C. P. U. No. 235

COMMITTEE ON PUBLIC UNDERTAKINGS (1972-73)

(FIFTH LOK SABHA)

THIRTY-NINTH REPORT

PYRITES PHOSPHATES AND CHEMICAL LTD.

MINISTRY OF PETROLEUM AND CHEMICALS

(DEPARTMENT OF CHEMICALS)

LOK SABHA SECRETARIAT
NEW DELHI
April, 1973/Vaisakha 1895 (S)
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(1972-73)

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2. Shri M. A. Soundararajan—*Deputy Secretary.*
3. Shri M. N. Kaul—*Under Secretary.*

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*Proceeded abroad on the 22nd April, 1973.

**Appointed by the Speaker as Chairman with effect from 23rd April, 1973 during the absence of Shrimati Subhadra Joshi, proceeded abroad.

***Died on the 7th February, 1973.

COMPOSITION OF STUDY GROUP ON MINERAL DEVELOPMENT PYRITES, PHOSPHATES AND CHEMICALS

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2. Shri M. Kamalanathan—*Alternate Convener*
3. Dr. Mahipatray Mehta
4. Shri Ranen Sen
5. Shri Amrit Nahata
6. Shri Lal K. Advani
7. Shri U. N. Mahida

INTRODUCTION

I, the Chairman, Committe on Public Undertakings having been authorised by the Committee to present the Report on their behalf, present this Thirty-ninth Report on the Pyrites, Phosphates and Chemicals Ltd.

2. This Report of the Committee is based on the comprehensive appraisal of the working of the Pyrites, Phosphates and Chemicals Ltd. as contained in the Report of the Comptroller and Auditor General of India for the year 1969-70—Central Government (Commercial) Part VII—and also on an examination in depth of the working of the Pyrites, Phosphates and Chemicals Ltd. upto the year ended 31st March, 1972.

3. The Committee on Public Undertakings took evidence of the representatives of the Pyrites, Phosphates and Chemicals Ltd. on the 28th July, 1972 and of the Ministry of Petroleum & Chemicals along with the representatives of the Fertilizer Corporation of India Ltd. and the Indian Bureau of Mines on the 27th September, 1972.

4. The Committee on Public Undertakings considered and adopted the Report at their sitting held on the 17th April, 1973.

5. The Committee wish to express their thanks to the Ministry of Petroleum & Chemicals, the Pyrites, Phosphates and Chemicals Ltd., the Fertilizer Corporation of India Ltd. and the Indian Bureau of Mines for placing before them the material and information they wanted in connection with the examination of Pyrites, Phosphates and Chemicals Ltd. They wish to thank in particular the representatives of the Ministry|Department and the undertakings who gave evidence and placed their considered views before the Committee.

6. The Committee also place on record their appreciation of the assistance rendered to them by the Comptroller and Auditor General of India in connection with examination of the Pyrites, Phosphates and Chemicals Ltd.

NEW DELHI;
April 25, 1973
Vaisakha 5, 1895 (*S*).

AMRIT NAHATA,
Chairman,
Committee on Public Undertakings.

I

INTRODUCTORY

Historical Background

1.1. Sulphur and Sulphuric Acid are some of the basic materials for Chemical Industry. With the huge expansion schemes for the manufacture of fertilizers. etc. demand for these materials in the country has been increasing. All the sulphur required has to be imported involving considerable foreign exchange. With a view to reduce dependence on imports and save foreign exchange spent on importing sulphur, the idea of establishing a project for mining pyrites ore at Amjhore was conceived in 1955. A scheme for the maunfacture of sulphur from pyrites ore was accordingly included in the programme of the National Industrial Development Corporation Ltd. Detailed exploration of the Amjhore area was taken up by the Indian Bureau of Mines in May, 1957 and was completed in 1960.

1.2. The Indian Bureau of Mines having proved the reserve of 8 million tonnes of iron pyrites with about 40 to 45 per cent sulphur in the Amjhore mining area, the NIDC, sent in 1960 a sample of Amjhore pyrites ore for laboratory tests by M/s. Orkla of Norway in regard to their process for extraction of elemental sulphur which was reported to be the only successful process in commercial operation at the time for manufacture of sulphur from pyrites. The results of these tests having been found encouraging, the NIDC decided to arrange for large scale tests. At this stage the Government took a decision in March, 1960 to form a Company under the name and style of Pyrites & Chemicals Development Company (P) Ltd. as a subsidiary of the National Industrial Development Corporation Ltd. to deal with mining of pyrites at Amjhore, manufacture of sulphur and sulphuric acid and if necessary manufacture of complex fertilizers from the sulphuric acid produced there.

1.3. The Company assumed independent status w.e.f. 16th September, 1963 and was transferred to the administrative control of the Ministry of Petroleum and Chemicals with effect from 21st November, 1963. The administrative control was transferred to the Department of Mines and Metals with effect from 1st April, 1969 Since 15th January, 1972 the Company has again come under the control of the Ministry of Petroleum and Chemicals.

1.4. To achieve the objective, the Company started following up the action already initiated by NIDC in exploring the possibility of adopting the Orkla process for the extraction of elemental sulphur from pyrites ore. As desired by M|s. Orkla about 1000 tonnes of

pyrites ore were sent to them for large scale tests in their factory. The results of these tests, however, proved unfruitful.

1.5. In view of the failure of the Orkla tests of production of elemental sulphur from Amjhore Pyrites and the indicated demand at that time in August, 1962 the Government asked the Company to revise the Project Report for production of pyrites from 4.8 lakh tonnes per annum to 2.4 lakh tonnes per annum for the manufacture of sulphuric acid. The second detailed Project Report was submitted by the Indian Bureau of Mines in December, 1963. It was considered by a Committee of mining experts and had to be changed again due to difference of opinion about mining method to be adopted. The Third Detailed Project Report prepared by the Company in June, 1964 was submitted to Government for approval in July, 1964. This was approved by Government in January, 1965.

1.6. With a view to putting the pyrites ore to an alternative use, the Company took a decision in October, 1961 to set up two sulphuric acid plants of 400 tonnes a day capacity each for the supply of acid to Sindri Unit of Fertilizer Corporation of India and Durgapur Unit of West Bengal based on the anticipated requirements of these two units.

The proposal for construction of the Sulphuric Acid plant at Sindri was approved by the Government in January, 1965. The contract for setting up of the sulphuric acid plant based on Amjhore pyrites was awarded to M/s. Simon Carves on a turn-key basis in June, 1965 at a total value of Rs. 190.61 lakhs. The sulphuric acid plant at Durgapur did not materialise as the process was changed to Naphtha.

1.7. In December, 1967, it was decided that the Sulphuric Acid Project of the Company at Sindri (under construction) should be transferred to the Fertilizer Coropration of India Ltd. (Sindri Unit), as most of the acid produced will be utilised by them and the company should be recorganised and strengthened for the development of other fertilizer minerals besides Amjhore Pyrites. In view of this, the Sulphuric Acid Plant was transferred *de facto* to the Fertilizer Corporation of India Ltd. with effect from 1st April, 1968.

1.8. In December, 1967 it was also decided to entrust the Company with the exploitation of such of the rock phosphate deposits as may be required for capative consumption for manufacture of fertilizers. In view of this, the name of the Company was changed to "Pyrites, Phosphates and Chemicals Limited" with effect from 16th November, 1968.

Exploratory-cum-production Mining Project, Saladipura

1.9. In June, 1969 the Company was entrusted by the Central Government with the task of exploratory-cum-production mining at Saladipura for pyrites ore and to co-ordinate the activities of beneficiation, etc. for the purpose of preparing a feasibility report for a fertilizer complex, location of which is yet to be decided. The object of the work was to confirm the drilling data earlier compiled and block out the reserve equivalent to five years' production to obtain sufficient bulk samples of fresh ore for beneficiation studies, to study mining conditions and to prepare a feasibility report of the Mining Project.

1.10. The Project Report for exploratory-cum-production mining beneficiation etc. was drawn up by the Company at a capital cost of Rs. 82.02 lakhs and was approved by the Government in October, 1970. The exploratory work was started in August, 1969 pending the approval from the Government. It was planned to have a total mine development of 2550 metres out of which 2440 metres of mine development had been completed upto 30th September, 1972. M|s. RTZ Consultants Ltd. have been appointed as consultant for drawing up a preliminary feasibility report in respect of this project. They were expected to submit their feasibility report in November, 1972.

Phosphorite exploratory Mining Project, Maldeota

1.11. The Fertilizer Corporation of India Ltd. and the Geological Survey of India had investigated the rock phosphate deposits in Maldeota (Uttar Pradesh) capable of sustaining a production of the order of 300 tonnes per day of rock phosphates for several years. The PPC Board decided to take over the mining lease of Maldeota phosphorite deposits from the Fertilizer Corporation of India Ltd. Pending formal transfer, *de facto* transfer from the Fertilizer Corporation of India Ltd. to the Company took place with effect from 1st September, 1969.

1.12. To sum up, the main objects of the Company are to raise assemble and transport of pyrite, Phosphate and associated ores in such areas in India and elsewhere as the Company may from time to time determine for sale or use in the manufacture of sulphur, sulphuric acid, phosphorous, phosphoric acid, phosphates and|or other products requiring such ores.

The present functions of the Company are:—

(i) Exploitation of pyrite deposit at Amjhore.

(ii) Exploitation of Maldeota Phosphates deposit.

(iii) Production oriented pyrite mining exploration project, Saladipura.

Examination by CPU

1.13. The working of the Company was examined by the Committee on Public Undertakings (3rd Lok Sabha) in their Thirty-Eighth Report. Twenty-Eighth Report of the Committee (4th Lok Sabha) showing the Action Taken by Government on the recommendations contained in that Report was presented to Parliament on 3rd March, 1969.

PROJECT REPORT

A. Amjhore Project

2.1. The Amjhore project was first conceived in 1955 and the Indian Bureau of Mines carried out investigation of the pyrites ore reserves from 1957 to 1960. The first Detailed Project Report prepared by the Indian Bureau of Mines for production of 4.8 lakh tonnes of Pyrites ore per year was submitted to the Pyrite, Phosphates and Chemicals Development Co. Ltd., in May, 1961. It was considered by an Expert Committee set up by the Board of Directors and was submitted to the National Industrial Development Corporation Ltd. (the holding company) for approval and onward transmission to Government for final approval. The NIDC approved the report in March, 1962 and forwarded it to Government for approval. While examining the report, Government decided in August, 1962 to cut down the production capacity from 4.8 lakh tonnes to 2.4 lakh tonnes (800 tonnes per day) in view of the failure of the tests to extract sulphur from the pyrites ore under the Orkla Process.

2.2. The Second Detailed Project Report was submitted for the reduced quantity of 2.4 lakh tonnes by the Bureau in December, 1963. This was examined by an Expert Committee set up by the Company. That Committee came to the conclusion that the long-wall method, on the basis of which first and second Detailed Project Reports were based would not be suitable for Amjhore. They favoured the Board and Pillar method and the Company decided to revise the detailed project report once again. Accordingly the third Detailed Project Report was drawn up by the Company in consultation with the Members of the Expert Committee in June, 1964 for production of 2.4 lakh tonnes and this was finally approved by Government in January, 1965. In April, 1968, the Company decided to restrict the development and production of pyrites in two phases. According to phase-I programme, the production was to be 400 tonnes per day during February, 1969 to Mid-1971 (1.2 lakh tonnes per annum) and 800 tonnes in phase-II (2.4 lakh tonnes per annum).

2.3. The table below indicates the estimates of project cost as given in the third Detailed Project Report, which was sanctioned by Government in January, 1965, as subsequently revised by the Company in January, 1968, as assessed by the Company for production

during the phase-I programme and actual expenditure upto 31st March, 1972:—

Particulars of items	Estimates as per revised Project Report (Jan. 1965) for achieving production of 800 tonnes/day (2·4 lakhs tonnes per annum.)	Revised Estimates as approved by the Board in Jan. 1968 for achieving production of 800 tonnes/day (2·4 lakhs tonnes per annum.)	Estimates for Phase-I programme of production to achieve production of 400 tonnes/day (1·2 lakhs tonnes per annum.) As approved by the Board on 26-5-1969	Expenditure upto 1971 (Rs. in lakhs)
1	2	3	4	5
(a) Plant and Machinery	189·51	331·48	208·07	201·46
(b) Township including land and non-residential buildings	102·00	103·82	78·98	68·19
(c) Mine Site Roads and Structure	8·11	19·39	12·23	
(d) Prestoping Development	90·00	171·10	121·82	190·68
(e) Consultancy charges	2·50	1·00	0·75	1·00
(f) Mining exploration	22·00	32·50	14·41	16·70
(g) Surface handling scheme		14·00		
(h) Transportation		9·03		1·31
(i) Expenses prior to approval of Detailed Project Report (December, 1964)		24·88	18·60	24·88
(j) Working capital	25·00	25·00		102·53
TOTAL	439·12	732·20	454·92	606·72

NOTE : The expenditure to be incurred, if any, for the second phase programme has not been worked out by the Company.

Foreign exchange element included in the original Project Report estimate of Rs. 439·12 lakhs was Rs. 128·00 lakhs and in the Revised Project Estimate of Rs. 732·20 lakhs was Rs. 142·00 lakhs. Actual expenditure of foreign exchange upto 31st March, 1971 and 31st March, 1972 was Rs. 111·73 lakhs and Rs. 126·17 lakhs respectively .

Revised estimates of January , 1968 include the additional outlay required to catch up with the time schedule.

2.4. It would be seen that the revised estimates of January, 1968 exceeded the cost of the Project envisaged in the Detailed Project Report of 1965 by 66.7 per cent. The Committee were informed that the Project Report estimates necessitated revision due to the following reasons:—

1. There was devaluation of Rupee in June, 1966 increasing the cost of imported item by 57.5 per cent.

2. It was noticed that the actual cost of machines being procured was more than that provided in the DPR.

3. Provision had to be made for purchase of certain items of plant and machinery not provided in the DPR. This was necessitated for implementing the recommendations of the Technical Advisory Committee which examined the DPR and recommended that other methods of mining may also be tried to ensure safest and most economic method and there should be full flexibility in laying out the mine and the equipment needed.

4. The purchase of shuttle cars and loaders was approved by the Government with the Suppliers' Credit Arrangement. This pushed up the cost estimates of the machinery and plant by Rs. 22.50 lakhs.

5. The decision to construct the plant was also taken by the Government almost side by side with the approval of the DPR and as the procurement of the machinery was getting delayed due to delay in finalising the foreign exchange arrangements and the closure of Suez Canal, certain steps had to be taken to hasten up|accelerate the mine development. This necessitated procurement to shuttle car and loader from NCDC and opening of third pair of adits (Intermediate adits).

6. Certain expenditure was incurred prior to the approval of the Project Report which had not been provided in the DPR estimates. This had to be included in the cost estimates.

7. The pre-stoping development estimate necessitated revision due to:—

   (a) Increase in the wages, salaries etc.

(b) increased cost of machines, thereby increasing the depreciation and maintenance costs.

(c) increase in the cost of supports which were changed from timber to steel, as during the course of actual working it was noticed that the roof conditions are such that even timber supports are not sufficient in the wide spans.

8. It was noticed while drawing up the estimates of the cost of the land, that the provision in the DPR was not adequate.

9. There was no provision in the DPR for surface handling of ROM and shale. It was, therefore, necessary to make provision for this item of work.

10. Increase in the programme of Mine Exploration.

2.5. The details of the variations between the original estimates as per Detailed Project Report and further revisions are given at Appendix I.

2.6. It has been stated that the substantial increase of cost in the revised estimates over the original estimates was due to items not provided for and inadequate provision in the Detailed Project Report.

2.7. It has also been pointed out that the working capital as arrived at in revised estimates represents the working capital both in respect of construction and production as the Amjhore Mining Project was in development-*cum*-production stage. The working capital provided in the Project Report amounting to Rs. 25 lakhs was meant only for cash requirement in the production stage.

2.8. During the evidence the Committee enquired the reasons for not making any provision in the Project Estimates in the beginning for several essential items. The representative of the Ministry admitted that this was a deficiency. The Government had in 1969 prepared and circulated a detailed note on it. These omissions had occurred in 1965 when there were no procedures.

2.9. The Committee enquired as to when the estimates of January, 1965 were revised and when they were put up to the Board prior to their approval in January, 1968, The PPCL stated:—

"The matter of revising the capital estimates was put up to

the Board as and when it necessitated revision due to the facts mentioned earlier. The Board at its meeting held on 12th September, 1966 requested Shri P. S. Subramanian, the then Director and Deputy Secretary, Ministry of Finance to examine the revised capital cost and the revenue cost estimates of the Mining Project, Amjhore and submit his recommendations to the Board. By the time Shri Subramanian finalised his recommendations one or the other factor mentioned earlier took place. These were brought to the notice of the Board necessitating further increase in the capital cost estimates. Thus the revised cost estimates examined by Shri Subramanian could only be put up to the Board at its 48th meeting held on 27th January, 1968".

2.10. On being asked whether the actual expenditure incurred prior to the approval of estimates in January, 1968 exceeded the estimates approved in January, 1965 the Management informed the Committee that the actual expenditure upto 31st March, 1968 was Rs. 265.49 lakhs and it had not exceeded the sanctioned cost estimates or Rs. 439.00 lakhs.

2.11. The Ministry stated in July, 1971 that revised estimates of January, 1968 were not approved by Government so far, for the following reasons:—

(a) Non-finalisation of the sale price of pyrites ores based on the unit cost of mining.

(b) The decision to construct the Bulgarian Acid Plant thereby enlarging the scope of the initial project and requiring revision of the estimates on the basis of the enlarged scope.

2.12. As regards non-finalisation of the sale price of pyrites ore based on the unit cost of mining, the Company stated as follows:—

"Sale price of the ore has not been finalised. However, the accounts have been finalised @ Rs. 200 per M.T. for 33 per cent $\pm$ 3 per cent S grade ore and @ Rs. 275 per M.T. for 40 per cent S grade ore as per Majumdar Report. The above prices have not been accepted by the Fertilizer Corporation of India, although they are provisionally paying PPC Ltd. at the above rates. So far as —30 per cent S grade is concerned, the Board of Directors have

tentatively fixed at Rs. 124 per M.T. for finalising the accounts. FCI has not made any payment at the above rate of Rs. 124 per M.T.".

2.13. According to the Detailed Project Report submitted to Sales Price Committee in March, 1969 the estimated price of ore ex-mine head at a production level of 1.2 lakh tonnes was Rs. 187.65 per M.T. The actual cost of production per tonne was however, indicated by the PPC as follows:—

1968-69 at a production level of 24,355 tonnes.	1969-70 at a production level of 40,976 tonnes	1970-71 at a production level of 34,843 tonnes	1971-72 at a production level of 34,204 tonnes.
Rs. 264·25	Rs. 278·04	Rs. 291·48	Rs. 332·74

2.14. During the course of evidence of the Ministry the Committee pointed out that the way the cost was rising it would be uneconomical to make sulphuric acid with this pyrite as the fertilizer production would also be affected. The Additional Secretary of the Ministry explained as follows:—

"Frankly it seems to us that it will not be economical unless we also consider the economic costs on the replacement of imported sulphur by pyrites. The exercise has not yet been done. The Pyrites and Phosphates Chemicals Ltd. at one stage made certain recommendations on writing-off a part of the investment reducing the interest rate from 6 per cent to 2½ per cent and thus enabling it to work economically on its part FCI also believes that unless the cost of supply is drastically cut down, it will not be economical to produce sulphuric acid from this variety. Now, we have not taken a view on this mainly because the cost estimate for 900 tonnes per day production which is now envisaged for the Bulgarian Plant and the Simon Carves plant together has not yet been furnished. We expect to receive that soon. And it may then be possible to take a view as to what should be done to make the production or make atleast the supply of pyrites to FCI on an economic basis.

2.15. In a subsequent note submitted after the evidence, the Ministry stated as follows:—

"The revised project estimates for the Mining project have

not been approved by the Government. In this connection it may be mentioned that original project report approved is for production of 800 tonnes of pyrites, per day. The mines have, however, been developed for a production of only 400 tonnes per day to meet the requirement of Simon Carves Sulphuric Acid Plant at Sindri. Another sulphuric Acid Plant based on pyrites, namely the Bulgarian Sulphuric Acid Plant, is also being set up at Sindri under the Sindri Rationalisation project. The total requirement of pyrites for both Sulphuric Acid Plants at Sindri would be of the order of 900 tonnes per day. This has necessitated an upward revision of the mine capacity. Pyrites, Phosphates and Chemicals Ltd. are accordingly preparing a revised project report for a production of 900 tonnes per day from Amjhore area, alongwith necessary cost estimates. As soon as the revised project report on this basis alongwith cost estimates is received by Government, necessary action will be taken for approval.

2.16. The unit cost and profitability will be examined at the time of examining the report and cost estimates relating to production of 900 tonnes per day, as indicated above."

2.17. The Committee regret to note that the revised estimates of the Project for achieving the production of 800 tonnes per annum approved by the Board in January, 1968 exceeded the original estimates sanctioned by the Government in January, 1965 by 66.7 per cent. The Committee note that the excess was mainly either on account of inadequate provision of plant and machinery and pre-stopping developments due to inclusion of items not provided for in original estimates. The Committee also note that in April, 1968 the Company decided to restrict the development and production of pyrites in two phases, Phase I from February, 1967 to mid-1971 for production of 400 tonnes per day. The Project has incurred an expenditure of Rs. 606.72 lakhs upto the end of March, 1972.

2.18. The Committee are constrained to observe that the Project estimates were not carefully worked out taking into consideration all the relevant items. The Committee were informed that these omissions occurred in 1965 when there were no settled procedures. Since then the Government had in 1969 prepared and circulated a detailed note on it. The Committee hope that these instructions would be kept in mind by the Company while preparing the Revised estimates now stated to be on hand for production capacity of 900 tonnes per day.

2.19. The Committee are surprised to find that even after the lapse of four years, the revised estimates approved by the Board in January, 1968 have not been sanctioned by the Government due to non-finalisation of the unit cost of mining pyrites ore and the decision to construct the Bulgarian Acid Plant and thereby enlarge the scope of the project. The Committee were informed that a fresh revised estimate is being prepared under the enlarged scope and that Government would take a decision about the revised estimate and sale price of pyrites thereafter. The Committee, take a serious view that the Company was allowed to continue to incur expenditure on the project without any sanction of the revised estimates by Government and even before determining the economics of the Project. The Committee would strongly urge that Government should carefully examine the economics of the revised project from all aspects and take steps to sanction the revised estimates without any further delay.

2.20. The Committee would also like in this connection to draw the attention of Government to paras 1.7 and 1.9 of the Fiftieth Report of the Public Accounts Committee (Fourth Lok Sabha) on New Services and New Instrument of Service and stress that effective action should be taken by the Government to implement the recommendations and take prior approval of Parliament in case of substantial revision. The Committee also expect that while examining the question of according approval to revised estimates, Government would seriously consider its effects on the economics of the project. The Committee feel that where the economics of the projects are adversely affected as a result of revised estimate of expenditure, the matter should be specifically brought to the notice of Parliament without avoidable delay.

B. Mining Method

2.21. The P.P.C.L. has adopted the following two methods of mining for obtaining the pyrite ore:—

(i) Bord and Pillar, and

(ii) Longwall method.

2.22. The production by "bord and pillar" method started in April, 1968. It was adopted on an experimental basis in Amjhore pyrite mines, limiting the percentage of extraction to 60 per cent . Gradually, as experience of working was gained, it was found possible to modify the method to increase the percentage of extraction to

85 per cent. It was also proposed to further modify this method by having short faces with 'V' faces thereby increasing the percentage of extraction to over 90 per cent. This 'V' faced method has not yet been practised due to the limited off-take.

2.23. The production with the "longwall" method commenced in February, 1970 after obtaining Friction Props and Hydraulic Props from the Mining & Allied Machinery Corporation Ltd. at a cost of Rs. 6.18 lakhs.

2.24. An experimental longwall face was worked in Amjhore mines, covering successfully an area of 60m X 110M. The results obtained were very encouraging both from the point of view of roof control, production and grade of ore. It is now proposed to work two longwall faces, each of 90M. lengths, when the off-take of pyrite ore improves.

2.25. The Indian Bureau of Mines preferred the longwall method of mining in their Project Report. It was considered then that except surface stability factor, all other factors like geological conditions, thickness of the ore body, output capacity etc. were favourable to this method. The Detailed Project Report (January, 1965), however, recommended that the initial method of mining should be 'Bord and Pillar'.

2.26. During June, 1968 to January, 1969 the Technical Advisory Committee while examining the Project Report for production of one million tonnes of pyrites ore at Amjhore recommended the adoption of Longwall method of mining on the ground that the extraction of ore could be made to the extent of 90 to 98 per cent. against 60 to 65 per cent. in the 'Bord and Pillar' method.

2.27. In this regard PPCL stated in November, 1970 as follows:—

(i) "The Company explored the possibility to find a suitable agency to operate longwall caving face, but there was no agency which had experience in operating longwall face in the thin ore deposits akin to Amjhor. As such continuous trials have to be done before regular production can be obtained from longwall face under the conditions existing in Amjhore. On the other hand, substantial foreign exchange investment in equipment such as roof supports and face conveyors is required for longwall face. As such programme of production in the first stage from longwall panel from trial faces was highly risky. On the other hand, the Bord and Pillar panel could ensure steady production and it does not involve

heavy investment in equipment or any special trails, disadvantage being that partial extraction 60—75 per cent. is available. Accordingly, the pattern of planning for production had to be kept flexible."

(ii) "There had been *ad hoc* requirements and the production had to be curtailed or stopped at a very short notice on the advice of Fertilizer Corporation of India Limited. This flexibility of curtailing prouction is available in case of Bord and Pillar panel. A longwall caving face has to be operated on a continuous basis otherwise the strata conditions may deteriorate so much that there may be collapse of face."

(iii) "Due to difficulties in the operation of the longwall faces and absence of experience in the country, it was considered too risky to start first panel on longwall to feed the Sulphuric Acid Plant since acid plant could be fed only from Amjhore mine, there being no other pyrite mine operating. On the other hand, no special experience or imported equipment involving heavy investment was required for operation of a Bord and Pillar panel. Subsequent events proved that decision to start first production panel based on Bord and Pillar and then start experimental longwall mining, has been a wise decision. Due to the existence of clay horizon above the pyrite bed and the disposition of the pyrite ore-body being undulating as well as variable in thickness maintenance of working height in a longwall face to about 1.52 meters has become inescapable."

2.28. The Ministry further stated in June, 1971 as follows:—

"Both the long-wall caving system and the bord and pillar method have their advantages and disadvantages. The selection of the appropriate method can be made only on the basis of the actual experience in Amjhore in working the different panels under the different methods over a period of time, as mining conditions vary from one mine to other. It may be recalled that only from last October, there has been regular and continuous production on the basis of an assured off take from the acid plant and proper technical and economical appraisal can be made only now. The Board is already engaged in this task."

2.29. Due to adoption of longwall system for part of mining the

pre-stoping development will be needed only for 13,560 metres against 17,140 metres envisaged in the Detailed Project Report. The estimates of cost had, however, not been revised due to the reduction in metres consequent on switching over to longwall system. The actual expenditure for achieving 10,559 metres aggregated to Rs. 165.10 lakhs. Instead of effecting any savings due to reduced meterage, it would appear that the company will not be able to achieve even the reduced meterage of 13,560 within the estimated cost of Rs. 171.10 lakhs for 17,140 metres. The actual expenditure per meter works out to Rs. 1,564 against the estimated figure of Rs. 1,000 per metre. The Company has not worked out the expenditure that would be involved over the estimate for achieving balance of 3,001 metres.

2.30. The Committee were informed that the Board of Directors at its 70th meeting held on 30th April, 1971 requested a Technical Committee of Director to review the method of mining to be adopted in Amjhore in regard to the working of the longwall panel and bord and pillar. Accordingly the Technical Committee of Directors reviewed the method at its meeting held on 5th/6th August, 1971.

At present the programme for Phase-I production of pyrites ore at 400 tonnes/day of 30—36 per cent "S". Grade ore has been planned by working the following methods:

1. Operation of long wall system single face 82-85 M in length (instead of one double unit longwall face)-2Nos.	—200 Tons.
2. Production from the existing penal developed on bord and pillar system 5' height-1 No.	— 120 Tons.
3. Experimental panel on bord and pillar working 4 to 4½' height with low tube—½ No.	—50 Tons.
4. Development Faces	—30 Tons.
TOTAL	—400 Tons (30-36% 'S')"

2.31. Some preliminary estimates have been made about the merits and demerits of both the systems. So far the longwall face was worked only on experimental basis, and, therefore, it would be unrealistic to compare the cost of production from the present longwall face with the Bord and Pillar workings.

2.32. It has been seen during the working of the trial longwall face that when the operations of one cycle are completed in 5/6 shifts, the cost of production from the longwall face is not cheaper

than that produced from bord and pillar (even with a panel OMS of 0.5). It has been noticed that it is possible to reduce the cycle time to 4/5 shifts if proper ore model conveyor is utilised at the longwall face. Action has been taken to procure this conveyor (within the revised cost estimated), but these faces could not be started due to reduced, uncertain and fluctuating off-take by F.C.I.

2.33. Thus there is scope of reduction of the cycle time and reduction in cost in longwall but not with the bord and pillar method. The grade of ore production from longwall and bord and pillar was the same and thus no preference could be attached to any method from this point of view. It may also be mentioned that in actual mining practice, PPCL has to work both the mining, methods as longwall method of mining in geologically dispersed condition may not be feasible in certain area and PPCL would be forced to resort to bord and pillar method of mining in such areas.

2.34. It has also been stated that the longwall face has been working continuously from February, 1970 onwards, but the demand for ore by FCI has been fluctuating and the output varying accordingly. The present face has been stopped since July, 1972 as the panel area has been exhausted.

2.35. In the connection, the Managing Director stated during evidence:—

> "We are at present practising both these methods-Bord and Pillar and longwall-in the mine and in my personal opinion and the opinion of all at this stage is that we must get both these methods going hand in hand. The use of longwall depends on the roof conditions. We cannot use longwall where the roof conditions are weak in the area where we are working. If we use the longwall method, roof fall will take place....where roof is weak. Based on your actual observations in the mine, (when working with longwall), one of the difficulties which has experienced in the past, has been that the efficiency to advance one cycle in longwall was very poor. The whole face was 200 ft. long. This cycle we have cleared in about six shifts in actual practice. Now, in the coal mines we complete the cycle in 3|4 shifts. Now, here, there are difficulties in completing in 3/4 shifts because in the coal mines there is a coal cutting machine which cuts the coal and here we have to do drilling and blasting. But we have found out that if six shifts are taken to complete on cycle in the longwall

face and if there is 0.5 tonnes OMS in the Bord and Pillar panel, the cost of working by these two methods is comparable."

The Managing Director further added that:—

"The Board appointed a Committee in 1966 consisting of the Finance Director to go into all these details. In the meantime, the devaluation took place in 1966. The Committee again revised the estimate due to the various factors which were pushing up the cost estimates, went into the question and worked out some detail. Then in 1967, the another factor of thinning of Pyrite bed took place. (That was noticed in May or June, 1967). The IBM in their report of detailed investigation of the geology of the area, on which the Project Report for 800 tonne was based gave a categorical statement that pyrites bed is almost uniform in thickness and does not undulate. The roof and floor also do not undulate and vary but in actual practice the thickness was found varying. * * * *

The Indian Bureau of Mines also prepared a Project Report and they had based the Project Report on longwall method of mining. The original demand of 4.8 lakhs tonnes of pyrites per annum envisaged in May, 1961 for the purpose of preparing First Detailed Project Report by the Indian Bureau of Mines, was not approved by Government. The Government advised that it should be revised to 2.4 lakhs tonnes and it was revised. This Report was also considered by the Technical Committee considering of eminent mining engineers like Mr. Seghal, Mr. Jabbi and others and they had conducted five meetings and considered over this method of mining, type of machinery to be used in the mine. They paid visits to the mine and came to the conclusion that the recommendations made by IBM were not acceptable. Some of the recommendations made by them is to 'use locomotive and longwall method of mining in the mine'. The longwall method of mining requires experienced workers, it requires steel supports in place of timber supports. We did not make steel supports in India (1964). In 1963-64 when the Report was being reviewed by the Technical Committee at that time, there are only one or two mines practising longwall caving method in India. Unfortunately, the experience of working of longwall caving method in our coal mines was not happy. I had

seen one longwall face and that had collapsed later and lot of machinery was buried and it was fortunate that the accident did not involve loss of lives. With this background, Technical Advisory Committee said that if we base our DPR entirely on the long wall method for our total output, we may not be able to meet the commitments So, it is better that we have a trial longwall face in one panel and see how it works. In this way, we will not put all the eggs in the same basket and will base our DPR on a well tried method in order to get an assured production. That is how it was viewed at that stage. The bord and pillar also envisaged 70—80 per centage of extraction. But, in order to get an assured production keeping in view that we do not have the trained workers and unhappy experience of longwall caving faces in the coal fields, that change was made in the method of mining from longwall to bord and pillar."

2.36. The Committee note that the Indian Bureau of Mines in their original project report of May, 1961 based on a demand of 4.8 lakh tonnes preferred the 'longwall' method of mining as geological conditions, output capacity, etc. were more favourable for adoption of that method. Later, the Detailed Project Report of January, 1965 recommended that the initial method of mining should be the 'bord and pillar' method. When the Technical Advisory Committee which consisted of eminent mining engineers, examined the project report in June, 1968 to January, 1969, that Technical Committee recommended adoption of the long wall method considering the technical aspects, experience in India, higher percentage of extraction etc. than under bord and pillar method. Later, the Management again switched over to the 'bord and pillar' method considering the unhappy experience of the longwall method in the coal-fields, lack of trained workers in the longwall method etc. The Committee also note that on account of re-adoption of longwall system, pre-stopping development would be needed only for 13,560 metres against 17,140 meters envisaged in the Detailed Project Report. The Committee regret to note that though the meterage got reduced, the reduction did not result in any savings.

2.37. The Committee were, however, informed that at present, the Company has decided to keen the matters of mining flexible and adopt both the methods depending on roof conditions, spread of

ore and other factors. The Committee expect that before adopting any particular method, the company would carefully work-out and examine among others the comparative economics of both the methods since there seemed to be advantages as well as disadvantages under both the systems. The Committee need hardly stress that whatever be the method adopted for mining, the aim of the Company should be extraction of ore at most economic cost and its sale to another public sector undertaking at a competitive price.

III

CONSTRUCTION AND COMMISSIONING OF PROJECT

A. Construction and Commissioning

3.1. The Detailed Project Report for production of 2.4 lakh tonnes of pyrites from Amjhore mines was prepared by the Company in June, 1964. This was approved by Government in January, 1965. The Amjhore mines went into production during 1968-69.

3.2. As per the approved Detailed Project Report the production was to commence 800 working days after the development of the mine was initiated (January, 1965) and the capacity of 800 tonnes a day was to be reached 150 working days thereafter. The initial period of 800 days is stated to include 100 days in the beginning when key mining equipment would not be required. Thus, according to the schedule of production, the Production should have started from September, 1967 and the rated capacity of 800 tonnes should have been achieved within first quarter of 1968.

3.4. The Committee inquired the reasons for delay in obtaining key-mining equipment should be procured by the second quarter of 1965 but the machines were actually received during June-November, 1967 and installed in first quarter of 1968. The Management stated that having regard to the above delay the schedule of production would work out to second quarter of 1970.

3.4. The Committee inquired the reasons for delay in obtaining key-mining equipment in time. It was stated in a written note that:—

> "The Company had invited tenders for obtaining key-mining equipment prior to the approval of the Project Report in 1963. The Government did not agree to the inviting of the tenders before the approval of the Project Report and as such consideration of the tenders were kept in abeyance The Project Report was approved in January, 1965. The Government obtained intimation from the Department of Economic Affairs on 12th February, 1965 of the countries from whom the tenders are to be invited. The tenders were notified in the Press on the 29th March, 1965. The last date of the receipt of the tenders was 17th May, 1965. The tenders were opened on 18th June, 1965. The

recommendation of the Tender Committee were put up to the Board for according its approval at its 33rd meeting held on 10-8-65. Thereafter, the Company wrote to the Government for the release of foreign exchange in september, 1965. The conditional release of foreign exchange was received in January, 1966. Considering difficulties to be encountered in view of the fact that most of the tenders were not agreeable to supply the equipment under the Supplier's Credit Arrangement under which foreign exchange was released by the Government, it could be possible to execute only one agreement under the Supplier's Credit in May 1966. This is in respect of loaders and shuttle cars, under French Credit. As regards compressors, in spite of best efforts the procurement of compressors from Sweden could not be arranged under the Supplier's Credit arrangement. For the aforesaid reasons Government released in October, 1966 free foreign exchange in regard to this equipment. Orders were placed in February, 1967 and equipment received in 1968-69."

3.5. On being asked as to when the machinery was commissioned, the Managing Director, PPCL informed the Committee as follows:—

".....we could place an order for machinery in June, 1966. The machinery started coming from June to October, 1967. Most of the machines were received towards the end of November and December, 1967 and all the machines were put to use in about three month's time. It is unfortunate that inspite of taking all these measures the delay took place and the major delay was due to the difficulty in getting the proper foreign exchange required for the import of the machinery."

3.6. In order to bridge the time lag due to delay in securing key mining equipment and to expedite development of mine to meet the demand of ore (400 tonnes /day) for the Sulphuric Acid Plant of F.C.I. which was expected to be commissioned in September, 1968, the Company proposed to acquire additional machinery not contemplated in the Project Estimates from the National Coal Development Corporation Limited and others to the extent of Rs. 14.50 lakhs. But actually equipment *viz.* 1 loader, 1 shuttle car, a few Transformers. Oil Circuit Breakers, etc. of the value of Rs. 5.62 lakhs were acquired from the National Coal Development Corporation Limited in January-February, 1967.

The Joy Loader and Shuttle Car obtained from the National Coal Development Corporation Limited, however, went out of order after working itermittently for 35 days and 25 days respectively. These could not be made use of subsequently for want of fast moving spares and due to inadequate power load. These equipments were sold back to National Coal Development Corporation Limited in March, 1970 at the purchase price (excluding sales tax and incidental charges amounting to Rs. 0.13 lakhs). The Company is, however, holding spares of these equipments valued at Rs. 43,414. The National Coal Development Ltd., has agreed to purchase these spares and placed orders.

In addition, the Company resorted to development of mine manually by opening of and exploratory audit at a cost of Rs. 11.80 lakhs.

The Company decided to open an intermediate pair of adits at a cost of Rs. 5.75 lakhs including equipments worth Rs. 1.35 lakhs which were purchased.

Two additional units of portable compressors were purchased at a cost of Rs. 0.75 lakhs.

3.7. When asked as to why the equipment not contemplated in the Project Estimates was purchased and whose sanction was obtained for the same, it was stated:

> "It is not correct that the equipment purchased from NCDC, like shuttle car, loader and electric switchgear, transformer etc. were not contemplated in the Project Estimates. As delay was taking place in purchasing the equipment by the Company, steps were taken to purchase these equipments from NCDC knowing fully well that these are suitable for coal mines but could work on reduced load. It was necessary to procure the equipment in order to start the working of the mine and start the training of the workers in the use and handling and developing a maintenance organisation for these equipments. The Board's approval was obtained for the purchase of the equipments in September, 1966."

3.8. It was also stated that while purchasing the equipment from NCDC it was promised that proportionate fast moving spares of the equipment would be given to the Company. But later on, NCDC was unable to give the spares as they did not have any stock of the spares in their Regional Stores. The matter was taken up with

NCDC through the Coal Mining Adviser, Deptt. of Mines but still NCDC could not give the spares.

3.9. As regards inadequacy in power load, it has been stated that adequate power was not available in Amjhore mine, but the Bihar State Electricity Board had been requested to increase the power and they had agreed to increase the power and to provide the required power by the time the equipment was to arrive. The equipment could not be worked during day due to low voltage in the supply line. It has further been stated that spares worth Rs. 3200 are only left and the rest had been sent to NCDC. As a result of these special measures involving an extra outlay of Rs. 23.92 lakhs the production in the mine started in April, 1968 on a limited scale. However, the efforts and extra expenditure to speed up production did not serve the purpose since the commissioning of the Acid Plant which was expected to be commissioned in September, 1968 was delayed.

3.10. The Committee regret to note that there has been delay of about two years in obtaining the key mining equipment required for the mines at Amjhore. The delay has been attributed mainly to the difficulty in getting the foreign exchange required for the import of the machinery. To bridge the time lag due to delay in procuring the machinery and to expedite the development of the mine, the Company resorted to measures which resulted in additional expenditure of Rs. 23.92 lakhs, including purchase of additional machinery of the value of Rs. 5.62 lakhs from the NCDC. However, these machinery could be used only intermittently due to frequent repairs and utimately laid off for want of fast moving spares and sold back to the NCDC as a loss of Rs. 0.18 lakh.

3.11. The Committee regret to note the lack of synchronisation of the programme of mine development with the establishment of sulphuric Acid Plant. The Committee do not appreciate the undue haste in procuring from NCDC machinery meant for coal mining without verifying the suitability and the condition of such machinery even when there was no provision for them in the project estimates.

3.12. The Committee are also distressed to note that the efforts and extra expenditure incurred to speedup production did not serve the purpose since the Acid Plant which was expected to be commissioned in September, 1968 was actually put on trial runs in July, 1969 and even thereafter it was not working satisfactorily.

B. Expansion Scheme

3.13. Based on the decision of the Planning Commission on 30th June, 1965, the Company decided to carry out intensive exploration in the Amjhore area for production of 1 million tonnes of pyrites ore per annum to meet the following demands:—

	Tonnes per day
(i) Fertilizer Corporation of India (Sindri Unit)	1,100
(ii) Proposed Sulphuric Acid Plant of Fertilizer Corporation of India at Durgapur	1,000
(iii) Bihar Superphosphate Factory	200
(iv) Steel Plants	500
(v) Other industries in the region	500
	3,300

3.14. A preliminary Project Report was prepared, which was considered by the Board of Directors in August, 1965, when it was decided that the exploration work should be undertaken immediately. In August, 1968 Government approved the project and sanctioned Rs. 84.49 lakhs for preliminary drilling and aditing work. The drilling part of the work was entrusted to the Geological Survey of India at a cost of Rs. 17.99 lakhs. The Geological Survey of India commenced the work in May, 1967 and completed drilling of 4616 metres upto July, 1968 and the final bill for the work was received from the Geological Survey of India for Rs. 12.95 lakhs, which has since been adjusted against advance paid by the Company. Aditing work and further drilling were undertaken departmentally from January, 1968 and August, 1968 respectively at a total cost of Rs. 5.65 lakhs.

