CHAPTER -I

CEMENT INDUSTRY

In the most general sense of the word, a cement is a substance which sets and hardens independently, and can bind other materials together. The term word “cement” traces to the Romans\(^1\). They used the term “opus caementicium” to describe masonry which resembled concrete and was made from crushed rock with burnt lime as binder\(^2\). The volcanic ash and pulverized bricks were added to the burnt lime to obtain a hydraulic binder. They were later referred to as cementum, cimentum, cament and cement\(^3\).

The most important use of cement is the production of mortar and concrete use the cement. It is durable in the face of normal environmental effects. Cement should not be confused with concrete as the term cement explicitly refers to the dry powder substance. The cement mixture is referred to as concrete.

Early uses

The earliest construction cements are non-hydraulic\(^4\). Wherever primitive mud bricks were used, they were bedded together with a thin layer of clay. Mud-

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\(^{2}\) *Ibid.*, 

\(^{3}\) *Ibid.*, 

based materials were also used for rendering on the walls of timber. Lime was probably used for the first time as a product for stabilizing mud floors. The other products used for this purpose were mud, cow dung and lime. It was due to coagulation by the lime. This simple system was common in Europe until quite recent times\(^5\). With the advent of fired bricks, and their use in larger structures, various cultures started to experiment with higher-strength mortars based on and time in many parts of the world.

**Modern Cement**

Modern hydraulic cements began to be developed from the start of the Industrial Revolution around 1800\(^6\). In Britain particularly, good quality building stone became ever more expensive during a period of rapid growth, and it became a common practice to construct prestige buildings from the new industrial bricks, and to finish them with a stucco to imitate stone. Hydraulic limes were favored for this, but the need for a fast set time encouraged the development of new cements. Most famous among these was Parker’s “Roman cement”\(^7\). This was developed by James Parker in the 1780s, and finally patented in 1796\(^8\). The success of “Roman Cement” led other manufacturers to develop rival products by burning artificial mixtures of clay and chalk.

\(^5\) Ibid.,
\(^6\) Aqueduct Architecture: Moving Water to the Masses in Ancient Rome.
\(^8\) Ibid.,
John Smeaton made an important contribution to the development of cements when he was planning the construction of the third Eddy Stone Lighthouse (1755-9) in the English Channel. He needed a hydraulic mortar that would set and develop some strength in the twelve hour period between successive high tides. He performed an exhaustive market research on the available hydraulic limes, visiting their production sites, and noted that the "hydraulicity" of the lime was directly related to the clay content of the limestone from which it was made. Smeaton was a civil engineer by profession, and took the idea no further. Apparently unaware of Smeaton's work, the same principle was identified by Louis Vicat in the first decade of the nineteenth century. Vicat went on to devise a method of combining chalk and clay into an intimate mixture, and, burning this, produced an "artificial cement" in 1817. James Frost, working in Britain, produced what he called "British cement" in a similar manner around the same time, but did not obtain a patent until 1822. In 1824, Joseph Aspdin patented a similar material, which he called Portland cement, because the render made from it was in color similar to the prestigious Portland stone.

**Portland Cement**

Cement is made by heating limestone with small quantities of other materials such as clay to 1450°C in a kiln. The resulting hard substance, called

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‘clinker’, is then ground with a small amount of gypsum into a power to make ‘Ordinary Portland Cement’. The other types of Portland cement are Portland cement blends, Portland Blastfurnace cement, Portland Flyash cement, Portland Pozzolan cement, Portland Silica Fume cement, Masonry cements, Expansive cements, White blended cements, Colored cements, Very finely ground cement, Non- Portland hydraulic cements, Slag-lime cements, Supersulfated cements, Calcium aluminate cements, Calcium sulfoaluminate cements, “Natural” cements and Geopolymer cements\textsuperscript{11} and these are made from mixtures of water-soluble alkali metal silicates and aluminosilicate mineral powders such as fly ash and metakaolin.

Cement is an essential pre-requisite for the fast industrialization and development of the economy. Its vital role in the economic development of the country is considered in innumerable ways in which it is being used in different parts of the world.\textsuperscript{12} Moreover its level of consumption is considered an extremely important indicator of the quality of economic life of the people.

