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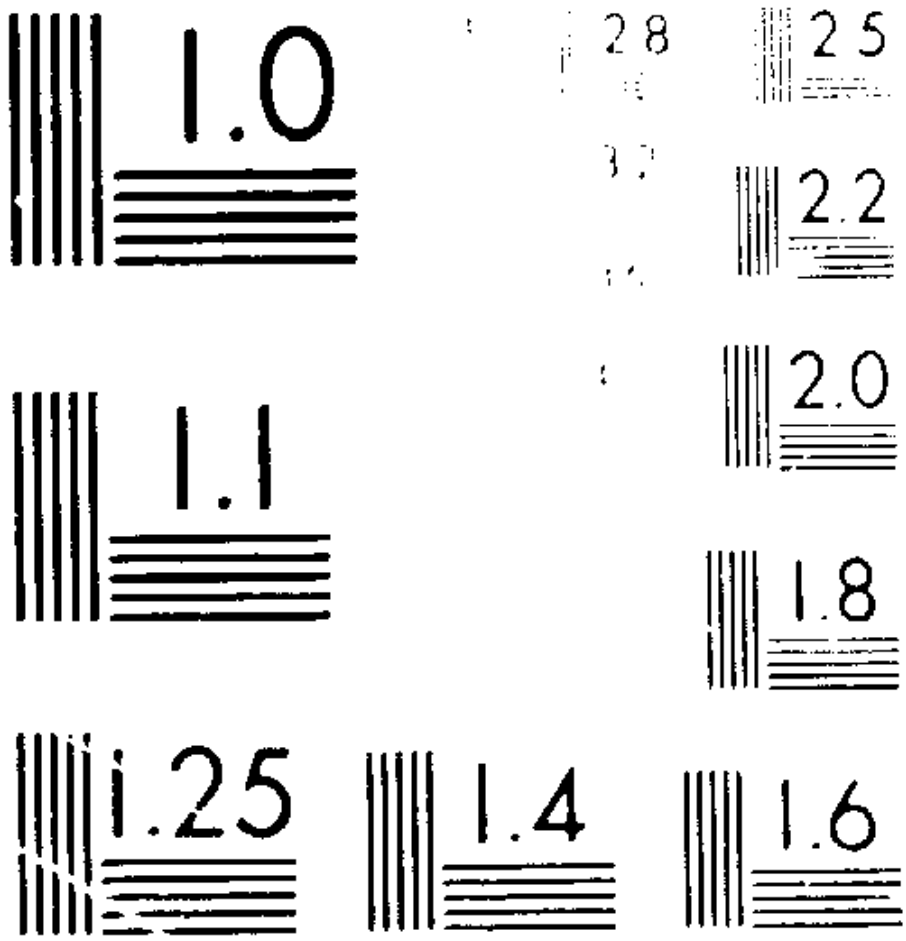
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CEMENT INDUSTRY IN BANGLADESH*

by

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Cement and Concrete Products Industry in Bangladesh

Bangladesh presently relies almost entirely on the imports of cement/raw materials for cement from outside. There is at present only one integrated Cement Manufacturing Unit in the country at Chatak Sylhet on the north eastern region of Bangladesh, with a daily production capacity of 200 tons of cement (60000 tons/year) established under private management around 1940. The Plant was supplied and commissioned by Polysious A.G. The factory was expanded to about 500 tons capacity per day in 1958-59 by adding another kiln, raw mill for wet grinding etc. with equipments supplied by F.L. Smith & Co., Denmark. The factory was converted from coal firing system to gas firing system in 1961 with natural gas from Tengra Tilla at a distance of 20 miles from the factory. Limestone, the principal raw materials was entirely supplied from a Limestone mine located about a mile inside India through Ropeway. After Indo-Pak war in 1965, the mill was vested with the then Govt. and since then it is a nationalised industry. After this change over, the imported limestone was supplemented by local supply through river routes from a Limestone Mining Query opened at Takerghat in 1966-67, almost on border and at a distance of about 40 miles from the factory. Local supply constitutes about 30-35% of the total requirements under present depreciated production capacity of about 1,25,000 tons per annum.

