



**REPORT OF THE
COMPTROLLER AND AUDITOR GENERAL
OF INDIA**

UNION GOVERNMENT (COMMERCIAL)

1973

PART III

336-39 A

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CEMENT CORPORATION OF INDIA LIMITED

ERRATA

Page No.	Reference	For	Read
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8	Line 5 " "	in	on
10	Line 1	Indian	India
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51	Line 7 from bottom	these	the
56	Page number	6	56
57	Column 3 of the table	4	48
60	Line 9 from bottom	1-2 million	1.2 million
61	Line 7	existing	arising
62	Heading of para 11.02	expendure	expenditure
63	Line 11 from bottom	put ',' before considered	
64	Line 8 " "	drawing	drawings
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75	Line 9	playing	plying
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PREFATORY REMARKS

A reference is invited to the prefatory remarks in Part I of the Report of the Comptroller and Auditor General of India—Union Government (Commercial), 1973 wherein it was mentioned that the Report of the Comptroller and Auditor General of India—Union Government (Commercial) in respect of the undertakings selected for appraisal by the Audit Board will be brought out in several parts.

2. This part contains the results of the appraisal undertaken by the Audit Board of the working of the Cement Corporation of India Limited. In this case, the Audit Board consisted of the following members :—

- (1) Shri R. P. Ranga, Chairman, Audit Board and *Ex-officio* Additional Deputy Comptroller and Auditor General (Commercial).
- (2) Shri K. S. Bhatnagar, Member, Audit Board and *Ex-officio* Director of Commercial Audit, New Delhi.
- (3) Shri M. S. Sarna, Member, Audit Board and *Ex-officio* Director of Commercial Audit, Dehradun.
- (4) Dr. H. C. Visvesvaraya, Director, Cement Research Institute of India, New Delhi.
- * (5) Shri K. B. Rao, formerly Director General Technical Development, New Delhi.

3. The Report was finalised by the Audit Board after discussions with the representatives of the Ministry of Industrial Development and the Company on 12th July, 1974.

4. The Comptroller and Auditor General of India wishes to place on record his appreciation of the work done by the Audit Board and acknowledges with thanks the contribution, in particular, of the two members who are not officers of the Indian Audit and Accounts Department.

*Was not present in the final meeting held on 12th July, 1974.

PROFESSIONAL WORK

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1. INTRODUCTION

With the exception of a few factories owned by the State Governments, the cement industry in India was with the private sector. As against the installed capacity of 15 million tonnes and production of 13 million tonnes of cement envisaged by the end of Third Five Year Plan (i.e. March, 1966), the capacity and production actually attained by the end of 1965 were 11.70 million tonnes and 10.59 million tonnes respectively. It was anticipated by Government in 1964-65 that the demand for cement would reach the level of 25 million tonnes by the end of the Fourth Plan i.e. March, 1971 and this called for a massive expansion of the existing capacity of 11 million tonnes to 27 to 30 million tonnes. As the magnitude of this task was clearly beyond the capacity of the private sector, it was decided that the public sector should enter the field in a big way.

Accordingly, Cement Corporation of India Limited was registered on 18th January, 1965 as a Company wholly owned by the Government of India with the following principal functions :—

- (a) Intensive prospecting and proving of lime-stone deposits, lack of which had retarded the development of cement industry in India in recent years. [In this capacity, the Company had to act as the store-house of information on the cement grade lime-stone deposits in the country for the expansion of capacity in the public as well as private sector].
- (b) Setting up of capacity for cement manufacture so as to help achieve the cement production targets in the Fourth Five Year Plan.

Up to November, 1967, the Company had prospected and established 1017 million tonnes of cement grade lime-stone at 12 sites (including one site investigated by the Geological Survey of India having a reserve of 36 million tonnes). As the proved deposits were far in excess of the requirement of the Company for setting up the plants, Government directed the Company in January, 1968 to maintain only a skeleton Lime-stone Investigation Division capable of conducting investigations at the rate of one site a year. [For details please refer paragraph 5].

As regards setting up of capacity, the Company has so far (March, 1973), established two cement plants having a capacity of 2 lakh tonnes per annum each at Mandhar (Madhya Pradesh) and Kurkunta (Karnatak) which went into production in July, 1970 and October, 1972 respectively. In addition, 2 projects of the capacity of 2 lakh tonnes each at Bokajan (Assam) and Paonta (Himachal Pradesh) were under erection/construction and expansion of the capacity of Mandhar (Madhya Pradesh) Plant by 1.8 lakh tonnes was under implementation.

2. ORGANISATIONAL SET UP AND DELEGATION OF POWERS

2.01 Organisational set up

(a) In terms of Article 116 of the Articles of Association, the business of the Company is to be managed by a Board of Directors. Under Article 94 of the Articles of Association, the number of Directors to be appointed by the President is not to be less than three and not more than twelve. Under Article 95, the President is empowered to appoint, from time to time, a Chairman and Deputy Chairman and/or Chairman-cum-Managing Director of the Board of Directors and one or more Managing Directors from among the members of the Board.

The part-time Chairman appointed in March, 1965 continued upto June, 1972, when he resigned. No Chairman was appointed thereafter. The incumbency of the Managing Director was held as follows :—

- (1) 12-3-1965 to 25-1-1966
- (2) 25-1-1966 to 25-1-1969
- (3) 25-1-1969 to 21-11-1972.

After 21st November, 1972, no regular appointment to the post of Managing Director was made; instead a Joint Secretary of the Ministry discharged the duties of the Chairman-cum-Managing Director up to 3rd July, 1973. With effect from 4th July, 1973, a regular Chairman and Managing Director has been appointed by Government.

At the units, Works Manager is the over-all-incharge. The organisational set up of the Company at the Headquarters and at Mandhar and Kurkunta Units is indicated in Appendix I (i) & (ii) respectively.

(b) In September, 1972, Government appointed an Action Committee on Public Sector Undertakings "to identify the need and scope of improving the working of various public undertakings". The Action Committee which was headed by Shri M. S. Pathak, Member Planning Com-

mission examined, among others, the structure of the Company's Headquarters Office and the Mandhar and Kurukunta Plants. The final report in respect of Headquarters and Mandhar Plant were submitted by the Committee in January, 1973 and June, 1973 respectively. These were also accepted by the Government in January and June, 1973 for implementation.

In respect of Kurkunta Plant, the Committee's draft report was submitted in June, 1973 and the comments of the Company were forwarded to the Government in August and November, 1973. The Company has stated (March, 1974) that the final report from the Ministry is still awaited.

The major recommendations of the Committee together with the action taken thereon are enumerated below :—

Headquarters

The Committee recommended structural reorganisation of the Headquarters as follows :—

- (i) In addition to the Chairman and Managing Director and the Finance and Personnel Directors, there should be a Director of Projects and another Director of Operations.
- (ii) Under the Director of Operations, there should be General Managers in charge of operating plants as well as those under construction.
- (iii) The Director of Projects would provide the necessary technical consultancy services directly or through an outside consultant under his supervision and he would be in charge of the geological surveys, designing-cum-engineering of the projects and for procurement, erection and commissioning of the projects. For each project, there would be a Project Manager with overall responsibility for the construction of the project.
- (iv) In addition to the whole-time Directors, there should be 3 part-time Directors, two of them representing the Administrative and Finance Ministries and the third an eminent specialist from the Industry.

The posts of Director (Projects) and Director (Finance) were filled up in May, 1973 and March, 1974, respectively. It was stated (April,

1974) that action was being taken to fill up the posts of Director (Operations), Director (Personnel) at the Headquarters and Project Managers for the other Projects.

Mandhar Plant

The existing structure suffered from a number of weaknesses, viz., as many as 11 people reported directly to the Works Manager; direct responsibility for production was shared between the Regional Resident Engineer and Production Superintendent, the former being responsible for the crusher and mills and the latter for the kilns. The chain of command and line of communication particularly in respect of staff assistance to operating Management were not rational. Adequate specialised service support to production department seemed to be lacking. A revised organisational structure aimed at removing these defects and providing for creating well defined areas of responsibility was, therefore, recommended for implementation.

The Management have stated (March, 1974) that the revised organisational structure is being considered for implementation.

2.02 Delegation of Powers

As per the provisions of Articles 117(26) and (27) of the Articles of Association, the Directors of the Company are empowered to delegate the powers, authorities and discretions vested in them. Under these Articles, the delegation of powers to the Managing Director was made by the subscriber Directors in their first meeting held on 16th March, 1965; the same delegation is still in force (June, 1974).

The delegation empowers the Managing Director to delegate his powers to any of his officer/officers under intimation to the Board. Accordingly, the Managing Director has been delegating the powers to the various officers working under him. It was, however, noticed that no powers had been delegated to the Deputy Chief Engineer, Senior Engineer (C), Purchase Officer, etc. at Headquarters. Delegation in favour of the Financial Adviser and Chief Accounts Officer was made in December, 1970 only.

The Bureau of Public Enterprises had emphasised, *vide* their instructions issued in September, 1970, that the system of delegation of powers throughout the managerial hierarchy upto the lowest level of each enterprise should be reviewed on a comprehensive basis in order to ensure

that, at all levels, the centres of responsibility corresponded exactly to the centres of powers. In pursuance of this, the Board of Directors of the Company in the meeting held on 25th September, 1970 desired that the present delegation, made more than 5 years ago, should be reviewed and a detailed note submitted to the Board as early as possible. No such review was conducted.

The order of March, 1965 delegating powers to the Managing Director provided that "all proposals having financial bearing and requiring approval of the Board will be shown to Finance". There was, however, no mention about the treatment to be accorded to cases having financial bearing which did not require submission to the Board. Similarly, there was no procedure in vogue for reporting the instances to the Board where Financial Adviser and Chief Accounts Officer was overruled by the Managing Director. No record of such instances was also kept by the Management. An instance noticed in Audit is, however, mentioned in paragraph 12.07 (ii).

In May, 1969 the Government of India, Bureau of Public Enterprises had issued broad guidelines defining the main functions, responsibilities and powers of the Financial Adviser. It was also mentioned in the guidelines that the Board of Directors should lay down the detailed powers and functions of the Financial Adviser, particularly in regard to matters which should be reserved :

- (i) for concurrence of the Financial Adviser;
- (ii) for consultation with the Financial Adviser; and
- (iii) those on which Financial Adviser need not be consulted.

No such demarcation has been made by the Company so far. In reply to an audit query, the Management stated (February, 1973) that the matter was under consideration.

In this connection, the Management have further stated (November, 1973) as follows :—

- (a) "..... the Action Committee headed by Shri M. S. Pathak has made some recommendations regarding re-organisation of the organisational set up of the Corporation on which a decision has to be taken".

(b) "There was no permanent Managing Director for a period of about 8 months from November, 1972 to July, 1973".

(c) "In the above circumstances matters relating to the points raised in the 'para' could not be considered and finalised so far. Now that a permanent Chairman and Managing Director has been appointed, the matters referred to in the para will be considered and finalised as early as possible".

The Ministry have stated (June, 1974) as follows :—

"The revised delegation of powers to Chairman and Managing Director, Functional Directors and Heads of Departments have been drafted and are under consideration. These would be finalised early. The delegation of powers to subordinate officers will be reviewed and revised after the proposed revision mentioned above is finalised".

3. CAPITAL STRUCTURE

3.01 The Company was registered with an authorised share capital of Rs. 5 crores, consisting of 50,000 shares of Rs. 1,000/- each. The requirement of the share capital was considered by the Board of Directors on 12th November, 1969 and it was decided that, due to increased activities of the Company resulting from the sanction to set up additional projects, the authorised share capital should be increased to Rs. 15 crores divided into 1,50,000 shares of Rs. 1,000/- each. The proposal was communicated to the Government of India in November, 1969 for President's approval, as required by Article 42 of the Company's Articles of Association. President's approval for increasing the share capital to Rs. 6.75 crores only was, however, conveyed by Government in September, 1970.

As the share capital of Rs. 6.75 crores was still considered inadequate to meet its requirements, the matter was again taken up by the Company with the Government in May, 1971 for increasing the authorised share capital to Rs. 15 crores. President's approval to this enhancement was conveyed in June, 1971.

The paid up capital of the Company as on 31st March, 1973 was Rs. 1094.16 lakhs, consisting of Rs. 1,09,416 shares of Rs. 1,000/- each.

3.02 The Government of India have also granted loans to the Company from time to time and the amount of the loans so granted upto

31st March, 1973 aggregated Rs. 5.09 crores. The loans are generally repayable in 13 annual instalments with two years moratorium for the repayment of principal. The repayment of the loans started from 13th September, 1971 and since then the Company has been re-paying the instalments on due dates. As on 31st March, 1973 loans amounting to Rs. 463.54 lakhs were outstanding.

Details of loans granted by the Government of India from time to time upto 31st March, 1973 together with the terms and conditions are given in Appendix II.

3.03 The Company has also made cash credit arrangements up to a limit of Rs. 78 lakhs (Rs. 43 lakhs in respect of Mandhar Plant and Rs. 35 lakhs in respect of Kurkunta Plant) against hypothecation of finished and semi-finished goods, raw materials, stores, etc. with the State Bank of India. The total amount of cash credit outstanding as on 31st March, 1973 was Rs. 10.86 lakhs (Rs. 4.56 lakhs in respect of Mandhar and Rs. 6.30 lakhs in respect of Kurkunta).

4. OBJECTIVES

4.01 Initial objectives

The principal objectives of the Company, as set out in the Ministry of Industry and Supply, Department of Industry letter No. 11-5/64-Cem. I dated 4th May, 1965, were as follows :—

- (i) Survey, prospecting and proving of cement grade lime-stone deposits in the country.
- (ii) Installation of sufficient capacity for the manufacture of cement in the public sector to help achieve the cement production targets to be set for the Fourth Plan.
- (iii) All ancillary and supporting activity connected with the growth of the cement industry and the development of expertise.

As regards objectives at (ii) and (iii) above, it was further stipulated as follows :—

- (a) The target of cement manufacturing capacity to be set up by the Company should be 1.5 million tonnes by 1968-69 and an additional 3.5 million tonnes by 1970-71, thus creating a capacity of 5 million tonnes by the end of the Fourth Plan period (i.e. original).

- (b) The Company should take steps to set up, within the ceilings referred to in (a) above, two very large cement plants, each of approx. 1 million tonnes per annum capacity as soon as possible; suitable locations for these plants to be investigated *inter-alia* in the Jagadapur, Bastar area and in the Kothangudam area.
- (c) The Company should undertake, within the ceiling referred to in (a) above, the establishment of about six plants of smaller capacity in lieu of schemes of private parties who were unable to implement their licences under the Industries (Development and Regulation) Act; the locations to be selected on economic considerations.
- (d) The Company should also extend such technical assistance to State Governments proposing to establish new cement plants in the Fourth Five Year Plan, as the Central Government may direct.
- (e) The Company should build up its strength of technical personnel quickly, if necessary, by employing foreign experts for a limited period.

4.02 Subsequent Developments

Just when the Company was taking preparatory steps towards the attainment of above objectives, Government decontrolled cement with effect from 1st January, 1966 and extended certain fiscal reliefs [e.g. 25% tax free credit certificates for 5 years for production in excess of the level of 1964-65 and a price increase of Rs. 16 per tonne (including an element of Rs. 4 per tonne for expansion of capacity)] to the industry, with the expectation that the private sector would put up additional capacity in a big way. The requirement of licence under the Industries (Development and Regulation) Act was also dispensed with from 13th May, 1966. In the meanwhile, recession set in and also there was a plan holiday resulting in a severe restriction in the Governmental expenditure on construction, etc. with its consequential effect in the off-take of cement by Governmental agencies.

Accordingly, it was felt by Government that the additional capacity to be set up in the public sector need not be on the same scale as was anticipated earlier. In the light of the changed circumstances, an amount

of Rs. 25 crores (subsequently reduced to Rs. 23 crores) was earmarked (September, 1966) by the Planning Commission for the setting up of the capacity by the Company. As a result, the target of 5 million tonnes capacity was scaled down to 1.6 million tonnes in the first instance (September, 1966) and to 1.2 million tonnes subsequently (December, 1969).

In July, 1967, Government decided that the Company should take the initiative to set up cement plants in the deficit areas, as the private sector was not expected to give its full cooperation in this regard.

In December, 1971 the Planning Commission, in the light of cement shortage in the country and the likely demand during the Fifth Five Year Plan, desired that the restrictions laid down on the Company to invest only in the deficit areas might be removed. In May, 1972, Government also estimated that the gap between the demand and production of cement would be of the order of 3 to 4 million tonnes by the end of March, 1974. Accordingly, Government decided in June, 1972 as follows :—

- (a) Company should set up manufacturing plants in areas other than deficit areas also.
- (b) It should provide technical and managerial assistance to State Government ventures for cement manufacture and also participate in equity, if necessary.

With effect from February, 1970, the cement industry was again brought within the purview of the licencing provisions of the Industries (Development and Regulation) Act.

4.03 The succeeding paragraphs (5 to 7) indicate the extent to which the above objectives have been achieved.

5. SURVEY, PROSPECTING AND PROVING OF CEMENT GRADE LIMESTONE DEPOSITS IN THE COUNTRY

5.01 Setting up of Lime-stone Investigation Division

For achieving the target of 5 million tonnes capacity by 1970-71, the Company assessed in March, 1965 that it should have at least 12 manufacturing plants of 0.2 to 0.4 million tonnes capacity each and two plants of a million tonnes each. Since this task was huge and was to be achieved within a short period, it was decided (April, 1965) to invoke the assistance of the Associated Cement Companies, the Geological Survey of

Indian and the Indian Bureau of Mines for proving of lime-stone deposits in addition to setting up a Lime-stone Investigation Division within the organisation.

While negotiations were started with the Associated Cement Companies and the Geological Survey of India in June/July, 1965, the Limestone Investigation Division (L.I.D.) of the Company was set up in April, 1965 by taking over the Lime-stone Investigation Division of the Hindustan Steel Limited, which had 12 drills and connected accessories and 135 personnel. As these were not considered adequate, it was decided in July, 1965 to add 6 more drills along with the complementary staff so that investigations could be carried out simultaneously at 6 sites. Accordingly, 6 drills and other equipment costing Rs. 6.89 lakhs were bought between October, 1965 and April, 1966. By February, 1966 investigations had been started at 6 different sites; in addition Geological Survey of India had been entrusted with the job of investigation of lime-stone deposits at Paonta. After some preliminary work had been done at Chittorgarh and Kotah by A.C.C. it was decided not to entrust any major investigation work to the A.C.C. No work was finally entrusted to the Indian Bureau of Mines.

5.02 Performance of the Lime-Stone Investigation Division and reduction in the scope of its activities

In view of the delicensing of cement industry with effect from May, 1966 and other related developments referred to in paragraph 4.02, the Company decided (July, 1966) to reduce the site investigation work from 6 sites to 3 sites at a time after March, 1967, by which date the lime-stone investigation programme for the Fourth Five Year Plan had been nearly completed. In November, 1967, the scope of the Limestone Investigation Division was again reviewed by the Board of Directors. By this time, the Company had prospected for cement grade lime-stone at 12 sites (including 46.33 million tonnes at one site investigated by the G.S.I.) and the investigation work at 3 other sites was on hand. As a result of the investigation of 12 sites, a total reserve of 1074.33 million tonnes (898.33 million tonnes 'proved reserve' and 176 million tonnes indicated reserve), was established.

The Board felt that Company had done sufficient lime-stone investigation for the projects it was likely to set up in the near future. As any further investigation in terms of the directives issued by Government under

Article 144 of the Articles of Association was considered only in the larger interest of the cement industry and not connected with the needs of the Company, it informed (December, 1967) the Ministry as follows :—

- (i) With the tentative provision of Rs. 25 crores (subsequently reduced to Rs. 23 crores) earmarked for the Company in Fourth Five Year Plan, the Company could at best set up 5 or 6 plants capable of producing one million tonnes of cement. To enable setting up these five plants, the Company would require proved deposits of about 75 million tonnes of lime-stone. As against this, deposits of 898.33 million tonnes already proved by the Company were far in excess of the requirement.
- (ii) The prospecting and proving of the resources of lime-stone was done in pursuance of Government's directives of 4th May, 1965 and also because the Company was given to understand that the prospecting of lime-stone should be not only for its own use but also for putting the knowledge thus gained to commercial use by placing it at the disposal of private sector. The Company, therefore, wanted a directive from the Government as to whether to continue further lime-stone investigation and whether Government would be prepared to subsidise the expenditure on such investigation.

In January, 1968, Government directed the Company to maintain a skeleton Investigation Division capable of conducting investigation at the rate of one site a year. When this decision was received, the Company had already completed investigation of 12 sites (including one site investigated by G.S.I.) and investigation of 3 sites (Bokajan, Adilabad and Dehradun) was in hand. The investigations at these locations were completed in April, 1968, June, 1968, and July, 1969 respectively.

After the receipt of Government direction of January, 1968, only one site (Maihar in Madhya Pradesh) was selected by the Company for detailed prospecting in July, 1968. The prospecting work at this site was commenced on 21st November, 1972 and abandoned on 7th February 1973 after incurring an expenditure of Rs. 11,747 (excluding depreciation and Head Office over-heads), as the investigation indicated a high quantity of over-burden and low percentage of lime.

Appendix III incorporates the details of the sites investigated, quantity of limestone proved and indicated and the expenditure incurred in respect of each site investigated by the Company (including one site investigated by the Geological Survey of India).

As a result of curtailment of Limestone Investigation Division, 14 out of 18 drills were declared surplus (9 in July, 1966 and 5 in July, 1968). 10 of the surplus drills were disposed of by the Company between March, 1968 and September, 1970 as per details given below :—

Name of the party	No. of drills with accessories sold	Value realised on the basis of depreciated book value
		Rs.
Hindustan Salts Limited	1	35,359
National Mineral Development Corporation Limited	1	70,771
Manganese Ore (India) Limited	1	59,573
Government of Madhya Pradesh	7	2,16,493

In November, 1973, Ministry of Industrial Development approved the proposal of the Company for the revival of the Limestone Investigation Division. It was further stated by the Ministry that the question of reimbursing the unremunerative expenditure of the past and in the future on the limestone investigation was separately under consideration.

Consequent upon the approval for the revival of the Limestone Investigation Division, the Management decided (December, 1973) to retain 5 drills with accessories and dispose of the remaining 3 drills.

As regards the need for revival of Limestone Investigation Division, the Management have stated (March, 1974) as follows :—

“The revival of Limestone Investigation Division is mainly for carrying out the prospecting operations for the Company, both in projects under construction and for new projects to be taken up in VIth and subsequent Plans, particularly in the deficit areas. The Corporation may also take up work for private agencies on payment basis or undertake exploration work abroad.”

5.03 Investigation of limestone deposits on behalf of private parties

The Company conducted during May/June, 1967 lime-stone investigation at Nimbahera (Rajasthan) on behalf of a private party for a fee of Rs. 1.98 lakhs.

5.04 Prospecting for clay deposits

In order to explore the possibility of setting up a plant to manufacture active clay to produce lime-pozzolana cementing material to be used as mortar and plaster for the building industry, the Company conducted in July/September, 1967 clay prospecting at Mahipalpur (Delhi) at a cost of Rs. 29,000. Although no clay deposits were proved, the expenditure on prospecting has not been written off so far (March, 1974). The Management have stated (March, 1974) as follows :—

“Since clay pozzolana is to substitute cement in plaster and mortar works the expenditure incurred for such exploration is to be treated same as that of limestone, the basic raw material for the manufacture of cement.”

5.05 Utilistation of the proved reserves of lime-stone

Out of 14 sites investigated and proved for its own projects, the Company has already set up plants at 2 sites (Mandhar in Madhya Pradesh and Kurkunta in Karnatak State). The construction work on 2 other sites (Paonta in Himachal Pradesh and Bokajan in Assam) is in progress. Setting up of 8 projects at the following sites has been proposed to Government in April, 1973 :—

- (1) Akaltara (Madhya Pradesh)
- (2) Baruwala (Dehradun)
- (3) Yerraguntla (Andhra Pradesh)
- (4) Neemuch (Madhya Pradesh)
- (5) Tandur (Andhra Pradesh)
- (6) Adilabad (Andhra Pradesh)
- (7) Kurkunta Expansion (Karnatak)
- (8) Kivarli (Rajasthan)

Out of the above referred 8 projects, only 6 projects referred to at Sl. Nos. 1 and 3 to 7 have been included under crash programme envisaged in the Fifth Plan. While Akaltara (Madhya Pradesh) project is linked with S/23 C & AG/74—2

the lime-stone deposits investigated by the Hindustan Steel Limited, the remaining 4 projects (excluding Kurkunta expansion) would utilise the reserves proved at 4 sites (viz. Yerraguntla, Neemuch, Tandur and Adilabad) referred to in Appendix III, thereby leaving 5 proved sites viz. Alampur, Baruwala, Jagdalpur, Gokak, Katni and Chittorgarh, un-exploited.

5.06 In connection with the lime-stone investigation operations of the Company, following features deserve mention :—

- (i) While selecting the sites and employing the parties for investigation work, no estimate of expenditure was framed for any of the sites. The scope of the work was also not mentioned. The Ministry have stated (June, 1974) that, due to initial stage of the organisation, estimates could not be prepared and that estimates for such work will be prepared in future.
- (ii) Out of 14 proved sites (excluding the site investigated for a private party) referred to in Appendix III, mining leases have been secured in respect of 10 sites. For the remaining 4 sites (viz. Katni, Gokak, Alampur and Chittorgarh), prospecting licences have either not been taken or not been renewed.
- (iii) In November, 1967, the Company took up prospecting work near Baruwala (Dehradun) which is a deficit area. After proving the lime-stone deposits, the Company prepared a Project Report for setting up a standard size plant of 600 tonnes per day. The consultants, however, suggested a higher capacity plant for achieving economies in production. In view of the difficulties in transporting oversized consignments, the Company recast the Project Report in September, 1972 based on;
 - (a) two 600 tonnes/day units; and/or
 - (b) two 750 tonnes/day units.

The Project Report as recast, envisages installation of a rope way which has to negotiate a very steep range and has to cross one or two small ranges of hills before reaching the factory. As the rope way has to go down a very steep slope which is normally avoided, the Company is studying the problems. In the meantime, execution of Baruwala Project stands deferred.

It may be mentioned, in this connection, that one of the objectives of the Company was to make the information relating to lime-stone investigation available to the private sector industry also,

for expansion purposes. A request was received from M/s. J. K. Rayons, Kanpur for making available the data relating to Baruwala Project for setting up a Cement Plant by them. The deal, however, did not materialise, as the party considered the amount demanded by the Company as very high. There was no offer from the private sector industry for any other site prospected by the Company.

- (iv) The revival of Limestone Investigation Division is stated to be mainly meant for carrying out prospecting operations for the Company's projects under construction or for the new projects to be taken up in VIth and subsequent Plans, particularly in the deficit areas.