Cement industry is a basic industry which plays an important role in the process of economic development of the country. It is an essential material for building infrastructure like dams, bridges, hospitals and plants. The manufacture of cement requires several inputs like limestone, gypsum, coal, power,

sophisticated plant and machinery and transport services especially of wagons. Consequently, the cement industry has a manifold accelerating effect on activities in many sectors of the economy. Thus the extent of forward and backward linkages of cement Industry highlights its prominence in fitter industry growth. This industry is also significant from the point of view of direct and indirect employment it generates, revenue contribution by way of taxes and duties to govt. and catering to basic standard of living namely housing.

Cement industry has been accorded a significant place in the scheme of priorities for facilitating investment process in the industrial development. It is produced both in public and private sectors. Certain guidelines were adopted for the private sector in order to augment production without encouraging the concentration of economic power. Different policies are adopted by the government regarding cement distribution prices\textsuperscript{13}.

There is a sizeable literature available on the various aspects of the cement industry. It may be worthwhile to look at some of the writings, especially those on diverse aspects of its economic performance. The most important and pioneering work on cement industry is by V. Poddar (1961, 1966), in which he touches upon almost all the aspects of the industry-historical, analytical and technical.\textsuperscript{14} Very little was known about cement before the eighteenth century. However, there is

\textsuperscript{13} Ibid.
some evidence of people using it in the old civilizations of the Egyptian, Greek and Roman in its various forms. Today when the word ‘cement’ is used, it normally means Portland cement, which originated in England.\(^\text{15}\)

**Origin and growth of the industry**

The inception of Portland cement industry in India dates back to 1904 with a small cement factory at Washermanpet near Madras\(^\text{16}\). The potential of the actual ‘cement era’, however started only in 1914, when three cement factories were set up. One of them was Indian Cement Company Limited at Porbandar, Gujarat. Out of the other two, one was established at Kathi (Madhya Pradesh) and other at Bundi (Rajasthan). All the three companies were set up by the managing agency housed in Bombay\(^\text{17}\). The first World War gave a boost to this industry, and by 1924, ten cement companies had come into existence with an installed capacity of 559,800 metric tons, but actual production was almost half of the capacity.\(^\text{18}\)

There was prejudice about the Indian Cement among its users. The cement manufacturers began to cut down prices to such an extent that in some cases Indian cement was sold at even below the cost of production. This forced some companies into liquidation. It was at this juncture that the Government of India intervened and referred working of the cement industry to the Tariff Board. While

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\(^{15}\) Ibid.


\(^{17}\) Ibid.

recommending protection for the industry the Tariff Board emphasized the urgent need for cooperation among the existing units.¹⁹

In 1936 out of the eleven existing units ten merged together to form the Associated Cement Companies Limited. A year later Dalmia - Jain Group decided to set up five new cement plants with a total installed capacity of about 5,75,000 tons per year. With some more units going into production²⁰ prices once again came down to uneconomic levels in 1938.

During the Second World War, cement was declared as an essential commodity under the Defence of India rules and was brought under price and distribution controls – an evidence of the direct state intervention for the first time in the history of cement industry. On the eve of independence, there were 23 factories operating in India with a total capacity of 2.2 million metric tons against 500,000 metric tons in 1923²¹.

Thus the history of the evolution of the cement industry in the pre-independent India reveals the development of quasi monopolistic organizations and agreements resulting from the threats posed by production in excess of actual demand.

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²⁰ I.C. Arya, *op.cit.*, pp.70-80.
It was only from 1946 onwards greater quota was allotted for civil purposes. Due to post war development scheme, the demand for cement rose in Public Works Department, Railways, Civil Aviation, etc. In 1947, there were 18 units with actual production of about 1.5 million tones of cement.

There were three factories in 1950 with a total production capacity of 6,00,000 tons. Madukkarai cement factory had a capacity of 28,000 tons, Dalmia cement factory had a production capacity of 22,000 tons and India Cements Limited at Tirunelveli had a capacity of 10,000 tons. India Cements Limited Thazhayuthu, Tirunelveli’ with a capacity of 1,00,000 tons maintained peak production during the year 1951.

During the first Five Year Plan period (1951-56), cement production increased from 2.20 million tons to 4.60 million tons. By the end of the First Plan, there were about 27 units with a capacity of about 5 million tons. In the Second Plan period (1956-61), the total installed capacity increased to about 9.2 million tons, actual production rose from 4.6 million tons to about 7.8 million tons and the number of units increased from 27 to 34.

