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CEMENT

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GOVERNMENT OF INDIA
MINISTRY OF MINES
INDIAN BUREAU OF MINES

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5 Cement

The Cement Industry in India is among the core Industries that is vital for economic growth and development. Ever since the Industry was delicensed in 1991, there has been remarkable growth that metamorphosed it to a globally competitive Market, making India the second largest producer of cement after China in the world. Cement is the basic building material and is used extensively in urban housing, industrial sector and infrastructure development. It has become synonymous with construction activity and the per capita consumption of cement is accepted as an important indicator of the country's economic growth.

In terms of quality, technology, productivity and efficiency, India compares well with the best in the world. The demand for cement is closely linked to the overall economic growth, particularly the housing and infrastructure sector. The recent government thrust on housing and infrastructure development augurs well for the industry. However, the per capita consumption of cement in India still remains substantially low at about 195 kg when compared with the developed world or world average which stands at about 520 kg. The Indian Cement Industry plays a key role in the national economy, not only by generating substantial revenue for State and Central Governments but also as a key industry that generates maximum employment directly or indirectly. India has a lot of potential for development in the infrastructure and construction sector and the cement sector is poised for a positive growth in the days ahead. Some of the recent major government initiatives such as development of 98 smart cities are expected to provide a major boost to the sector.

India exported about 6.22 million tonnes cement valued at `1,659 crore (including 2.85 million tonnes clinker, 2.28 million tonnes of portland grey cement and 0.03 million tonnes white cement) in 2015-16 to Sri Lanka, Nepal, Bhutan, Bangladesh and Myanmar, etc.

IBM captures data from mineral consuming industries as per provisions made under Rule 45, MCDR-2017 in Form 'M' (Erstwhile Form 'O').

As per the returns received from various cement plants and Survey of Cement Industry & Directory, 2017 the total installed capacity and the total production of cement of these plants have been arrived at 502.03 million tonnes and 153.64 million tonnes, respectively.

The Department of Industrial Policy and Promotion (DIPP), Ministry of Commerce, Govt. of India publishes data on production and capacity of cement in its Annual Report. As per Annual Report 2015-16, the total installed capacity of cement plants have been placed at 421.10 million tonnes and the production of cement during 2015-16 was 283.45 million tonnes. During 2016-17, the production of cement was 279.97 million tonnes.

The details of production and capacity are given in Table-1.

Three cement plants, having a total capacity of 1.338 mtpa produced white cement. Most of these capacities are modern and based on the energy-efficient dry processing technology.

There are as many as 175 plants with over a million tonnes or more capacity. In the Public Sector, however, there is only one Central Public Sector undertaking i.e., CCI which had 10 units, spread over eight States/Union Territories. Out of these, only three plants namely; Bokajan, Rajban and Tandur units are operating, the remaining cement plants have shut operations for more than a decade now. There are five large cement plants owned by various State Government Undertakings like Tamil Nadu Cement, Malabar Cements, J&K Ltd and Mawmluh-Cherra Cement Ltd, Shillong, Meghalaya. The company-wise annual installed capacity and production of cement plants during the year 2016-17 in the country is furnished in Table-1.

Data on capacity, production and growth in cement industry are given in Table-2.

Table 1: Company-wise installed Capacities and Production of Cement, 2016-17

(In million tonnes)

Company/ Plant Name	Capacity	Production
ACC Ltd	**34.49**	**4.4**
Bargarh, Bargarh, Odisha	2.5	1.03
Chaibasa, Singhbhum, Jharkhand	0.9	-
Chanda, Chandrapur, Maharashtra	3.8	-
Damodar (G), Purulia, West Bengal	0.75	-
Gagal-I & II, Bilaspur, Himachal Pradesh	4.4	-
Jamul, Durg, Chhattisgarh	2.4	-
Kudithini (G), Ballari, Karnataka	1.1	-
Kymore, Katni, Madhya Pradesh	2.72	-
Lakheri, Bundi, Rajasthan	1.5	-
Madukkarai, Coimbatore, Tamil Nadu	1.08	-
Sindri (G), Dhanbad, Jharkhand	2.35	-
Thondebhavi (G), Chikballapur, Karnataka	1.66	-
Tikaria (G), Sultanpur, Uttar Pradesh	3	-
Vizag (G), Vizag, Andhra Pradesh	0.3	-
Wadi & Wadi New, Wadi, Karnataka	6.03	3.37
ACL, Jaypee Group	**2.85**	**-**
Durga Cement Works, Guntur, Andhra Pradesh	2.31	-
Vishaka Cement Works, Vizag, Andhra Pradesh	0.54	-
Adhunik Cement Ltd	**1.5**	**0.69**
Adhunik Cement Ltd, Jaintia Hills, Meghalaya	1.5	0.69
Ambuja Cement Ltd	**30.53**	**11.92**
Ambujanagar I & II, Kodinar, Junagadh, Gujarat	5.5	-
Bathinda (G), Bhatinda, Punjab	0.82	0.34
Bhatapara, Raipur, Chhattisgarh	3.5	2.34
Dadri- (G), G B Nagar, Uttar Pradesh	1.8	0.95
Darlaghat, Solan, Solan, Himachal Pradesh	1.6	0.85
Farakka (G), Murshidabad, West Bengal	1.25	1.04
Magdalla (G), Surat, Gujarat	1.56	-

(Contd.)

Table-1 (Contd.)