There is one Cement Grinding Factory at the Port City of Chittagong, based on imported Clinker. The factory having a grinding capacity of 1,000 tons per day (300 thousand tons per year) was established during 1968-73 under French Credit and actual production started in 1974. Due to foreign exchange restriction, irregular shipments of Clinker and limited storage space etc. the present production is around 2,30,000 tons per year. Gypsum is supplied mainly from the waste-product of an adjacent T.S.P. Factory. Limited quantity of gypsum is also imported from outside.

Supply and Consumption :

Although the demand of cement should be directly proportional with the development activities but very often the demand cannot be met due to foreign exchange constraints etc. As such the rate of consumption of cement in Bangladesh hardly reflect the actual requirement. As far back as in 1964 the consumption of cement was about 950 thousand tons against the present average consumption rate of about 600 thousand tons per year.

The following table will show the composition of cement supply in Bangladesh during last five year :

Composition of cement supply in Bangladesh.

(Quantity in 000 tons)

Items	1975-76		1976-77		1977-78		1978-79		1979-80	
	Qty.	%	Qty.	%	Qty.	%	Qty.	%	Qty.	%
1. Local Production:										
1.1 Chhatak Cement Factory(CCF)	(90)		(100)		(104)		(127)		(126)	
a) From Takerghat Limestone	30	8%	34	7%	35	5%	42	5%	42	5%
b) From Indian Limestone	60	15%	66	13%	69	9%	85	11%	84	9%
1.2 Chittagong Cement Clinker Grinding Factory	69	17%	208	40%	235	32%	193	25%	217	24%
Sub-total of local production	159	40%	308	60%	339	46%	320	41%	343	38%
2. Imported Portland Cement	337	60%	207	40%	407	54%	456	59%	559	62%
3. Total Cement supply	396	100%	515	100%	746	100%	776	100%	902	100%

Source: BMEDC, BCB & Port Statistics.

On close scrutiny it will be evident that cement supply based entirely on local raw materials constitute only about 6% of the total supply.

Demand Projection :

Demand projections for cement under Bangladesh's present conditions might be a somewhat difficult exercise for want of any reliable estimate of the existing unsatisfied demand. But it appears reasonable to assume that the demand would have been atleast about 20 percent higher if the supplies had been freely available and the consumers had the freedom to lift any quantities they want. The Government's rigidly enforced price control on retail prices of cement and a carefully structured distribution machinery covering the entire national market and reaching right upto the major rural

centres are adequate indications of the pressure of demand on the available supplies

The Committee for utilisation of Indigenous Natural Resources of Bangladesh (August,1977) appointed by the Govt. which inter-alia went into the question of utilisation of indigenous limestone deposits for cement production and made the following demand projections which has been incorporated in the Second Five Year Plan of Bangladesh :

Projected demand for Cement upto 1985.

(in million tons)

1980	1981	1982	1983	1984	1985
1.26	1.32	1.39	1.46	1.56	1.67

The growth of demand for cement in future will undoubtedly depend upon the liberalisation of imports- atleast in the near future, which will permit expansion of consumption. There is, however, a clear and close relationship between development activities and the demand for cement. In most developing countries, in the earlier stage of planning for growth development involves considerable expansion of construction activities in roads and bridges, buildings, housing, airfields, water and sewarage, factories etc. and as a result usually the requirement of cement goes up sharply. Assuming that supplies will continue to be regulated through imports and the imports will progressively be expanded to keep pace with growth in demand, projections appear realistic and the demand projection of 1.67 million tonnes will be the minimum requirement of the country by 1985. Even with this projected consumption, the per capital consumption of cement in Bangladesh will be just around 7 kg compared with the same in the neighbouring countries India 30 kg, Pakistan 44 kg, Srilanka 27 kg, Indonesia 21 kg.

To meet the above demand the Govt. has the following Plan :-

(1) B.M.R. of Chatak Cement Factory- likely to be completed in 1982 raising the production to about 1.65 lac tons per year.

Under the scheme the old Polysious Kiln will be replaced by a 250 tons per day capacity kiln, clay wash Basin Slurry Basin expansion of storage capacity of cement, improvement of Ropeway etc.

(2) Establishment of the Khulna Cement Clinker Grinding Factory having an installed capacity of 300 / thousand tons per year. The project is likely to be completed in 1983-84.