It is noticed that the Company has already prospected and established cement grade limestone reserves in respect of the projects under construction and those included in and approved for execution during Fifth Plan period (*vide* paragraph 5.05). No projections have been made by the Company so far regarding the prospecting to be done for the projects to be taken up in the VIth and subsequent Plans, particularly in the deficit areas.

In view of above and also in view of the fact that the skelton Investigation Division is capable of conducting investigations at the rate of one site a year, the implementation of the decision to revive the Limestone Investigation Division would need re-consideration.

In this connection, the Ministry have stated (June, 1974) as follows :—

“Aspects relating to the prospecting to be done for the projects to be taken up in the VIth and subsequent plans and the size of the Limestone Investigation Division considered necessary for meeting the requirements are under consideration and these will be decided before actual revival of the Limestone Investigation Division.”

- (v) It may be mentioned that at present the work relating to survey, prospecting and proving of lime-stone deposits in the cement industry, as a whole, is being done by the Geological Survey of India, the Minerals Exploration Corporation, the Cement

Corporation of India and the Departments of Mines and Geology in different State Governments. The Estimates Committee considered these aspects and *inter alia* recommended in paragraph 4.24 of its 60th Report (Fifth Lok Sabha—April, 1974) to have a well-coordinated programme to assess and locate available lime-stone deposits in the country expeditiously in a planned manner.

- (vi) It will be seen from paragraphs 9.03 to 9.06 that the quality, characteristics and disposition of lime-stone in respect of Mandhar Plant varied considerably from the one anticipated after conducting investigations and adopted as the basis for the preparation of the Detailed Project Report. This led to installation of a multicyclone to arrest dust losses, deeper foundations for the crusher, redesigning of the crusher, delay in commissioning, difficulties in mining operations and consequent additional expenditure, both capital and operating.

6. SETTING UP OF CEMENT MANUFACTURING CAPACITY

6.01 Projections

As mentioned in paragraph 4.01, the Company was initially required to set up a capacity of 5 million tonnes by the end of 31st March, 1971 (1.5 million tonnes by 1968-69 and another 3.5 million tonnes by 1970-71).

However, this target underwent a radical change in view of the following developments (reported in detail in paragraph 4.02) :—

- (a) Delicensing of cement industry and granting of certain fiscal reliefs in 1966 to the cement industry on the expectation that private sector would undertake expansion programmes in a big way.
- (b) Restricting the scope of the Cement Corporation to put up cement factories in the deficit areas, communicated by the Government to the Company in July, 1967.
- (c) Allowing the Company to set up cement plants in areas other than deficit areas in June, 1972.

In the wake (a) above, Government informed the Company in September, 1966 that the Planning Commission had ear-

marked an investment of Rs. 25 crores during the 4th Five Year Plan period for achieving a target of 1.6 million tonnes. This outlay was, however, considered by the Company just sufficient to set up a capacity of 1.2 million tonnes.

In January, 1969, the Planning Commission again suggested a provision of Rs. 20 crores for the revised Fourth Five Year Plan commencing in 1969. The Company, however, represented in November, 1969 that with the carryover expenditure of Rs. 4 crores on the 2 plants under construction, the balance of Rs. 16 crores would be inadequate and an additional sum of Rs. 4 crores would be necessary to achieve the 4th Plan target of 1.2 million tonnes.

In December, 1969, the Ministry informed the Company that the revised outlay during 4th Plan had been fixed at Rs. 23 crores only.

6.02 Setting up of capacity

It will be seen from above that there was change in policy regarding role of the Company in the expansion of cement industry from time to time, with the result that no time bound programme for the setting up of capacity with complete details could be laid down and acted upon by the Company.

In the above back-ground, the Company continued to submit from time to time proposals to the Government for permission to set up cement factories. The particulars of these proposals are tabulated below in brief :—

Sl. No.	Name of the Project	Annual capacity (in lakh tonnes)	Feasibility Report submitted to Govt. on	Proposal approved by Govt. on	Detailed Project Report submitted to Govt. on	Detailed Project Report approved by Govt. on	Remarks
1	2	3	4	5	6	7	8
1.	Kurkunta (Karnatak)	2	March, 1966	June, 1966	January, 1967	June, 1969	Went into commercial production w.e.f. 1-10-1972.
2.	Mandhar (Madhya Pradesh)	2	March, 1966	November, 1966	January, 1967	June, 1969	Commissioned in July, 1970.
3.	Neemuch (Madhya Pradesh)	2	March, 1966	June, 1966	May, 1972	—	Government accepted in November, 1966 the proposal of the Company to earmark the Plant ordered for Neemuch for installation at Mandhar. Approved for inclusion in 5th Plan with a capacity of 4 lakh tonnes.
4.	Jagdapur (Madhya Pradesh)	2	June, 1967	—	—	—	—
5.	Tandur (Andhra Pradesh)	2	June, 1967	—	April, 1972	March, 1974	Approved for inclusion in 5th Plan with an enhanced capacity of 4 lakh tonnes.
6.	Bokajan (Assam)	2	January, 1968	April, 1969	October, 1969	May, 1971	Construction is in progress and scheduled to be completed by May, 1975.

7. Paonta(Himachal Pradesh)	2	August, 1968	—	February, 1970	May, 1971	The Project is scheduled to be completed by October, 1976. Construction of Camp Office, godown, hutments, etc. completed in November, 1972.
8. Yerraguntla(Andhra Pradesh)	2	August, 1969	—	April, 1972	March, 1974	Approved for inclusion in 5th Plan with a capacity of 4 lakh tonnes.
9. Baruwala, Dehradun(Uttar Pradesh)	2	October, 1970	—	—	—	—
10. Akaltara(Madhya Pradesh)	2	—	—	May, 1972	—	Approved for inclusion in 5th Plan with a capacity of 6 lakh tonnes.
11. Adilabad(Andhra Pradesh)	2	—	—	May, 1972	March, 1974	Approved for inclusion in 5th Plan with a capacity of 4 lakh tonnes.
12. Mandhar Expansion	2	—	—	February, 1971	March, 1972	Steps for implementation of the Project are being taken. Expected to be commissioned by December, 1976.

In its 5th Five Year Plan proposals submitted to Government in April, 1973, the Company included the following projects involving an estimated outlay of Rs. 136.60 crores.

Name of the Project	Capacity envisaged
1. Akaltara (M.P.)	6 lakh tonnes
2. Baruwala (U.P.)	4 " "
3. Yerraguntla (A.P.)	4 " "
4. Neemuch (M.P.)	4 " "
5. Tandur (A.P.)	4 " "
6. Adilabad (A.P.)	4 " "
7. Kurkunta Expansion(Karnatak)	4 " "
8. Kivarli (Rajasthan)	4 " "
TOTAL	34 " "

The Management have stated (November, 1973) as follows :—

“The task Force set up by Government of India identified that 12 million tonnes of cement capacity is to be added in the 5th Plan period. As a sequel to this, in May, 1973 after discussion with Ministry of Industrial Development and Planning Commission, an exercise was made on bringing up projects under crash programme during Fifth Plan period. According to the revised proposal (i) CCI is to put up 6 new projects with a total capacity of 26 lakh tonnes at an estimated cost of Rs. 97.96 crores, (ii) C.C.I. will complete three projects presently under implementation by 1975-76 adding to the existing capacity by 5.8 lakh tonnes.”

Thus the total capacity set up and to be set up by the Company up to the end of 5th Five Year Plan will be 35.8 lakh tonnes.

In his connection, the following features deserve mention :—

(a) *Non-attainment of projections*

Only a capacity of 0.4 million tonnes had been installed by the Company so far (March, 1974) and no other project was scheduled to be commissioned by the end of 4th Five Year Plan i.e. March, 1974. The Company was thus far behind the revised projection of 1.2 million tonnes envisaged in the 4th Plan and nor could it realise its own expectation of December, 1969 of attaining production level of 4 lakh tonnes by March, 1971 and 6 lakh tonnes by March, 1974.

(b) *Setting up of cement manufacturing capacity in the deficit areas*

According to the Feasibility Report for Adilabad (A.P.) project, the Company has estimated the following surplus (+)/deficit (-) of cement

with reference to the production and demand in the various zones of the country during 1971 to 1978 :—

Zone	(In million tonnes)							
	1971	1972	1973	1974	1975	1976	1977	1978
East	(+)0.274	(-)0.337	(-)0.513	(-)0.623	(-)0.872	(-)0.122	(-)0.512	(-)0.896
North	(-)1.388	(-)2.467	(-)3.094	(-)3.829	(-)4.385	(-)3.486	(-)3.615	(-)4.164
West	(+)0.689	(-)0.095	(-)0.381	(-)0.533	(-)6.877	(-)1.531	(-)2.266	(-)2.584
South	(+)2.033	(+)1.413	(+)1.074	(+)0.572	(+)0.013	(-)0.424	(-)1.119	(-)1.678
TOTAL	(+)1.608	(-)1.486	(-)2.914	(-)4.413	(-)6.121	(-)5.563	(-)7.512	(-)9.322

NOTE.—Figures for 1971 are based on actuals.

It will be seen from above that the deficit in Northern Zone was the highest.

Although the need to put up cement factories in the deficit areas was considered of urgent importance in July 1967, no plant in the deficit area has come up so far (March, 1974). Bokajan (Eastern Region) and Paonta (Northern Region) projects are still under erection/construction.

(c) *Share of the Company in the overall cement manufacturing capacity of the country*

According to the statistics maintained by the Cement Controller, the total capacity available as on 1-1-1965 (when the Company was formed) was 10.60 million tonnes (10.10 million tonnes in the private sector and 0.5 million tonnes in the public sector).

This capacity increased to 19.37 million tonnes (17.08 million tonnes in the private sector and 2.29 million tonnes in the public sector) by the end of December, 1972. The capacity of 2.29 million tonnes in the public sector in 1972 was inclusive of 0.4 million tonnes set up by the Company at Mandhar and Kurkunta. According to 5th Plan projections, the overall capacity of cement manufacture in the country is envisaged at 33.1 million tonnes. Out of this, 24.6 million tonnes will be in the private sector, 8.5 million tonnes in the public sector. The share of Cement Corporation in the public sector will be 3.6 million tonnes.

Thus, the share of the Company in the overall capacity of cement manufacture in the country worked out to 2.1% up to December, 1972 and is expected to increase to 10.9% by 1978-79.

(d) *Setting up of the plants of higher capacity*

One of the objectives mentioned in the Ministry's letter of 4th May, 1965 was that the Company should take steps to set up two very large cement plants, each of approximately 1 million tonnes per annum capacity. Locations for these plants were to be investigated *inter alia* in Jagdalpur in Baster area and Kothangudam area. The Company has not so far (March, 1974) set up a plant of 1 million tonnes capacity either at the sites mentioned in the Ministry's letter or any other site.

In this connection, the Management have stated (March, 1974) as follows :—

- (i) "Since the setting up of 1 million tonnes plant would have required higher quantum of foreign exchange or otherwise

perhaps the entire plant would have to be imported, the Corporation decided to go for setting up number of standard plants of 600 tonnes per day capacity".

(ii) "The main constraints for setting up cement plants of higher capacity are indigenous production of larger castings and transport of O.D.C. components".

(e) Delay in setting up of cement plants by the Company had led to a substantial increase in the capital outlay, as per particulars given below :—

(Rs. in crores)

Project	Investment as per		Original estimates as approved by Govt.	Revised estimates as approved by Govt.
	Feasibility Report	Detailed Project Report		
Mandhar	3.78	4.65	4.52	4.90
	March '66	Jan. '67		
Kurkunta	3.78	4.69	4.43	5.14*
	March '66	Jan. '67		
Bokajan	8.32	11.26	10.98	10.98
	Jan. '68	Oct. '69		[Estimate not revised so far]
Paonta	6.08	7.61	7.61	11.78
	Aug. '68	Feb., 70		
Mandhar Expansion	2.11	2.18	2.11	4.12
	(No F.R. prepared)	Feb. '71		

*Actual expenditure has already exceeded this figure. Revised estimates have been approved by the Board in May, 1974 and are yet to be submitted to Government (June, 1974).

(f) The performance of the Company's plants in operation and the progress of the projects under construction have been dealt with in paragraphs 9 to 13.

7. SERVICES RENDERED TO STATES/FOREIGN GOVERNMENTS

7.01 Manipur

At the request of the Government of Manipur, Company agreed in March, 1971 to prepare a Detailed Project Report for setting up a cement plant at Ukhrul/Jungdung in Manipur State at a fee of Rs. 1,35,000.

Preliminary survey work for collecting the field data for the preparation of the Detailed Project Report was carried out by the Company during October, 1971 to April, 1972. After visiting the site and collecting the field data, it was felt that the Project would not be viable. However, at the instance of the Ministry of Industries, a Feasibility Report was prepared. The Company incurred a sum of Rs. 41,500 (approx.) on the above work against a sum of Rs. 50,000 received from the State Government.

7.02 Bhutan

The Government of Bhutan approached the Company on 9th December, 1969 to carry out an appraisal study of the technical and economical feasibility of putting up a cement plant at Pagli-Titi in Southern Bhutan. The Company agreed to carry out the appraisal at a nominal fee of Rs. 5,000 plus all local costs of technical experts during the course of their visit. Thereafter, the Geologists of the Company visited the site between 23rd and 28th January, 1970 and collected the necessary information/materials for the preparation of the Report. The Company submitted the Appraisal Report to the Government of Bhutan in March, 1970. In the Appraisal Report, it was mentioned that setting up of a 300 tonnes per day plant at Pagli was technically feasible and a Project Report was to be worked out to estimate the capital outlay and economic viability. The Bhutan Government requested (24-3-1970) the Company to prepare a Detailed Project Report at a fee of Rs. 1.50 lakhs. Accordingly, the Company prepared and submitted a Detailed Project Report to the Government of Bhutan in September, 1971.

In May, 1972, the Government of Bhutan expressed a desire to set up the plant in joint venture with the Government of India through the Cement Corporation of India. Various techno-economic aspects of the proposal of the Bhutan Government are still under the consideration of the Cement Corporation/Government of India.

The Management have stated (November, 1973) that "the project will be taken up directly as Project of the Royal Government of Bhutan with the aid from Government of India. However, the Cement Corporation may be associated with the execution of the Project. The extent of association and the terms and conditions for the same are under discussion".

7.03 Oman

In October, 1970, the Ministry of External Affairs desired that the Company should depute its officers to the Sultanate of Oman to study the feasibility of establishing a cement plant in that country. The Government of India further desired that the investigation should be taken up urgently by the Company and the question of actual payment of the expenditure be decided later on. Accordingly, a team of technical officers visited the Sultanate of Oman in December, 1970/January, 1971. The team, after conducting the necessary survey and test evaluation of the samples, prepared a pre-investment Feasibility Report and submitted it to the Sultanate of Oman in March, 1971. For this job, the Company incurred an expenditure of Rs. 21,000.

In this connection, the Management have stated (March, 1974) as follows :—

"After our submitting Pre-Investment Feasibility Report to the Sultanate of Oman, further reappraisal work was assigned by them to M/s. Atkins of England. In 1972 the Corporation indicated to the Charge d' Affairs of Muscat that the Corporation is willing to;

- (a) participate in the venture with financial status;
- (b) work as consultants for the Sultanate for detailed exploration, preparation of D.P.R., selection and installation of machinery on payment basis.

After that C.C.I. have not heard anything from Sultanate of Oman. Either they have dropped the idea of setting up a cement plant or have entrusted the job to a foreign party."

8. PROCESS OF MANUFACTURE AND QUALITY CONTROL

8.01 Process of manufacture

The process of manufacturing portland cement consists in the incorporation of the raw materials, one of which is composed mainly of

calcareous materials, such as, lime-stone and argillaceous materials, such as, clay or shale, to form a homogeneous mixture, the burning of the mix in a kiln to form a clinker, and the grinding of the clinker with the addition of a small proportion of gypsum to a fine powder. Two processes, known as the wet and dry processes according as to whether the raw materials are ground and mixed in a wet or dry condition, are used. In a variant of these processes, the semi-dry process, the raw materials are ground dry and then mixed with 10—14 per cent. water and formed into nodules.

Amongst all the factors to be considered, in selecting the manufacturing process, the most decisive factors are the fuel and power consumption which together account for as much as 40 per cent. of the prime cost. On account of the lower consumption of fuel and power, the dry process is preferable to the wet process if the material components are not too wet (water content above 15 to 18 per cent.) or contain deleterious admixtures which have to be removed by washing. However, when Mandhar and Kurkunta Plants were proposed to be set up, by and large, the wet process plants were in vogue in India (only about 4 dry process and 8 semi-dry process plants being in operation at that time).

The relevant significance of the two processes is indicated below :

Wet Process

In the wet process, the raw materials after quarrying and crushing are ground with water in a grinding mill to produce a slurry of creamy consistency. The water requirement of the slurry for effective handling is sometimes reduced and the fluidity increased by the addition of 0.05 to 0.10% of certain agents, such as waste sulfite liquor, sodium carbonate, sodium silicate, sodium tripolyphosphate, or tetrasodium pyrophosphate. The finished slurry does not usually contain more than a few per cent. (7 to 10%) of material remaining on a 90 micron screen, and its water content varies from 35 to 40 per cent. with different raw materials.

Final slurry is conveyed to slurry basins known as, mixing, correcting, blending, and storage tanks according to their functions. When a correcting tank is full, a representative sample is analysed, and desired amounts are drawn from various tanks into one or several blending tanks for complete homogenisation. The output of the blending tanks is pumped

to an agitated storage tank, or a kiln basin, which holds from 3 to 7 days' production supply. In this manner, any remaining small fluctuations in the slurry composition are further equalized, providing a uniform kiln feed.

The slurry is burned in the wet process rotary kiln to produce cement clinker. Cooling of clinker and its grinding in the Cement mill with gypsum gives the final product cement.

Dry Process

In dry process, quarried and crushed (in the same way as for wet process) raw materials are ground in the dry state in dry process ball mills, compartment mills, tube mills, etc., in closed circuit with air separators which separate the mill stream into coarse and fine fractions. The coarse fraction is returned to the mill for further grinding, whereas the fine fraction is removed as the finished raw meal.

The ground raw meal is then conveyed to concrete silos. Frequent sampling of the finished product going into each silo, followed by circulation, agitation and homogenisation, enables the operators to design the final blend by proportionate withdrawal from several silos. The final blend is again agitated and homogenised for one or two hours and is then ready to be conveyed to the kiln department. When entering the kiln, the feed is highly preheated, producing an attractive fuel economy and increasing materially the capacity of the rotary kiln. The clinker produced is cooled and ground to cement in the same way as for wet process.

8.02 Quality Control

Under the Cement (Quality Control) Order, 1962, manufacture and sale of cement, not conforming to the prescribed standards, is prohibited.

The Company has a Quality Control Organisation under the charge of the Chief Chemist at each of its operating plants. Samples of cement are taken out in each of the plants every hour and its strength is checked after allowing the requisite period for its setting. These samples are also sent to Government Test House, Calcutta/Bombay, once a week.

In this connection, the Management have stated (March, 1974) as follows :—

“Chemical and physical analysis are required in cement plant for appraising performance, evaluating quality of raw materials and finished products in respect to chemical constituents and physical characteristics and effecting manufacturing control at each stage starting from winning of limestone, crushing/milling/pyro processing and grinding of clinker/despatch. At each stage rigid quality control is maintained in the plantsat par with other cement manufacturing concerns. Rapid method of analysis which can save time and labour and also add to overall operational efficiencies, are followed, wherever feasible”.

It will be seen that each Plant has a mechanism to ensure quality control upto the point of despatch. For the industry as a whole, there is no mechanism in the country to ensure quality control after the cement leaves the respective plants. In order to ensure that cement of requisite quality is supplied to the ultimate consumer, the Estimates Committee in paragraph 6.32 of its 60th Report (Fifth Lok Sabha—April, 1974) recommended that suitable measures for quality check of the cement supplied to the consumers be taken by Government.

9. MANDHAR PLANT

9.01. Introduction

In June, 1966 the Ministry of Industry accepted in principle the proposal of the Company for setting up 4 cement factories, each of an annual capacity of 2 lakh tonnes, in respect of which feasibility reports had been submitted. At the same time, the Ministry, however, authorised the Company to place orders for the plant and machinery for only 2 plants to be located at Kurkunta (Karnatak) and Neemuch (M.P.). In November, 1966 the Ministry agreed to the proposal of the Company to earmark the Neemuch Plant for Mandhar (M.P.) site.

9.02 Deposits of lime-stone and its characteristics

Lime-stone investigation at Mandhar had been done by the Director of Geology and Mining, Madhya Pradesh on behalf of a private firm and

about 48.25 million tonnes of cement grade lime-stone had been established in an area of 4.48 sq. kms. The independent investigation conducted by the Company in January—June, 1966 in an area of 2.4 sq. kms. (583.31 acres) also proved that it contained a minimum of 15 million tonnes of cement grade lime-stone which was sufficient to support a plant of the standard size of 600 tonnes per day for 50 years. The lime-stone found was of solid nature and covered by an over-burden of 4 to 5 feet. Blasting operations were expected to be easy and the cost of raising lime-stone and removal of overburden was estimated at Rs. 5 per tonne and Rs. 4 per tonne respectively.

In November, 1966 the Company applied to the State Government for a mining lease of 583.31 acres of land. State Government, however, granted in April, 1967 the mining lease for 404.09 acres (71.66 acres of Government land and 332.43 acres of private land) and lease agreement was executed in October, 1967. In December, 1971 the Company again applied for the grant of lease of an additional area of 198.59 acres (98.61 acres of private land and 99.98 acres of Government land). In January, 1973 the State Government, however, granted the mining lease for an additional area of 195.49 acres (103.06 acres of Government land and 92.43 acres of private land) and lease agreement was executed in March, 1973.

The possession of Government land for which lease was granted in April, 1967, was taken in October, 1967 but action to acquire 332.43 acres of private land was taken in February, 1969 and a total area of 236.21 acres was acquired through negotiations up to November, 1972 at a total cost of Rs. 4.73 lakhs. Negotiations for the balance area are still (September, 1972) in progress.

9.03. Appraisal of capital expenditure decisions

According to the Feasibility Report sent to the Ministry in March, 1966, the capital outlay of Mandhar Plant was estimated at Rs. 3.78 crores. In the Detailed Project Report prepared in January, 1967, however, the capital outlay envisaged was Rs. 465.48 lakhs. In June, 1969, the Ministry approved the project estimates for Rs. 451.51 lakhs. After commissioning of the plant in July, 1970, the project estimate was again revised to Rs. 495.87 lakhs and submitted to Government in February, 1971 for approval. In July, 1972, the Government approved the Project estimates for Rs. 490.37 lakhs.

The table below incorporates the comparative break-up of the project estimates framed from time to time, those approved by the Government and the actual expenditure incurred there against :—

(Rupees in lakhs)

Sl. No.	Particulars	Estimates as included in the DPR prepared in January, 1967	Estimates as sanctioned by Govt. in June, 1969	Revised estimates submitted to the Govt. in February, 1971	Estimates as sanctioned by the Govt. in July, 1972	Actual expenditure upto 31-3-1973
1	2	3	4	5	6	7
1.	Plant and machinery (including sales tax)	235.64	235.64	234.79	234.79	222.76
2.	Contingency	18.69	5.19	5.50	—	—
3.	Civil works (including land)	160.00	165.53	173.00	173.00	173.39
4.	Erection cost	16.50	16.50	15.29	15.29	15.29
5.	Establishment expenditure during construction	—	—	14.30	14.30	14.35
6.	Electrical installation including street lighting	7.50	7.50	12.13	12.13	9.82
7.	Proving of limestone	2.50	2.50	2.85	2.85	2.85
8.	Head-quarter overheads	5.20	5.20	21.43	21.43	20.43
9.	Interest during construction	19.45	13.45	16.58	16.58	12.58
	TOTAL	465.48	451.51	495.87	490.37	471.47

Notes:—1. Commitments aggregating Rs. 19 lakhs approximately (excluding the cost of Railway siding) were outstanding as on 31st March, 1973. The bill for the Railway siding was still (August, 1974) awaited.

2. Estimates included in the Detailed Project Report had been framed after the plant and machinery had been ordered and investigation of lime-stone deposits completed.

In this connection, following features deserve mention :—

- (a) Increase in the estimates sanctioned by Government in July, 1972 over those included in the Detailed Project Report

and sanctioned by Government in June, 1969 was mainly under 'Establishment expenditure during construction civil works, electrical installation and head-quarters overheads'.

- (b) The expenditure during construction was provided for in the Detailed Project Report under 'Erection cost' and 'Civil works'. The erection of plant and machinery was proposed to be done departmentally and it was anticipated by the Management that the provision of Rs. 16.50 lakhs made in the approved estimates would be adequate to cover the expenses of the staff employed during construction period as well as the staff employed for erection purposes. In July, 1968, however, the Management decided to get the erection work done through the suppliers (M/S K.C.P. Ltd., Madras) of the plant and machinery so as to avoid the problem of surplus labour as also the complaints from the suppliers. The contract for erection and technical know-how for erection absorbed Rs. 15.29 lakhs. Thus, a provision of Rs. 1.21 lakhs remained to meet the expenditure on the maintenance of establishment during construction. Against this, the actual expenditure amounted to Rs. 14.35 lakhs.
- (c) There was an overall increase of Rs. 13.39 lakhs in the actual expenditure over the Detailed Project Report estimate for 'Civil works' after absorbing the savings under 'Water supply and sewage disposal' and 'Residential buildings'. The Management have attributed (March, 1974) the excess to the following factors :—
- (i) There was an extra expenditure of Rs. 25 lakhs (Rs. 16.96 lakhs on account of increase in the quantum of work and Rs. 8 lakhs on account of deeper foundations) on 'Factory buildings, foundations and welfare buildings' due to increase in the quantities of work as compared with the provision made in the Detailed Project Report and deeper foundation as a result of change in the design of the Crusher Plant. The increased quantum of work was due to absence of complete data and civil design at the time of making provision in the Detailed Project Report which under-went changes subsequently. The original design of the Crusher Plant had to be altered as the quality of lime-stone was found (1968) to

be harder than originally assessed (1966) by the plant suppliers, thereby leading not only to a more powerful crusher and conveyor but also to deeper foundations. As a result, not only there was an extra expenditure of Rs. 8 lakhs under 'Civil works' on account of deeper foundations but also the plant suppliers had to be paid an extra amount of Rs. 1.50 lakhs.

(ii) There was an extra expenditure of Rs. 1.54 lakhs on roads and drains as it was found necessary to change katcha roads to pucca water bound roads.

(d) The increase of Rs. 15.23 lakhs under 'Headquarter overheads' with reference to Detailed Project Report estimates was due to the fact that provision in the Detailed Project Report was made on the assumption that 5 plants would be put up. Actually, however, only 2 plants came up.