Company/ Plant Name	Capacity	Production
Maratha Cement, Chandrapur, Maharashtra	4.5	3.32
Nalagarh, Solan (G), Solan, Himachal Pradesh	1.5	0.93
Rabriyawas, Pali, Rajasthan	2.6	2.03
Roorkee (G), Haridwar, Uttarakhand	1	0.12
Ropar (G), Ropar, Punjab	2.5	-
Sankrail (G), Howrah, West Bengal	2.4	-
Amrit Cement	**3**	**-**
Jaintia Hills, Jaintia Hills, Meghalaya	3	-
Anjani Portland Cements	**1.2**	**0.85**
Anjani Portland Cements, Nalgonda, Telangana	1.2	0.85
Asian CCPL	**1.3**	**-**
Asian Cement, Solan, Himachal Pradesh	1.3	-
Asian FCPL	**1.5**	**-**
Asian Cement, Patiala, Punjab	1.5	-
Bagalkot Cement & Ind Ltd	**0.6**	**-**
Bagalkot Cement, Bijapur, Karnataka	0.6	-
Barak Valley Cement	**0.33**	**-**
Karimganj, Karimganj, Assam	0.33	-
Bharathi Cement	**5**	**2.49**
Kadapa, Kadapa, Andhra Pradesh	5	2.49
Bhavya Cement	**1.4**	**-**
Bhavya Cement, Guntur, Andhra Pradesh	1.4	-
Bheema Cement (Earlier Coromandel Cements)	**0.9**	**-**
Bheema Cement, Nalgonda, Telangana	0.9	-
Binani Cement	**6.25**	**2.91**
Sikar (G), Sikar, Rajasthan	1.4	-
Sirohi, Sirohi, Rajasthan	4.85	2.91
Birla Corp. Ltd	**9.8**	**2.15**
Chanderia, Chittorgarh, Rajasthan	4	-

(Contd.)

Table-1 (Contd.)

Company/ Plant Name	Capacity	Production
Durgapur and Durga Hitech Cement (G), Bardhaman, West Bengal	2.3	-
Raebareli (G), Raebareli, Uttar Pradesh	1.3	-
Satna, Satna, Madhya Pradesh	2.2	2.15
Birla Corp. Ltd (erstwhile Reliance Cement)	**5.5**	**2**
Butibori (G), Nagpur, Maharashtra	0.5	-
Kundanganj (G), Raebareli, Uttar Pradesh	2	-
Maihar, Satna, Madhya Pradesh	3	2
BJCL, Jaypee Group	**2.2**	**0.25**
Bhilai Jaypee (G), Durg, Chhattisgarh	2.2	0.25
Burnpur Cement	**0.6**	**-**
Asansol, Burdwan, West Bengal	0.3	-
Patratu, Ramgargh, Jharkhand	0.3	-
C.C.I. Ltd	**1.45**	**0.17**
Bokajan, Karbi, Assam	0.2	-
Rajban, Sirmaur, Himachal Pradesh	0.25	0.17
Tandur, Rangareddy, Telangana	1	-
Calcom Cement India Ltd	**1.72**	**-**
Calcom Cement India Ltd, Noagoan, Assam	1.72	-
Century Textiles and Industries Ltd	**12.8**	**6.27**
Century Cement, Raipur, Chhattisgarh	2.1	-
Maihar Cement I & II, Satna, Madhya Pradesh	4.2	3.72
Manikgarh Cement I & II, Chandrapur, Maharashtra	5	2.55
Sonar Bangla (G), Murshidabad, West Bengal	1.5	-
Chettinad Cement	**14.2**	**1.45**
Ariyalur, Ariyalur, Tamil Nadu	5.5	-
Kallur, Gulbarga, Karnataka	2.5	1.45
Karikkali, Dindigul, Tamil Nadu	4.5	-
Puliyur, Karur, Tamil Nadu	1.7	-
Dalmia Cement (Bharat) Ltd	**12.9**	**2.12**
Ariyalur, Ariyalur, Tamil Nadu	3	-
Belagavi, Belagavi, Karnataka	4	0.69
Cuddapah, Kadapa, Andhra Pradesh	2.5	1.43
Dalmiapuram, Trichy, Tamil Nadu	3.4	-

(Contd.)

Table-1 (Contd.)

Company/ Plant Name	Capacity	Production
Dalmia Cement (Bharat) Ltd (erstwhile Jaypee Group)	**2.1**	**-**
Bokaro (G), Bokaro, Jharkhand	2.1	-
DCM Shriram Cement	**0.4**	**-**
Shriram Cement Works, Kota, Rajasthan	0.4	-
Deccan Cement	**2.3**	**1.33**
Nalgonda, Nalgonda, Telangana	2.3	1.33
ECO Cement	**1**	**-**
Durgawati, Bhabhua, Bihar	1	-
Emami Ltd	**4.4**	**0.63**
Panagarh, Burdwan, West Bengal	2	-
Risda, Baloda Bazaar, Chhattisgarh	2.4	0.63
Green Valley Industries	**1**	**-**
Green Valley Industries, Jowai, Meghalaya	1	-
Grey gold Cement	**0.09**	**0.09**
Grey gold Cement, Nalgonda, Telangana	0.09	0.09
Heidelberg Cement	**5.21**	**-**
Ammasandra, Tumkur, Karnataka	0.51	-
Imlai (G), Damoh, Madhya Pradesh	2	-
Jhansi (G), Jhansi, Uttar Pradesh	2.7	-
Hi-Bond Cement	**1.2**	**-**
Hi-Bond Cement, Gondal, Gujarat	1.2	-
Hills Cement Company	**1**	**-**
Hills Cement, Jaintia Hills, Meghalaya	1	-
India Cements Ltd	**15.55**	**5.48**
Chilamkur Works, Kadapa, Andhra Pradesh	1.46	-
Dalavoi, Ariyalur, Tamil Nadu	1.85	-
Malkapur, Rangareddy, Telangana	2.4	-
Parli (G), Beed, Maharashtra	1.1	-

(Contd.)

Table-1 (Contd.)