3.15. The anticipated demand of the Fertilizer Corporation of India Ltd. Durgapur did not materialise due to change of product based on naphtha instead of pyrites. In January—June, 1968 the Government decided to shelve the project for extraction of sulphur on Outukumpu process because of its being uneconomic. The expected demand from Bihar Superphosphate Factory, Steel Plants and others also did not materialise. In April, 1968 the Company decided to restrict the development and production of Pyrites into two phases.

3.16. In March, 1969, the intensive exploration work was suspended in pursuance of the Board's decision that the reserve of pyrites ore in the working block and the two adjoining blocks were adequate to sustain a production of 1,400 tonnes/day for 7 years and as such further intensive exploration work was not necessary. The total expenditure incurred on the scheme was Rs. 18.60 lakhs. In pursuance of the Ministry's decision of 12th May, 1970, a proposal for development of the mine at Amjhore as an integrated scheme for the existing mine for production of 2,800 tonnes of 23—25 per cent. S. Grade ore equivalent to 1,350 tonnes of plus 37 per cent. S. Grade ore was sent to Government for clearance in principle. Subsequently the Ministry decided on 16th November, 1970 that in view of the latest thinking for the use of the low grade ore along with sulphur, the requirement of low grade ore including that of the Bulgarian Plant would be of the order of 1075 tonnes of 23—25 per cent. S. Grade ore which can be met by capacity already developed and there might not be any need to invest money on the expansion project.

3.17. The Committee enquired during evidence whether the commencement of the intensive exploration work followed the ascertainment of firm demand for pyrites. The Managing Director of the company stated that the whole question was discussed in the meeting with the Planning Commission in 1965. Actually at that time there was shortage of sulphur. In this background the demands were indicated by the various plant and various industries. The total requirement of pyrites ore was assessed in the above meeting at one million tonnes per annum and the Company was asked as to whether they would be able to give the required quantity within a reasonable time. Therefore, it was decided to undertake the intensive exploration work.

3.18. As regards the reasons for non-materialisation of demand from Bihar Super-Phosphate Factory, Steel Plants and other industries, the Committee were informed in a written reply by the PPC that:—

> "In October, 1967, Bihar State Industrial Development Corporation indicated to the Company that due to certain unavoidable reasons it was not possible for Bihar State Superphosphate Factory to go ahead with the expansion programme of the Factory for which reason it can consume only up to 80 tonnes of acid per day. It has further been informed that the expansion scheme is likely to be implemented in about 2-1|2 years time when it will require 200 tonnes of sulphuric acid per day.

As the first pyrite base sulphuric acid plant has not been working satisfactorily, the demand for Steel Plants also did not materialise."

3.19. The Committee also enquired as to why the drilling and aditing work was taken up departmentally in 1968 whereas earlier it was entrusted to the Geological Survey of India. They were informed that:—

"the cost of departmental drilling was Rs. 100/- per metre during 1967 whereas the cost charged by GSI was Rs. 275/- per metre. As departmental drilling was cheaper the work of additional drilling was taken up departmentally. The decision earlier to award the work of drilling to GSI was taken in the inter-ministerial meeting held on 3-5-66. The organisation of departmental drilling was not built up at that time."

3.20. Asked whether the expenditure incurred on expansion project had not proved infructuous in view of the latest thinking for use of low grade ore along with sulphur, the Committee were informed that "the latest thinking, and as agreed by F.C.I., is to use 30—36 per cent S. ore admixed with elemental sulphur as a feed to the Simon Carves and Bulgarian Acid Plants. Thus the total requirement of ore/day for working the plants to full capacity will be 3.31 lakhs tonnes/annum. The present approved mine can give only 1.92 lakhs tonnes/annum (640 tonnes/day) due to the thinness of the pyrite bed from 30" to 24 " (average).

In view of this the expenses incurred are not infructuous."

3.21 The Committee regret to note that the exploration work for the production of 1 million tonnes of pyrites ore per annum which was taken up on the basis of assessment of demand from various consumers had ultimately to be suspended in March, 1969, as the reserve of pyrites ore in the working block and the two adjoining blocks were considered to be adequate to sustain a production of 1400 tonnes per day for 7 years and there was not much demand for pyrites. In the meantime, an expenditure of Rs. 18.60 lakhs had been incurred on exploration work. The Committee feel that had a firm demand for the supplies of ore been secured before commencement of the exploration work, the large expenditure incurred on exploration work could have been avoided. The Committee would only suggest that there should be greater co-ordination between FCI and PPC so that development of mine could be matched with the demands of FCI. .. ..

IV

PRODUCTION

A. Production Performance

4.1. The D. P. R. prepared by the I. B. M. in May, 1961 provided for the production of 4.8 lakh tonnes. In August, 1962 the Government decided to cut down the production capacity to 2.4 lakh tonnes (800 tonnes per day) in view of the failure of the tests to extract sulphur from the pyrites under the Orkla process. The Management decided in April, 1968 to restrict the production at 400 tonnes a day *i.e.* (1.2 lakh tonnes per annum) in the first phase upto mid 1971 due to limitations of the capacity of the existing Sulphuric Acid Plant at Sindri to consume pyrites ore to the extent of only 400 tonnes per day.

4.2. During the course of evidence the representative of the Ministry of Petroleum and Chemicals explained this position as follows:—

> "The original plan based on the IBM report of May, 1961 and received through NIDC in March, 1962, envisaged a production capacity of 4.8 lakh tonnes per annum. This was on the assumption that elemental sulphur could be extracted from the ore. This report came to Government in November, 1961. The idea then was to use what was called the Orkla Process in the extraction of elemental sulphur; but about this time, in fact shortly before this report was received, it became clear that the process could not be used. It was not feasible. At this time, the company had stated that there would be two sulphuric acid plants established by the company, based on Amjhore pyrites, each plant of 400 tonnes capacity at Durgapur and Sindri. This would have meant an assured market of 2.4 lakh tonnes. Meanwhile, what was called the Outokumpu process, developed in Finland, was also in view; but the Finland company was unable to assist, as it was busy in setting up its own plant in Finland; and it could not make any definite recommendations before the end of 1962. At that time, the Company had informed Government in consultation with IBM, that there would

be no serious difficulty in limiting the mining programme to 2.4 lakh tonnes. This was the suggestion made by the Government that as the extraction of elemental sulphur was in doubt, the company should only plan for the extraction of ore for the two proposed sulphuric acid plants. Therefore, the capacity envisaged in the beginning was brought down to 2.4 lakh tonnes on the assumption that the two sulphuric acid plants at Durgapur and Sindri will be tied up. Even at that time, there was a hope that later on, the Outokumpu process would be developed and that there would be demand on other accounts as well, particularly the steel plants and the super-phosphate factory of the Bihar Government.....

There were developments subsequently. Till 1966 the Durgapur Fertilizer Project was intact. Early in 1966 a decision was taken that the Project would be expanded in two phases, That means in the first phase only nitrogenous fertilizer would be prepared and the phosphate fertiliser was deferred for phase two. The reason for this was the aftermath of the Indo-Pakistan conflict of 1965, and the resultant foreign exchange difficulties, the cutting of US aid etc. The phosphatic part required continued import of sulphur and rock phosphate. It was thought that the foreign exchange would not be available, and therefore, the project was deferred. At that stage, it became apparent that 2.4 lakh tonnes would not be the demand, and the demand would be restricted to the 400 tonnes acid plant set up at Sindri. Therefore, immediately the demand fell from 2.4 lakh tonnes to 1.2 lakh tonnes. Government then issued instructions to the PPCL sometime in December, 1969 that they should freeze their operation to the level of 400 tonnes per day."

4.3. The Actual production fell much short of even this restricted target, which has been explained by the Management due to the fact "the production programme of pyrites ore is now to be linked up with the progress of the construction and commissioning of the Acid Plant."

4.4. The table below indicates the actual cost, the total project cost, percentage of actual achievement of production to targeted

production during 4 years from 1968-69 to 1971-72.

Year	Total project cost as revised in Jan. 68 for 800 tonnes (Rs. in lakhs)	Actual progressive cost (Rs. in lakhs)	Actual production in terms of 'B' grade (Tonnes)	Targeted production for the project per day (Tonnes)	Actual/ anticipated production per day (Tonnes)	Percentage of Col. 5 to Col. 6
1	2	3	4	5	6	7
1968-69 . .	699·10	433·08	24,355	800	81	10
1969-70 .	699·10	508·33	40,976	800	137	17
1970-71 . .	699·10	568·16	34,843	800	116	15
1971-72 . .	707·20	512·99	34,204	800	114	14.25

NOTE:—Production of 34,204 tonnes includes 145 tonnes producted from Extension Project and 1,122 tonnes of low grade, i..e. 30 %S.

4.5. Regarding the non-achievement of the reduced target of phase I of 400 tonnes per day, the representative of the Ministry informed the Committee during the evidence as follows:—

"Even 400 tonnes offtake has not been reached today and according to the indications I have just given 400 tonnes will be reached in 1975-76. This was mainly on account of the developments that have taken place in the Simon Carves Plant. When this plant was planned, the notice for inviting tenders said that pyrites of range 32 per cent sulphur to 49 per cent sulphur were available, but the bulk would be around 40 per cent. The plant was, therefore, planned on the basis of 40 per cent and the contract was also entered into on the basis of 40 per cent. It was a turnkey contract and it was executed on that basis. When it came to trial runs and performance guarantee, it was found that 40 per cent ore was not really readily available. Special efforts were made to secure 40 per cent ore by hand pickings and to supply it for performance of guarantee tests. On the basis of 40 per cent ore, the performance guarantee was fulfilled and the plant was taken over. Thereafter, efforts were made to test it on 33 per cent and 36 per cent ore. Three trials were held with

1000, 2000 and 9,000 tonnes. It was found that there was no technological difficulty in producing acid from this slightly lower grade ore. But the plant capacity could not be attained. Even at that time, it was felt that perhaps with the expected built-in-additional 20 per cent capacity in the plant, it may be possible to feed extra ore to meet the total sulphur requirement for meeting the capacity of the plant which was 400 tonnes a day. But on sustained operation, it was found that there were problems in the plant including such things as boiler leaks, too much accumulation of cinder, because 40 per cent ore would have caused a certain amount of cinder 30 per cent or 33 per cent caused a larger volume of cinder. There was also a centre cooling defect in the feed system. Therefore with all these difficulties, it was found that on sustained operation, the plant could not work on 33 per cent particularly on the two feed lines of manufacture. That required certain additional equipment to be installed and new arrangements to be made for the feed system. These arrangements were taken in hand and there has been a delay in the supply of particularly of the gyratory crusher. That supply is now expected and the plant is expected to be ready towards the end of 1973 or early 1974 for full operation on both streams. This explains the very considerable delay in the development of the off take."

4.6. The Sulphuric Acid Plant, Sindri is currently operating on one stream and is expected to achieve production at full capacity of 400 tonnes a day by April, 1973. Till then the offtake from the mine is not likely to exceed 200 tonnes per day, whereas the mine itself as designed for a production of 800 tonnes per day. The Committe have discussed the problems relating to this Sulphuric Acid Plant in a subsequent Chapter of this Report.

4.7. To a question whether the management have worked out the financial implications of the lower production as compared with the norm of 400 tonnes a day to be achieved at the end of the Phase-I programme and the incidence of extra cost per tonne of ore, the Management apprised the Committee as follows:—

"Management have worked out the financial implication of the lower production as compared with the norm of 400

M.T. a day to be achieved at the end of Phase-I programme. The details are as under:—

	40,000 mt. 33% ±3%	60,000mt. 33% ±3%	80,000mt. 33% ±3%	1,00,000 mt. 33% ±3%	1,20,000 mt. 33% ±3%
Production cost including township (deficit). . .	84,00,000	10168000	11876000	13788000	15702000
Depreciation	11,28,000	1200000	1300000	1400000	1500000
Dev. Exp. written off . .	4,00,000	600000	800000	1000000	1200000
Interest on loan . . .	14,00,000	1400000	1300000	1000000	800000
	11328000	13368000	15276000	17188000	19202000
Cost per M.T. . . .	283·75	222·80	190·95	171·88	160·02

4.8. The Committee enquired the reasons that weighed with the Management in not restricting the pre-stoping development work or to withdraw the surplus machinery in April, 1968 as soon as they became aware of the restricted demand of the ore, the Management, PPC informed the Committee that "Even though the Company was aware that the immediate demand of pyrites ore will be 400 tonnes per day upto mid 1971, FCI Sindri in various meetings and through letters had indicated the demand as under:—

March 1968

2,24,000 tonnes from December, 1970 to January, 1971.

May, 1968

1200 to 1300 tonnes per day for both the plants from the beginning of 1971.

November, 1968

1500 tonnes per day by May, 1971.

February 1969

2,55,000 tonnes per annum when the Bulgarian plant is constructed.

Hence, there was a firm demand from FCI for the Bulgarian Acid Plant over and above 400 tonnes. As such, it was not considered ne-

to restrict further development work or to withdraw the machinery not required for 400 tonnes production. This fact of the requirement of the ore for Bulgarian plant over and above the requirement of the Simon-Carves acid plant was brought to the notice of our Board. While drawing up the unit cost estimate for 400 tonnes and detailing out the phase-I, it was indicated that the mine development for Phase II will continue and the allocation of the expenses between production and development was indicated as 85 : 15."

4.9. To an enquiry of the Committee as to the target date by which an annual production of 2.4 lakh tonnes of pyrites could be expected to be attained, the Ministry informed the Committee in a written note as follows:—

"The annual production 2,40,000 tonnes of pyrites was envisaged with reference to the earlier target of production of 800 tonnes per day of pyrites. However, the demand for pyrites subsequently came down to 400 tonnes per day only to meet the requirement of the Simon Carves Sulphuric Acid Plant at Sindri. The mines have been presently developed for meeting this requirement. The Bulgarian Sulphuric Acid Plant being set up at Sindri under the Sindri Rationalisation Project is expected to go into production by the middle of 1974. The requirement of pyrties for both the sulphuric acid plants, i.e. Simon Carves and Bulgarian Plants, is expected to be 900 tonnes per day or 2,70,000 tonnes per annum. A project report for production of 900 tonnes per day of pyrites form Amjhore is under the preparation of PPC keeping the above schedule in view."

4.10. The Committee regret to note that the average actual production during the last three years (1969-70 to 1971-72) has been even less than one third of target with the result that the cost of production is expected to be Rs. 283.75 per M.T. as against the estimated rate of Rs. 160.02 per M.T. The Committee were informed that the Simon Carves Sulphuric Acid Plant was expected to achieve production at 400 tonnes a day by April, 1973 and the Bulgarian Plant expected to go into production by middle of 1974. Therefore the Company would be increasing its production to 900 tonnes per day by the middle of 1974, which target is even more than the production capacity proposed to be developed in the second phase.

4.11. The Committee regret to note that developed capacity could not be exploited in full first due to lack of an assured demand and

later on account of defective Acid Plant at Sindri. The Committee were informed that the production programme of pyrites ore is now to be linked up with the progress of the construction and commissioning of the Bulgarian Acid Plant. The result has been that the cost of production is almost double the estimated rate with consequential adverse effect on the cost of acid and finally on the end product. The Committee take a serious view of this lack of proper planning and would urge that the Government/FCI should ensure that both the Simon Carves and Bulgarian Acid Plants should keep up to their schedule of going into production by April, 1973 and 1974 respectively, so that the tempo of production could be increased and the cost of pyrites ore brought down.

B. Thinness of pyrites ore

4.12. The Company is at present engaged in the exploitation of the pyrites deposit at Amjhore which is a vast and extensive deposit.

4.13. On the basis of the investigation conducted the Indian Bureau of Mines indicated in their Project Report that the average thickness of the pyrites bed would be 30". Extracts from the Indian Bureau of Mine's Report indicating average thickness are quoted below:—

> "There are overwhelming evidences to suggest that the thickness of the bed of pyrites is more or less uniform over the whole pyrites bearing areas and particularly so in the Amjhore, Ghogha Block."

> "The width of the pyrites bed within the Amjhore-Ghogha belt can be safely assumed to be 0.76 M. on the average from all the above factors."

4.14. The Company, however, stated that during actual operations they found that the thickness of the pyrites ore varied without any set pattern from 5" to 30" and the average thickness was assessed at 24". The matter was taken up with the Indian Bureau of Mines (May, 1967) on the ground that the data furnished by them were misleading.

The Company withheld a sum of Rs. 3.19 lakhs and also claimed from the Indian Bureau of Mines damages of Rs. 8 lakhs. The Indian Bureau of Mines in their reply in April, 1969 to the Ministry of Mines and Metals, refuted the claim and stated "the changes in the gradients was visualised, discussed with the Chief Mining

Engineer and provided for in the final project Report" prepared by them. Since the Project as implemented by the Company was substantially different from the recommendations of the Indian Bureau of Mines, they did not accept any responsibility. The Ministry accepted the contention of the Indian Bureau of Mines and instructed the Company to release their dues (May, 1969).

4.16. The Management stated in November, 1970 as follows:—

"It is not correct that Indian Bureau of Mines had any time stated in their report or in any of the documents furnished by them that there would be wide variation in the thickness of the pyrites bed or that the deposit would not have a set pattern of thickness in the pyrites bed. Having regard to the fact that thickness of pyrites bed has been found varying from 5" to 33—34" without any set pattern, the Company has not accepted the I.B.M. view and they have loged a claim of Rs. 8.00 lakhs on G.S.I. (erstwhile I.B.M.) for furnishing unreliable data."

4.17. In regard to the data furnished by the Indian Bureau of Mines regarding the average thickness of pyrites ore being misleading and unreliable, the P.P.C.L. stated that

"IBM were asked to carry out detailed investigations of Amjhore area and they submitted a detailed report on the Amjhore Pyrites Investigation. They also prepared a DPR for mining 3 lakhs tonnes of lumpy ore per annum in 1961. The Company prepared the revised DPR for 2.4 lakh tonnes of ore per annum which were based on the information given by the IBM in their detailed report on the Amjhore Pyrites Investigation, and the DPR prepared by IBM. In actual course of working the PPCL found that the thickness of the pyrite bed vary from 5" to 32", average 24". The pyrite bed is no longer uniform, but undulates considerably and the gradient as steep as 1 in 6.5 has been noticed. The recommendations given in the report are as under:—

"6.08—Thus by studying (i) to (v), it is observed that the thickness of pyrites generally varies from 2'-3" to 3'-7" in the area. It is also noticed that:—

Average thickness of pyrite bed is as follows:—

Amjhore Ghogha block 30".

Kuchwar side 32.6"

Banjari side 36"

Amjhore Barua block 32.8".

"6.09—It is thus seen that the thickness of pyrites bed is 30" or even more. For computing ore reserves, therefore, a minimum of 30" as the average thickness of pyrites bed is concerned."

"30—The amount and variation of dip are rather important in laying out a transport plan for the workings. For this purpose, sections along the secondary haulage drives driven off the main adits have been drawn which at a glance show the dip of the pyrites bed and the thickness of overlying rocks at any point in the workings. These show that the gradient of the cross roads will be generally 2.5 per cent with short stretches of steep gradient of upto 5 per cent."

4.18. In view of the incorrect data furnished by IBM in its report, the Company had to incur extra expenditure and has claimed the same from the IBM to be reimbursed towards damages incurred by the Company as detailed below:—

(i) Drilling of 7bore holes, having a total depth of 1400 metres in Amjhore block to confirm the thickness of pyrites bed at different places. The cost of drilling per metre is Rs. 375—Rs. 5,25,000.

(ii) In addition, Rs. 75,000 being the amount paid to IBM for preparation of initial project report which has become infructuous will also have to be reimbursed to the Company.

(iii) In addition, we impose on the IBM a sum of Rs. 2 lakhs as a lump-sum damages for incorrect data furnished in respect of gradient of the pyrite bed with the result that the equipment procurred could not be utilised to the fullest extent."

4.19. It was also stated that the claim of Rs. 8 lakhs had not been fully settled. After the meeting in the Department of Steel and Mines in May, 1969, a sum of Rs. 2.45 lakhs was paid to IBM on 12th November, 1969 leaving a sum of Rs. 0.74 lakhs on account of hire charges for equipment. This amount was released under protest, without prejudice to ease for counter-claim preferred by the Company.

4.20. The overall implications of the thickness of the pyrite bed were stated to be as under:—

"(i) The grade of the ore for a production of ore has been reduced from 36 per cent to 28-29 per cent.

The grade of the ore can be upgraded by intensive mechanised benefication to 36 per cent, but the quantity of ore available/day will reduce to 640 tonnes/day.

This will increase the cost of production by 25 per cent plus the cost of benefication which will be Rs. 25 per tonne.

(ii) In order to produce the ore of 35 per cent 'S' 800 tonnes/day, a fifth panel will have to be developed, requiring additional mine prestopping development by 2800 metres. The face will require additional machinery and man power for getting extra 160 tonnes or ore/day. The grade of the ore produced will still be 28-29 per cent but on benefication, 800 tonnes per day of 35 per cent 'S' grade will be obtained.

4.21. During evidence the Managing Director informed the Committee in this conection as follows:—

"IBM investigation report has tipulated that the Pyrite bed has got an average of 0.76 meters thickness and the gradient is about 2 to 3 degrees and the roof and the floor is good and does not undulate but in actual practice the thickness has been found to be 0.6 meters (average) and the thickness varies without any set pattern and at a few places the gradient has been noticed to be 1 in 6:5. These factors made the use of the equipment inefficient. It was expected from the description of the geological conditions given in the IBM investigation report (that the pyrite bed is hard, and has high physical strength) that this bed will be span accross 4 to 4.5 meters width of the gallery with supports. But unfortunately, when the galleries were actually driven, the pyrite bed at many places did not span accross and even with timber roof supporst, roof fall took place and we had to resort to the use of steel supports. Even this also did not give adequate progress with the machines resulting in their under utilisation and ultimately led to their withdrawal. * * * *

We had a meeting with them (I.B.M.) where we said that we should get compensation. Our claim against them is still outstanding. We have made the last payment to them under protest. We have suggested to GSI that we are prepared to go in for arbitration on this issue. We have also suggested the names of Chief Technical Adviser or the Mining Adviser of the Department of Steel and Mines for this. We are pursuing our claim with them."

4.22. The representative of the IBM further informed the Committee during their evidence as follows:—

'This Amjhore Pyrites is a very thin bed, roughly 2 to 2½ ft. thick. Above it, there is a shale and below it, there is a shale. If we could develop a mining process restricting the excavation to just that 2 to 2½ ft. thickness, the sulphur content from the product of the mine would be around 40 per cent. Unfortunately, it has not been possible to restirct the excavation to just that 2-1|2 ft. thickness of the pyrites bed. So, since such a process has been found possible elsewhere, we have to acquire the expertise and develop the technique or restricting it. The IBM prepared the Project Report in 1967 and they have not been associated with the further development. I am sure the Company would be able to say that there has been an attempt to restrict the thickness of the excavation and, if the thickness is reduced, the grade of the ore will continuously be increased. It is a question of our trying and getting the necessary expertise for restricting the excavation to 2½ ft. thickness. When the project was planned it was assumed that we would be able to restrict it, and it was on that basis that it was prepared.*** As I was saying, this 2½ ft. can be blasted in one lot or separately. If it becomes inevitable, the top shale can be blasted and ½ ft. of the shale can be removed; and then the pyrites can be removed separately."

4.23. The Additional Secretary of the Ministry further stated that:

"This was discussed in the Department of Mines with whom this undertaking was till January this year. In the discussion, the concensus was that there was no particular binding contract for the IBM to do the work in any particular way. They were given the job of producing two project reports. The contention of Sale Price Committee which was primarily followed was on the basis of this general statement. They were misled into making an investment

and commitments which they could not keep. Therefore, they sought not only to withhold the payment but also made a claim of 8 lakhs. In the absence of the agreement, the IBM's contention was that we had no particular job to fulfil and we gave our recommendation on our observations on the basis of the data collected by us. At that point, the Ministry of Mines & Metals decided that PPCL could not withhold payment. The present position is that PPCL are still pressing for their claim and are withholding payment of some 1.27 lakhs to the IBM. We have not received any definite representation whether the PPCL want to intervene or to appoint an arbitrator. The IBM's view is that in the absence of a contract, this is not amenable to arbitration."

4.24. The Committee regret to find that there had not been clear demarcation of responsibilities of IBM at any stage and no binding contract entered into with them with the result that the Company is finding itself in a quandry. The Committee would like Government to take a serious note of the problem and take steps to have the claims and counter claims settled at an early date.

4.25. The Committee have also come across several cases of defective or inadequate investigations by IBM which have resulted in additional expenditure to the undertakings and also affected the economics of their working. The Committee need hardly stress that Government should issue strict instructions defining clearly the role of IBM now G.S.I. and stress that before entrusting works to G.S.I. there should be definite stipulations between the undertakings and G.S.I.

V

TRANSPORTATION OF ORE

Transportation from stockpile base to Railhead at a distance of 35 K.Ms.

In May, 1963 the Board of the Company considered the question of transport of pyrites ore from mine at Amjhore to nearest Rail-head at Dehri-on-Sone by rail. In March 1964, the Company approached the Ministry of Petroleum and Chemicals for requesting the Railway Board to consider establishment of a railway line between Amjhore and Dehri-on-Sone. Government recommended the proposal to the Railway Board in April, 1964. In May, 1965 the Railway Board informed the Company that the Eastern Railways had been asked to examine the proposal.

5.2. The question regarding setting up of railway line was discussed in the Ministry on 16th November, 1970 and it was felt that if there was no need for expansion of the Amjhore mining capacity and that if the quantity of ore to be transported to Sindri was about 1,000 tonnes only, the justification for broad gauge line may have to be reviewed.

5.3. Meanwhile, the ore continues to be transported by private lorries on contract basis up to rail-head.

5.4. During evidence the representative of the Ministry of Petroleum and Chemicals stated that "the discussion with railway is still going on and effort is being made to a combined siding alongwith a local cement factory—because if both share the cost, it will be cheaper."

5.5. In a written note the Management further informed the Committee that "the matter is under consideration with the Eastern Railway administration. There seems to be a justification for having assisted Railway-siding if the traffic of 6 lakhs tonnes per annum of M/s. Kalyanpur Limestone Cement Works is also taken into account."

5.6. The Ministry of Petroleum and Chemicals stated in a written reply that "the Railways have indicated that the approximate cost of construction of siding will be Rs. 230 lakhs on assisted-*cum*-private

siding terms from Pahloza to Amjhore/Banjari. The Railways will bear a cost of Rs. 60 lakhs. They also indicated the rules on the basis of which the freight and siding charges are leviable. M/s. Kalyanpur Lime and Cement Works Ltd., Banjari have indicated their interest to associate themselves with PPC in sharing the broad gauge railway line facilities and they are prepared to give a minimum guaranteed traffic of 5 lakh tonnes per annum (both inward and outward). Further discussions regarding sharing of capital costs and other matters are going on."

5.7. The Committee regret to note that the question of setting up a broad-gauge railway line between the stock-pile base at the Amjhore-mines and the nearest rail-head at Dehri-on-Sone, a distance of 35 K.M. only, has been engaging the attention of the Government since 1964 without any conclusive decision. Meanwhile the ore is being transported from Amjhore to Dehri-on-Sone for onward transmission to Sindri by road. The Committee understand that a cement factory in the private sector located near Amjhore is prepared to share the capital cost with the Pyrites, Phosphates and Chemicals Ltd. and the Railways towards the construction of a broad-gauge railway line and that they are also prepared to give a guarantee for a certain minimum traffic. Negotiations in this regard are said to be in progress. The Committee would urge that the matter should be finalised by Government expeditiously keeping in view the economics and the time taken in the transportation of ore by the rail and road.

VI

PLANT AND MACHINERY

A. Deployment of costly equipment

6.1. According to the Detailed Project Reports prepared in May, 1961 and December, 1963 by the Indian Bureau of Mines the use of gathering are loaders was not considered suitable in the Amjhore Mine due to the following disadvantages:—

(i) Complicated design.

(ii) Bulky and heavy in design requiring more space for movement.

(iii) Non-availability of smooth floor in the Amjhore Mine.

(iv) Capacity being too high in comparison with the available work-load, thereby involving high cost of operation.

6.2. The Detailed Project Report prepared by the Company in June, 1964 and approved by Government in January, 1965, however, recommended *inter alia* the procurement of 10 number of gathering arm loaders in conjunction with 9 numbers of shuttle cars. No detailed justification for the necessity of the equipment was mentioned in the Detailed Project Report. However, the recommendation in the Detailed Project Report for deploying the equipment seems to have been based on the assumption that the gradient of the mine would be flatter than 10."

6.3. The Company placed orders for the above equipment in January, 1966. The equipment was received during June-November, 1967 (as against the second quarter of 1965 specified in the Detaild Project Report) at a total cost of Rs. 96.18 lakhs and installed in the first quarter of 1968.

6.4. There was gross under-utilisation of the loaders and the shuttle cars and the performance thereof was also found very poor as compared with the standards fixed in the Detailed Project Report. The Management stated in August 1969 that under the geological conditions prevailing in the mine, loaders and shuttle cars were unsuitable. They further stated in November, 1970 that there was also un-

usual break-down of the loader crawler chains due to corrosion caused by acidic water in the mine and also on account of defective manufacture.

6.5. Besides, the use of shuttle cars and loaders necessitiated the provision of wide gallaries, thereby resulting in frequent roof falls. As a result, timber supports had to be replaced with steel supports.

6.6. In this connection the Ministry informed Audit in June, 1974 as follows:—

> "The necessity for loaders and shuttle cars was examined by a Technical Advisory Committee which included the then Coal Mining Advisor, Member (Resources) Planning Commission and the Chief Inspector of Mines. On account of various technical grounds, the Technical Advisory Committee appears to have felt that the use of loaders and shuttle cars will be the best solution, for the rapid development which was required at Amjhore. Normally, the mine would have taken a longer time to be developed, compared to the Acid Plant which was expected to be completed in 24 months. The thinness of the ore deposits also makes the proportional development per tonne of pyrite production higher than usual. Because of these factors there was need to greatly accelerate development. The Technical Advisory Committee's Advice is to be reviewed in that back ground. Had the roof condition been normal, the performance of the machinery would have been far better." (see Appendix II).

6.7. Asked whether a detailed study of geological conditions was made before initiating procurement action for the machinery, it was stated that "the Project was conceived and approved by the Government in 1955 and in spite of the urgency of going ahead with the Project, the geological investigation work was entrusted to Indian Bureau of Mines. They carried out detailed geological investigations and submitted a detailed report giving the details of the ore reserves, behaviour of the ore body, underlying rocks, overlying rocks etc. I.B.M. had also conducted underground exploratory drives and even partial stopping operations. It is only after these detailed investigations that the the detailed Project Report was prepared firstly by IBM, later on revised and lastly in consultation with the IBM revised

Project Report was prepared in 1963-64 by the Company.* In the investigation report, IBM had reported that there will be reasonable roof and floor conditions. Thus, after obtaining such a detailed report and clear cut opinion on the various geological parameters, there was no room for doubts."

6.8. The opinion expressed by IBM was as under:—

"There are overwhelming evidences to suggest that the thickness of the bed of pyrites is more or less uniform over the whole pyrites bearing areas and particularly so in the Amjhore, Gogha Block".

"The width of the pyrites bed within the Amjhore-Gogha belt can be safely assumed to be 0.76 M. on the average from all the above factors."

6.9. The Committee were also informed that "if the mine development was taken up manually, it would not have been possible to develop the mine capable of producing 400 tonnes per day by September, 1968. During first two years of 1965-66 and 1966-67 we could achieve the mine development of 1,245 metres only because the work could be done only at the two pair of adit openings and also the drivage of adits through tallus needed concrete arching resulting in reduced progress etc. During 1967-68, the progress of 2,500 metres could be achieved (partly by machines). Thus the mine development of even 400 tonnes/day (9960 metres) would not have been achieved if done manually all through."

6.10. The Committee enquired about the total utilisation of loaders and shuttle cars and its comparison with the standards fixed in the D.P.R. They were informed that "D.P.R. envisaged a progress of 10 metres/day per machine set of loader and shuttle car The actual progress achieved was much less than this as shown below due to poor geological conditions actually obtaining in the mines resulting in their poor under utilisation.

	1968-69	1969-70
	(Metre)	(Metre)
(a) Actual Machine progress	2116	1357
(b) Total number of machines deployed at mine faces	232	240

*At the time of the factual verification, the audit informed as follows :—

"In the Project Report prepared by the IBM it was stated that the shuttle Cars and loaders would not be suitable for Amjhore mines."

6.11. The Committee also referred to the statement of the Management in November, 1970 that there was unusual break-down of loader crawler chains due to defective manufacture. Asked whether the question of defective manufacture of grander Chains was taken up with the manufacturers, the Committee were informed that the matter was taken up with the Indian agents of the manufacturers in 1968. The Engineer of ANF France visited Amjhore in May, 1968 and during discussion they agreed to make free replacement of all the defective crawler pads. Accordingly, one set of imported crawler pad was received as free replacement. In the meantime, Indian Agents developed the indigenous crawler pads which were also found to be equally suitable. The Company accepted replacement with indigenously manufactured crawler pads and they have replaced about 700 crawler pads.

6.12. In reply to a question as to the total extra cost incurred on the use of steel supports in lieu of timber support because of frequent roof falls, it was stated that actual expenditure incurred on the steel support was Rs. 9.04 lakhs upto 31-12-1970.

6.13. It was observed that the Technical Advisory Committee recommended that the equipment should be purchased in a phased programme and specifications etc. may require alterations/modifications during different phases. In this connection the Ministry stated in June, 1971 as follows:—

> "The urgency for acquiring all the machines in one lot arose because of the delays arising out of the difficulties in release of foreign exchange, etc. Thus, apart from the inherent urgency for speeding up the mining development to match with the construction schedule of the Acid Plant, delay in actual placement of orders made it necessary to buy all the machinery in one lot to keep up with the further accelerated development demanded by compressed time schedule."

6.14. Asked whether there was any delay in the release of foreign exchange, the Committee were informed that the Company applied for the release of foreign exchange in September, 1965 and it was sanctioned by the Government in January, 1966 and the procurement was made under supplier's credit. This arrangement could be finalised and approved by the Government in May, 1966 only."

6.15. The Committee note that the detailed project report prepared by the Company in July, 1964 and sanctioned by Government in January, 1965 recommended inter-alia **the procurement of**

gathering arm loaders and of shuttle cars without mentioning any detailed justification therefor, although the Indian Bureau of Mines did not recommend the use of these equipments in the project reports prepared by them in May, 1961 and December, 1963. The Technical Advisory Committee, who examined the D.P.R., recommended that equipment for the Project should be procured in a phased programme. In spite of this advice, the Company placed orders for the equipment valued at Rs. 96.18 lakhs in January, 1966 and equipment was received during June, 1967 and November, 1967 and thereafter installed them in the first quarter of 1968. The Committee were informed that because of delay in placing the order and uncertainty in release of foreign exchange the orders had to be placed in one lot. The Committee regret to note that there was gross under-utilisation of these loaders and the shuttle cars (as mentioned in para 6.4) and that their performance was very poor as compared with the standards fixed in the Detailed Project Report. Later on, as the work progressed, it was realised that under the geological conditions prevailing in the mine, loaders and shuttle cars were not suitable. The Committee are, therefore, constrained to observe that necessity to acquire these equipments should have been carefully gone into initially, after a detailed study of the geological conditions. The Committee were informed that the provision for the procurement of the equipment was made in the Detailed Project Report by the Company to accelerate the pace of development of the mine and to synchronise it with the date of commissioning of the Sulphuric Acid Plant at Sindri in September, 1968. The Committee regret to find that the objective with which the Company had gone in for the equipment had not been achieved. The Committee feel that the need for deployment of equipment should have been closely examined after taking into account all the relevant factors and the purchase if at all should have been made in a phased manner as recommended by Technical Advisory Committee after gaining experience instead of acquiring the equipment in one lot.

6.16. The Committee also regret to note that in order to make use of the loaders and shuttle cars, which were found unsuitable under the geological conditions prevailing in the mines, the Company had to develop gallaries wider than actually necessary and this involved an extra expenditure on timber|steel support, which have been otherwise avoided.

B. Overall performance

6.17. The table below indicates the total number of key mining

machinery required as per Detailed Project Report for production of 800 tonnes per day and the actual number acquired and remaining idle.

Item	Number as per Detailed Project Report	Number acquired	Number Utilised	No. remaining idle	Remarks
1	2	3	4	5	6
1. Air Compressors	3	3	3	—	—
2. Semi-Portable compressors	3	3	—	3	3 nos. have been transferred to Saladipura Project.
3. Portable Compressors (3 × 450 c ft/min)	3	5	—	2	3 nos. have been transferred to Saladipura Pyrite Project and 2 nos. are under repair/overhaul which have done their first phase of life.
4. Mechanical loaders	10	11 (10+1 from NCDC)	—	6	1 no. has been sold back to NCDC and 4 nos. have been sold to M/s. Hindustan Copper Ltd. The balance 6 nos. loaders are under repairs/overhaul for which possible buyers are being explored.
5 Shuttle cars	9	(9+1 from NCDC)	—	2	1 no. Shuttle Car (Torkar) originally produced from NCDC has been sold back to NCDC. 7 Shuttle cars have been sold to Hindustan Copper Ltd. out of which 4 nos. have already been despatched and 3 nos. are under repairs/overhaul in the workshop which will be despatched shortly

1	2	3	4	5	6
					to Hindustan Copper Ltd. The balance 2 nos. are also under repairs/overhauls for which possible customers are being explored.
6. Belt Conveyor .	36" 6-30" 4-36"	4	1	1	2 nos. have been sold to NCDC and 1 no. to HCL. Offer has been received for sale of one more to NCDC.
7. Belt Conveyor .	*30"	7	4	2	1 no. has been sold to NCDC. Balance 2 nos. are under repairs and offer has been received from NCDC for sale.
8. Russian Model Panzer Conveyor .	*	1	1	—	
9. Westfalia Panzer Conveyor	*	2	1 (Under trial)	1	Idle as the present offtake has not reached phase I production level, i.e. 400 tonnes day.
10. Hydraulic Props .	*	500	500	—	
11. Steel Roof Bars .	*	500	500	—	
12. Friction Props	*	730	—	—	These frictions props are under trial at the experimental face and they will be utilised when the production level of 400 tonnes reaches.

*Not indicated in Audit Report.

6.18. Consequent upon the decision in December, 1969 to freeze the production at 400 tonnes per day, the company assessed that the following equipment would become surplus to its requirements:—

S. No.	Item	Number declared surplus	Gross value (Rs. in lakhs)	Sales/ Transfer upto March, '72	Gross Value (Rs. in lakhs)
1	Loaders	10	50·86	3	15·26
2	Shuttle Cars	9	45·32	3	15·37
3	ER-8 Compressor	1	6·68	..	..
4	TS2X Compressor	3	5·16	3	5·16
5	Portable Compressor	5	1·97	4	1·60
6	Mine Fan	1	0·14	1	0·14
7	Belt Conveyors 30"	3	11·35	..	..
8	Belt Conveyors 36"	4	19·92	..	..
9	Diamond Drill along with accessories	1	1·57	1	1·57
10	Electricals	L.S.	1·50	L.S.	1·39
			144·47		40·49

6.19. On being asked about the present position regarding surplus equipment, and the details of equipment sold or transferred to other projects, the Management PPCL in written note stated as follows:—

"The surplus equipment has been reassessed. Total value (gross) of the surplus equipment is Rs. 166.89 lakhs for 400 tonnes per day mining programme. Out of this, machinery worth Rs. 95.08 lakhs are still not disposed off, whilst machinery worth Rs. 71.81 lakhs (gross) have already been disposed off or transferred to other Projects. The net written down value of Rs. 71.81 lakhs is Rs. 50.13 lakhs *i.e.* a net loss of Rs. 21.68 lakhs. The actual receipt of sale has been Rs. 4.00 lakhs more than the written down value thus making a profit of Rs. 4.00 lakhs over capital thereby decreasing the actual loss to Rs. 17.68 lakhs."

6.20. The details of the surplus machinery and machinery disposed off are as below:—

Break up of Rs. 95,07,340.03 being surplus equipment not disposed off as on 31-3-72

	Original value	Written down value on 31-3-72
	Rs.	Rs.
Rock Drills & pusher legs	88,574·84	
Electricals	29,673·28	
Shuttle cars—6 Nos.	29,94,268·21	
Loaders—7 Nos.	35,60,427·98	
Belt conveyor-30"—3 Nos.	11,34,853·24	
36"—1 No.	4,98,436·48	
	83,06,234·03	38,37,682·83
Belt conveyor components in stock	12,01,106·00	12,01,106·00
	95,07,340·03	50,38,788·83

Break up of Rs. 77,81,192.70 being surplus equipment already sold out/transferred

	Original value		Book Value
	Rs.		Rs.
Shuttle cars—3 Nos.	15,37,476·39	(sold to HCL)	
Loaders—3 Nos.	15,25,897·71	(sold to HCL)	
Electricals—L.S.	1,38,349·13	(sold to HCL)	
NCDC loaders and shuttle car	4,96,191·73	(To NCDC)	
	36,97,905·96		20,89,357·90
T9/2X compressor—3 Nos.	5,15,761·95	(transferred to Saladipura)	444,317.99
Portable compressor—4 Nos.	1,60,430·82	(transferred to Saladipura)	78,184·77
Jee/BRA-176	23,552·29		
Pick-up	27,527·06		68,627·13

	Original Value		Book Value
	Rs.		Rs.
Tractor (BRZ-228)	22,388·43		..
Diamond drill—2 Nos.	2,62,699·21	(Transferred to Saladipura)	1,04,820·53
Truck-BRC-1436	31,525·30	Do.	1,576·30
BRZ-570	53,342·30		42,257·10
PV/120 Fan—1 No.	13,982·25	Do.	11,535·37
Belt conveyor— 36" MAMC (new) 2 Nos. Meameco (old) No.	14,00,000·00	(to NCDC)	12,00,000·00
Belting	9,72,177·13		9,72,177·13
	71,81,192·70		50,12,853·32

6.21. The Committee regret to note the in spite of the recommendations of the Technical Advisory Committee that the machinery should be procured in phases, the Company procured in 1967-68 and 1968-69 all the key mining machinery of value of Rs. 237 lakhs for production of 800 tonnes of pyrites ore per day, whereas it was decided in December, 1969 to freeze the production at 400 tonnes per day thus rendering equipment of the value of Rs. 166.89 lakhs surplus. Out of these, machinery worth Rs. 71.81 lakhs had been disposed off or transferred to other projects and machinery worth Rs. 95.08 lakhs were still pending disposal. The Committee would like to be informed whether the transferred equipment have been put to full productive use. The Committee take a serious view of the purchase of the key mining machinery in one lot in disregard of the recommendation of the Technical Advisory Committee and without a careful assessment of the demand and a firm commitment for the pyrites. The Committee recommend that this matter should be further investigated and responsibility fixed on the erring officers and the Committee informed of the action taken. The Committee also desire that the Company should take steps to assess their requirements of plant and machinery keeping in view their production programme in the near future and to dispose of surplus equipment in the best interest of the project.