In order to meet the increased demand the targets of annual capacity and production during the Third Plan Period (1961-66) were subsequently stepped

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upto 15 and 13 million tons respectively.\textsuperscript{26} During the Fourth Plan period (1969-74), the achievable target of production was projected at 18 million tons against which the actual production was 14.6 million tons for the year 1973-74.\textsuperscript{27} In the Fifth Period the target was 20.8 million tons and the actual production in 1977-78 was 19.42 million tons.\textsuperscript{28}

The Sixth Five Year Plan had envisaged cement production to go up from 18.56 million tons in 1980-81 to 32.5 million tons in the year 1984-85. This is due to estimated increase in the demand for cement in the Sixth Plan period from 19.2 million tons to 37.0 million tons.\textsuperscript{29} For the Seventh Plan, target of installed capacity and actual production in 1989-90 were fixed at 62 million tons and 49 million tons, respectively.\textsuperscript{30} It is noted from the above description that Indian cement industry has experienced chequered growth over the years.

The cement industry comprises 125 large cement plants with an installed capacity of 148.28 million tons and more than 300 mini cement plants with an estimated capacity of 11.10 million tons per annum.

The Cement Corporation India, which is a Central Public Sector undertaking, has 10 units. There are 10 large cement plants owned by various

\textsuperscript{27} Government of India,Fourth Five Year Plan, Planning Commission, New Delhi, 1974, p.254.
\textsuperscript{28} Government of India, Fifth Five Year Plan, Planning Commission, New Delhi, 1978, p.260.
\textsuperscript{29} Government of India,Sixth Five Year Plan, Planning Commission, New Delhi, 1980-85.p.438.
\textsuperscript{30} Government of India, Seventh Five Year Plan, Planning Commission, New Delhi, 1989-90, p.270.
State Governments. The total installed capacity in the country as a whole is 159.38 million tons. Actual cement production in 2002-03 was 116.35 million tons as against a production of 106.90 million tons in 2001-02, registering a growth rate of 8.84 percent. Major players in cement production are Ambuja Cement, Aditya Cement, JK Cement and L & T cement.

Apart from meeting the entire domestic demand, the industry is also exporting cement and clinker. The export of cement during 2001-02 and 2003-04 was 5.14 million tons and 6.92 million tons respectively. Export during April-May, 2003 was 1.35 million tons. Major exporters were Gujarat Ambuja Cements Ltd. and L&T Ltd.

The Planning Commission for the formulation of the Tenth Five Year Plan constituted a 'Working Group on Cement Industry' for the development of the cement industry. The Working Group has identified following thrust areas for improving demand for cement;

i. Further push to housing development programmes;

ii. Promotion of concrete Highways and roads; and

iii. Use of ready-mix concrete in large infrastructure projects.

Further, in order to improve the global competitiveness of the Indian Cement Industry, the Department of Industrial Policy and Promotion
commissioned a study on the global competitiveness of the Indian Industry through an organization of international.

KPMG Consultancy Pvt. Ltd. The report submitted by the organization has made several recommendations for making the Indian Cement Industry more competitive in the international market. The recommendations are under consideration.

Cement industry has been decontrolled from price and distribution on 1st March 1989 and de-licensed on 25th July 1991. However, the performance of the industry and prices of cement are monitored regularly. Being a key infrastructure industry, the constraints faced by the industry are reviewed in the Infrastructure Coordination Committee meetings held in the Cabinet Secretariat under the Chairmanship of Secretary (Coordination). The Committee on Infrastructure also reviews its performance.

Technological change, Continuous technological upgrading and assimilation of the latest technology has been going on in the cement industry. Presently 93 per cent of the total capacity in the industry is based on modern and environment-friendly dry process technology and only 7 per cent of the capacity is based on old wet and semi-dry process technology. There is tremendous scope for waste heat recovery in cement plants and thereby reduction in emission level.
One project for co-generation of power utilizing waste heat in an Indian cement plant is being implemented with Japanese assistance under Green Aid Plan. The induction of advanced technology has helped the industry immensely to conserve energy and fuel and to save materials substantially.

India is also producing different varieties of cement like Ordinary Portland Cement (OPC), Portland Pozzolana Cement (PPC), Portland Blast Furnace Slag Cement (PBFS), Oil Well Cement, Rapid Hardening Portland Cement, Sulphate Resisting Portland Cement, White Cement etc. Production of these varieties of cement conforms to the BIS Specifications. Also, some cement plants have set up dedicated jetties for promoting bulk transportation and export.