Company/ Plant Name	Capacity	Production
Sankaridurg, Salem, Tamil Nadu	0.86	0.77
Sankarnagar, Tirunelveli, Tamil Nadu	2.05	1.37
Trinetra Cement, Banswara, Rajasthan	1.5	1.38
Vallur (G), Chennai, Tamil Nadu	1.1	-
Vishnupuram, Nalgonda, Telangana	2.5	1.61
Yerraguntla, Kadapa, Andhra Pradesh	0.73	0.35
J&K Cement Ltd	**0.5**	**-**
Khrew, Pulwama, J & K	0.4	-
Samba, Jammu, J & K	0.1	-
J.K. Cement Ltd	**10.5**	**5.72**
Gotan White, Nagaur, Rajasthan	0.5	-
Jharli(G), Jhajjar, Haryana	1.5	-
Mangrol, Chittorgarh, Rajasthan	2.25	2.35
Muddapur, Bagalkot, Karnataka	3	1.86
Nimbahera, Chittorgarh, Rajasthan	3.25	1.51
JAL, Jaypee Group	**7.1**	**-**
Chunar (G), Mirzapur, Uttar Pradesh	2.5	-
Churk, Mirzapur, Uttar Pradesh	1.5	-
Rewa, Rewa, Madhya Pradesh	2.5	-
Sadva Khurd (Blending), Allahabad, Uttar Pradesh	0.6	-
JCCL, Jaypee Group	**1.2**	**-**
Shahabad Cement, Shahabad, Karnataka	1.2	-
JK Lakshmi Cement Ltd	**11**	**2.93**
Durg, Durg, Chhattisgarh	2.7	-
Jhajjar (G), Jhajjar, Haryana	1.3	-
Kalol (G), Gandhinagar, Gujarat	1	-
Sirohi, Sirohi, Rajasthan	4.65	2.93
Surat, Surat, Gujarat	1.35	-
JPVL, Jaypee Group	**2**	**-**
Jayprakash Power Ventures (G), Singrauli, Madhya Pradesh	2	-
JSPL	**0.85**	**-**
Raigarh, Raigarh, Chhattisgarh	0.85	-

(Contd.)

Table-1 (Contd.)

Company/ Plant Name	Capacity	Production
JSW (erstwhile Heidelberg Cement (I) Ltd)	**1**	**-**
Dolvi (G), Raigad, Maharashtra	1	-
JSW Cement	**10.4**	**1.93**
Nandyal, Kurnool, Andhra Pradesh	4.8	1.93
Salboni, P Medinipur, West Bengal	2.4	-
Vijayanagar, Bellary, Karnataka	3.2	-
JUD Cements	**0.5**	**-**
Jaintia Hills, Jaintia Hills, Meghalaya	0.5	-
Kalburgi Cement	**2.75**	**-**
Gulbarga, Gulbarga, Karnataka	2.75	-
Kalyanpur Cement	**1**	**-**
Kalyanpur Cement, Rohtas, Bihar	1	-
Kanodia Cement	**1.53**	**-**
Kanodia Cement, Bulandsahar, Uttar Pradesh	0.33	-
Kanodia Infra, Bhabhua, Bihar	1.2	-
Keerthi Industries (Formerly Suvarna Cement)	**0.59**	**-**
Keerthi Industries, Nalgonda, Telangana	0.59	-
Kesoram Industries	**10.75**	**5.53**
Kesoram Cement, Karimnagar, Telangana	1.75	1.01
Vasvadatta Cement, Gulbarga, Karnataka	9	4.52
Khyber Industries (P) Ltd	**0.33**	**-**
Khyber Cement, Srinagar, J & K	0.33	-
KJS Cement	**2.1**	**1.39**
KJS Cement, Satna, Madhya Pradesh	2.1	1.39
Lafarge Cement	**11.05**	**1.39**
Arasmeta, Janjgir, Chhattisgarh	1.8	1.39
Chittorgarh, Chittorgarh, Rajasthan	2.6	-
Jojobera(G), Singhbhum, Jharkhand	4.6	-
Mejia (G), Bankura, West Bengal	1.5	-

(Contd.)

Table-1 (Contd.)

Company/ Plant Name	Capacity	Production
Sonadih, Raipur, Chhattisgarh	0.55	-
Maa Chandi Cement	**0.33**	**-**
Bamunara, Burdwan, West Bengal	0.33	-
Malabar Cements	**0.86**	**-**
Cherthala (G), Alappuzha, Kerala	0.2	-
Walayar, Palakkad, Kerala	0.66	-
Mancherial Cement	**0.33**	**0.02**
Mancherial Cement, Adilabad, Telangana	0.33	0.02
Jalgaon (G), Jalgaon, Maharashtra	2	-
Mangalam Cement Ltd	**4**	**2.26**
Aligarh(G), Aligarh, Uttar Pradesh	0.75	
Mangalam Cement I & II, Kota, Rajasthan	3.25	2.26
Megha Techhnical & Engineers Pvt. Ltd	**0.7**	**-**
MTEPL-Lumshong, Jaintia Hills, Meghalaya	0.7	-
Meghalaya Cements Ltd	**0.53**	**0.4**
Jaintia Hills, Jaintia Hills, Meghalaya	0.53	0.4
Mehta Group	**2.9**	**1.57**
Gujarat Sidhee Cement, Junagadh, Gujarat	1.4	0.14
Saurashtra Cement, Porbandar, Gujarat	1.5	1.43
Murli Industries	**3**	**-**
Murli Cement, Chandrapur, Maharashtra	3	-
My Home Industries Ltd	**6.8**	**1.58**
Mellacheruvu, Nalgonda, Telangana	3.3	1.58
Mulakalapalli (G), Vizag, Andhra Pradesh	2	-
Tuticorin, Tuticorin, Tamil Nadu	1.5	-
NCL Industries	**1.95**	**0.78**
Kondapalli (G), Krishna, Andhra Pradesh	0.99	-
Simhapuri, Nalgonda, Telangana	0.96	0.78
Nirma Ltd.	**2.28**	**1.57**
Nirma Cement, Pali, Rajasthan	2.28	1.57
OCL India Ltd	**6.7**	**-**
Bengal Works, Midnapore, West Bengal	1.35	-

(Contd.)

Table-1 (Contd.)