(3) Implementation of Jaipurhat Limestone Mining and Cement Complex, having an installed capacity of 1.00 million tons of cement/clinker per year. As per present thinking Jaipurhat Limestone Project will produce 1.700 million tons of Limestone out of which clinker making factory having a capacity of 1.00 million tons of clinker (3.00 lacs for CCGF, Ctg. and 3.00 lacs for the proposed Khulna Cement Grinding Factory) and provision for grinding 4.00 lac tons of clinker per year will be established at Jaipurhat, Bogra.

(4) There is a possibility of establishing an integrated Cement Plant at Sylhet District based on Baglibazar Limestone under investigation stage now with UNDP, assistance. Also there is a proposal of setting up a new Cement Factory named Surma Cement Factory adjacent to Chatak Cement Factory, Sylhet based on imported Limestone from the bordering State of Meghalaya, India having production capacity of 3.00 lac tons per year.

Even if we assume that all the Plants as proposed above are established on schedule, there may be a substantial short fall of cement say around 7 lac tons per year at the end of the century as per projection shown below :

(in million tons)

	1980-81	81-82	82-83	83-84	84-85	89-90	99-2000
1. Apparent demand-	1.26	1.32	1.39	1.46	1.56	2.00	2.50
2. Estimated local production-							
(i) CCF,Sylhet	0.125	0.125	0.146	0.165	0.165	0.165	0.165
(ii) CCGF, Ctg.	0.270	0.270	0.270	0.270	0.270	0.270	0.270
(iii) Khulna CGF.	-	-	-	0.270	0.270	0.270	0.270
(iv) Jaipurhat Cement Comp.	-	-	-	-	0.400	0.400	0.400
(v) Others-	-	-	-	-	-	-	0.700
Total-	0.350	0.395	0.415	0.705	1.105	1.105	1.805

(in million tons)

	1980-81	81-82	82-83	83-84	84-85	89-90	99-2000
3. Projected cement import-	0.910	0.925	0.975	0.755	0.460	0.895	0.695
4. Estimated total supply-	1.260	1.320	1.390	1.460	1.56	2.00	2.50

Principal Raw Materials :-

(i) Limestone.

It may be mentioned here that there is no major source of limestone on the surface anywhere in Bangladesh. So far small deposits of limestone has been located just below surface in a narrow strip along the northern border of Sylhet Dist. (where Takerghat Limestone Mining has been established and small shelly corralline limestone deposits in St. Martins Island, Bay of Bengal. Recent Seismic Survey done at Baglibazar site by UNDP expert, however, shows some big deposit of limestone at a depth of about 500/700 ft! below surface but the area is located just abuting the hilly slope of Indian border faulted in three pieces and surrounded by stream of water channels in almost four sides of the area. Hydrological tests etc. are in progress. Reserve is estimated to be about 100/120 million tons. The techno-economic feasibility of mining this limestone is yet to be established.

A limestone bed with an average thickness of about 80' is located at a depth of 1700 ft. from the surface at Jaipurhat, Bogra, western region of the country. Quality of limestone has been found to be very suitable for production of Portland cement. In the meantime implementation of the mining project with a capacity of 1.7 million tons per year at an approximate cost of US $ 115 million has been finalised with a British firm. The first phase of the work comprising confirmation of data and Engg. study at an estimated cost of about £ 3.4 million will be started by the end of this month. On satisfactory completion of the 1st phase, with a view to synchronise the completion of mine and cement Plant, a Cement Plant having one million ton capacity will be planned and established there. Infrastructure facilities like Railway siding, housing facilities, roads etc. for this project are under progress.

(ii) Gypsum.

Requirement of Gypsum can be met from by-product of TSP factory and partial import.

(iii) Clay.

Suitable clay is available both at Chatak and Jaipurhat project sites.