**The India Cements Limited, Sankar Nagar**

The India Cements Limited was established in 1946 and the first plant was set up at Sankar Nagar in Tamil Nadu in 1949. Since then it has grown in structure to seven plants spread over Tamil Nadu and Andra Pradesh. They are at Sankar Nagar, Dalavai, Sankar, Yeramguntha, Chilamkur, Vishnupuram and Visak. The first three cement factories are in Tamil Nadu and other at Andra Pradesh. The three cement factories in Tamil Nadu are Madukkarai Cement Factory at Coimbatore, Dalmiapuram Cement Factory at Tiruchirappalli District and India Cement Thazhaiyuthu, Thirunelveli District. The other two cement

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factories are at Andra Cement Company at Vijayavada in Krishna Cement Works at Magalaya.

Shri Sankaralinga Iyer was a Pioneer of heavy industry in the south. Primarily a banker, he ventured into the field of industry with a rare devotion and confidence with the prime objective of developing major industries in the states. With his banking experience and interest in exploring the internal potential of South India, he went ahead boldly with his scheme of building a cement plant in the vicinity of Thazhaiyuthu where extensive deposits of limestone were assuredly available. Shri Sankaralinga Iyer with his energy and drive gave the cement project a realistic form and content. Two men with vision to inspire for an industrial India. Two men with the ability to translate those dreams into reality and the ability to build enduring relationship.

In his task of establishing the enterprise, Shri Iyer was ably assisted by Shri. T.S. Narayanaswami, who is always indentified with the formation and running of the Indian cements limited. He was the catalyst who saw the project through and made it emerge as a viable and marketable proposition.

34. Personal Interview with Nandakumar Vice-President, India Cement Ltd., Sankar Nagar, dated 14 November, 2005.
He looked beyond cement to Aluminium production, chemical and plastics and shipping after he had fully established the India cements potential for expansion. A pioneer Industrialist and visionary, Shri T.S. Narayanaswamy played a dynamic role in the resurgency of industrialization in free India.\footnote{36}

The India Cements Limited is professionally a managed company headed by its chairman N. Sankar. The day-to-day affairs of the company are managed by N. Srinivasan, the vice chairman and the Managing Director assisted by the executive director N. Ramachandran and other key professional in each functional area. The board of directors is ultimately responsible for the management affairs of the company. N. Srinivasan is the vice-chairman and Managing Director, the Executive Director is N. Ramachandran.\footnote{37} The Directors are N. Kumar, B.S. Adityan, R.K. Das and V.M. Mohammed Meeran, Denys Clader is the first nominee and P.N. Jambunathan is the nominee of Life Insurance Corporation of India, N.D. Pinge and B. Ravindranath are the nominees of Industrial Development Bank Ltd, respectively.\footnote{38} The company has 5500 dedicated members consists of 1200 Executives committed to the growth of the company and the industry at large. The company tasks comprise the functions in production, quality assurance engineering, administration legal affairs, safety, public relations, projects R & D information systems etc. headed by MPA’s

\footnote{36} Ibid., \footnote{37} District Census Handbook, Tirunelveli, 1965, p.47. \footnote{38} Ibid.,
Engineers, cost accountants, charted accountants, income tax specialists and professionals.

The India Cements Limited is the latest producer of cement in South India. The Company’s plants are well spread with three in Tamil Nadu and four in Andhra Pradesh, which cater to all major markets in South India and Maharastra. The Company is the market leader with a market share of 28 per cent in South India. Its aim is to achieve a 35 per cent market share in the near future. The Company has access to huge limestone resources and plans to expand capacity as well as by acquisitions. The company has a strong distribution network with over 10,000 stockists of whom 25 per cent are dedicated. The Company has well established brands such as Sankar Super Powers, Coromandel Super Powers and Raasi Super Powers.

Regional officers in all Southern States and Maharastra / represented in every district during the years mentioned below:

1946 : Incorporation of The India Cements Limited

1949 : Commissioning of first cement plant at Sankarnagar. Installed capacity 1 lac tons per annum.

1963 : Commissioning of second cement plant at Sankaridrug – Installed capacity 2 lac tons per annum

1969 : Capacity expansion at Sankarnagar touches 9 lac tones per annum.

39. www.indiacements.com
40. Ibid.

1971 : Capacity expansion at Sankari Durg to 6.00 Lakh tons per annum.

1990 : Acquisition of Coromandel Cement pant at Cuddapah - Installed Capacity rises to 2.6 million tons per annum. The India Cements Limited becomes the largest producer of cement in South India.