VII

SULPHURIC ACID PLANT

A. Establishment of the Plant

7.1. Ever since the formation of the Company all efforts were made in locating a suitable process for the production of elemental sulphur from pyrites ore, and when it was established that the Orkla process was unsuitable for adoption for the extraction of elemental sulphur from Indian pyrites ore and no other alternative process was immediately in sight the Company took a tentative decision in October, 1961 to set up two pyrites based Sulphuric Acid Plants, one at Sindri and the other at Durgapur with a capacity of 400 tonnes/day each for supply of sulphuric acid to the Fertilizer Corporation of India Limited, Sindri and Durgapur. The question of utilisation of pyrites ore was further reviewed in an inter-Ministerial meeting held in February, 1963 when the requirement of Sindri Unit of Fertiliser Corporation of India was indicated 200 tonnes/day. It was decided that a plant with a capacity of 400 tonnes/day should be set up at Sindri to meet the requirements of the Fertilizer Corporation of India Limited, Sindri and Bihar Superphosphate Factory. With a view to avoid delay it was decided by the Board of Directors of the Company in April, 1963 that no detailed Project Report relating to 400 tonnes acid plant need be prepared.

7.2. The proposal was approved by the Ministry on 29th December, 1964. The Government accorded sanction in January, 1965. Contract for setting up of Sulphuric Acid Plant at Sindri based on Amjhore Pyrites (having an average sulphur content of 40 per cent) was awarded to M/s. Simon Carves on a 'turnkey' basis in June, 1965 at a total value of Rs. 190.61 lakhs.

B. Location of the Plant at Sindri

7.3. The Audit Report pointed out that no papers were available with the Management indicating the considerations which weighed with Government/Company to locate the Sulphuric Acid Plant at Sindri instead of at the mine site. During discussion, it, however, transpired that the Plant was located at Sindri in view of the difficulties in the matter of transporting sulphuric acid and the problem of cinder disposal. According to the Managing Director, it was anticipated at that time that the cinder might be of use in the

Steel Plants located in the vicinity of the Sulphuric Acid Plant. No analysis of the cinder was, however, made to find out whether it contained any metal value other than that of iron and whether there would be assured off-take of the cinder by the Steel Plants.

7.4. The Committee Experts constituted by Government in January, 1970 pointed out in their Report that the disposal of the cinder would pose a serious problem at Sindri as it would require land acquisition on a large scale and stabilisation of fire material so that it does not get blown around by wind and pollute the atmosphere in the Sindri Colony and result in progressively increasing lead to dispose of cinder and consequent continuous increase in the cost of disposal.

7.5. The Committee had further stated that the accumulation of cinder might prove a physical handicap in the use of pyrites of any grade in the roasters of the Sulphuric Acid Plant at Sindri.

7.6. During the evidence of the Ministry of Petroleum & Chemicals, the Committee enquired as to why papers were not available with Management indicating the consideration which weighed with Government to locate the sulphuric acid plant at Sindri instead of at mine site. The Additional Secretary of the Ministry stated that there seemed to be some misunderstanding. The decision was taken in the Planning Commission and the decision of the Planning Commission was available with the Ministry as well as with the Company. On being asked as to why these were not shown to the Audit the Committee were informed that probably that this had been due to lack of communication.

7.7. As regards the reasons which weighed with Government/ Company to locate the Sulphuric Acid Plant at Sindri instead of at mine site, the Company informed the Committee in a written reply as follows:—

> "In the matter of locating the sulphuric acid plant at Sindri instead of at mine site, it is noted that the consideration was to locate the acid plant near the source of consumption of the acid due to the fact that the freight rate of the railways for acid were almost twice than that of the ore. About 1 ton of 36 per cent 'S' grade ore is required for 1 ton of acid. Thus the location was considered with respect of the point of consumption. Even in the meeting held in the Planning Commission on 1-2-1963 the choice of the site was only with respect to the available site at Sindri itself."

7.8. In regard to the metal content in the pyrites the representative of the Ministry of Petroleum and Chemicals informed the Committee during evidence that apart from 40 per cent iron content, the only other metals found in trace proportions were copper .01 per cent and .04 per cent and all other metals like cobalt, silver, gold, cadmium and lead were nil and there was no other metal that had to be looked after.

7.9. About the disposal of cinder the representative of the Ministry stated that:—

> "Efforts were made to use the cinder in Bokaro Steel. But it was found that they could not be used there. Hindustan Steel had shown some interest for using cinders as a substitute for magnetite which is used for beneficiation process. Part of cinder is being used by cement plant and about 6000 to 12,000 tons per annum are being used for this purpose. Efforts are being made to sell them to other cement manufacturers. Fertilizer Corporation of India was also going into the question of the possibilities of manufacturing sponge iron from cinder."

7.10. On being asked whether there was any problem of accumulated cinder polluting the atmosphere and affecting the health of the people, the Committee were informed that "the cinders from the Sulphuric Acid Plant now operating, were being wetted and dumped in a low lying area where an underlying layer of chalk deposit already exists (nearby product chalk pond). The moistening is regulated only to consolidate the cinders so that they do not cause atmospheric pollution. There is normally no drain off or seepage of water from the cinder in dry season. During heavy rains, however, some leaching of the cinder deposit would take place. But there is no indication that this causes any residual acidity in the effluent of river water which receives the same. Analysis of effluent is being carried out periodically by Fertilizer Corporation of India to see whether the effluent discharged into the river is acidic. During rainy season, the leach out water from the cinder will join the main factory effluent which flows nearby and is highly alkaline. The factory effluent which will amount to 10 to 11 million gallons per day on completion of Rationalisation Scheme has an alkalinity of 200 to 400 ppm and in other words has a capability to neutralise about 10 tonnes of sulphuric acid per day, whereas corresponding fresh cinder expected to be deposited per day could at best give rise to only a fraction of a tonne of acid per day if completely leached assuming again that the chalk bed does not neutralise this.

7.11. No analysis of underground water has been carried out in the area as there are no wells and the area is fairly close to the ever. However, as mentioned above, analysis of river water along with analysis of effluent at various places are being carried out by Fertilizer Corporation of India and the *p*H of the river water has always shown an alkaline reaction."

7.12. The Committee find that apart from the consideration to locate the Sulphuric Acid Plant near the point of consumption of the acid, one other consideration which weighed with Government for locating the Sulphuric Acid Plant at Sindri instead of near the mine, was that the cinders might be of use in the steel plants located in the vicinity of the Sulphuric Acid Plant. The Committee regret to note that this did not materialise and the cinders were not used by the Steel Plant and only stray attempts were made for their disposal, otherwise they were being dumped by the Fertilizer Corporation of India. The Committee are of the opinion that an analysis of the cinders should have been made to find out whether it contained any metal value and whether there was an assured off-take of cinders by Steel Plants.

As pointed out in the report of the Committee of Experts, the disposal of cinders would pose a serious problem at Sindri, as it would require land acquisition on a large scale and stabilisation of fire materials so that they do not get blown around by wind or pollute the atmosphere in the Sindri colony and result in progressively increasing lead in the disposal of cinders and consequent increase in the cost of disposal.

The Committee also feel that the economics of locating the plant near the consumption point should have been gone into more thoroughly taking into account difficulties regarding disposal of cinder, transport of ore/acid, etc. The Committee feel that in retrospect it would have been more advantageous to have located the acid plant near the mine site as part of the Company, as the difficulties now being faced regarding shortage/deterioration of ore in transit, low off-take of Ore, etc. would have been avoided.

7.13. The Committee desire that the problem of disposal of cinders should be viewed with seriousness and efforts made to find an abiding solution for their disposal so that they may not create pollution problems which may prove to be health hazard.

C. Ordering the Plant Designed to work on 40 per cent S. Content Ore.

7.14. In the Indian Bureau of Mines' Detailed Project Report, the analysis of sulphur content in the pyrites ore was indicated as varying between 32 and 41 per cent. As early as in May, 1964, the difficulty of production of 40 per cent. S. Grade ore was visualised when it was reported that due to dilution, the ore of only 36 per cent. S. content would come out from the mine and as such beneficiation of ore would be necessary. Though in the tender issued for setting up the Sulphuric Acid Plant, sulphur content of pyrites was indicated as 32 to 49 per cent, but close to 40 per cent, in the contract it was simply mentioned as pyrites having an average sulphur content of 40 per cent without indicating the range of variation.

7.15. The Management informed Audit in November, 1970, "It is a fact that it was realised in May, 1964 that the mine could produce pyrites ore of grade 36 per cent sulphur. It is also true that Sulphuric Acid Plant was designed in 1966 with the specification of 40 per cent sulphur grade ore."

7.16. The Management further informed Audit in February, 1971 as follows:—

> "In the technical matters, the Board of Directors of the Company has invariably been guided by the advice and guidelines given by the Technical Experts who have been members of the Board from time to time. During the period under review, the Board had several Members who were Technical Experts (Chemical). In this connction, it may be stated that the acid plant is being operated on regular basis with pyrites ore of lower purity than 36 per cent. S. and there is no technological difficulty in operating the plant with 36 per cent. S. Grade ore."

7.17. As per terms of the agreement, the Plant is to produce 400 tons (406 tonnes) of sulphuric acid per day (*i.e.* 200 tons a day per roaster). The Plant was put on trial run in July, 1969. During the trial run of the plant up to June, 1970 both the roasters could not be operated simultaneously except for 15 days. During the trial run only 23,751 tonnes of acid was produced. In this period the Plant did not operate from December, 1969 to April, 1970. Then again from the 10th June, 1970 to 9th September, 1970 the Plant had remained idle due to strike in Amjhore Mine. It resumed working on 10th September, 1970. During September/November, 1970 the Plant produced 7,889 tonnes of concentrated acid.

7.18. The Committee enquired whether the implications of lower sulphur content were examined by the Management|Ministry and whether the question of lower sulphur content was specifically referred to the Board together with the financial as well as technical implications and if so, what was the advice and guideline given by the Technical Experts, (who happened to be the Members of the Board) on this issue. They were informed as follows:—

"The Company was, no doubt, aware that the grade of run of mine ore will be around 36 per cent but in the N.I.T., it was indicated that the grade of ore to be supplied will be 32-49 per cent. The contractor in their offer also did not specify that the plant offered by them will not tolerate variations of the sulphur contents of the ore as given in the N.I.T. but will work on a fixed percentage of sulphur ore around 40 per cent. All sulphuric acid plants working in the world tolerate variations of sulphur content upto 3-4 per cent. In view of the above, it was not envisaged that the plant offered by M/s. Simon-Carves will not be able to stand the above variations and run of mine ore having a grade of 36 per cent will not be acceptable to the Plant.

The facts referred to by the Committee on Public Undertakings, above were known to the Board and to the Technical Experts represented in the Board. As no technological difficulty was envisaged in the use of 36 per cent 'S' grade ore in the plant, probably no special note was taken by the Board at that stage. Later on when the grade of ROM fell to 33 per cent due to the thinning of the pyrite bed, this fact was brought to the notice of Fertilizer Corporation of India, as the sulphuric acid plant was transferred to FCI from 1-4-68."

7.19. On being asked as to what were the other consequences of utilising lower sulphur content ore apart from any technological difficulty in operating the plant with 36 per cent sulphur grade ore the Committee were apprised as under:—

"The Expert Committee appointed by the Government has stated in its report that there is no technological difficulty in using the ore of 33 per cent 'S' Grade. As the handling capacity of the ore and cinder is limited to 0.9 ton|ton of acid, the use of the low grade ore lowers down the yield of the acid. With 36 per cent 'S' grade ore the plant capacity will reduce to 90 per cent."

7.20. On being asked if all sulphuric acid plants require 40 per cent ore, the Managing Director informed the Committee that there were two low grade plants in the world, one at Safi (Morocco) with 26 per cent S. Grade ore and the second in Rumania with 23 per cent S. Grade ore. The Safi Plant was working with 26 per cent but they were now adding elemental sulphur to increase the efficiency of the Plant. He further added that "there are two ways one is that we reduce the acid forming capacity, work the plant on lower capacity and use 33 per cent pyrite or mix elemental sulphur to get the desired capacity. He confirmed that if the requirement of acid is less, this combination would work."

7.21. As regards the non-operation of the Plant from December, 1969 to April, 1970 and operation of both the roasters, the Fertilizer Corporation of India Limited stated in April, 1971, as follows:—

(i) "Towards the end of the year, the contractor decided to carry out certain modifications in the roaster and on account of this, the Plant was not run during December, 1969. Again, since no decision could be arrived at regarding quality of pyrites, that Pyrites, Phosphates and Chemicals Limited will be supplying for future operation of the Plant. as well as price, there was no supply of pyrites subsequent to the guarantee test performance and on account of this, there was no production in the month of April, 1970."

(ii) "It is likely that this Plant will start regular production at full capacity of 400 tonnes with this inferior grade of pyrites presently available, some times in middle of 1972, *i.e.* after M/s Lurgi studies our Plant and submits their specific recommendation about feasibility of mixing of elemental sulphur with pyrites and their scheme is implemented with installation of suitable equipment necessary for this purpose."

7.22. During evidence of the representative of the Fertilizer Corporation of India, the Committee were informed as follows in this regard:—

".....the roasters could not be operated, both the roasters together on consistent load, because of the sintering trouble in the roaster and troubles in the crushing and grinding

system. The cinder cooling system was over-loaded when we were using 33 per cent grade sulphur ore. So some modification has been made on the cinder cooling system and after we have started using sulphur, there was an improvement and we were able to run the plant more steadily. We had requested M/s Lurgi to send their specialists. After we took over the plant, they came actually on their own cost *i.e.* without charging any fee and in their presence, we did the testing of pyrites mixed with sulphur and it was found that it was practicable to mix sulphur with pyrites. But since then, we have been running the roaster after mixing sulphur with pyrites. Modifications have been made in the plant for crushing, grinding and handling and mixing of sulphur. Similar modifications will be incorporated in the sulphuric acid plant."

7.23. During evidence the Committee pointed out that the Committee of Experts had recommended the use of two grades of ore in combination with elemental sulphur and that it was for Government to choose any one of the two grades depending upon the financial burden which Government were willing to bear and enquired how far M/s Lurgi's recommendation was in conformity with the recommendation of the Committee of Experts. The representative of FCI apprised that Committee that "this is arising from the recommendations of the Chari Committee which had thought that there shall be the possibility of using two grades of ores, one of the run-of-mine ore consisting of 16 to 20 per cent and the other ore consisting of 23 to 25 per cent sulphur. The P.P.C. is changing method of mining to see that even with the run-of-mine ore we can expect 33 per cent grade pyrites which will, of course, be mixed with sulphur to upgrade to 40 per cent.

7.24. Production of sulphric acid has been going on, but we have not been able to achieve full production, as anticipated in the middle of 1972 because the second crushing and grinding system we have not been able to instal due to long deliveries for the equipment we have placed order. Further some more problems have cropped up and they have to be rectified. With the arrival of the equipment for which orders have been placed and also with the rectification of the problems we expect that this crushing and grinding system will be installed only by the end of 1973 when it would be possible for us to run this plant on full load on consistent basis."

7.25. Asked about the reasons for installing the second crushing and grinding system the Committee were informed as follows "When plant runs on full load in that event, they lose their capacity very rapidly and the wear and tear is very high and we find it difficult to maintain the feed to both the roasters. Occasionally we are still running the two roasters but on a sustained basis, it will be possible to run the two roasters only when the second crusher was installed by the middle of 1973.

We are installing a second system of crushing and grinding system so that we have the maintenance time available. Mcnally Bird were the suppliers. We could not import the machine and even if we had imported, they would not have done better. We investigated abroad also with various manufacturers and we found machines manufactured elsewhere also with this type of pyrites were giving trouble; if we have extra crusher we can get over with it. This total scheme is going to cost us Rs. 20 lakhs including conversion system hoppers etc."

7.26. The Committee view with concern that the Sulphuric Acid Plant was designed to work on 40 per cent S. content ore although the ore available from Amjhore mines was not of the required quality It is strange that when the Management was fully aware about the variation in Sulphur content of the ore, and though in the notice inviting tender for the work, the sulphur content of pyrites was indicated as 32 to 49 per cent, the implications of such variation were not specifically brought to the notice of the Board. No specific mention of such variation was also made in the contract for setting up the Sulphuric Acid Plant. The result was that the Acid Plant could not be operated and certain technical modifications had to be made. If at all, the plant was to work, the production could be with elemental sulphur along with pyrite or it was to work only at 90 per cent of the rated capacity. The Committee were informed that the cost of rectification/ modification would be Rs. 20 lakhs. The Committee take a serious view that the omission of vital information about the grade of the ore in the contract has resulted in not only an additional expenditure of Rs. 20 lakhs but also low production in the mines with consequential adverse affect on the cost. The Committee desire that the reasons for this vital omission of not specifying the grade of ore in the contract should be gone into and responsibility therefore fixed.

D. Cost of the Acid Plant Project

7.27. The table below indicates the estimates of Plant cost as originally envisaged and as revised from time to time *vis-a-vis* the

actual expenditure incurred on the Plant up to 31st March, 1972:

(Rs. in lakhs)

Item	Original estimate (Govt. sanction received on 7-1-1965 for item (i) only.)	Revised estimate (Approved by Board in May, 1968)	Revised estimate (Govt. sanction in April, 1969)	Actual expenditure upto	
				1969-70	1971-72
(i) Turn-key contract for main S.A. Plant and Equipment	190·61	295·50	301·50	247·92	278.97
(ii) Departmental works for services scheme, such as material handling, water treatment, Rly. siding etc.	70·97	101·85	103·00	103·63	111·20
(iii) Civil works outside main plant		7·57	8·00	7·60	7.64
(iv) Residential colony		10·00	10·00	1·45	1·45
(v) Development expenditure		12·50	13·00	36·93	78·51
(vi) Working capital		15·00	15·00	*	—
(vii) Miscellaneous	..	..	..	3·57	4.91
	261·58	442·42	450·50	401·10	482·68

7.28. The foreign exchange component included in the original estimate and revised estimate of Acid Plant was Rs. 88.53 lakhs and Rs. 125.13 lakhs respectively.

7.29. The reasons for increase in cost of the Sulphuric Acid Plant in the revised estimate are indicated below:

	Rs.
(i) Effect of devaluation of foreign exchange element minus advance payments already made	25·58,045
(ii) Effect of contract variations	33,40,000
(iii) Customs duty	35,00,000
(iv) Imported spares for plant	16,50,000

NOTE:—Item (ii) includes the enhanced cost due to substituting indigenous equipment for imported ones to the extent o Rs. 38·51 lakhs to which addition, on miscellaneous accounts and reduction due to imported equipments at post devaluation rate for Rs. 8·99 lakhs have been made.

*According to the Fertilizer Corporation of India Ltd., the provision of Rs. 15·00 lakhs was made only for obtaining the necessary funds released for the procurement of raw materials and against this, it is not possible to indicate the actual figure as this would vary from time to time.

7.30. The increase in actual development expenditure has been explained by the Fertilizer Corporation India Ltd. as follows:—

	(Rs. lakhs)
(i) Expenditure on wages, salaries and provident fund for 8 months' approximate delay	5·00 approx.
(ii) Expenditure on wages and salaries, etc. due to prolongation of the pre-commercial production period	2·00 approx.
(iii) Excess consumption of materials	3·00 approx.
(iv) On account of credit for acid being less than the amount spent on pyrites	6·51
(v) Other reasons such as payment of minimum guarantee charges to Bihar State Electricity Board and certain other expenditure not originally visualised	7·42 approx.
	23·93

7.31. During evidence, the representative of the Ministry of Petroleum and Chemicals stated that upto 31st March, 1972, the expenditure incurred was Rs. 482.68 lakhs. The break-up of the expenditure is as follows:—

	lakhs
The Main Plant and equipment	278·97
Departmental Works for service scheme such as material handling, water treatment etc.	111·20
Civil works outside the main Plant	7·64
Residential colony	1·45
Development expenditure	78·51
Miscellaneous	4·91

7.32. The Committee pointed out that the original estimate sanctioned by the Government included Rs. 10 lakhs for residential colony but the actual expenditure on residential colony was Rs. 1 lakh. On the other hand, the total expenditure had more than doubled. Asked about the reason for the increase, the representatives of the Ministry of Petroleum and Chemicals informed the Committee as follows:-

> "In the project report, according to FCI quite a lot of provision was not made. The estimate for sulphuric acid plant was made originally by PPC. It included a sum of Rs. 70.97 lakhs for departmental works only which included various service schemes civil works, colony etc. Out of this Rs. 15.47 lakhs were provided for residential colony and Rs.

12.97 lakhs for civil works outside the main plant. This meant that the provision for service schemes was only Rs. 42.85 lakhs. According to FCI, this estimates was on the low side as it did not include provision for pyrites storage building, grap crane, pay loader, water treatment plant etc. The original estimates also did not include provision for development expenditure or working capital. The variation between the revised estimates and the actual expenditure was accounted for due to increase in the prices of steel, electric items, etc. Then, as will be seen from p. 25 of the audit report, increases were on account of several items including 25.58 lakhs effect of devaluation, contract variations 33.40 customs duty 35 lakhs imported spares for plant 16.50 lakhs."

7.33. On being asked if Government agreed with the justification for increase in cost, the representative of the Ministry informed the Committee that the Government did agree with the level of expenditurn upto Rs. 450.50 lakhs which had been approved. The excess expenditure was likely to be of the order of Rs. 54 lakhs for which Government would expect a report justifying that from FCI so that revised expenditure sanction could be given. This expenditure was well within 20 per cent of sanctioned estimates, the representative of the Ministry informed as follows:—

7.34. Asked whether any prior sanction of Government was taken by the F.C.I. for this substantial increase in estimates, the representative of the Ministry informed as follows:—

"If it is within 10 per cent of the sanctioned estimates, the Board of the FCI can sanction it and incur the expenditure. At any point of time, as soon as they come to know that it will exceed 10 per cent, at that time they should come to the original sanctioning authority, *viz.* Government to obtain prior approval. Of course, if it exceeds 20 per cent, it has to be submitted to Cabinet for sanction."

7.35. As regards the reasons for increase in the development expenditure, the representative of F.C.I. stated that

"the estimate approved by Government for Rs. 450.50 lakhs included development expenditure of Rs. 13 lakhs. Development expenditure is the expenditure incurred during the commissioning period, that is, before the plant goes into commercial production. That is excess of expenditure over income. At the time we framed the project

estimates, we expected that the plant would go into commercial production in 3-4 months. It was estimated that the excess of expenditure over income would be Rs. 13 lakhs. That was provided for. Unfortunately, because the commissioning was delayed, from July, 1969 to september, 1971, that is, for two years, this excess of expenditure over income had to be put in the capital budget. That is what has increased the total estimates. Actual expenditure upto September, 1971 was Rs. 78 lakhs as against Rs. 13 lakhs provision made in the projetc estimate. This is excess expenditure over income.

7.36. The Committee find that the original estimates of the sulphuric acid plant sanctioned by Government in 1965 for Rs. 261.58 lakhs, were revised by the Board in 1968 and sanctioned by Government in April, 1969 for Rs. 450.50 lakhs. The actual expenditure incurred upto 31st March, 1972, however, exceeded even the revised estimates by Rs. 32.18 lakhs. The Committee regret to note that the original estimates were not prepared carefully after taking into consideration all the probable items of expenditure like customs duties, provision for spares, etc. As pointed out during evidence, according to FCI, the original estimates were on the low side as the provision for departmental works was inadequate and it did not include provision for several items like pyrites storage building, grap crane, pay-loader, water treatment plant, development expenditure, working capital, etc. The Committee have repeatedly emphasised that the estimates for any project should be prepared as realistically as possible in the beginning and should be made available to Government and Parliament before the project is sanctioned. It is highly improper that Government proceeded with the setting up of a project of this dimension without a clear idea as to the ultimate financial commitment thereon. It is unfair to the Parliament and to the country to make them commit to a project on piece-meal basis from year to year without giving a true and realistic picture of the final cost of the project in the biginning and presenting the final expenditure on the Project as fait accompli.

7.37. The Committee have also been informed by the representative of the Ministry during evidence that the actual expenditure on the project is likely to exceed the revised estimates by Rs. 54 lakhs which is more-than 10 per cent of the sanctioned estimates. The Committee however find that according to the instruction issued by the Government vide Ministry of Finance O.M. No. 9(1)—F|61 dated the 22nd September, 1967 sanction of the Administrative Minstry is called for where actual expenditure on any component of the

sanctioned estimates exceeds 10 per cent of the sanctioned amount for the component. The Committee feel that as the actual expenditure under "Development Expenditure" had exceeded by more than 10 per cent even upto 31-3-1970, the Management should have approached the Ministry for regularisation|sanction at that time, notwithstanding the fact that overall actual expenditure had not exceeded the overall sanctioned estimates. The Committee also feel that it is irregular to incur large expenditure in excess of the sanctioned estimates without prior approval of the prescribed authority. The Committee, therefore, desire that the revised estimates of the project should be finalised early and approval of the Government obtained therefore.

E. Delay in Completion of the Plant

7.38 The scheduled dates and the actual dates for commissioning and acceptance test of the Plant and the extent of delay in various stages are indicated below:

	Scheduled	Actual	Delay
(i) Commissioning of the Plant (24 months) from effective date of contract based on providing import licence to the contract or (19th September, 1966)	19-9-1968	25-7-1969	10 months (Net delay will be 6 months after excluding grace period of 4 months).
(ii) Acceptance test (to be completed within 6 months from the date of preliminary acceptance which was done on 18th April, 1969)	18-10-1969	16-2-1970	4 months

7.39 The guarantee performance test was conducted in February, 1970 but due to discrepancy in the evaluation of total sulphur efficiency, the contractor demanded a re-test with 40 per cent S. Grade pryites ore so that his contractual obligations could be determined Due to difficulties in obtaining pyrites ore of this grade, it was subsequently (June, 1970) decided by the Management to have a trial appraisal run which was conducted in December, 1970 with the available grade (31.4 per cent S. content) of ore.

7.40 During the guarantee performance test a number of defects were noticed in the operating of the Plant. The contractor had agreed to carry out the modification|rectification of the Plant at his own cost in terms of the protocol of arrangement. In the case of power generation unit, it had been decided to take re-test later on and the contractor had offered a bank guarantee of Rs. 3 lakhs to safeguard the Fertilizer Corporation of India Limited's interest.

7.41 The Fertilizer Corporation of India Limited stated in April, 1971 that based on the guarantee test results and appraisal test run in December, 1970, it has been concluded that the contractor has been deemed to have met the guarantee performance as per stipulation in Clause 27(i) (a, b and d) of the contract. It has further been stated that the plant has been finally accepted as per protocol of arrangement, effective from 30th March, 1971.

7.42 The contract with M|s. Simon Carves provided for penalty and damage at 1 per cent of the contract price|for each month of delay in commissioning subject to a ceiling of 5 per cent and similar penalties for other deficiencies in performance all subject to overall maximum of 7 per cent of the contract price. The Fertilizer Corporation of India Limited originally assessed the amount recoverable from the contractor at Rs. 18.58 lakhs (penalty at the maximum rate of 7 per cent. Rs. 15.58 lakhs plus claim of Rs. 3 lakhs for excess supply of materials and acid than what was originally asked for), but subsequently settled the claim with the contractor on the basis of protocol of arrangement signed by both the parties effective from 30th March, 1971, which provides for:

(i) an adjustment of Rs. 5.85 lakhs towards cost of modifications|to be undertaken by the Fertilizer Corporation of India Ltd. and

(ii) modifications to omake good deficiencies of the monetary value of Rs. 7.24 lakhs to be undertaken by the contractor.

7.43 As regards the question of the levy of penalty for delay in commissioning of the Plant, the Fertilizer Corporation of India Ltd. stated in April, 1971 as follows:

> "The contractor has contended that the delay in commissioning of the Plant is because of delay in supply of equipments by manufacturers on whom they had no control and thus they are not liable to pay any penalty under clause 11(IV) of the contract" "The matter has since been discussed by the Committee of Functional Directors. The legal opinion obtained in this conection was also considered and they have decided that no penalties are leviable in respect of the delays in the commissioning of the Plant."

7.44. During evidence the representative of Fertilizer Corporation of India appraised the Committee as follows:

"According to contract, Simon Carves were to hold the test within six months. The commissioning was done in July, 1969 and in February, 1970 they carried out the guarantee test in the plant. In this test, they could demonstrate the production guarantee. Steam production guarantee was also demonstrated. About sulphur efficiency guarantee, there was a dispute. There was a test about another guarantee - I think about power production guarantee. They did not do it. Then they had a right to ask for a re-test, but at that time, we were not in a position to give them 40 per cent sulphur pyrite because it was very expensive, and the cost was coming to over Rs. 400 per ton. So, we were persuading them, to operate the plant with low grade pyrite to sort out problems. According to their interpretation, the sulphur efficiency had been met; and the only thing that had not been met, was the power production guarantee. We persuaded them to carry out another appraisal test, with a lower grade sulphur pyrite to see whether the plant would give the guaranteed sulphur efficiency.

This was carried out in December, 1970 and the interpretation of the result of this guarantee test showed that the plant would meet the guarantee of sulphur efficiency also, particularly when we were using 40 per cent grade sulphur.

We were anxious that we should do something to improve the performance of this plant. The expert committee which had gone abroad recommended that we should modify the roasters to use sulphur along with the pyrites to improve the performance. It was recommended that we should invite M|s Lurgi, German Engineers to advise us. But we could not do it unless we took over the plant from Simon Craves. So after this appriasal test showed that sulphur efficiency could be met, a supplementary arrangement was arrived at with Simon Carves and the plant was taken over. In this agreement all the deficiencies which had come to our notice were enumerated. In the case of some, a monetary settlement was arrived at on the basis of estimates of the cost for making good the deficiency. In other cases, it was left to them to rectify the deficiencies. Some of the claims of Simon Carves

were also incorporated in this settlement and some claims were waived by themselves, like extra freight and more rupees due to devaluation, closure of Suez Canal, etc. There were some other minor claims. They had spent Rs. 21,000 for registering their contract with the Calcutta customs and PPCL did not accept that liability. When we examined it, we found that they were within their right in making this claim because this expenditure was the responsibility of the owner. These claims were accepted and our claims and deficiencies were accepted by them. These were incorporated in that protocol arrangements and we took over the plant in March, 1971. Since then we have been operating the plant but their men are available for rectifying the defects and deficiencies which have been incorporated in this. After that we called the German engineers who conducted certain tests and we found that it was practical to mix sulphur and improve the performance of the roasters. Modifications have been made and it is being operated with pyrites mixed with sulphur."

7.45. The Committee enquired if there was some delay in getting some materials and why the contractor should not be held responsible for delaying the material. The representative of Fertiliser Corporation of India stated as follows:

"There is a provision in the contract that if there is delay in the plant due to delay of equipment over which Simon Carves have no control they will not be liable for those delays. This they have been pointing out to us during the construction of the project also. The main delay occurred because of the boiler which was ordered with John Thomson, a sub contractor. They have had to order it here in India because they were not permitted to import it. There was delay in the delivery of the boiler which was delivered in December, 1968 whereas according to the contract, the plant should have been completed in September, 1968. Thereafter, the boiler inspector gave the certificate in March, 1969. As per the contract, there is a four-month grace period available to them before-penalties will start. I do not know whether there was any penalty clause in their contract, but the correspondence exchanged between John Thomson and Simon Carves shows that Simon Carves were pressing them

every time and the other party was only promising and so Simon Carves was saying, they are helpless."

7.46. The Committee were informed in a note after the evidence that "the plant should have been commissioned in September, 1968 whereas it was actually commissioned in July, 1969. The delay was explained by M|s Simon Carves as due to the late supply of boilers made by M|s John Thomson over which they had no control Legal opinion was obtained by the Fertilizer Corporation of India as to whether the delay of 8 months in the delivery of the items ordered by M|s Simon Carves on M|s John Thomson would justify M|s Simon Carves to invoke the provision of clause 11(ii)—(a) This is reproduced below:

"The time specified in the sub-clause (1) of this clause for completion of the work is subject to the fulfilment of the following conditions":—

(a) The execution of the work by the contractor will not be held up by any cause or delay beyond his reasonable control, including force majeure conditions as set out in clause 37 of the Agreement.

7.47. The Corporation's Attorney who went through the correspondence exchanged between M|s Simon Carves and M|s Thomson, who were to supply the critical equipment, came to the conclusion that M|s Simon Carves took all diligent steps, what they could, to see that M|s John Thomson expedited the delivery of the boiler part. According to the legal opinion, M|s Simon Carves could take protection under clause 11(ii) (a) of the contract on the base that the delay in the supply of the boiler part by M|s John Thomson was beyond their control.

7.48. In view of the above legal opinion, the Corporation felt that no penalty could be levied on M|s Simon Carves for delay in completion of the plant under Article 11 of the contract.

7.49. The question of non-levy of penalty on the contractor was submitted to the F.C.I. Board in a meeting held on 2-11-1970 when, the Board constituted a committee consisting of the following:—

1. General Manager, Sindri
2. General Manager, P&D.
3. Group Manager (PID), P. & D.

4. Finance Manager, Sindri

5. Project Manager, Sindri

7.50. The Board asked the committee to give its recommendations on the outstanding issues, including delay in commissioning, and submit the same to the Functional Directors. On the question of delay in commissioning, the committee observed as follows:—

> "The Committee noted that even though the reference to the Attorney had been made only for delay in supply of boilers legal advise received is to the effect that in terms of clause 11(ii), M|s Simon Carves is not responsible for payment of penalty for delay in the commissioning of the plant arising out of the delay in the supply of the equipments or any other factor by agencies other than Simon Carves."

7.51. Accordingly, considering that the Boiler Inspector's approval for commissioning the Boiler was received only in March, 1969 the committee concluded that under the contract Simon Carves cannot be penalised for commissioning plant, in July 1969.

7.52. The recommendation of the committee was submitted to the Fundamental Directors of the Corporation, who after taking into consideration the recommendation of the committee and the legal opinion, decided to enter into Protocol of arrangement dated 30-3-71.

7.53. The Committee were also informed that because of the delay of 10 months in the commissioning of plant additional expenditure was incurred on staff salaries and other benefits which amounted to about Rs. 6 lakhs during this period.

7.54. In reply to a question, the representative of the Ministry stated that 'nowadays we are referring all contracts for the advice of the Law Ministry and these pitfalls are being avoided. In this particular contract it was said that if it is held up due to any cause or delay beyond his reasonable control, they will not be liable. That gave them the escape."

7.55. The representative of F.C.I. stated during evidence that "the re-test of the power generation unit was not done. So, the Simon Carves gave a bank guarantee of Rs. 3 lakhs to ensure that they will do so. They have been trying to make some changes on the steam system and they have done this test a week ago and it is successful except that there are some problems of the instruments. So

we are insisting that these instruments may be put right. The bank guarantee is still valid and we will release it after the improvements have been done."

7.56. The Committee find that although according to the contract the Sulphuric Acid Plant should have been commissioned in September, 1968, it was actually commissioned in July, 1969. Because of the delay of ten months in the commissioning of the plant, additional expenditure had to be incurred on staff salaries and other benefits amounting to about Rs. 6 lakhs, besides the loss of production during this period. The Committee were informed that the delay was due to the late supply of boilers by another firm over which the main contractor had no control. Unfortunately no penalty could be recovered from the contractor because of a provision in the contract which provided that the time specified in the contract for the completion of the work was subject to the fulfilment of the condition that the execution of work by the Contractor would not be held up by any cause or delay beyond his reasonable control.

7.57. The Committee regard to note that because of this lacuna in the contract, no penalty could be levied on the contractor. The Committee were assured by the representative of the Ministry during evidence that now a days they were referring all contracts for the advice of the Ministry of Law and these pitfalls were being avoided. The Committee hope that such lacunae in contracts will not recur in future.

7.58. The Committee are surprised to find that though there was dispute in establishing sulphur efficiency guarantee in February, 1970 due to difficulties in obtaining pyrites of 40 per cent S. grade, the FCI in December, 1970, with a trial appraisal conducted with 31 per cent S. grade ore considered that the contractor had been "deemed" to have met the guarantee performance.

7.59. The Committee also find that there were several defects noticed in operating the plant during the guarantee performance tests and the contractor has agreed to carry out the modifications/ rectification of the plant at his own cost, in terms of a protocol of an arrangement agreed in March, 1971 between the FCI and the contractor.

7.60. The Committee are surprised to find that full contractual liability under the terms of main contract had been finally dischar-

ged by means of protocol of 30th March, 1971 even without the Company ensuring that the defects in the Plant have been rectified to the satisfaction of the Management and the Plant is really capable of reaching its rated capacity. The Committee are also doubtful whether the amounts of compensation provided for under the protocol arrangements are adequate and in the best interest of FCI. The Committee would strongly urge that this matter should be thorougly investigated and the responsibility for the lapses in the arrangement should be fixed. The Committee also urge that it should be ensured that all the defects in the Plant are set right and the Plant reaches its rated capacity on schedule.

F. Cost of production vis-a-vis profitability

7.61. The table below indicates the cost of production of sulphuric acid as estimated on a rough basis in August, 1964:—

Elements	Cost per tonne
	Rs.
(i) Cost of pyrites	56·70
(ii) Transport and handling charges	22·36
(iii) Royalty (7 per cent.) and Sales Tax (3 percent.)	5·67
(iv) Cost of conversion.	36·62
(v) Net return on capital investment (13 per cent).	23·30
	144·65

NOTE : In the estimated cost (1964), there was no provision for Royalty and Sales Tax on the cost of pyrites and the total cost was calculated as Rs. 138·98.

7.62. The actual cost of production of sulphuric acid for the period 1st October, 1971 to 31st March, 1972 is as under:—

	Actual cost (Rs.)ton	
	1971—72	
	Case 'A'	Case 'B'
1. Cost of pyrites	138·30	184·40
2. Sales tax & royalty	5·20	6·12
3. Transport & handling charges	21·28	21·28
4. Cost of sulphur delivered at Sindri	57·97	57·97
	222·75	269·77
5. Cost of conversion	77·10	77·10
6. Depreciation	80·30	80·30
	380·15	427·17

Case 'A' relates to pyrites 33.3 ± per cent. S cost at Rs. 150 per tonne pyrites ex Dehri on Sone excluding royalty and sales tax and case 'B' to pyrites 33 plus 3 per cent at Rs. 200 per tonne ex Dehri on Sone excluding royalty and sales tax.

7.63. The reasons for increase in the cost of pyrites are as follows:—

(i) Reduction in thickness of pyrites ore,

(ii) Presence of shale and acidity of water oozing through the mine resulting in excess wear and tear of machine.

(iii) Increase in the rates of wages, D.A.

(iv) Increase in material cost

(v) Increase in power cost

(vi) Increase in capital cost of project on account of increase in cost of plant and machinery, initial development of mine, devaluation etc.*

7.64. The elements on account of depreciation and the cost of conversion have also increased the actual cost, mainly due to reduced level of production of the acid.**

7.65. The plant was accepted on 30th March, 1971 and according to the Fertiliser Corporation of India Limited, commerial production the sulphuric acid was to commence 6 months after the date of acceptance. The Commercial production of the sulphuric acid plant was deemed to have commenced from 1st October, 1972. For various technical reasons, it was not possible to run both the roasters together as explained earlier. It was expected that after parallel crushing scheme is completed by the end of 1973|beginning of 1974, it would be possible to run the plant at its rated capacity.

7.66. For the acid produced during the trial run, the Fertiliser Corporation of India Limited has given credit at the rate of Rs. 212 per tonne which equates the end product cost through acid neutralisation and gypsum prossesses.

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*The actual cost was based on the assumption the in case 'A' the cost of pyrites will be Rs. 150/- per tonne ex-Dehri-on-Sone excluding royalty and sales tax and in case 'B' Rs. 200/- per tonne.

**At the time of factual verification, Audit informed as follows :—

"In the 1964 estimate for production of sulphuric acid, there is no mention of the element of depreciation."

7.67. In this connection, the Ministry stated in June, 1971 as follows:—

"The question of the price to be paid for pyrites supplied up to 31-3-1970 is being arbitrated by Shri S. K. Majumdar, Financial Adviser of the Department of Mines and Metals and Joint Secretary (Finance). He will determine the quantities and grades for which payments will be made and the rate at which such payments have to be paid. His report is expected shortly."

7.68. The salient features of the Majumdar Report on pricing of pyrite supplied by PPC to FCI are as follows:—

"The report recommends prices for pyrite ore supplied to FCI during 1968-69 and 1969-70 as under:—

1. A price of Rs. 200 per tonne excluding royalty and sale tax FOR Dehri-on-sone for pyrite ore assaying 33 $\pm$ 3 per cent S.

2. A price of Rs. 275 per tonne excluding royalty and sales tax FOR Dehri-on-sone for pyrite ore assaying 40 per cent S.

3. The quantities supplied have been reconciled and are indicated in para 22 of the report.

4. As regards the quantity of 9,706 tonnes of —— 30 per cent ore supplied by PPC, the report recommends that in the event of such supplies becoming of use to FCI in due course, a fair payment would be due to PPC in this regard. Such matters can be determined and decided separately with the price for supplies made from April, 1970."

The matter regarding fixation of pyrite for 9,706 tonnes ore assaying—30 per cent is being persued with FCI.