Analysis of Cost Components :

The following Table shows the production cost of Cement produced with indigineous Raw Materials and imported Clinker and landing cost of imported cement :

(Figure in Taka)

Year	Chhatak Cement Co.Ltd.			Cement Clinker Grinding Factory			Landing cost of TCB Cement	National whole sale price per ton
	Production cost	Excise duty	Total cost	Production cost	Excise duty	Total cost		
1975-76	393.67	203.00	596.67	903.86	203/-	1106.86	1296.00	1000/-
1976-77	482.47	203.00	685.47	898.04	203/-	1101.04	Not available	1140/-
1977-78	506.49	203.00	709.49	857.20	203/-	1060.20	-do-	1100/-
1978-79	581.64	200.00	784.64	1015.16	203/-	1218.16	-do-	1150/-
1979-80	593.55	500.00	1093.55	1297.90	203/-	1500.90	1574.00	1560/-
1980-81	857.32	500.00	1357.32	1720.32	203/-	1923.32	1580.00	1640/-

1 US$ = 15.5 Taka app.

Imported cost of clinker

Year	FOB Price	Frieght	Total landing cost
1975-76	--	--	US$.35.50
1976-77	US$.20.00	US$.11.25	US$.31.25
1977-78	US$.20.00	US$.11.25	US$.31.25
1978-79	US$.29.70	US$.24.70	US$.54.40
1979-80	US$.37.00	US$.23.00	US$.60.00
1980-81	US$.37.20	US$.31.00	US$.68.20

From the above table it will evidently clear that the production cost of the local cement is much less than the imported cement/cement produced from imported clinker. This high price is mainly due to freight element of imported cement as shown above. From our experience, it has been seen this element sometimes involve almost 50% of the FOB price. This freight is added to the consumers bill resulting consumers price becoming prohibitive. It is one of the fundamental reasons for which we are going to exploite limestone from a great depth for setting up a cement factory at Jaipurhat and Bagalibazar. The extra mining cost can be offset from the high freight charge.

CEMENT PRODUCTS

Cement is mainly used in the Civil engineering work having major share in the building construction. Nevertheless a few industrial ventures have been set up in the country which use cement as raw material for their products. The major products based on cement are as follows :-

1. Sewerage pipes of different section.
2. Electric poles.
3. Sanitary goods.
4. Flood protection blocks.
5. Blocks, Ventilation, gratings.
6. Corrugated sheet using Asbestos.
7. Boat building.
8. Construction panel.
9. Pre-stressed Building element.
10. R.C.C. Railway Sleepers.

The products mentioned above are either being manufactured in the public sector or in the private sector as cottage industry units. Pre-stressed Building element, electric poles, Railway Sleepers are being manufactured under the patronage of Government agencies while other products are being produced and manufactured by private enterprise. In the pipe manufacturing sector a number of units are in operation. The production analysis of one of the major manufacturing company are as below :

Diameter of Pipe	Cost per rft.	App. annual production.
4'-0"	Tk. 450/00	5000 rft.
3'-0"	Tk. 425/00	10000 rft.
2'-6"	Tk. 350/00	20000 rft.
2'-0"	Tk. 295/00	25000 rft.
1'-6"	Tk. 280/00	25000 rft.
1'-0"	Tk. 48/00	20000 rft
0'-9"	Tk. 32/00	50000 rft.
0'-6"	Tk. 20/00	30000 rft.
0'-4"	Tk. 15/00	35000 rft.

Asbestos Cement Products

Asbestos cement products are fairly known in this country and one manufacturing unit is in operation since long. The products of this factory are mainly sheets and pipes, ridges etc. The sheets are light weight and heavy weight large sections, the former is used for residential buildings and the later is used in industrial buildings. Pipes of different length weight are also manufactured for sanitary and water supply purposes. The production of the factory are as follows :

Production of Asbestos Cement Products :

1977 - 4,200 tons.
1978 - 5,434 "
1979 - 5,892 "
1980 - 4,800 "
1981 - Expected 7,200 tons.

Quality Control and Testing of Cement

Cement manufactured in the existing factories are sampled on routine basis and tests performed for quality control every day. Well-equipped laboratories are available in the cement factories and staffed by quilified personnel who perform the standard tests on cement before it is marketed. Besides tests in cement factories, there are testing facilities in the Bangladesh Standard Institute, Bangladesh University of Engg. and Technology, Road Research Laboratory, Bldg. Research Laboratory, Central testing laboratory, Engineering Colleges etc. Cement used in the

major construction work are invariably tested by any or some of these laboratories. The testing facilities are available to the consumers on nominal payment.

Cement and concrete products industry in Bangladesh are in the take off stage. Though the present production and consumption are at the low base it is expected that with the overall development programme in the ensuing years the progress in this sector will be considerable both in terms of production and consumption. We have reasons to believe that Bangladesh will be in a comfortable position in Cement production and its utilisation before the end of this country.