(e) The increase of Rs. 2.32 lakhs in the expenditure on 'Electrical installation including street lighting' over the Detailed Project Report estimates was attributed by the Management to the additional sub-station and transformers required to step down 33 KV line to 11 KV line. It may be mentioned, in this connection, that, as per Detailed Project Report, the State Electricity Board was to supply power at 33 KV only.

In this connection, Management have stated (March, 1974) as follows :—

"In Madhya Pradesh Government Tariff, it was indicated that H.T. power can be made available at 33/11 K.V. Based on this, while formulating the project report an estimate was prepared for the supply of power by Madhya Pradesh State Electricity Board at 11 K.V. though in the body of the report it was mentioned at 33 K.V. power supply. Ultimately M.P. Government regretted to supply power at 11 K.V. As a result of this, an extra transformer had to be installed by the Corporation for which a provision was not made in the Detailed Project ReportNon-provision of estimate in Detailed Project Report for stepping down from 33 K.V. to 11 K.V. is a genuine mistake".

9.04. Erection and commissioning

Appendices IV to VI incorporate the data relating to the scheduled dates and actual dates of :

- (a) completion of the civil works;
- (b) supply of the various items of plant and machinery; and
- (c) completion of erection of the plant and machinery.

In this connection, the following features deserve mention :—

(a) *Civil works*

While the order for plant and machinery was placed in June, 1966 and the supply of equipment was to commence with effect from February, 1967, the contract for civil works was awarded to M/s. Wig Bros. in July, 1967 and the entire work was to be completed within a period of 12 months. The item-wise schedule for completion of civil works was finalised in May, 1967 and envisaged completion of various items between October, 1968 and February, 1969.

There was, however, delay ranging from 1 month to 11 months with reference to this schedule. The contractor attributed the delay to non-receipt of detailed specifications and drawings from the Engineering Consultants who, in turn, ascribed it to their late receipt from the suppliers of the plant and machinery. The Company has, however, maintained that the delay, if any, in the issue of drawings in most cases did not hamper the progress of the construction work. It has further been stated that time of completion was extended from time to time up to 30th April, 1970 keeping in view the magnitude of the work and the circumstances prevailing. No liquidated damages were imposed even though in a number of cases the progress was much below the mark.

The dispute between the Company and the contractor was referred to arbitration in April, 1972. The claim of the contractor filed with the Arbitrator amounted to Rs. 23.29 lakhs (Rs. 15.62 lakhs on account of prolonged period of execution of work and Rs. 7.67 lakhs for additional items of work and other reasons).

The Arbitrator awarded, in August, 1973, an amount of Rs. 2.46 lakhs in favour of the contractor.

(b) *Plant and machinery and erection thereof*

As already mentioned above, contract for the supply of plant and machinery was placed in June, 1966 with M/s. K.C.P. Limited of Madras. The same firm was appointed as erection contractor in July, 1968 on a consideration of Rs. 13.72 lakhs.

The original schedule for the supply of plant and machinery by December, 1967 was revised in May, 1967 and envisaged the completion of the supply of all the items of equipment by May, 1968. The firm did not, however, adhere to this schedule and the supply was completed by November, 1970. Similarly, there was delay ranging from 1 month to 12 months in the completion of erection with reference to the actual dates of handing over of civil foundations. In terms of both the contracts, the firm was liable to liquidated damages as follows :—

- (a) $\frac{1}{2}\%$ of the value of the machine for each full month for which delivery was delayed subject to the maximum of 5% of the value of the said machine.
- (b) $\frac{1}{2}\%$ per month of delay subject to a maximum of 5% of the total value of the contract.

In the agenda for 45th meeting of the Board held on 18th January, 1972, the question of the levy of liquidated damages for delayed supply of plant and machinery and its erection by the firm was considered and following observations were made :—

- (i) In initial stages M/s. K.C.P. anticipated certain amount of delay in the supply of plant and machinery due to their getting the import licence late and difficulties experienced in procurement of certain indigenous materials. Apart from this, M/s. K.C.P. did not intimate any other reasons due to which the supply of plant and machinery was delayed. The total liquidated damages payable by M/s. K.C.P. for delayed supply of plant and machinery as per the contract amounted to Rs. 16,000 (approx.).

- (ii) As regards erection, though there was delay ranging from 2 to 12 months when taken section-wise, the overall delay with reference to the last date of completion of erection was only two months. In calculating the period of delay, however, the period of delay by the Company in handing over the foundations was to be excluded. As the delay, both on the part of M/s. K.C.P. and the Company was 11 months, perhaps no liquidated damages could be levied.
- (iii) Taking into account all the facts, the delay in delivery of plant and machinery and in erection had delayed the ultimate implementation of the project by 2/3 months. In a project like this, 2/3 months delay was not considered serious lapse. Since there were various factors beyond the control of various agencies, the delay might be condoned.

No final decision was, however, taken. The Company, in the meantime, withheld an amount of Rs. 7.49 lakhs from the payments due to the firm in terms of the contracts for supply of plant and machinery and erection thereof.

In this connection, the Management have stated (November, 1973) as follows :—

“A Committee was set up..... to consider the question of defects and delay in the plant and machinery supplied by M/s. K.C.P. The Committee had taken due note of all the aspects arising out of M/s. K.C.P.'s supply. The Board considered the recommendations of the Committee in its 54th meeting and approved the release of payment to M/s. K.C.P. after adjusting/recovery of certain amount for defects, etc.”

It may be mentioned that the recovery of Rs. 2,50,448.58 recommended by the Committee did not include any amount relating to delay in supply of plant and machinery and delay in erection. In fact, the Committee condoned the delay, as in a project of this magnitude, delay was not considered abnormal by the Committee.

9.05 Defects in the plant

The Plant was commissioned on 19th July, 1970; the guarantee performance runs for individual units commenced from 21st March, 1970 and continued up to 24th December, 1970. Though the performance

efficiency of all the units of the plant, as stipulated in the agreement, had not been established by the plant suppliers, the plant was taken over by the Company on 12th September, 1970. After all the units had been handed over, certain defects began to be noticed by the Management in the various units.

The details of the various defects together with their financial impact, wherever possible, and the remedial steps taken so far, are enumerated below :—

(i) *Crushing plant*

Against the guaranteed output of 200 tonnes (85% minus 10 mm. size) per hour (when fed with run of mine lime-stone of not more than 750 x 750 mm. size or fed with 1½ cubic yard shovel) the crushing plant has been giving only 160 tonnes output per hour. According to the Management, the guaranteed capacity 'cannot be achieved because of defective positioning of push feeder and hopper with respect to wagon tippler'. This defect has necessitated the employment of labourers to push the blocked boulders manually. The additional expenditure incurred on the employment of labourers for the period from September, 1970 (date of actual commissioning of the plant) to March, 1972 amounted to Rs. 21,500 (approx.). M/s. K.C.P. who did the erection, were responsible for this defective positioning. The daily requirement of lime-stone is around 1032 tonnes. It has been found that the Plant is not capable of running continuously and producing the required quantity of lime-stone in one shift as originally contemplated. The Plant is, therefore, being run on two shifts, thus necessitating employment of extra staff (11 persons costing approx. Rs. 28,512 per year on the basis of actuals for March, 1972).

In this connection, the Ministry have stated (June, 1974) as follows :—

(a) "The Plant supplier M/s. K.C.P. had fulfilled the guarantee tests with an output of 200 tonnes per hour. But granulometry of lime-stone was little short for which the plant supplier has paid the penalty".

(b) "Less production of crushed lime-stone from the crusher unit than guaranteed performance is not unusual phenomenon in the Industry as it is linked up with the winning of lime-stone and its transport and tipping sequence. Since the system connected with the winning of lime-stone and transport of

lime-stone by means of dumpers into N.G. Wagons and thereafter by tipping mechanism into the hopper in sequence could not be maintained at 200 tonnes per hour, hence spread over of the operation of the crusher in the second shift is necessary".

The Management have stated (August, 1974) that steps are being taken to improve synchronisation in winning, transportation, etc. of lime-stone for avoiding second shift working of the Crusher.

(ii) *Raw Grinding Mill*

The guaranteed out-put of 50 tonnes per hour of the Raw Grinding Mill on dry basis was obtained at the time of guarantee test by working the Mill below 80% of the full load. The Works Manager of the Plant reported to the Head Office of the Company that, owing possibly to the wrong specifications and defective materials used by the supplier, the flexible coupling towards Mill end and the pinion and girth gear of the Mill were wearing out fast even with 80% of the load. As the agreement only provides for free replacement of any equipment becoming unserviceable on account of any defect in the materials used in its manufacture or defective workmanship within a period of six months from the date of commissioning of the machine, the suppliers refused to own any responsibility for these defects.

According to the instructions of the suppliers, the Company installed in November, 1970 an oil cooler as a result of which, pitting is stated to have stabilised. The oil cooler was supplied by the suppliers free of cost.

(iii) *Coal Mill*

Though the guaranteed out-put of 10 tonnes per hour of the Coal Mill was obtained during the guaranteed performance test, outlet flange bolts failed and the mill went out of alignment after 1½ years of its working, resulting in small pieces of grinding media and coal powder coming out and contaminating the lubricants. This also damaged the girth gear and pinion.

The Management stated (May, 1973) that the cost of bolts was Rs. 500 only and that no expenditure was incurred on the girth gear and pinion which were run after cleaning and changing the lubricant. It has further been stated (March, 1974) that the Coal Mill is running satisfactorily.

(iv) *Kiln*

Although the performance guarantee from 17th to 19th November, 1970 gave an output of 672.5 tonnes of clinker per day as against 600 tonnes envisaged in the agreement, the following defects were noticed in the operation of the Kiln :—

- (a) The dust catching arrangement was inadequate and dust re-feeding system unsatisfactory. The dust loss was abnormally high. It was 14 to 15% (approx.) as against 6 to 8% (approx.) or even less in the case of other wet process kilns in India. The loss on account of extra dust during 1970-71 and 1971-72 was estimated at Rs. 2.24 lakhs and Rs. 2.20 lakhs respectively.
- (b) The clinker temperature at the outlet of the cooler was persistently high.

In the meeting of the Board held in January, 1972, it was reported that in the dust collector of conventional design supplied by M/s. KCP only dust particles up to 40 microns could be arrested. But the physico-chemical characteristics of the slurry made from the lime-stone available at Mandhar without any argillaceous materials and having no binding material in it were prone to breaking due to low strength of nodules, thereby causing excessive dust formation.

Complete elimination of dust was not considered possible unless electro-static precipitator was installed. As the cost of electro-static precipitator was quite high and its operating results were not encouraging, it was proposed to install a multicyclone to arrest the dust up to 6-7 microne size. To improve the production of the Kiln from 600 tonnes to 700 tonnes per day, introduction of a dust insufflation to recirculate the dust, in addition to multicyclone to arrest the dust loss, was also proposed. As regards cooler, certain modification at a cost of Rs. 16.74 lakhs were envisaged.

The total capital outlay for minimising the dust losses, modification of the cooler, etc. was estimated at Rs. 35 lakhs (including Rs. 1.5 lakhs as engineering fee), which was approved by the Board. The scheme is yet (March, 1974) to be implemented.

As the chemical characteristics of the lime-stone deposits available in Mandhar area were tested by the Company before deciding upon the

location of the Plant and the same were also tested by M/s. K.C.P. Limited before designing the plant, the circumstances under which the above characteristics of the lime-stone could not be taken care of by the Company at the time of preparation of the Detailed Project Report and by the suppliers at the time of designing the Plant are not clear.

As regards the dust loss and the high temperature of the clinker, the Ministry have stated (June, 1974) as follows :—

- (a) After opening of the quarry at Mandhar radical changes in the lime-stone were observed in respect of physico-chemical characteristics. Because of this, there was excessive fine raw meal dust formation in the chain zone which is difficult to arrest in the conventional type dust collecting device supplied by M/s. K.C.P.
- (b) "Variation in the clinker temperature is not an unusual feature and it has not affected either the operation of the plant or the quality of the cement. The reason for occasional high temperature of the clinker at the outlet could be due to erratic burning phenomenon for variation in quality of coal and also the fixed speed of the cooler as the eddy current coupling supplied with the main plant went out of order".

(v) *Cement Mill*

The guaranteed output of 35 tonnes per hour within the specified limits was achieved during the guarantee performance test but due to the development of severe pitting in the gear box, the Mill was being run at a low load, resulting in lower output varying between 60—70% of the rated capacity. The girth gear and pinion were badly damaged due to defective materials. Besides, the following major break-downs occurred due to faulty designs and defective materials :—

- (a) Crack in the shell at the joint of the first manhole door.
- (b) The torsion shaft sheared off from the flange.
- (c) The flexible coupling towards the mill end failed due to complete smashing of the teeth.

As a result of break-downs of torsion shaft and coupling in January, 1972, the Mill remained shut for nearly 600 hours (loss of production

@ 35 tonnes per hour being 21000 tonnes). The Company obtained the torsion shaft and coupling on loan from M/s. Assam Cement Limited on the condition that these would be replaced within five/six months. Simultaneously, the Company arranged for the import of equipment from France at a C.I.F. price of 55,805 francs (Rs. 74,000 approx.). The equipment is in transit.

The Management have stated (March, 1974) that, after the installation of oil cooler in November, 1970, the pittings in the gear box, girth gear and pinion have stabilised and the mill is running without trouble.

(vi) *Packing Plant*

Though the guaranteed output of 60 tonnes per hour (a bag weighing 50 Kgs. net) of each packing machine was achieved during the guarantee performance test conducted on 5th October, 1970, the following automatic devices of the Plant had not been functioning since installation :—

- (a) Level controller of 50 tonnes hopper.
- (b) Automatic starting and stopping of rotary feeders in relation to level of cement in the rotary packers.
- (c) Automatic release of bags after being packed from the machine to slat conveyer.
- (d) Two mobile bag conveyors provided for loading cement bags directly into the wagons on either side of the packing plant and installed in February, 1972 after carrying out modifications free of cost by the suppliers.

As a result of the non-functioning of the above-referred automatic devices, the Company had to get the work done manually. The Management stated (May, 1973) that the mobile bag conveyors were not being operated because the contract labour was not habituated to work with this type of arrangement and were being gradually tried for the job.

In this connection, the Ministry have stated (June, 1974) as follows :—

- (i) The Automatic devices/equipments referred to at (a), (b) and (d) are functioning with effect from November, 1973, April, 1972 and November, 1973 respectively. As regards item (c), frequent cleaning of the equipment would be necessary to keep it functioning, thereby leading to stoppage of packing

plant. It is, therefore, a normal feature in cement plants to engage manual labour for releasing packed bags.

- (ii) No extra labour was engaged for items (a) and (b), as these required only occasional checking during operation which was being attended to by the staff working in the packing plant.
- (iii) As regards item (d), manual labour has to be engaged for lifting the bags from the mobile bag conveyors and proper stacking of the same in wagons/trucks.
- (vii) *Formation of a Committee to go into the question of quality and performance of the plant and machinery.*

It is noticed from the minutes of the Board meeting held on 4th March, 1972 that the Ministry of Industrial Development had formed a Committee consisting of Industrial Adviser, DGTD, Chief Engineer of M/s. K.C.P. and Chief Project and Development Officer of the Company to visit Mandhar and give its recommendations regarding the quality and performance of machinery supplied by M/s. K.C.P. to the Company.

On 24th December, 1971, the Company apprised the Ministry of Industrial Development and the D.G.T.D. of the defects in the plant and machinery supplied by M/s. K.C.P. The Company also sent its further comments on the observations of M/s. K.C.P. on the various points. Subsequently, a meeting was held in the room of the D.G.T.D. and a general discussion took place regarding the background of the dispute between the Company and M/s. K.C.P. It was decided that a meeting of the Company and M/s. K.C.P. could be called to settle the differences, wherein the representatives of the Ministry and the D.G.T.D. would also be present.

Accordingly, a meeting was held on 25th January, 1973 in the Ministry wherein representatives of D.G.T.D., Company and M/s. K.C.P. were also present.

The following decisions were taken in the meeting in full and final settlement of all the disputes :—

- (a) *Defects in the plant and machinery*
 - (i) *Crusher plant and transport*

As the granulometry of the crusher's final product fell short of guaranteed figures by 4% i.e., 8 tonnes in terms of loss in production, after allowing

3% for error of measuring equipment, the Committee decided to levy a penalty of Rs. 24,000 @ Rs. 3,000 per tonne.

(ii) *Slurry grinding plant*

Cement grinding mill

The matter was dropped.

(iii) *Rotary Kiln and clinker transport*

As the equipment was not giving the required performance, it was decided that a sum of Rs. 25,000 representing about 80% of the cost of equipment supplied by M/s. K.C.P. for dust recovery system may be recovered from the outstanding dues.

(iv) *Inadequacy of compressed air*

It was decided that M/s. K.C.P. should agree for deduction of Rs. 60,000 towards the cost of one compressor.

(b) *Dues against customs duty etc.*

A sum of Rs. 57,448.58 was decided to be recovered on this account.

(c) *Other claims*

A lump-sum amount of Rs. 1.44 lakhs which included the cost of an additional compressor was decided to be recovered from the dues of M/s. K.C.P. in satisfaction of all other claims of the Company.

As against the above recoveries aggregating Rs. 2,50,448.58, the dues payable to M/s. K.C.P. worked out as follows :—

(i) 5% balance payment against supply contract	Rs. 7,49,150.40
(ii) Balance amount of customs duty	Rs. 1,66,426.78
(iii) Balance amount of sales tax	Rs. 24,342.78
	<hr/>
	Rs. 9,39,919.96

The net amount of Rs. 6,89,471.38 was paid by the Company to M/s. K.C.P. on 27th March, 1973.

9.06 Quarry Operations

(i) *Delay in introduction of mechanical operations*

The Detailed Project Report envisaged mechanical operations in the quarry and accordingly a provision of Rs. 16.12 lakhs was made therein

for the acquisition of plant and machinery for this purpose. Actually, however, the Company purchased the following equipments valued at Rs. 18.47 lakhs during the period from February, 1969 to August, 1969 :—

Sl. No.	Name of the equipment	Dates of receipt	Amount (Rs. in lakhs)
1.	Dumper (3 Nos.)	August, 1969	4.29
2.	Shovel	March, 1969	6.25
3.	Buldozer	April, 1969	4.50
4.	Wagon drills (2 Nos.)	One in June, 1969 and one in July, 1969	1.92
5.	Compressors (2 Nos.)	One in February, 1969 and one in May, 1969	1.51
			18.47

Although the Kiln and Crusher were commissioned in February, 1970 and July, 1970 respectively, the mechanical operations in the quarry were commenced in December, 1970 only, with the result that;

- (a) shovel and wagon drills valued at Rs. 8.17 lakhs could not be put to any use upto December, 1970; and
- (b) the Company had to resort to manual raising of the lime-stone with effect from September, 1969 through the agency of contractors.

The delay in the commencement of mechanical operations was attributed (May, 1972) by the Management to the delay in the acquisition of land because of the dispute arising from multiple ownership.

(ii) *Inadequacy of mechanical operations*

(a) *Shortfall in mechanical operations*

The mechanical operations which commenced in December, 1970 in a portion of the mine were suspended during May, 1971 to October, 1971 on account of diversion of the equipment to the factory site where they were deployed in re-handling of the accumulated stock of lime-stone. The operations were resumed in November, 1971 and the average monthly extractions

during the period from November, 1971 to March, 1972 came to 4,000 tonnes of lime-stone as against the factory's requirement of 30,000 tonnes per month.

In view of delay in commencement of mechanical operations and inadequacy of mechanical operations, the Company has been raising the lime-stone manually through the agency of contractors. Out of the total quantity of 9,25,737 tonnes of lime-stone raised during the period from September, 1969 to March, 1973 at a cost of Rs. 90.80 lakhs, the quantity raised through the contractors came to 8,38,635 tonnes (including 96,497 tonnes of crushed limestone) at a total cost of Rs. 77.63 lakhs. The balance quantity of 87,102 tonnes was raised through mechanical operations. The average cost of raising the lime-stone boulders through the agency of contractors and departmentally by mechanical operations at quarry ramp worked out to Rs. 8.32 per tonne and Rs. 15.11 per tonne (including 1/3 expenditure on overburden removal and prospecting) respectively.

The Management have stated (November, 1973) that the departmental extraction of lime-stone was low on account of the fact that during the period in question, removal of overburden and development of quarry face was mainly in progress.

It may, however, be mentioned in this connection, that the Cost Auditor in his report for 1972-73 had stated that the existing capacity of raising lime-stone through mechanical operations was 15,000 tonnes per month *i.e.* 1,80,000 tonnes annually. As against this, the Company raised only 86,000 tonnes of lime-stone (including overburden—25,464 tonnes) in 1972-73. Thus, the above contention of the Management was not fully correct.

(b) *Capacity of the Equipment*

As regards the adequacy of the equipment to raise 30,000 tonnes of lime-stone per month, it was reported to the Board in January, 1971 that, as the lime-stone deposit was erratic in its disposition, a number of faces had to be developed. Besides, stone would also require blending in order to conserve the high grade lime-stone. Accordingly, the initial expectation on the basis of prospecting work done that a single face of the quarry could be developed to raise and supply the required quality and quantity of lime-stone, did not hold good. The existing 3 dumpers and one shovel were, therefore, considered inadequate to quarry more than one face and provision for the purchase of one additional shovel and a dumper at a total cost of Rs. 8.25 lakhs was made in the revised estimates.

The additional equipment was not purchased till May, 1972 when it was intimated by the Management that the following additional equipment would be necessary to raise the entire requirement of 30,000 tonnes per month by mechanical means :—

Shovel	1
Dumpers	2
Wagon drills	2
Compressor	1

The Management have stated (March, 1974) that, as against the above items, one shovel at a cost of Rs. 8.54 lakhs has already been procured. Orders for two dumpers at a total cost of Rs. 2.10 lakhs have been placed and order for one compressor is being placed.

The Management have further stated (March, 1974) that the lime-stone deposit at Mandhar is just cement grade marginal quality and there are full interculations distributed in a very erratic manner. Therefore, it is difficult to maintain quality of lime-stone boulders to suit the requirements, if cent per cent. mining is done by mechanised means. According to them, mechanised mining can be resorted to partially and the lime-stone so raised blended with that manually raised and well sorted stone in the ratio of 66 : 33. On this basis, mechanised raising of lime-stone to meet the daily requirement of 1,000 tonnes per day would be 650 tonnes a day.

In view of the limitation referred to above, procurement of additional equipment to achieve the raising of 1,000 tonnes a day would appear to call for a review. Besides, the impact of this constraint on the profitability of the project and the economics of undertaking operations manually or through mechanised means needs to be determined.

In this connection, the Ministry have stated (June, 1974) as follows :—

- (i) The equipments originally procured were inadequate. Besides, owing to operational reasons and matching of capacities of various equipments, shovel and dumpers purchased were of the capacity of 1½ cubic yard and 10 tonnes each respectively as against the capacity of 2½ cubic yard for shovel and 16 tonnes for a dumper envisaged in the Detailed Project Report.

(ii) Out of the two compressors acquired for the quarry, one is being used in the factory. The purchase of new compressor is in replacement of the one used in the factory.

As regards (i) above, it has been clarified (August, 1974) by the Management that, at the time of placing the orders for dumpers and shovels, it was technically held that the dumper of 16 tonne capacity would not be able to withstand the impact and shock loading of 2½ cubic yard capacity shovel. Besides, dumper capacity had to be matched with the capacity (10 tonnes) of N. G. Wagons. It will, thus, be apparent that provision in the Detailed Project Report for procurement of a shovel of 2½ cubic yard capacity and dumper of 16 tonne capacity was made without taking into account all the relevant factors.

9.07 Production performance

A. The trial runs of the various plants commenced in December, 1969 and the factory was formally commissioned on 19th July, 1970. During the period of trial runs, a quantity of 0.38 lakh tonnes of clinker was produced.