Company/ Plant Name	Capacity	Production
Kapilas (G), Cuttack, Odisha	1.35	-
Rajgangpur, Sundargarh, Odisha	4	-
Orient Cement	**8**	**1.77**
Chittapur, Gulbarga, Karnataka	3	1.77
Devapur, Adilabad, Telangana	3	-
Jalgaon (G), Jalgaon, Maharashtra	2	-
Panyam Cement	**1**	**-**
Panyam Cement, Kurnool, Andhra Pradesh	1	-
Parasakti Cement	**1.7**	**0.86**
Parasakti Cement, Guntur, Andhra Pradesh	1.7	0.86
Penna Cement Industries Ltd	**7**	**2.68**
Boyareddypalli, Anantpur, Andhra Pradesh	2	-
Ganeshpahad, Nalgonda, Telangana	1.2	0.98
Talaricheruvu, Anantpur, Andhra Pradesh	1.8	0.95
Tandur, Rangareddy, Telangana	2	0.75
Prism Cement Ltd	**6.6**	**-**
Prism Cement-I & II, Satna, Madhya Pradesh	6.6	-
Purbanchal Cement	**0.36**	**-**
Kamrup, Kamrup, Assam	0.36	-
Rain Cements Ltd	**3.66**	**2.07**
Kurnool Cem Plant, Kurnool, Andhra Pradesh	2.16	1.29
Ramapuram Cem Plant, Nalgonda, Telangana	1.5	0.78
Ramco Cements Ltd	**16.49**	**4.09**
Alathiyur Works I & II, Perambalur, Tamil Nadu	3.05	1.43
Ariyalur, Perambalur, Tamil Nadu	3.5	1.71
Changelpet(G), Kancheepuram, Tamil Nadu	0.5	-
Jayantipuram, Krishna, Andhra Pradesh	3.65	0.95
Kolaghat (G), P Medinipur, West Bengal	0.95	-
Mathodu, Chitradurga, Karnataka	0.29	-
Ramasamyraja Nagar, Virudhnagar, Tamil Nadu	2	-
Salem (G), Salem, Tamil Nadu	1.6	-

(Contd.)

Table-1 (Contd.)

Company/ Plant Name	Capacity	Production
Vizag (G), Vizag, Andhra Pradesh	0.95	-
RNB Cement	**0.4**	**-**
East Khasi Hills, East Khasi, Meghalaya	0.4	-
Sagar Cement Ltd.	**1**	**0.67**
BMM Cement, Anantpur, Andhra Pradesh	1	0.67
Sagar Cements	**3.2**	**-**
Bayyavaram, Vizag, Andhra Pradesh	0.2	-
Mattampally, Nalgonda, Telangana	2.65	-
Pedaveedu, Nalgonda, Telangana	0.35	-
Sanghi Industries Ltd	**4.1**	**2.52**
Sanghi Cement, Kutch, Gujarat	4.1	2.52
Shree Cements	**25.7**	**19.42**
Baloda Bazar, Raipur, Chhattisgarh	2.6	1.92
Bangur Cement (G), Aurangabad, Bihar	3.6	2.45
Beawar I & II, Ajmer, Rajasthan	3	1.52
Bulandsahar (G), Sikandrabad, Uttar Pradesh	2	1.29
Jaipur (G), Jaipur, Rajasthan	1.5	0.78
Khushkhera (G), Alwar, Rajasthan	3	2.45
Ras, Pali, Rajasthan	7	5.52
Roorkee (G), Haridwar, Uttarakhand	1.8	1.85
Suratgarh (G), Sriganganagar, Rajasthan	1.2	1.64
Shree Cements (erstwhile Jaypee Group)	**1.5**	**0.84**
Panipat (G), Panipat, Haryana	1.5	0.84
Shree Digvijay Cement Co.	**1.2**	**0.85**
Shree Digvijay-Sikka, Sikka, Gujarat	1.2	0.85
Shristi Cement	**0.36**	**-**
Mangalpur, Burdwan, West Bengal	0.36	-
Sparta Cements & Infra Ltd.	**1**	**-**
Sparta Cements, Bhuj, Gujarat	1	-

(Contd.)

Table-1 (Contd.)

Company/ Plant Name	Capacity	Production
Sri Chakra Cements	**0.57**	**-**
Annamarajupet Grinding Unit (G), Vizianagaram, Andhra Pradesh	0.26	-
Narasimhapuri Cement Unit, Guntur, Andhra Pradesh	0.31	-
Sri JayaJothi Cements Pvt. Ltd	**3.2**	**1.82**
Sri JayaJothi Cement Plant, Kurnool, Andhra Pradesh	3.2	1.82
Sri Lalita	**1**	**-**
Matampally, Nalgonda, Telangana	1	-
Star Cement Ltd	**3**	**0.18**
CMCL-Lumshong, Jaintia Hills, Meghalaya	1	0.18
CMCL-Sonapur (G), Guwahati, Assam	2	-
Swasata Cements Ltd	**1.5**	**-**
Swasata Cements, Purulia, West Bengal	1.5	
Tamil Nadu Cement	**0.79**	**-**
Alangulam, Virudhnagar, Tamil Nadu	0.29	-
Ariyalur, Ariyalur, Tamil Nadu	0.5	-
Tata Chemicals Limited	**0.5**	**-**
Tata Chemicals Cement Division, Mithapur, Gujarat	0.5	-
The K.C.P. Ltd	**2.68**	**0.49**
Macherla, Guntur, Andhra Pradesh	0.82	0.49
Muktyala, Krishna, Andhra Pradesh	1.86	-
Topcem	**0.66**	**-**
Gauripur, Kamrup, Assam	0.66	-
Udaipur Cement	**1.6**	**0.28**
Udaipur Cement, Udaipur, Rajasthan	1.6	0.28

(Contd.)

Table-1 (Contd.)

Company/ Plant Name	Capacity	Production
UltraTech Cement Ltd	**74.33**	**33.99**
Aditya, Chittorgarh, Rajasthan	5.2	3.55
Aligarh(G), Aligarh, Uttar Pradesh	1.3	-
Anantapur, Anantpur, Andhra Pradesh	6.5	3.2
Arakkonam (G), Vellore, Tamil Nadu	1.1	-
Awarpur, Chandrapur, Maharashtra	3.6	2.67
Bhatinda (G), Bhatinda, Punjab	1.75	-
Dadri (G), G B Nagar, Uttar Pradesh	1.3	-
Dankuni, Hooghly, West Bengal	1.6	-
Ginigera (G), Koppal, Karnataka	1.3	-
Gujarat Cement Works, Amreli, Gujarat	6.4	5.3
Hirmi, Raipur, Chhattisgarh	2.75	2.23
Hotgi, Solapur, Maharashtra	4	2.35
Jafrabad, Amreli, Gujarat	0.5	0.44
Jhajjar (G), Jhajjar, Haryana	1.6	-
Jharsuguda (G), Jharsuguda, Odisha	2.6	-
Kotputli, Jaipur, Rajasthan	3	2.77
Magdalla (G), Surat, Gujarat	0.75	-
Nagpur, Nagpur, Maharashtra	2	-
Panipat(G), Panipat, Haryana	1.3	-
Patliputra, Patna, Bihar	1.9	-
Rajashree, Gulbarga, Karnataka	6.1	3.55
Ratnagiri (G), Ratnagiri, Maharashtra	0.48	-
Rawan, Raipur, Chhattisgarh	2.5	2
Reddipalayam, Ariyalur, Tamil Nadu	1.6	1.3
Sewagram, Kutch, Gujarat	2.4	2.18
Vikram, Neemuch, Madhya Pradesh	3	2.45
Wanakbori (G), Kheda, Gujarat	2.4	-
WBCW (G), Burdwan, West Bengal	1.4	-
Bara, Allahabad, Uttar Pradesh	4	-
UltraTech Cement Ltd (erstwhile Jaypee Group)	**17.2**	**1.2**
Ayodhya (G), Ambedkar Nagar, Uttar Pradesh	1	-
Baga, Solan, Himachal Pradesh	1.7	-
Bagheri (G & B), Solan, Himachal Pradesh	2	-
Balaji Cement, Krishna, Andhra Pradesh	5	1.2
Bela, Rewa, Madhya Pradesh	2.6	-
Dalla, Sonebhadra, Uttar Pradesh	0.5	-