1990 : Conversion of Sankarnagar Plant to Dry Process with the increased capacity of 1.00 million tons per annum.

1991 : India cements ventures into shipping. Sets up a Shipping Division.

            Floats successfully US$ 50 million GDR issue.

1995 : Announces issue of 1:1 Bonus shares.

1996 : India Cements’ green field cement plant at Dalavoi commences commercial production. Installed capacity 0.9 million tons per annum.

1997 : India Cements acquires Aruna Sugars Finance Limited Renamed as India Cements Capital & Finance Limited
            India cements acquires cement plant of Visaka Cement Industry Limited, at Tandur, Ranga Reddy District of Andhra Pradesh. Installed capacity 0.9 million tons.

The Products are, Grade - 53 Cements, Grade 43 Cements, Blended Cements and Sulphate Resisting Portland Cement. The raw materials to produce cement are calcareous (limestone attained from mines) argillaceous materials (clay Bauxite) and Iron, Gypsum is added to control the setting of cement.

41. Ibid.
42. Personal Interview with Nandakumar, Vice-President, India Cement Manufacture, dated 5.6.2006
The cement is manufactured by four stages. They are,

1. Extraction of limestone from mines
2. Blending of ground limestone clay or bauxite, and iron ore or laterite in right proportion and cindering in rotary kilns at a high temperature of 1400c to 1500c from cinder.
3. Grinding of clinker with gypsum to form cement.
4. Storing in soils testing and dispatch from the final process of manufacture.

Coromandel King, Sankar Sakthi and Raasi Gold are high strength cements to meet the needs of the consumer for high strength concrete. As per BIS requirements the minimum of 28 days compressive strength of 53 grade Ordinary Portland Cement should not be less than 53 Mpa. For certain specialized works such as prestressed concrete and certain items of precast concrete requiring consistently high strength concrete, the use of 53 grade Ordinary Portland Cement is found very useful. 53 grade Ordinary Portland Cement produces higher grade concrete at very economical cement content. In concrete mix design, for concrete M.20 and above grades a saving of 8 to 10 percent of cement may be

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43. Personal Interview with David Manikam, Senior Manager, Personal, dated 10 June, 2006.
44. Personal Interview with Thachana Moorthy, Quality Control Manager, dated 10 May, 2005
45. Personal Interview with Muthu Samy, Chief Manager, Quality Assurance, dated 15 June, 2006
The Coromandal King, Sankar Sakthi and Raasi Gold can be used for, RCC works (preferably where grade of concrete in M-25 and above precast concrete items such as paying blocks, tiles building blocks etc., prestressed concrete components, runways concrete roads, bridges etc., multistorey buildings.\textsuperscript{47} The comparison of strength characteristics of 53 Grade Ordinary Portland Cement is shown in the following graph.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{graph_i.png}
\caption{Comparison of Strength Characteristics of 53 Grade OPC}
\end{figure}

\textbf{Graph - I}

\textbf{Source}: www.indiacements.com

\textsuperscript{46} Personal Interview with Kannan Sales Manager Distribution, dated 25 September, 2006.
\textsuperscript{47} Personal Interview with Dhayanantham, Senior Assistant Manager, Personal, dated 20 June, 2006
The above graph clearly shows the characteristics of 53 Grade OPC.

Coromandal, Sankar and Raasi are the 43 grade Ordinary Portland Cements, the most popular general purpose cements in the market today. The production of 43 Ordinary Portland Cement forms nearly 50 per cent of the total production of cement in the country. The compressive strength of cement at 28 days when tested as per IS code shall be minimum 43 Mpa. Characterstic strength requirements of this cement are given in the chart.

Graph: II

Source: www.indiacements.com

The above graph highlights the characteristics features of 43 Grade OPC.

**Blended Cement**

Coromandal Super Power, Sankar Super Power and Raasi Super Power are the premium blended cements from the India cements Limited. They are produced by intergrinding of OPC clinker along with Gypsum and mineral admixtures.49 Dedicated to the user after passing through stringent tests at the R & D laboratory, it ensures durable structures that last for generations.

The following are the salient features of the cement.50

1. Strength increases at time passes.
2. High durability concrete - protects from corrosive coastal attack and extreme temperature.
3. Ideal cement for resisting aggressive environments like chemical, chloride and sulphate attack.
5. High fitness - suited for plastering and finishing works.