The plant has a rated capacity of 2 lakh tonnes per annum. The table below indicates the actual production of cement and the percentage achievement of rated capacity during the last three years :—

(Figures in lakh tonnes)

Year	Capacity	Actual production	Percentage of actual production to capacity
1970-71 (with effect from 19th July, 1970)	1.42 (pro rata for 8½ months)	1.05	74
1971-72	2.00	1.64	82
1972-73	2.00	1.80	90

The non-achievement of installed capacity in 1970-71 and 1971-72 has been attributed by the Management to defects in the various sections of the Plant, with the result that the overall actual output of various sections

was less than the guarantee given by the suppliers of the plant and machinery, *vide* details given below :—

Section of the Plant	Guaranteed output (in tonnes)	Actual output in tonnes (average)		
		1970-71	1971-72	1972-73
Kiln(per day)	600	491	576	576
Crusher (per hour)	200	163	161	154
Raw Grinding Mill (per hour)	50	44	43	44
Cement Grinding Mill (per hour)	35	30	25	27
Packing Mill (per hour)	60	39	46	51

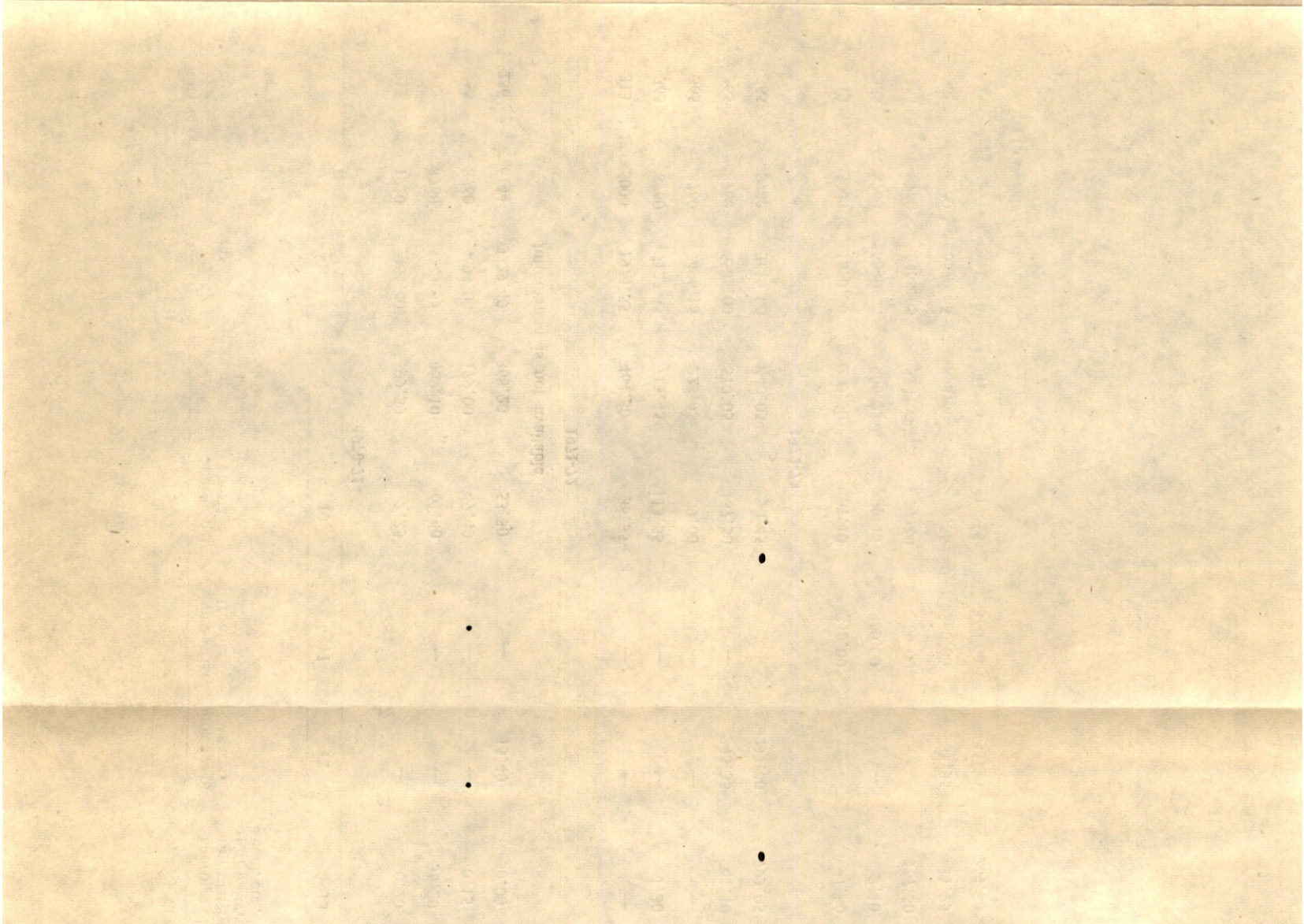
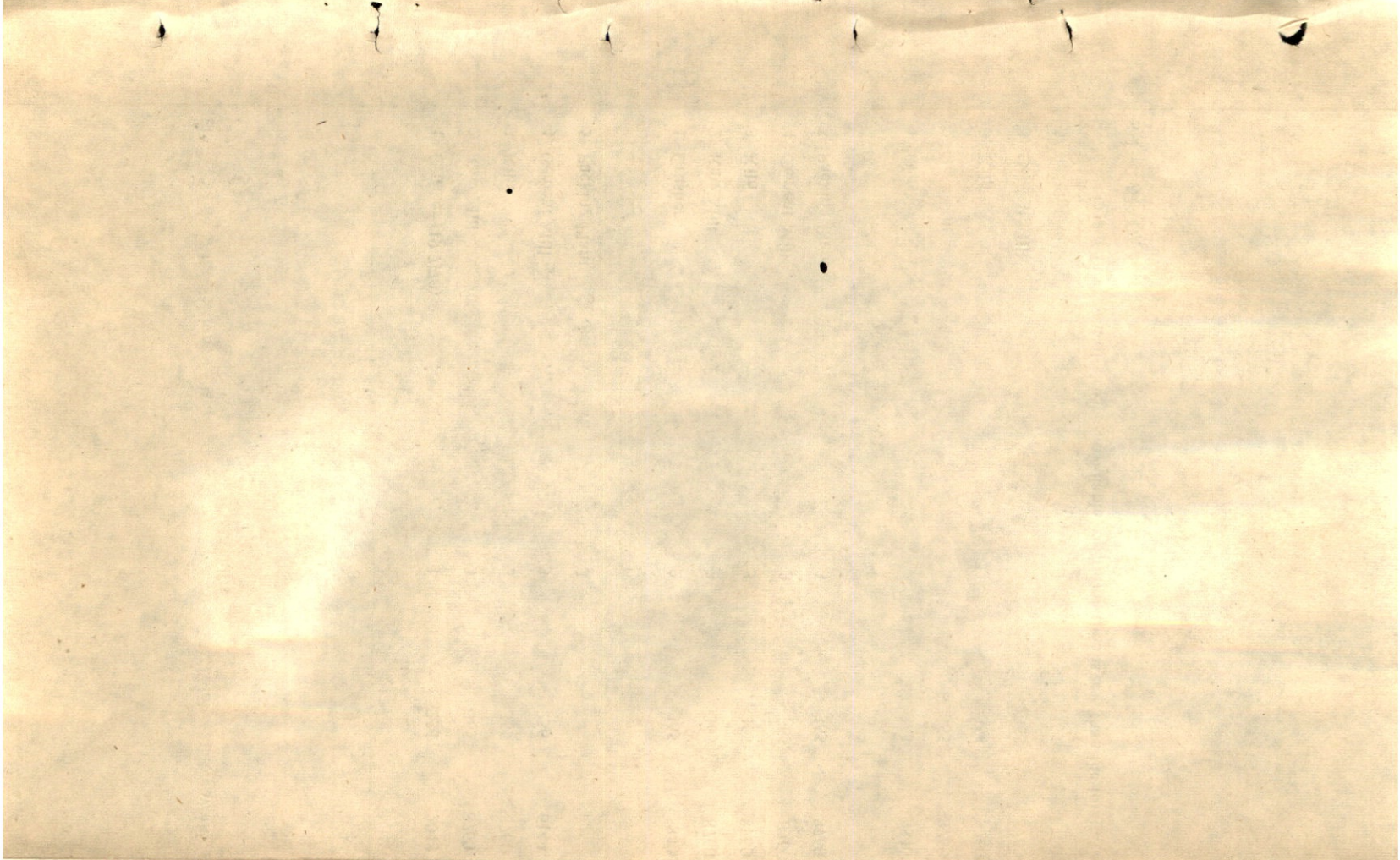
Strike for a period of 15 days during 1972-73 was also partially responsible for non-attainment of capacity for 1972-73.

B. Performance of the individual sections of the Plant

An analysis of the performance of the various sections of the Plant with reference to total available time, actual operating time and the time lost due to various factors is indicated below :—

Sl. No.	Name of the Section of Plant	No. of shifts	Total available working		Available operating		Actual working hrs.	Mech. and Elect. defects	power cut/shortage	labour strike/trouble	Stoppages due	
			days	hrs.	days	hrs.					shortage of wagons	shortage of raw material, air, water, coal, etc.,
1	2	3	4	5	6	7	8	9	10	11	12	13
1970-71												
1.	Crusher (19-7-70)	1	256	2048	215	1720	464.40	99.30	2.25	—	—	0.20
2.	Raw Mill	3	365	8760	365	8760	3723.55	459.10	61.40	—	—	36.20
3.	Kiln	3	365	8760	365	8760	4694.00	179.00	47.40	—	—	0.15
4.	Cement Mill	3	256	6144	256	6144	3329.40	368.20	53.30	—	15.40	30.00
5.	Packing Plant	3	Information is not available									
1971-72												
1.	Crusher	2	365	5840	313	5000	1974.55	464.30	36.35	—	—	—
2.	Raw Mill	3	365	8760	365	8760	7127.35	713.45	113.55	—	—	1.30
3.	Kiln	3	365	8760	365	8760	7496.15	223.45	59.00	—	—	—
4.	Cement Mill	3	365	8760	365	8760	6585.00	510.05	187.50	—	346.35	41.10
5.	Packing Plant	3	365	8760	365	8760	3619.00	440.05	90.45	—	237.40	793.05
1972-73												
1.	Crusher	2	365	5840	313	5000	1670.50	200.30	31.10	240.00	—	1.30
2.	Raw Mill	3	365	8760	365	8760	5840.20	996.25	90.15	360.00	—	3.10
3.	Kiln	3	365	8760	365	8760	6468.05	324.00	57.40	360.00	—	167.50
4.	Cement Mill	3	365	8760	365	8760	6570.55	853.50	80.55	360.00	35.35	11.25
5.	Packing Plant	3	365	8760	365	8760	3547.10	981.40	12.55	360.00	153.20	264.30

NOTE.—In respect of Crusher, available operating time is less than the total available time owing to weekly off day.



From the appreciation of the above data, the following facts emerge :—

- (a) The stoppages were mainly contributed by mechanical and electrical defects, power cut and other miscellaneous constraints.
- (b) The various sections of the Plant actually worked between-300 days (5840 hrs.) and 343 days (7496 hrs.) in 1971-72 and 1972-73. On this basis, it can be assumed that the various sections of the Plant could operate for 330 days in a year, after providing for 35 days for normal maintenance. With reference to 330 days of operation, the guaranteed output of the various sections of the Plant and that actually required for producing 2 lakh tonnes of cement would work out as follows :—

	Capacity for 330 days on the basis of guarantee given (in tonnes)	Quantity required for production of 2 lakh tonnes of cement (in tonnes)
Crusher (for limestone on the basis of one shift operation)	5,28,000	3,20,000
Raw Mill (for slurry on the basis of 3 shifts operation)	3,96,000	3,20,000
Kiln (for clinker on the basis of the 3 shifts operation)	1,98,000	1,90,000
Cement Mill (for turning clinker & other ingredients into cement on the basis of 3 shifts operation)	2,77,200	2,00,000
Packing Mill (on the basis of 3 shifts operation)	4,75,200	2,00,000

It is apparent from above that, except for kiln, all other sections have sufficient in-built capacity to achieve a rate of production of cement higher than that of 2 lakh tonnes. The cushion for in-built capacity was the highest in the case of crusher and packing mill and this explains these reasons for not running these sections for considerable periods during 1971-72 and 1972-73.

- (c) As against 7,920 hours operation based on 330 working days, the kiln worked for 7,496 hours in 1971-72 and 6,468 hours in 1972-73 and produced 1,76,466 tonnes of clinker in 1971-72 and 1,53,393 tonnes of clinker in 1972-73. In spite of the

lower production of the clinker in 1972-73, the production of cement in 1972-73 was higher than that of 1971-72. This was owing to the fact that clinker from the production of 1971-72 was utilised for the production of cement in 1972-73.

9.08 The Action Committee referred to in paragraph 2.01 also made certain recommendations for improving the maintenance and operations of the Plant.

A summary of the main recommendations made by the Committee together with the action taken thereon is given in Appendix VII.

9.09 Economic viability of the Project

The Detailed Project Report prepared in January, 1967, had envisaged a return of 8.3% on the capital investment of Rs. 465.48 lakhs after making provision for depreciation, interest on working capital/loans and development rebate reserve during each of the first 2 years of commercial production. As the conditions had changed very much after the Detailed Project Report was prepared, the Board of Directors decided on 15th March, 1971, that:

- (a) details of standard cost may be worked out after taking into account the existing conditions; and
- (b) revised profitability projections and break-even point should also be worked out.

Accordingly, the Company prepared the revised standard cost and profitability projections which were put up to the Board in June, 1971. According to the revised projections, the standard cost per tonne of cement was estimated at Rs. 83.15 (exclusive of packing cost and interest) as against Rs. 66.40 per tonne envisaged in the Detailed Project Report. It was anticipated that the Plant would be incurring losses unless production and despatch of cement was maintained at 80 per cent. of the installed capacity *i.e.* 1.60 lakh tonnes. It was further mentioned in the revised projections that even with the attainment of production and despatch at 90 per cent. of the installed capacity, the return on equity would be only 3 per cent. before making any provision for tax.

While noting the revised profitability projections, the Board observed as follows :—

“.....the present profitability of the Mandhar Cement Plant was not encouraging..... specific reasons for it specially

with reference to the level of inventory maintained in the past be examined and concrete steps be taken to improve the working of the Plant by fixing the level of the inventory of ABC items etc. and possible reduction in the cost of lime-stone and by adoption of any other suitable measures. A report in this respect should be submitted to the Board as early as possible indicating the revised profitability of the Plant."

Further action taken on the above recommendation of the Board is not known (May 1973). It may, however, be mentioned that the Plant had achieved 82 per cent. of the installed capacity in 1971-72 and 90 per cent. in 1972-73. While it earned a net profit of Rs. 2.56 lakhs in 1971-72, there was a loss of Rs. 0.64 lakh in 1972-73.

The Management have stated (November, 1973) that "due to the continued control on cement price and continuous increase in the cost of production, the profitability in the cement industry as a whole has been very adversely affected".

The Ministry have stated (June, 1974) as follows :—

- (a) With a view to bring down the cost of production, action has been taken to procure additional quarry equipment for maximising mechanical mining and to lay down standards for consumption of stores and spares.
- (b) While the above may touch only a fringe of the problem relating to economic viability of the Plant, the necessity for fixing a realistic retention price needs no emphasis.

10. MANDHAR EXPANSION

10.01. Historical background and preparation of the Detailed Project Report

Production of 'Portland Blast Furnace Slag Cement' is one of the best means for profitable utilisation of blast furnace slag. 'Portland Blast Furnace Slag Cement' is obtained by mixing Portland Cement clinker and granulated blast furnace slag in suitable proportions. The resultant product is a cement which has physical properties similar to those of ordinary portland cement. In addition, it has heat of hydration and is relatively better resistant to soils and water containing excessive amounts of sulphate of alkali matter, alumina and iron as well as to acidic waters.

In the meeting of the Board of Directors held on 31st July, 1965, it was mentioned that Hindustan Steel Limited had a proposal for the setting up of a cement plant of its own for utilising the slag available at the Bhilai Steel Plant. As a view was expressed that there would be considerable advantage in entrusting the Cement Corporation of India with the responsibility of producing all types of cement in the public sector, the Board decided in principle that the blast furnace cement project of the Hindustan Steel Limited be transferred to the Cement Corporation of India. It was also decided that the details of the Project, the economics as well as the terms of transfer etc., should be ascertained and submitted to Board for taking a final decision in the matter.

No action appears to have been taken on the above proposal till January, 1969 when the Company enquired from the Hindustan Steel Limited about the availability of granulated slag to be used at the Mandhar Plant of the Company which was designed to manufacture ordinary portland cement and was expected to be commissioned by the end of 1969.

In May, 1969, the Hindustan Steel Limited informed the Ministry that it would be in a position to meet the requirement of granulated slag of the Cement Corporation of India to the extent of 1.80 lakh to 2 lakh tonnes per annum at the price which was being paid by M/s. A.C.C. for slag supplied to them.

Subsequently, in August, 1969 a price of Rs. 18 per tonne of granulated slag with a moisture content of 5 per cent. subject to escalation of 20 per cent. on the variation from time to time in the ex-works price of naked portland blast furnace slag cement, was intimated by the Hindustan Steel Limited to the Company.

In November, 1970 the Company prepared the Project Report for expansion of Mandhar Plant on the basis of granulated slag at a total estimated capital cost of Rs. 218 lakhs. The Project Report, after approval by the Board, was sent to the Ministry on 28th February, 1971. Approval of the Ministry was communicated to the Company in March, 1972.

As regards the proposal mooted in 1965 relating to the take over of the Blast Furnace Cement Project of the Hindustan Steel Limited by the Company, the Management have stated (May, 1974) as follows :—

“M/s. Hindustan Steel Limited wanted the Cement Corporation of India to take up the project along with the surplus labour

working in their Nandini Mines which was not acceptable to the Corporation”.

10.02. Capital Expenditure Decisions

According to the Detailed Project Report submitted in February, 1971, the Project was estimated to cost Rs. 218 lakhs and envisaged a return (after tax) of 10.03 per cent. to 17.27 per cent. of the equity during the first 15 years of working.

The table below indicates the estimates of capital cost as mentioned in the Detailed Project Report, as sanctioned by the Government, as revised in September, 1972 and sanctioned by Government in May, 1973 together with the actual expenditure incurred thereagainst :—

(Figures in lakhs of Rupees)

Main items	As per DPR (February, 1971)	As sanctioned by Government (March, 1972)	As revised (September, 1972) and approved by Government in May, 1973	Actual expenditure up to 1973
Plant & machinery	151.01	151.00	325.00	—
Civil works	60.40	60.00	75.00	5.37
Interest during construction	3.59	—	7.00	—
Head Office overheads	3.00	—	5.00	0.52
	218.00	211.00	412.00	5.89

In this connection, following features deserve mention :—

- (a) The estimate of Rs. 218 lakhs drawn up in February, 1971 increased to Rs. 412.00 lakhs in September, 1972 and was mainly due to increase in the cost of plant and machinery and civil works. The tenders for the plant and machinery were invited by the Company in January, 1972 in anticipation of Government's approval of the Project. Out of the 6 manufacturers born on the register of D.G.T.D., only 2 firms submitted the quotation in May, 1972. The offer of M/s. A.C.C. was for Rs. 238 lakhs with bought out items and that of M/s. I.S.G.E.C. Limited for Rs. 197 lakhs. Both the offers were valid up to 31st July, 1972. As the Company

could not finalise examination of the tenders within the validity period, the firms were requested to extend the date of validity to 30th September, 1972. M/s. A.C.C. informed the Company in August 1972 that it was not possible for them to extend the validity on account of substantial price increase. They, however, submitted a revised offer of Rs. 264 lakhs which was open up to 30th September, 1972. On 2nd October, 1972, they again revised their offer to Rs. 267 lakhs valid up to 1st December, 1972. From the papers made available, it was not clear whether any response was received from M/s. I.S.G.E.C. Limited.

The offer of M/s. A.C.C. was not, however, accepted and fresh tenders were invited on 31st October, 1972 to be submitted by 1st February, 1973, subsequently extended to 1st April, 1973.

It will be seen from above that the Company would have to incur a substantially higher capital outlay on the acquisition of plant and machinery on account of delay in the finalisation of the contract for the supply of plant and equipment.

As regards finalisation of the tenders invited in October, 1972, the Management have stated (November, 1973) as follows :—

“Fresh tenders called for were received in August, 1973 and first round of negotiation with tenderers were held in October, 1973. The orders for plant and machinery will be finalised on receipt of certain clarifications asked for from the tenderers during negotiations”.

- (b) Out of 6 tenders received for construction of civil engineering foundations/structures and ancillary buildings, the Consultants recommended (October, 1972) the acceptance of the lowest offer of M/s. Gannon Dunkerley and Company Limited for Rs. 38.21 lakhs. The Company could not, however, accept this tender within the date of validity *i.e.* 31st December, 1972, as sanction of Government to the revised estimates submitted in September, 1972 had not been received by that time. Meanwhile, the Company requested the 1st (M/s. Gannon Dunkerley) and the 2nd lowest tenderer (M/s. Bridge and Roof) to extend the date of validity up to 31st January, 1973 and discussions were also held with both of these firms

on 27th and 29th January, 1973. As a result of negotiations, the offer of the 1st lowest firm was reduced to Rs. 37.25 lakhs and that of the 2nd lowest to Rs. 37.36 lakhs. Both the firms also agreed to extend the date of validity to 31st March, 1973. No decision was, however, taken by the Company within this date.

As the amount of the lowest tender was within the ceiling of Rs. 60 lakhs sanctioned by Government in March, 1973 for the civil works, it is not clear as to why the Company waited for the sanction of Government to the revised estimates submitted in September, 1972.

The Management have stated (November, 1973) that "the contract for Plant, Civil Works has since been awarded to M/s. Gannon Dunkerley and Company whose tender was the lowest".

(c) Tenders for residential, welfare and other buildings at an estimated cost of Rs. 9 lakhs were also invited by the Company in July, 1972. The following two firms quoted for the work :—

Name of the contractor	Quotation without tender item No. 47(b) (being alternate item of 48)	Quotation without tender item No. 4
(i) M/s Gango Mal	Rs. 13.29 lakhs	Rs. 13.27 lakhs
(ii) M/s Ganesh Lal K. Jadwani	Rs. 11.64 lakhs	Rs. 11.56 lakhs

The lowest tenderer was called for negotiations on 8th January, 1973. He was also requested to extend the date of validity to 31st January, 1973. No response was, however, received from him up to February, 1973.

The Management have stated (November, 1973) that, as the tenders received were very high, action is being taken to make fresh arrangements for awarding this work.

(d) As a result of upward revision of the estimates of capital cost to Rs. 412 lakhs, the Company envisages a net return (after tax) of 7.8%, on the equity for a period of 15 years as against 14 per cent. envisaged in the Detailed Project Report.

- (e) As there has already been a delay in the implementation of the project and the contracts for plant and machinery, residential and welfare buildings, etc. have yet (October, 1973) to be awarded, the likelihood of the capital cost further going up cannot be ruled out with its consequential impact on the profitability of the Project. According to the Management, the Project is expected to be completed by December, 1976.

10.03. Appointment of Consultants for Mandhar Expansion and Paonta Projects

On 17th August, 1972, the Board decided that the possibility of engaging a consultant and arranging for direct purchase of all bought out items and also purchasing of different items/components of machinery from different sources for Paonta and Mandhar Expansion Schemes together with the estimated savings on such an arrangement *vis-a-vis* the draw-backs should be analysed by the Management and detailed note submitted for the consideration of the Board in the next meeting. A note was accordingly prepared by the Managing Director and circulated to the Directors, the recommendations in brief made in the note were as follows :—

- (a) Package deals and turn-key jobs are not in vogue abroad. In view of the complex problems and local conditions prevailing in this country, hitherto, cement plants have been set up under package deals and on turn-key basis. But a start has been made in the direction of setting up cement plants by engaging consultants. Private parties were also engaging consultants. The savings that would accrue by engaging consultants are difficult to estimate precisely but on the basis of the Company's experience of two existing plants substantial savings were expected.
- (b) Consultancy job for both Paonta and Mandhar Expansion should be combined and entrusted to the consultant, M/s. Holtec Private Limited, who had already quoted for the work on the asking of the Company. They would do engineering design in the Project, such as, system designing, drawing out specifications for auxiliaries, tendering for the same, checking of drawings prepared by civil consultants, general arrangement for water, air piping, ducting, power distribution system, etc. They would also inspect the various plants and machines, draw specifications for bought out items etc. The consultants,

being in collaboration with a reputed firm, M/s. Mike Holder Bank, Canada, were expected to give latest know-how. This expertise was expected to go a long way in sizing the various equipments, auxiliaries, departmental layouts and material handling etc.

- (c) They may be paid @3.5 per cent. of the estimates of cost (excluding certain items) for both Paonta and Mandhar Expansion, subject to a ceiling of Rs. 27.50 lakhs (Rs. 18.05 lakhs for Paonta and Rs. 9.45 lakhs for Mandhar Expansion). For any extra works entrusted to them, fresh negotiations would be done to fix the rate which should not exceed 3.5 per cent. of the cost of work to be done.
- (d) Performance guarantee on the Plant as a whole for a sustained period of 7 days will be the responsibility of the consultants.
- (e) A penalty of 7½ per cent. on the total amount payable to the consultants would be levied if (i) there was any delay in the commissioning of the project after installation of all machines, or (ii) performance guarantee of the Plant, as a whole, failed.

It is noticed that the question of appointing consultants for Paonta Project was also discussed in a meeting held on 16th April, 1973 with the Special Secretary of the Ministry of Industrial Development. It was then pointed out that the appointment of consultants was entirely a matter within the discretion of the Board of Directors of the Company. It was, however, felt that the engagement of a consultant was in the interest of the Company and that the expenditure on the services of a consultant would be more than made up by additional expenditure that might have to be incurred otherwise in rectifying the defects coming to notice later on. It was also felt that, in the context of the Company's large programme of setting up additional capacity in the Fifth Plan and the likely preoccupation of existing consultants with various plants coming up in the private sector, "it would be worthwhile for the Cement Corporation to consider seriously the development of a consultancy organisation of their own".

While approving the proposal to engage consultants for Paonta and Mandhar Expansion, the Board decided on 1st May, 1973 that "legal opinion should be taken and a formal contract with M/s. Holtec will be entered into under other normal terms and conditions applicable to

such a contract, after obtaining the approval of the Government as this is a new item involved in the projects”.

The Management have stated (November 1973) that, keeping in view the existing expertise of the Company and the increasing work load because of new projects coming up, M/s. Holtec have since been appointed as consultants on a fee of Rs. 25 lakhs (Rs. 16.4 lakhs for Paonta and Rs. 8.6 lakhs for Mandhar Expansion) and that legal opinion would be obtained before signing the contract.

In this connection, following observations are made :—

- (a) One of the directives laid down for the Company in the Government's letter dated 4th May, 1965, was “all ancillary and supporting activity connected with the growth of cement industry and the development of expertise”. The Company was also to extend technical assistance to State Governments proposing to establish new cement plants and was required to build up its own strength of technical personnel. The Company's proposal to appoint consultants for Paonta and Mandhar Expansion Projects would thus appear to run counter to the above objective laid down for the Company 8 years ago. It is worth pointing out that the Special Secretary in the above said meeting of 16th April, 1973 had expressed the view that it was desirable for the Cement Corporation to have a consultancy organisation of their own. In this connection, the Management have stated (November, 1973) as follows :—

“If the Corporation had developed its expertise on the basis of the capacity indicated by Government in the initial stages (5 million tonnes by 1970-71, which was later revised to 1-2 million tonnes) the overheads on the limited number of projects approved during the period 1965—71 would have been quite exorbitant.

In the context of above and due to rush of work because of approval of new projects,, inadequate staff position and the proposals for implementation of 6 more new projects of higher capacity during the 5th Five Year Plan period, the appointment of a consultant was necessary”.

(b) The Project Reports of Mandhar Expansion and Paonta do not provide for any consultancy services. Extra expenditure would, therefore, require to be specially approved by Government. The Management have stated (November, 1973) that expenditure on consultants was expected to be met out of the savings accruing due to deletion of bought out items as well as other savings existing from the early implementation of the Projects.

As the expenditure on consultants is not a component of the project estimates sanctioned by Government, it will, as stated above, require the recasting of the approved estimates and approval of Government.

(c) It was observed that no firm of consultants other than M/s. Holtec was considered for this assignment.

The Management have stated (March, 1974) as follows :—

“M/s. Holtec Engineers in collaboration with M/s. Holder Bank of Canada are leading consultants in the field of Cement plant engineering. Ministry of Industrial Development has also engaged them as consultant on *ad hoc* basis”.

11. KURKUNTA

11.01 Introduction

Soon after the Cement Corporation of India started functioning in 1965, the Government of Mysore (renamed Karnataka with effect from 1-11-1973) suggested a few locations for investigation of lime-stone deposits. Out of these, Sedam (Kurkunta) was selected for the setting up of a cement plant. Government of India granted the mining lease for an area of 295.26 acres in November, 1965 at this place. The investigations carried out by the Company indicated proved reserves of the order of 109 million tonnes. Making an allowance of 10 per cent. for cavities, the exploitable reserves were estimated at 98.5 million tonnes and considered more than adequate to support a cement plant of one million tonnes a year capacity for 50 years. On the basis of the Feasibility Report submitted by the Company, Government of India approved in June, 1966 the location of a cement plant at Kurkunta.

11.02 Capital expenditure decisions—Project Estimates

The Detailed Project Report for the plant at Sedam (Kurkunta) was submitted by the Company to the Government of India in January, 1967. It was not, however, put up to the Board before submission to the Government.