(Contd.)

Table-1 (Concld.)

Company/ Plant Name	Capacity	Production
Roorkee (G), Haridwar, Uttrakhand	1.1	-
Sidhi, Sidhi, Madhya Pradesh	2.3	-
Sikandrabad, Bulandsahar, Uttar Pradesh	1	-
Vadraj Cement	**6**	**-**
Mora, Surat, Gujarat	6	-
Vijay Cements	**0.08**	**0.06**
Vijay Cements, Trichy, Tamil Nadu	0.08	0.06
Wonder Cement	**6.75**	**4.23**
Wonder Cement, Chittorgarh, Rajasthan	6.75	4.23
Zuari Cement Ltd	**7.1**	**3.35**
Chennai (G), Chennai, Tamil Nadu	0.9	-
Sitapuram, Nalgonda, Telangana	1.2	1.04
Solapur, Solapur, Maharashtra	1.2	-
Yeraguntla, Kadapa, Andhra Pradesh	3.8	2.31
Grand Total	**502.03**	**153.64**

Source: *Survey of Cement Industry and Directory 2017 and Annual Return in Form 'M' (Erstwhile Form 'O')*

Table –2: Capacity, Production and Growth in Cement Industry, 2012-13 to 2016-17

(In million tonnes)

	Capacity growth			Production growth		
Year	Annual capacity	Growth	% Growth	Production	Growth	Growth%
2012-13	324.94	18.73	6.11	235.11	4.86	2.11
2013-14	350.00	25.06	7.71	256.04	20.93	8.90
2014-15	356.00	6.00	1.71	276.93	20.89	8.15
2015-16	479.35*	123.35	34.65	283.45	6.52	2.35
2016-17 (P)	502.03*	22.68	4.73	279.97	(-)3.48	(-)1.22

Source: *DIPP, Annual Reports,*

** Survey of Cement Industry and Directory 2017 and Annual Return in Form 'M' (Erstwhile Form 'O')*

A large number of mega plants with capacity of one million tonne and above, possessing the latest technological features like roller process, vertical roller mills, process control equipment and efficient pollution control devices have emerged in different parts of the country. The induction of advanced technology has helped the Industry immensely to conserve energy & fuel and thereby save the raw materials substantially.

India is producing different varieties of cements like Ordinary Portland Cement (OPC), Portland Pozzolana Cement (PPC), Portland Blast Furnace Slag Cement (PBFSC), Oil-well Cement, Rapid Hardening Portland Cement, Sulphate Resistant Portland Cement (SRPC) and White Cement. BIS covers two types of PPC, viz. IS 1489 (Part1): 1991 (Reaffirmed 2009) Flyash-based and IS 1489 (Part 2):1991 (Reaffirmed 2009) Calcined clay-based. PPC is suitable for all general construction, particularly, for marine & hydraulic construction and other mass concrete structures. Portland Slag Cement (PSC)-IS 455:1989 (Reaffirmed 2009) is particularly useful for marine works. BIS specifies three grades of OPC – (i) IS 269:1989 (Reaffirmed 2008), i.e., 33 grade suitable for all general constructions, particularly for masonry and plastering works (ii) IS 8112:1989 (Reaffirmed 2009), i.e., 43 grade is particularly suitable for high strength concrete work, and (iii) IS 12269:1987 (Reaffirmed 2008), i.e., 53 grade suitable for specialised work, such as, precast concrete, prestressed concrete, long span structures/bridges, tall structures, etc. All these varieties of cement are produced strictly conforming to the BIS specifications for maintaining high quality. The Cement Quality Control Order dated 12 February 2003 issued under the BIS Act ensures quality of cement produced and sold in the market.

Power, coal and freight constitute about 15-20% each of the total production cost of cement while capital cost (interest and depreciation) forms 20-30 per cent. Although the industry is largely under Private Sector, Government controls more than 40% of the cost. Power, coal and freight costs are all regulated by Government bodies, such as, State Electricity Boards, Coal Monopolies and the Railways.

Operating Cost

The cement capacity in the country is mostly concentrated near the main raw material source, i.e., limestone. Other important raw material is coal (0.25 tonnes required per tonne of cement). Many cement plants are situated near the coal belts in eastern Madhya Pradesh, primarily due to two reasons, namely, (i) less freight cost incurred to transport coal, and (ii) inability of domestic coal producers to fulfil supply-requirements of cement plants due to fall in production and prioritised supply to power plants. However, limestone reserves have been the primary consideration in choosing the location of plants. Presence of clusters of capacity and high transportation cost make the cement market regional in nature with the producers supplying cement to areas around the location of the plant.

Power is a major parameter that influences the operating cost. Grid power purchased from SEBs is costlier than captive power from coal-based plants by more than 25-30 per cent. Where conditions are favourable, setting up captive wind power farms has become a realistic option for cement plants.

Coal Distribution

Coal being a low value, bulk product with regional concentration of deposits entails freight costs that constitute a substantial part in the production cost of cement. Though, rail is the predominant form of transport, road transport is commonly used by plants located close to pitheads. The Government in its notification to the Cement Industry has permitted cement plants to operate their own captive coal mines. Many cement plants have expressed interest in taking up coal blocks on lease and operating the mines for coal. As proposed by the Government, cement is one of the core sectors for which captive mining blocks would be allocated.