On the basis of the Majumdar Report, a sum of Rs. 91.19 lakhs was due from FCI including royalty and sales tax for supplies upto 31-3-1970 (excluding the price for 9,706 tonnes of one assaying—30 per cent S.). Out of this, a sum of Rs. 87.58 lakhs have been received from FCI and a sum of Rs. 3.61 lakhs is due from them as on 30-6-1972 (including royalty and sales tax).

FCI has not paid any amount on account of royalty and sales tax so far for any year."

7.69. The Committee were informed by PPC that "the matter of fixing the price of the ore supplied during the year 1970-71 has not been settled as the price of the ore to be paid by FCI as determined by Shri S. K. Majumdar for 1968-69 and 1969-70 was not accepted by FCI. The pattern of consumption of the ore during 1970-71 has been almost the same as that of the previous year. The Matter was considered by the Government in the meeting held on 24-12-71 and the Government recommended that FCI should agree to pay the price of the ore for 1970-71 and thereafter on the basis of the price determined by Shri Majumdar. We have received 'on account' payments from FCI on the above basis for the ore supplied during 1970-71.

It is noticed that the sale of pyrites in 1970-71 was accounted for at Rs. 224 per tonne for 34 per cent sulphur grade ore, whereas the Majumdar Committee in its Report of July, 1971 fixed a price of Rs. 200 per tonne for 33 plus 3 per cent sulphur grade ore supplied upto 31-3-1970.

7.71. The Fertilizer Corporation of India Ltd. has contested this price. In this connection, PPC stated as follows:—

> "PPC Board adopted the price of Rs. 224/- in the annual accounts as this is the price fixed by the Sale Price Committee. Since Majumdar Award was not accepted by FCI and they have not agreed to make payment on this basis, there was no choice to PPC Board but to close the final accounts on the price as recommended by the Sale Price Committee as done in the previous years. On the basis of sale price of Rs. 200/- during the year 1970-71, Rs. 8.88 lakhs has been adjusted in 1971-72."

7.72. During the course of evidence the representative of the Ministry of Petroleum & Chemicals informed the Committee that:

> "the formal agreement could not be entered into because the price difference has not been settled. The price is in dispute even after the Majumdar Award, but recently we have been told that PPC and FCI have agreed that they would enter into conditional agreement subject to the price they settled later so that at least the other stipulations can form the basis of the agreement."

7.73. It is needless for the Committee to point out that unless the cost of production of pyrites at Amjhore is brought down and the

price at which the pyrites would be supplied by PPCL to FCI settled, the economics of the Sulphuric Acid Plant at Sindri would continue to be precarious. The Committee note that the cost of production of sulphuric acid as estimated in August, 1964 was Rs. 144.65 per tonne, but the actual cost of production was as high as Rs. 427.17 per tonne from pyrites of 33 ± 3 per cent S. grade ore and Rs. 380.15 per tonne from pyrites of 33 plus 3 per cent S. grade ore. The actual cost was based on the assumption that in case (A) the cost of pyrites will be Rs. 150/- per tonne ex Dehri-on-Sone excluding royalty and sales tax and in case (B) Rs. 200/- per tonne. Although the Mazumdar Award is there, the FCI has not accepted the basis on which PPCL is billing them. The Committee need hardly stress that Government should take decision as to which of the two grades of ore they would like Amjhore Mine to provide depending on the extent to which they are willing to bear the financial burden so that this issue of fixing a sale price is settled without loss of any further time.

VIII

LACK OF CO-ORDINATION BETWEEN P.P.CL. AND F.C.I.

A. Transfer of the Sulphuric Acid Plant to Fertilizer Corporation of India Limited, Sindri.

8.1. Though the Detailed Project Report envisaged the working of mine at Amjhore and of Acid Plant at Sindri as an integrated project, in June, 1967 it was proposed at the Ministerial level to transfer the Acid Plant situated at Sindri from the control of the Pyrites, Phosphates and Chemicals Limited to the Fertilizer Corporation of India Limited on considerations of capital cost, operational efficiency and overall management. In August, 1967, the Company agreed in principle to transfer the Sulphuric Acid Plant to the Fertilizer Corporation of India Limited, Sindri. A final decision was taken in December, 1967 which was also approved by the Fertilizer Corporation of India Limited. Pending final agreement the Sulphuric Acid Plant was transferred *de facto* to the Fertilizer Corporation of India Limited with effect from 1st April, 1968. A sum of Rs. 1,97,65,800 was shown as an advance to the Fertilizer Corporation of India Limited, Sindri being the net value of the assets and liabilities in respect of the Plant transferred to them in 1968-79. But the Fertilizer Corporation of India Limited has not incorporated these assets and liabilities in their books. Only the expenditure in respect of the Plant since 1st April, 1968 was met from the budget of the Fertilizer Corporation of India Limited, and the entire expenditure was shown under suspense account.

8.2. The *de-jure* transfer of the Plant has not yet been finalised as the Fertilizer Corporation of India Limited, Sindri subsequently did not agree to take up the Plant but desired to work the Plant as the agent of the Pyrites, Phosphates and Chemicals Limited on account of unusal increase in the cost of pyrites, which would adversely affect the cost of sulphuric acid to be produced by the Plant. The matter was referred to the Government of India for decision. The Government suggested in December, 1969 that the Fertilizer Corporation of India Limited should take over Amjhore Mines Project as their captive unit and also complete the formalities of taking over the Sulphuric Acid Plant. In the meeting held in the Ministry on 6th January, 1970 when the representatives of the Pyrites, Phosphates and Chemicals Limited and the Fertilizer Corporation of India

Limited were also present, it was decided that Amjhore Mine would continue to remain with the Pyrites, Phosphates and Chemicals Limited and that the Sulphuric Acid Plant would be managed by the Fertliizer Corporation of India Limited and that they would complete the formalities of taking it over.

8.3. In March, 1970 the Fertilizer Corporation of India Limited contested that no such decision was taken and the formalities of taking over of Acid Plant were still not complete. However, the Fertilizer Corporation of India Limited informed Audit in April, 1971 that "it has already agreed to complete the formalities for *de jure* transfer of the Sulphuric Acid Plant subject to certain conditions." It has further been stated that the 'Board's decision has already been conveyed to the Government and Government's reply is still awaited.'

8.4. The Ministry of Petroleum and Chemicals stated in a written note in this connection, as follows:—

> The Pyrites & Chemicals Development Company Limited subsequently known as Pyrites, Phosphates and Chemicals Limited, had originally taken up the setting up the Sulphuric Acid Plant. While the project was being implemented, Government decided early in 1967 that the project should be transferred to F.C.I. in view of the following considerations:—
>
> (i) The P.P.C. was being entrusted with the development of pyrites deposites located at Saladipura in Rajasthan and the Company should be made into a wholly mining organisation.
>
> (ii) Most of the sulphuric acid produced from the Sulphuric Acid Plant would be utilised for the production of fertilizers at Sindri by F.C.I. Further the F.C.I. were to set up another sulphuric acid plant based on pyrites at Sindri under Sindri Rationalisation Scheme. In this connection, a variety of infrastructure facilities such as water supply, railway siding etc. already available with F.C.I. at Sindri was also taken into account.

In accordance, with the above decision of the Government , the P.P.C. and F.C.I. took further action to effect the transfer of Sulphuric Acid plant from P.P.C. to F.C.I. The Board of Directors of P.P.C., in their Meeting held on 26-8-1967, agreed in principle, to the transfer and authorised Managing Director PP.C. to negotiate with

F.C.I., the terms and other details of the transfer. The Management of the P.P.C. took up the matter with F.C.I. accordingly.

In November, 1967 F.C.I. informed Government of the position regarding the transfer of Sulphuric Acid Plant. The various problems relating to further implementation of the project were pointed out. It was also indicated that due to the intitial short-fall in the utilisation of capacity in the first few years, the plant was likely to run into losses, which would have to be borne by F.C.I. An indication was also made to the effect that F.C.I. would rather prefer to execute the project as agents of P.P.C. Limited.

However, in a meeting held on 15-11-1967 between the officers of F.C.I. and P.C.D.C., it was decided that it would be in the over-all interest for the acid project to be transferred to F.C.I. Thereafter, Board of Directors of F.CI. in their meeting held on 7th December, 1967 approved the transfer and authorised further action.

The Government informed P.C.D.C. on 18-12-1967 of the decision of Board of Directors of F.C.I. and requested them to pursue the matter with F.C.I. and come up to the Government for such approvals, as may be necessary.

Thereafter, the two companies proceeded to work out the details regarding the formalities of transfer. In the discussions held on 16-4-68 it was agreed that the plant should *de facto* be transferred to F.C.I. with effect from 1st April, 1968, F.C.I. taking over all the liabilities and expenses with effect from that date, pending formal signing of agreement for transfer. This was ratified by the Board of Directors of P.P.C. on 27-4-1968. Accordingly, the plant has been transferred *de facto* from P.P.C. to F.C.I; on 1-4-1968.

In March, 1969, the F.C.I. informed the P.P.C., that because of high cost of pyrites, the working of the sulphuric acid plant was bound to be uneconomical resulting in loss to F.C.I. In view of this, the thinking in F.C.I. was that the plant should be worked by F.C.I. for P.P.C. only on agency basis and should not be taken over on transfer. However, a Committee had been appointed to go into the whole question. The Board of Directors of P.P.C. considered the above proposal of F.C.I. on 28-10-1969, but they did not accept it. The P.P.C. informed F.C.I. accordingly This was also brought to the notice of the Government on 12-8-1969 by P.P.C. There-upon the Government called for detailed comments of F.C.I. on 13-10-1969. In reply F.C.I. forwarded to Government on 31-12-1969 the decision of the Board of Directors of F.C.I. in their meeting held on 8-12-1969,

namely that F.C.I. should not, while running the plant, suffer any loss under any circumstances but continue to operate the plant on no profit no loss basis. Further the F.C.I. should not in any case be asked to pay M/s P.P.C. Ltd. anything more than the break-even price. Till such time, as the plant was actually commissioned, the F.C.I. may make on account payment to P.P.C. for supply of Pyrites, and in the mean time work up the parameters of accepting agency on behalf of P.P.C. as well as transfer of ownership.

The matter was also considered by the Government in a meeting held on 6-1-1970. After taking into consideration various factors, it was decided that the existing arrangement should continue and the position reviewed after three months.

Meanwhile, the Government appointed a Committee of Experts headed by Shri K.S.R. Chari, to go into all aspects of mining of pyrites and its utilisation for production of sulphuric acid. F.C.I., therefore, informed Government on 9th July, 1970 that a final decision on the arrangements to be made between F.C.I. and P.P.C. in regard to the sulphuric acid plant could be taken only after the report of the Committee was received and considered by the Government and for the time being the present arrangements would continue.

The matter was again considered by the Government in a meeting held on 21-11-1970 and it was decided that immediate action should be taken for *de jure* transfer of the plant and that F.C.I must finalise this matter in their next Board meeting. In accordance with this decision F.C.I. were requested on 28-12-1970 to take immediate action in the matter.

On January 23, 1971, the F.C.I. informed the Government that the matter was discussed by the Board of Directors in the meeting held on 5-1-1971 The Board agreed to the *de jure* transfer of the plant subject to the following conditions:—

(i) The capital outlay invested by PPC on the plant be written off to the extent necessary to equate to a comparable Sulphuric Acid Plant erected to run on Sulphur only.

(ii) Government should not insist on use of pyrites alone but permit F.C.I. to use sulphur and/or pyrites plus sulphur at its option.

The F.C.I. were informed in response to the above proposal on 20-2-1971 that it would not be possible for Government to agree to the first condition namely writing off of capital invested, without knowing the actual implications and the figures involved. In regard to the second condition F.C.I's attention was invited to Government sanction issued on 25-1-1971, wherein the Government had agreed to the installation of sulphur burning facility in the Sulphuric Acid Plant.

The F.C.I. were again requested on 4-3-1971 to take immediate action for the *de jure* transfer of the plant without any further delay, particularly in view of the fact that Government had earlier agreed to the installation of sulphur burning facility in the plant.

On 24th March, 1971 the F.C.I. requested Government that Rs. 250 lakhs should be written off and the plant at written down value should be transferred to F.C.I. This request was considered by the Government and F.C.I. were informed on 2nd June, 1971 that it is not possible to accept the proposal for a capital subsidy in the Acid Plant.

At the time of taking the decision of the transfer of the ownership of the sulphuric acid plant from P.P.C. to F.C.I. and its *de facto* transfer with effect from 1-4-1968, F.C.I. and P.P.C. were both under Deptt. of Chemicals. However, from 1-4-1969 P.P.C. was transferred to Department of Mines and Metals on consideration of the fact that it is primarily concerned with mining activities. This led to difficulties, with regard to integrated operation of the Amjhore Mining and Acid Plant. Considering these difficulties, a view was taken that Amjhore Mining Project should also be transferred to F.C.I. as a captive unit. However, no final decision in this regard was taken. In the meanwhile, the administrative control of P.P.C. was transferred back to Deptt. of Chemicals, (Ministry of Petroleum and Chemicals) in January, 1972, on account of the view that P.P.C. produces minerals like pyrites which are used entirely for the F.C.I. and which in any case will be used by the industries under the control of Ministry of Petroleum and Chemicals.

After the transfer of P.P.C. to the Ministry of Petroleum and Chemicals Government asked F.C.I. on 22nd March, 1972, to intimate progress in implementation of the decision to transfer the plant *de-jure* from P.P.C. to F.C.I. In reply, the F.C.I, have informed on 10-5-1972 that with the deteriorating financial position of Sindri Unit and its overall performance which has resulted in a loss of Rs. 3.8 crores during the vear 1971-72 the Board of Directors of F.C.I.

have taken the view that in order to reduce any more financial loss to F.C.I. at Sindri, P.P.C. may continue to own the Sulphuric Acid Plant and Sindri Unit will consume acid at the rate of Rs. 202 per tonne i.e. an estimated cost on no profit no loss basis.

In the meanwhile, the Board of Directors of PPC again passed a resolution requesting FCI to accept the *de jure* transfer of the Acid Plant forth with. The F.C.I. Board, which considered this matter in the meeting held on 20-21 December, 1972, have reiterated their earlier stand that the *de jure* transfer of the plant be completed subject to the condition that the capital outlay made by P.P.C. on the plant be written off to the extent necessary for it to be comparable with a sulphuric acid plant erected to run on Sulphur only as raw material.

The Government have not yet taken a final decision in regard to the above proposal of F.C.I. In this connection it may be pointed out that the final sale price for pyrites has not yet been determined due to factors like low off-take of pyrites, restricted development of mine capacity etc. Keeping in view the requirements of pyrites after the commissioning of the Bulgarian Acid Plant, the P.P.C. is drawing up a revised project report for mining of 900 tonnes per day of pyrites from Amjhore. At this level of production, the cost of production of pyrites is likely to be substantially lower and the price of the pyrites based thereon may be acceptable to F.C.I. Government therefore, hope to take a decision in regard to the matter soon after the receipt of revised project report from P.P.C. and the likely figures of cost of production."

8.5. The Committee find that although the Sulphuric Acid Plant was transferred de facto to the F.C.I. from 1st April, 1968, the de jure transfer has not yet been effected inspite of the fact that both the undertakings are under the administrative control of the same Ministry. The consequence of the non-acceptance of the Sulphuric Acid Plant by the F.C.I. de jure is that the operating results of the Sulphuric Acid Plant are neither reflected in the accounts of F.C.I. nor that of the P.P.C.L. The main reason for this delay seems to be the unwillingness of the F.C.I. to take over the plant because of the high cost of pyrites due to which the working of the sulphuric acid plant would be uneconomical resulting in loss to F.C.I. The Committee were informed that the Government hope to take a decision in the matter after the receipt of the revised project report from the PPCL for the production of 900 tonnes of Pyrites per day. The Committee desire that the Government should take a serious note of the

present situation that because the cost of producing pyrites ore is very high, the F.C.I. is not prepared to pay that price. The Committee strongly urge that Government should find a way out immediately to resolve this problem to the mutual benefit of PPCL and FCI keeping in view the cost of the end product. The Committee recommend that the de jure transfer should also be effected soon to avoid legal and procedural difficulties in the present situation where the plant belongs de facto to F.C.I. and de jure to PPCL.

B. Deterioration of the stock of pyrites at Dehri-on-Sone Railway siding

8.6. Pyrites ore of both 33± 3 per cent S. Grade (B) and 40 per cent. S Grade (A) were being supplied to the Fertiliser Corporation of India Limited, Sindri with effect from 1968-69 as mutually agreed upon, for the requirements of Sulphuric Acid Plant. In September, 1969 the Fertiliser Corporation of India Limited refused to accept pyrites ore assaying less than 40 per cent. S Grade as their requirement was only for 40 per cent. S. Grade for guarantee tests of the Plant which were till then not completed. In the meantime, the Pyrites, Phosphates and Chemicals Limited had a stockpile of 5150 tonnes of 'B' grade ore at Dehri-on-Sone Railway siding upto the end of September, 1969.

8.7. As a consequence of the Fertiliser Corporation of India Limited, Sindri's refusal to accept any more 'B' grade ore, the Comat Dehri-on-Sone was not beneficiation, on the expectation that 'B' grade ore at mine site from mid-September, 1969, but the stockpile at Dehri-on-Sone was not beneficiation, on the expectation that 'B' Grade ore would be indented for by the Fertiliser Corporation of India Limited in the near future after the guarantee tests would be over. Meanwhile, the stockpile at Dehri-on-Sone Railway siding deteriorated due to rain and other natural causes. In November, 1969 it was apprehended by the Company that about 70 per cent of the stockpile might be lost due to deterioration in quality. Therefore, it was decided on 4th November, 1969 to start manual beneficiation of the stockpile at the Railway siding and to recover 40 per cent S. Grade ore to the extent possible for despatching the same to Sindri Acid Plant. The work was done on contract basis and the final recovery of saleable ore is as indicated below:—

'A' Grade		995 tonnes
'B' Grade	—	602 tonnes

Above rate of recovery was abnormally low as compared with the rate of recovery achieved during the year 1969-70 at mine site, viz., 66 per cent. On this basis, the loss on account of less recovery worked out to Rs. 5.73 lakhs (including extra expenditure on beneficiation of deteriorated ore Rs. 0.18 lakh).

8.8 In this connection P.P. & C.L. in a written note stated as follows:—

> "FCI had been taking 30—36 per cent grade ore for working the plant and they had not mentioned any technological difficulty in using this grade ore. They had only asked for small quantities of 40 per cent grade ore for completing the guarantee tests. Accordingly, when their requirement of limited quantity of 40 per cent grade ore was received there was no reason to believe that they will refuse to accept 30—36 per cent grade ore after supplying the limited quantity of 40 per cent grade ore. Even in the meeting held in the Ministry in August, 1969, it was decided that FCI will continue to draw 33 per cent grade ore from PPC and not allow their stock at Sindri to go down below 15,000 tonnes. It was under this back-ground that the Company expected that the despatch of 'B' grade will resume and it will not be desirable to beneficate this material. But unfortunately the trials of the plant were delayed and the 'B' grade ore lying at the siding could not be despatched and in the meantime it got deteriorated."

P P & C L further stated that "no fool-proof precautions can be taken to avoid deterioration of stock pile of pyrites. The Company had spent about Rs. 40,000 for transport of ore to the siding and in case this ore is beneficiated for 40 per cent grade the recovery would have been about 56 per cent and the transport cost incurred on the balance amount would have been wasteful. Had FCI taken 30—36 per cent grade for which there was all the chances after the limited supply of 40 per cent ore was completed this wasteful expenditure could have been avoided. Moreover, there was not enough organisation available at Dehri-on-Sone for undertaking the beneficiation work as well as enough space was also not available.

Pros and cons of beneficiating Railway siding stock pile were considered by the management from time to time and only after

considering the pros and cons the management decided to beneficate in November, 1969 this ore as FCI was not accepting the supplies of 30—36 per cent grade ore."*

8.9. The Committee enquired as to when the quantity of ore after beneficiation was despatched to F.C.I., and how the balance quantity was disposed of. They were informed that the quantity of 'A' and 'B' grades ore was despatched to F.C.I., immediately after it was recovered and when the supplies were resumed. Subsequently a recovery of 108 tonnes of ore was effected making the total recoveries as 995 tonnes of 'A' grade and 710 tonnes of 'B' grade ore. The rejections after this recovery were inescapable and had been disposed of as rejects.

8.10. Asked whether there was any agreement between P.P.C.L., and F.C.I., for clearance of 'B' Grade ore the P.P.C.L., stated that the ore was being supplied to F.C.I., on the basis of their requirements and the undertakings between P.P.C., and F.C.I., in the various meetings. No formal agreement for supply of ore was drawn between P.P.C., and F.C.I. P.P.C., Board at its 76th meeting held on 9th June, 1972, decided that an agreement be signed between P.P.C., and F.C.I., for this future supplies of ore.

8.11. During evidence the Committee desired to know the reasons why F.C.I., backed out from their commitment to draw 33 per cent grade ore from P.P.C.L., and allowed their stock at Sindri to go down 15,000 tonnes. The representative of F.C.I., stated that "this problem arose in early days when we were commissioning sulphuric acid plant 30—36 per cent sulphur pyrite and quantity of 40 per cent were also brought for guarantees. It is because there were lot of problems which were coming up in the plant working with 30—36 per cent pyrite. Simon Carves were not keen to run plant on low grade pyrite and as such we were reluctant to take more of 30 per cent grade pyrite from P. P. & C. Even at Sindri we did not have space to stock pyrites."

8.12. The representative of the Ministry of Petroleum and Chemicals informed the Committee that "the total stock received

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*At the time of factual verification, Audit informed as follows:—

"In response to FCI Ltd.'s demand of August, 1969 for 6000 tonnes of 40 per cent S grade ore for guarantee tests, the Company intimated that it could complete the supply in about 2½ months time at the rate of 2,500 tonnes per months."

was 5150 tonnes. 1705 tonnes got retrieved and 3445 tonnes got deteriorated. The question of bearing the loss is under dispute between F.C.I., and P.P.C. The formal agreement could not be entered into because the price difference had not been settled. The price was in dispute even afer the Majumdar Award but recently we have been told that P.P.C.L., and F.C.I., have agreed that they would enter into conditional agreement subject to the price they settle later so that at least the other stipulations can form the basis of the agreement."

8.13. The Committte are distressed over the loss of Rs. 5.73 lakhs suffered due to deterioration of the stock of 5150 tonnes of 'B' grade pyrites ore at the Dehri-on-Sone railway siding. The stock had accumulated at the railway siding because of the refusal of the F.C.I., to accept the 'B' garde ore, in spite of their acceptance in the meeting held in the Ministry in August, 1969. When the P.P.C., were knowing that the acid plant was capable of operating on 40 per cent. S. grade only, the P.P.C., should have taken immediate action for the benefication of ore and despatched them rather than allowed them to remain. It is regrettable that instead of taking prompt action either to persuade the F.C.I. to accept 'B' grade ore or to beneficiate it to improve its quality, as was done subsequently, the ore was allowed to accumulate at the railway siding resulting in its deterioration due to rain and other causes. The Committee desire that the reasons for this lapse should be investigated and responsibility fixed. The Committee also urge that there should be a proper coordination between the two public undertakings in respect of production, off-take and transport of the pyrites and a firm agreement for the supplies finalised between the said undertakings, so that neither party fails to fulfil its obligations.

8.14. The Committee find that, as the issue price of pyrites ore has not yet been settled, the question as to who should bear the loss, the PPCL, or the FCI, is still under dispute. It is strange that while there has been a loss of Rs. 5.73 lakhs to the national exchequer, neither of the two Companies is prepared to accept it and it has not been shown in the accounts of either of them. The Committee desire that this matter should be settled expeditiously.

C. Deterioration of Pyrites Ore supplied to the Fertilizer Corporation of India, Sindri

8.15. 46,691 tonnes of pyrites were received by Fertilizer Corporation of India Limited, Sindri during 1968-69 and 1969-70 out of which 31,383 tonnes were consumed in the Sulphuric Acid Plant

during 1969-70 for trial runs. The balance of 15,308 tonnes of pyrites, valued at Rs. 34, 28,992 @ Rs. 224 per tonne, was lost as 6,791 tonnes were found short on physical verification on 31st March, 1970 and 8,517 tonnes were considered unifit for use due to long storage,. The loss of Rs. 34,28,992 was not reflected in the accounts of either the Pyrites, Phosphates and Chemicals Limited or the Fertilizer Corporation of India Limited, Sindri.

8.16. The shortage and deterioration of the material have been explained by the Fertilizer Corporation of India Limited as due to prolonged storage, receipt of completely wet materials during monsoon, transit losses and supply of low quality ore by the Pyrites, Phosphates and Chemicals Limited contrary to the understanding with them.

8.17. The Management, PPCL in a written note stated that the dispute regarding the quantity and the price of ore supplied by PPC to FCI was referred by* the Ministry to Shri S. K. Majumdar, Joint Secretary, Ministry of Finance, on the basis of which Shri Majumdar has recommended that the following quantities of ore have been supplied by PPC to FCI:—

+40 % sulphur grade	16,280·89	tonnes
33 ± 3 % 'S' grade.	20,869·27	,,
30 % 'S' grade	9,706·00	,,
TOTAL	46,856·16	,,

8.18. On the recommendation of Shri Majumdar F.C.I. has made full payments in respect of 40 per cent 'S' grade ore and 33 per cent grade ore at the rates recommended by Shri Majumdar in his report. The price of 30 per cent 'S' grade ore has not yet been settled. Shri Majumdar has recommended that a fair payment is due to PPC if this ore becomes of use to FCI. This issue of fair payment has not yet been settled with FCI. The price of Rs. 124/- per tonne has been taken for this low grade ore as per the decision of the Board of Directors and the difference has been adjusted in the final accounts of 1970-71. On the basis of Majumdar report the incidence of loss resulting from storage or ore becoming unifit due to long storage should be borne by FCI.

*At the time of factual verification Audit informed as follows:—

"The dispute regarding quantities did not form part of the terms of reference for arbitration."

8.19. About shortage|deterioration noticed in respect of supplies made during 1970-71 and 1971-72 the Management of PPC stated that "FCI has informed that during 1970-71 and 1971-72 the shortages in weight and wagons not received are as under:—

	1970-71	1971-72
	M. T.	M. T
Shortage	2,403·50	392·21
Quantity not received	93·20	171·20*

The shortages in weight are not shown on the basis of R.R. weight and actual weighment of the wagons as received at Sindri. The shortages have been computed after the weighment of the trucks done by FCI after unloading the contents from the wagons. In respect of the quantity of wagons shown as not received, the R. Rs. are in the name of FCI and as such, the shortages are attributed to FCI."

8.20. In reply to a question if the Pyrites Phosphates and Chemicals Ltd., accept the statement of Fertiliser Corporation of India Limited that supply of low quality ore was contrary to the understanding with them. The Management of PPC stated as follows:—

"PPCL does not accept the contention of the FCI that the supply of ore has been made contrary to the understanding. All supplies have been made of the ore analysing between 30 per cent—36 per cent. The grade of some quantity of ore has fallen marginally below 30 per cent 'S' on the basis of the sampling of the ore done at Sindri. The despatchable grade of pyrites ore (30-36 per cent) consists of pyrites (specific gravity 4.0) and shales (specific gravity 2.6) which are hetrogenous materials. The size of the R.O.M. ore despatched range from 0-10". Thus during transport, unloading from wagons handling and stacking, seggregation of these two materials takes place and while taking samples at Sindri, some of the ore analysed below 30 per cent. There are no standard sampling methods by ISI for pyrites ore having this type of hetrogenous contents and as such, the sampling of the supplies was provisionally agreed to be done based on

*Not vetted by Audit.

the sampling of run of mine ore. It will thus be seen that the ore which has analysed below 30 per cent has been due to difficulty of taking proper samples of the ore and as such no responsibility for the same can be fixed."

8.21. In this connection the Ministry of Petroleum and Chemicals, in a written note informed the Committee as follows:—

"The supplies of pyrites were started from May, 1968 and according to the despatch advices of M|s PPC a total quantity of 15704 tonnes of pyrites was despatched upto end of March, 1969. As there was no consumption of Pyrites, formal stock taking at the end of the financial year 1968-69 was not carried out by the Fertiliser Corporation. However, just before start up of the plant, physical stock verification was conducted on 13th May, 1969. Stock verification was carried out by measuring the heaps which were located at different places and were irregular in shape. The book stock of pyrites on 13th May, 1969 taken on the basis R. R. weight was 20,178.6 tonnes. Verification of physical stock by volumetric measurement showed the quantity as 15,538.4 tonnes. Thus even before the plant was started up, a shortage of 4640 tonnes of pyrites in Stocks was noticed.

The consumption of pyrites was started in July, 1969 and upto end of March, 1970, total pyrites consumed was 31,383 tonnes. Total receipts of pyrites starting from May, 1968 to March, 1970 as per books of account was 46,690 tonnes out of which 31,383 tonnes were consumed in the plant. Thus leaving a book balance of 15,307 tonnes. Stock verification of the ground stock were carried out by volumetric measurement and the survey showed a shortage of 6791 tonnes. This shortage was inclusive of the shortage of 4649 tonnes noticed in May, 1969.

For the year 1970-71, the stock verification carried out showed that there was no shortage when compared with the book balance. However, for the year 1971-72, the survey of the ground stock showed a shortage of 1964 tonnes when compared with the book stocks. This would roughly represent 3 per cent of the despatches of pyrites made during the year 1971-72.

Regarding verification of the quantity of pyrites received at Sindri the position was explained below:—

M/s. PPC were loading pyrites at Dehri-on-Sone on the basis of volumetric measurement only as there are no facilities for weighing the railway wagons. During the year 1968-69 and part of the year 1969-70, there were no facilities for weighing the railway wagons at Sindri also. In view of this the receipts were being recorded on the basis of RR weights and only occasional checks of the volume was being made. The supplies received by trucks were being weighed and no discrepancy was found. The total quantity of pyrites despatch during the 2 years of 1968-69 and 1969-70 and receipts as recorded by FCI were reconciled and it was found that there was a difference of only 262.01 tonnes. 97.5 tonnes out of this was attributed to the 4 missing wagons and balance due to discrepancy in recording the weights from R.Rs.

8.22. For the year 1970-71 onwards, the wagons received at Sindri are being weighed and following is the position about the quantity despatched by PPC and the receipts at Sindri.

	Quantity despatched by PPC	Receipt at Sindri		Shortage in transit	Quantity in missing wagons
		33+3%	Below 30%		
1970-71 . .	37103·261	31613·18	3039·84	2403·501	46·74
1971-72 .	33897·60	32669·59	682·40	399·21	146·40
Pyrites of 23-27% grade for experimental purposes.	995·80		877·36	94·04	24·40

8.23. It will be seen from the above that apart from the quantity in the missing wagons, shortage in transit during 1970-71 was 6.5 per cent which came down to 1.4 per cent. in the year 1971-72. During the current year, occasional shortages in wagons are being noticed and these are being brought to the notice of M/s. PPC. Arrangements have been made for joint inspection during loading at Dehri-on-Sone and also to verify the bulk density figures jointly to reduce the discrepancies.

8.24. Shortages found at the time of annual stock verification could be partly attributed to the receipts of the wet material and

partly to the natural deterioration of pyrites. Shortages could also be attributed to incorrect consumption estimates particularly during the initial commissing of the plant when the sulphurous gases had to be vented on numerous occasions. Even now there is no accurate system of determining the exact consumption of pyrites which has to be estimated and could give rise to errors in stocks.

8.25. However, it is not possible to quantify the shortages due to various causes separately. The Committee were also informed that the steps taken to avoid shortages in future are:—

(i) Facilities have been provided for weighing the wagons as they are received and discrepancies in despatched weights and weights received are reconciled with M/s. PPC.

(ii) Joint inspection has been arranged at Dehri-on-Sone to ensure that wagons are properly loaded.

(iii) Arrangements have been made for occasional checking of the bulk density figures which vary with the size distribution and shale content of the pyrites.

(iv) Material as received is now taken to a covered storage so that it does not get wet during rains.

(v) The stocks are kept low so that there is no deterioration during storage.

(vi) As far as possible closed wagons will be used for transport of pyrites during the rainy season. In case of open wagons, arrangements will be provided to cover the wagons with tarpaulines."

8.26. During the evidence, the representative of the Fertilizer Corporation of India informed the Committee in this regard as follows:—

"We tried to find out the reasons which would attribute to the loss but it is difficult to allocate because of wet-pyrites coming in, because of storage outside and no covered space availability. The covered space available was for 7,000 tonnes and we had to stock the pyrites outside. I might explain that PPC's capacity even in 1968 was limited and they wanted that we should start taking in advance so that the time sulphuric acid plant starts commissioning we had built up stocks because there was

delay in commissioning of the plant. We could not take any further quantities and even the stocks which had been built up at site because of long storage there was deterioration and once it deteriorated, powder gets formed and with the rains it gets washed off."

8.27. The representative of the Ministry further stated that:—

"This loss will have to be related to the total supply of 46,691 tonnes of pyrites which was received for purposes of stock during over a period of two years, so that the plant could be supplied with pyrites when it went into operation. As the operation was delayed, the pyrites were exposed to nature. In this 31,383 tonnes were fully utilised. At the end of the year period, when verifications done, it was found that out of the remaining 15,308 tonnes, about 6,791 tonnes had been washed away because of crumbling. The remaining 8,157 tonnes had deteriorated due to exposure to the weather etc., and were not fit for use."

8.28. The Committee regret to note that upto 31st March, 1970, 6,791 tonnes of pyrites were found short of physical verification and 8.517 tonnes were considered unfit for use due to long storage, resulting in a loss of Rs. 34,28,992 which is unfortunately neither reflected in the accounts of the Pyrites, Phosphates and Chemicals Limited nor of the Fertilizer Corporation of India Limited. During 1971-72 also, shortage of 1964 tonnes was noticed at the time of physical verification of stock. The Committee also regret to find that during the transit of ore from Amjhore to Sindri, some of the wagons were even found missing. The Committee would like to be informed whether compensation has been obtained from the Railways for the loss pyrites transported in Wagons which were reported to be missing. The Committee also regret to note that there were large shortages in transit in the quantity of ore in transit. However, it was not possible to lodge any claims with the Railways for shortages as there were no facilities for weighing the railway wagons either at Dehri-on-Sone or at Sindri and the receipts of the material were being recorder on the basis of R/R weights. The Committee have been informed that some steps have since been taken to avoid shortages both during transit and at Plant site. The Committee hope that with the measures now introduced, the Company would ensure that loss due to shortages, deterioration of ore and other causes will be eliminated.

D. Contract with Bulgarian firm for expansion of Sulphuric Acid Plant

8.29 In March, 1968 the Fertiliser Corporation of India Ltd., Sindri entered into a contract with a Bulgarian firm for another Sulphuric Acid plant based on pyrites to be installed at Sindri under Rationalisation Scheme. The value of the contract for supply of materials, equipments, etc. was Rs. 2,16,15,000. The Plant was designed to consume pyrites ore of 43 per cent 'S' Grade on dry basis (which is beyond the capacity of Amjhore Mine) for production of 880 tonnes of sulphuric acid per day.

8.30 In January, 1970 it was decided by Government that, in view of the uncertain economics of producing ore of the required quality and quantity from Amjhore, the Fertiliser Corporation of India Limited should not go ahead with the installation of the Bulgarian Plant, even if received in the country, till all the problems at Amjhore were sorted out.

8.31. It was also decided to set up an Expert Committee to examine what grade of ore can be produced from Amjhore Mine on a regular and sustained basis.

8.32 In March, 1970 the Board of Directors of the Fertiliser Corporation of India Limited, however, while approving the proposal of modifications of the above plant to use sulphur as raw material as an alternative arrangement, desired that the capital investment estimates might be critically examined and also to refer the matter to Government for a decision whether further construction work for implementing the Project might continue at Sindri. But on 12th May, 1970 Government decided again that the Fertilizer corporation of India Limited should go ahead with the installation of the Bulgarian Acid Plant bassed on Pyrites. Meanwhile, a Study Team was sent abroad to find out ways and means of utilising Amjhore pyrites by the Acid Plant.

8.33 As per Study Team's recommendation accepted by the Expert Committee, the Plant will work with low grade ore mixed with elemental sulphur.

8.34. As regards the stipulation of 43 per cent. 'S' Grade ore and the supply of equipment by the foreign supplier, the Fertilizer Corporation of India Limited stated in April, 1971 as follows:—

(i) "Initial technical discussion on the Bulgarian contract was started as early as March, 1967 and Fertilizer Corpora-

tion of India Limited entered into the contract with M|s. Techno Export on 30th March, 1968. Bulgarian offer was based on the pyrites analysis of 42.8 per cent 'S' content indicated by M|s. P.C.D.C. at that stage."

(ii) "As per original schedule the material supply was expected between fourth quarter of 1969 and third quarter of 1970. Clearance for import from the Government was obtained in March, 1970 and the first consignment was shipped by M|s. Techno Export on 22nd March, 1970."

8.35 Asked as to how the Bulgarian Plant was considered for pyrites of higher sulphur grade, the Managing Director, F.C.I. stated that:

"From our experience with the Simon Carves Plant, it can only process granulated product that means it is not fine and it cannot process beneficiated pyrites but it requires granules of 3 to 5 M.M. But after having experience of the nature of pyrites that are available from Amjhore and also basing on the Bulgarian Project for sulphuric acid for rationalisation on the basils of 50 per cent. imported and 50 per cent. pyrites from Amjhore we took the decision that the plant should be verstile enough and should not restrict its operation only to one type of pyrites *i.e.*, granulated. The Bulgarian Plant can take a wide range of variety, it can take fines and it can also take granules. The only thing is that the hearth has to be designed in such a manner and provision has to be made such that depending on the nature of pyrites and its quality, it can be adjusted. So we have made all the adjustments in the Bulgarian Plant whereas in the earlier plant of PPCL this arrangement had not been made."

8.36 Asked whether the Government were aware that in the world, there are sulphuric acid plants which use low grade sulphur and whether the Management of P.P.C.L. gave any assurance to Government either orally or written that they would supply 40 per cent. grade, the Managing Director of F.C.I. stated that:—

"When we planned for Sindri, we wrote to the PPC and they gave us various analysis. At that time.....information was not available to P.P.C.'. We enquired from them as to what was the percentage available. They gave the

analysis between 40.3 per cent and 42.8 per cent. on dry basis, that means, that including moisture, it will be 40 per cent. On that basis we have gone ahead with the Bulgarian Plant and because of the high price of the sulphur in regard to the entire rationalisation plant of which the Bulgarian Plant forms part, we thought that 50 per cent. imported and 50 per cent. will be from the pyrites of Amjhore.....and when the Mines will develop in Amhore. Then gradually we will change over completely to Amjhore pyrites and the Plant was also designed in such a manner that during this period transition, the production in the sulphuric acid plant will not be affected because of the variation of the sulphur content from 48 to 40 per cent."

8.37 Asked as to what would happen, if they get only 22 per cent. grade from Amjhore pyrites, the Managing Director F.C.I. explained that:

"We have taken action in the matter. We have been expected of this after all these experience that Amjhore pyrites may not be able to give us the adequate purity of the pyrites and, therefore, a decision has been taken by FCI to use those low grade pyrites (33+3 per cent) mixing with imported sulphur so that average sulphur quantities give the technological performance.....If it comes down to 22 per cent. then as a technical man, it will not be correct for me to say it can be processed or there is liklihood, it cannot be processed. But this has to be done by actual plan performance....By a letter dated 8th May, 1967 the PPCL has given us the analysis of the pyrites that they will supply 42.8 per cent. sulphur."

It was added by a representative that "we came to know about the availability of low grade pyrites only in March, 1968 when we have finalised the contract for Bulgarian Plant and it was only in March, 1968 that they told us that the pyrites ore from the mine will be only 36 per cent. and it will require beneficiation to upgrade to 40 per cent."

8.38 On being asked on what basis the Pyrites Phosphates and Chemicals Ltd. indicated to Fertilizer Corporation of India the sulphur content of pyrite ore at 42.8 per cent. especially when it was realised by the Pyrites, Phosphates and Chemicals Ltd., in May,

1964 that the mine could produce ore of 36 per cent. sulphur grade only the Management of PP&CL stated as under:—

"PPC had indicated pyrites seam analysis of the pyrite ore to FCI in response to the query from FCI in April, 1967 for installing a sulphuric Acid Plant at Durgapur. In March, 1968 in the meeting held with the M.D., PPC & G.M., FCI it was indicated that the grade of the run of mine ore will be only 36 per cent.

8.39. On 28th May, 1968 in the meeting held with M.D., P.C.D.C. and Supdt. (Production), FCI Sindri Unit, it was informed that due to thinning of pyrites bed, the grade of run of mine ore will be 30--36 per cent and PCDC will not be able to gurantee a minimum of 36 per cent. 'S' content in run of mine ore. It was, therefore, considered that the beneficiation of pyrites of Amjhore is inescapable if pyrite grade of 40 per cent. 'S' content is to be supplied to the Acid Plant."

8.40. In a subsequent note, the Ministry of Petroleum and Chemicals stated in this connection as follows:—

"The Bulgarian Sulphuric Acid Plant is designed to process pyrites of any one of a variety of composition and characteristics from a list of possible feedstock which were supplied to M|s. Technoexport Bulgaria.

The reference to 43 per cent. sulphur grade on dry basis is only in regard to link up of efficiencies and specific consumptions with the capacity and other guarantees. Originally it was envisaged that the plant may have to operate partly on imported pyrites and partly on indigenous pyrites. The figure for sulphur content would in this context appear reasonable. The contract with the Bulgarian Technoexport was approved by the Government of India on 27-7-68. The basis of design for the plant as already indicated above would make it clear that the contract plant was intended to utilise pyrites feed to any of the analysis and from diverse sources as *per data* available at the time negotiations were conducted. Bulgarian plant suppliers were consulted on the possibility of using leaner pyrites. They indicated that their operating experience was limited to use of pyrites with not less than 39 per cent. sulphur and hence they would not be in a position to give any authentic *data* on performance

guarantees on use of leaner ore in the roasters of their designs. However, since Lurgi consultants indicated possibilities of using the roasters with a mixed feed of sulphur and pyrites and this was verified in the Simon Carves acid plant, a decision was taken to go ahead with the Bulgarian plant on the basis of using this practice.

PPCL are reported to have furnished the grade of pyrites as 42.8 per cent. S. in 1967 in response to queries of FCI for setting up an acid plant in Durgapur. This analysis was reported to have been furnished by the company on the basis of the data available with them. The company got conducted beneficiation tests at National Metallurgical Laboratory and reported that the run of mine ore can be upgraded to 41.64 to 43.29 per cent S content.