49. Personal Interview with Gopalasamy, Senior Assistant Manager, Quality Assurance, dated 10 August, 2006.
50. Personal Interview with Vijayasekar, Assistant General Manager, Mechanical, dated 17 September, 2005.
7. Equivalent to 53 grade cement.

**Graph : III**

![Comparison of Strength Characteristics of Blended Cement](image)

**Source:** www.indiacements.com

The graph above clearly shows the characteristics of Blended Cement.

**Applications**

It is a general purpose cement and can be used with advantage wherever Ordinary Portland Cement is used.\(^{51}\)

1. Marine structure
2. Mass concrete pours such as high dams etc.
3. Highly suited for plastering works because of its high fitness.

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\(^{51}\) Personal Interview with Ravindran, Assistant Manager, India Cement, dated 10 August, 2006.
Sulphate Resisting Portland cement

Sankar Sulphate Resisting Portland Cement can be used for structural concrete wherever Ordinary Portland Cement or Portland Pozzolona Cement or slag cement is usable to resist under normal conditions. Sankar Sulphate Resisting Portland Cement is particularly beneficial in such conditions where the concrete is exposed to the risk of deterioration due to sulphate attack. The IS 456 1978 (revised draft code) has made elaborate provisions for use of particular type of cement against different percentage soluble sulphate salts. This cement is recommended for the following applications:

Graph: IV

Comparison of Strength Characteristics of SRC

Source: www.indiacements.com
The graph above brings out the characteristic features of SRC.

1. Foundations piles
2. Basements and underground structure
3. Sewage and water treatment plants
5. Food processing industries and petrochemical projects
6. Coastal works.
7. Also to normal construction works where Ordinary Portland Cement is used.
8. Construction of building along the coastal area is 50km from sea.

Proper storage of cement shall permit easy access for inspection and identification. Cement shall be stored in suitable weather- high structures, to protect the cement from dampness. It shall not be filled in more than ten bags in a stock and shall be arranged in header and structure fashion as for as possible, while removing the bags for use. “First in first out” rule shall be applied.

The India Cements Limited has a major share of cement exports to South India and Maharastra in the country and also to Africa and West Asia. Its exporting capacity has I lack tons per annum.

Since, the inception of the India Cement Limited with a humble beginning it has grown to a multi divisional company with seven plants of the overall
capacity of Rs.2000 crores.\textsuperscript{52} It is the largest manufacture of cement in South India.

The work of administration cement control was transferred for the Director of Control Commodities on 13th July 1948.\textsuperscript{53} Madras and Coimbatore continued to function under the direction of the Director of Controlled Commodities.

The total Production Capacity per month of the five factories is 68,800 tons. The actual production for the year 1951-52 was 749,246 tons. The state allotment for 1951-52 was 576,000 tons against the demand of 791,766 tons. So far as cement is concerned this state is a surplus one. The total demand of cement of this state was 40,000 tons. Against this demand 37,479 tons were supplied.\textsuperscript{54}

In 1952 India Cements maintained its output. The factories were working without any problem throughout the year except the summer, when there was restriction in the supply of electrical power. It hampered the production and the actual production of the five factories (inclusive of two in Telugu Speaking area) was 749,246 tons.\textsuperscript{55}

The total quantity of cement provided by three factories in the state during 1953-54 was 647,229 tons against the total capacity of 627,600 tons. The Govt. of

\textsuperscript{52} Government of Madras, G.O. No.503, Development Department, dated 12 February, 1952.
\textsuperscript{53} Government of Madras, Administrative Report Department of Industry and Commerce, for the year ending, 31 March , 1951, p.198
\textsuperscript{55} Government of Madras, Administrative Report, Department of Industry and Commerce, for the year 1953 p.61.
India’s allotment for the state was 473,950 tons. There was generally difficulty for consumers in obtaining supply of cement.\footnote{Government of Madras, Administrative Report, 1953-54, part I, Madras, 1956, p.101, G.O. 341 Industry, Labour and Co-operative Department, 1955, TNA, dated 3.2.1955.}