As per Cement Manufacture Association's Annual Report 2015-16, inadequate availability of coal to cement industry is a major constrain. The supply of linked coal during 2002-03 was about 69% of total consumption, this has come down to about 23% during the year 2015-16, mainly due to the diversion of coal to the power sector.

Power Availability

The Industry's average energy consumption is estimated to be about 725 kcal/kg clinker thermal energy and 80 kWh/t cement electrical energy. The best thermal and electrical energy consumption presently achieved by the Indian Cement Industry is about 667 kcal/kg clinker and 67 kWh/t cement which are comparable to the best reported figures of 660 kcal/kg clinker and 65 kWh/t cement in a developed country like Japan. Since the controls were lifted, aggregate power requirements have grown rapidly with rising cement capacity without commensurate growth in power generating capacity in the country. To offset the power crisis situation, many cement plants have set-up installations for captive power generation. Further, as part of reform process in Coal Sector, the Government has also permitted 100% FDI in captive coal blocks in Cement Sector along with Power and Steel Sectors to facilitate and augment power availability.

Freight Costs

Logistics in the Cement Sector affect freight costs to a large extent. The basic raw materials for manufacturing cement, such as, limestone and coal are low value high bulk material and, as a result, entail huge freight cost which form the single largest cost component, usually accounting for 33% of the variable costs. During 1990s, the most significant developments were the emergence of big plants and formations of clusters of cement plants. These clusters, typically located far away from the major consumption centres meant that cement has to be transported over very long distances. The Indian Railways transported 103.29 million tonnes cement in 2016-17, a small decrease from 105.35 million tonnes of cement transported in 2015-16, as a part of revenue earning freight traffic. Alternatively, the cost-conscious manufacturers have attempted to use sea route for transportation as sea route is cost-effective and could benefit coast-based manufacturers. Some cement plants have set-up dedicated jetties for promoting bulk transportation and export.

Cost Control

Cement producers of the country have continuously attempted to lower the cost by various methods like:

- improved efficiency by increasing usage of captive power;
- locating units closer to the market place;
- increasing production of blended cement;
- availing of various State incentives like sales tax exemption; power tariff; exemption/ concession (Himachal Pradesh and Tamil Nadu);
- conversion from wet to dry process, wherever possible, depending on quality of limestone; and
- enhanced capacities to achieve economy of scale. (Expansion is the preferred route as setting up new plant costs thrice the cost of expansion).

Environment

Ministry of Environment and Forests has notified the emission standards for cement plants in 1987, which were subsequently revised in February, 2006. In India, the permissible stack dust emissions from various sources for existing cement plants is 1.50 mg/Nm and 100 mg/Nm for plants located in critically polluted areas. However, the limit for new plants in our country is 50 mg/Nm which is at par with some of the developed countries. All large plants do have in place necessary air pollution control equipment to control dust emissions. Thermal power stations use bituminous or sub-bituminous coal and produce large volumes of fly ash. Fly ash is a fine powder recovered from gases created by coal-fired electric power generation. These micron sized earth elements consist primarily of silica, alumina and iron. When mixed with lime and water, the fly ash forms a cementitious compound with properties very similar to portland cement. For producing one tonne of cement about 0.2 tonnes of fly ash can be used. It not only reduces the cost of cement produced by 5 to 10% but also save costs incurred on account of transportation & disposal of materials and in addition it also saves costs by 30 to 40% on land required for the power projects towards ash handling, i.e, a 1,000 MW project requires around 1,000 acres for ash dykes for a 25 year period for storing of fly ash.

At present, about 95 million tonnes fly ash are generated annually. It is estimated that about 32% utility of fly ash can be made in Cement Industry. Promoting use of fly ash would be a viable environment-friendly measure to manufacture Ordinary Portland Cement (OPC) without having to sacrifice the quality.

NTPC has plans to manufacture cement near six of its power plants through joint ventures. Grasim Industries Ltd, Ultra Tech Cement Ltd, Sanghi Cement Ltd, India Cements Ltd, Zuari Cement Ltd and My Home Industries Ltd, among others are learnt to have evinced interest in setting up greenfield cement plants in the vicinity of each 4,000 MW ultra power projects in order to utilise the fly ash that would be generated from them. NTPC has sought Expression of Interest from the interested parties on Built, Own and Operate (BOO)/JV mode using ash from its Thermal Power Plants.

Industrial wastes, such as, petcoke, tar waste and by-products, such as, red mud from aluminium industries, ferrous and non-ferrous slag from steel & other industries, phospho-chalk & phospho-gypsum from fertilizer industries, lime sludge from paper & sugar industries, carbide sludge from carbide industries, phosphorus furnace slag, etc. are now finding use in the manufacture of cement.

Ready-Mix Concrete

Ready-mix Concrete (RMC) is a relatively nascent market in India accounting for only about 0.5% of the demand. RMC is ready-to-use concrete blend of cement, sand & aggregate and water mixed in convenient proportion. It was first launched in Mumbai a few years ago and is gaining ground in other metros in India. RMC is a corollary to bulk handling and transportation of cement. It has several advantages. It is produced under controlled conditions and hence has consistency in quality and it can be directly powered in the required form which would not only save time but also would improve the quality of construction.

POLICY

The Export & Import Policy 2015-20, incorporated in the FTP for cement is free. The import of cement includes portland cement, white cement, aluminous cement, slag cement, super sulphate cement and similar hydraulic cements, whether or not coloured or in the form of clinkers, under ITC (HS) Code 2523 is free.

Development Council for Cement Industry

Development Council for Cement Industry has been set-up under Section 6 of the Industrial (Development & Regulation) Act,1951. The activity of the Council is funded through the cess collected from Cement Manufacturers in terms of the Cement Cess Rules,1993. The Cement Council promotes development of the cement industry by funding development projects in areas of base level activities of National Council for Cement & Building Materials and R&D, improving productivity by reducing cost, optimum utilisation of raw materials, modernisation of cement plants, improvement of environment, standardisation and quality control progress, bulk supply and distribution of cement, training and upgradation of skill in cement industry.