The contract with the Bulgarian Technoexport provide for complete supply of design documentation for the sulphuric acid plant (within battery limits) supply of those equipment which are not within the indigenous manufacturing range, the supervision of erection and commissioning and extension of guarantees with penalties for performance norm set up in the contract on the operation of the plant. The contract does not include detailed engineering assemblies at site, the offsite facilities which are required to be put up along with the plant the supply of indigenous equipment, the execution of civil works and erection etc. There have been some delays in the shipment of main equipment but FCI have reported that this has not in any way materially affected the project completion schedule since imported equipments supplied to the site has not been the main hold up in completion of the scheme.

Decision has been taken to locate the plant at Sindri and to operate it with low grade ore from Amjhore mixed with elemental sulphur. The equipment supplies received to-date from the foreign contractor are all at Sindri. Since there are delays in receipt of indigenous equipment, it is unlikely that imported equipment can be installed and the plant completed to take the guarantee tests within the periods stipulated in the contract. The question of extension of guarantees is to be taken up by FCI with the Bulgarian Technoexport. The present assessment is

that the Bulgarian Plant would be commissioned by April, 1974.

The feasibility report on Sindri Rationalisation Project (March, 1967) had envisaged utilisation of about 110,500 tonnes of Amjhore Pyrites (43 per cent. S) and about 114,000 tonnes of imported pyrites (48 per cent. S) Though it was anticipated at that time, that the use of imported pyrites would be resorted to only for the initial few years, till such time that the Amjhore Pyrites would be available to meet the full requirements, the profitability calculations were projected on the basis of part use of imported pyrites, for conservative purposes. [The imported pyrites at Rs. 217 per tonne (48 per cent S.) worked out to about Rs. 450 per tonne equivalent sulphur, while the Amjhore pyrites at Rs. 94.71 per tonne (43 per cent S) worked out to only Rs. 220 tonne of sulphur]. But, subsequently with the increase in price of Amjhore Pyrites and the inferior quality Rs. 187 per tonne at Sindri for 24 per cent S. as indicated by Chari Committee the cost worked out to about Rs. 788 per tonne of equivalent sulphur. While there has been no change from the previously envisaged prices of imported pyrites (Rs. 100 to equivalent sulphur) there has been in the recent years a downward trend in the price of sulphur in international market. As a result, it has been considered advantageous to upgrade the quality of Amjhore Pyrites with sulphur (at Rs. 380 at Sindri) rather than with imported pyrites. The upgrading of Amjhore pyrites becomes necessary since the plant is designed to process pyrites ores down to 39 per cent S. without any reduction in capacity, and the use of 24 per cent S. ore only as indicated by PPC, would reduce the output of the plant.

The economics of the revised estimates on Sindri Rationalisation Project (November, 1971) have been based on utilisation of Amjhore Pyrites before benefication (Rs. 187 per tonne of 24 per cent S. pyrites) and sulphur (Rs. 370 per tonne). The above report indicates, that considering the additional investment on Sindri Rationalisation, the additional return on an incremental basis work out to 11.45 per cent. The profitability of the existing unit improves from a negative return of 6.26 per cent on the investment, to a positive figure of 4.72 per cent. on an

overall basis for the investment consisting of the existing and Rationalisation Plants."

8.41 During the evidence, the representative of the Ministry of Petroleum & Chemicals informed the Committee as follows:—

"My record shows that in view of the uneconomic position of pyrites, the FCI should go slow in regard to making further commitments for setting up an additional sulphuric acid plant. This decision was taken at a meeting held on the 6th January, 1970. Only in July, 1970 the Government issued a formal letter to FCI stating that Government agree to the FCI proceeding with the installation of the Sulphur burning facilities but that the plant must have pyrites burning over a time so that it could be switched over to pyrites as soon as it becomes available. So it was in July, 1970 that FCI was allowed to go ahead with the project."

8.42. The Managing Director, Fertiliser Corporation of India Ltd., informed the Committee during evidence as follows:—

"The quotation (for the plant) had been made in a letter. The letter was as a result of the investigation which we have made about the guarantee performance with the pyrites in the Bulgarian Plant, wherein it was stipulated a guarantee of 43 per cent. pyrites. Now, in that connection when we came to know that the pyrites will not be available of 40 per cent, immediately we took up the matter with Bulgarian Party. We enquired from them about the roaster which we had already made to utilise pyrites of any consistency, whether it was run of mine ore, granulated for beneficiated. So we wanted them to examine from their experience upto what least content of sulphur their plan would be able to operate. They have not given us in writing anything because they do not want to give guarantee for that. But in our discussion they had expressed that from 37 to 80 per cent. if the pyrites were there and if the plant was to be used properly, then they would not guarantee. They have also indicated that in case of certain types of pyrites their plant is operated even under normal operating conditions, even with 25 per cent. pyrites. Now, as soon as the plant commissioned obviously we shall make an attempt to see as to what lower grade of pyrites we can

process and whether can we do it without sulphur burning, all these things are in our programme. But I cannot definitely say that it will be in a position to operate with 35 per cent or 37 per cent but for 38 to 39 per cent they have themselves said that it would operate."

8.43 In another note the Ministry of Petroleum & Chemicals informed the Committee that the Bulgarian Sulphuric Acid Plant at Sindri was being set up under the Sindri Rationalisation Project, which had necessitated an upward revision of the mine capacity at Amjhore. This aspect has been dealt with elsewhere in this Report.

8.44 The Committee note that in March, 1968 the Fertilizer Corporation of India Ltd. Sindri entered into a contract with Bulgarian firm for a Sulphuric Acid Plant at Sindri, based on pyrites. Since then, there had been frequent changes in the thinking both at the level of the Government and at that of the concerned Undertakings in regard to the setting up of this plant. The Committee are surprised that even though the percentage of sulphur content in the pyrites ore from Amjhore had been known at the time of entering into contract, "the contract for the plant was for a design to consume pyrites ore of 43 per cent S. grade," which was definitely beyond the capacity of the Amjhore mine. The Committee were informed that the decision to go in for the Bulgarian Sulphuric Acid Plant at 43 per cent S. grade ore was based on the information furnished by PPCL in May, 1967, that the PPCL would be able to supply 42.8 per cent S. grade ore. It was only, in March, 1968 that PPCL told FCI that the pyrites ore from the mine would be only 36 per cent S. grade. The Committee note that Bulgarian plant suppliers were consulted on the possibility of using leaner pyrites, but they indicated that their operating experience was limited to use of pyrites with not less than 39 per cent sulphur and as such they were not in a position to give any authentic data on performance guarantees on use of leaner ore in the roasters of their design. The Committee are surprised that in spite of this, it was decided to go ahead with this plant using the roasters with a mixed feed of sulphur and pyrites.

8.45 The Committee deprecate the manner in which a decision was taken, based on incorrect information supplied by PPCL, without a thorough and careful examination of the economics of the project from all aspects including the high cost and the low quality of the Amphore pyrites. The Committee strongly urge that this matter should be thoroughly investigated and responsibility for the

lapses fixed. The Committee are doubtful whether the problem of disposal of cinders was adequate considered while taking the decision. The Committee would also urge that it should be ensured that pit-falls noticed in the Simon Carves Sulphuric Acid Plant at Sindri are not encountered again and the plant is able to give the guaranteed out-put.

IX

MINING AT OTHER PLACES

A. Exploratory-cum-production Mining Project, Saladipura (Rajasthan)

9.1. In June, 1969, the Company was entrusted by the Central Government with the task of exploratory-cum-production mining at Saladipura for pyrites ore and to co-ordinate the activities of beneficiation, etc. for the purpose of preparing a feasibility report for a fertilizer complex, location of which had not been decided. The object of the work was to confirm the drilling data earlier compiled and block out the reserve equivalent to five years' production to obtain sufficient bulk samples of fresh ore for beneficiation studies, to study mining conditions and to prepare a feasibility report of the Mining Project.

9.2. The Committee were informed during their visit to Saladipura for an on the spot study that M|s. RTZ Consultants Ltd., London, who were appointed consultants for preparation of feasibility report in June, 1972, had submitted their report which was under examination of the Company. After approval of the feasibility report the Project Report for production of 4500 tonnes per day of pyrite ore obtaining 25 per cent S. Grade ore would be drawn.

9.3. The fund allotted by the Central Government for the Exploratory Scheme was Rs. 82.02 lakhs. The actual expenditure upto 31st March, 1972 was Rs. 58.83 lakhs.

9.4. The Company planned to have a total mine development of 2550 metres consisting of drivage of adits, raises, winzes, etc. out of which 2440 metres of mine development was completed (upto 30th September, 1972). In block-A, about six million tonnes of ore reserves had been brought to the "proved" category. It was proposed to bring another 4 to 5 million tonnes of ore reserve to the proved category.

9.5. The test of bulk samples (analysing about 23 per cent S), conducted at the National Metallurgical Laboratory, Jamshedpur, showed that the ore could be beneficiated to 40 per cent S. Grade with a sulphur recovery of 91 per cent. It was stated that the pyrite containing even 20—25 per cent could be directly roasted to produce sulphuric acid. The beneficiated pyrite ore would cost more and consequently the cost of sulphuric acid would go up. Thus economical exploitation of the pyrite ore was doubtful and direct

roasting of the ore might be more advantageous. The problem, it was stated, is still being studied by the consultants—M/s. RTZ Consultants Ltd.

9.6 The Committee were also informed that the setting up of the Fertilizer Plant in Saladipura would be more beneficial than any other site in the State of Rajasthan. So far as the water reserves were concerned, the Geological Survey of India had proved that around Saladipura ample reserve of ground water was available, which would be quite sufficient. The Rajasthan State Electricity Board had also assured that there would be no shortage of electricity.

9.7. As regards the setting up of a fertilizers complex, in Rajasthan the Managing Director informed the Committee during evidence as follows:—

"There was a working group set up by the Planning Commission for utilisation of rock phosphates of Rajasthan and pyrites of Rajasthan Working Group recommended that pyrites from Saladipura and phosphate from Udaipur should be utilised for this complex. Governmental has asked FCI to survey and find out the site. They constituted a team which went round the various sites about three months back . They have selected three tentative sites. One is Saladipura, second near Chittor and the third is near Udaipur. Out of these, the promising sites are Chittor and Saladipura. The consideration for Saladipura will be there only if the adequate water supply is available. The Company had asked GSI to conduct a survey and they have a report that adequate water is available in underground. But the question is how to utilise that water, because the underground water is not a river water or a lake water. What is the possibility of recovering that water from underground and at what cost, for which a study is being made. I may inform you, Sir, that the Khetri complex of industries is utilising water from underground resources. So this type of water resource is being utilised in that area. Sufficient water is available. The only fear is that when we tap water from the underground the general water level will go down and the existing wells may dry up. The solution for this would be that we can deepen those wells. To decide the economic viability and other things there is a necessity of conducting a techno-economic study.

This point has also been referred to our consultants, as to how far this report is reliable. They have said they do not have the know-how with them, but they will certainly locate an international party to give an opinion on that report."

9.8. In regard to power and a railway siding for the Saladipura mine, the representative of the Ministry informed the Committee during evidence as follows:—

"The Rajasthan Electricity Board is considering the construction of a second transmission line from Udaipur-Wati to Saladipura and on its completion in 1973, it was expected that power supply will stabilise. This is being done at the cost of the Rajasthan Electricity Board. Regarding the construction of the Railway siding, the Railway authorities have conducted a survey and submitted an estimate of Rs. 135.00 lakhs. This is being examined by PPCL but no investment will be possible until the DPR has been prepared."

9.9. It was also brought to the notice of the Committee that sufficient land, which was mostly free from agricultural activity was available around Saladipura for purpose of setting up a fertilizer complex.

9.10. From the summary and conclusions of the "Preliminary feasibility study for the Saladipura Project" prepared by M/s. RTZ Consultants Ltd. which was made available to the Committee it is seen that the Report had *inter-alia* mentioned the following:—

"The Saladipura area contains very large tonnages of generally low grade sulphates consisting predominantly of pyrites and pyrrhotite in varying proportions.

Sufficient ore reserves have been delineated at Saladipura as to enable an underground operation to sustain an annual production of 6 lakh tonnes sulphuric acid.

On the assumption that approval is given for the project to go ahead, it is estimated that acid will be available at the beginning of 1980 at a rate of 3 lakh tonnes per year rising to 6 lakh tonnes per year in 1982. A further major assumption is that delays in obtaining approval for succeeding stages are kept to the absolute minimum.

The success of the project will depend, to a very large extent, on the effectiveness of project control and coordination and on the ability to reach vital decisions in the shortest possible time.

The profitability of the project depends to a very large extent on the selling price of sulphuric acid which is the sole product produced. The rate of return has been calculated for prices varying between Rs. 160 per tonne and Rs. 300 per tonne..... The price chosen for the base case was Rs. 290 per tonne, which is the price required to give the project the desired rate of return of 10 per cent in real terms. It may well be that PPCL will adopt a somewhat lower price, and thus a lower return on their investment, as a result of negotiations with the Government of India and the Fertilizer Corporation.

Apart from the selling price, the most significant factors effecting the profitability of the project are tax-holiday, the run-of-mine grade of the ore and the rate of mining."

9.10A. During evidence, the representative of the F.C.I. informed the Committee in connection with the transport of pyrites ore as follows:—

"Transportation of the pyrites entails deterioration of the quality rendering it into powder and this powdering will be avoided by setting up a phosphetic fertilizer plant at the site."

9.11. The Committee find that the exploratory work done at Saladipura and the preliminary feasibility study carried out by M|s. R.T.Z. Consultant Ltd. indicated that the Saladipura sulphide deposit was a major source of indigenous sulphur and if the mines could be developed the acid available would be of the order of 3 lakhs tonnes in 1980 and 6 lakh tonnes in 1982.. The Comimttee also note that bulk samples of ore at Saladipura were of 23 per cent sulphur grade but could be beneficiated to 40 per cent. The Committee were also informed that the beneficiated ore and consequently the acid would cost more. The Committee stress that Government should undertake a thorough and critical techno-economic study of the Project so as to ensure that the shortcomings faced at Amjhore Mines are not allowed to recur at Saladipura.

The Committee feel that the aim should be production of fertilizer at an economic price so that these become available to the cultivator at a competitive price.

9.12. The Committee would like to point out that the pyrites by its very nature is not suitable for haulage over a long distance. During transportation its quality gets deteriorated. The experience of Amjhore pyrites being transporated to Sindri has not been very happy. It is, therefore, advisable to locate a fertilizer complex, including Sulphuric Acid Plant close to the mine site. The Committee hope that this aspect will be kept in view when the Saladipura pyrites deposits are developed.

B. **Phosphorite exploratory Mining Projects, Maldeota (U.P.)**

9.13. The Fertilizer Corporation of India Limited and the Geological Survey of India had investigated the rock phosphate deposite in Maldeota capable of sustaining a production of the order of 300 tonnes per day of rock phosphate for several years. The Board of the P.P.C.L., decided to take over the mining lease of Maldeota Phosphorite deposit from the Fertilizer Corporation of India Limited. Pending formal transfer, *de-facto* transfer from the Fertilizer Corporation of India Ltd., to the Company took place with effect from 1st September, 1969. Both the parties, however, signed the legal transfer of the mining lease in April, 1972.

9.14. According to the tentative time schedule the exploratory development work was expected to be completed in the first quarter of 1971 and mining feasibility report was expected to be completed in the second quarter of 1971.

9.15. Expenditure incurred on the scheme by the Company was Rs. 2.30 lakhs till March, 1970. There was no prospective customer for Maldeota ore because of easy availability of richer ore of Jhamarkatra deposit in Rajasthan. On 16th November, 1970 it was decided by Government that no more exploration was to be done and expenditure should be restricted. In the meantime, the work is being carried out on a limited scale with skeleton staff.

9.16. But in June, 1971 the Ministry stated as follows:—

> "The prospects of commercial exploitation of Maldeota are no longer bleak. An offer has been received from a private firm which would require 100 to 150 tonnes per day of Maldeota Phosphorite for a period of ten years. The contract details are being worked out. Another private company has conducted pilot plant tests

with Maldeota phosphate with encouraging results. Its requirements will be indicated after the conclusion of certain further tests which are on hand already. Certain area have also now been recently explored where open cast mining can be undertaken. This would make the mine more economical. In view of the above, the prospects of exploration of Maldeota deposit are now better than what they were last year."

9.17. The Committee were informed that:—

"The Project report for undertaking exploratory-*cum*-production mining and beneficiation study was prepared by the Company at a cost of Rs. 55.75 lakhs. The Board of Directors decided that the Company should undertake work only if the amount is available as grant from the Government as there was no prospective customers for Maldeotra ore in view of the richer as well as easier to mine Jamarkotra deposit in Rajasthan which is available for commercial exploitation. The Government desired that further steps for use of Maldeota Phosphate for production of elemental sulphur or for direct application to the soil may be explored and the U.P. Government may be directed to explore the possible market for low grade phosphate without beneficiation so that further exploitation on commercial basis could be seriously taken up. Efforts were made with the help of U.P. Government and offers were invited through press for supply of low grade phosphate. One party has shown interest for supply of 18 per cent P_2O_5 for a period of six years. A contract with that party for supply of 1000—1500 tonnes per month + 18 per cent P_2O_5 was entered into by the Company in December, 1971. The above ore is being supplied by conducting open cast mining at the out crop. The Company produced 1900 tonnes of ore from January, 1972 to May, 1972 and made a net profit of about Rs. 35,500. During 1972-73 if the whole of the ore committed by the contractor is lifted, the Company will be making a net profit of Rs. 2.00 lakhs.

The expenditure incurred on Maldeota upto 31-3-1972 from 1-9-1969 is Rs. 4.97 lakhs.

F.C.I. Nangal has shown interest in purchasing low grade phosphate ore at the rate of 6000-7000 tonnes per month.

They require about 1000 tonnes of phosphate ore for trial purposes. The required quantity is being despatched.

Advertisements were made in the press inviting suitable offers for purchase of Maldeota phosphate Ore. A number of firms have shown interest in purchase of Maldeota ore and they have been given samples. Further negotiations are in progress."

9.18. It has also been stated:—

"Various experiments have been done with Maldeota rock phosphate and it has been found that it is feasibile to utilise them for production of phosphatic fertilizers, production of nitro-phosphate, production of elemental phosphorous and for direct application in the soil as fertilizer. The above has been indicated by tests conducted in laboratory scale and order to assess the economic utilisation of rock phosphate for the above purpose, the company is considering to undertake pilot plant test for beneficiation for using as phosphatic fertilizer and nitro-phosphate. Samples of ore have been supplied to various Agricultural Research Institutes for conducting direct field trials for direct application as fertilizer."

9.19. During evidence, the Managing Director of the Company informed the Committee in this connection as follows:—

"The Maldeota ore contains 17 to 18 per cent P_2O_5 moreover the cost of mining is high. The exploratory work has been done by GSI and FCI and beneficiation studies on the ore has been conducted. About 2.2 tonnes of ore is required to make one tonne of beneficiated ore containing 28—30 per cent P_2O_5 . In addition o the P_2O_5 the ore contains high percentage of alluminium oxide, iron oxide, calcium oxide ,magnesium oxide, silica etc. but it is low in flourine. The rock phosphate required for phosphatic fertilizer should not contain more than 3 per cent alluminimum oxide and iron oxide and it should contain less calcium oxide and magnesium oxide and silica. We have sent samples of this ore to DCM and Ralies, Kanpur for tests. Trial Maldeota ore has also been found useful for manufacture of nitrophosphate, as nitric acid does not attack alluminium oxide and iron oxide.

The ore has also been found useful for direct application in the soil as fertilizer. But the soil should be depletant in phosphorous and should be acidic, which is available in Tarai area and hilly areas of Madhya Pradesh and South India. It can also be used as a mixed feed with rock phosphate for direct application or for manufacture of fertilizer. One firm has entered into contract with this Company for a period of six years, for supply of 1000-1500 tonnes for rock phosphate per month. The response to our press advertisement for sale of rock phosphate is also very good and a number of firms have taken samples and negotiations are going on with these firms.

The above work is being done in order to make the market study about the marketability of the ore. The Board of Directors did not approve the detailed conducting of the exploratory work unless the Government gives the money as a grant.

As already explained, the ore can also be used as a mixed feed with rock phosphate for direct application or for manufacture of fertilizer. For this purpose, we are making efforts by contacting some private organisations to conduct a study as to how far they could utilise the imported super phosphates with the mixture of indigenous product for fertilizer. After knowing the results from these organisations we will embark on a mining programme."

9.20. The Committee expect that the Company/Government would make a cautious approach towards the exploitation of the mines at Maldeota after assuring themselves of a regular off take of rock phosphate.

9.21. It is seen from the Memorandum of Association of PPCL that one of the objects for which the Company was established was—

"In particular, raising, assembling and transporting of pyrites, phosphates and associated ores in such areas in India and elsewhere as the Company may from time to time determine for sale or use and the manufacture of sulphur, sulphuric acid, phosphorus, phosphoric acid, phosphates and/or other products requiring such ores".

9.22. During the course of evidence of the representatives of the Ministry, the Committee enquired whether the P.P.C.L., was going to confine itself to Amjore Pyrites or it was going to proliferate to rock phosphate, limestone, gypsum, etc., and if so whether the present set up could cope with the task of expansion, the Additional Secretary of the Ministry replied as follows:—

> "About the corporate philosophy or the future growth of the P.P.C., the problems will have to be examined in the light of what happens to Saladipura and what attitude the Rajasthan Government take about the Udaipur deposits and what kind of set up we wish to have for the Rajasthan Complex, which is likely to develop. The Maldeota deposits are not of very great significance at the present moment. The main problems to be got over are those at Amjhore and of Sulphuric acid production in the F.C.I.".

9.23. The Committee note that one of the objectives of the Company was raising, assembling and transporting of pyrites, phosphates and associated ores in such areas in India and elsewhere for sale or use and manufacture of sulphuric acid, phosphoric acid, phosphates and/or other products requiring such ores. The Committee regret to observe that PPCL has so far no perspective planning of taking over other phosphoric and pyrites mines in India and bringing them under their purview for development. The Committee recommend that the Government should examine the feasibility of drawing up a perspective plan for the development of these ores deposits in the country.

X

MATERIALS MANAGEMENT AND INVENTORY CONTROL

A. Stores and Spares

10.1. The following table indicates the position of stores and spares at the close of the last five years:—

(Rupees in lakhs).

	1967-68	1968-69	1969-70	1970-71	1971-72
Closing balance of stores and spares at the end of the year.	12·12	45·59	45·26	50·88	39·22
Consumption during the year.	13·80	30·64	39·37	21·60	17·46
Closing balance in terms of months' consumption	11 months	14 months	14 months	28 months	26 months

10.2. In most of the case the minimum, maximum and re-ordering level of stores and spares have not been fixed. The Ministry informed Audit in June, 1971 that "now that the regular production has started since October, 1970, the minimum, maximum and re-ordering level of stores and spares are being carefully examined with reference to the requirements during production and are being fixed."

10.3. The Committee were, however, informed by the Company that the minimum, maximum and re-ordering level of stores had not yet been fixed as the off-take continued to be fluctuating and unpredictable. The Management further stated that "until and unless F.C.I., gives a firm commitment about their off-take, it will not be possible to fix properly any minimum, and maximum and re-ordering level as well as control inventory economically and procedurallv."

10.4. It was also observed that the stock held of M.S. Rods and R.S. Joists was unusually heavy (66 to 88 months' consumption and 19 months' consumption respectively). The Management stated that consumption of M.S. Rods was slow due to the drastic reduction in the construction work of housing colony. Regarding R.S. Joists, it was explained that due to decision to drive gate roadways, narrow and experimental trunk roadway in one pair of adits in the sand stone, the consumption had come down.

B. Slow moving and non-moving stores

10.5. According to Audit Report the stores worth Rs. 14.41 lakhs did not move for a considerable period (position as on March, 1970) as indicated below:—

Sl. No.	Particulars	(Rupees in lakhs)
1	Value of stores which did not move for a year . .	2·46
2	Value of stores which did not move for two years .	10·06
3	Value of stores which did not move for three years . .	1·89

The above stores included mainly spares of ANF Loaders and Shuttle Cars valued at Rs. 10.74 lakhs as detailed below:—

Value of spares which did not move for a year	1·26
Value of spares which did not move for two years	9·48

10.6. As regards the present position in this regard, the Committee were informed that the slow-moving and non-moving stores as on 31st March, 1972 were as follows:—

	Lakhs
Value of stores which did not move for a year	. Rs. 7·44
Value of stores which did not move for two years.	. Rs. 2·02
Value of stores which did not move for three years .	. Rs. 3·37
	Rs. 12·83

C. Surplus Stores

10.7. It had been pointed out in the Audit Report that Stores have not been reviewed to assess the items of stores lying surplus and value thereof. Asked whether such a review had been made and the surplus stores disposed off, the Committee were informed that surplus stores amounting to Rs. 21.58 lakhs were disposed off in 1971-72 as per details given below:—

	(Rs. in Lakhs)
(a) Spares for Shuttle cars and A.N.F. Loaders	9·38
(b) Belting	7·99
(c) R. S. Joists, M. S. Rounds, etc.	3·53
(d) Lubricants	0·48
	21·58

10.8. The spares of Shuttle Cars & ANF Loaders, belting and lubricants had been sold to National Coal Development Corporation Ltd., and Hindustan Copper Ltd., on book value, *i.e.* the actual price as per book plus other overhead charges. R.S. Joists, M.S. Rounds, Lubricants, etc., have been sold to the Government parties as well as private parties. Materials sold by the Company fetched a profit of Rs. 21,702.65.

10.9. The Committee were also informed that there were still surplus stores worth Rs. 13.95 lakhs as on 31-3-1972 consisting of spares of ANF Loaders and shuttle cars valued at Rs. 8.95 lakhs and steel and G.I. Pipes of Rs. 5 lakhs.

10.10. Asked about the frequency of reviews done for shifting slow-moving and non-moving and surplus items and the steps taken for disposal of surplus stores, it was stated that review of slow moving/non-moving of stores was being done and the list of surplus stores was circulated to all projects of the Company and offered for sale to other undertakings|firms by taking out price tenders.

10.11. The Committee find that the inventory of raw materials and stores in terms of months consumption rose from 11 months in 1967-68 to 14 months in 1968-69 and 1969-70 and to 28 months in 1970-71. It has only slightly come down to 26 months in 1971-72. The Committee also note that the Company was carrying a large stock of slow moving and non-moving stores worth Rs. 12.83 lakhs even after disposal of stores amounting to Rs. 21.58 lakhs in 1971-72. The Committee were informed that surplus amounted to Rs. 13.95 lakhs as on 31-3-1972 consisting of spares for shuttle cars and loaders (Rs. 8.95 lakhs) and Steel and G.I. Pipes (Rs. 5 lakhs). The Committee have already commented upon in para 6.21 of this Report the purchase of key mining equipment including shuttle cars and loaders in excess of requirements. The Committee feel that the spares for shuttle cars and loaders should have also been disposed of along with the machinery. The Committee desire that the Government should investigate the circumstances under which the purchases of stores econocially spares and steed items had been made in excess of the requirements. The Committee also recommend that the scarce items like R.S. joints and G.I. pipes should be disposed of to other Public Undertakings where these may be in need.

10.12. The Committee regret to note that no effective steps have still been taken for a proper and scientific material management.

The Company should streamline its purchase and procurement procedure so that purchases are not made in excess of requirements and inventory is not unduly loaded at any time. The Committee also recommend that there should be a regular and periodic review of the inventory with a view to identifying surplus stores and taking action for their disposal in time.

XI

HEAVY OUTSTANDINGS DUE FROM FERTILIZER CORPORATION OF INDIA LTD., SINDRI FOR ORE SUPPLIED

11.1. Pyrites ore is the only product, which the Pyrites, Phosphates and Chemicals Limited are selling to a solitary customer—Fertilizer Corporation of India, Sindri. Since there is only one customer, the sale position is entirely dependent on the off-take|requirement by the Fertilizer Corporation of India. There is no firm pricing policy of the Company.

11.2. The table below indicates the quantity of pyrites ore supplied to the Sulphuric Aci Plant, Sindri, the rate charged to the Fertilizer Corporation of India Limited, the total amount billed and the amount received from the Fertilizer Corporation of India Limited :—

Period	Quantity supplied (Tonnes)			Price		Royalty Rs. in lakhs	Sales Tax Rs. in lakhs	Transportation charges Rs. in lakhs	Total amount of bill (Col. 3 to Col. 6) Rs. in lakhs	Amount realised Rs. in lakhs	Amount outstanding Rs. in lakhs
	33% ±3%		40% −3%	Rate per tonne Rs.	Value Rs. in lakhs						
1	2(a)		2(b)	3(a)	3(b)	4	5	6	7	8	9
1968-69	6729·20			224	15·07	0·18	0·30	..	15·55		
			9793·84	260	25·47	0·83	0·96	0·59	27·85	..	..
					40·54	1·01	1·26	0·59	43·40	8.33	35.07
1969-70	20456·34			224	45·82	0·54	0·915	..	47·28		
			10115.30	260	26·30	0·32	0·525	0·26	27·40	—	—
					72·12	0·86	1·44	0·26	74·68	32·50	42·18
									118·08	40·83	77·25

NOTE :—Against 47,094,68 tonnes of pyrites supplied by the Pyrites, phosphates and Chemicals Limited., only 46,832·67 tonnes have been accounted for by the Fertilizer Corporation of India Limited. The difference of 262·01 tonnes has been explained (April, 1971) by the Fertilizer Corporation of India Limited as due to the following factors :—

		Tonnes
(i)	Non-receipt of four wagons	97·50
(ii)	Difference in weight to be reconciled by verification of Railway Receipts presently in the custody of Railways.	161·90
(iii)	Difference in weight of materials received by truck	1·61
(iv)	Difference due to ignoring variation below 0·5 tons against item (ii) above	1·90
		262·01

11.3. The price of pyrites ore of 33 per cent. ± 3 per cent. S. Grade was fixed at Rs. 224 per tonne F.O.R. Dehri-on-sone on the recommendation of the Sales Price Committee constituted by the Company in July 1968, which included the General Manager, Fertilizer Corporation of India Limited, Sindri. The cost of obtaining 40 per cent S. Grade ore by manual benefication was assessed at Rs. 467.18 per tonne. As the cost of Rs. 467.18 per tonne exceeded even the cost of sulphuric acid to be produced out of it, it was decided to charge, on *pro rata* basis, Rs. 224 per tonne for pyrites ore containing 33 per cent. ± 3 per cent. sulphur *viz.* at Rs. 260 per tonne of 40 per cent. S. Grade.

11.4. The sale price was communicated to the Fertilizer Corporation of India Ltd. but they did not accept the price and requested the Company to refer the matter to the Government.

11.5. On 14th August, 1969, the Fetilizer Corporation of India Ltd. agreed to pay immediately the arrears of sale price of pyrites ore at a provisional price of Rs. 150 per tonne F.O.R. Dehri-on-Sone as agreed to by them. But only a sum of Rs. 32.50 lakhs was paid (up to March, 1970).

11.6. In October, 1969 when the Fertilizer Corporation of India Limited, Sindri was again approached for early payment of the dues, they contended that they did not consider the pyrites ore supplied to them as having been sold to them nor were they agreeable to accept any liability therefor. As the Acid Plant was not legally transferred to the Fertilizer Corporation of India Limited, they considered themselves as the agent of the Pyrites, Phosphates and Chemicals Limited and were prepared to pay only on the basis of ore consumed for acid produced in the Plant.

11.7. Thus, according to the claim prepared by the Pyrites, Phosphates and Chemicals Ltd., a sum of Rs. 77.25 lakhs is still outstanding against the Fertilizer Corporation of India Ltd., Sindri (March, 1970).

11.8. The matter regarding fair price payable for the ore has been placed (November, 1970) with the consent of both the parties before the Financial Adviser in the Ministry for settlement.

11.9. In this connection, the Ministry stated in June, 1971 that "the amount payable by FCI to PPC for past transactions is under arbitration by Shri S. K. Majumdar, Joint Secretary, Ministry of Finance."

11.10. Shri Majumdar recommended the price of the pyrites ore (excluding royalty and sales tax) as follows for the year 1968-69 and 1969-70:

(a) 40 per cent S. @ Rs. 275|- per M.T. F.O.R. Dehri-on-Sone

(b) 33 $\pm$3 per cent S. @ Rs. 200|- per M.T. Dehri-on-Sone.

The above sale price was not accepted by the Fertilizer Corporation of India. Shri Majumdar was requested to re-examine the price fixed by him. The Government, however, asked FCI to make payments to PPCL on an *ad hoc* basis on the sale price already fixed by Shri Majumdar for the sale of pyrites for the years 1968-69, 1969-70, 1970-71 and thereafter. Accordingly the PPCL is billing FCI @ Rs. 275/- per M.T. in case of 40 per cent S. Grade ore and @ Rs. 200/- per M.T. in case of 33 $\pm$3 per cent grade ore.

11.11. As regards the ore below 30 per cent S. Grade, no price has been fixed by any Committee, but the Board of Directors of PPCL have tentatively fixed the price at Rs. 124|- per M.T. for the purpose of closing the accounts.

11.12. The Committee were also informed that PPCL is the only company in India, which is mining pyrites ore and uptill now there has been no import of such pyrites ore in the country from any foreign source. Therefore, equation of selling price of PPCL pyrites ore with the imported price of pyrites is not possible.

11.13. According to the annual accounts of PPCL for the year ending 31-3-71, a sum of Rs. 107.33 lakhs was due from F.C.I. In this connection the Ministry of Petroleum and Chemicals informed the Committee that Rs. 57.44 lakhs out of Rs. 107.33 lakhs pertained to 1970-71 supplies and the balance Rs. 49.89 lakhs pertained to the year 1968-69 and 1969-70.

11.14. For supplies during 1968-69 and 1969-70, Rs. 16.10 lakhs was outstanding from FCI as detailed below:

(Rs. in Lakhs)

(a) Cost of pyrite ore of 9706 tonnes assaying (-) 30% S. Grade for which no price has been recommended by Shri Majumdar. The value taken at the rate of Rs. 124/- per tonne for Dehri-on-Sone in PPC's accounts	12.04
(b) Royalty @ Rs. 2.40 per tonne	0.23
(c) Sales Tax @ 2%	0.24
	12.51
Add	
Sales tax for quantity of ore supplied during 1968-69 and 1969-70 excepting 9706 tonnes assaying (-) 30% S.	2.20
Transport charges	0.85
Royalty	0.54
Total	16.10

11.15. These dues were not settled due to the following reasons:—

(a) For supplies below—30 per cent no price has been recommended by Shri Majumdar.

(b) Non-payment of sales tax because *de-jure* transfer has not been affected.

(c) Royalty rate was to be ascertained by FCI for the period upto 30-6-68.

11.16. In respect of the period 1970-71, only Rs. 12.94 lakhs were outstanding against Rs. 57.44 lakhs indicated in the annual Report of the Company as on 31-3-71.

11.17. The dues had been worked out on the agreed 'on account' sale price of Rs. 200|- per M.T. for 33 3 per cent S. grade ROM ore ex-Dehri-on-Sone excluding royalty and sales tax.

11.18. It was stated that the payment was held up for the following reasons:—

(1) 3039.84 tonnes of ore analysed as below 30 per cent, but most of it has been used in the plant.

(2) Shortage in weight to the extent of 2287.22 tonnes.

(3) 93.2 tonnes not received by FCI in wagons.

(4) Non-payment of sales tax of the entire quantity of ore supplied during the year.

Non-payment of royalty on the quantity of ore indicated in (1), (2) & (3) above.

11.19. "On account" payments were made by FCI @ Rs. 150/- per tonne for the supplies during 1970-71. This 'on account' payment was raised to Rs. 200/- per tonne for all supplies in accordance with the decision of Government in the meeting held on 24-12-71 in accordance with the price recommended by Shri S. K. Majumdar and the payments were accordingly made by FCI to PPC for the year 1970-71 and other years.

11.20. It was further stated that the question of price of pyrites was not yet settled. However, the outstanding amounts would be discussed by the two undertakings and settled as early as possible.

11.21. Asked if the non-receipt of four wagons of ore was investigated and also whether the difference in weight of 161 tonnes was

reconciled with reference to the Railway receipts, the Ministry of Petroleum & Chemicals stated in a written reply that:—

"None of the four wagons have been received by FCI and claims have been preferred by FCI with Railways. The fact that four wagons of pyrites were not received against R.Rs. came to the notice of FCI in 1968 and 1969 when R.Rs. were received from PPC. Immediately thereafter the matter was referred to Railways and claims filed subsequently.

Verifications of the difference is yet to be done. FCI are taking necessary steps in the matter. FCI have reported to have noticed this when the bills received from PPC were compared with receipt reports prepared by the plant. These will be settled shortly."

11.22. As regards the present position, the representatives of the Ministry of Petroleum and Chemicals informed the Committee during evidence as under:—

"The total amount due on account was Rs. 251.98 lakhs as on 31-3-71. As against the above dues, the total amount paid by FCI upto 30-6-72 was Rs. 220.01 lakhs which is on account of the price fixed by the Majumdar Award. The balance was Rs. 31.97 lakhs. The reasons for non-payment of the balance by FCI were the following:—

Some of the pyrites have fallen below 30 per cent sulphur grade. On this account 19.34 lakhs have been withheld. Then there is shortage in weight revealed at Sindri and some wagons had not been received. That accounts for Rs. 4.02 lakhs. The Sales Tax has not been paid and that accounts for Rs. 5.30 lakhs. An amount of Rs. 2.94 lakhs is undisputed but has not been paid. That remains to be paid."

11.23. The Committee were also informed that "the formal agreement could not be entered into because the price difference had not been settled. The price was in dispute even after the Majumdar Award but recently PPCL and FCI had agreed that they would enter into conditional agreement subject to the price thereof is settled later so that at least the other stipulations could form the basis of agreement."

11.24. Asked about the reason for the FCI not accepting the Majumdar Report, the representative of FCI stated during evidence that "while calculating the price the Majumdar report has not taken into account the conversion cost and so FCI requested that re-calculation should be made including the conversion cost of sulphuric acid to final product—Ammonium Sulphate. This is under consideration and the revised report has not been submitted yet. FCI has not accepted the price."

11.25. Shri S. K. Majumdar, Joint Secretary of the Ministry of Finance (Arbitrator) also informed the Committee that, "I have given this report based on various data collected from both the parties and after considerable discussion with both the parties, I was faced ultimately with two basic problems—one was that the cost of production in PPCL was exceedingly high because the actual production in those two years for which I have to give my report was very much lower than the capacity built up. If the actual cost had to be given, because it would be a very high cost to the price to the FCI. On the other hand, by taking the pyrites and producing Sulphuric Acid from it and neutralising it from Ammonium Sulphate, the price would be high unless it was restricted, since FCI could not sell Ammonium Sulphate at a price higher than the certain controlled price. Taking into account various cost estimates which had been prepared by the Sale Price Committee and Chari Committee, and working back from certain other prices, I considered that it would be equitable if a price about Rs. 200|- per tonne were fixed. ....FCI have subsequently represented that in taking certain figures and developing my figure of Rs. 200|- per tonne, I had not include a conversion factor and that if I had done so, the price would have been lower than Rs. 200|- per tonne. On the other hand the PPCL have also written to me saying that they have certain points which I should re-consider and that they would like to be heard even on the points which FCI have made to me."

11.26. On being asked as to how to get out of this stalemate continuing between PPCL and FCI the representative of the Ministry stated that "FCI has made a representation to Mr. Majumdar; PPCL have made a counter representation to him and they are being considered. The decision of Mr. Majumdar was applicable for two years only, but it has been decided by the Ministry of Mines in 1971 that payment on the same basis will continue to be made by FCI, so as not to cause difficulties to PPCL."

11.27. But the representative of FCI was not satisfied with the award as he stated that ".....Our view has been that we should not

be made to suffer by switching over from gypsum to sulphuric acid. It costs us more. If cost of production of sulphate with gypsum has to be equated with the cost of production with sulphuric acid, the price of acid should be Rs. 233/- per tonne which would correspond to pyrite price of Rs. 100/- per tonne. Thus the difference between what we can afford to pay and what is recommended is quite big. Gypsum is very cheaper."

11.28. In spite of the recommendation of the Sales Price Committee and the award given by the Financial Adviser of the Ministry of Petroleum & Chemicals about the sale price of ore, the two Public Undertakings, under the administrative control of the same Ministry, have not accepted the price fixed by the award. The Committee understand that this matter has again been referred to the Financial Adviser. The Committee are anxious that this matter should be settled quickly in the mutual interest of both, as it vitally affects the working results of both the Undertakings.

XII

ORGANISATION

A. Chairman-Cum-Managing Director

Articles 75 and 76 of the Articles of Association of the Company provide that the President shall, from time to time, appoint the Directors of the Company including the Chairman. The articles also stipulate that the number of Directors of the Company shall not be less than two and more than fifteen. According to article 92, the President may from time to time appoint one or more of the Directors to the office of the Chairman of the Board of Directors or Managing Director of the Company. The Board of Directors have a part-time Chairman. The present incumbent is the Director (Projects), Fertilizer Corporation of India.

12.2. The executive head of the Company is the Managing Director. The post of the Managing Director is, however, vacant since the 18th December, 1971. The Chief Mining Engineer, Mining Project, Amjhore is looking after the duties of the Managing Director in addition to his own duties. Managing Director is stationed at Amjhore, whereas the Head Office of the Company, under the administrative charge of the Secretary, is at Dehri-on-Sone, which is a railhead and is about 38 kms. away from Amjhore.

12.3. The Company has the following three Projects at present:—

(i) Mining Project at Amjhore (Bihar), under the Chief Mining Engineer.

(ii) Exploratory-cum-Production Mining Project at Saladipura (Rajasthan), under the Project Officer-cum-Mines Manager.

(iii) Phosphorite Exploratory Mining Project at Maldeota (U.P.) under the Drilling Engineer, who has been declared as the Controlling Officer of the Project.