**India Cement**

Recording the cement production of the India Cement during First Five Year Plan that is from the year 1951-56 it was 4.16 million tons, and in the year 1960 – 1961 the cement production increased to 7.97 million tons\footnote{Government of India, G.O. No. 2555, Development Department, dated 03.02.1953.}. The total production of cement during 1965-66 was 10.97 million tons. The target regarding the production of cement was not fixed by the India cement during the year 1972-1974. However during this period the production of cement increased to 14.66 million tons. During 1978-1979 the total production was 19.42 million tons. After the long interval of nearly five years the India Cement took various steps to increase the production. But the company could not attain the fixed target yet, the total production increased as much as expected. During the Sixth Plan that is from the year 1984-1985 the total cement production was 30.13 million tons.\footnote{www.indiacement.com} During the seventh plan that is from the 1989-1990 the achievement was that the production of cement increased to 45.41 million tons. From 1992 – 1994 the India Cement never fixed any target for the production of cement. Yet the production increased year by year that is in the year 1991 the achievement regarding the production of cement was 48.90 and in the year 1991-1992 total production was...
54.08 million tons in the year 1992-1993. From 1993-1994 the production of cement increased to 57.96 million tons. From 1994-95 the India Cement’s production increased to 62.35 million tons. Total production was 69.03 million tons and 76.22 for the years 1995-96 and 1996-1997 respectively\textsuperscript{59}.

\textbf{Cement Production}

<table>
<thead>
<tr>
<th>Years</th>
<th>(In Mn. Ts)</th>
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<tbody>
<tr>
<td>1951-56</td>
<td>4.16</td>
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<tr>
<td>1960-61</td>
<td>7.9</td>
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<td>1965-66</td>
<td>10.97</td>
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<td>1972-74</td>
<td>14.66</td>
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<td>1978-79</td>
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<td>1989-90</td>
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<tr>
<td>1995-96</td>
<td>69.63</td>
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<tr>
<td>1996-97</td>
<td>76.22</td>
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\textbf{Sources} : www.indiacements.com

\textsuperscript{59} \textit{Ibid.},
The control over the production and distribution of cement continued to be in force during the year 1951-1997. The system of distribution of cement to the state by the Govt. of India was continued as in the previous years. The entire quantity of cement produced by the Indian Cements, Limited, Thazhaiyuthu were taken over by Govt. of India. Allotments to this state were made on the basis of indents placed.

Licensing Machinery continued to be in force and the honorary cement controllers discharged the function of the licensing authority. The Govt. of India
continued to regulate the price of cement at a uniform rate throughout the Indian Union. However, a slight increase in price was allowed for the cement produced by India Cements Limited as it is a post-war factory.\(^6^0\) Three factories in Madras state are:

1. The Madhukkarai Cements Works Limited
2. The Dalmia Cement (Bharat) Ltd. Dalmiyapuram
3. The India Cement Ltd. Thazhaiyuthu

The export of cement outside the state and for foreign countries was continued by the Govt. of India. State Governments were usually consulted before allowing such exports.

In December 1953 the Govt. issued an order lifting partially the restriction imposed on the sale of cement by stockists to consumers freely without permits. Stockists were permitted to sell 90 percent of the stocks received by them in a particular month freely to consumers without any permit. The balance of 10 percent of the stocks was required to be reserved for sale against permits to be issued by Tahsildars in all places except in the city of Madras.\(^6^1\) The Licensing machinery continued to be in force and the cement controllers discharged the functions of the licensing authority. In November 1953, the controllers were also

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\(^6^1\) Ibid.
given the power of cancellation, suspension and to stop supplies of cement to stockists.

With regard to prices a uniform system prevailed but India Cement Limited was allowed a higher price as it was a post war factory.

The cement industry was indeed well established in the state. The output of the three factories rose to 6,47,229 tons much more than the rated capacity. As a result, cement production in the state of Tamilnadu was in surplus and cement was exported to non-surplus areas.62

During the year 1958-59 Director of Industries and Commerce continued to be the state cement controller of this state. The central cement control order of 1956 was re-issued by the Government from 1st July 1958,63 besides the state cement control which was already in force. Under the state Government the Government of India fixed the retail selling prices of cement by the cement stockists for various places in the state and published in the Fort St. George Gazette.64

The system of allocation of cement to the states by Govt. of India for each quarter was in force as it was during the last year. The entire production of cement produced by the cement factories in the state was taken over by Govt. of

64. Ibid., p. 92.
India and Govt. of India made allotment to the state Govt. for each quarter consistent with the overall production and the demands in the country.\textsuperscript{65}

On receipt of the quarterly allotment of cement to the state quota from Govt. of India it was apportioned between the cement factories in the state with reference to the demands in the area according to the rationalization over movements for each cement factory.