WORLD REVIEW

The cement production in 2016 was estimated at 4,100 million tonnes. China (2,400 million tonnes) was the largest producer in the world, contributing about 59% to the world output, followed by India (280 million tonnes) 7%, USA (85 million tonnes) 2%, Vietnam (77 million tonnes) 2%, Turkey (75 million tonnes) 2%, Saudi Arabia (62 million tonnes) 2%, Korea Rep. of (57 million tonnes) 1%, Brazil (57 million tonnes) 1%, Russia (56 million tonnes) 1% and Japan (53 million tonnes) 1% (Table-3).

FOREIGN TRADE

Exports

Export of cement (total) increased marginally to 6.85 million tonnes in 2016-17 from 6.22 million tonnes in 2015-16. In 2016-17, exports of portland grey cement were 2.56 million tonnes and those of cement clinker 3.99 million tonnes in the total cement exports. Exports of portland white cement and other cements were 33,181 tonnes and 2,65,944 tonnes, respectively. Exports of cement in 2016-17 were mainly to Sri Lanka (52%), Nepal (36%), Yemen (4%), Maldives (2%) and Oman (1%) (Tables - 4 to 8).

Imports

Cement imports in 2016-17 increased substantially to 2.04 million tonnes from 1.36 million tonnes in 2015-16. In 2016-17, imports of portland grey cement were 15.5 lakh tonnes, those of cement clinker 3.25 lakh tonnes, other cements 1.50 lakh tonnes and portland white cement about 11 thousand tonnes and the main suppliers in 2016-17 were Pakistan (71%), Bangladesh (11%), Japan (7%) and UAE (5%) (Tables- 9 to 13).

Table – 3: World Production of Cement[e]
(By Principal Countries)

(In '000 tonnes)

Country	2014	2015	2016
World Total (rounded)	**4180000**	**4100000**	**4100000**
Brazil	72000	65300	57000
China	2480000	2350000	2400000
Egypt	50000	55000	55000
Germany	32000	-	-
India	260000	300000	280000
Indonesia	65000	58000	63000
Iran	65000	58600	55000
Italy	22000	-	-
Japan	53800	54800	53300
Korea, Rep. of	63200	51700	57000
Mexico	35000	-	-
Pakistan	32000	-	-
Russia	68400	62100	56000
Saudi Arabia	55000	61900	62000
Thailand	35000	-	-
Turkey	75000	71400	75400
USA*	83200	84300	85000
Vietnam	60500	67400	77300
Other countries	573000	760000	724000

Source: Mineral Commodity Summaries, 2016 & 2017, USGS.
*e: Estimated.   * : Includes Puerto Rico*

Table – 4: Exports of Cement : Total
(By Countries)

Country	2015-16 (R)		2016-17 (P)	
	Qty (t)	Value (`'000)	Qty (t)	Value (`'000)
All Countries	**6222434**	**16588896**	**6850808**	**20017686**
Sri Lanka	3126843	10347488	3593889	11007357
Nepal	2151668	3456354	2496779	7045766
Yemen Republic	24280	91315	299385	562979
Maldives	109330	476070	103576	468008
Oman	4335	33652	81293	197541
Madagascar	26175	83481	50980	161679
Mozambique	177100	408748	66132	124453
Kenya	83	1384	51043	102121
Kuwait	233569	527302	55020	91116
Seychelles	13777	57842	12069	47372
Other countries	355274	1105260	40642	209294

Table – 5: Exports of Cement (Portland Grey) (By Countries)

Country	2015-16 (R)		2016-17 (P)	
	Qty (t)	Value (`'000)	Qty (t)	Value (`'000)
All Countries	**2276302**	**7271078**	**2563122**	**8623370**
Sri Lanka	1621666	5971337	2328095	7711440
Maldives	107724	466867	94661	420317
Nepal	414349	352767	63183	228974
Madagascar	24276	77246	50400	158514
Seychelles	13776	57838	12068	47358
Reunion	4864	20464	6307	26431
Tanzania Rep.	1960	6425	6160	19741
Comoros	2828	9109	580	4494
Mauritius	168	522	616	1930
Myanmar	6804	24122	586	1877
Other countries	77887	284381	466	2294

Table – 6: Exports of Cement (Portland White) (By Countries)

Country	2015-16 (R)		2016-17 (P)	
	Qty (t)	Value (`'000)	Qty (t)	Value (`'000)
All Countries	**34351**	**241478**	**33181**	**253062**
Nepal	21488	118974	21965	143852
Oman	4284	33460	5286	43655
Nigeria	4257	48072	2923	32716
Djibouti	-	-	460	5450
Bahrain	324	2708	567	4990
Uganda	351	3627	322	3414
Malawi	149	1615	204	2641
Tanzania Rep.	22	202	274	2395
Ethiopia	189	2072	216	2321
South Africa	1530	14046	216	2138
Other countries	1757	16702	748	9490

Table – 7: Exports of Cement Clinker (By Countries)

Country	2015-16 (R) Qty (t)	2015-16 (R) Value (`'000)	2016-17 (P) Qty (t)	2016-17 (P) Value (`'000)
All Countries	**2849120**	**7596024**	**3988561**	**10182227**
Nepal	966956	2673361	2340606	6426511
Sri Lanka	1217041	3348635	1084037	2688294
Yemen Republic	-	-	299385	562979
Oman	-	-	76000	153686
Mozambique	177100	408748	66050	123515
Kenya	20	49	50750	100457
Kuwait	233422	516818	55000	90544
Bhutan	10484	27920	8715	20355
Malawi	-	-	8000	15763
Germany	10	81	14	101
Other countries	244087	620412	4	22

Table – 8: Exports of Cement (Others) (By Countries)

Country	2015-16 (R) Qty (t)	2015-16 (R) Value (`'000)	2016-17 (P) Qty (t)	2016-17 (P) Value (`'000)
All Countries	**1062661**	**1480316**	**265944**	**959027**
Sri Lanka	288024	1026528	181746	607532
Nepal	748875	311252	71025	246429
Maldives	1545	8248	8892	47207
Iran	60	3780	271	12543
Germany	460	8605	422	7360
Bhutan	2743	7036	924	4761
France	245	4590	260	4614
South Africa	140	2522	222	4088
Egypt	125	3427	70	3238
USA	5	198	322	3130
Other countries	20439	104130	1790	18125