12.4. During the coming of evidence of the representatives of the Ministry of Petroleum and Chemicals, the Committee enquired as to when the Government were going to take a decision about a regular Managing Director for the company and regarding merger of

the posts of the Chairman and the Managing Director. The representative of the Ministry stated that:—

> "I can only clarify the position, namely that there are two patterns obtaining in the public sector. One is Chairman-cum-Managing Director where the Managing Director is also Chairman. There is a pattern as in the F.C.I. today where there is a part-time Chairman and a whole-time Managing Director who is the Chief Executive. At present, in PPC we have the second kind of pattern.
>
> This part-time arrangement has been made because of the very close nexus between PPC and FCI. It is true that there are disputes and differences of opinion between the different organisations, because of the fact that these two organisations had been under separate Ministries for the last three years. We are hopeful that now that both the organisations are under the same Ministry we should be able to sort out the differences a little more easily."

12.5. The Committee are surprised to find that in spite of the fact that a Director of the Fertiliser Corporation of India is the Chairman of the Pyrites Phosphates & Chemicals Ltd., there is lack of coordination between the two Public Undertakings and many points of dispute exist between them vitally affecting the working of the P.P.C.L. It only goes to prove the apprehension of the Committee that a part-time Chairman is not of much functional value. The Committee would urge that the Government should review the position and combine the post of Chairman and Managing Director in P.P.C.L. This would also be in consonance with the recommendations of the Administrative Reforms Commission which had been accepted by the Government.

12.6. The Committee note that at present the Chief Mining Engineer, Amjhore Mines is also performing the duties of the Managing Director. Needless to say that in an organisation like the P.P.C.L. which has its projects spread over in three different States, the Managing Director has to perform onerous duties and it is too much to expect the Chief Mining Engineer to do justice to his duties both as the Chief Mining Engineer and the Managing Director. It is unfortunate, the Government have not filled up the post of the Managing Director on a regular basis for over one year. The Committee hope that the Government would soon appoint a person to perform exclusively the duties of the Chairman-cum-Managing Director, so

that undivided attention may be given for the improvement of the undertaking.

B. Staff

(i) *Man power analysis*

12.7. As per Detailed Project Report, a total staff strength of 240 was required for working of the Mine at the rated capacity of 2.4 lakh tonnes of mine pyrites ore per annum. The staff requirement was reviewed in January, 1968 and an organisational set-up was approved by the Board of Directors of the Company in April, 1968. The staff requirement was further re-assessed in Mid-1968 when the production programme of the Project was phased in two stages.

12.8. The table below indicates the number of staff recommended from time to time and the actual strength during the last three years:—

Year	Staff strength recommended in detailed Project Report (January, 1965) for 800 tonnes/day	As recommended in organisational chart (April, 1968) for 800 tonnes/day	As recommended for phased programme (Mid-1968)		Actually strength as on 31st March
			Phase I for 400 tonnes/day	Phase II for 800 tonnes/day	
1969-70 . .	240	613	508	..	365
1970-71	240	613	508		371*
1971-72 . .	240	613	508	..	350

12.9. It will be seen from the table that the staff strength as per organisational chart was more than double of that recommended in Detailed Project Report. Further, the staff strength recommended for phase I programme was 83 per cent. of the total strength as provided in the organisational chart while the production in Phase I was scheduled to be only 50 per cent. of the final target production.

12.10. According to the information furnished by the Ministry to Audit in July, 1971 the detailed Project Report did not contain a provision for the following categories of the staff:—

1.	Transport underground, diamond drilling, ore sampling and dressing staff	80
2.	Head Office staff	63
3.	Mining & Engineering Personnel (taken as daily rated workers in Detailed project Report).	136
	TOTAL .	279

*Includes 24 for Extension Project.

Similarly the organisational chart also did not include the staff relating to Head Office and subsequent changes made therein. The Management also stated that "it is not possible exactly to reduce the requirement in ratio of the targeted capacity of production as the organisation is to be built up earlier than the achievement of the targeted rate of production."

12.11. The position of staff strength taking into consideration the categories of staff not included in the D.P.R./Organisational chart is as follows:—

Year	As per D.P.R.	As per organisational Chart for 800 tonnes/day;	Phase I 400 tonnes/day	Actuals
1969-70	519	684	558	406
1970-71	519	684	558	419
1971-72	519	684	558	404

12.12. The actual production was 137 tonnes, 116 tonnes and 114 tonnes per day during the years 1969-70, 1970-71 and 1971-72 respectively as against the phase I norm of 400 tonnes a day. The actual staff strength (404) as on 31-3-1972 was 73 per cent of the total staff (558) required phase I.

12.13. The representative of the Ministry stated during evidence that the staff strength as recommended in the Organisational chart increased to the indicated figure of 684 from 519 in D.P.R. (taking into consideration the categories of staff not included in D.P.R.) for the following reason:—

> "With experience in the working of the deposits from the time the DPR was prepared to the time of revision of the organisational chart, it was noticed that provision in respect of certain categories of staff in the DPR was inadequate. Therefore it had to be revised and 165 Nos. had to be added on that basis."

12.14. In regard to the observation that the staff strength recommended for phase-I programme was for 83 per cent of the total strength, it was clarified that phase—I scheduled production (400 tonnes per day)* was 67 per cent of the reduced rated capacity of

* Audit has pointed out that the % should be 62.5 only.

the mine from 800 tonnes to 640 tonnes due to thinning of pyrites bed. During phase—I, the mine programme was also to complete prestoping development for the full rated capacity of the mine. Moreover, certain common service facilities, overhead management staff are to be provided almost to full as mentioned in DPR irrespective of the lower requirement of ore Considering all these factors, the ratio of 83 per cent strength recommended for Phase—I programme was not high.

12.15. The Committee were also informed that the Board of Directors had decided to appoint the Administrative Staff College Hyderabad as Management Consultants. The staff requirements would be studied by them.

Daily rated workers

12.16. Besides regular staff, the Detailed Project Report assessed the number of workers required as 1322 (including 136 mining and engineering personnel which have been treated by the Company as monthly rated staff) to enable production of 800 tonnes per day. The Sale Price Committee, which examined the question of number of workers required, assessed it (March, 1969) at 1863 for the production of 415 tonnes per day and 216 for prestoping development. Adding 10 per cent for leave reserve, etc. on 2079 (1863 plus 216) the requirement works out to 2287. Subsequently, the workers required for transportation and ore beneficiation had been assessed as 129, thus raising the total number of workers to 2416. The number of workers actually employed, both for production and development from March, 1969 to March 1972 and the production achieved are indicated below:—

1969-70

	3/69	4/69	5/69	6/69	7/69	8/69	9/69	10/69	11/69	12/69	1/70	2/70	3/70
(i) No. of workers actually employed. (A)	1206	1443	1571	1617	1991	1989	2097	2108	2070	2067	1856	1855	1828
(ii) Production actually in terms of 'B' Grade (In tonnes)—(B)	2507	3719	4365	4572	5774	5066	4003	3544	3402	3368	1440	805	1018

1970-71

	4/70	5/70	6/70	7/70	8/70	9/70	10/70	11/70	12/70	1/71	2/71	3/71
(A) . . .	1832	1832	1805	1805	1800	1800	1740	1741	1741	1740	1740	1740
(B) . .	607	1797	467	181	199	2206	2650	6375	5700	3737	4103	5021

	1971-72											
	4/71	5/71	6/71	7/71	8/71	9/71	10/71	11/71	12/71	1/72	2/72	3/72
(A)	1740	1750*	1750	1750	1750	1750	1750	1750	1750	1750	1750	1740
(B)	5013	4647	4870	3929	3364	2392	829	884	755	2814	1282	2303

Note: During 1971-72, there was no development work. All the workers were employed on production only.

*The increase of [illegible] is by transfer of diamond drilling section daily rated workers from Saladipura.

12.17. It would be seen from the above that the actual production achieved in 1971-72 was about 33 per cent of the target of 415 tonnes per day on which the Sale Price Committee assessed the strength but the number of workers engaged in 1971-72 amounted to 72 per cent of the total assessed for workers.

12.18. In this regard the Management in a written note stated as follows:

> "It is not correct to compare the actual number of workers employed on production and compare it in proportion to that given in the Sales Price Committee's Report. The deployment of workers in the S.P.C.'s report envisaged production of ore from stoping panels where more ore is obtained per worker than that from the development faces (a total of 2,416 workers). During the period under reference, the production has been obtained from the development faces in the Gate Trunk Roads and the preparation of the panels. As such, the workers deployed in these places cannot compare in direct proportion to that provided in the D.P.R. or the S.P.C. Report for 415 tonnes/day of ore."

12.19. As regards, the effect of excessive manpower on the cost of production and production per capita as envisaged in the DPR, the Management of PPC informed the Committee as follows:

> "If the additional provision of the staff is taken into account which has not been provided in the DPR, the increase in the staff strength in the organisational chart works out to about 30 per cent only. The production per capita on the above basis will come to 1.54 tonnes per staff per day in the DPR whilst as per the organisational chart will work out to 1.17 tonnes per staff per day."

12.20. To an enquiry of the Committee that in view of low level of production, the actual staff strength should have been kept lower than the level obtaining in 1968-69, 1969-70 and 1970-71, the Management of P.P.C. stated that:

> "It may be seen that the actual deployment of staff has been only 73% of that proposed to be employed for phase—I Certain minimum staff has to be kept in position irrespective of the demand of ore and the fact that full strength of phase—I has not been filled up even till date; as the

reduced demand of pyrite has been kept in view while filling up the posts of staff."

12.21. Asked about the steps taken to reduce overstaffing the Committee were informed by the representative of the Ministry that at the present moment, there is certainly a potential threat of layoff, but it is avoided. For 92 workmen who are deemed to be permanently surplus on account of the sale of equipment by the PPC and their idea of not doing very much of mechanical operations of the mines, efforts are being made to re-locate them in other public sector projects. There was also an effort made to introduce the voluntary retirement scheme so that the load of surplus workers could be reduced. This was done twice, but on both occasions the scheme could not make headway because of very strong protests (from the workers). So, it is not proposed to take any drastic steps to reduce the strength of the workers in the expectation that we would be able to achieve the 900 tonnes per day production by 1976-77."

12.22. The Committee find that as per the Detailed Project Report the total number of staff required for the production of 800 tonnes per day was 240. As against this the actual number of persons employed as on 31-3-72 was 404. It has been stated that the DPR did not contain provision for certain categories of staff like transport, head-office etc. The Committee find that even taking into consideration the categories of staff not included in the DPR, the total staff strength would work out to 519. As against this, the organisational chart prepared by the Management envisaged requirement of staff strength as 613 for the production of 800 tonnes per day and for Phase—I the recommended staff strength was 508. The actual staff strength as on 31-3-1972 works out to 73 per cent of the total staff provided even in the organisational chart.

12.23. In the case of daily rated workers also the number of persons employed was 72 per cent of the total workers assessed by the Sale Price Committee for Phase I. On the other hand, the production was only 29 per cent of the production envisaged in Phase—I. It has been stated that it is essential to have certain percentage of staff irrespective of rate of production. The Committee, however, feel that even taking into consideration this aspect, the staff was much in excess of requirements keeping in view the low production at present. It was admitted by the representative of the Ministry during evidence that there were 92 workmen 'who are deemed to be permanently surplus of requirements.'

The Committee would urge that the reasons for such over-staffing should be investigated and it should be ensured that over-staffing

is avoided in the interest of efficiency and bringing down the cost of production. The Committee hope that the staff strength would be readjusted keeping in view the recommendations of the proposed study by the Administrative Staff College, Hyderabad. The Committee also suggest that there should be a cell in the Company to carry out the work study at periodical intervals and the staff should be deployed in various jobs taking into account the reports of such works study.

12.24. The representative of the Ministry assured the Committee during evidence that efforts were being made to re-locate the surplus staff in other public sector projects. The Committee strongly urge that the Government and the Undertaking should give earnest attention to this problem and make suitable arrangements for the absorption of surplus personnel.

C. Operational efficiency

12.25. The table below indicates the actual output per man year during the last four years as compared with the output per man year envisaged in Detailed Project Report and in phase I programme of production:—

Year	Production per man year as per D.P.R.	Production per man year as recommended for Phase I programme	Actual production per man	percentage of efficiency	
				Col. 4 to Col. 2	Col. 4 to Col. 3
1	2	3	4	5	6
1968-69	154 tonnes	44 tonnes	17 tonnes	11	39
1969-70 .	154 tonnes	44 tonnes	18 tonnes	12	41
1970-71 .	154 tonnes	44 tonnes	16 tonnes	10	36
1971-72 .	154 tonnes	44 tonnes	16 tonnes	10	36

12.26. In view of the low off-take of pyrites ore by FCI the production has been restricted which has resulted in low actual production per man.

12.27. It will be seen from the table that actual production per man was much below than that envisaged from time to time. The wide variation between the productivity per man year as per the

Detailed Project Report and that recommended for Phase I Programme, is due to the following factors:—

(a) Increase in the total number of staff and daily rated workers from 1,562 in the Detailed Project Report to 2144 in the Phase I programme in 1971-72.

(b) Scaling down of the production from 2.4 lakh tonnes per annum, as envisaged in the Detailed Project Report, to 1.2 lakh tonnes per annum in the Phase I programme.

12.28. In this connection, the Ministry stated (June, 1971) as follows:—

(i) Detailed Project Report assumed mechanised operations, whereas the actual production during the period under consideration has been mostly by manual operations.

(ii) "the production level of 400 tonnes/day can be reached with the existing number of labourers with marginal increase in production labour. The productivity is, therefore, expected to increase to double the present level which is about 20 tonnes."

12.29. In reply to a question about the basis on which the production per man year had been worked in Phase I programme and if any scientific study had been made to determine the production norm per man, the Management of PPC in a written note, stated that:

"Production per man was worked out in phase—I on the basis of actual experience gained and no scientific study was made while determining the production norms per man."

12.30. The Committee note that actual production per man since the commencement of production in the PPCL has been much below than what was envisaged in the Detailed Project Report and also lower than what was even envisaged in the revised Phase I programme. The reasons for this are stated to be excessive staff including daily rated workers and the decision to scale down the production to 1.2 lakh tons in Phase I. The Committee were informed that no scientific study was made while determining the production per man. The Committee need hardly stress that low productivity results in high cost of production affecting not only the working results of the PPCL but also the economics of the working of the Sulphuric Acid Plant. The Committee, therefore, urge that effective steps should be taken to improve the efficiency and increase productivity with a view to ensuring an economic price for the ore and for the acid.

D. Labour Welfare

12.31 During the visit of the Committee on Public Undertakings to Amjhore in September, 1972 the Committee were given to understand that adequate housing facilities had not been provided to all the workers and staff due to certain difficulties. Similarly, it had not been possible to provide suitable means of transport to the workers to reach the mine head. In this connection, the Ministry informed as follows:—

"The Company has not been able to provide housing facilities to all the workers and staff upto now mainly due to the non-acquisition of additional land. The Company has at present only 60 acres of land and application has been made to the State Government for acquiring additional 185 acres of land. In the existing land the quarters for workers and staff have been built to the maximum extent possible, so as to provide this facility to the maximum number of workers and staff.

In the first stage PPC have planned to provide housing facilities to 55 per cent of the workers, who are coming from beyond a distance of 10 miles. The table below shows various types of quarters which have been built and which are planned to be built during Phase—I of the mining programme:—

Type of houses & Plinth area	No. required to be constructed as per original project estimates	No. already constructed	Additional Nos proposed to be constructed during Phase-I.
1	2	3	4
I. (365 sq. ft.)	248 (including 100 miners type barracks)	139	250 (385 sq. ft. plinth area
II. (400 sq. ft.)	341	138	
III. (600 sq. ft.)	42	67	
IV. (900 sq. ft.)	32	27	
V. (1500 sq. ft.)	5	4	
	668	375	

The mines at Amjhore are situated at a height of about 300 feet above the valley (base level). The monthly rated staff has been provided with subsidised transport which take them from the office situated at the base to the mine adits In respect of workers it has been stated that it would not be possible to provide means of transport to the mines as

it involved running off several buses, which part from financial consideration, was not possible as proper road with suitable gradients and curves was not available for plying of such buses. A man riding haulage was being planned, which would take the workers from the base to the adit level. This haulage was not initially available from indigenous sources. Necessary action was being taken with M/s Mining & Allied Machinery Corporation Ltd., Durgapur, who were being requested to undertake manufacture of such man-riding haulage with safety appliances and devices."

12.32. The Committee feel that lack of adequate housing facilities and suitable means of transport for the workers to enable them to reach the mine adits has to some extent affected the efficiency in the working of the mines. The Committee would, therefore, like Government/Undertaking to give a serious thought to this problem and take concrete measures to provide the necessary housing and transport facilities to the workers.

XIII

FINANCIAL MATTERS

A. Capital Structure

13.1. The authorised capital of the Company as on 31st March, 1972 was Rs. 15 crores. The paid up capital, wholly subscribed by Government, amounted to Rs. 609.14 lakhs on 31st March, 1972.

13.2. In addition, the company obtained unsecured loans from Government of India from time to time which stood at Rs. 272.00 lakhs as on 31st March, 1972 (including short-term loans).

13.3. The Company has also purchased certain equipments of the value of Rs. 92.84 lakhs (including interest) on deferred credit. On devaluation of French currency in August, 1969, the amount payable including interest was reassessed which resulted in a decrease of liability by Rs. 7.46 lakhs. This has been adjusted in the Accounts of 1969-70 by reducing the value of assets and liabilities. The amount outstanding against 'defered credit' as on 31st March, 1972 was Rs. 38.74 lakhs.

13.4. The debt equity ratio as at the close of the last three financial yeras was as follows:—

1969-70	0.46:1
1970-71	0.49:1
1971-72	0.45:1

B. Economic viability of the Project and Cost of Production

13.5. The Actual production of pyrites ore started from April 1968 when it was found that the ore got contaminated during the process of mining with overlying|underlying shale due to thinness of pyrites bed, with the result that the quality of the the run of mine ore ranged between 14—25 per cent. It was found possible to produce the pyrites ore only to the extent of 33 $\pm$ 3 per cent. S. Grade by manual beneficiation.

13.6. For commissioning, trials and guarantee tests of the Sulphuric Acid Plant it was a contractual obligation on the part of the

Company to supply 7,000 tonnes of pyrites ore of 40 per cent. S. Grade. As the commissioning of the plant was much delayed, the Fertilizer Corporation of India Limited Sindri demanded from time to time additional 26,500 tonnes of 40 per cent S. Grade ore.

13.7. The supplies were, however, restricted to 19,909 tonnes of 40 per cent. S. Grade ore as in January, 1970 it was decided to discontinue further despatches of 40 per cent. S. Grade ore.

13.8. 40 per cent. S. Grade ore supplied to Fertilizer Corporation of India Sindri was produced by conversion of 33 $\pm$ 3 per cent. S. Grade by manual beneficiation which involved besides screening, picking, handling, etc. rejection of small size (minus 40 mm) ore of 33 $\pm$ 3 per cent. S. Grade which amounted to 30 per cent. of the ore and, as such the cost of conversion was prohibitive. Against the estimated cost of Rs. 200 per tonne of 33 $\pm$ 3 per cent. S. Grade ore, the cost of production of 40 per cent. S. Grade ore was estimated at Rs. 467.18 per tonne. The extra cost incurred by the Company in 1969-70 for upgrading 33 3 per cent. S. Grade ore to 40 per cent. S. Grade ore was Rs. 143.75 per tonne. This resulted in additional expenditure of Rs. 13.99 lakhs for obtaining upgraded ore of 40 per cent S. Grade in 1969-70. In 1968-69 the additional cost incurred for the purpose was Rs. 13.33 lakhs.

During 1970-71 and 1971-72, only 'B' grade ore was supplied to F.C.I., Sindri. The Company did not, therefore, incur any expenditure towards beneficiation of 'B' grade to 'A' grade ore during the above two years.

13.9. In order to examine whether the Sulphuric Acid Plant at Sindri could be modified to produce sulphuric acid from the lean ore and whether the Amjhore mine was in a position to supply the lean ore at economic cost, Government constituted a Committee of Experts in January, 1970 to examine and report on the following:—

(i) What was the optimum grade of ore which could be produced from Amjhore on a regular and sustained basis, with ore without beneficiation and at what cost?

(ii) Whether the Sulphuric Acid Plant could operate with pyrites ore of lower than 40 per cent. S. Grade and, it so, at what level of efficiency and economics?

(iii) Whether it would be necessary and desirable to carry out any modifications in the Sulphuric Acid Plant in order

to operate it on lower grade pyrites ore which can be mixed from Amjhore at economic cost and if so, what would be the extent of these modifications, cost and time required for completion?

(iv) What was the optimum grade at which the total economics of mining and sulphuric acid production, taken together, can be maximised?

13.10. According to the Committee at the current prices of sulphur, the manufacture of sulphuric acid from elemental sulphur would be the cheapest and any substitution of sulphur by indigenous pyrites would make the acid costlier. The Committee, however, considered the fact that to a limited extent, foreign exchange could be saved even at a certain additional cost in view of the employment and other secondary benefits arising out of indigenous production of pyrites. Keeping in view the historical developments of the present problems and the sustantial investment made in Amjhore Project, the Committee considered it unwise to close the Mine and came to the following conclusions:—

(a) The quality of ore that will come out of the Amjhore Mine is expected to be 16—20 per cent. S. Grade. This can be upgraded to 23—25 per cent. S. Grade. by manual beneficiation methods before despatch to Sindri. At this stage, no mechanical beneficiation is recommende. After roasters are suitably modified, ore 16—20 per cent, or 23—25 per cent. S. Grade could be utilised in combination with elemental sulphur. The choice between the two alternatives rests neither on technical nor on economic grounds but purely on financial grounds.

(b) The ore should be mixed with the elemental sulphur in the following proportions:—

Grades of Ore	Requirement of ore and sulphur for stage I (i.e. Simon Carves S. Acid Plant of 400 tonnes per day).		Requirement of ore and sulphur for Stage II (i.e. Simon Carves Plant and Bulgarian Plant being installed total capacity of 1280 tonnes of sulphuric acid per day).	
	Ore	*Sulphur*	*Ore*	*Sulphur*
16—20 per cent. S.	300 tonnes	85 tonnes	960 tonnes	272 tonnes
23—25 per cent. S.	336 tonnes	58.4 tonnes	1075 tonnes	187 tonnes

Supply of 16—20 per cent. S. Grade ore would provide about 39 per cent. of the sulphur value required for the

acid manufactured and that of 23—25 per cent. S. Grade ore would account for about 58 per cent. of the sulphur value for the manufacture of acid.

(c) When both the Simon Carves and Bulgarian Acid Plants will be in operation, the total quantity of run of mine ore that has to be produced from the mine, will be 1800 tonnes per day. The per tonne cost of production of 16—20 per cent. S. Grade ore at Stage I (560 tonnes of R.O.M.). would be approximately Rs. 100 ex-mine head, whcih would result in a cost of Rs. 170 per tonne at the mine for the 23—25 per cent. S. Grade ore after beneficiation or Rs. 211 ex-Sindri. There is no provision in this price for any element of profit or return on investment; when the Mine produces 1800 tonnes of ore per day, the ex-Sindri price would come down from Rs. 211 per tone to Rs. 170 per tone. This is largely on account of the scale of operations leading to full utilisation of capacity. At the intermediate levels, the cost would be somewhat between these two costs. This assessment of costs has been based on as much as Rs. 1 crore investment for Stage I and Rs. 85 lakhs for stage II on surplus machinery being kept off the books of the Pyrites, Phosphates and Chemicals Limited.

(d) Until appropriate modifications to the roasters are made, the Pyrites, Phosphates and Chemicals Limited will continue to supply 33—35 per cent. S. Grade ore by manual picking for the Simon Carves Acid Plant only. The Bulgarian Plant should have, however, roasters modified to work with the mixture of lean ore and elemental sulphur from the beginning.

(e) As the requirement of run of mine ore under the proposed recommendations would be substantially lower than what was originally planned, the Pyrites, Phosphates, and Chemicals Limited should review and revise its development programme and capital and man-power requirements to cater to such reduced demand.

(f) Both the Pyrites, Phosphate and Chemicals Limited and the Fertilizer Corporation of India Limited have to bear heavy liability in their effort to raise and use Amjhore pyrites instead of imported sulphur. As commercial enterprises, neither the Pyrites, Phosphates and Chemicals Limited nor the Fertilizer Corporation of India Limited

can absorb the additional burden. According to the Committee, the additional burden on the production of sulphuric acid by using lean ore with elemental sulphur as compared with the production of acid from elemental sulphur would be as follows:—

Particulars	Stage I (Simon Carves Plant - 400 tonnes per day).		Stage II (Simon Carves and Bulgarian Plants—1280 tonnes per day).	
1	2		3	
(i) Sulphur percentage in ore.	16—20%	23—25%	16—20%	23—25%
(ii) quantity of elemental sulphur required in tonnes/day	85	58·4	272	187
(iii) saving in tonnes of elemental sulphur per day.	54	80·6	173	258
saving in foreign exchange/day @Rs.270 per tonne of sulphur (Rs.)	14580	21762	46710	69660
Acid price in Rs. /tonne.	264	299	239	263
(vi) Acid price based on elemental sulphur (Rs.)	196·30	196·30	190	190
(vii) Additional cost incurred per day in the production of acid (Rs.)	27080	41080	62720	93440
(viii) Ratio — Additional Rupee cost (vii) / Foreign exchange saving (iv)	1·86	1·88	1·34	1·34

(g) Though mechanical beneficiation has not been proposed at this stage, the Committee finds that sooner or later, mechanical beneficiation may be compelled by the requirements of cinder disposal, even though it may not be necessary merely for upgrading the sulphur content of pyrites. The technical and economic aspetcs of cinder disposal and mehanical beneficiation have to be studied separately on a top priority basis.

13.11. In a subsequent note the Management informed the Committee as follows:—

"In pursuance of the recommendations of the Expert Committee headed by Shri K.S.R. Chari, trials were made at Sindri for feeding low grade pyrites with elemental sulphur so as to upgrade the feed to 40 per cent Sulphur.

F.C.I. indicated that these trials were conducted for a period of a week in presence of the experts from M|s. Lurgi. In pursuance with these trials 33 per cent grade pyrites at present being used in the Sulphuric Acid Plant is also being mixed with Elemental Sulphur for feeding to the roasters.

The Expert Committee had recommended the use of 33 per cent of sulphur grade ore pending trials of mixture of lean pyrites 16—20 per cent or 23—25 per cent grade ore with sulphur in the existing plant.

The Expert Committee has assessed the price of various grades of pyrites (without the profit element) as follows:—

Grade of pyrites Ore	*Cost cs delivered at Sindri* *Stage*—I	*Stage*—II
(a) 16—20% S	Rs. 156·00	Rs. 127·00
Price/Unit of sulphur	8·60	Rs. 7·00
(b) 23—25% S. . .	211·00	Rs. 171·00
Price/unit of sulphur.	8·80	Rs. 7·10

By gaining further experience, the working methods at Amjhore have been modified and it has been possible to produce the ore having a grade of 30—36 per cent "S" on continuous basis. It is further expected by the Management (and also approved by the Board of Directors) that it will be possible to produce this garde of ore even for meeting the requirements for both Simon Carves and Bulgarian Acid Plants. The Unit cost of mining for this grade of ore has been also further assessed and the approximate delivery cost of this grade of ore at Sindri at a level of production of 1200 tonnes per day will come to Rs. 170|-, *i.e.* the cost per unit of sulphur will come to Rs. 5.15 approximately.

In the meeting held in the Ministry of Steel and Mines on 24th December, 1971 the Minister of State stressed the need for maximum utilisation of indigenous pyrites in preference to imported sulphur.

F.C.I. has also confirmed the following *vide* Minutes of the Meeting dated 20-12-1971:—

"On an enquiry from M.D., PPC it was confirmed by FCI that it was technically possible to use 30—36 per cent pyrites

in PPC Plant in Bulgarian Plant after mixing with Elemental Sulphur to bring the feed upto 40 per cent."

Therefore, the use of 30—36 per cent sulphur grade ore in both the plants at Sindri is being considered which will lead to the maximum utilisation of indigenous sulphur, but the cost of production of Sulphuric Acid will continue to be higher than that manufactured from Elemental Sulphur and the Government is being approached separately for according subsidy/concession for the same.

13.12. During evidence the representative of the FCI informed the Committee as follows:—

"Expert Committee recommended two types 16 to 22 per cent with sulphur and 23 to 25 per cent with sulphur. They were in a position to supply 33 per cent grade. This is what is used with sulphur. We have examined the viability of the project. PPC anticipated that when they do this 900 tonnes daily production of 33 per cent grade the cost would be about Rs. 150 per tonne. With mixture with sulphur we expected with this rationalisation that the project would still be viable and the return on additional capital would be of the order of 11.1 per cent using pyrites even at this price.

* * * * *

We have come to that in regard to supply for Simon Carves plant. In the meantime the methods have also changed. Expert Committee depended upon the PPC management. What they said was this. They said this is the best they can do *i.e.* 16 to 20 per cent. Expert Committee said, that if you can remove shale manually you may improve to 23 to 25 per cent. They were trying to find solution to problem how this low grade could be used. They said it may be mixed with sulphur. With same manpower, maintenance, etc. if it is possible to get 33 per cent, to that extent import of sulphur is reduced. That was the main thing. It is better to use more sulphur than more pyrites because sulphur is cheaper. The difference in cost is Rs. 30 per tonne."

Actual Cost of Production

13.13. The table below indicates the comparative cost of production of ore per tonne as estimated in Detailed Project Report

(Jan, 1965), as submitted to the Sales Price Committee (March, 1969) and the actual cost during the years 1968-69 to 1971-72:—

	As Estimated in Detailed Project Report (Jan. 1965) at a production Level of 2.4 lakhs tonnes	As Estimated for fixing sale price (March 1969) at a production level of 1·2 lakhs tonnes	1968-69 at a production level of 24,355 tonnes	1969-70 at a production level of 40,976 tonnes	1970-71 at a production level of 34,843 tonnes	1971-72 at a production level of 34,204 tonnes
	1	2	3	4	5	6
1. Labour Wages & Salaries	12·37	41·38	41·86	51·52	60·25	106·80
2. Material cost & Power cost.	18·95	53·70	62·43	47·11	25·88	32·88
3. Depreciation	8·30	44·92	87·25	77·93	68·34	41·89
4 Accident benefit Welfare and medical facilities.	1·50	4·00	5·73	4·52	10·25	13·56
5. Maintenance of Plant and Machinery etc.	1·65	18·51	17·49	18·48	26·65	36·72
6. Essential services & Misc. expenses.	0·29	4·00	4·92	9·70	13·94	20·02
7(a) Interest on working capital	0·63	3·87	27·96	27·31	34·41	23·97
(b) Interest on loan.	—	10·64	3·99	23·43	46·00	50·66
8. Picking, handling ore sampling & analysis, transport from conveyor to bunker	—	6·63	12·62	18·04	5·76	4·97
Cost of production (Ex. Mine Head)	43·69	187·65	264·25	278·04	291·48	332·27
9. Transportation cost upto DOS including loading into wagon.	—	12·40	17·99	10·13	13·20	16·14
		200·05	282·24	288·17	304·68	348·41

The Committee were informed that "the following factors were responsible for increase in the estimated cost fixed by the Sales

Price Committee over that estimated in the Detailed project Report:—

(i) Reduction in thinckness of pyrites ore.

(ii) Presence of shale and acidity of water oozing through the mine resulting in excess wear and tear of machines.

(iii) Increase in rates of wages, D.A.

(iv) Increase in material cost.

(v) Increase in power cost.

(vi) Increase in capital cost of project on account of increase in cost of plant and machinery, initial development of mine, devaluation, etc."

13.15. The unit cost envisaged in the Sales Price Committee Report was based on the production rate of 415 tonnes a day and on the assumption that the direct expenses, such, as wages, material, plant and equipment, etc., would be charged directly to capital and revenue and that common expenditure would be allocated in the ratio of 15:85. The Company, however, allocated the entire expenditure (both direct and indirect) in proportion to the excavation done for production and pre-stoping. On this basis the expenditure was charged in the accounts for 1968-69 to 1971-72 as follows:—

	1968-69	1969-70
Profit and Loss Account	47·34%	61·86%
Development Account	52·66%	38·14%
	1970-71	1971-72
	67·71%	100%
	32·29%	nil

The estimates of cost as given in the Sales Price Committee Report are not therefore, strictly comparable. Every year revenue budget is prepared based on the budgetted production as well as projected level of production. On the basis of such budget, it is ensured that the cost production is not increased as well as the total expenditure does not go beyond budgetted expenditure.

13.16. Subject to the above observations an item-wise analysis of the estimated cost as given in the Sales Price Commitee Report

and the actual cost in the year 1968-69 to 1971-72 indicated the following features:—

(i) *Labour wages and salaries*

The Estimates made by the Sales Price Committee included a provision of 25 per cent for *ad hoc* increase in wages, 5 per cent for overtime and 5 per cent for work on Sundays, which did not actually materialise. This was, however, counter-balanced by the production being much lower than that envisaged in the Sales Price Committee Report.

Again, the Sales Price Committee envisaged that the salaries and wages of staff and workers were debitable to production only, but a major portion of the total expenses under this head was allocated to development during 1968-69 and 1969-70.

During 1970-71 and 1971-72 the increase in cost per tonne was due to increase in wage rate of daily rated workers and monthly paid staff and its incidence on low production.

(ii) *Material cost and power cost*

The break-up of the material cost and power cost as given in the Sales Price Committee Report is as follows:—

Material cost	Rs. 45·90 per tonne to Rs. 23·40 per tonne (including cost of replacement of belting)
Power cost	Rs. 7·80 per tonne

The actual expenditure on belting was Rs. 11 per tonne in 1968-69 and Rs. 12 per tonne in 1969-70, as against Rs. 23.40 per tonne envisaged in Sales Price Committee Report, thereby indicating that the provision for this item in the Sales Price Committee Report was on a higher side.

The material cost in 1968-69 and 1969-70 was Rs. 42 per tonne and Rs. 28 per tonne respectively as compared with Rs. 22.50 per tonne mentioned in the Sales Price Committee Report.

The actual power cost in 1968-69 and 1969-70 was Rs. 9.12 per tonne and Rs. 7.08 per tonne respectively as against the estimate of Rs. 7.80 per tonne mentioned in Sales Price Committee Report. The higher incidence of power cost in 1968-69 was due to the fact that the actual consumption of electricity was much lower than the minimum guaranteed demand.

During 1970-71 the cost per tonne was less due to no issue of belting for replacement."

On an enquiry of the Committee as to what were the reasons for increase in the material cost over the norm given in the Sales Price Committee's Report, the Company stated that:—

"The direct material cost as mentioned in the Sales Price Committee at Rs. 22.50 per tonne is based on the production level of 1.2 lakhs tonnes per year where the production cost in 1968-69 and 1969-70 was arrived at to the tune of Rs. 42.00 per M.T. and Rs. 28.00 per M.T. which was based on the production level of 24,355 M.T. and 40,976 M.T. for 1968-69 and 1969-70 respectively. In view of low production which is due to low off-take by the F.C.I., Sindri the material cost has gone up.

The corresponding figures for 1970-71 and 1971-72 are as follows:—

1970-71	. .	Rs. 25·88*
1971-72	. .	Rs. 32·68*

In this case also, the reason is the restricted production due to low off-take by F.C.I. The increase in the material cost in 1971-72 over 1970-71 is due to the reason that all the expenditure in 1971-72 was charged to P|L Account whilst in 1970-71, 67.7 per cent expenditure was charged, which has thus proportionately pushed up the material cost|tonne."

(iii) *Depreciation*

The total incidence of depreciation (both for production and development as envisaged in the Sales Price Committee Report, was much higher than the total depreciation actually charged in the accounts for 1968-69 and 1969-70.

Again, the Sales Price Committee Report provided for 50 per cent of depreciation on loaders and shuttle cars and 85 per cent of depreciation on common items of equipment to be allocated to the production account. The actual percentage allocated to Profit and Loss Account during 1968-69 and 1969-70 was, however 47.34 per cent, and 61.86 per cent respectively.

In spite of the above, however, the incidence per tonne was higher in 1968-69 and 1969-70 over the estimate of the Sales Price Committee mainly due to idle capacity|under-utilisation of the plant and

*According to Audit these represent both material and power cost.

machinery and higher incidence of write-off of development expenditure on account of low production.

During the year 1970-71, cost per tonne was high due to low production. In 1971-72, all the Loaders and Shuttle cars along with some belt conveyors were declared surplus on which depreciation was charged at the rate of 1 per cent only as against charging as per Income-Tax Rule 1970-71 for the surplus machinery. This resulted in the lessening of amount of depreciation in 1971-72.

(iv) *Picking, handling, ore sampling and analysis, transport from conveyor to bunker*

The actual incidence was higher not only because of low level of production but also because of taking up of additional items of work.

The Ministry stated in June, 1971 as follows:—

> "The main reasons for the high cost of production is the inadequate off-take.... The cost will come down substantially when the off-take is increased to about 400 tonnes/day."

Due to low production during 1970-71 and 1971-72 the cost per tonne was high due to the following factors also:—

1. Accident Benefit Welfare & Medical Facilities.
2. Maintenance of Plant & Machinery.
3. Essential services and miscellaneous expenses.
4. Interest on working capital and on loan.

13.17. The Committee enquired whether the cost of production of 400 tonnes a day would be such as to make the production of sulphuric-acid economical. The Company stated as follows:—

> "Cost structure of ore at different levels of production has been ascertained. Cost of production of ore at a level of 400 M.T. a day will be Rs. 160.00 per tonne ex-Dehri-on-Sone excluding Royalty and Sales Tax and return on the capital. On this basis, the cost of production of Sulphuric Acid at Sindri with/without mixing elemental sulphur during Phase-I and II has been worked out as in appendix-III. It will be seen from the figures that cost of production of 'S' with Elemental Sulphur mixed with pyrites comes to Rs. 253|- and 234|- at Stage-I and II respectively.

Expert Committee has estimated that cost of making Sulphuric Acid at Sindri from Elemental 'S' will come to Rs. 196/- per tonne. Thus the Sulphuric Acid to be produced at Stage-I and II with the pyrites mixed with elemental sulphur is costlier by 28 per cent and 19 per cent respectively."

"The scope for reduction in the cost of production apart from the scale of production has been reviewed in January, 1972. The method of mining has been reorganised. The percentage of extraction in the bord and pillar has since increased from 70 per cent to 85 per cent. Reduction in the cost of handling of mine acidic water has also taken place with the introduction of PVC pipes, cement asbestos pipes and making the two mines self-draining, expenditure on the roof supports has been reduced by driving the galleries narrow and introducing the roof bolts, the surplus shuttle cars, loaders and belt conveyors have been withdrawn from the mine reducing the expenditure on depreciation and maintenance. All these factors have reduced the cost of production. The Sales Price Committee had arrived at a cost price of Rs. 200/- per tonne ex-Dehri-on-Sone (excluding royalty and Sales Tax) and the revised figure of cost of production as assessed in January, 1972 comes to Rs. 160/- F.O.R. Dehri-on-Sone (excluding royalty and Sales Tax)."

During the evidence, the Managing Director, PPCL informed the Committee as follows in regard to the cost of production:—

"In the first DPR, the cost of production was about Rs. 20|- per tonne. In the approved DPR, it has been taken as about Rs. 43/- per tonne ex-mine-head. Today our cost at the level of production of 400 tonnes per day ex-mine head is Rs. 145|- for 30 to 36 per cent grade. It does not include royalty, sales tax and return on capital... the above cost of 33 per cent grade ore is including the beneficiation cost.....In 1971-72 34000 is the production and the cost ex-mine-head is 332/-. One of the factors for the increased cost is that we have got idle surplus capacity which is not being utilised. We can produce 1,20,000 tonnes per annum, but are producing only 34,000 tonnes. Thus the actual low offtake is the main reason for pushing up the cost. As compared to the year 1970-71, one of the main factors to be considered is that at that time, we

were operating two accounts. One was the mine development account and the second was production account. All expenses were being shared between the two. Our mine development account has finished in 1970-71. All expenses which are there were charged directly to revenue in the year 1971-72.

With the present out-lay, we have worked out the cost at various levels of production. At 60,000 tonnes our cost will be Rs. 191.00, at 1,00,000 tonnes the cost will be Rs. 160.00 including transport charges to Dehri-on-Sone."

13.19. The Managing Director explained further as follows:—

"When we reach the production level of 1200 tonnes per day, our cost of production would be Rs. 125.00 ex-mine-head. If we make the sulphuric acid at the mine site itself, the cost of production will be even with some escalation, say, Rs. 210 or 220. If we make the sulphuric acid in Sindri from elemental sulphur it will cost Rs. 196.00 per tonne. So by taking those figures of 1970 from the Expert Committee Report, you will find that the cost of production of sulphuric acid at Sindri and that at the mine site, is about 15 per cent higher."

13.20. The Committee are concerned to note that the Amjhore mines have not been able to produce the requisite type of pyrites ore (40 per cent S. grade quality), on which the Sulphuric Acid Plant of Sindri was based. The cost of conversion of 33 plus minus 3 per cent ore by beneficiation for supply to the Sindri Plant is also prohibitive. As a result, the etire project of mining of pyrites and then producing sulphuric acid out of it, has run into difficulties. The choice is either to use lean pyrite with elemental sulphur or to beneficiate pyrites. The cost of production of pyrites ore at Amjhore mines has also been very high. Even assuming that the plant is able to produce ore of 33 plus minus 3 per cent S. Grade ore at this cost and the roasters|plants are suitably modified to use 30—36 per cent S. Grade for producing acid to full capacity, the cost of production of sulphuric acid would come to Rs. 283 per tonne as against the cost of Rs. 196 per tonne with elemental sulphur and Rs. 253 per tonne with mixing sulphur and pyrites. However, before deciding on any of the alternatives, the production capacity of the Amjhore mines and the extent of foreign exchange required for import of sulphur will have to be taken into consideration.

13.21. For the manufacture of fertilizer, the pyrites based plants have to incur additional expense on account of increased capital cost and operating cost compared to sulphur based plants and unless raw materials were available to the plant at reasonable prices, it would not be possible for the plant to compete in fertilizer market with other plants based on imported raw materials.

13.22. The Committee were informed that until the Simon Carves Plant and the Bulgarian Plant go into production to achieve 1280 tonnes of acid per day, the cost of ore/acid cannot be lower. The Committee, therefore, recommend that Government should ensure that two acid plants are fully commissioned according to revised scheduled so that the off-take from the Amjhore Mine may improve and the cost of production reduced.

13.23. The Committee also recommend that the economics of the alternatives for use of the Amjhore ore should be critically examined and a final decision arrived at. Government should also take steps to fix the cost of pyrites ore to the mutual benefit of PPCL and F.C.I.