The cement dealers were permitted to sell 75 percent of the stocks required by the bona fide consumers without Government permits from the competent authority from 1st May 1958 onwards.\textsuperscript{66} They were required to reserve only 25 percent of the stocks of cement for the state on the permits issued by the government in respect of Madras city and the Collectors and Tahsildars in District up to a period of 21 days only from the date of receipts of the stocks.\textsuperscript{67} They were also permitted to sell stocks, remaining unsold from out of the 25 percent to bona fide persons to whom the permit were issued after a period 21 days prescribed.\textsuperscript{68} In view of increase in the quality of cement in this state and the easy supply position, the period of reservation declared for the issue of permits by the (94 pages) competent authority was also reduced from 21 days to 15 days. From the month of June 1958 onwards, the dealers were also permitted to sell cement up to

\textsuperscript{65} Ibid. ,p.93.
\textsuperscript{66} Government of Madras, Administrative Report,1958-59, Department of Industries and Commerce, Madras, 1959, p.94.
\textsuperscript{67} Ibid., p.94.
\textsuperscript{68} Ibid.,
5 tons to any individual for bona fide consumption instead of the 4 tons allowed from their free sale quota. This system continued till the middle of Sep. 1958. The Govt. issued orders enhancing the free sale quota of cement by the cement dealers from 75 percent to 85 percent from them.⁶⁹

On the representation received from the selling agents of the cement factories and on the instructions of the Govt. of India to the effect that the production of cement in this country had increased cement was made available easily for all the construction by the consumers. The Govt. examined the question of dispensation of control over the distribution of cement at the cement dealers’ level altogether. It issued orders stating that the distribution control at the dealers’ level was lifted entirely and the dealers were free to get the cement without permits in this state. This order came into effect from Dec. 1958 on wards.⁷⁰ All the restrictions for the use of substitutes in the place of cement were also withdrawn.

According to the revised scheme of distribution of cement the existing dealers continued to function as before the year 1947-48.⁷¹ The question of issuing licences for the appointment of new dealers was examined by the state cements controller on the recommendation made by the selling agents of the cement factories and the licences were issued in the consultation with the official.

⁷⁰. Ibid.,
⁷¹. Ibid.,
The same proceeding was adopted in the case of existing dealers for opening additional depots in the places other than their usual original places. The dealers were appointed liberally in each and every part of the state so as to enable the public to get their requirement easily and quickly.

The standard for determination of the price of cement continued at Rs.117.50 per ton throughout the year. The retail prices were fixed for ten places (Where there were no dealers functioning previously) in the usual way of taking into account the local transport charges, handling charges godown rent and profit margin to the dealers and were notified in the official gazette from time to time.

The zonal movement was in force during the year. The public were able to get their requirements easily from the nearest cement factory. No difficulty was felt by the public in this regard.

**Export and Import**

During the year 1947-48 no imported cement was allotted to this state. The Government of India has undertaken export of cement to other states and foreign countries. The Government granted permits through the trading corporation of

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73. Ibid.,
India (Private) Limited. It may be noted here that the locally made cement is as good as the foreign stuff.

Producing cement has significant positive and negative impacts at a local level. On the positive side, the cement industry may create employment and business opportunities for local people, particularly in remote locations in developing countries where there are few other opportunities for economic development. It has been observed from this Chapter that the Cement Industry is characterized by a set of peculiar features as for as Tirunelveli district is concerned. This industry has been playing a key role not only in the process of economic development of the district but also in the country as a whole. The availability of the raw materials like limestone, gypsum, and electricity in the District are mainly responsible for the establishment the Sankar works of the India Cement Limited located at Thazhaiyuthu village not far away from Tirunelveli Town. It is the most significant plant for the manufacture of cement. It is seen that this industry provides employment for more than 2000 persons of this district. Though the manufacturing process is highly difficult the partners of this industry took various steps for the further development from the inception of the industry till date. One of the schemes introduced by them was the Group Insurance Scheme for the employees. The employees of the industry also co-operated with the management for the further development of the industry. Thus the unity of the

74. Ibid.,
employees and management further helped to start its branch at Vadakku Thazhaiyuthu on the strength of the super quality of the cement produced in industry. This has earned a good name throughout the world enhancing the supply of cement even to other countries. Above all the general public in and around the District are also able to get their requirements easily from this cement factory. The negative impacts include disturbance to the landscape dust and noise, and disruption to local biodiversity from quarrying limestone.