted the five year planwise installed capacity, production and consumption targets and actual statistics, which was collected from plan documents.

Jagannathan, V.<sup>13</sup> has mentioned various points in his article cement : Cracks that need plastering, which was published in Industrial Economist. This article highlighted the points, which was taken-up by Cement Manufacturers' Association and government to stabilise the situation in the market and also mentioned information about various acquisitions taken-up in the industry in recent past. The author has made an attempt about the industry's demands to the government and also the pressures come from other Asian Countries to Indian Cement Industry in the World cement market.

Chakravarthy, S.M.<sup>14</sup> wrote two books titled Indian Cement Industry- From Control to Decontrol and Growth, prospects for cement industry in India. In the above books, the author made an attempt to give the

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13. Jagannathan, V., Cement : Cracks that need plastering, Industrial Economist, 30 March 1998, Vol. XXX, No. 24, PP : 54-55.

14. Chakravarthy, S.M., Indian Cement Industry : From Control to Decontrol, Growth and prospects for Cement Industry in India, Wadhera Publications, 232, General Assurance Buildings, Mumbai.

information about the growth trends in the installed capacity, production and consumption of the cement and also observed the changes in the industry after the introduction of partial and total decontrol policies. Apart from the above, the author attempted to forecast the cement demand for the VIII and IX plan periods after observing the various areas for prospects.

Kapur, A.L.<sup>15</sup> mentioned the various important points in his article, "Cement Export – Problems and Prospects, which appeared in The Economic Times. This article highlighted the various problems faced by the Indian Cement Industry to enter the world cement market, and also the prospects from the various countries in the world. And at the same time, the prospects from the various countries in the world, which come into picture because of changes occurred in their countries.

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15. Kapur, A.L., "Cement Export – Problems and Prospects", The Economic Times, 22 June 1985, P : 5.