The Detailed Project Report envisaged a capital investment of Rs. 469.49 lakhs and a net return of 8.20 per cent. on the equity in the 6th year of the working of the Plant at a retention price of Rs. 96 per tonne.

The Project Report was formally approved by Government in June, 1969 for a sum of Rs. 442.79 lakhs only. As the actual outlay exceeded the amount approved by Government and the Project was in the last stages of construction, a revised project estimate for Rs. 514.77 lakhs was approved by the Board in January, 1971 and sent to the Government in February, 1971. Meanwhile, the actual outlay had exceeded the revised project estimate of Rs. 514.77 lakhs on account of increase in the scope of work and unforeseen delay in commissioning, thereby necessitating the revision of the estimates framed in February, 1971.

The table below compares the estimates of capital cost as included in the Detailed Project Report, as sanctioned by Government in June, 1969, as included in the first revised estimates (February, 1971) and the actual expenditure incurred thereagainst up to 31st March, 1973 :—

		(Rs. in lakhs)			
Sl. No.	Particulars	Estimates as included in the D.P.R.	Estimates as sanctioned by the Govt. in June, 1969	Revised estimates submitted to the Govt. in Feb., 1971	Actual expenditure as on 31st March, 1973
1.	Plant & machinery	233.97	233.97	233.20	224.84
2.	Contingencies	18.57	5.07	4.50	—
3.	Erection cost	16.50	16.50	16.50	15.40
4.	Establishment expenditure during construction period	—	—	22.86	39.18
5.	Civil works	160.50	158.30	177.68	198.16
6.	Electrical installation including street lighting	7.50	7.50	9.50	6.40
7.	Proving of lime-stone	2.75	2.75	3.19	3.19
8.	Headquarters overheads	5.20	5.20	24.19	33.54
9.	Interest on loans during construction	24.50	13.50	23.15	46.74
		469.49	442.79	514.77	567.45

In this connection, following observations are made :—

- (a) The actual expenditure had increased the February, 1971 estimates up to March, 1972. It was, however, only in May, 1974 that estimates of February, 1971 were further revised to Rs. 617.08 lakhs and got approved from the Board. The final revised estimates are yet (June, 1974) to be submitted to Government for approval. Meanwhile, expenditure continues to be incurred which is in excess of 10% of the sanctioned cost in respect of following components :—
- (i) Civil works.
 - (ii) Proving of limestone.
 - (iii) Headquarters overheads.
 - (iv) Interest on loans during construction.

As expenditure in excess of sanctioned amount by 10% of a particular component requires the specific approval of Government, incurring of expenditure in the above referred cases was irregular.

As regards the time taken in revising the estimates of February, 1971, the Ministry have stated (June, 1974) as follows :—

“.....after the plant was commissioned various defects and deficiencies in the performance of the plant started coming to light from time to time. Pending decision on the various items of works that were to be taken up including those suggested by the Action Committee for removing the defects and deficiencies in the operation of the plant, the submission of a revised project cost estimate would again have been only an interim one. It was, therefore considered to prepare the revised estimates only after decisions were taken on various matters”.

- (b) The following factors accounted for the increase of cost over the Detailed Project Report Estimates :—
- (i) The Detailed Project Report provided for expenditure during construction under 'Erection Cost' and 'Civil Works'. Erection of plant and machinery was proposed to be done departmentally at a cost of Rs. 16.50 lakhs. The work was, however, got done on contract basis through the plant suppliers at a total cost of Rs. 16.40 lakhs, thereby leaving

a balance of Rs. 0.10 lakh only for meeting the expenditure on maintenance of establishment during construction. The actual expenditure on the establishment, however, amounted to Rs. 39.18 lakhs.

The Ministry have stated (June, 1974) that erection was got done through plant suppliers in order to avoid the problem of surplus labour and complaints from the suppliers in regard to erection defects. It has further been stated that "this coupled with the delay in commissioning of the plant led to excess expenditure on the maintenance of establishment during construction".

- (ii) The Detailed Project Report provision of Rs. 5.20 lakhs on account of 'Head Office Overheads' was based on the assumption that five plants would be set up by the Company. During this period, however, only two plants had been set up. The actual 'Head Office Overheads Expenditure' allocated to the plant was Rs. 33.54 lakhs up to 31st March, 1973.

The Ministry have stated (June, 1974) that the delay in commissioning of the Plant also contributed to the excess expenditure under 'Head Office Overheads'.

- (iii) The increase under 'Civil Works' over the project estimates was mainly due to increased quantum of work than envisaged in the Detailed Project Report (Rs. 31 lakhs) and substitution of ordinary shuttering by sliding/hydraulic shuttering in respect of cement/slurry silos and chimney (Rs. 9 lakhs). The original quantities of work based on the initial layout drawing supplied by the plant suppliers had to be revised on receipt of detailed drawings from them.

- (iv) The estimate of Rs. 24.50 lakhs under 'Interest on loan during construction' in the Detailed Project Report was reduced to Rs. 13.50 lakhs in the estimate sanctioned by Government in June, 1969. The actual expenditure up to 31st March, 1973, however, amounted to Rs. 46.75 lakhs on account of delay in the commissioning of the plant.

11.03 Contract for civil work

The contract for the construction of factory buildings and connected civil engineering works was awarded to M/s. Mysore Construction Company in November, 1967. In terms of the contract, the entire work was to be completed within a period of 12 months. No detailed schedule for completion of civil works of the various departments was, however, laid down in the contract. There was delay ranging from 11 to 21 months in the completion of the civil works of the various departments as per details given below :—

Sl. No.	Department	Scheduled date of completion of the civil engineering work	Actual date of completion of the civil engineering foundation	Period of delay beyond the scheduled date of completion
1.	Crusher	24-11-68	4-6-70	18 months
2.	Crane	24-11-68	23-5-70	18 months
3.	Slurry Mill	24-11-68	23-5-70	18 months
4.	Slurry Silo	24-11-68	March, 70	16 months
5.	Slurry Basin	24-11-68	29-9-69	10 months
6.	Coal Mill	24-11-68	3-9-70	21 months
7.	Auxiliary for Coal Mill	24-11-68	3-9-70	21 months
8.	Kiln	24-11-68	25-9-69	10 months
9.	Cement Mill	24-11-68	Before December, 1969	12 months

In April, 1969, the Company extended the time for completion of work up to 30th November, 1969 subject to the right to recover liquidated damages, if any. It appears from the note put up to the Board on 17th November, 1970 that, although the progress of civil works was slow throughout, no drastic action was taken against the contractor in view of unsatisfactory position of the supply of plant and machinery and forcible termination of the contract would have resulted in the litigation and brought all the civil works to stand still.

Towards the close of 1969 M/s. Walchand Nagar Industries Limited (suppliers for plant and machinery) accelerated the pace of delivery of the machinery. As the contractor was still very much behind schedule, it was proposed by the Managing Director in the 31st Meeting of the Board that in order to ensure that commissioning of the Plant was not delayed, it would be worthwhile to permit the contractor to use hydraulic shuttering

in the construction of cement silos and chimney, subject to the following conditions :—

- (a) The contractor will complete all civil works between December, 1969 and September, 1970 as per schedule drawn up for the various sections and, in case of his failure, he will be allowed rates for ordinary shuttering only.
- (b) A bank guarantee for Rs. 6 lakhs will be furnished and encashed if civil works were not completed according to schedule.

The above proposal which involved an additional expenditure of Rs. 6.16 lakhs, was approved by the Board and an agreement was executed with the contractor on 16th December, 1969 to this effect.

The contractor could not complete all the items of civil engineering works by the stipulated date of 30th September, 1970. In this connection, the following points were brought to the notice of the Board on 17th November, 1970 :—

- (a) The contractor had achieved overall targets for the completion of work except in the case of R.C.C. Chimney, Mill Hoppers, Coal and Gypsum Hopper and inter-floors in Raw and Cement Mill Houses and their roofing. The work of R.C.C. Chimney and Coal and Gypsum Hopper could not be completed on account of difficulties in the supply of steel by the Company and unprecedented heavy rains as a result of which the consultants had advised not to start concreting of the chimney to avoid any mishap. After rainy season, the work was taken in hand and had been completed.
- (b) Mill Hopper and Mill House could be completed only after erection of Cement and Raw Mill. The erection had been done and work on these items had been taken up in hand.
- (c) As the contractor was finding great financial difficulty in arranging for bank guarantee, hypothecation of the contractor's machinery of the market value of Rs. 5.4 lakhs had been accepted after obtaining legal advice.
- (d) It was thus clear that the contractor had fulfilled his obligations and the result desired by the Company, while sanctioning steel sliding shuttering for silo and chimney, had been achieved.

The matter again came up before the Board on 17th February, 1972. In addition to the reiteration of the facts mentioned above, it was stated in the note placed before the Board on 17th February, 1972 that the changed drive motor for the Kiln arrived at Kurkunta in the 3rd week of September, 1971 and the plant could not have been commissioned earlier up to clinkering stage even if the civil engineering works could have been completed before September, 1970. In view of these circumstances, the request of the contractor for granting extension of time up to 30th September, 1971 was proposed and approved by the Board.

In this connection, following observations are made :—

- (i) Prior approval of the Board was not obtained before agreeing to accept the hypothecation of machinery instead of the bank guarantee.

The Ministry have stated (June, 1974) that prior approval of the Board was not considered necessary as the interest of the Corporation was fully safeguarded by hypothecation arrangement.

- (ii) It was noticed that, in addition to the use of steel sliding shuttering in cement silos and chimney sanctioned by the Board in November, 1969, the contractor was also permitted in February, 1969 to use hydraulic shuttering in slurry silos involving an additional cost of Rs. 2.78 lakhs. The approval of the Board for this deviation was not obtained. The Management have stated (November, 1973) that the decision regarding use of steel sliding shuttering (which was an alternative item in the contract) was taken by the Managing Director on technical considerations and it was not considered necessary to place the matter before the Board.

11.04 Crane gantry structure at Kurkunta

The crane gantry structure at Kurkunta was completed by the civil contractors on 12th August, 1970 at a cost of about Rs. 13 lakhs. It was designed and supervised by M/s. Master Sathe and Kothari, the civil consultants of Kurkunta Project. During the operation of the stock yard gantry in September, 1971, vibrations were observed and difficulty was experienced in the operation of the crane. The structure was inspected in October, 1971 jointly by the Company's Civil Engineering Adviser and

the Chief Engineer of civil consultants. In addition to the vibrations in the structure, the rail alignment was also found to be not correct and the crane wheels were rubbing against the rails at a number of places. As a result of the joint inspection, some defects were rectified and certain stiffening measures were also carried out to reduce the vibrations.

On being asked to explain the reasons for the vibration, the civil consultants listed in April, 1973 a number of reasons, more important of which were as follows :—

- (i) The crane gantry had been designed for a maximum wheel load of 26 tonnes, whereas the actual wheel load was more.
- (ii) In the absence of any data regarding surge and longitudinal forces of the crane from the crane manufacture's side, the structure was designed on the basis of I.S. Code. In actual operations, the figures appeared to be much higher.
- (iii) Crane rails were not properly aligned by M/s. Walchandnagar Industries Ltd., i.e. suppliers of plant and machinery.

In the meantime, the matter had also been referred to the National Industrial Development Corporation Ltd. for looking into the problem in its entirety and suggesting the measures for reducing vibrations. Their Chief Structural Engineer visited the site on 6th April, 1973 and on 12th April, 1973 and quoted a lump sum fee of Rs. 97,000 for carrying out the remedial measures. During discussions, the Company was also informed that the extra structural steel work of 150 to 200 tonnes (approx.) involving a cost of Rs. 5 lakhs (approx.) might be required for carrying out the stiffening measures.

The matter was considered by the Board in its meeting held on 1st May, 1973 and it was decided that the civil consultants of Kurkunta Project may be entrusted with the work of preparing detailed designs and drawings for strengthening work. The work would be undertaken by them on priority basis, free of cost and they would furnish a guarantee for due performance of the crane gantry after the completion of the work. The Board also desired that the question of fixing responsibility for the existing defects in the crane gantry should be duly examined by the C.P.D.O., and the Civil Engineering Adviser and joint report submitted in the next meeting of the Board.

In this connection, the Management have stated (November, 1973/ March, 1974) as follows :—

- (a) 90 per cent. work in connection with the strengthening of the stock yard has been completed and the balance modification works will be undertaken when the kiln is stopped for relining.
- (b) "The Corporation is presently busy in removing the defects and deficiencies existing in the smooth operation of the plant at the full capacity. As soon as this is completed the question of fixing responsibility for the defects in crane gantry will be examined".

The Ministry have stated (June, 1974) as follows :—

- (a) "In case the original design would have been based on the correct data the same also would have involved extra consumption of steel and increased cost in the beginning itself".
- (b) "The question of fixing responsibility for the defects in the crane gantry were examined and placed before the Board in its meeting held in March, 1974. The Board noted the information and decided that it would not be possible to fix responsibility for under designing of the stock yard gantry".

As regards (a) above, it may be pointed out that generally strengthening a structure results in greater increase in cost than that to be incurred on the basis of correct design initially. Moreover, efflux of time would also contribute to additional cost on account of rise in price of steel.

11.05 Supply and erection of plant and equipment

The letter of intent placed on M/s. Walchand Nagar Industries Limited in February, 1967 stipulated the completion of the supply of equipment by August, 1968. In the final agreement executed in October, 1969 the date of completion of the supply of equipment was, however, mentioned as 31st December, 1969. Another agreement was executed in October, 1969 with this firm for the erection of the plant and machinery.

In connection with these agreements, the following features deserve mention :—

(i) *Delay in supply of equipment*

There was delay ranging from 10 months to 20 months in the supply of plant and equipment, as per details given below :—

Sl. No.	Item	Scheduled date of completion of delivery as per agreement	Actual date of completion of delivery
1.	Crushing plant I	December, 1969	28-11-1970
2.	Crushing plant II	—do—	9-11-1970
3.	Stock yard	—do—	9-11-1970
4.	Raw material milling plant	—do—	5-2-1971
5.	Slurry silos and mixer	—do—	24-2-1971
6.	Dosing of raw material	—do—	6-4-1971
7.	Rotary kiln	—do—	6-9-1971
8.	Cooling & transport of clinker	—do—	6-9-1971
9.	Coal milling plant	—do—	14-3-1971
10.	Cement milling plant	—do—	31-8-1971
11.	Gypsum & coal crushing plant	—do—	9-11-1970
12.	Cement transport	—do—	4-4-1971
13.	Cement silos	—do—	12-2-1971
14.	Packing plant	—do—	13-2-1971
15.	Compressor station	—do—	31-8-1971
16.	Electrical equipment	—do—	10-3-1971

In case of delay, firm was liable to pay liquidated damages @ $\frac{1}{2}\%$ of the value of the machine so delayed for every full month; subject to a maximum of 5% of the value of the respective machine. No liquidated damages were, however, leviable under the agreement in case;

- (a) Company was not ready for installation of the machinery;
- (b) the late delivery of a particular machine, component or equipment did not delay the Company's erection programme;
- (c) there was delay in supply of special type of well-wagons or there was a delay due to delay in the infringement sanction of Railways for the oversize and bulky cement machinery or there was delay in obtaining the Railway sanction for the movement of machinery arising out of non-payment or there was delay in payment of dues and charges, if any, by the

Company for the alterations and additions to the Railway track for the movement of the machinery.

It was noticed that there was delay in erection work in the following cases on account of delay in the supply of machinery :—

Sl. No.	Particulars	Scheduled date of delivery by the supplier as per agreement	Actual date when the delivery was completed by the supplier	Scheduled date of erection	Actual date of erection
1	2	3	4	5	6
1.	Apron feeder	December, 1969	30-10-1970	7-3-1971	23-7-1971
2.	Primary crusher	—do—	—do—		
3.	Secondary crusher	—do—	9-11-1970		
4.	Slurry mill	—do—	17-12-1970	7-5-1970	16-10-1971
5.	Kiln Department	—do—	7-12-1970	15-5-1970	12-12-1971
6.	Dosing and dedusting plant	—do—	11-11-1970	15-5-1970	12-12-1971
7.	Cooler	—do—	17-12-1970	15-5-1970	12-12-1971
8.	Coal Mill Department	—do—	17-12-1970	5-10-1970	3-12-1971
9.	Cement Mill	—do—	7-12-1970	7-6-1970	April, 1972

No liquidated damages were levied against the firm for delay in supply of above equipment. The Company has not, however, settled the final bill of the firm amounting to Rs. 12.29 lakhs.

(ii) *Delay in erection owing to non-completion of civil foundations*

Schedule IV of the erection agreement indicated the dates by which civil foundations in respect of the various units of the Plant were to be ready in all respects and also the dates by which erection work in respect of these units was to be completed. The Company, however, failed to complete the civil works by the dates indicated in the schedule and there were delays in this respect ranging from 6 months to 9 months. Erection

work was, therefore, not done by the firm according to the time schedule in the following cases :—

Sl. No.	Particulars	As per Schedule IV of the Contract		Actual date of handing over of civil foundation	Actual date of completion of erection
		Civil foundations construction to be ready in all respects latest by	Erection to be completed by		
1.	Crusher Department	7-12-1969	7-3-1970	4-6-1970	23-3-1971
2.	Crane Department	30-11-1969	15-3-1970	23-5-1970	23-6-1971
3.	Slurry Mill Department	15-11-1969	7-5-1970	23-5-1970	16-10-1971
4.	Slurry Silo Department	30-10-1969	30-11-1969	March, 1970	5-11-1971
5.	Slurry Basin Department	15-10-1969	15-11-1969	29-9-1969	November, 1970
6.	Coal Mill	15-1-1970	15-3-1970	3-9-1970	3-12-1971
7.	Auxiliary for Coal Mill Department	30-6-1970	30-9-1970	3-9-1970	3-12-1971
8.	Kiln Department	15-10-1969	7-8-1970	25-9-1969	12-12-1971

It was noticed that there was no clear record of the dates on which erection work of the various units of the Plant was actually completed. No final payment in respect of erection work has also been made and the question of damages, if any, recoverable from the firm remains unsettled.

The Ministry have stated (June, 1974) as follows :—

“The plant supplier has yet to give performance test for certain units of the plant viz. crusher, raw mill, kiln and fuel consumption in the kiln. The question of levy of liquidated damages for delay in supply and erection will, therefore, be considered before releasing the final payment after the supplier has given performance test for the above units”.

(iii) *Defects and deficiencies in the equipment*

Owing to delay in the completion of civil works, supply of plant and machinery and erection thereof, the trial runs could be commenced with effect from May, 1971 and continued upto 28th April, 1972 as per details given below :—

<u>Units of the Plant</u>	<u>Date of trial run</u>
Crusher	1-5-1971
Crane	25-6-1971
Slurry mill	5-11-1971
Slurry silo	5-11-1971
Slurry basin	25-11-1971
Coal mill	3-12-1971
Kiln	12-12-1971
Cement mill	Not available
Cement silo and packing house	28-4-1972

The trial runs revealed a number of defects/deficiencies (*vide* details given in paragraph 11.07) in the equipment supplied by the firm. In February, 1972, the Works Manager of the Project, while requesting the firm to expedite the rectification of deficiencies, stated that the frequent break-down and consequential enormous loss of production was due to "substandard quality of machinery supplied and design failure". The firm was also informed that it was not possible for the Company to take over the Plant until all the defects had been rectified and proper performance tests conducted. On 6th March, 1972, the firm agreed to remove all the defects/deficiencies within a period of six months. As the firm failed to carry out the work as promised, the Company informed it on 10th October, 1972 that unless all defects of the Plant were rectified within 2 months i.e. by 10th December, 1972 the works would be got done through other agency at firm's cost and risk. On 16th October, 1972 the firm agreed to complete the work within 3 months. The work has, however, not been completed and is still (April, 1974) going on. Consequently, the performance guarantee tests as stipulated in the agreement for certain units of the Plant are yet (June, 1974) to be obtained.

It may be mentioned that the contract limits the liability of the firm to the replacement, rectification or repair free of charge of the components or parts of the machinery or equipment found defective and does not cover the loss of production resulting from such defective/deficient equipment.

In this connection, the Management have stated (March, 1974) as follows :—

- (a) The firm has, so far, given performance guarantee for Cement mill, Coal mill and Packing plant. The performance guarantee tests for other units (Crusher, Raw mill and Kiln including fuel consumption in the Kiln) had been abandoned as there were frequent power interruptions and break-downs.
- (b) The firm was to demonstrate performance guarantee tests for the remaining units by December, 1973, but this was not done. It has, however, been reminded to undertake performance guarantee after the Kiln and other units are commissioned after relining of the Kiln by the middle of April, 1974.

11.06 Quarry operations

- (i) The Detailed Project Report envisaged the mechanical operation of the quarry and equipments worth Rs. 17.70 lakhs were purchased during the period from June, 1969 to August, 1971 for this purpose.

Initial development of the quarry was, however, taken up in February, 1971 through the agency of piece rate contractors. Mechanical operations commenced with effect from November, 1971 only. The quantity raised through contractors and through mechanical operations together with the cost of raising/collection, as intimated by the Management, is indicated below :—

	Up to 31-3-1972		1972-73	
	Quantity (In tonnes)	Value (Rs. in lakhs)	Quantity (In tonnes)	Value (Rs. in lakhs)
(a) Through contractors	93,797	0.80*	Nil	Nil
(b) Through mechanical operations	20,101	1.12	60,844	3.06

*Represents cost of raising for 34,744 tonnes only. Cost of raising for 59,053 tonnes was not separately available. The cost of raising and transporting this quantity, as furnished by the Management, was Rs. 4.58 lakhs.

It will be seen from above that the cost of raising lime-stone through mechanical operations was higher.

(ii) The Detailed Project Report had envisaged transportation of lime-stone from quarry to factory through a 3.5 kms. long Narrow Gauge track. The work was taken up in November, 1967 departmentally and a sum of Rs. 1,00,740 was deposited with the Railways for supply of rails. As Railways could supply rails worth Rs. 29,564 till July, 1970 and thereafter further supplies were stopped by an injunction order issued by the Court, the Company decided in February, 1971 to award the work to the Railways and for this purpose a further sum of Rs. 4 lakhs was deposited with the Railways in June, 1971. The work was completed by the Railways in February, 1972 and the final bill is still (November, 1973) awaited.

For the transportation of the lime-stone, Company had placed an order in January, 1968 for the supply of 80 wagons which was reduced to 60 wagons valued at Rs. 6.06 lakhs in June, 1969. The wagons were received during the period from January to October, 1970. A locomotive was also purchased at a cost of Rs. 0.79 lakh in February, 1972. The wagons and the locomotive could not, however, be put to use till November, 1972 due to the time taken in the completion of the Narrow Gauge track and thereafter on account of non-registration of the boiler. Another loco was also purchased on 15th December, 1972 at a cost of Rs. 0.73 lakh and was stated to be under repairs (July, 1973). The Ministry have stated (June, 1974) that "the second loco has also since been put to use".

(iii) Pending completion of the Narrow Gauge track, the Company took up in January, 1971 the construction of a service road with water bound surfacing by the side of the track. The work was undertaken departmentally and completed on 6th April, 1972 at a cost of Rs. 1.25 lakhs. The longer time taken for completion of the service road upto water bound stage was stated to be due to non-availability of road roller and trucks and acute shortage of water.

Even after completion of the service road, it was found unsuitable for playing dampers for transportation of lime-stone boulders. On 6th September, 1972, the Management decided to provide black topping for this road at a cost of Rs. 1 lakh to make the road suitable for regular dumper traffic. The work was scheduled to be completed by November, 1972, but has not been completed so far (August, 1974). The crusher was put to trial run on 1st May, 1971. As neither the railway track nor the service road were ready by that time and as the service road was not found suitable after completion, the transportation of lime-stone was done by the contractors through the private lands. As a result, the Company had to forego the rebate offered by the two contractors in the event of the facility of good service road being available and had also to allow an extra rate of Re. 0.31 (for transportation within the factory area) and Re. 0.75 per tonne (from quarry to factory) to the third contractor on the same score.

11.07 Production Performance

The Project was scheduled to be completed and commissioned by August, 1969. However, due to delay in the completion of civil works, supply of plant and machinery and erection thereof, the individual units of the Plant were put on trial runs between May, 1971 and April, 1972. As mentioned in Paragraph 11.05 (iii) a number of defects and deficiencies were noticed in the equipment during trial runs.

The Plant was, however, deemed to have gone into commercial production with effect from 1st October, 1972. Till that date, the Plant had produced a total quantity of 25,320 tonnes of cement. The performance of the Plant subsequent to the commencement of the commercial production was also very unsatisfactory. As against the rated capacity of 1 lakh

tonnes (based on six months working), the actual production from 1st October, 1972 to 31st March, 1973 was only 43,443.65 tonnes.

The non-achievement of capacity has been mainly due to the following defects :—

- (a) The gap between primary crusher outlet and the belt conveyor leading to the secondary crusher being limited, frequent jamming of stone occurs, resulting in severe damage to the belt and lower output. The Ministry have stated (June, 1974) that the gap has since been modified suitably.
- (b) The performance of E.O.T. crane has been unsatisfactory due to weak gantry, resulting in the crane track going out of alignment frequently and due to slow operation. The Management have stated (April, 1974) that 90% of the work in connection with the strengthening of the stock yard has been completed (March, 1974) and the balance would be completed when the kiln is stopped for relining.
- (c) The slurry mixer basin drive mechanism has been a total failure so far due to defective design and supply of faulty equipment. As a result, the slurry is directly fed from the silos to the kiln. Owing to non-working of the slurry mixer basin, the material in silos gets clogged, leading to frequent stoppages of kiln, higher consumption of fuel in the kiln and also contributing to weakening of its refractory lining. The Management have stated (March, 1974) that the principals of the plant suppliers propose to replace the slurry mixer basin by making alterations and modifications in the drive mechanism shortly.

The Ministry have stated (June, 1974) that "modification work of slurry mixer basin has since been completed and the same is now working with load".

- (d) The chain system in the kiln is defective, causing formation of irregular nodules and high fuel consumption. It was reported (December, 1973) to the Board, in this connection, that a fresh design was to be supplied by M/s. Walchand Nagar Industries Limited.

The Ministry have stated (June, 1974) that, according to the kiln expert (M/s. Polysius of West Germany—Foreign collaborator of the plant

suppliers), the chain system in the kiln was in order.

(e) The cooling arrangements for the clinker are inadequate.

The Ministry have stated (June, 1974) that the foreign expert, after his visit to the plant, had agreed to furnish his views for effecting improvements in the performance of the cooler. Meanwhile, the performance is stated to have been improved as a result of certain actions taken by the Management.

(f) The clinker transport system through the drag chain conveyor is defective. There are frequent breakages in the chain system which itself has been ascribed to reception by the conveyor of hotter clinker than the chain can take.