C. Financial Position and Working Results

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

(Rs in lakhs)

Liabilities	1967-68	1968-69	1969-70	1970-71	1971-72
1	2	3	4	5	6
(a) Paid-up capital (including advance for shares) . .	505·74	526·74	555·74	575·08	609·14
(b) Reserves and surplus .	..	..			
(c) Borrowings :					
(i) From the Govt. of India		109·00	240·50	283·50	272·00
(ii) From ANF France under deferred credit arrangements . .	82·70	72·45	55·67	47·12	38·74
(d) Current liabilities & Provisions	15·53	43·30	39·92	61·63	71·52
TOTAL . .	603·97	751·49	891·83	967·33	991·40

1	2	3	4	5	6
Assets					
(e) Gross block .	205·26	313·53	360·89	279·25	251·10
(f) Less : Depreciation .	7·73	45·55	82·95	107·52	100·73
(g) Net fixed assets	197·53	267·98	277·94	171·73	150·37
(h) Works under construction .	8·37	3·58	5·20	4·52	4·73
(i) Current assets, loans and advances . . .	322·71	369·48	428·96	451·57	435·22
(j) Unadjusted shortages in Mine equipments, stores etc.	0·14	..	..	0·13	0·17
(k) Preliminary expenses .	0·15	0·15	0·15	0·15	0·15
(l) Development expenditure .	65·66	105·69	136·08	266·80	274·50
m) Development Account Sulphuric Acid Plant, Sindri . . .	9·41	..	..	..	..
(n) Profit and Loss Account .	..	13·61	44·40	72·43	126·26
TOTAL .	603·97	751·49	891·83	967·33	991·40
Capital Employed .	504·71	585·16	666·08	561·67	52·43
Net worth .	505·59	512·98	511·19	502·37	482.56

Notes : (1) Capital employed represents net fixed assets plus working capital
(2) Net worth represents paid-up capital plus reserves less intangible assets
(3) Gross block has been reduced during 1970-71 due to transfer of Mines Development Expenses which stood at Rs 94·70 lakhs as on 1-4-1970 to Development Expenditure shown under other assets.
(4) Current assets, loans and advances include Rs. 197·66 lakhs on account of Sulphuric Acid Plant (Simon Cares) defacto transferred to F.C.I. w.e.f. 1-4-1968.

13.25. The Company started mine operation from 1968-69 and prepared Profit and Loss Account first time for the year ending 31st March, 1969. The Company incurred losses of Rs. 13.61 lakhs and Rs. 30.58 lakhs during 1968-69 and 1969-70 respectively.

These losses did not include the losses on account of shortages and deterioration of pyrites ore aggregating to Rs. 34.29 lakhs and the loss, if any, which may arise from the fixation of final sale price of the ore.

13.26. The cumulative loss as on 30-3-1971 stood at Rs. 72.48 lakhs. In this connection the Ministry stated in June, 1971 as

follows:—

"After fixation of final sale price of the ore, final picture of losses will emerge. At that stage, suitable steps will be taken to bring down the losses progressively."

13.27. To an enquiry as to what would be the final picture of losses after adjustment of losses on account of shortage and deterioration of pyrites ore the Company stated in a written note as follows:—

"After adjustment of losses on account of shortages, deterioration, non-receipt of ore of FCI, receipt of ore below specification by FCI, etc. the net loss will be Rs. 75.69 lakhs in 1970-71.'

13.28. The Committee were also informed that

"No further loss will be incurred from fixation of final sale price for 1970-71 supplies as sale price has been taken into account @ Rs. 200|- per M. T. as against Rs. 224|- per M. T. which was previously accounted for and adjusted thereafter. On the basis of the sale price of Rs. 200/- which was recommended by Majumdar Committee for 1968 to 1970 and thereafter for subsequent years by the Government, PPC has adjusted their accounts right from 1968-69 to 1971-72. F.C.I. is paying to PPC provisionally Rs. 200|- per M. T. and if they accept this sale price, there is no necessity of any further adjustment for fixation of final sale price."

13.29. The Committee pointed out that according to Schedule 'G' of Annual Accounts for 1970-71 a sum of Rs. 6.39 lakhs representing the expenditure on proposed elemental sulphur plant has been shown under Miscellaneous Expenditure (Not written off or adjusted). Asked whether it was not desirable to write off this expenditure as the proposal of elemental sulphur plant has been shelved by the Government on the economic consideration the Company informed that elemental Sulphur Expenses has to be written off. The nature of expenditure is as follows:—

(i) Fees to Outu Kumpo including Bank Commission Rs. 1,185·75	Rs. 3·33 lakhs
(ii) Delegation expenses to Finland	Rs. 0·22 lakhs
(iii) Cost of transportation of ore	Rs. 1·23 lakhs
(iv) Cost of ore	Rs. 0·57 lakhs
(v) Delegation expenses to Norway and cost of despatches of 650 M.T. of ore to Norway	Rs. 1·04 lakhs
TOTAL	Rs. 6·39 lakhs

"The Company has requested the Government to give this amount as a subsidy. The matter is under the active consideration of the Government."

13.30. During evidence, the representative of the Ministry informed the Committee that the cumulative loss as on 31st March, 1972 was Rs. 126.26 lakhs. As regards the action taken to bring down the losses the witness stated as follows:—

"for that, two things are being done. One, of course, is the maximizing of production to meet the Bulgarian Plant demand when it is commissioned along with the rationlization scheme. The second one is that a study has been made by the Hyderabad Administrative Staff College to see what can be done to reduce the load of exercise staff and labour."

13.31. In reply to a question, the Committee were also informed by the representative of the Ministry as follows:—

"The PP&C have asked for substantial subsidy of almost 2½ crores and they have also said that interest rate should be reduced from 6 per cent to 2½ per cent. They had also mentioned that there should be some way of reducing prices of sulphuric acid either directly by reducing prices of pyrites by subsidy or grant. Now, all this has not been proceeded with because the entire question of 900 tonnes per day cost estimate is fluid. At present we have not received the report. After we receive it, it will be possible to decide what should be done either purely on account of Simon Carves Plant or in an integrated way between that plant and the Bulgarian plant. That is a decision that will take time."

13.32. The Annual Report of PPCL for the year 1971-72 states as follows:—

"The average cost of production during the year under Report has been Rs. 345.15 per tonne (30-36 per cent S. Grade ore) ex-Dehri-on-Sone excluding royalty and sales tax. The cost of production has exceeded the sale price mainly on account of the restricted production which was matched with the off-take by the Sulphuric Acid Plant at Sindri. This was necessary as it was not possible to store the pyrite ore which gets oxidised and loses its sulphur content very fast."

13.33. The Committee are distressed to note that the Company had suffered a loss of Rs. 126.26 lakhs upto 31st March, 1972 which comes to more than 20 per cent of the paid up capital. The loss would be still more if the losses on account of shortages and deterioration of pyrites or the loss, if any, which may arise on account of final sale price of the ore, are taken into consideration. There was also an expenditure of Rs. 6.39 lakhs incurred on the proposal elemental sulphur plant which is to be ultimately written off and thereby increase further the loss of the Company. The Committee would urge that immediate steps should be taken by the Management|Government to accelerate the production in the two Sulphuric Acid Plants, as scheduled in April, 1973 and 1974 respectively, so that the rate of production at the Amjhore mines could be increased so as to check the mounting losses of the Company and to ensure that it remains a viable economic entity rather than becoming a burden on the national exchequer.

D. Costing System

13.34. The following deficiencies have been noticed in the costing system:—

(a) Cost of production has been worked out monthly on the basis of total financial expenditure of different items without analysing the direct cost of mining, mining overhead cost and administrative overhead cost, with the result that adequate control cannot be exercised over the incidence of variable expenses.

(b) Idle time of labour, machinery, etc., with reasons therefore is neither ascertained from different production points nor have these been compiled and evaluated at regular intervals with a view to take remedial steps.

13.35. As regards (a) above, the Ministry stated in June, 1971 as follows:—

"The monthly costs were being analysed under the head under which cost is worked out, and approved by the Sale Price Committee, in order to have a comparison between the actuals and the estimates. Only where the actual cost shows wide variation from the standards, detailed analysis was being made. The pattern has been

changed now and the cost ledger now indicates expenditure under 'direct costs', 'overheads', etc. This will be further refined to enable proper management control as advised."

13.36. In a subsequent note the Company stated that "though direct cost and indirect cost were not ascertained, the analysis of variable expenses was made from time to time to exercise control over variable expenses. From 1972-73, the Company was introducing the system of analysing the expenditure as direct, indirect etc.

Since production was restricted due to limited off-take, the analysis of idle time of labour and machinery has not been started."

13.37. The Committee regret to note the several deficiencies in the costing system followed by the Company. There is no system of making analysis of idle time of labour and machinery. No analysis of expenditure was also being made into direct and indirect cost etc. to exercise proper control over expenditure. The Committee are surprised as to how any cost control was being exercised by the Management in the absence of such basic information. The Committee would urge that steps should be taken by management to put the costing system on a sound basis to exercise more effective and close control over expenditure.

E. Internal Audit

13.38. In 1968-69 one Internal Auditor was appointed who was assisted by a staff of 3 clerks only. The Internal Audit Cell working under direct control of Managing Director of the Company was functioning with Headquarters at Dehri-on-Sone 35 Km. away from the Project.

13.39. No Manual had been drawn up outlining the scope and programme of work to be carried out by the Internal Audit Cell. The tentative programme drawn by the Internal Audit in 1969-70 indicated that only routine checks of cash and other records were being exercised.

13.40. The Ministry stated in June, 1971 as follows:—

"An audit manual has been prepared. This is being examined by the Auditors of the Company after which it will be put into operation."

13.41. The Company has stated in a written note that the Management of PPC, subject to approval of Board of Directors, has taken a

decision to get the Audit Manual compiled by the Statutory Auditors of the Company. The Audit Manual to be compiled will apart from normal check provide for a critical review, systems operations, as a whole. Presently, Internal Audit wing is not adequately equipped to discharge its function. Action has been taken to strengthen Internal Audit Deptt. "by appointing an Internal Audit Officer."

13.42. The Committee regret to note that though it is now more than 4 years since internal audit was introduced, the Company has not finalised an Internal Audit Manual nor defined the scope of work of the Internal Audit. The Committee recommend that in order that Internal Audit be really helpful to the Top Management, the Company should locate 'Internal Audit' as far as possible in Project site or nearer to it. The Committee also recommend that Internal Audit Cell should be activised so that all the aspects of working of the Company may be brought under their purview for a thorough check.

F. Accounting Manual

13.43. There is no Accounting Manual laying down the detailed procedure for the maintenance and compilation of accounts, the duties and responsibilities of various officials and delegation of financial powers to them.

13.44. In this connection, the Ministry stated in June, 1971 as follows:—

> "This is being done now. Already some chapters of the Accounts Manual have been finalised, and the rest are being finalised."

13.45. However, the Accounting Manual has not yet been finalised and the Company stated in a written note in August, 1972 as follows:—

> "It has been decided by the management, subject to the approval of the Board of Directors, to get a comprehensive Accounting Manual compiled by the Statutory auditors as has been done by other Public Sector Undertakings, such as, Cement Corporation of India, Fertiliser Corporation of India, etc. It is expected that both the Accounting Manual and the Audit Manual could be compiled and put into cperation within 6-7 months from now onwards."

13.46. The Committee note that necessary action has since been taken to compile an Accounting Manual for the use of officers of the Company and the Committee hope that it would be ready as scheduled.

G. Avoidable Payment of electricity charges

13.47. In December, 1966 the Company increased its contract demand from 150 KVA to 400 KVA by executing supplementary agreement with the Bihar State Electricity Board. At the same time, in anticipation of increased activity of the Project, another agreement for additional supply of 1500 KVA was also entered into on the 5th December, 1966. Due to delay in installing transmission lines by the Bihar State Electriciy Board, the supply of 1500 KVA was commenced only from December, 1967.

13.48 According to the agreement, the Company had to pay to the Board for the energy so supplied and registered as aforesaid, at the rates given in the Schedules, provided that minimum chrages as specified in the Schedules appended thereto should be paid irrespective of whether energy to that extent has been consumed or not.

13.49. During the period from December, 1967 to November, 1970 the actual off-take of energy by the Company was, however, far below the enhanced contract demand. Maximum demand utilised was 1050 KVA and the average utilisation was between 800 and 900 KVA. Due to the consumption being much below the contrcated demand, the Company had to make an extra payment of Rs. 2.77 lakhs to the Bihar State Electricity Board over and above the amount due on the basis of actual recorder consumption.

13.50. In February, 1969, the Company approached the Bihar State Electricity Board to arrange for reduction of contract demand from 1900 to 1200 KVA but final decision was awaited from the Board (November 1970). Further as per agreement (Clause—9) the Company could not determine the agreement for at least 3 years ending in December, 1970.

13.51. The Company gave the following reasons for delay in building up the load:—

(1) Delay in the receipt and commissioning of high H.P. machinery particulary stationary compressors.

(2) Delay in procurement of loaders.

(3) Under-utilization of loaders due to adverse geological conditions.

(4) Delay in taking up the production in full swing due to delay in commissioning of Sulphuric Acid Plant.

13.52. To an enquiry of the Committee as to why it was not possible to increase the contarct demand in stages instead of in one instalment, the Company explained as follows:—

"The question of entering into contract with Bihar State Electricity Board for supply of power in bulk and not in phases is to be viewed in the background that the shuttle cars and loaders and belt conveyors were ordered in one lot for the reasons already explained. Thus all the machines were to be commissioned simultaneously. So it was necessary to entre into the agreement with Bihar State Electricity Board for the supply of the power in one instalment. It was only after entering into such agreement that Bihar State Electricity Board agreed to construct a separate transmission feeder 11 K.V. line from their Sambota Sub-Station to our mine (5 miles line) which reduces our dependence on the agriculture 11 K.V. line, where fluctuations and interruptions in the voltage were tremondous. We were able to get the power only in December, 1967 *i.e.* just the time the key mining machinery arrived in the project."

13.53. The reduced demand of 1200 KVA is effective from December, 1970, although the actual consumption during 1971-72 was about 900 K.V.A.

13.54. In a subsequent note the Company informed—

"There has been a reduction of contract demand from 1900 KVA to 1200 KVA with effect from 21st December, 1970 and an agreement to this effect was signed on 13th February, 1971 between Bihar Electricity Board and Pyrites, Phosphates and Chemicals, Ltd. Amjhore."

The Company further proposes to reduce the contract demand to 800 KVA for which application has been made to the Bihar State Electricity Board.

13.55. The Committee regret to note that the low production in the Amjhore Mines not only resulted in non-utilisation of the imported key-mining equipment but also in extra expenditure of Rs. 2.77 lakhs (till November, 1970) on electricity charges on account of the actual off-take energy being far below the contracted demand. The Committee desire that the Company should take immediate steps to work out the minimum requirements of power on a realistic basis and enter into an egreement with the Bihar State Electricity Board so as to avoid payment of electricity charges in excess of actual consumption.

XIV

CONCLUSION

The Committee have noted that the revised estimates of the Project for achieving the production of 800 tonnes per annum approved by the Board in January, 1968 exceeded the original estimates sanctioned by the Government in January, 1965 by 66.7 per cent. The excess was mainly either on account of inadequate provision of plant and machinery and pre-stoping development due to inclusion of items not provided for in original estimates. In April, 1968 the Company decided to restrict the development and production of pyrites in two phases, Phase I from February, 1967 to mid-1971 for production of 400 tones per day.

14.2. The Committee have observed that the Project esticates were not carefully worked out taking into consideration all the relevant items. The Committee expressed the hope that instructions issued by Government in 1969 would be kept in mind by the Company while preparing the Revised estimates now stated to be on hand for production capacity of 900 tonnes per day.

14.3. The Committee were surprised to find that even after the lapse of four years, the revised estimates approved by the Board in the January, 1968 had not been sanctioned by the Government due to non-finalisation of the unit cost of mining pyrites ore and the decision to construct the Bulgarian Acid Plant and thereby enlarge the scope of the project. The Committee were informed that a fresh revised estimate was being prepared under the enlarge scope and that Government would take decision about the revised estimate and sale price of pyrites thereafter. The Committee, have expressed serious concern that the Company was allowed to continue to incur expenditure on the project without any sanction of the revised estimates by Government and even before determining the economics of the Project. The Committee have expected that while examinig the question of according approval to revised estimates, Government would seriously consider its effects on the economies of the project. The Committee felt that where the economics of the projects were adversely affected as a result of revised estimate of expenditure, the matter should specifically brought to the notice of Parliament without avoidable delay.

14.4. The Committee were informed that at present, the Company had decided to keep the pattern of mining flexible and adopt both

the methods 'long wall' and 'bord and pillar' depending on roof conditions, spread of ore and other factors. The Committee have expressed the hope that before adopting any particular method, the Company would carefully work-out and examine among others the comparative economics of both the methods since there seemed to be advantages as well as dis-advantages under both the systems. The Committee have stressed that whatever be the method adopted for mining, the aim of the Company should be extraction of ore at most economic cost and its sale to another public sector undertaking at a competitive price.

14.5. The Committee have noted that there has been delay of about two years in obtaining the key mining equipment required for the mines at Amjhore. The delay has been attributed mainly to the difficulty in getting the foreign exchange required for the import of the machinery. To bridge the time lag due to delay in procuring the machinery and to expedite the development of the mine the Company resorted to measures which resulted in additional expenditure of Rs. 23.92 lakhs including purchase of additional machinery of the value of Rs. 5.62 lakhs from the NCDC. These machinery were used only intermittently due to frequent repairs and were ultimately laid off for want of fast moving spares and sold back to the NCDC at a loss of 0.18 laks.

14.6. The Committee regretted to note the lack of synchronisation of the programme of mine development with establishment of the Sulphuric Acid Plant. The Committee have not appreciated the undue haste in procuring from NCDC machinery meant for coal mining without verifying the suitability and the condition of such machinery, even when there was no provision for them in the project estimates.

14.7. The Committee are also distressed to note that the efforts and extra expenditure incurred to speed up production did not serve the purpose since the Acid Plant which was expected to be commissioned in September, 1968 was actually put on trial runs in July, 1969 an even thereafter it was not working satisfactorily.

14.8. The Committee have pointed out that an expenditure of Rs. 18.60 lakhs had been incurred on exploration work although the reserve of pyrites ore were considered to be adequate to sustain a production of 1400 tonns per day for 7 years and there was not much demand for pyrites. The Committee felt that had a firm demand for the supplies of ore been secured before commencement of the exploration work, the large expenditure incurred on exploration work could have been avoided. The Committee have suggested that

there should be greater co-ordination between FCI and PPC so that development of mine could be matched with the demands of FCI.

14.9. The Committee have expressed regret that the average actual production during the last three years (1969-70 to 1971-72) has been even less than one third of target, with the result that the cost of production is expected to be Rs. 283.75 per M.T. as against the estimated rate of Rs. 160.02 per M.T. The Committee have further noted that developed capacity could not be exploited in full first due to lack of an assured demand and later an account of defective Acid Plant at Sindri. The Committee were informed that the production programme of pyrites ore was now to be linked up with the progress of the construction and comissioning of the Bulgarian Acid Plant. The result was that the cost of production was alsmost double the estimated rate with consequential adverse effect on the cost of acid and finally on the end product. The Committee have urged, that the Government|FCI should ensure that both the Simon Carves and Bulgarian Acid Plants should keep up to their schedule of going into production by April, 1973 and 1974 respectively, so that the tempo of production could be increased and the cost of pyrites ore brought down.

14.10. There had not been clear demarcation of responsibilities of IBM at any stage and no binding contract entered into with them with the result that the Company was finding itself in a quandry. The Committee would like Government to take stpes to have the claims and counter claims settled at an early date.

14.11. The Committee have pointed out that the equipment for the Project should be procured in a phase programme. In spite of the advice of the Technical Advisory Committee, the Company placed orders for the equipment valued at Rs. 96.18 lakhs in January, 1966 and equipment was received during June, 1967 and November, 1967 and thereafter installed them in the first quarter of 1968. The Committee have regretted to note that there was gross underutilisation of the loaders and the Shuttle cars and that there performance was very poor. Later on, as the work progressed, it was realised that under the geological conditions prevailing in the mine, loaders and shuttle cars were not suitable. The Committee have observed that the necessity to acquire these equipments should have been carefully gone into initially, after a detailed study of the geological conditions. The Committee were informed that the provision for the procurement of the equipment was made in the Detailed Project Report by the Company to accelerate the pace of development of the mine and to synchronise it with the date of commissioning of the Sulphuric Acid Plant at Sindri in September, 1968. The Committee have regretted to find that the objec-

tive with which the Company had gone in for the equipment had not been achieved. The Committee felt that the need for deployment of equipment should have been closely examined after taking into account all the relevant factors.

14.12. The Committee have recommended that the matter of purchase of key-mining machinery in one lot should be further investigated and responsibility fixed on the erring officers and the Committee informed of action taken. The Committee desired that the Company should take steps to assess their requirements of plant and machinery keeping in view their production programme in the near future and to dispose of surplus equipment in the best interest of the project.

14.13. As regards the location of Sulphuric Acid Plant at Sindri the Committee have observed that apart from the consideration to locate the Sulphuric Acid Plant near the point of consumption of the acid, one other consideration which weighed with Government for locating the Sulphuric Acid Plant at Sindri instead of near the mine, was that the cinders might be of use in the steel plants located in the vicinity of the Sulphuric Acid Plant. The Commitee have regretted to note that this did not materialise and the cinders were not used by the Steel Plant and only stray attempts were made for their disposal, otherwise they were being dumped by the Fertiliser Corporation of India.

14.14. The Committee were of the view that the economics of locating the plant near the consumption point should have been gone into more thoroughly taking into account difficulties regarding disposal of cinder, transport of ore|acid, etc. The Committee felt that in retrospect it would have been more advantageous to have located the acid plant near the mine site as part of the Company, as the difficulties now being faced regarding shortage deterioration of ore in transit, low off take of Ore, etc. would have been avoided.

14.15. The Committee desired that the problem of disposal of cinders should be viewed with seriousness and efforts made to find an abiding solution for their disposal so that they may not create pollution problems which may prove to be health hazard.

14.16. The Committee have pointed out that the omission of vital information about the grade of the ore in the contract for Sulphuhic Acid Plant has resulted in not only additional expenditure of Rs. 20 lakhs on certain technical modification but also low production in the mines with consequential adverse affect on tht cost. The Committee desired that the reasons for this vital omission of not specifying the grade of ore in the contarct should be gone into and responsibility therefore fixed.

14.17. The original estimates of the sulphuric acid plant sanctioned by Government in 1965 for Rs. 261.58 lakhs were revised by the Board in 1968 and sanctioned by Government in April, 1969 for Rs. 450.50 lakhs. The actual expenditure incurred upto 31st March, 1972, however, exceeded even the revised estimates by Rs. 32.18 lakhs. Actual tioned estimates. The Committee have emphasised that the estimates by Rs. 54 lakhs, which was more than 10 per cent of the sanctioned estimates. The Committee have emphasised that the estimates for any project should be prepared as realistically as possible in the beginning and should be made available to Government and Parliament before the project is sanctioned. It was highly improper that the Government proceeded with the setting up of a project of this dimension without a clear idea as to the ultimate financial commitment thereon. It was unfair to the Parliament and to the country to make the commit to a project on piece-meal basis from year to year without giving a true and realistic picture of the final cost of project in the beginning, and presenting the final expenditure on the Project as *fair accompli.*

14.18. The Sulphuric Acid Plant should have been commissioned in September, 1968 but it was actually commissioned in July, 1969. Because of the delay of ten months in the commissioning of the plant, additional expenditure had to be incurred on staff salaries and other benefits amounting to about Rs. 6 lakhs, besides the loss of production during this period. The delay was due to the late supply of the boilers by another firm over which the main contractor had no control. No penalty could be recovered from the contractor because of a provision in the contract which provided that the time specified in the contract for the completion of the work was subject to the fulfilment of the condition that the execution of the work by the Contractor would not be held up by any cause for delay beyond his reasonable control. Because of lacuna in the contract, no penalty could be levied on the contractor. The Committee were assured by the representatives of the Ministry during evidence that now a days they were referring all contracts for the advice of the Ministry of law and these pitfalls were being avoided. The Committee hope that such lacuna will not recur in future.

14.19. The Committee were surprised to find that though there was dispute in establishing sulphur efficiency guarantee in February, 1970 due to difficulties in obtaining pyrites of 40 per cent S. grade, the FCI in December, 1970 with a trial appraisal conducted with 31 per cent S. grade ore considered that the contractor had been "deemed" to have met the gurantee performance.

14.20. The Committee found that there were several defects noticed in operating the plant during the guarantee performance tests and the contractor had agreed to carry out the modifications/ rectification of the plant at his own cost, in terms of a protocol of an arrangement agreed in March, 1971 between the FCI and the contractor.

14.21. The Committee were surprised to find that the full contractual liability under the terms of main contract had been finally discharged by means of protocol of 30th March, 1971, even without the Company ensuring that the defects in the Plant had been rectified to the satisfaction of the Management and the Plant is really capable of reaching its rated capacity. The Committee were doubtful whether the amounts of compensation provided for under the protocol arrangements were adequate and in the best interest of FCI. The Committee urged that this matter should be thoroughly investigated and the responsibility for the lapses in the arrangement should be fixed. The Committee have also urge that it should be ensured that all the defects in the plant were set right and the Plant reached its rated capacity on schedule.

14.21. The Committee have pointed out that unless the cost of production of pyrites at Amjhore was brought down and the price at which the pyrites would be supplied by PPCL to FCI settled, the economics of the Sulphuric Acid Plant at Sindri would continue to be precarious. The cost of production of sulphuric acid as estimated in August, 1964 was Rs. 144.65 per tonne but the actual cost of production was as high as Rs. 427.17 per tonne from pyrites of 33 + 3 percent S. grade ore and Rs. 380.15 per tonne from pyrites for 36 per cent S. grade ore. The Committee have stressed that Government should take decision as to which of the two grades of ore they would like Amjhore Mine to provide depending on the extent to which they are willing to bear the financial burden so that this issue of fixing a sale price is settled without loss of any further time.

14.23. The Committee find that although the Sulphuric Acid Plant was transferred *de facto* to the F.C.I. from 1st April, 1968, the *de jure* transfer has not yet been effected inspite of the fact that both the undertakings are under the administrative control of the same Ministry. The consequence of the non acceptance of the sulhpuric acid plant by the FCI *de jure* was that the operating results of the Sulphuric Acid Plant were neither reflected in the accounts of FCI nor that of the PPCL. The Committee recommended that the *de jure* transfer should be effected soon to avoid legal and procedural difficulties in the present situation where the plant belongs *de facto* to F.C.I. and *de jure* to PPCL.

14.24. The Committee were distressed over the loss of Rs. 5.73 lakhs suffered due to deterioration of the stock of 5150 tonnes of B grade pyrites ore at the Dehri-on-Sone railway siding. The stock had accumulated at the railway siding because of the refusal of the FCI to accept the B grade ore. The Committee have pointed out that instead of taking prompt action either to persuade the FCI to accept B grade ore or to beneficiate it to improve its quality, as was done subsequently, the ore was allowed to accumulate at the railway siding resulting in its deterioration due to rain and other causes. The Committee desire that the reasons for this lapse should be investigated and responsibility fixed. The Committee have urged that there should be a proper coordination between the two public undertakings in respect of production, off-take and transport of the pyrites and a firm agreement for the supplies finalised between the said undertakings, so that neither party fails to fulfil its obligations.

14.25. The Committee found that, as the issue price of pyrites ore had not yet been settled, the questions as to who should bear the loss, the PPCL or the FCI was still under dispute. It was strange that while there had been a loss of Rs. 5.73 lakhs to the national exchequer, neither of the two Companies was prepared to accept it and it had not been shown in the accounts of either of them. The Committee desired that this matter should be settled expeditiously.

14.26. The Committee regret to note that upto 31st March, 1970, 6,791 tonnes of pyrites were found short on physical verification and 8,517 tonnes were considered unfit for use due to long storage, resulting in a loss of Rs. 34,28,992 which is unfortunately neither reflected in the accounts of the Pyrites, Phosphates and Chemicals Limited nor of the Fertilizer Corporation of India Limited. During 1971-72 also, a shortage of 1964 tonnes was noticed at the time of physical verification of stock. The Committee have been informed that some steps have since been taken to avoid shortages both during transit and at the Plant site. The Committee hoped that with the measures now introduced, the Company would ensure that loss due to shortages, deterioration of ore and other causes will be eliminated.

14.27. In March, 1968, the Fertilizer Corporation of India Ltd., Sindri entered into a contract with Bulgarian firm for a Sulphuric Acid Plant at Sindri, based on pyrites. Since then, there had been frequent changes in the thinking both at the level of the Government and at that of the concerned Undertakings in regard to the setting up of this plant. The Committee were surprised that even though the percentage of sulphur content in the pyrites ore from Amjhore had been known at the time of entering into contract, "the

contract for the plant was for a design to consume pyrites ore of 43 per cent S. grade," which was definitely beyond the capacity of the Amjhore mine. The Committee were informed that the decision to go in for the Bulgarian Sulphuric Acid Plant at 43 per cent S. grade ore was based on the information furnished by PPCL in May, 1967, that the PPCL would be able to supply 42.8 per cent S. grade ore. It was only in March, 1968 that PPCL told FCI that the pyrites ore from the mine would be only 36 per cent S. grade.

14.28. The Committee note that the Bulgarian plant suppliers were consulted on the possibility of using leaner pyrites, but they indicated that their operating experience was limited to use of pyrites with not less than 39 per cent sulphur and as such they were not in a position to give any authentic date on performance guarantees on use of leaner ore in the roasters of their design. The Committee were surprised that in spite of this, it was decided to go ahead with this plant using the roasters with a mixed feed of sulphur and pyrites.

14.29. The Committee have deprecated the manner in which a decision was taken, based on incorrect information supplied by PPCL, without a thorough and careful examination of the economics of the project from all aspects including the high cost and the low quality of the Amjhore pyrites. The Committee have urged that this matter should be thoroughly investigated and responsibility for the lapses fixed. The Committee were doubtful whether the problem of disposal of cinders was adequately considered while taking the decision. The Committee have urged that it should be ensured that pit-falls noticed in the Simon Carves Sulphuric Acid Plant at Sindri are not encountered again and the plant was able to give the guaranteed output.

14.30. The Committee stressed that Government should undertake a thorough and critical techno-economic study of the Saladipura Project so as to ensure that the shortcomings faced at Amjhore mines were not allowed to recur at Saladipura. The Committee were of the view that the aim should be production of fertiliser at an economic price so that these become available to the cultivator at a competitive price.

The Committee have pointed out that the pyrites by its very nature was not suitable for haulage over a long distance. During transportation its quality got deteriorated. The experience of Amjhore pyrites being transported to Sindri was not very happy. It

was therefore advisable to locate a fertilizer Complex including sulphuric acid plant close to the mine site. The Committee hoped that this aspect will be kept in view when the Saladipura pyrites deposits were developed.

14.31. The Committee expect that the Company|Government would make a cautious approach towards the exploitation of the mines at Maldeota after assuring themselves of a regular off-take of rock phosphate.

14.32. The Committee note that the Company was carrying a large stock of slow moving and non-moving stores worth Rs. 12.83 lakhs even after disposal of stores amounting to Rs. 21.58 lakhs in 1971-72. The Committee were informed that surplus under steel items alone amounted to Rs. 13.95 lakhs as on 31-3-1972 consisting of spares for shuttle cars and loaders (Rs. 8.95 lakhs) and Steel and G.I. Pipes (Rs. 5 lakhs). The Committee desired that the Government should investigate the circumstances under which the purchases of stores especially of spares and steel items had been made in excess of the requirements.

14.33. The Committee have pointed out that no effective steps have been taken for a proper and scientific material management. The Company should streamline its purchase and procurement procedure so that purchases are not made in excess of requirements and inventory is not unduly loaded at any time. The Committee also recommended that there should be a regular and periodic review of the inventory with a view to identifying surplus stores and taking action for their disposal in time.

14.34. In spite of the recommendation of the Sales Price Committee and the award given by the Financial Adviser of the Ministry of Petroleum & Chemicals about the sale price of ore, the two Public Undertakings, under the administrative control of the same Ministry, have not accepted the price fixed by the award. The Committee understood that this matter had again been referred to the Financial Adviser. The Committee were anxious that this matter should be settled quickly in the mutual interest of both, as it vitally affected the working results of both the Undertakings.

14.35. The Committee were surprised to find that in spite of the fact that a Director of the Fertilizer Corporation of India is the Chairman of the Pyrites Phosphates & Chemicals Ltd., there was lack of coordination between the two Public Undertakings and many

points of dispute exist between them vitally affecting the working of the P.P.C.L. It only proved the apprehension of the Committee that a part-time Chairman is not of much functional value. The Committee urged that the Government should review the position and combine the post of Chairman and Managing Director in P.P.C.L. This would also be in consonance with the recommendations of the Administrative Reforms Commission, which had been accepted by the Government.

14.36. The Committee have also noted that at present the Chief Mining Engineer, Amjhore Mines was also performing the duties of the Managing Director. Needless to say that in an organisation like the P.P.C.L. which had its projects spread over in three different States, the Managing Director had to perform onerous duties and it was too much to expect the Chief Mining Engineer to do justice to his duties both as the Chief Mining Engineer and the Managing Director. It was unfortunate, the Government had not filled up the post of the Managing Director on a regular basis for over one year. The Committee hoped that the Government would soon appoint a person to perform exclusively the duties of the Chairman-*cum*-Managing Director, so that undivided attention may be given for the improvement of the undertaking.

14.37. The Committee find that as per the Detailed Project Report the total number of staff required for the production of 800 tonnes per day was 240. As against this the actual number of persons employed as on 31-3-72 was 404. The actual staff strength as on 31-3-1972 works out to 73 per cent of the total staff provided in the organisational chart. In the case of daily rated workers the number of persons employed was 72 per cent of the total workers assessed by the Sale Price Committee for Phase I. On the other hand, the production was only 29 per cent of the production envisaged in Phase—I. The Committee felt that the staff was much in excess of requirements keeping in view the low production at present. It was admitted by the Ministry that there were 92 workmen 'who are deemed to be permanently surplus of requirements.' The Committee have urged that the reasons for such over-staffing should be investigated and it should be ensured that over-staffing is avoided in the interest of efficiency and bringing down the cost of production. The Committee hope that the staff strength would be readjusted keeping in view the recommendations of the proposed study by the Administrative Staff College, Hyderabad.

14.38. The Committee noted that the actual production per man since the commencement of production in the PPCL has been much

below than what was envisaged in the Detailed Project Report and also lower than what was even envisaged in the revised Phase I programme. The reasons for this are stated to be excessive staff including daily rated workers and the decision to scale down the production to 1.2 lakh tons in Phase I. The Committee have urged that effective steps should be taken to improve the efficiency and increase productivity with a view to ensuring an economic price for the ore and for the acid.

14.39. The Committee felt concerned to note that the Amjhore mines have not been able to produce the requisite type of pyrites ore (40 per cent S. grade quality), on which the Sulphuric Acid Plant of Sindri was based. The cost of conversion of the 33 plus minus 3 per cent ore by beneficiation for supply to the Sindri Plant is also prohibitive. As a result, the entire project of mining of pyrites and then producing sulphuric acid out of it, has run into difficulties. The choice is either to use lean pyrite with elemental sulphur or to beneficiate pyrites. The cost of production of pyrites ore at Amjhore mines has also been very high. Even assuming that the plant is able to produce ore of 33 plus minus 3 per cent S. grade ore at this cost and the roasters/plants are suitably modified to use 30-36 per cent S. Grade for producing acid to full capacity, the cost of production of sulphuric acid would come to Rs. 283 per tonne as against the cost of Rs. 196 per tonne with elemental Sulphur and Rs. 253 per tonne mixing sulphur and pyrites. For the manufacture of fertilizer, the pyrites based plants have to incur additional expense on account of increased capital cost and operating cost compared to sulphur based plants and unless raw materials were available to the plant at reasonable prices, it would not be possible for the plant to compete in fertilizer market with other plants based on imported raw materials.

14.40. The Committee were informed that until the Simon Carves Plant and the Bulgarian Plant go into production to achieve 900 tonnes of acid per day, the cost of ore/acid cannot be lower. The Committee have recommended that Government should ensure that two acid plants are fully commissioned according to revised schedule so that the off-take from the Amjhore Mine may improve and the cost of production reduced.

14.41. The Committee have also recommended that the economics of the alternatives for use of the Amjhore ore should be critically examined and a final decision arrived at. Government should also take steps to fix the cost of pyrites ore to the mutual benefit of PPCL and FCI.

14.42. The Committee were distressed to note that the Company had suffered a loss of Rs. 126.26 lakhs upto 31st March, 1972 which comes to more than 20 per cent of the paid up capital. The loss would be still more if the losses on account of shortages and deterioration of pyrites or the loss, if any, which may arise on account of final sale price of the ore, are taken into consideration. There was also an expenditure of Rs. 6.39 lakhs incurred on the proposed elemental sulphur plant which is to be ultimately written off and thereby increasing further the loss of the Company.

14.43. The Committee regret to note the several deficiencies in the costing system followed by the Company. There is no system of making analysis of idle time of labour and machinery. No analysis of expenditure was also being made into direct and indirect cost etc. to exercise proper control over expenditure.

14.44. The Committee have regretted to note that though it is now more than 4 years since internal audit was introduced, the Company has not finalised an Internal Audit Manual nor defined the scope of work of the Internal Audit. The Committee have recommended that in order that Internal Audit be really helpful to the Top Management, the Company should locate 'Internal Audit' as far as possible in Project site or nearer to it. The Committee also recommend that Internal Audit Cell should be activised so that all the aspects of working of the Company may be brought under their purview for a thorough check.

14.45. The Committee regret to note that the low production in the Amjhore Mines not only resulted in non-utilisation of the imported key-mining equipment but also in extra expenditure of Rs. 2.77 lakhs (till November, 1970) on electricity charges on account of the actual off-take energy being far below the contracted demand. The Committee have desired that the Company should take immediate steps to work out the minimum requirements of power on a realistic basis and enter into an agreement with the Bihar State Electricity Board so as to avoid payment of electricity charges in excess of actual consumption.

NEW DELHI;
25th April, 1973
Vaisakha 5, 1895 (*S*).

AMRIT NAHATA,
Chairman,
Committee on Public Undertakings.

APPENDIX I

[*Vide* para 2·5]

Details of the variations between the original estimates as per Detailed Project Report and further revisions

Provision as per sanctioned Project Report	Rs. 439·12 lakhs
Revised cost estimates	Rs. 732·20 lakhs
Increase	Rs. 293·08 lakhs

The reasons for increase are as follows :—

1. Increase in the foreign exchange component on account of devaluation	Rs. 32·00 lakhs
2. Items not provided in the Original Project Report	Rs. 84·27 „
3. Increase on account of provision in the Project Report being found inadequate	Rs. 120·31 „
4. Effect of financing the purchase of Loaders and Shuttle Cars under French Supplier's credit arrangement on account of interest and pre-shipment charges	Rs. 22·50 „
5. Additional expenditure on salaries and wages due to delay in execution of the Project	Rs. 10·50 „
6. Anticipated increase in the cost of equipment, wages, salaries, materials etc. due to rising trend of prices	Rs. 25·00 „
	Rs. 294·58 lakhs
Less : Savings under consultancy charges	(—)Rs. 1·50 lakhs
	Rs. 293·08 lakhs

The reasons of increase headwise are as follows :—

1. PLANT AND MACHINERY

Provision as per sanctioned Project Report	Rs. 189·51 lakhs
Revised cost estimates	Rs. 331·48 „
Increase	Rs. 141·97 lakhs

The reasons for increase in the provision of Plant & Machinery are as follows :

1. Devaluation of the Rupee	Rs. 32·00 lakhs
2. Items not provided for in the Detailed Project Report	Rs. 35·96 „
3. Inadequate provision in respect of certain item (49·01+ 1·50)	Rs. 50·51 „
4. Effect of financing the purchase of loaders & shuttle cars under French Supplier's credit arrangement on account of interest & preshipment charges	Rs. 22·50 „

5. Anticipated increase in price of equipment due to rising trend of prices	Rs. 5·00 lakhs
	Rs. 145·97 lakhs
Add : Transfer from civil works due to reallocation of provision .	Rs. 5·00 ,,
	Rs. 150·97 lakhs
Less : Transfer to Surface Handling Scheme separately being the provision included above	Rs. 9·00 ,,
	Rs. 141·97 lakhs

2. CIVIL WORKS :—

Provision as per sanctioned Project Report . . .	Rs. 110·11 lakhs
Revised cost estimate	Rs. 123·21 ,,
Increase	Rs. 13·10 lakhs

The reasons for increase are due to inadequate provision in following cases :

1. Land . . . . . (5+6·60)	Rs. 11·50 lakhs
2. Cost of construction of roads to mine site	Rs. 6·10 ,,
	Rs. 18·10 lakhs
Less : Transfer to Plant & Machinery due to reallocation . .	Rs. 5·00 ,,
	Rs. 13·10 lakhs

3. PRESTOPING DEVELOPMENT :

Provision as per sanctioned Project Report	Rs. 90·00 lakhs
Revised cost estimates . . .	Rs. 171·10 ,,
Increase . .	Rs. 81·10 ,,

The reasons for increase are as follows :

(i) *Item not provided in the Project Report*

(a) Provision on account of development cost for Intermediate pair of Adits not provided for in the Project Report . .	Rs. 4·70 lak
(b) Operating cost of systematic sampling of pyrites ore; .	Rs. 3·90 ,,
	Rs. 8·60 ,,

(ii) *Inadequate Provision in the Project Report.*

(a) Additional Provision for proving Steel support in place of timber support	Rs. 34·00 ,,
(b) Increase on account of higher wages	Rs. 4·00 ,,
(c) Additional expenditure on account of salaries due to grant of Dearness Allowance and additional expenditure on miscellaous items	Rs. 4·00 ,,
	Rs. 50·60 lakhs
(iii) Anticipated increase in the cost of wages, salaries, materials due to rising trend of price	Rs. 20·00 ,,
(iv) Additional expenditure on salaries and wages due to delay in execution of the Project	Rs. 10·50 ,,
	Rs. 81·10 lakhs

4. MINING EXPLORATION :

Provision as per sanction Project Report	Rs. 22·00 lakhs
Revised cost estimates	Rs. 32·50 ,,
Increase	Rs. 10·50 ,,

This increase is on account of additional drilling required for establishing availability of pyrites ore as approved by the Board.