Table – 9: Imports of Cement:Total (By Countries)

Country	2015-16 (R) Qty (t)	2015-16 (R) Value (`'000)	2016-17 (P) Qty (t)	2016-17 (P) Value (`'000)
All Countries	**1358862**	**6117578**	**2037600**	**8531912**
Pakistan	867774	3257791	1455550	5620702
Bangladesh	233656	1116082	226596	1048497
UAE	224815	967552	102199	553225
China	7331	361355	25927	444870
Japan	++	10	141505	336676
Iran	1513	10654	47775	140293
Netherlands	1436	73103	1775	84142
Malaysia	11570	86771	10764	79199
Chinese Taipei/Taiwan	155	46343	160	53941
Thailand	1	122	18000	51283
Other countries	10611	197795	7349	119084

Table – 10: Imports of Cement (Portland Grey) (By Countries)

Country	2015-16 (R)		2016-17 (P)	
	Qty (t)	Value (`'000)	Qty (t)	Value (`'000)
All Countries	**950287**	**3645654**	**1552088**	**6057382**
Pakistan	858272	3187426	1452086	5592097
Bangladesh	88238	438310	90265	424702
UAE	1787	8508	6083	26391
Bhutan	1818	10813	3526	13734
Afghanistan	172	597	70	268
Pitcairn	-	-	58	190

Table – 11: Imports of Cement (Portland White) (By Countries)

Country	2015-16 (R)		2016-17 (P)	
	Qty (t)	Value (`'000)	Qty (t)	Value (`'000)
All Countries	**12597**	**97780**	**11413**	**97394**
UAE	2073	20341	7634	65420
Pakistan	9502	70365	3044	26777
Iran	921	6578	673	4654
Spain	-	-	58	526
Belgium	-	-	4	15
USA	1	31	++	2
Bangladesh	100	463	-	-
Australia	++	2	-	-

Table – 12: Imports of Cement Clinker (By Countries)

Country	2015-16 (R)		2016-17 (P)	
	Qty (t)	Value (`'000)	Qty (t)	Value (`'000)
All Countries	**235593**	**1047914**	**324813**	**1125636**
UAE	220687	937324	88482	461325
Japan	-	-	141504	336404
Iran	592	4076	47102	135639
Malaysia	11570	86771	10764	79199
China	-	-	18193	55992
Thailand	-	-	18000	51234
Egypt	2738	19675	762	5798
Germany	-	-	6	42
Norway	-	-	++	3
USA	5	55	-	-
Other countries	1	13	-	-

Table – 13: Imports of Cement (Others)
(By Countries)

Country	2015-16 (R)		2016-17 (P)	
	Qty (t)	Value (`'000)	Qty (t)	Value (`'000)
All Countries	**160385**	**1326230**	**149286**	**1251500**
Bangladesh	145318	677309	136331	623795
China	7331	361355	7734	388878
Netherlands	1436	73103	1775	84142
Chinese Taipei/Taiwan	155	46343	160	53941
Croatia	1146	41543	1113	39035
France	919	49774	594	33047
Germany	3326	52292	1088	18804
USA	41	13027	10	2632
Pakistan	-	-	420	1828
UK	7	989	25	1806
Other countries	706	10495	36	3592

FUTURE OUTLOOK

The primacy of Cement Industry would continue as cement remains paramount for the development of infrastructure all over the world and no other material would possibly substitute it in the near future. Infrastructure and industrial activity, real estate business and investment in core sectors mainly drive the demand for cement. Some emerging areas for cement demand are concrete roads, concrete canal lining and rural construction (housing). Over 65% demand for cement arises from Construction Sector.

The Government of India has been laying a massive emphasis on infrastructure development, with 100 smart cities, modernisation of 500 cities, affordable housing for all by 2022, cement concreting of national highways, provision of sanitation facilities, etc. all in the pipeline for development over the course of the next years. These all leads to future growth of Indian Cement Industry.

The country is self-sufficient in terms of cement production. Most of the cement plants in India are operated by state-of-the-art technology and with advanced production facilities. The liberalisation policies for Cement Industry enabled achievement of strong growth in the Cement Sector. The Cement Industry has presently ushered in modifications and upgradation in technology, particularly in the energy conservation front.

The Working Group on Cement Industry constituted by the Planning Commission for the 12th Five-Year Plan period has projected a demand growth at the rate of 10.75% per annum during the plan period at an expected 9% GDP growth rate. The Working Group expects that the installed capacity requirement would be 479.3 million tonnes by 2017 and 1,035.3 million tonnes by 2027. The production is estimated at 407.4 million tonnes (with a capacity utilisation of 85%) in 2016-17.

Based on the demand growth projection, the consumption of cement by the end of the 12th Five Year Plan would be between 366.9 million tonnes and 397.4 million tonnes with assumed growth rates of 9.75% to 10.75% during the Plan period.

Reviewing the technology status of the Indian Cement Industry, the Working Group has observed that although the modern cement plants have incorporated the latest technology, yet there is scope for further improvement in the areas of in-pit crushing and conveying, pipe conveyors, co-processing of waste derived/hazardous combustible wastes as fuel, neurofuzzy expert system, cogeneration of power, multi chamber/dome silos, bulk transport of cement, pelletising and shrink wrapping for packing & despatch.

The Working Group has observed that the Cement Industry's average energy consumption is estimated to be about 725 kcal/kg clinker thermal energy and 80 kWh/t cement electrical energy. It is expected that the Industry's average thermal energy consumption by the end of 12^{th} Plan (Year 2016-17) will come down to about 710 kcal/kg clinker and the average electrical energy consumption will come down to 78 kWh/t cement with continued efforts by all concerned. The Working Group has taken into consideration the following alternate energy sources/fuels having good potential in the present context of Indian economics to either partially or fully substitute coal in cement manufacture in the coming years, namely, pet coke, lignite, natural gas, and bio-mass wastes including fruit of Jatropha curcas, Pongamia and Algae. The Report further states that the Cement Industry in India has the potential to utilise the entire hazardous waste generated in the country with indigenous technological intervention.