In this connection, the Ministry have stated (June, 1974) as follows:—

“The frequent breakdown in the drag chain conveyor system was due to by and large the unsatisfactory performance of the cooler. As the performance of the cooler has improved, it is expected that the performance of the drag chain conveyor system will also improve. Further improvement is expected after performance of the cooler is improved more on receipt of recommendations of the foreign expert. However, another heat resisting belt supplied by M/s. Walchandnagar Industries free of cost, has been installed as a standby so that when the drag chain conveyor stops due to breakdown, this may be put into operation to avoid production stoppage”.

(g) Frequent break-downs of high pressure fine coal fan mainly on account of wearing of impeller and damage to bearings. The Ministry have stated (June, 1974) that “due to modification in coal firing system, break-down of high pressure fan has been eliminated”.

As a result of the above defects, the actual output of the various sections of the Plant has been much less than guaranteed output, as per details given below :—

Section of the Plant	Guaranteed output	Actual output- average (1-10-1972 to 31-3-1973)
1. Crusher	200 tonnes per hour	91 tonnes per hour
2. Raw Grinding Mill	55 tonnes per hour	45 tonnes per hour
3. Kiln.	600 tonnes per day	456 tonnes per day
4. Packing Mill	60 tonnes per hour	44 tonnes per hour

There were also frequent stoppages due to mechanical defects and other reasons, as mentioned in the table below :—

S. No.	Name of the Section of Plant	No. of shifts	Stoppages due to (in hours)												Total
			Total available working		Actual working hours	Mechanical & electrical defects	Shortage of raw materials, air, water, coal, etc.	Power cut/shortage	Shortage of wagons	Want of space in silos	Brick lining & maintenance	Other miscellaneous constraints	Running not required		
			Days	Hours											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1.	Crusher	1 to 2	160	2128	740	339	452	10	—	—	—	181	426	1388	
2.	Raw Grinding Mill	3	182	4368	1410	524	51	42	—	2197	—	144	—	2958	
3.	Kiln	3	182	4368	2061	1872	30	30	—	—	356	19	—	2307	
4.	Cement Mill	3	182	4368	1238	1979	211	97	—	216	—	627	—	3130	
5.	Packing Mill	2	162	2592	1073	366	307	12	834	—	—	—	—	1519	

NOTE : In Crusher and Packing Mill one day's weekly off is observed. However, in some months these were run on certain off days also. Moreover, for 106 days the Crusher was run on two shifts.

12. BOKAJAN PROJECT

12.01 Historical background and preparation of the Detailed Project Report

In April, 1967, the Board approved the proposal to set up a plant of Bokajan on the consideration that there was only, one cement plant at Cherrapunji in Assam and the Planning Commission and State Government were keen to have another Plant in upper Assam.

On the basis of the investigations carried out by the Company between November, 1967 and April, 1968, it was estimated that 13 million tonnes of cement grade lime-stone and 1 million tonnes of blendable lime-stone was available for mining in an area of 420 acres. This was considered adequate to sustain a cement plant of 600 tonnes per day for a period of 45—50 years. A Feasibility Report was prepared and submitted to Government in January, 1968.

Pending approval of the Feasibility Report, the Company proposed to the Government on 13th March, 1969 that the Company be allowed to take up further preliminary surveys so as to be in a position to take up the preparation of Detailed Project Report immediately on receipt of Government's approval for the project, thus cutting short the time for the completion of the project.

On 19th March, 1969, Government accepted the proposal and in April, 1969 conveyed the approval for the setting up of the Plant.

In October, 1969, Company submitted the Detailed Project Report to the Government which was approved by the latter in May, 1971.

The Detailed Project Report envisaged an investment of Rs. 1125.91 lakhs and anticipated a return ranging from 4.95 per cent. in the second year of operation to 9.20 per cent. in the 8th year and at about 6 per cent. from the 11th year onwards when tax became payable. These anticipations were based on the attainment of 90 per cent. of the rated capacity of 2 lakh tonnes per annum and selling price of Rs. 130 per tonne.

12.02 Capital Expenditure Decisions

The table below compares the estimates of capital outlay as indicated
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in the Detailed Project Report, as approved by Government in May, 1971 and the actual expenditure upto 31st March, 1973 :—

(Rupees in lakhs)

Main components of the project estimates	As indicated in the Detailed Project Report	As sanctioned by Government in May, 1971	Actual expenditure upto 31-3-1973
(i) Plant and machinery (including pre-commissioning expenditure, sales tax and other Misc. items)	570.75	570.75	180.47
(ii) Electrical installations (including street lighting)	15.25	15.25	2.22
(iii) Erection costs	22.00	22.00	1.02
(iv) Civil engineering works (including cost of land Rs. 12.25 lakhs but excluding street lighting—Rs. 3 lakhs)	442.20	442.20	188.04
(v) Head quarters overheads	15.00	15.00	15.78
(vi) Proving of lime-stone deposits	4.71	4.71	3.85
(vii) Interest on loan capital during construction	56.00	28.00	2.95
TOTAL	1125.91	1097.91	394.33

The Project is scheduled to be completed by May, 1975. An appreciation of some of the major items of works is indicated in the succeeding paragraphs.

12.03 Land Acquisition

As against the requirement of 700 acres (50 acres for colony, 80 acres for plant, 70 acres for roads and railway siding and 500 acres for the quarry) of land indicated in the Detailed Project Report, the Company has so far (September, 1973) acquired the following lands :—

Particulars	Area acquired			Remarks
	B	K	L	
1	2	3	4	5
(i) Factory and water supply	236	1	05 Government and private land	For private lands measuring 66 B-3K-, sale deeds have been executed. For Government land, 30 years periodic patta has been issued by the District Council.
(ii) Township	132	2	05 Government land	30 years periodic patta has been issued by District Council.

1	2	3	4	5
(iii) Railway siding	29	3	5 Private land	Private land is in the process of compulsory acquisition.
(iv) Approach road to township	2	3	4 Private land 1.90 acres Government land	
(v) Approach road to Bokajan Station	2	1	15 Private land	Allotted free of cost. The road after completion is to be handed over to the District Council.
(vi) Quarry				
(a) Approach road and township	88	— —	} Govern- ment land	Land has been allotted with surface rights free of cost.
(b) Magazine	1.64 acres			
(c) Quarry operations	437.70 „			
(d) Ropeway	Land yet to be acquired.			

12.04 Plant and Machinery

In response to limited tenders invited in May, 1969 from 8 indigenous manufacturers for the supply of plant and machinery, 4 tenders were received in September, 1969. On 22nd July, 1969 the Board constituted a Committee comprising 5 members to negotiate with the tenderers regarding technical and financial details. 2 members of the Committee viz. D.G.T.D. and Joint Secretary, Ministry of Finance were subsequently replaced by Senior Industrial Adviser of D.G.T.D.'s office and Deputy Secretary, Ministry of Finance.

Considering the technical and other relevant data furnished by the tenderers, the Negotiating Committee in its meeting held on 27th November, 1969 concluded that the choice for the placement of orders should be between M/s. K.C.P. Limited, (for Rs. 1,95,50,000) and M/s. A.C.C. (for Rs. 2,04,51,602). The Committee, however, did not make any final recommendation as it could not decide which of the two pre-heaters, namely Humbolt or Skoda design would be more suitable from the standpoint of overall economy, ease of operation and the location, etc. The matter was discussed by the Board on 8th December, 1969 and it decided that the opinion about the efficiency of the pre-heater etc. be obtained from Director General of Technical Development. Accordingly, the matter was referred to the Director General of Technical Development on 12th December, 1969, but he regretted his inability to give advice on the matter due to certain administrative restrictions. In pursuance of the decision of the

Board taken on 27th February, 1970, the matter was thereafter referred to the Engineers India Limited who stated in April, 1970 that they had no specialised knowledge in cement industry.

The Board then reconsidered the pros and cons of the offers of both the parties and decided that the order be placed on M/s. A.C.C. in view of the following considerations but that the Managing Director should negotiate for further reduction of the price quoted by M/s. A.C.C. :—

- (a) The technical appreciation given before the Board was that the pre-heater offered by A.C.C. would out weigh M/s. K.C.P.'s in case of operation.
- (b) M/s. K.C.P. have limited experience in the dry process plants and their pre-heater i.e. Skoda has neither been installed nor tried in this country. There was so far only 2 or 3 Skoda pre-heaters installed in the world, whereas there were more than 200 Humbolt pre-heaters (offered by M/s. A.C.C.) in operation in the world, out of which 9 were in operation in India.
- (c) M/s. A.C.C. have already put up a number of dry process plants in India and the teething troubles in their case would be minimum. The additional expenditure was only a small percentage of the total investment of the project which would involve an increase of 30 paise per tonne in the cost of cement and was not of significance.

The matter was thereupon discussed by the Managing Director with M/s. A.C.C. and a letter of intent dated 1st/2nd May, 1970 for Rs. 2,00,51,600 was issued in their favour for the supply of plant and equipment. The formal agreement with M/s. A.C.C. is yet to be finalised and signed (June, 1974).

According to the letter of intent, the delivery of the plant and machinery should have commenced from May, 1971 and completed by February, 1972. However, M/s. A.C.C. commenced supply of the machinery only with effect from February, 1972. Upto June, 1973 they had supplied 45 per cent. of the total plant and machinery.

The delay in supply was attributed to the following factors :—

- (1) Lock-out in the works of the sub-contractors of M/s. A.C.C.— M/s. A.C.C. Vickers, Babcock Limited., Durgapur. The lock-out was lifted in October, 1970 only.

- (2) Restrictions on the movement of goods to the Eastern Sector during the war.
- (3) Till 1972 the railway siding was not ready for receiving the heavy consignments.
- (4) Delay in the supply of large size castings by M/s. Heavy Engineering Corporation, Ranchi.
- (5) Delay in making M.S. Steel available to A.C.C. by the Hindustan Steel Limited.

The Ministry have stated (June, 1974) that M/s. A.C.C. have supplied 69 per cent. of the plant and machinery up to 31st March, 1974 and that delay in supply was due to severe power cuts, wagon shortage, strike in the suppliers' works at Shahabad and delay in supply of heavy castings by H.E.C., Ranchi.

12.05 Erection of the Plant and Machinery

For the erection and commissioning of the plant and machinery, M/s. Associated Cement Companies had submitted their tender for Rs. 22.28 lakhs in September, 1969 alongwith the tender for the supply of plant and machinery. The offer was reduced to Rs. 21 lakhs in November, 1969 after negotiations. No action was, however, taken to finalise the erection contract with M/s. Associated Cement Companies alongwith that for the supply of plant and machinery.

On 26th September, 1972, the Company approached M/s. Associated Cement Companies, for undertaking the erection work. M/s. Associated Cement Companies, however, declined to accept the work unless a revised price of Rs. 40 lakhs was accepted. The Company then decided that the erection work be done either departmentally or through an erection contractor. Accordingly, tenders were invited for (a) supply of labour and (b) for execution of erection on turnkey basis.

Out of 8 tenders received, two firms had quoted for supply of labour and 6 firms for complete erection on turnkey basis. As the firms quoting for the supply of labour were not prepared to furnish any security or bank guarantee and as a number of firms had quoted for complete erection, the Management decided to get the erection work done on turnkey basis.

Out of 6 firms quoting for complete erection, the offer of 4 firms was not considered on the following grounds :—

- (a) Lack of experience in erection of cement plants in the case of 2 firms.

- (b) Rate offered being unworkable in respect of third firm.
 (c) Offer being exorbitant in respect of fourth firm.

The remaining two offers were from M/s. Associated Cement Companies Bombay and Western India Erectors, Poona for Rs. 33.08 lakhs and Rs. 24.38 lakhs respectively. Negotiations were conducted with both the parties and after negotiations the comparative position of the offers of both the parties stood as follows :—

1. M/s Western India Erectors, Poona	Rs. 23.13 lakhs
2. M/s. Associated Cement Companies, Bombay	Rs. 27.74 lakhs*

*After making an allowance for Rs. 3.06 lakhs representing the supervision charges of M/s A.C.C.

In response to another tender enquiry, M/s. Western India Erectors had also quoted for electrical erection. After negotiations, their offer of Rs. 7.06 lakhs was reduced to Rs. 1.87 lakhs for this item of work.

As the finally negotiated offer of Rs. 25 lakhs of M/s. Western India Erectors, Poona for mechanical and electrical erection work was cheaper than that of the offer (Rs. 27.74 lakhs) of Associated Cement Companies for mechanical work and that of (Rs. 2.51 lakhs) M/s. Macneill Barry for electrical erection, the Company awarded the composite contract on 15th November, 1973 for Rs. 25 lakhs to M/s. Western India Erectors.

In connection with the contract awarded to M/s. Western India Erectors, the following points deserve mention :—

- (a) With reference to the initial offer of M/s. Associated Cement Companies for Rs. 21 lakhs, the Company had to accept the offer of M/s. Western India Erectors for Rs. 23.13 lakhs.
- (b) On 17th March, 1974 M/s. Associated Cement Companies were engaged for the supervision of erection work being undertaken by M/s. Western India Erectors. The incidence of erection supervision, as worked out by the Management, is estimated at Rs. 3.06 lakhs on the basis of a certain assumed time schedule. There was, however, no mention about supervision of erection in the letter of intent issued to M/s. Western India Erectors.

The Ministry have stated (June, 1974) that "suitable provision regarding supervision of erection work by M/s. A.C.C. will be made in the contract to be signed with M/s. Western India Erectors".

12.06 Aerial Ropeway

The Detailed Project Report provided for the installation of an aerial ropeway at a cost of Rs. 200 lakhs for the transport of crushed lime-stone from the quarry at Dillai Parbat to the Plant at Bokajan, a distance of 18 Kms., as transportation by ropeway was considered economical.

Accordingly, tenders were invited in August, 1969 for the turn-key job of installing a bicable ropeway. Out of the eight tenders received in October, 1969 four tenders were not considered by the Negotiating Committee as;

- (a) one tender was for a second hand ropeway;
- (b) another tender was incomplete and did not contain technical details;
- (c) one of the tenderers failed to attend the meeting and later confirmed that he was not interested; and
- (d) another tenderer regretted his inability to submit the revised offer without escalation.

Clarifications were obtained from the remaining 4 parties. As the information furnished was not decisive, the Negotiating Committee decided on 4th May, 1971 to issue a fresh enquiry to these parties. Revised offers in pursuance of the fresh enquiry were received on 1st October, 1971. Again, certain clarifications were called for. Thereafter, negotiations were held in December, 1971 with the parties to discuss the various conditions attached with the prices quoted by them.

The Negotiating Committee recommended the tender of M/s. Usha Breco who had not only past experience but were also the lowest. The price as offered by M/s. Usha Breco, after negotiation, was Rs. 207 lakhs with D.G.S. & D. escalation clauses or a firm price of Rs. 219.5 lakhs.

At the instance of the Government Director, the matter was, however, referred to the Government on 24th December, 1971.

On 23rd February, 1972, Government decided that the order may be placed on M/s. Jessops & Company Ltd., at a cost of Rs. 227.70 lakhs with escalations. Accordingly, the Company placed in March, 1972 an order for Rs. 227.70 lakhs on M/s. Jessops & Company. According to the order, delivery including commissioning is to be completed by March, 1975.

The progress of the work, as intimated (March, 1974) by the Management, was as follows :—

“Till first week of February, 1974, foundations for all trestles (108) has been completed. Excavation of angle divide station and castings of foundations has been completed. Excavation as well as foundations at unloading station is in progress. Rope has been despatched. 25 percent. of structural works at their workshop at Dum Dum, Calcutta have been completed.”

12.07 Civil Works

(i) Plant structure

Open tenders for the construction of plant structure were invited on 15th January, 1971. Four tenders were received as shown below :—

1. M/s. Gannon Dunkerley & Co.	Rs. 1,61,20,430.72
2. M/s. Gangoomal & Brothers	Rs. 1,71,45,640.80
3. M/s. Bridge Roof & Co.	Rs. 2,01,20,440.00
4. M/s. Hindustan Steel Works Construction Limited	Rs. 2,34,06,355.70

Negotiations were carried out with M/s. Gannon Dunkerley & Company, the lowest tenderer, on 20th and 21st May, 1971. The tender was accepted on 17th June, 1971 and they were requested to start preliminary arrangements for the work. Thereafter, an agreement was executed with them on 5th August, 1971 for Rs. 1,62,33,242. In terms of the agreement, the entire work was to be completed by 4th August, 1973. It was, however, noticed from the monthly progress reports that approximately 32% of the work had been completed upto January, 1973. The delay in progress of work was attributed to :

- (a) Presence of soft rock in the excavation work.
- (b) Delay in receipt of drawings.
- (c) Non-availability of higher dia rods.
- (d) Disturbances in the Assam Area.

The Management have stated (November, 1973) that up to September, 1973 approximately 65% of the work had been completed and that progress was being continuously watched so as to make available foundations and structures according to erection requirements.

(ii) *Township*

In response to the tenders invited in November, 1970 for the construction of residential and other buildings at Bokajan, four quotations were received by 30th December, 1970. The lowest tender of Shri Sohan Singh of Dimapur for Rs. 60 lakhs was considered best and the Board of Directors decided on 23rd January, 1971 that, in case Government approved the D.P.R. for Bokajan Plant or approved the awarding of the construction work in anticipation of the approval of D.P.R., the contract may be awarded to Shri Sohan Singh.

On 16th June, 1971 the Board was informed that, on receipt of Government's approval for D.P.R., the work had been awarded on 4th June, 1971 for Rs. 60 lakhs to Shri Sohan Singh. However, in regard to the award of this work to Shri Sohan Singh, the Board of Directors in the meeting held on 4th September, 1971 objected to the procedure followed by the Managing Director on the following counts :—

- (i) The brief put up to the 41st meeting of the Board of Directors did not contain a comparative statement giving merits of various tenderers and especially why the lowest tender was the best acceptable in all respects. No mention was also made whether brief had the concurrence of F.A. & C.A.O.
- (ii) In the 42nd meeting the confirmation given by the Managing Director that the brief put up in the 41st meeting had the concurrence of F.A. & C.A.O. was not again borne out by the statement made by him in the 43rd meeting. The circumstances under which the objections of Financial Adviser & Chief Accounts Officer were not brought to the notice of 41st meeting were not clarified.
- (iii) In accordance with the procedure laid down, the views of the Financial Adviser & Chief Accounts Officer that he had certain reservations in regard to the competence of the lowest tenderer were also not brought to the notice of the Board either in the 41st or in the 42nd meeting.
- (iv) The objections of the F.A. & C.A.O. in regard to the financial capability of the tenderer, Sardar Sohan Singh were got investigated by the Civil Engineering Adviser and on the basis of the note submitted by Civil Engineering Adviser on 4-6-1971 the tender was accepted by the Managing Director

on the same date without consulting the Financial Adviser & Chief Accounts Officer.

- (v) The Board felt that the tender should not have been accepted on 4-6-1971 *i.e.* twelve days before 43rd meeting of the Board, which was scheduled to meet on 16-6-1971."

Subject to above, the Board approved the action taken by the Managing Director with the proviso that the contractor should not be awarded execution of the contract beyond the first phase (cost Rs. 22 lakhs) of the work unless and until the Board was satisfied with his performance and the progress of the execution of the project.

It was noticed that the work was required to be completed by 4th June, 1972 but that the contractor had completed only 58% of the work upto 15th May, 1972.

The Board of Directors approved on 28th April, 1972 the proposal of the Managing Director to permit the contractor to collect necessary quantity of timber required for the 2nd phase of construction, subject to the condition that the communication to be made to the contractor in this behalf should be so worded that this permission did not amount to Company's awarding him work for the 2nd phase.

The Board decided on 17th August, 1972 that legal opinion should be obtained as to whether it would be possible to give the 2nd phase work to any other contractor(s) and, if so, what would be its implications. According to the opinion of the Legal Adviser, there was no valid ground on the basis of which the contract could be terminated. In the meantime, the contractor also informed the Company on 20th October, 1972 that he was suffering a loss of several thousands of rupees per month by way of staff maintenance and blocking of several lakhs of rupees on the acquisition of materials for 2nd phase of work and that he reserved the right of recovering the loss from the Company for not allowing him to take up 2nd phase of the work.

The matter was considered by the Board on 2nd November, 1972, and in view of the satisfactory performance of the contractor and the legal opinion obtained, it was decided that there was no objection in awarding the second phase work to Shri Sohan Singh. Accordingly, the contractor was permitted on 12th January, 1973 to take up the work of 2nd phase. The work is to be completed within 18 months from the date of issue of the order *i.e.* by 15th July, 1974.

13. PAONTA PROJECT

13.01 Historical background and preparation of the Detailed Project Report

In 1965, the Board approved the proposal for prospecting lime-stone deposits at Rajban (Paonta) in Himachal Pradesh. The investigations were carried out by the Geological Survey of India between January, 1966 and August, 1967 at a cost of Rs. 6.89 lakhs and a total reserve of 46.33 million tonnes of lime-stone was proved in three different blocks. Of the total reserves, one block at Sataun consisting of 20.49 million tonnes of lime-stone was without any overburden and was estimated to be capable of sustaining a 600 tonnes per day cement plant for about 50 years.

Based on the information available, a Feasibility Report for the setting up of a 600 tonnes per day dry process cement plant at Rajban was prepared and submitted to the Government on 6th August, 1968.

While the Feasibility Report was under consideration of the Government, they accepted in March, 1969 the proposal of the Company to take up preliminary surveys for Paonta Project. In April, 1969 the Government, however, asked the Company to examine the Paonta Scheme further in the light of the fact that there would be no control on distribution, price, etc. of cement with effect from 1st January, 1970 and to furnish a detailed report on the scheme from the economic stand point. Accordingly, the Management examined the Paonta Scheme again and it was brought out that there would be a saving of Rs. 34.6 lakhs per annum on freight alone from the proposed plant at Paonta. The matter remained in correspondence with Government till February, 1970 when a Detailed Project Report was prepared and submitted to Government.

While the Detailed Project Report was still under consideration of Government, the Ministry of Industries and Development desired in February, 1971 that the proposed projects at Paonta and Baruwala (Dehradun)—(Detailed Project Report for Baruwala Project was sent to the Government on 13th October, 1970) may be combined into one with separate kilns. It was further desired by Government that the economic viability/profitability of the integrated project should be got examined in detail by an independent specialised agency, M/s. Holtec Engineers Private Limited, who had offered their services free of cost (excluding T.A. & D.A.).

In May, 1971 Government approved the Detailed Project Report of the Paonta Project on the consideration that the criteria of viability could not be applied to this project as it was essential to promote the development of industry in a relatively backward areas, increase the potential for employment there and provide for supplies of cement in the deficit areas by utilising locally available resources.

In their Report submitted in December, 1971, M/s. Holtec recommended a 1000 tonnes per day integrated cement grinding and packing plant at Dehradun with separate kilns for Paonta and Mandarsu. They also recommended the shifting of the site of the Rajban Plant to Manal, which was closer to the quarry site.

The Company did not accept the recommendations of M/s. Holtec and communicated its rejection to the Government in January, 1972. In March, 1972, Government allowed the Company to proceed with the installation of a 600 tonnes per day plant at the site originally selected viz. Rajban.

It will be seen from above that it took a period of over 4½ years from the date of completion of lime-stone investigations to clear the project for implementation.

13.02 Capital Expenditure Decisions

The Detailed Project Report envisaged an investment of Rs. 761.30 lakhs. However, on receipt of tenders for the plant and equipment in January, 1972 it was estimated that the capital cost of the project would increase to about Rs. 1,178 lakhs. It was also estimated that the average return would be 5.2% only as against 11.5% contemplated in the Detailed Project Report. Simultaneously, the economic viability of setting up a 750 tonnes per day capacity plant was also examined by the Company. The capital cost of such a plant was estimated at Rs. 1,326 lakhs with an average return of 6.8% on the capital employed. Considering the comparative cost/profitability, etc. the Board approved in August, 1972 the setting up of a 750 tonnes per day capacity Plant. These developments were reported to the Government in September, 1972 with the proposal for the setting up of a 750 tonnes per day capacity cement plant. The Management have stated (November, 1973) that "sanction of Government for the revised project cost estimates of Rs. 1,178 lakhs for a 600 tonnes per day capacity plant has been accorded in April, 1973".

The table below compares the estimates as per Detailed Project Report, the revised estimates approved by Government in April, 1973 and the actual expenditure up to 31st March, 1973 :—

(Rs. in lakhs)

Particulars	Estimates as included in DPR and approved by Government in May, 1971	Estimates as revised in August 1972 and approved by Government in April, 1973	Actual expenditure upto 31st March, 1973.
1. Plant & machinery (including pre-commissioning expenditure and other miscellaneous expenditure) .	340.40	656.00	—
2. Sales Tax	11.00	20.00	—
3. Electrical installation	16.00	20.00	—
4. Erection cost	18.00	40.00	—
5. Civil engineering works	333.00	387.00	18.58
6. Proving of lime-stone deposit	6.90	6.90	6.89
7. Headquarters overheads	13.00	15.00	3.82
8. Interest on capital	23.00	33.00	—
	<u>761.30</u>	<u>1177.90</u>	<u>29.29</u>

The project was originally scheduled to be commissioned on 1st October, 1976. However, due to changes in the decisions from time to time as mentioned in the preceding paragraphs, the Project is likely to be delayed. The progress of the implementation of the various items is given below :—

(i) *Land*

The Detailed Project Report envisages 40 acres land for colony, 60 acres for Plant, 50 acres for gypsum quarry, 300 acres for quarry, 35 acres for approach road to quarry, water supply, etc. and 25 acres for Railway siding (private land). The land for colony and plant (100 acres) has been made available by the Himachal Pradesh Government on 99 years lease with annual ground rent of Rs. 30 per acre for the 1st 30 years and lease deed has been executed in October, 1973. The Management have stated (November, 1973) that the matter relating to acquisition of land for other purposes is under correspondence with the Himachal Pradesh Government.

(ii) *Civil Works*

The work of construction of camp office, godown, hutments and field hostel has been completed. The contract for Phase I buildings of the township at an estimated cost of Rs. 13 lakhs has also been awarded in September, 1973. It has been stated (November, 1973) that action for tendering civil works relating to plant structures and machinery foundations will be taken immediately on receipt of lay out, load details, etc. from the plant suppliers.

(iii) *Plant and machinery*

Tenders for the supply of plant and machinery were invited from 10 machinery manufacturers on 6th September, 1971. In all 5 quotations were received. The lowest offer of M/s. Mc Nally Bird Engineering Company for Rs. 269.71 lakhs was not considered as they had quoted for a wet process plant.

The Board of Directors in their meeting held on 17/18th January, 1972 appointed a Negotiating Committee consisting of 7 members to negotiate the technical details, price, etc. with the remaining four tenderers. No discussions were, however, held with the tenderers till 25th March, 1972 when the parties were requested to extend the validity of their offers upto 30th June, 1972. All the parties agreed to the extension, subject to increase in their quoted prices. Thereafter, the Management held discussions with these parties individually on 19th/20th May, 1972.