5. CONSULTANCY CHARGES :

Provision as per sanctioned Project Report	Rs. 2·50 lakhs
Revised Cost estimates	Rs. 1·00 ,,
Saving	Rs. 1·50 ,,

6. SURFACE HANDLING SCHEME

Provision as per sanctioned Project Report	Nil.
Revised cost estimates	Rs. 14·00 lakhs
Increase	Rs. 14·00 lakhs
Provision included in the Plant and Machinery transferred	Rs. 9·00 lakhs
Transfer from the provision of transportation charges	Rs. 5·00 ,,
	Rs. 14·00 ,,

7. TRANSPORTATION CHARGES :

Provision as per sanctioned Project Report	Nil
Revised cost estimates	Rs. 14·03 lakhs
Increase	Rs. 14·03 lakhs

After reallocation Rs. 5·00 lakhs have been transferred to surface handling scheme leaving balance of Rs. 9·03 lakhs under this head.

8. Expenses incurred prior to the approval of the Project Report have been provided in the revised cost estimates . . . . . Rs. 24·88 lakhs

APPENDIX II

(*Vide* para 6.6)

Recommendations of the Technical Advisory Committee Amjhore Pyrite Mine

The Committee has examined the Project Report as prepared by the Chief Mining Engineer, P.C.D.C. The Committee has confined its work to items connected with mining work and has not considered non-mining items such as Township etc. Calculations of reserves etc. have been assumed to be correct. The following recommendations are made:—

1. The Company should satisfy itself as regards ore reserves, quality etc. The Technical Advisory Committee does not take any responsibility in this respect. It is learnt that the detailed investigations work in respect of the ore reserves etc. in Amjhore-Ghoga Block was done by the Indian Bureau of Mines. It is suggested that the Company may purchase necessary drilling equipment to do additional drilling work for proper layout of the workings in the Amjhore-Ghoga Block. In other Blocks, where detailed investigation has not been done it is recommended that the same may be done so that ore reserves are proved.

2. The Mining Project Report has been prepared in great detail for a particular mining method. However, in the course of work, other methods of work may also be given trial to ensure safest and most economical method. The main Plant and Equipment will remain the same. Any miner additions or alterations in the face equipment will not affect the capital outlay and the Plant already acquired could be fully utilised. As a matter of fact, the equipment is to be purchased in a phased programme and specifications etc. may require alterations or modifications during different phases. Similarly the layout of the mine may require alterations according to geological conditions. The Technical Advisory Committee recommends that there should be full flexibility in drawing the layout of the mine workings, equipment needed etc. Methods of mining may be modified, by the Chief Mining Engineer as the work progresses to suit geological conditions. It is anticipated that capital expenditure and unit cost of mining will not be affected whatever modifications and

alterations are made in the present Project Report except in case when full packing of the geaf phydraulically by sand or pheumatically becomes essential for reasons of safety. However, this possibility is not envisaged at this stage.

3. Subject to the recommendations given in para 1 and 2.

The Ttechnical Advisory Committee approves the Project Report with the following modifications:—

(i) One mine will be developed with 3 sets of adits.

(ii) Drivage of three sets of adits with 2 entries. each may be started simultaneously instead of one set at a time. This will help in opening out more area in the same time and save in total drivage. Only minor modification may be necessary in the layout of the mine to incorporate the above recommendations.

4. The Committee was asked by the Chairman to recommend method of transport of the ore from the Mine Head to Rail Head. The Committee has not examined this in detail, but from the information provided by the Chief Mining Engineer and the Chairman, it is recommended that the most practical method appears to be to transport the ore from the mine head to the East Bank of Sone River by Aerial Ropeway System and to bring broad gauge railway siding near the unloading end of the ropeway. According to the information provided to the committee, the length across the river, and the length of broad gauge railway siding will be about 3 miles. Of course, if broadgauge railway line can be brought to Amjhore in say 3 to 4 years time, this will be the best arrangement. According to the information available, there is hardly any possibility of getting broad gauge railway line or siding to Amjhore the length of which will be about 20-22 miles, in the stipulated period. The Committee was informed by the Chief Mining Engineer that there is already one Aerial Ropeway operating near Amjhore, which transports limestone across the River for Cement works."

APPENDIX III

(*Vide* para 13.17)

Statement showing the cost of production of sulphuric acid by using pyrite ore 30—60 per cent 'S' grade produced by sectional blasting and picking out of lumpy shale.

	Stage I 400 *t.p.d. acid*	*Stage II* 1280 *t.p.d. acid*
Case (A)—Direct use (No sulphur mixing)		
1. Cost of production of beneficiated ore manually (33—36 %)	145	12
2. Cost of transport to Sindri	36	36
3. Royalty and sales tax	6	6
4. Cost of ore FOR Sindri	187	167
5. Cost of ore needed for producing 1 tonne of acid (1·15)	215*	192*
6. Cost of conversion	68	65
7. Cost of Sulphuric Acid	283	[illegible]
Case (B)—With sulphur mining as envisaged now for the plants		
1. Cost of 33-36% S ore at Sindri (See case 'A' above)	187	167
2. Cost/ton of acid		
(a) Ore (0·8 tonne)	150	134
(b) Sulphur 97 Kg.	35	35
	185	169
3. Cost of conversion	68	65
4. Cost of the sulphuric acid	Rs. 253	Rs. 234

*Assuming that the roasters[plants are suitably modified to use 30—36% S grade for producing acid to full capacity.

APPENDIX IV

Summary of conclusions|recommendations of the Committee on Public Undertakings contained in the Report

Sl. No.	Reference to paragraph No. in the Report.	Summary of conclusions|recommendations
(1)	(2)	(3)
1	2.17 and 2.18	The Committee regret to note that the revised estimates of the Project for achieving the production of 800 tonnes per annum approved by the Board in January, 1968 exceeded the original estimates sanctioned by the Government in January, 1965 by 66.7 per cent. The Committee note that the excess was mainly either on account of inadequate provision of plant and machinery and pre-stopping development due to inclusion of items not provided for in original estamates. The Committee also note that in April, 1968 the Company decided to restrict the development and production of pyrites in two phases, Phase I form February, 1967 to mid-1971 for production of 400 tonnes per day. The Project has incurred an expenditure of Rs. 606.72 lakhs upto the end of March, 1972. The Committee are constrained to observe that the Project estimates were not carefully worked out taking into consideration all the relevant items. The Committee were informed that these ommissions occured in 1965 when there were no settled procedures. Since then the Govenrment had in 1969 prepared and circulated a detailed note on it. The Committee hope that these instructions would be kept in mind by the Company while preparing the Revised estimates now stated to be on hand for production capacity of 900 tonnes per day.

(1)	(2)	(3)
2	2.19	The Committee are surprised to find that even after the lapse of four years, the revised estimates approved by the Board in January, 1968 have not been sanctioned by the Government due to non-finalisation of the unit cost of mining pyrites ore and the decision to construct the Bulgarian Acid Plant and thereby enlarge the scope of the project. The Committee were informed that a fresh revised estimate is being prepared under the enlarged scope and that Government would take a decision about the revised estimate and sale price of pyrites thereafter. The Committee, take a serious view that the Company was allowed to continue to incur expenditure on the project without any sanction of the revised estimates by Government and even before determining the economics of the Project. The Committee would strongly urge that Government should carefully examine the economics of the revised project from all aspects and take steps to sanction the revised estimates without any further delay.
3	2.20	The Committee would also like in this connection to draw the attention of Government to paras 1.7 and 1.9 of the Fiftieth Report of the Public Accounts Committee (Fourth Lok Sabha) on New Services and New Instrument of Service and stress that effective action should be taken by the Government to implement the recommendations and take prior approval of Parliament in case of substantial revision. The Committee also expect that while examining the question of according approval to revised estimates, Government would seriously consider its effects on the economics of the Project. The Committee feel that where the economics of the projects are adversely affected as a result of revised estimate of expenditure, the matter should be specifically brought to the notice of Parliament without avoidable delay.

(1)	(2)	(3)
4	2.36 and 2.37	The Committee note that the Indian Bureau of Mines in their original project report of May, 1961 based on a demand of 4.8 lakh tonnes preferred the 'longwall' method of mining as the geological conditions, output capacity, etc. were more favourable for adoption of that method. Later, the Detailed Project Report of January, 1965 recommeded that the initial method of mining should be the 'bord and pillar' method. When the Technical Advisory Committee which consisted of eminent mining engineers, examined the project report in June 1968 to January, 1969, that Technical Committee recommended adoption of the longwall method considering the technical aspects, experience in India, higher percentage of extraction etc. than under bord and pillar method. Later, the Management again switched over to the 'bord and pillar' method considering the unhappy experience of the longwall method in the coal-fields, lack of trained workers in longwall method etc. The Committee also note that on account of re-adoption of longwall system, pre-stopping development would be needed only for 13,560 meters against 17,140 meters envisaged in the Detailed Project Report. The Committee regret to note that though the meterage got reduced, the reduction did not result in any savings. The Committee were, however, informed that at present, the Company has decided to keep the pattern of mining flexible and adopt both the methods depending on roof conditions, spread of ore and other factors. The Committee expect that before adopting any particular method, the Company would carefully work-out and examine among others the comparative economics of both the methods since there seemed to be advantages as well as disadvantages under both the systems. The Com-

(1)	(2)	(3)
		mittee need hardly stress that whatever be the method adopted for mining, the aim of the Company should be extraction of ore at most economic cost and its sale to another public sector undertaking at a competitive price.
5	3.10 to 3.12	The Committee regret to note that there has been delay of about two years in obtaining the key mining equipment required for the mines at Amjhore. The delay has been attributed mainly to the difficulty in getting the foreign exchange required for the import of the machinery. To bridge the time lag due to delay in procuring the machinery and to expedite the development of the mine, the Company resorted to measures which resulted in additional expenditure of Rs. 23.92 lakhs including purchase of additional machinery of the value of Rs. 5.62 lakhs from the NCDC. However, these machinery could be used only intermittently due to frequent repairs and ultimately laid off for want of fast moving spares and sold back to the NCDC at a loss of Rs. 0.18 lakhs. The Committee regret to note the lack of synchronisation of the programme of mine development with the establishment of Sulphuric Acid Plant. The Committee do not appreciate the undue haste in procuring from NCDC machinery meant for coal mining without verifying the suitability and the condition of such machinery even when there was no provision for them in the project estimates. The Committee are also distressed to note that the efforts and extra expenditure incurred to speed up production did not serve the purpose since the Acid Plant which was expected to be commissioned in September, 1968 was actually

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		put on trial runs in July, 1969 and even thereafter it was not working satisfactorily.
6	3.21	The Committee regret to note that the exploratioin work for the production of 1 million tonnes of pyrites ore per annum which was taken up on the basis of assessment of demand from various consumers had ultimately to be suspended in March, 1969, as the reserve of pyrites ore in the working block and the two adjoining blocks were considered to be adequate to sustain a production of 1400 tonnes per day for 7 years and there was not much demand for pyrites. In the meantime, an expenditure of Rs. 18.60 lakhs had been incurred on exploration work. The Committee feel that had a firm demand for the supplies of ore been secured before commencement of the exploration work, the large expenditure incurred on exploration work could have been avoided. The Committee would only suggest that there should be greater co-ordination between FCI and PPC so that development of mine could be matched with the demands of FCI.
7	4.10 and 4.11	The Committee regret to note that the average actual production during the last three years (1969-70 to 1971-72) has been even less than one third of target with the result that the cost of production is expected to be Rs. 283.75 per M.T. as against the estimated rate of Rs. 160.02 per M.T. the Committee were informed that the Simon Carves Sulphuric Acid Plant was expected to achieve production at 400 tonnes a day by April, 1973 and the Bulgarian Plant expected to go into production by middle of 1974. Therefore the Company would be increasing its production to 900 tonnes per day by the middle of 1974, which target is even more than the production capacity proposed to be developed in the second phase.

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		The Committee regret to note that developed capacity could not be exploited in full, first due to lack of an assured demand and later on account of defective Acid Plant at Sindri. The Committee were informed that the production programme of pyrites ore is now to be linked up with the progress of the construction and commissioning of the Bulgarian Acid Plant. The result has been that the cost of production is almost double the estimated rate with consequential adverse effect on the cost of acid and finally on the end product. The Committee take a serious view of this lack of proper planning and would urge that the Government|FCI should ensure that both the Simon Carves and Bulgarian Acid Plants should keep up to their schedule of going into production by April, 1973 and 1974 respectively, so that the tempo of production could be increased and the cost of pyrites ore brought down.
8	4.24	The Committee regret to find that there had not been clear demarcation of responsibilities of IBM at any stage and no binding contract entered into with them with the result that the Company is finding itself in a quandry. The Committee would like Government to take a serious note of the problem and take steps to have the claims and counter claims settled at an early date.
9	4.25	The Committee have also come across several cases of defective or inadequate investigations by IBM which have resulted in additional expenditure to the undertakings and also affected the economics of their working. The Committee need hardly stress that Government should issue strict instructions defining clearly the role of IBM now G.S.I. and stress that before entrusting works to G.S.I. there should be definite stipulations between the undertakings and G.S.I.

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10	5.7	The Committee regret to note that the question of setting up a broad-gauge railway line between the stock-pile base at the Amjhore-mines and the nearest rail-head at Dehri-on-Sone, a distance of 35 K.M. only, has been engaging the attention of the Government since 1964 without any conclusive decision. Meanwhile the ore is being transported from Amjhore to Dehri-on-Sone for onward transmission to Sindri by road. The Committee understand that a cement factory in the private sector located near Amjhore is prepared to share the capital cost with the Pyrites, Phosphates and Chemicals Ltd. and the Railways towards the construction of a broad-gauge railway line and that they are also prepared to give a guarantee for a certain minimum traffic. Negotiations in this regard are said to be in progress. The Committee would urge that the matter should be finalised by Government expeditiously keeping in view the economics and the time taken in the transportation of ore by the rail and road.
11	6.15 and 6.16	The Committee note that the detailed project report prepared by the Company in July, 1964 and sanctioned by Government in January, 1965 recommended, *inter-alia* the procurement of gathering arm loaders and of shuttle cars without mentioning any detailed justification therefor, although the Indian Bureau of Mines did not recommend the use of these equipments in the project reports prepared by them in May, 1961 and December, 1963. The Technical Advisory Committee, who examined the D.P.R., recommended that equipment for the Project should be procured in a phased programme. In spite of this advice, the Company placed orders for the equipment valued at Rs. 96.18 lakhs in January, 1966 and equipment was received during June, 1967 and November, 1967 and thereafter installed them in the first quarter of 1968. The Committee were

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informed that because of delay in placing the order and uncertainty in release of foreign exchange the orders had to be placed in one lot. The Committee regret to note that there was gross under-utilisation of these loaders and the shuttle cars (as mentioned in para 6.4) and that their performance was very poor as compared with the standards fixed in the Detailed Project Report. Later on, as the work progressed, it was realised that under the geological conditions prevailing in the mine, loaders and shuttle cars were not suitable. The Committee are, therefore, constrained to observe that the necessity to acquire these equipments should have been carefully gone into initially, after a detailed study of the geological conditions. The Committee were informed that the provision for the procurement of the equipment was made in the Detailed Project Report by the Company to accelerate the pace of development of the mine and to synchronise it with the date of commissioning of the Sulphuric Acid Plant at Sindri in September, 1968. The Committee regret to find that the objective with which the Company had gone in for the equipment had not been achieved. The Committee feel that the need for deployment of equipment should have been closely examined after taking into account all the relevant factors and the purchase if at all should have been made in a phased manner as recommended by Technical Advisory Committee after gaining experience instead of acquiring the equipment in one lot.

The Committee also regret to note that in order to make use of the loaders and shuttle cars, which were found unsuitable under the geological conditions prevailing in the mines, the Company had to develop gallaries wider than actually necessary and this involved an extra expenditure on timber|steel support, which could have been otherwise avoided.

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12	6.21	The Committee regret to note that in spite of the recommendations of the Technical Advisory Committee that the machinery should be procured in phases, the Company procured in 1967-68 and 1968-69 all the key mining machinery of value of Rs. 237 lakhs for production of 800 tonnes of pyrites ore per day, whereas it was decided in December, 1969 to freeze the production at 400 tonnes per day thus rendering equipment of the value of Rs. 166.89 lakhs surplus. Out of these, machinery worth Rs. 71.81 lakhs had been disposed off or transferred to other projects and machinery worth Rs. 95.08 lakhs were still pending disposal. The Committee would like to be informed whether the transferred equipment have been put to full productive use. The Committee take a serious view of the purchases of the key mining machinery in one lot in disregard of the recommendation of the Technical Advisory Committee and without a careful assessment of the demand and a firm commitment for the pyrites. The Committee recommend that this matter should be further investigated and responsibility fixed on the erring officers and the Committee informed of the action taken. The Committee also desire that the Company should take steps to assess their requirements of plant and machinery keeping in view their production programme in the near future and to dispose of surplus equipment in the best interest of the project.
13	7.12	The Committee find that apart from the consideration to locate the Sulphuric Acid Plant near the point of consumption of the acid, one other consideration which weighed with Government for locating the Sulphuric Acid Plant at Sindri instead of near the mine, was that the cinders might be of use in the steel plants located in the vicinity of the Sulphuric Acid Plant. The Committee regret to note that this did not materialise and the cinders were not used

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		by the Steel Plant and only stray attempts were made for their disposal, otherwise they were being dumped by the Fertilizer Corporation of India. The Committee are of the opinion that an analysis of the cinders should have been made to find out whether it contained any metal-value and whether there was an assured off-take of cinders by Steel Plants. As pointed out in the report of the Committee of Experts, the disposal of cinders would pose a serious problem at Sindri, as it would require land acquisition on a large scale and stabilisation of fire materials so that they do not get blown around by wind or pollute the atmosphere in the Sindri colony and result in progressively increasing lead in the disposal of cinders and consequent increase in the cost of disposal. The Committee also feel that the economics of locating the plant near the consumption point should have been gone into more thoroughly taking into account difficulties regarding disposal of cinder, transport of ore|acid, etc. The Committee feel that in retrospect it would have been more advantageous to have located the acid plant near the mine site as part of the Company, as the difficulties now being faced regarding shortage| deterioration of ore in transit, low off take of Ore, etc. would have been avoided.
14	7.13	The Committee desire that the problem of disposal of cinders should be viewed with seriousness and efforts made to find an abiding solution for their disposal so that they may not create pollution problems which may prove to be health hazard.
15	7.26	The Committee view with concern that the Sulphuric Acid Plant was designed to work on 40 per cent S. content ore although the ore available from Amjhore mines was not of the required

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		quality. It is strange that when the Management was fully aware about the variation in sulphur content of the ore, and though in the notice inviting tender for the work, the sulphur content of pyrites was indicated as 32 to 49 per cent., the implications of such variation were not specifically brought to the notice of the Board. No specific mention of such variation was also made in the contract for setting up the Sulphuric Acid Plant. The result was that the Acid Plant could not be operated and certain technical modifications had to be made. If at all, the plant was to work, the production could be with elemental sulphur along with pyrite or it was to work only at 90 per cent of the rated capacity. The Committee were informed that the cost of rectification|modification would be Rs. 20 lakhs. The Committee take a serious view that the omission of vital information about the grade of the ore in the contract has resulted in not only an additional expenditure of Rs. 20 lakhs but also low production in the mines with consequential adverse affect on the cost. The Committee desire that the reasons for this vital omission of not specifying the grade of ore in the contract should be gone into and responsibility therefor fixed.
16	7.36 7.37	The Committee find that the original estimates of the sulphuric acid plant sanctioned by Government in 1965 for Rs. 261.58 lakhs, were revised by the Board in 1968 and sanctioned by Government in April, 1969 for Rs. 450.50 lakhs. The actual expenditure incurred upto 31st March, 1972, however, exceeded even the revised estimates by Rs. 32.18 lakhs. The Committee regret to note that the original estimates were not prepared carefully after taking into consideration all the probable items of expenditure like custom duties, provision for spares, etc. As pointed out during evidence, according to FCI, the original estimates were on the low side as the provision

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for departmental works was inadequate and it did not include provision for several items like pyrites storage building, grab crane, pay-loader, water treatment plant, development expenditure, working capital, etc. The Committee have repeatedly emphasised that the estimates for any project should be prepared as realistically as possible in the beginning and should be made available to Government and Parliament before the project is sanctioned. It is highly improper that Government proceeded with the setting up of a project of this dimension without a clear idea as to the ultimate financial commitment thereon. It is unfair to the Parliament and to the country to make them commit to a project on piece-meal basis from year to year without giving a true and realistic picture of the final cost of the project in the beginning, and presenting the final expenditure on the Project as *fait accompli.*

The Committee have also been informed by the representative of the Ministry during evidence that the actual expenditure on the project is likely to exceed the revised estimates by Rs. 54 lakhs which is more than 10 per cent of the sanctioned estimates. The Committee however find that according to the instructions issued by Government *vide* Ministry of Finance O.M. No. 9(1)-F|61 dated the 22nd September, 1967 sanction of the Administrative Ministry is called for where actual expenditure on any component of the sanctioned estimates exceeds 10 per cent of the sanctioned amount for the component. The Committee feel that as the actual expenditure under "Development Expenditure" had exceeded by more than 10 per cent even upto 31-3-1970, the Management should have approached the Ministry for regularisation|sanction at that time, not withstanding the fact that overall actual expenditure had not exceeded the overall sanctioned

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		estimates. The Committee also feel that it is irregular to incur large expenditure in excess of the sanctioned estimates without prior approval of the prescribed authority. The Committee, therefore, desire that the revised estimates of the project should be finalised early and approval of the Government obtained therefor.
17	7.56 and 7.57	The Committee find that although according to the contract the Sulphuric Acid Plant should have been commissioned in September, 1968, it was actually commissioned in July, 1969. Because of the delay of ten months in the commissioning of the plant, additional expenditure had to be incurred on staff salaries and other benefits amounting to about Rs. 6 lakhs, besides the loss of production during this period. The Committee were informed that the delay was due to the late supply of boilers by another firm over which the main contractor had no control. Unfortunately no penalty could be recovered from the contractor because of a provision in the contract which provided that the time specified in the contract for the completion of the work was subject to the fulfilment of the condition that the execution of the work by the Contractor would not be held up by any cause or delay beyond his reasonable control. The Committee regret to note that because of this lacuna in the contract, no penalty could be levied on the contractor. The Committee were assured by the representative of the Ministry during evidence that now a days they were referring all contracts for the advice of the Ministry of Law and these pitfalls were being avoided. The Committee hope that such lacunae in contracts will not recur in future.
18	7.58 to 7.60	The Committee are surprised to find that though there was dispute in establishing sul-

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		phur efficiency guarantee in February, 1970 due to difficulties in obtaining pyrites of 40 per cent S. grade, the FCI in December, 1970, with a trial appraisal conducted with 31 per cent S. grade ore considered that the contractor had been "deemed" to have met the guarantee performance. The Committee also find that there were several defects noticed in operating the plant during the guarantee performance tests and the contractor has agreed to carry out the modifications|rectification of the plant at his own cost, in terms of a protocol of an arrangement agreed in March, 1971 between the FCI and the contractor. The Committee are surprised to find that the full contractual liability under the terms of main contract had been finally discharged by means of protocol of 30th March, 1971, even without the Company ensuring that the defects in the Plant have been rectified to the satisfaction of the Management and the Plant is really capable of reaching its rated capacity. The Committee are also doubtful whether the amounts of compensation provided for under the protocol arrangements are adequate and in the best interest of FCI. The Committee would strongly urge that this matter should be thoroughly investigated and the responsibility for the lapses in the arrangement should be fixed. The Committee also urge that it should be ensured that all the defects in the Plant are set right and the Plant reaches its rated capacity on schedule.
19	7.73	It is needless for the Committee to point out that unless the cost of production of pyrites at Amjhore is brought down and the price at which the pyrites would be supplied by PPCL

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		to FCI settled, the economics of the Sulphuric Acid Plant at Sindri would continue to be precarious. The Committee note that the cost of production of sulphuric acid as estimated in August, 1964 was Rs. 144.65 per tonne, but the actual cost of production was as high as Rs. 427.17 per tonne from pyrites of 33 + 3 per cent S. grade ore and Rs. 380.15 per tonne from pyrites of 33 + 3 per cent S. grade ore. The actual cost was based on the assumption that in case (A) the cost of pyrites will be Rs. 150/- per tonne ex-Dehri-on-Sone excluding royalty and sales tax and in case (B) Rs. 200/- per tonne. Although the Mazumdar Award is there, the FCI has not accepted the basis on which PPCL is billing them. The Committee need hardly stress that Government should take decision as to which of the two grades of ore they would like Amjhore Mine to provide depending on the extent to which they are willing to bear the financial burden so that this issue of fixing a sale price is settled without loss of any further time.
20	8.5	The Committee find that although the Sulphuric Acid Plant was transferred *de facto* to the F.C.I. from 1st April, 1968, the *de jure* transfer has not yet been effected in spite of the fact that both the undertakings are under the administrative control of the same Ministry. The consequence of the non-acceptance of the Sulphuric Acid Plant by the F.C.I. *de jute* is that the operating results of the Sulphuric Acid Plant are neither reflected in the accounts of F.C.I. nor that of the P.P.C.L. The main reason for this delay seems to be the unwillingness of the F.C.I. to take over the plant because of the high cost of pyrites due to which the working of the sulphuric acid plant would be uneconomical resulting in loss to F.C.I. The Committee

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		were informed that the Government hope to take a decision in the matter after the receipt of the revised project report from the PPCL for the production of 900 tonnes of pyrites per day. The Committee desire that the Government should take a serious note of the present situation that because the cost of producing pyrites ore is very high, the F.C.I. is not prepared to pay that price. The Committee strongly urge that Government should find a way out immediately to resolve this problem to the mutual benefit of PPCL and FCI keeping in view the cost of the end product. The Committee recommend that the *de jure* transfer should also be effected soon to avoid legal and procedural difficulties in the present situation where the plant belongs *de facto* to F.C.I. and *de jure* to PPCL.
21	8.13	The Committee are distressed over the loss of Rs. 5.73 lakhs suffered due to deterioration of the stock of 5150 tonnes of B grade pyrites ore at the Dehri-on-Sone railway siding. The stock had accumulated at the railway siding because of the refusal of the FCI to accept the B grade ore, in spite of their acceptance in the meeting held in the Ministry in August, 1969. When the PPC were knowing that the acid plant was capable of operating on 40 per cent S. grade only, the PPC should have taken immediate action for the benefication of ore and despatched them rather than allowed them to remain. It is regrettable that instead of taking prompt action either to pursuade the FCI to accept B grade ore or to beneficiate it to improve its quality, as was done subsequently, the ore was allowed to accumulate at the railway siding resulting in its deterioration due to rain and other causes. The Committee desire that the reasons for this lapse should be

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		investigated and responsibility fixed. The Committee also urge that there should be a proper coordination between the two public undertakings in respect of production, off-take and transport of the pyrites and a firm agreement for the supplies finalised between the said undertakings, so that neither party fails to fulfil its obligations.
22	8.14	The Committee find that, as the issue price of pyrites ore has not yet been settled, the question as to who should bear the loss, the PPCL or the FCI is still under dispute. It is strange that while there has been a loss of Rs. 5.73 lakhs to the national exchequer, neither of the two Companies is prepared to accept it and it has not been shown in the accounts of either of them. The Committee desire that this matter should be settled expeditiously.
23	8.28	The Committee regret to note that up to 31st March, 1970, 6,791 tonnes of pyrites were found short on physical verification and 8,517 tonnes were considered unfit for use due to long storage, resulting in a loss of Rs. 34,28,992 which is unfortunately neither reflected in the accounts of the Pyrites, Phosphates and Chemicals Limited nor of the Fertilizer Corporation of India Limited. During 1971-72 also a shortage of 1964 tonnes was noticed at the time of physical verification of stock. The Committee also regret to find that during the transit of ore from Amjhore to Sindri some of the wagons were even found missing. The Commitee would like to be informed whether compensation has been obtained from the Railways for the loss of pyrites transported in wagons which were reported to be missing. The Committee also regret to note that there were large shortages in transit in the quan-

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		tity of ore in transit. However, it was not possible to lodge any claims with the Railways for shortages as there were no facilities for weighing the railway wagons either at Dehri-on-Sone or at Sindri and the receipts of the material were being recorded on the basis of R|R weights. The Committee have been informed that some steps have since been taken to avoid shortages both during transit and at the Plant site. The Committee hope that with the measures now introduced, the Company would ensure that loss due to shortages, deterioration of ore and other causes will be eliminated
24	8.44 and 8.45	The Committee note that in March, 1968, the Fertilizer Corporation of India Ltd. Sindri entered into a contract with Bulgarian firm for a Sulphuric Acid Plant at Sindri, based on pyrites. Since then, there had been frequent changes in the thinking both at the level of the Government and at that of the concerned Undertakings in regard to the setting up of this plant. The Committee are surprised that even though the percentage of sulphur content in the pyrites ore from Amjhore had been known at the time of entering into contract, "the contract for the plant was for a design to consume pyrites ore of 43 per cent S. grade" which was definitely beyond the capacity of the Amjhore mine. The Committee were informed that the decision to go in for the Bulgarian Sulphuric Acid Plant at 43 per cent S. grade ore was based on the information furnished by PPCL in May, 1967, that the PPCL would be able to supply 42.8 per cent S. grade ore. It was only, in March, 1968 that PPCL told FCI that the pyrites ore from the mine would be only 36 per cent S. grade. The Committee note that the Bulgarian plant suppliers were consulted on the possibility of using leaner pyrites, but they indicated that their operating experience was limited to use of pyrites with not less than 39 per cent sulphur and as such they

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		were not in a position to give any authentic data on performance guarantees on use of leaner ore in the roaster of their design. The Committee are surprised that in spite of this, it was decided to go ahead with this plant using the roasters with a mixed feed of sulphur and pyrites.
		The Committee deprecate the manner in which a decision was taken, based on incorrect information supplied by PPCL without a thorough and careful examination of the economics of the project from all aspects including the high cost the low quality of the Amjhore pyrites. The Committee strongly urge that this matter should be thoroughly investigated and responsibility for the lapses fixed. The Committee are doubtful whether the problem of disposal of cinders was adequately considered while taking the decision. The Committee would also urge that it should be ensured that pitfalls noticed in the Sinmon Carves Sulphuric Acid Plant at Sindri are not encountered again and the plant is able to give the guaranteed out-put.
25	9.11	The Committee find that the explanatory work done at Saladipura and the preliminary feasibilty study carried out by M/s. R.T.Z. Consultant Ltd. indicated that the Saladipura sulphide deposit was a major source of indigenous sulphur and if the mines could be developed the acid available would be of the order of 3 lakh tonnes in 1980 and 6 lakhs tonnes in 1982. The Committee also note that bulk samples of ores at Saladipura were of 23 per cent sulphur grade but could be beneficiated to 40 per cent. The Committee were also informed that the beneficiated ore and consequently the acid would cost more. The Committee stress that Government should undertake a thorough and critical techno-economic study of the Project so as to ensure that the shortcomings faced at Amjhore mines are not allowed to recur

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		at Saladipura. The Committee feel that the aim should be production of fertiliser at an economic price so that these become avilable to the cultivator at a competitive price.
26	9.12	The Committee would like to point out that the pyrites by its very nature is not suitable for haulage over a long distance. During transportation its quality gets deteriorated. The experience of Amjhore Pyrites being transported to Sindri has not been very happy. It is, therefore, admissible to locate a fertiliser complex, including sulphuric acid plant close to the mine site. The Committee hope that this aspect be kept in view when the Saladipura pyrites deposits are developed.
27	9.20	The Committee expect that the Company| Government would make a cautious approach towards the exploitation of the mines at Maldeota after assuring themselves of a regular off take of rock phosphate.
28	9.23	The Committee note that one of the objectives of the Company was raising, assembling and transporting of pyrites, phosphates and associated ores in such areas in India and elsewhere for sale or use and manufacture of sulphuric acid, phosphoric acid, phosphates and|or other products requiring such ores. The Committee regret to observe that PPCL has so far no perspective planning of taking over other phosphoric and pyrites mines in India and bringing them under their purview for development. The Committee recommend that the Government should examine the feasibility of drawing up a perspective plan for the development of these ores deposits in the country.
29	10.11	The Committee find that the inventory of raw materials and stores in terms of months consumption rose from 11 months in 1967-68 to 14

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		months in 1968-69 and 1969-70 and to 28 months in 1970-71. It has only slightly come down to 26 months in 1971-72. The Committee also note that the Company was carrying a large stock of slow moving and non-moving stores worth Rs. 12.83 lakhs even after disposal of stores amounting to Rs. 21.56 lakhs in 1971-72. The Committee were informed that surplus amounted to Rs. 13.95 lakhs as on 31-3-1972 consisting of spares for shuttle cars and loaders (Rs. 8.95 lakhs) and Steel and G. I. Pipes (Rs. 5 lakhs). The Committee have already commented upon in para 6.21 of this Report the purchase of key-mining equipment including shuttle cars and loaders in excess of requirements. The Committee feel that the spares for shuttle cars and loaders should have also been disposed of along with the machinery. The Committee desire that the Government should investigate the circumstances under which the purchases of stores especially spares and steel items had been made in excess of the requirements. The Committee also recommend that the scarce items like R. S. joints and G.I. pipes should be disposed of to other Public Undertakings where these may be in need.
30	10.12	The Committee regret to note that no effective steps have still been taken for a proper and scientific material management. The Company should streamline its purchase and procurement procedure so that purchases are not made in excess of requirements and inventory is not unduly loaded at any time. The Committee also recommend that there should be a regular and periodic review of the inventory with a view to identifying surplus stores and taking action for their disposal in time.
31	11.28	In spite of the recommendation of the Sales Price Committee and the award given by the Financial Adviser of the Ministry of Petroleum

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		& Chemicals about the sale price of ore, the two Public Undertakings, under the administrative control of the same Ministry, have not accepted the price fixed by the award. The Committee understand that this matter has again been referred to the Financial Adviser. The Committee are anxious that this matter should be settled quickly in the mutual interest of both, as it vitally affects the working results of both the Undertakings.
32	12.5	The Committee are surprised to find that in spite of the fact that a Director of the Fertiliser Corporation of India is the Chairman of the Pyrites Phosphates & Chemicals Ltd., there is lack of coordination between the two Public Undertakings and many points of dispute exist between them vitally affecting the working of the P.P.C.L. It only goes to prove the apprehension of the Committee that a part-time Chairman is not of much functional value. The Committee would urge that the Government should review the position and combine the post of Chairman and Managing Director in P.P.C.L. This would also be in consonance with the recommedations of the Administrative Reforms Commission which had been accepted by the Government.
33	12.6	The Committee note that at present the Chief Mining Engineer, Amjhore Mines is also performing the duties of the Managing Director. Needless to say that in an organisation like the P.P.C.L. which has its projects spread over in three different States, the Managing Director has to perform onerous duties and it is too much to expect the Chief Mining Engineer to do justice to his duties both as the Chief Mining Engineer and the Managing Director. It is unfortunate, the Government have not filled up the post of the Managing Director on a regular basis for over one year. The Committee hope that the

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		Government would soon appoint a person to perform exclusively the duties of the Chairman-*cum*-Managing Director, so that undivided attention may be given for the improvement of the undertaking.
34	12.22 to 12.24	The Committee find that as per the Detailed Project Report the total number of staff required for the production of 800 tonnes per day was 240. As against this the actual number of persons employed as on 31-3-72 was 404. It has been stated that the DPR did not contain provision for certain categories of staff like transport, head-office etc. The Committee find that even taking into consideration the categories of staff not included in the DPR, the total staff strength would work out to 519. As against this, the organisational chart prepared by the Management envisaged requirement of staff strength as 613 for the production of 800 tonnes per day and for Phase-I the recommended staff strength was 508. The actual staff strength as on 31-3-1972 works out to 73 per cent of the total staff provided even in the organisational chart. In the case of daily rated workers also the number of persons employed was 72 per cent of the total workers assessed by the Sale Price Committee for Phase-I. On the other hand, the production was only 29 per cent of the production envisaged in Phase-I. It has been stated that it is essential to hove certain percentage of staff irrespective of rate of production. The Committee, however, feel that even taking into consideration this aspect, the staff was much in excess of requirements keeping in view the low production at present. It was admitted by the representative of the Ministry during evidence that there were 92 workmen 'who are deemed to be permanently surplus of requirements.' The Committee would urge that the reasons for such over-staffing

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		should be investigated and it should be ensured that over-staffing is avoided in the interest of efficiency and bringing down the cost of production. The Committee hope that the staff strength would be readjusted keeping in view the recommendations of the proposed study by the Administrative Staff College, Hyderabad. The Committee also suggest that there should be a cell in the Company to carry out the work study at periodical intervals and the staff should be deployed in various jobs taking into account the reports of such works study. The representative of the Ministry assured the Committee during evidence that efforts were being made to re-locate the surplus staff in other public sector projects. The Committee strongly urge that the Government and the Undertaking should give earnest attention to this problem and make suitable arrangements for the absorption of surplus personnel.
35	12.30	The Committee note that the actual production per man since the commencement of production in the PPCL has been much below than what was envisaged in the Detailed Project Report and also lower than what was even envisaged in the revised Phase-I programme The reasons for this are stated to be excessive staff including daily rated workers and the decision to scale down the production to 1.2 lakh tons in Phase-I. The Committee were informed that no scientific study was made while determining the production per man. The Committee need hardly stress that low productivity results in high cost of production affecting not only the working results of the PPCL but also the economics of the working of the Sulphuric Acid Plant. The Committee, therefore, urge that effective steps should be taken to improve the efficiency and increase

(1)	(2)	(3)
		productivity with a view to ensuring an economic price for the ore and for the acid.
36	12.32	The Committee feel that lack of adequate housing facilities and suitable means of transport for the workers to enable them to reach the mine adits has to some extent affected the efficiency in the working of the mines. The Committee would, therefore, like Government|Undertaking to give a serious thought to this problem and take concrete measures to provide the necessary housing and transport facilities to the workers.
37	13.20 to 13.22	The Committee are concerned to note that the Amjhore mines have not been able to produce the requisite type of pyrites ore (40 per cent S. grade quality), on which the Sulphuric Acid Plant of Sindri was based. The cost of conversion of the 33 + 3 per cent ore by beneficiation for supply to the Sindri Plant is also prohibitive. As a result, the entire project of mining of pyrites and then producing sulphuric acid out of it, has run into difficulties. The choice is either to use lean pyrite with elemental sulphur or to bene ficiate pyrites. The cost of production of pyrites ore at Amjhore mines has also been very high. Even assuming that the plant is able to produce ore of 33 + 3 per cent S. Grade ore at this cost and the roasters|plants are suitably modified to use 30-36 per cent S. Grade for producing acid to full capacity, the cost of production of sulphuric acid would come to Rs. 283 per tonne as against the cost of Rs. 196 per tonne with elemental sulphur and Rs. 253 per tonne with mixing sulphur and pyrites. However, before deciding on any of the alternatives, the production capacity of the Amjhore mines and the extent of foreign exchange required for import

(1)	(2)	(3)
		of sulphur will have to be taken into consideration.
		For the manufacture of fertilizer, the pyrites based plants have to incur additional expense on account of increased capital cost and operating cost compared to sulphur based plants and unless raw materials were available to the plant at reasonable prices, it would not be possible for the plant to compete in fertilizer market with other plants based on imported raw materials.
		The Committee were informed that until the Simon Carves Plant and the Bulgarian Plant go into production to achieve 1200 tonnes of acid per day, the cost of ore/acid cannot be lower. The Committee, therefore, recommend that Government should ensure that two acid plants are fully commissioned according to revised schedule so that the off-take from the Amjhore Mine may improve and the cost of production reduced.
38	13.23	The Committee also recommend that the economics of the alternatives for use of the Amjhore ore should be critically examined and a final decision arrived at. Government should also take steps to fix the cost of pyrites ore to the mutual benefit of PPCL and FCI.
39	13.33	The Committee are distressed to note that the Company had suffered a loss of Rs. 126.26 lakhs upto 31st March, 1972 which comes to more than 20 per cent of the paid up capital. The loss would be still more if the losses on account of shortages and deterioration of pyrites or the loss, if any, which may arise on account of final sale price of the ore, are taken into consideration. There was also an expenditure of Rs. 6.39 lakhs incurred on the proposed elemental sulphur plant which is to be ultimately written off and thereby increase further the loss of the Company. The Committee would urge that immediate steps

(1)	(2)	(3)
		should be taken by the Management/Government to accelerate the production in the two Sulphuric Acid Plants, as scheduled in April, 1973 and 1974 respectively, so that the rate of production at the Amjhore mines could be increased so as to check the mounting losses of the Company and to ensure that it remains a viable economic entity rather than becoming a burden on the national exchequer.
40	13.37	The Committee regret to note the several deficiencies in the costing system followed by the Company. There is no system of making analysis of idle time of labour and machinery. No analysis of expenditure was also being made into direct and indirect cost etc. to exercise proper control over expenditure. The Committee are surprised as to how any cost control was being exercised by the Management in the absence of such basic information. The Committee would urge that steps should be taken by management to put the costing system on a sound basis to exercise more effective and close control over expenditure.
41	13.42	The Committee regret to note that though it is now more than 4 years since internal audit was introduced, the Company has not finalised an Internal Audit Manual nor defined the scope of work of the Internal Audit. The Committee recommend that in order that Internal Audit be really helpful to the Top Management, the Company should locate 'Internal Audit' as far as possible in Project site or nearer to it. The Committee also recommend that Internal Audit Cell should be activised so that all the aspects of working of the Company may be brought under their purview for a thorough check.
42	13.46	The Committee note that necessary action has since been taken to compile an Accounting

(1)	(2)	(3)
		Manual for the use of officers of the Company and the Committee hope that it would be ready as scheduled.
43	13.55	The Committee regret to note that the low production in the Amjhore mines not only resulted in non-utilisation of the imported key-mining equipment but also in extra expenditure of Rs. 2.77 lakhs (till November, 1970) on electricity charges on account of the actual off-take energy being far below the contracted demand. The Committee desire that the Company should take immediate steps to work out the minimum requirements of power on a realistic basis and enter into an agreement with the Bihar State Electricity Board so as to avoid payment of electricity charges in excess of actual consumption.

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