The Negotiation Committee met for the first time on 19th July, 1972; thereafter on 4th August, 1972 and on 24th January, 1973 and held discussions with the representatives of the four parties. During discussions, all the parties agreed to extend the validity of their offers upto 1st April, 1973 subject to price increase.

The order for the supply of the main plant and machinery (excluding bought out items and customs duty on imported components) and for erection of plant and machinery was finally placed in August, 1973 on M/s. Larsen & Toubro (the second lowest tenderer) at a cost of Rs. 278.20 lakhs and Rs. 32 lakhs respectively. The initial offer of this firm was for Rs. 296.59 lakhs [including bought out items of the value of Rs. 17.08 lakhs and customs duty (amount not ascertainable) payable on imported components]. The delivery of the equipment is to be completed within 28 months of the date of order and erection within 36 months of the date of order.

14. MARKETING

14.01 Introduction

In view of the expectation that the Mandhar Plant would go into production in October, 1969, the Company created the post of a Marketing Adviser initially for 2 years (made regular subsequently) to advise the Company on the pattern of the marketing organisation that would be necessary in the light of the impending decontrol of cement with effect from 1st January, 1970. The incumbent joined on 21st October, 1969. In January, 1972 the Board decided that the Marketing Adviser would be incharge of purchase wing also. The total number of officers and staff (including those in the Units and Branch offices) was 5 and 24 respectively as on 31st March, 1972.

14.02 Marketing Arrangements

Cement, being a controlled item, has to be distributed as per the instructions issued from time to time by the Cement Controller, who allots the quotas for rate contract, outside rate contract and free sale. Sale to rate contract and outside rate contract parties is made by the Company directly. As regards free sale, on the analogy of distribution pattern adopted by the State Trading Corporation during the period from 1956 to 1965 when they were entrusted with the distribution of cement, the Company decided in December, 1969 to appoint regional wholesale distributors for the sale of Mandhar cement for a period of 2 years initially. The commission payable to the distributors was Rs. 1.25 per tonne which is the rate allowed by the Government in calculating the controlled price of cement. It was also decided that, in addition to above commission, the Company might allow an extra commission by way of incentives @ Re. 1 per tonne. This was not, however, put into practice. A similar arrangement was approved in March, 1971 for the sale of cement from Kurkunta.

A. Mandhar

In accordance with the above arrangements, the Company entered into agreements in January, 1970 with 4 distributors effective from 19th July, 1970. For the three distributors, the quota was fixed at 60% of factory production per quarter and in the 4th case it was *ad hoc* but fixed at 15% with effect from September, 1972.

According to the agreements with the distributors, the Company could appoint stockists on the recommendation of distributors or on its own. The

Company approved the appointment of stockists made by the regional distributors, the number as on 31st March, 1973 being 598.

The agreements with the existing distributors were renewed for a further period of 5 years with effect from 20th July, 1972.

Out of the four regional distributors, the agreements with two of them laid down that the security deposit of the stockists would be collected and held by the Company. In the case of remaining two distributors, the security deposit was to be collected and held by them. As a result, the two distributors retained the security deposits worth Rs. 11 lakhs.

B. Kurkunta

The Company entered into agreements with 8 distributors in March/April, 1972. The Company also approved the appointment of stockists by the distributors, the number on 31st March, 1973 being 97. The security deposits from the stockists were to be kept by the Company. The agreement form approved by the Board provided for compensation to be paid by the Company or by the regional distributors, as the case may be, in the event of any shortfall in the supply of cement by the Company or in the sale of cement by the distributor. This clause was deleted on 3rd July, 1972 by the Managing Director in the agreement entered into with one of distributors without bringing the matter to the notice of the Board.

The Ministry have stated (June, 1974) that the clause relating to compensation was omitted on account of restrictions on movement of cement to Bombay imposed by the Cement Controller. This being a minor deviation and in the interest of the Corporation, it was not considered necessary to go to the Board again for this small matter.

C. Opening of branch offices

It was reported to the Board on 17th November, 1970 that the State of Madhya Pradesh, not being a potential consumer of cement, there was no alternative but to market the Mandhar cement, in the States of Maharashtra, U.P., West Bengal, Bihar and Union Territory of Delhi. In order to compete with the other producers who were selling their products through their branch offices and thereby avoiding the liability for Central Sales Tax, the Company proposed the opening of branch offices or allowing a rebate of 2 to 3% in the selling price of the cement. With a view

to selling the cement at competitive rates, the Board approved the proposals to open branch offices at 4 or 5 places. The Board, however, decided that the expenditure on the branch offices should be kept to the barest minimum.

Accordingly, branch offices were opened at Calcutta, Kanpur and Nagpur in August, 1970 and Bombay and Hyderabad in August, 1972.

Consequent upon the opening of these branch offices, the regional distributors in the respective States were also appointed as clearing and forwarding agents on a remuneration of Re. 0.75 per tonne. As against the payment of Re. 0.75 per tonne made to the regional distributors, the Company recovered Re. 1 per tonne from the stockists to whom the cement was despatched by the regional distributors for sale to the consumers.

Under the stock transfer system, the Company sold 1,37,522.73 tonnes of cement during 1970-71 to 1972-73 in respect of both the plants. On this quantity, the Company recovered a sum of Rs. 34,382 in excess of the clearing and forwarding charges paid to the regional distributors. As against this recovery, the expenditure on the branches, as intimated by the Management, amounted to Rs. 88,860 (approximately) in 1970-71 to 1972-73. There was thus extra burden on the Company to the extent of Rs. 54,478 (approximately).

The stock transfer system was intended to make the retail price of the Company's cement competitive with that of the other manufacturers by avoiding the incidence of 3 per cent. Central Sales Tax. It is, however, doubtful whether, in view of the shortage of the cement, any real competition did exist. In fact, out of the total free sale of cement aggregating 3.77 lakh tonnes during 1970-71 to 1972-73, the sale under 'stock transfer system' aggregated only 1.38 lakh tonnes (approximately).

The consequence of the operation of this scheme has been that the Company had to incur an extra expenditure of Rs. 54,478 (approximately) as mentioned above. In addition, the exchequer was deprived of the Central Sales Tax, the incidence whereof amounted to Rs. 5.61 lakhs (based on the average sales realisation of Rs. 136 per tonne on a quantity of 1,37,522.73 tonnes).

D. Revised Marketing Arrangements

Consequent upon the receipt of the directive from the Ministry of Industrial Development, the Company decided in July, 1973 to dispense

with the services of the regional distributors and to undertake the distribution of the cement by itself, by 1st of January, 1974, if not earlier. Accordingly, the agreements with the regional distributors and stockists were terminated with effect from 1st December, 1973, and revised application forms were sent to all the existing stockists and some new parties for being considered for stockists-ship under the direct control of the Company.

Keeping in view the freight element and also with a view to developing the rural areas, it was decided by the Management to withdraw very long distance markets, such as, Punjab, Haryana and certain portions of U.P. As an exception to this principle, it was, however, decided to retain the market of Delhi as a prestige issue and that of Assam, which was considered necessary to maintain the market there for the production of Bokajan Project (expected to be commissioned by May, 1975).

The new arrangement became effective from 1st December, 1973, thereby avoiding payment of selling agency commission at the rate of Rs. 1.25 per tonne to the regional distributors and also expenditure on the maintenance of branches.

14.03. Actual Sales

Tables below indicate the sales of cement by the Company to the various parties directly and through the various regional distributors and the commission paid to the agents for the period ending 31st March, 1973 :—

MANDHAR

Category	Stipulated quota, as percentage of production	1970-71 (7/70 to 3/71)			1971-72			1972-73		
		Actual sales	Percentage to total sales	Commission paid	Actual sales	Percentage to total sales	Commission paid	Actual sales	Percentage to total sales	Commission paid
		Tonnes		Rs.	Tonnes		Rs.	Tonnes		Rs.
(a) RC/ORC parties	Not fixed	15,331.60 (excluding self consumption)	15		37,038.35 (excluding self consumption)	22		77,666.95 (excluding self consumption)	43	
(b) Free sale										
(i) Hind Marketing Corporation, Patna	35	29,552.25	30	36,940.31	46,669.95	28	58,337.42	51,048.05	29	63,810.09
(ii) Wig Brothers (Agencies), Kanpur	20	20,402.65	21	25,503.31	32,837.65	20	41,046.83	24,193.75	13	30,242.24
(iii) Ashok Enterprises, New Delhi. (w.e.f. 9/72)	15	28,568.15	29	35,710.19	40,088.25	24	50,111.88	19,960.80	11	24,951.02
(iv) Universal Traders, Nagpur	5	4,616.20	5	5,770.25	9,458.05	6	11,822.24	6,706.65	4	8,383.32
TOTAL		98,470.85		1,03,924.06	1,66,092.25		1,61,318.37	1,79,576.20		1,27,386.67

KURKUNTA

Category	Stipulated quota, as percentage of production	Actual sales 1972-73 (6/72 to 3/73) (Tonnes)	Percentage to total sales	Commission paid (Rs.)
(a) RC/ORC parties	Not fixed	3,717.55 (excluding self consumption)	6	
(b) Free sale				
(i) Vithal Das & Company, Bombay	7½	8,318.35	12	10,397.98
(ii) Behari Lal Sampath Kumar, Bombay	9	5,032.60	7	6,290.75
(iii) Shanker Mercantile Corporation, Nasik	9	10,353.65	16	12,942.06
(iv) Universal Traders, Nagpur	5	2,120.30	3	2,650.38
(v) Karnatak Cement Works, Gulbarga	2½	4,480.70	8	5,600.87
(vi) Chandra Enterprises, Bangalore	9	9,159.20	14	11,449.00
(vii) Devinder Singh, Hyderabad	9	5,697.05	8	7,121.32
(viii) Sudershan Chikhani, Bombay	9	—	—	—
(ix) Ashok Enterprises, New Delhi	They are regional distributors for Mandhar cement only	13,809.25	21	17,261.56
(x) Wig Brothers (Agencies), Kanpur		3,411.15	5	4,263.94
		Total		77,977.86

NOTE : The Management have stated (May, 1974) that the difference in the figures of commission shown above and that indicated in the Annual Accounts is due to the fact that in the year 1971-72, there was an excess provision (Rs. 198) in the Accounts and in the year 1972-73, the difference is negligible (Rs. 8).

15. MATERIAL MANAGEMENT

15.01 Purchase Procedure

No purchase procedure was laid down by the Company till June, 1971 when the Company's Accounting Manual, which *inter alia* contained detailed procedure for purchases, was approved by the Board of Directors. It has been stated that the implementation of the purchase procedure included in the Accounting Manual would be taken up during 1972-73.

In the absence of any prescribed procedure, the method generally followed by the Company was stated to be as under :—

- (a) Purchases of gunny bags, gypsum and coal were centralised at Head Office and were generally made on the basis of limited tenders.
- (b) Purchases of spare parts, motors and accessories etc. were made from Head Office on the basis of limited tenders and with concurrence of Technical Department and Finance.
- (c) Plants had been delegated powers to make purchases upto Rs. 20,000 at a time but not exceeding Rs. 3 lakhs in a year, subject to various conditions, one of these conditions being that all purchases of Rs. 10,000 and above would be referred to Local Material Purchase Committee.
- (d) For items on D.G.S. & D. rate contract, the Company was designated as a Direct Demanding Officer.
- (e) Proprietary items were purchased directly from suppliers and/or through their authorised agents at D.G.S. & D. rate contract where there was such a rate contract or at prices at which the suppliers had sold to other Government Organisations.

In 1971, the Company formed two purchase committees one for purchases above Rs. 10 lakhs and another for purchases below Rs. 10 lakhs. The Heads of Departments of the Projects, Marketing and Finance considered all the purchases below Rs. 10 lakhs, whereas Managing Director was also associated in the other Committee dealing with purchases above Rs. 10 lakhs.

15.02 Inventory Holdings

The table below indicates the value of inventories at the close of each of the years 1970-71 to 1972-73 in respect of the operating plants and projects under construction (including Head Office) :—

	(Rupees in lakhs)								
	Mandhar Plant			Kurkunta Plant			Other Projects under construction (including H. O.)		
	1970-71	1971-72	1972-73	1970-71	1971-72	1972-73	1970-71	1971-72	1972-73
Stores, spares, coal and packing material at cost (excluding material in transit)	34.53	44.34	53.50	9.99	16.08	34.71	4.58	17.32	28.42
Loose tools	0.27	0.30	0.22	0.08	0.22	0.48	—	0.03	0.41
Raw materials (excluding material in transit)	12.37	13.85	15.48	3.26	7.70	6.64	—	—	—
Semi-processed goods	12.76	29.11	19.31	—	8.15	8.55	—	—	—
Finished goods	6.61	3.43	3.77	—	—	3.43	—	—	—

(i) In connection with the inventory holdings as at the end of 1971-72, the Bureau of Public Enterprises observed (October, 1972) as follows :—

- (a) Stocks held in respect of stores and spares for maintenance and operation were rather high. There was need for segregation of insurance items and for fixation of stock levels for each of the insurance items.
- (b) Norms should be fixed for different categories of inventories with the approval of the Board and reviewed periodically at the Board's meetings. A proper classified catalogue should be prepared for the items stocked.

Management have stated (March, 1973) that the comments of the Bureau have been noted and instructions issued to site offices for necessary action.

(ii) The physical verification of the inventory of the Limestone Investigation Division lying at Delhi, Kurkunta, Mandhar and Bokajan had not been conducted after March, 1969.

(iii) The value of raw materials as on 31st March, 1973 was inclusive of an amount of Rs. 1.06 lakhs, being the value of the shortage of 10,623 tonnes of lime-stone boulders found at Mandhar Plant. The shortage was stated to be under investigation.

In this connection, the Management have stated (August, 1974) as follows :—

(a) A verification of all the raw materials in the factory and quarry was conducted by a Committee constituted by the Head Office in the first week of February, 1974. According to the result of physical verification conducted by the Committee, there was a shortage of 39,201 tonnes of lime-stone with reference to book-balances as on 5th/6th February, 1974.

(b) Based on further physical verification conducted for annual accounts purposes, the net shortage in lime-stone boulders from inception to 31st March, 1974 was 38,726 tonnes valued at Rs. 4.96 lakhs (Approximately). The shortage was attributable to :

- (i) Over-booking of departmental raising (mechanical mining) of usable lime-stone —12,480 tonnes.
- (ii) Embedding —14,490 tonnes.
- (iii) Embedding and loss of fine materials at various transfer points. —11,756 tonnes.

The shortage as brought out by the Committee was submitted to the Board of Directors on 10th July, 1974. The Board decided that a further report should be submitted and that the embedded lime-stone should be recovered as far as possible. On the basis of the further report received from the Works Manager, Mandhar pointing out a shortage of 38,726 tonnes (after taking into account embedded, stock of 4,099 tonnes assessed as recoverable) the matter was again put up to the Board of Directors on 17th August, 1974. While approving the writing off of the shortage of 38,726 tonnes of lime-stone boulders valued at Rs. 4.96 lakhs, the Board decided that the Quarry Manager at Mandhar should be given a warning and asked to be more careful in future to avoid such losses.

16. MAN POWER ANALYSIS

16.01 Head-quarters Office

The table below indicates the staff actually in position as at the end of each of the years from 1964-65 on-wards :—

	<i>As on 31st March</i>								
	1965	1966	1967	1968	1969	1970	1971	1972	1973
Technical	1	14	26	27	25	23	30	41	47
Non-Technical	10	52	63	66	72	82	83	97	108
	11	66	89	93	97	105	113	138	155

At the request of the Company, the Staff Inspection Unit of the Ministry of Finance conducted a work study in April, 1972. According to the report submitted by it in November, 1972, 16 personnel (including 6 officers) were surplus.

In this connection, the Management have stated (November, 1973) as follows :—

“In view of Government’s having recently sanctioned finally two projects and taking into account the increased activities of the Corporation arising out of advanced action to be taken for the Fifth Five Year Plan Projects, implementation of the recommendations of S.I.U. is not possible”.

16.02 Mandhar Plant

(a) Staff Strength

The table below indicates the requirement of the personnel for operating the plant as per Detailed Project Report and the personnel actually in position as on 31st March, 1971, 1972 and 1973 :—

	D.P.R. provision	As on 31-3-71 (including Muster Roll Workers)	As on 31-3-72 (including Muster Roll Workers)	As on 31-3-73 (including Muster Roll Workers)
(i) Staff	131	121	144	144
(ii) Labour	380	573	525	523
	511	694	669	667

It will be seen from the above table that the actual strength in position as at the end of March, 1971, 1972 and 1973 was much in excess of the provision made in the Detailed Project Report.

At the request of the Company, the Staff Inspection Unit of the Ministry of Finance visited the Plant in June/July, 1971 and made a study of all the departments except (i) Quarry Department, (ii) Accounts Department and (iii) Drawing Office. In its Report submitted in January, 1972, the Unit recommended 481 personnel for the departments covered by it. The Works Manager was, however, reluctant to agree to the recommendation and Industrial Engineer of the Company was asked to conduct a study. He recommended a permanent strength of 581 personnel for the whole plant and 499 for the departments covered by the Staff Inspection Unit.

The whole matter was placed before the Board in May, 1973. Since the Staff Inspection Unit had not taken into consideration the provision of staff for preventive maintenance for which 7 persons were considered essential, the Board approved the permanent strength of 488 for the departments covered by the Unit. The Board also decided that employment of persons on muster roll should be resorted to only sparingly and for short periods only. The Management have stated (November, 1973) that the assessment of the Industrial Engineering Department for the Plant as a whole is under examination.

In this connection, the Ministry have stated (June, 1974) as follows :—

“The Board in its 63rd meeting sanctioned the staff strength of 89 covering the Accounts, Drawing, Quarry Departments in addition to the 488 approved earlier for other departments. As against the total sanctioned strength of 577 the staff in position as on 31-3-74 was 629. It will thus be seen that no fresh appointments are being made and the surplus staff is being adjusted against the vacancies arising from time to time”.

(b) *Productivity*

In March, 1971, the Board of Directors desired the Chief Project and Development Officer to compare the productivity (man-hour/tonne) and cost of salaries and wages per tonne in the Company's factories with those in other cement factories in India and also with what was indicated in the Detailed Project Reports of the Company's factories. The Board also desired that a report in this regard should be put up to it.

In this connection, the Management have stated (March, 1974) as follows :—

- (i) As it was not possible to collect data regarding productivity (man-hour/tonne), cost of salaries and wages per tonne, etc. of other cement factories, the Board dropped the proposal of comparative study in its meeting held on 27th November, 1973.
- (ii) The productivity for the Mandhar Plant works out to 6.5 man-hour per tonne which compares favourably with 3 cement factories having an average of 7 man-hour per tonne.

16.03. Kurkunta Plant

The following table incorporates the requirement of personnel at Kurkunta Plant as per Detailed Project Report, as per norms fixed by the Management and those actually in position as on 31st March, 1972 and 1973 :—

	As per D.P.R.	As per norms fixed by the Mana- gement	As on	
			31st March 1972	31st March, 1973
(i) Staff	131	Details not available	77	96
(ii) Labour	380		324	414
TOTAL	511	488	401	510

17. COST CONTROL

17.01 System

The Company follows a system of process costing under which cost at each process viz. raising and transportation of lime-stone, crushing of lime-stone, preparation of slurry, manufacture of clinker and cement and packing is determined separately. Upto 1971-72, the Company was not preparing the process cost of crushing lime-stone and preparation of slurry; instead the cost of these processes was clubbed with the cost of clinker. With effect from 1972-73, however, the Company is preparing the cost of each process separately.

The following deficiencies were noticed in the system :—

- (i) The costing records were not being maintained on the basis of integrated system of cost and financial accounts.

The Ministry have stated (June, 1974) that the proposals of the consultants for improving the costing and financial accounting records and costing procedure are awaited. Action will be taken on receipt of the proposals of the consultants.

- (ii) The Company has not introduced a system of standard costing to exercise better budgetary and managerial control.
- (iii) The coal and gypsum were not physically weighed on their receipt in the factories for want of a weigh bridge. The difference between the R/R weight and physical balance computed on the basis of volumetric measurement at the end of a

period were taken as the consumption during that period. As a result, the pilferages and losses in transit, if any, remained undetected and were treated as consumption.

- (iv) All the tools purchased were treated as issued and written off in financial accounts over a period of three years whether or not actually issued from stores.

The Ministry have stated (June, 1974) that the observation has been noted for reviewing the existing system and making suitable changes with effect from 1974-75.

17.02 Cost Audit under Section 233 (B) of the Companies Act, 1956.

In accordance with the provision of Section 233(B) of the Companies Act, 1956, the audit of cost records maintained in terms of Section 209(1)(d) by the Company was conducted by 2 firms of Chartered/Cost Accountants for the years 1971-72 and 1972-73. The Cost Auditors submitted their Reports to the Company Law Board with a copy to the Company for the year 1971-72 and 1972-73 in July, 1972 and July, 1973 respectively.

17.03 Cost of Production

The table below incorporates the overall cost of production (excluding interest on loans) from the clinker stage onwards in respect of both the plants for the period ending 31st March, 1973 :—

	Mandhar Plant			Kurkunta Plant
	1970-71 (1-7-70 to 31-3-1971)	1971-72	1972-73	1972-73 (1-10-72 to 31-3-73)
	Rs.	Rs.	Rs.	Rs.
(1) Raw Material				
(a) Clinker	60.93	63.27	66.85	102.93
(b) Gypsum	4.71	6.07	5.28	5.44
(2) Other processing expenses in the Cement Mill	41.81	14.77	12.74	19.11
(3) Cost of naked cement ex-works	107.45	84.11	84.87	127.48
(4) Packing cost (including cost of con- tainers)	34.26	37.62	37.13	39.39
(5) Selling & distribution ex-penses	2.63	2.93	4.36	4.66
TOTAL COST	144.34	124.66	126.36	171.53

NOTE : The element of processing expenses in the Cement Mill was the highest in 1970-71 at Mandhar, as the entire depreciation was allocated at the cement manufacturing stage. In 1971-72 and 1972-73, the incidence of depreciation was allocated at each process.

An analysis of the cost of production compiled by the Company and certified by the Cost Auditors indicated the following features :—

- (a) The total cost per tonne increased from Rs. 124.66 in 1971-72 to Rs. 126.36 in 1972-73 in respect of Mandhar Plant. It was noticed that the Cost Auditors had not adopted the value of closing balances of clinker and cement of 1971-72 as the opening balances of 1972-73. In case correct opening balances were adopted, the cost of production would work out to Rs. 128.62 per tonne in 1972-73 as against Rs. 126.36 certified by the Cost Auditors.
- (b) The increase in cost in 1972-73 was mainly on account of increased cost of clinker as compared with the data for 1971-72. The higher cost of clinker in 1972-73 was attributable to lower production.
- (c) The cost of production at Kurkunta unit was Rs. 171.53 per tonne. This was much higher than the cost of production at Mandhar Plant.

In computing the cost of production for Kurkunta Plant, the closing balance of clinker manufactured prior to the date of commencement of commercial production viz. 1-10-1972, was valued by the Management at the rate (Rs. 69.58 per tonne) adopted for Mandhar Plant instead of the cost of production which was much higher. Had the stock of clinker been valued on the basis of actual cost of production (Rs. 120.02 per tonne) obtained in the post commissioning period, the cost of production at Kurkunta would have been much higher than Rs. 171.53.

The comparatively higher cost of production at Kurkunta was mainly due to lower volume of production, resulting in higher incidence of depreciation, overheads, etc. per tonne.

- (d) A comparative study of the consumption of principal items of raw materials per tonne of cement produced as compared with

the norms laid down in the Detailed Project Report/Revised Estimates indicated the following trends :—

Raw material	Norm per tonne of cement		Actual consumption per tonne of cement			
	As per DPR	As per revised estimates	Mandhar			Kurkunta
			1970-71	1971-72	1972-73	1972-73
1. Lime-stone(in tonnes)	1.6	1.6	1.68	1.61	1.57	1.51
2. Gypsum (in tonnes)	0.05	0.05	0.05	0.06	0.06	0.055
3. Coal (in tonnes)	0.28	0.29	0.30	0.26	0.29	0.33
4. Power (in KWH)	125	120	Not worked out	131	127	154.56

NOTE : Unlike Kurkunta, actual consumption of power at Mandhar does not take into account line losses. In case line losses are taken into account, the consumption would work out to 135 KWH in 1971-72 and 131 KWH in 1972-73.

It will be seen from the above that the consumption was higher than the revised estimates in the following cases :—

<i>Lime-stone</i>	. . .	In 1970-71 and 1971-72 at Mandhar.
<i>Gypsum</i>	. . .	In 1971-72 and 1972-73 at Mandhar and in 1972-73 at Kurkunta.
<i>Coal</i>	. . .	In 1970-71 at Mandhar and in 1972-73 at Kurkunta.
<i>Power</i>	. . .	In all the years at Mandhar and Kurkunta.

In 1972-73, the actual consumption of lime-stone and gypsum collectively was 1.63 tonnes and 1.565 tonnes respectively at Mandhar and Kurkunta as against the norm of 1.65 tonnes. It is not clear as to how the overall less use of lime-stone and gypsum could yield 1 tonne of cement, especially in the case of Mandhar where dust losses are stated to be abnormal.

In this connection, the Ministry have stated (June, 1974) as follows :—

- (i) Higher consumption of coal and power at Kurkunta unit was on account of defects and deficiencies in the performance of the Plant.
- (ii) The higher consumption of lime-stone at Mandhar during 1970-71 and 1971-72 was due to abnormal dust losses and that of gypsum in 1971-72 and 1972-73 on account of high percentage of tri-calcium aluminate in the cement produced. In order to control setting time of the cement containing high

percentage of tri-calcium aluminate, it is necessary to add higher percentage of gypsum.

- (e) The Detailed Project Reports for Mandhar and Kurkunta Plants had estimated the cost of production (excluding packing and interest) at Rs. 66.40 per tonne. In the case of Mandhar, the estimated cost was revised to Rs. 83.15 per tonne on the basis of revised capital cost and attainment of 80% of the rated capacity. As mentioned above, the actual cost was, however, much higher. A comparative study of the various constituent items included in the estimated cost with the actual cost could not, however, be made in the absence of compilation of cost being on identical basis.

17.04 Containers

For packing the cement, new as well as old gunny bags are used. The permissible percentage for the use of old gunny bags during a calendar year is fixed by the Cement Controller and that percentage is taken into account in fixing the packing cost which forms part of the price recoverable by the cement manufacturers. The percentage so fixed was 27½% up to 30th June, 1973 and 33½% thereafter.

A review of the utilisation of old and new gunny bags for the calendar years 1970 to 1973 indicated the following position :—

Year	Shortage (—)/excess (+) in the use of old gunny bags with reference to the permissible limit	
	Mandhar	Kurkunta
1970	(—) 1,93,909	—
1971	(—) 93,401	—
1972	(+) 1,13,137	(—) 38,382
1973	(—) 2,666	(+) 5,993

It will be seen from above that there was less utilisation of old bags in 1970, 1971 and 1973 in respect of Mandhar Plant and in 1972 in respect of Kurkunta Plant, which was made good by use of corresponding number of new bags. There was, however, excess utilisation of old bags in 1972 in respect of Mandhar Plant and in 1973 in respect of Kurkunta Plant, thereby resulting in the corresponding less utilisation of new gunny bags.

After taking into account the rate differential between the price of new and old bags, the excessive utilisation of new bags resulted in an extra expenditure of Rs. 2,48,530 and less utilisation of new bags resulted in a saving of Rs. 92,449.

The Company did not obtain the permission of the Cement Controller for the use of old gunny bags in excess of the permissible limit.

The Ministry have stated (June, 1974) as follows :—

“.....Since the Corporation was entering into the market for the first time, it was a prudent thing to utilise more of new gunny bags during the first year of marketing of the product of the respective factories in the respective areas so as to create an image for the Corporation's product. As a result there was more use of new gunny bags in the years 1970 and 1971 in the case of Mandhar factory and in 1972 in the case of Kurkunta Factory.”

“The excess consumption of second hand gunny bags at Mandhar and Kurkunta during 1972 and 1973 respectively was mainly because of the non-availability, delay in transit, etc. of new gunny bags.....”

17.05 Cost of production vis-a-vis average sales realisation/retention price

(a) In addition to the retention price fixed by the Government, the producer is also entitled to packing cost in the case of packed cement on the rates fixed by Government. During the years 1970-71 to 1972-73 the retention price fixed by the Government was Rs. 100 per tonne.

The following table indicates the comparative position of the average sales realisation (excluding excise duty and sales tax) vis-a-vis the cost of production (excluding the interest on loans) of Mandhar Plant in 1971-72 and 1972-73 where 82% to 90% of the capacity had been achieved :—

Actual cost per tonne	Mandhar	
	1971-72	1972-73
(a) Cost of naked cement ex-works	84.11	84.87
(b) Packing cost (including cost of containers)	37.62	37.13
(c) Selling & distribution expenses.	2.93	4.36
TOTAL	124.66	126.36
Average sales realisation per tonne	136.81	139.91

As the retention price is inclusive of return on capital, it will be appropriate to add interest on loans to the actual cost of production for making a realistic comparison. On this basis, the comparative position would be as follows :—

Year	Cost of production including	Average sales realisation
	interest on loans per tonne.	per tonne.
	Rs.	Rs.
1971-72	135.12	136.81
1972-73	136.58	139.91

As mentioned in paragraph 17.03(a), the cost of production for 1972-73 should be Rs. 128.62 per tonne. On this basis, the cost of production for 1972-73 (including interest on loans) would work out to Rs. 138.84 per tonne. Even after taking into account the increased cost of production, the average sales realisation covered the entire cost of production (including interest on loans) in both the years.

(b) As mentioned in sub-paragraph (a), the retention price fixed by the Government (with effect from 15-4-1969) was Rs. 100 per tonne in 1971-72 and 1972-73. This was based on the recommendations of the Tariff Commission made in 1961 and the subsequent increases made therein from time to time.

According to the break-up of the retention price furnished by the Ministry, the total cost assumed in working out the retention price appears to be Rs. 76.90 per tonne. As against this, the actual cost (excluding interest on loans) of production in the Mandhar Plant was Rs. 93.53 per tonne in 1971-72 and Rs. 94.13 per tonne in 1972-73.

Cost of containers *i.e.* gunny bags per tonne allowed by the Cement Controller in addition to the retention price and the actual cost of the gunny bags are indicated below :—

Year	As allowed by the Cement Controller	Actual Cost per tonne
1971-72	Ranging from Rs. 34.55 to Rs. 37.95 per tonne. Average—Rs. 35.70 per tonne	Rs. 30.16
1972-73	Ranging from Rs. 38.95 to Rs. 37.49 per tonne. Average—Rs. 38.79 per tonne	Rs. 31.52

Selling agency commission is additionally recoverable from the customers at the rate of Rs. 1.25 per tonne. The actual cost incurred by

the Company, however, came to Re. 0.97 per tonne in 1971-72 and Re. 0.71 per tonne in 1972-73.

The following conclusions emerge from the above :—

- (a) Actual cost was much higher than that assumed for working out the retention price, leading consequently to reduction in profit margin.
- (b) The margin left over and above the cost did not even cover the incidence of interest on loans which was Rs. 10.46 per tonne in 1971-72 and Rs. 10.22 per tonne in 1972-73.
- (c) The actual cost of containers was less than that allowed by the Cement Controller and recovered from the clients. On the basis of the lowest price allowed by the Cement Controller in 1971-72 and 1972-73, the savings accruing to the Company amounted to Rs. 7,29,145 in 1971-72 and Rs. 10,72,070 in 1972-73.
- (d) The actual incidence of selling agency commission being less than that recoverable from the customers, there was a saving of Rs. 46,506 in 1971-72 and Rs. 96,971 in 1972-73.

18. PROFITABILITY ANALYSIS

18.01 Financial Position

The table below summarises the financial position of the Company under broad headings for the last three years :—

	(Rupees in lakhs)		
	1970-71	1971-72	1972-73
(1)	(2)	(3)	(4)
Liabilities:			
(a) Paid-up capital	570.16	744.16	1094.16
(b) Reserves and surplus development rebate reserve	—	—	50.37
(c) Borrowings from :			
(i) Government of India	483.00	496.46	463.54
(ii) State Bank of India	29.09	34.83	10.86
(d) Current liabilities (including provisions)	120.59	144.08	190.03
TOTAL	1202.84	1419.53	1808.96

	1	2	3	4
Assets :				
(e) Gross block		559.53	596.90	1087.14
(f) Less: Depreciation		44.67	72.25	125.21
(g) Net fixed assets		514.86	524.65	961.93
(h) Capital work-in-progress (including machinery at site under/awaiting erection and in transit, etc.)		289.50	329.04	171.08
(i) Current assets, loans & advances		218.28	326.57	447.26
(j) Investments		—	—	—
(k) Miscellaneous expenditure (not written off or adjusted)		146.01	207.64	106.45
Profit & loss accounts (Loss)		34.19	31.63	122.24*
TOTAL		1202.84	1419.53	1808.96
Capital employed		612.55	707.14	1220.55
Net worth		473.71	659.16	967.38

*Includes Rs. 50.37 lakhs representing Development Rebate Reserve created in 1972-73 although the Company had shown a loss of Rs. 40.24 lakhs.

NOTES : (i) Capital employed represents net fixed assets plus working capital.

(ii) Net worth represents paid-up capital plus reserves less intangible assets.

18.02 Working Results

Only 2 units have gone into production so far. While Mandhar Cement Factory commenced regular production with effect from 19th July, 1970, Kurkunta Plant was deemed to have gone into commercial production with effect from 1st October, 1972. The table below indicates the working results of the units as well as the Company, as a whole, for the years 1970-71 to 1972-73 :—

Year	Profit (+) Loss (—)		
	Mandhar	Kurkunta	Company as a whole
1970-71	(—) 34.19	Under construction	(—) 34.19
1971-72	(+) 2.56	—do—	(+) 2.56
1972-73	(—) 0.64	(—) 39.60	(—) 40.24

(Rupees in lakhs)

Although Mandhar Unit's production increased from 1,64,118 tonnes in 1971-72 to 1,80,230 tonnes in 1972-73, the Unit incurred a loss of Rs. 0.64 lakh in 1972-73 as against a profit of Rs. 2.56 lakhs in 1971-72. In this connection, a reference is invited to paragraph 17.05(b). It will be seen therefrom that on account of the savings accruing from the recoveries made towards the cost of containers and selling agency commission, there was a surplus of Rs. 2.56 lakhs in 1971-72 and the loss in 1972-73 was limited to Rs. 0.64 lakh.

19. FINANCIAL MANAGEMENT AND INTERNAL CONTROL

19.01 Internal Audit

Although internal audit started functioning in March, 1968, there was no independent Internal Audit Cell and the work was being looked after by an Assistant Financial Adviser and an Accountant. It was only in April, 1970 that an independent Internal Audit Cell headed by an Assistant Accounts Officer with one Assistant was formed. At present Internal Audit Cell consists of a Senior Accounts Officer and an Accountant.

The scope and functions of the internal audit have been laid down in the Accounting Manual of the Company, which was approved by the Board in June, 1971. The scope and functions have not yet (October, 1973) been implemented by the Internal Audit Cell. It has also been reported by the Cost Auditor in his Report on the accounts for 1972-73 that the existing coverage by the Central Internal Audit Cell of the operations of the units was inadequate.

The Committee on Public Undertakings in their 15th Report (4th Lok Sabha—April, 1968) recommended that the functions of the internal audit should include a critical review of the systems, procedures and the operations of the undertaking as a whole. The Ministry of Finance (Bureau of Public Enterprises), while accepting the above recommendation, directed the public sector enterprises in September, 1968 to introduce such a system. The scope of internal audit as contained in the Accounting Manual also prescribes conducting of such reviews. The Internal Audit Cell has not, however, conducted any appraisal of the performance of the Company as a whole on the above lines, so far (October, 1973).

In this connection, the Management have stated (November, 1973) as follows :—

“Due to inadequate staff in the Internal Audit Cell, it has not been possible for it to conduct a more purposeful appraisal of the performance. Efforts are being made to provide some additional staff for the Internal Audit Cell and make its functioning more effective”.

19.02 Accounting Manual

The need for an Accounting Manual containing the financial and accounting procedures has been emphasised for public sector undertakings by the Government of India, Ministry of Finance (Bureau of Public Enterprises) from time to time. The Bureau of Public Enterprises reiterated in September, 1968 that the undertakings which had not prepared the Accounts Manual, should do so at an early date.

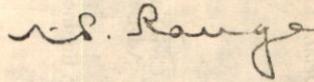
In September, 1969, the Board of Directors approved the proposal to entrust the work of review of the existing procedures and laying down new ones and preparing manuals and codes on accounting, costing, inventory control, budgetary control, capital structure, financial management, management reporting, etc., to M/s. S. Vaidyanath Aiyar and Company on a lump sum remuneration of Rs. 27,500 plus out of pocket expenses.

A copy of the Accounting Manual prepared by M/s. S. Vaidyanath Aiyar and Company in consultation with the officers of the Company was submitted to the Board in June, 1971 and approved by it. The Manual has not, however, been implemented so far (December, 1973). In November, 1973, the Company engaged the firm of M/s. Thakur Vaidyanath Aiyar and Company (which was formed by amalgamation of M/s. S. Vaidyanath Aiyar & Company and M/s. Thakur & Company) for implementation of the Manual on a remuneration of Rs. 15,000 plus out of pocket expenses.

The Ministry have stated (June, 1974) as follows :—

“From the fact that the Corporation has appointed M/s. Thakur Vaidyanath Aiyar and Co., for implementation of the Accounting Manual it should not be concluded that the Accounting Manual prepared in 1971 had not been implemented. The Corporation has implemented the accounting manual. In the maintenance of accounts records and in accounting of all

varieties of transactions guidance is being taken only from the accounting manual. The Corporation now intends to further improve the accounting systems and procedures".



(R. P. RANGA)

Chairman, Audit Board
and *Ex-officio* Additional Deputy Comptroller
and Auditor General (Commercial)

New Delhi,
The

23 NOV 1974

Countersigned



New Delhi,
The

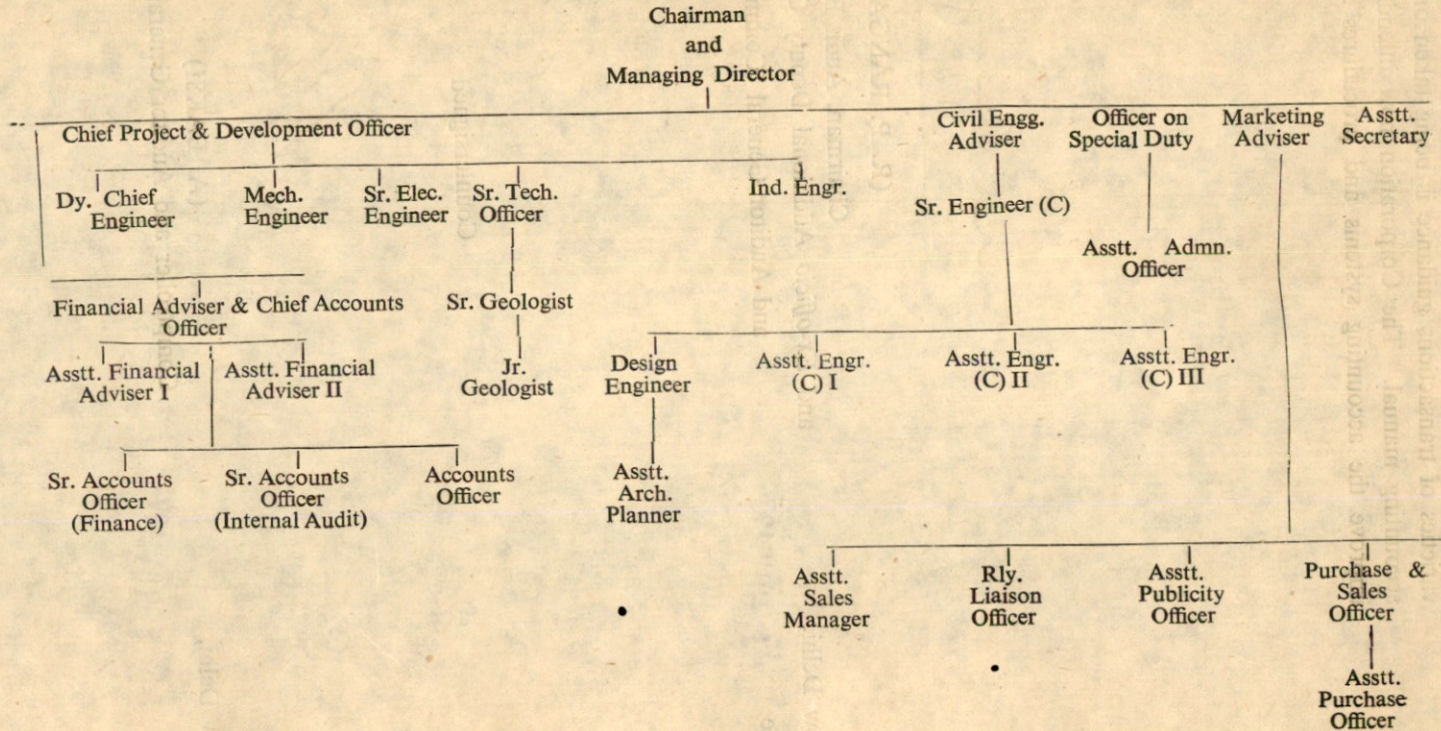
23 NOV 1974

(A. BAKSI)
Comptroller and Auditor General of India.

APPENDIX I (i)

(Referred to in paragraph 2.01)

Organisational set up of Headquarters office, New Delhi.

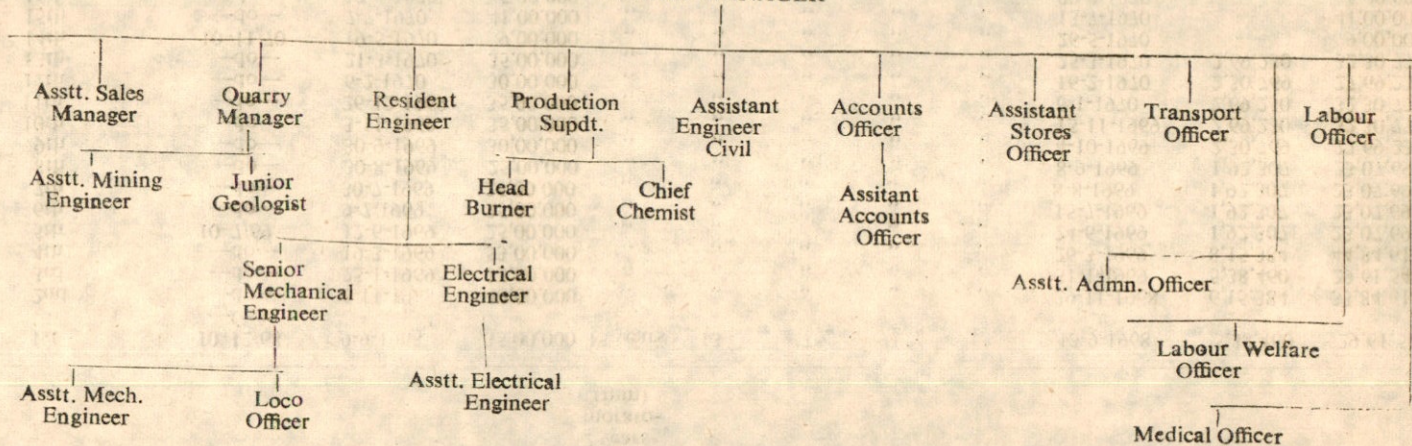


APPENDIX I (ii)

(Referred to in paragraph 2.01)

Organisational set up of Mandhar and Kurkunta Units

WORKS MANAGER



APPENDIX II

(Referred to in paragraph 3.02)

Statement showing the details of loans from Government of India as on 1-4-1973

Sl. No. of Loan	Sanction of Govt.		Amount of loan (Rs.)	Period of repay- ment of loan (including 2 years morato- rium)	No. of instal- ments	Interest rate	Penal interest rate	Rebate for timely payment	Date of drawal of loan	Amount repaid (Rs.)	Amount outstanding (Rs.)
	No.	Date									
1st	10-12/68	9-9-1968	35,00,000	15 years	13	7%	9½%	¼%	13-9-1968	5,38,460	29,61,540
	—Cem										
2nd	—do—	6-11-1968	40,00,000	"	"	"	"	"	29-11-1968	6,15,384	33,84,616
3rd	—do—	25-1-1969	35,00,000	"	"	"	"	"	31-1-1969	5,38,460	29,61,540
4th	—do—	19-3-1969	53,00,000	"	"	"	"	"	26-3-1969	8,15,384	44,84,616
5th	10-7/69	12-6-1969	25,00,000	"	"	"	"	"	24-6-1969	1,92,307	23,07,693
6th	—do—	9-7-1969	25,00,000	"	"	"	"	"	15-7-1969	1,92,307	23,07,693
7th	—do—	30-7-1969	25,00,000	"	"	"	"	"	8-8-1969	1,92,307	23,07,693
8th	—do—	30-8-1969	25,00,000	"	"	"	"	"	8-9-1969	1,92,307	23,07,693
9th	—do—	30-9-1969	30,00,000	"	"	"	"	"	4-10-1969	2,30,769	27,69,231
10th	—do—	3-11-1969	35,00,000	"	"	"	"	"	15-11-1969	2,69,230	32,30,770
11th	—do—	26-12-1969	35,00,000	"	"	"	"	"	6-1-1970	2,69,230	32,30,770
12th	—do—	6-2-1970	30,00,000	"	"	"	"	"	16-2-1970	2,30,769	27,69,231
13th	—do—	21-3-1970	35,00,000	"	"	"	"	"	25-3-1970	2,69,230	32,30,770
14th	10-11/70	19-5-1970	9,00,000	"	"	"	"	"	26-5-1970	—	9,00,000
15th	—do—	7-7-1970	41,00,000	"	"	"	"	"	13-7-1970	—	41,00,000
16th	—do—	17-8-1970	5,00,000	"	"	"	"	"	29-8-1970	—	5,00,000
17th	10-8/71	27-8-1971	6,00,000	"	"	7½%	10%	"	2-9-1971	—	6,00,000
	—Cem										
18th	—do—	22-9-1971	20,00,000	"	"	"	"	"	5-10-1971	—	20,00,000
			5,09,00,000							45,46,144	4,63,53,856

APPENDIX III

(Referred to in paragraph 5.02)

Statement showing the name of sites, dates of commencement/completion of investigation, lime-stone deposits proved and indicated and expenditure incurred thereon upto 31-3-1973 by the Cement Corporation of India Limited.

Sl. No.	Site	Investigation		Quantity		Amount incurred in lakhs of Rupees
		Commencement	Completion	Proved (in million tonnes)	Indicated	
1.	Katni (M.P.)	4/65	7/66	21	—	7.44
2.	Jagdapur (M.P.)	6/65	7/66	120	46	7.74
3.	Sadam (Karnatak)	7/65	7/66	97	—	3.19
4.	Gokak (Karnatak)	7/65	6/66	23	—	2.41
5.	Mandhar (M.P.)	1/66	6/66	21	6	2.85
6.	Neemuch (M.P.)	2/66	4/67	130	—	6.26
7.	Yerraguntala (A.P.)	8/66	3/67	153	99	4.10
8.	Tandur (A.P.)	8/66	3/67	140	—	3.23
9.	Alampur (A.P.)	3/67	7/67	46	—	3.02
10.	Chittorgarh (Raj.)	4/67	9/67	39	25	3.50
11.	Adilabad (A.P.)	9/67	6/68	36	—	3.83
12.	Bokajan (Assam)	11/67	4/68	17.86	11.43	3.85
13.	Dehradun (U.P.)	11/67	7/69	26.00	20.00	10.55
14.	Paonta (H.P.)	1/66	8/67	46.33	—	6.89*
15.	Nimbahera (Raj.)	May/ June, 1967		62.00	—	0.74**
TOTAL :				978.19	207.43	69.60

*Investigated by G. S. I.

**For J. K. Synthetics.

APPENDIX IV

(Referred to in paragraph 9.04)

Statement showing the dates of handing over the various items of works

Sl. No.	Department	As per contract	Civil foundation to be handed over according to the schedule drawn up in May, 1967	Actual dates of handing over	Delay
1.	Crusher	To be completed within 12 months of the issue of work order in July, 1968.	2/69	15-1-1970	11 months
2.	Crane		10/68	18-7-1969	9 months
3.	Slurry Mill		12/68	31-1-1969	1 month
4.	Slurry Silo		10/68	1-7-1969	9 months
5.	Slurry Basin		9/68	3-10-1968	1 month
6.	Coal Mill		1/69	21-8-1969	7 months
7.	Kiln		10/68	3-6-1969	8 months
8.	Cement Mill		12/68	6-3-1969	3 months
9.	Packing House		2/69	30-11-1969	9 months

APPENDIX V

(Referred to in paragraph 9.04)

Statement showing the dates of supply of various items of plant and machinery.

Department	Completion dates of delivery as per revised schedule of 22-5-1967	Actual dates of delivery
1. Limestone crushing	July, 1967 to April, 1968	January, 1969 to March, 1970.
2. Slurry Grinding Plant	April, 1967 to December, 1967	Between August, 1967 and February, 1970.
3. Slurry Blending and Storage	August, 1967 to November, 1967	August, 1967 to September, 1969
4. Rotary Kiln and Clinker	March, 1967 to May, 1968	February, 1968 to December, 1969
5. Cement Grinding Plant	June to December, 1967	December, 1967 to December, 1969.
6. Packing Plant	August to December, 1967	April, 1969 to November, 1970
7. Storage Hall & Material Handling	August to December, 1967	April, 1968 to October, 1969
8. Coal Grinding & Transport	May, 1967 to December, 1967	May, 1968 to September, 1969
9. Gypsum Crushing	June, 1967 to October, 1967	July, 1968 to October, 1968

APPENDIX VI

(Referred to in paragraph 9.04)

Statement indicating programme and actual dates of completion of erection

Sl. No.	Department	Actual date of handing over of civil foundation	Date by which the erection should have been completed	Actual date of completion of erection	Delay
1.	Crusher	15-1-1970	14-5-1970	15-7-1970	2 months
2.	Crane	18-7-1969	19-11-1969	25-12-1969	1 month
3.	Slurry Mill	31-1-1969	30-6-1969	-do-	6 months
4.	Slurry Silo	1-7-1969	31-10-1969	-do-	2 months
5.	Slurry Basin	3-10-1968	2-1-1969	-do-	12 months
6.	Coal Mill Bldg.	21-8-1969	20-3-1970	1-2-1970	—
7.	Kiln Department	3-6-1969	13-11-1969	-do-	3 months
8.	Cement Mill	6-3-1969	5-9-1969	14-7-1970	10 months
9.	Packing Mill	30-11-1969	29-5-1970	18-7-1970	2 months

APPENDIX VII

(Referred to in paragraph 9.08)

MANDHAR PLANT.

The recommendations of the Action Committee and action taken thereon by the Company.

<i>Recommendation</i>	<i>Implementation</i>
(i) A Debottlenecking Cell should be established immediately to help remove various weak links in equipment.	A Debottlenecking Cell has been established.
(ii) The approved scheme for blowing kiln dust at the front end and of the integrated dust collection should be implemented on top priority.	Order for the equipment for improvement and dust insufflation scheme has already been placed and civil works have started.
(iii) Industrial Engineering studies should be instituted for reducing the high limestone consumption.	Industrial Engineering studies have been completed.
(iv) A consultant needs to be appointed to work out the details of mechanising the quarry. Thereafter, the mechanisation should be carried out expeditiously.	Action for mechanisation of the quarry has already been taken.
(v) For the long-term improvement of operation, following suggestion were made :—	
(a) The Geological Survey Cell should be revived as soon as possible and adequately manned; prospecting of high grade limestone should be started immediately. Prospecting and development of additional areas in the vicinity to be taken up.	A proposal for the revival of Limestone Prospecting Division has been approved by the Board of Directors and the Government of India. The Cell will start functioning shortly. The nearest best deposits in the Sillari which is situated 9 Kms. as the crow flies from the Mandhar site, has been investigated. The initial investigation shows that limestone of this place is of high grade and reserves are likely to be to the tune of 44 million tonnes. CCI has already applied for mining lease. After obtaining the mining lease further action will be taken for exploration of these deposits.

(b) Expansion proposals including improving quarrying and transportation methods, installation of additional dry process kiln and converting the existing wet process to a dry process system should be taken in hand and a consultant appointed for this purpose.

(c) A five year plan for expansion of the plant should be drawn up.

(d) It is absolutely essential that net works be furnished for the various activities contributing to the objectives of maximising utilisation of the existing plant for the expansion from 2 lakh to 4 lakh tonnes per annum and for further expansion to 1 million tonnes in accordance with the following time table.

(i) Net works for maximising current production July, 1973.

(ii) Doubling the present capacity June, 1973.

(iii) Further expansion upto 1 million tonnes per annum capacity July, 1973.

The Board of Directors decided that, in view of the present financial position, it may not be possible to undertake the above work on immediate basis.

Maximising utilisation of the existing plant capacity is hindered due to constraints on supply of coal of right type, frequent power interruptions, and shortage of wagons. The linkage Committee has been apprised of the position and follow up action is being taken.

Regarding further expansion from 2 to 4 lakh tonnes, orders have been placed for slag cement plant. Further expansion upto one million tonnes is deferred for the reason stated at (b) above.

